



Crisis Standards of Care

A Systems Framework for
Catastrophic Disaster Response

Introduction and CSC Framework

INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

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A Systems Framework for Catastrophic Disaster Response

Volume 1: Introduction and CSC Framework

Committee on Guidance for Establishing Standards of Care for Use in Disaster Situations

Board on Health Sciences Policy

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Willing is not enough; we must do.”*

—Goethe



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its release. The review of this report was overseen by **Dr. Georges Benjamin**, American Public Health Association. Appointed by the Institute of Medicine, he was responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authoring committee and the institution.



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Acronyms

AHRQ	Agency for Healthcare Research and Quality
AMA	American Medical Association
APHA	American Public Health Association
ASPR	Assistant Secretary for Preparedness and Response
ASTHO	Association of State and Territorial Health Officials
CDC	Centers for Disease Control and Prevention
CONOPS	concept of operations
CSC	crisis standards of care
DHS	Department of Homeland Security
DOD	Department of Defense
EMAC	Emergency Management Assistance Compact
EMS	emergency medical services
EMTALA	Emergency Medical Treatment and Active Labor Act
EOC	emergency operations center
EUA	emergency use authorization
FDA	Food and Drug Administration
HCC	health care coalition
HCF	health care facility
HCPHES	Harris County Public Health and Environmental Services
HHS	Department of Health and Human Services
HICS	hospital incident command system
HIPAA	Health Insurance Portability and Accountability Act
HPP	Hospital Preparedness Program

ICU	intensive care unit
IOM	Institute of Medicine
MAC	medical advisory committee
MCE	mass casualty event
MEMS	Modular Emergency Medical System
MIMAL	Model Intrastate Mutual Aid Legislation
MOU	memorandum of understanding
MRC	Medical Reserve Corps
MSCC	Medical Surge Capacity and Capability
MSEHPA	Model State Emergency Health Powers Act
NACCHO	National Association of County and City Health Officials
NCCUSL	National Conference of Commissioners on Uniform State Laws
NDMS	National Disaster Medical System
NIMS	National Incident Management System
NLE	National Level Exercise
NRF	National Response Framework
NSAID	nonsteroidal anti-inflammatory drug
OSHA	Occupational Safety and Health Administration
PACU	postanesthesia care unit
PC	palliative care
PHEP	Public Health Emergency Preparedness
PPE	personal protective equipment
PREP	Public Readiness and Emergency Preparedness
PTSD	posttraumatic stress disorder
RDMAC	regional disaster medical advisory committee
RMCC	regional medical coordination center
SARS	severe acute respiratory syndrome
SDMAC	state disaster medical advisory committee
SNS	Strategic National Stockpile
SOFA	Sequential Organ Failure Assessment
UEVHPA	Uniform Emergency Volunteer Health Practitioners Act
VA	Department of Veterans Affairs
VHP	volunteer health practitioner
VPA	Volunteer Protection Act

Volume 1

Summary

Catastrophic disasters occurring in 2011 in the United States and worldwide—from the tornado in Joplin, Missouri, to the earthquake and tsunami in Japan, to the earthquake in New Zealand—have demonstrated that even prepared communities can be overwhelmed. In 2009, at the height of the influenza A (H1N1) pandemic, the Assistant Secretary for Preparedness and Response (ASPR) at the Department of Health and Human Services (HHS) asked the Institute of Medicine (IOM) to convene a committee of experts to develop national guidance for use by state and local public health officials and health-sector agencies and institutions in establishing and implementing standards of care that should apply in disaster situations—both naturally occurring and manmade—under conditions of scarce resources.

In its letter report, released the same year, the Committee on Guidance for Establishing Standards of Care for Use in Disaster Situations defined these “crisis standards of care” (CSC) to be a “substantial change in the usual health care operations and the level of care it is possible to deliver . . . justified by specific circumstances and . . . formally declared by a state government in recognition that crisis operations will be in effect for a sustained period” (IOM, 2009, p. 3). CSC, planned and implemented in accordance with ethical values, are necessary for the allocation of scarce resources. Public health disasters justify temporarily adjusting practice standards and/or shifting the balance of ethical concerns to emphasize the needs of the community rather than the needs of individuals. Therefore, professional care delivered in a catastrophic disaster may need to be modified to address the demands of the situation, including by focusing more intently on the needs of the entire affected community.

The committee’s 2009 letter report also enumerated five key elements that should underlie all CSC plans:

- a strong ethical grounding that enables a process deemed equitable based on its transparency, consistency, proportionality, and accountability;
- integrated and ongoing community and provider engagement, education, and communication;
- the necessary legal authority and legal environment in which CSC can be ethically and optimally implemented;
- clear indicators, triggers, and lines of responsibility; and
- evidence-based clinical processes and operations.

Following publication of the 2009 letter report, ASPR, the Department of Veterans Affairs, and the National Highway Traffic Safety Administration requested that the IOM reconvene the committee to conduct phase two of the study, which involved building on that report, examining its impact, and developing templates to guide the efforts of individuals and organizations responsible for CSC planning and implementation. The committee also was charged with identifying metrics to assess the development of crisis standards of care protocols and developing a set of tools for use at the state and local levels in engaging the public as a necessary step in the development of CSC plans.

REPORT DESIGN AND ORGANIZATION

This report has a functional format and design that reflect its purpose of providing a resource manual for all stakeholders involved in a disaster response. It is organized as a series of stand-alone resources for ease of use and reference. The first volume includes Chapters 1 through 4. Chapter 1 provides an introduction to the report, including a summary of key elements of CSC identified in the committee's 2009 letter report, the recommendations from that report, and discussion of the report's impact as essential context for phase two of the committee's work. The next three chapters establish a framework for a systems approach to the development and implementation of CSC plans (Chapter 2), and address the legal issues (Chapter 3) and the ethical, palliative care, and mental health issues (Chapter 4) that agencies and organizations at each level of a disaster response should address.

The next four chapters are bound as separate volumes, each aimed at a key stakeholder group—state and local governments (Chapter 5), emergency medical services (EMS) (Chapter 6), hospitals and acute care facilities (Chapter 7), and out-of-hospital and alternate care systems (Chapter 8). The text of the chapters defines the roles and responsibilities of these stakeholders, describes operational considerations associated with their development and implementation of CSC plans, and provides brief descriptions of templates that outline the specific functions and tasks for each stakeholder when allocating scarce resources in response to a disaster. The templates are easily located at the end of each chapter by the red bar that runs the length of each page.

Chapter 9, again published as a separate volume, includes a brief description of the committee's work to design the public engagement toolkit and the tools themselves.¹

The final volume of the report consists of six appendixes: a glossary of terms used in the report (Appendix A), a sample hospital CSC plan (Appendix B), a listing of potentially scarce medical resources (Appendix C), a listing of resource challenges by disaster type (Appendix D), the committee's statement of task (Appendix E), and biographical sketches of the committee members (Appendix F).

FRAMEWORK FOR A SYSTEMS APPROACH TO CRISIS STANDARDS OF CARE

CSC are just one aspect of broader disaster planning and response efforts; they are a mechanism for responding to situations in which the demand on needed resources far exceeds the resources' availability. A systems

¹ The templates in Chapters 5-8 and the public engagement toolkit can also be downloaded via the project's website: <http://iom.edu/Activities/PublicHealth/DisasterCareStandards.aspx>.

approach to disaster planning and response is therefore required to integrate all of the values and response capabilities necessary to achieve the best outcomes for the community as a whole.

Successful disaster response depends on coordination and integration across the full system of the key stakeholder groups: state and local governments, EMS, public health, emergency management, hospital facilities, and the outpatient sector. Vertical integration among agencies at the federal, state, and local levels also is crucial. At the cornerstone of this coordination and integration is a foundation of ethical obligations—the values that do not change even when resources are scarce—and the legal authorities and regulatory environment that allow for shifts in expectations of the best possible care based on the context of the disaster in which that care is being provided.

Conceptualizing a Systems Approach to Disaster Response

This section broadly outlines a systems framework for disaster response of which CSC is only one, albeit a critical, aspect. However, the development and implementation of CSC plans are the means to mount a response to an incident that far exceeds the usual health and medical capacity and capabilities. Therefore, the same elements that come together to build any successful disaster response should also be used to develop robust CSC plans and guide their implementation.

A systems approach is defined as a “management strategy that recognizes that disparate components must be viewed as interrelated components of a single system, and so employs specific methods to achieve and maintain the overarching system. These methods include the use of standardized structure and processes and foundational knowledge and concepts in the conduct of all related activities” (George Washington University Institute for Crisis, Disaster and Risk Management, 2009, p. 59).

The systems framework that the committee believes should inform the development and implementation of CSC plans (see Figure 2-1) is based on the five key elements of planning set forth in the 2009 letter report. These key elements served as the starting point for the development of the committee’s recommendations in that report and are foundational for all disaster response planning.

The two cornerstones for the foundation of this framework are the ethical considerations that govern planning and implementation and the legal authority and legal environment within which plans are developed. Ethical decision making is of paramount importance in the planning for and response to disasters. Without it, the system fails to meet the needs of the community and ceases to be fair, just, and equitable. As a result, trust—in professionals, institutions, government, and leadership—is quickly lost. The legal authority and legal environment within which CSC plans are the other cornerstone of the framework’s foundation. The legal authority and environment support the necessary and appropriate actions in response to a disaster. Between those two cornerstones of the foundation are the *steps* needed to ensure that the development and implementation of CSC plans occur. They include provider and *community engagement* efforts, development of a process that permits individual communities to identify regionally coordinated and consistent *indicators* that denote a change in the usual manner of health care delivery during a disaster, and the *triggers* that must be activated in order to implement CSC. These lead to the top step, the *implementation of clinical processes and operations* that support the disaster response. All of these efforts are supported and sustained by an ongoing *performance improvement* process, an important element of any systems approach to monitor demand (ensuring situational awareness), evaluate the impact of implementation actions, and establish/share best

practices. This process includes education of and information sharing among organizations and individuals responsible for both the planning and response phases of a disaster.

The *pillars* of medical surge response—hospital and outpatient medical care; public health; EMS; and emergency management/public safety agencies, organizations, and authorities—stand on this strong base. Each of these pillars is an element of the disaster response system, representing a distinct discipline, but all need to be well integrated to ensure a unified disaster response. One acting independently of the others may delay, deter, and even disrupt the delivery of medical care in a disaster. Many of these disciplines work together during daily operations. For example, EMS transports bridge the outpatient and hospital communities, public health bridges the public safety and hospital communities, and emergency management bridges the hospital and public health communities. But rarely, and in few communities, do all of these response elements come together in a manner that can ensure oversight and care for an overwhelming number of disaster victims. The more complex and dynamic the incident, the more important strong and effective coordination and integration among the pillars becomes, as emphasized by a systems approach. Priorities and objectives should be shared across the entire system to inform the development of unified strategies and the coordinated tactics required to implement them. Applying National Incident Management System/National Response Framework principles and systems can help improve coordination and ensure the desired outcomes.

Atop the pillars are local, state, and federal *government functions*. Government at all three levels has an overarching responsibility for the development, institution, and proper execution of CSC plans, policies, protocols, and procedures. Good governance encompasses the functions of monitoring and evaluation, as well as accountability and meaningful contributions to policy development (Gostin and Powers, 2006). These functions are especially important in developing plans related to incidents in which the confidence of the public in government institutions may come into question, and the risk of cascading failures and multi-sector disruption, exacerbated by a lack of coordinated response, can mean the difference between thousands of lives lost and saved.

Milestones to Guide CSC Planning

To ensure that this systems coordination and integration occur, the committee offers specific milestones, enumerated in Box S-1. This systems approach to CSC, and disaster response more generally, provides the context for this report. It balances the specific functions and tasks of each stakeholder group, but also provides a structure for coordinating and integrating their operations to enable a more flexible and dynamic overall response effort while still emphasizing a robust, efficient chain of command.

LEGAL ISSUES

An array of relevant legal issues should be identified and addressed before disaster strikes. For example, states should evaluate what legal liability protections are in place for their health care workers, volunteers, and health care coalitions, and should determine whether these protections are sufficient or require augmentation. Health care personnel and entities, too, should understand what protections are available to them and

BOX S-1
Milestones for Planning and Implementation
for Crisis Standards of Care^a

1. Establish a State Disaster Medical Advisory Committee.^b
2. Ensure the development of a legal framework for CSC implementation.
3. Promote understanding of the disaster response framework among elected officials and senior (cabinet-level) state and local government leadership.
4. Develop a state health and medical approach to CSC planning that can be adopted at the regional/local level by existing health care coalitions, emergency response systems (including the Regional Disaster Medical Advisory Committee),^c and health care providers.
5. Engage health care providers and professional associations by increasing their awareness and understanding of the importance and development of a CSC framework.
6. Encourage participation of the outpatient medical community in planning.
7. Ensure that local and state CSC plans include clear provisions that permit adaptation of EMS systems under disaster response conditions.
8. Develop and conduct public community engagement sessions on the issue of CSC.
9. Support surge capacity and capability planning for health care facilities and the health care and public health systems.
10. Plan for an alternate care system capability.
11. Support scarce resource planning by the RDMAC (if developed) for health care facilities and the health care system.
12. Incorporate crisis/emergency risk communication strategies into CSC plans.
13. Exercise CSC plans at the local/regional and interstate levels.
14. Refine plans based on information obtained through provider engagement, public/community engagement and exercises, and real-life events.
15. Develop a process for continuous assessment of disaster response capabilities.

^a Given the variability in both how state and local agencies are organized, CSC planning and potential activation will need to take into account varying structures and relationships of governments across states and localities throughout the United States.

^b See Appendix A, Volume 7 for definition.

^c See Appendix A, Volume 7 for definition.

the fact that these may be role and location dependent. The potential complexity and consequences of the financing and reimbursement of disaster response efforts also should be understood and addressed within and between communities. Thorough comprehension of these legal issues among relevant response stakeholders is crucial to their being resolved prior to a disaster—an opportunity not always afforded for other issues and challenges involved in CSC implementation. In considering the legal environment in a CSC situation, policy makers at all levels must insist that professionals act professionally. There is never a justification for careless decision making or willful misconduct, especially in the setting of a disaster response, when patients are at their most vulnerable.

CROSS-CUTTING ISSUES: ETHICS, PALLIATIVE CARE, AND MENTAL HEALTH

A number of issues are relevant to all four stakeholder groups—governments, EMS, health care facilities, and out-of-hospital and alternate care systems—with roles in the development and implementation of CSC plans. These cross-cutting issues, reviewed briefly below, are incorporated into the guidance and templates provided in this report for each stakeholder group.

Ethics

Plans and protocols that shift desired patient care outcomes from the individual to the population must be grounded in the ethical allocation of resources, which ensures fairness to everyone. Developing consensus on what a reasonable health care practitioner would do in the event of a disaster will facilitate the transition from conventional to contingency and crisis response during such an incident.² The emphasis in a public health emergency must be on improving and maximizing the population's health while tending to the needs of patients within the constraints of resource limitations.

With respect to fairness, an ethical policy does not require that all persons be treated in an identical fashion, but does require that differences in treatment be based on appropriate differences among individuals. If particular groups receive favorable treatment, such as in access to vaccines, this priority should stem from such relevant factors as greater exposure or vulnerability and/or promote important community goals, such as helping first responders or other key personnel stay at work. Policies should account for the needs of the most at risk and support the equitable and just distribution of scarce goods and resources.

Implementation of CSC should ideally facilitate the delivery of care to patients to the extent possible by allocating resources to those who are most likely to benefit. The implementation of CSC should ultimately bring better care to more patients and a more equitable distribution of resources to those most likely to benefit. The needs of all potentially affected populations must be addressed to ensure fair and equitable plans. Particular attention should also be paid to the needs of the most at-risk and marginalized people, such as the poor and those with mental or physical disabilities.

Ultimately, the committee's understanding of CSC implementation is within the context of supporting public health efforts through fair and rational processes. The committee's 2009 letter report outlined an ethical approach to guide CSC planning and responses, and the committee continues to emphasize the importance of an ethical foundation for the fair allocation of scarce medical, public health, and relevant community resources (see previous key principles).

The ethical basis for CSC planning has particular implications for policy decisions regarding the allocation of scarce resources. Community engagement in the assessment of ethical values that underlie such decisions can help ensure that the decisions are aligned with community values and that those values are integrated by agencies responsible for developing CSC plans where appropriate. The key elements in plan-

² The surge capacity following a mass casualty incident falls into three basic categories, depending on the magnitude of the incident: conventional, contingency, and crisis. These categories also represent a corresponding continuum of patient care delivered during a disaster. As the imbalance increases between resource availability and demand, health care—emblematic of the health care system as a whole—maximizes conventional capacity; then moves into contingency; and, once that capacity is maximized, moves finally into crisis capacity. A crisis situation may lead to an overwhelming demand for services and result in shortages of equipment, supplies, pharmaceuticals, personnel, and other critical resources, necessitating operational adjustments.

ning and implementing CSC are particularly relevant to ensuring fair access to resources by disadvantaged or at-risk populations. As a general matter, ethical values do not constitute a process for determining what is the most “ethical” course of action. However, a clear grasp of those values helps policy makers and the public determine which options are within the bounds of ethically viable choices. Moreover, an understanding of ethical values often can illuminate clearly wrong decisions, such as those that would place an unreasonably high share of the burden on a single population (e.g., the elderly, the disabled, the uninsured). Therefore, the committee offers guidance on how to adjust clinical practice in the face of severe resource deficits in a manner consistent with ethically valid goals and desired outcomes using a population-based approach.

Palliative Care

Providing palliative care is an important ethical and medical imperative and, especially with regard to end-of-life care, should include a holistic and humane approach to CSC implementation. Setting the expectation that all patients will receive *some* care, regardless of the availability or scarcity of resources, is an important component of CSC efforts. Incorporating into CSC planning the capabilities necessary to provide palliative care assures the public that even when curative acute care cannot be provided, every attempt to offer pain management and comfort care to disaster victims will be made, even if comfort care may mean nonpharmaceutical interventions such as holding a hand or offering words of comfort.

Mental Health

The social consequences of a disaster and the need to implement CSC will certainly impact the mental health of patients, their families, health care providers, and the general public. The very real potential for mass fatalities during such an incident will undoubtedly tax the system as a whole and exacerbate mental health issues at a population level. Setting appropriate expectations and planning for mental health resilience are important considerations at each level of response by all of the stakeholders developing and implementing CSC plans. While addressing mental health issues is challenging, there are unique opportunities to mitigate mental health impacts by incorporating mental health and resilience provisions into the preparedness, response, and recovery components of CSC planning.

GOVERNMENTS

A systems approach to disaster response requires that federal, state, and local governments work together to plan and implement CSC, even though each level of government has specific and differing authorities and access to resources.

Federal Government

The federal government should continue to provide leadership in supporting and encouraging the establishment of guidelines for CSC for use in disaster situations at the state and local levels, whether through direct contact with public health departments and other relevant stakeholders or through the relevant state

governors' offices. These efforts should emphasize the importance of coordinating such planning within the larger context of surge capacity planning, all as part of a disaster response framework. Inclusion of specific language in the HHS Hospital Preparedness Program and the Centers for Disease Control and Prevention's Public Health Emergency Preparedness cooperative agreements is the best means of ensuring continued emphasis on this planning. In addition, agencies such as the Centers for Medicare & Medicaid Services are important because of their capacity to influence provider practice, reimbursement, and waivers. Finally agencies such as the the Department of Homeland Security, the Department of Defense, the Department of Transportation, and the Department of Veterans Affairs have relevant grant programs that should include funding opportunities for the planning and implementation of CSC. The federal government can positively influence state government planning, and in the context of the framework established, must be the ultimate driver behind such efforts.

State Government³

Emergencies rising to a level that necessitates CSC generally are expected to be multijurisdictional, state-wide, or even multistate events that entail various local, regional, state, and federal roles and authorities. Therefore, considerable state-level coordination with intra- and interstate as well as federal partners is essential. As recommended in the committee's 2009 letter report, states in particular should lead the development and implementation of CSC protocols "both within the state and through work with neighboring states, in collaboration with their partners in the public and private sectors" (IOM, 2009, p. 4). Depending on the specific nature of the incident, various state agencies, as well as private health care entities, should be involved in CSC planning and response activities because no single agency or health or emergency response entity alone can be expected to handle the challenges presented by a CSC incident. Variations in state agency structures and authorities will often dictate emergency response leadership roles. Therefore, states should have the flexibility to develop the organizational structure for CSC planning and implementation that makes the most sense for them. Recognizing that a variety of state agencies and leaders will have pivotal CSC roles, however, the state health department is fundamentally the most appropriate agency to lead and coordinate CSC planning and implementation at the state level and to advise state leadership on CSC issues.

Local Government

When considering the role of local government in CSC efforts, it is important to remember that, based on how states are structured constitutionally and functionally, vastly different local government structures and relationships exist from state to state. Despite these variations, however, the role of local government in CSC planning and implementation remains crucial. Even though a CSC incident may be widespread and require a systems approach that involves coordinating with all providers and across all levels of government, especially as the geographic area of impact increases, all disasters are ultimately local. At some point, the state CSC plan will need to be incorporated into or adapted for local planning efforts (e.g., development of the health and medical annex of the local emergency operations plan) and will help guide local activities during the response to a catastrophic disaster response.

³ For the purposes of this report, the term "states" encompasses states, tribal jurisdictions, and territories.

Local political leaders (e.g., mayor, county executive) and agency leadership also will be involved in local decision making and resource requests during a CSC emergency. This means that local CSC coordination, consistent with state planning and response actions, is critical to achieving the envisioned systems-based CSC response. Local governments are uniquely positioned in the organizational structure of states to intersect with both state government partners and the communities in their local jurisdiction(s). Therefore, the involvement of both state and local government leadership is paramount to ensuring that CSC planning and implementation occur. This is especially true because public health and government EMS agencies operate under the direct auspices of state and local government authority. Addressing CSC planning outside of the governmental sphere, especially in the private health care sector, is more difficult. In this regard, emphasis on the importance of a systems approach to CSC planning ensures unified efforts, particularly with respect to the consistency of plan development and implementation.

PREHOSPITAL CARE: EMERGENCY MEDICAL SERVICES

State EMS offices and prehospital care agencies should be actively engaged in the development and implementation of CSC plans. Adjustments to scopes of practice, treatment modalities, and ambulance staffing and call response will all figure significantly into state, local, and EMS agency-specific disaster response plans. Other areas that can be leveraged to maximize scarce EMS resources include the authority to activate restricted treatment and transport protocols, which may entail modifying the emergency medical dispatch criteria implemented at public safety answering points (i.e., 911 call centers). CSC planning should be integrated with the efforts of public health planners to ensure consideration of case management (advice line) call centers, poison control, use of alternate care system destination points for ambulance patients, and limitation of care to on-scene treatment without transport. It should also be recognized that much EMS activity in the United States is volunteer based and occurs in rural communities, where resources often are limited on a regular, ongoing basis. These limitations should be addressed through the incorporation of EMS-specific disaster response and CSC plans into relevant disaster preparedness grant guidance.

In this context, an important factor in operationalizing the CSC framework set forth in the committee's 2009 letter report and reiterated in Chapter 2 of this report is specific enumeration of EMS roles, responsibilities, and actions in CSC plans. Accordingly, the state agency taking the lead role in coordinating a systems-based catastrophic disaster response should establish consistent triggers and thresholds that indicate the transition from conventional to contingency to crisis care, define a clear mechanism for authorizing CSC activation, provide liability protection for EMS personnel and altered modes of transportation, coordinate emergency operations across the affected region, and address reimbursement issues directly. While standardizing this planning will contribute to consistency in implementing CSC, the different environments in which EMS operates also should be taken into account.

HOSPITALS AND ACUTE CARE FACILITIES

Clinical operations in hospitals, ambulatory care clinics, and private practices make up the largest single element of the response framework in which CSC will be implemented. Implementation of CSC in the hospital setting will occur through the use of a clinical care committee at each hospital, along with a bi-

directional reporting mechanism with state and local governments. Therefore, careful planning is required at both at the local and regional levels, including plans to ensure intraregional coordination and cooperation. Consistent with the Hospital Preparedness Program and Public Health Emergency Preparedness cooperative agreements, disaster response plans should delineate protocols for a shift from the conventional standard of care to ensure that essential health care services will be sustained during the response. CSC plans will be implemented under conditions in which the usual safeguards may not be possible and when resources will be insufficient to allow for the delivery of care under usual operating conditions. It is assumed that under catastrophic disaster response conditions, resources are unavailable or undeliverable to health care facilities from elsewhere in the region or state; similar strategies are being invoked by other health care delivery systems; and patient transfer to other facilities is not possible or feasible, at least not in the short term. Furthermore, it is recognized that access to key medical countermeasures (e.g., vaccines, medications, antidotes, blood products) is likely to be limited, and these resources should be delivered to patients using guidance that aims to optimize benefits and minimize potential harms. It is also assumed that available local, regional, state, and federal resource caches (of key equipment, supplies, and pharmaceuticals) have already been distributed, and no short-term resupply of such stocks is foreseeable.

Although hospitals providing acute care to the community are the focus of this discussion, other health care facilities—such as free-standing surgery centers, urgent care facilities, ambulatory clinics, free-standing emergency departments, nursing homes, federally qualified health centers, and other facilities that can be adapted to provide acute or critical care—can play key roles in a surge response and should be included in planning for and implementation of CSC. All health care facilities providing acute medical care to the community have a “duty to plan” for mass casualty and catastrophic disaster incidents, including planning for the expansion of clinical operations. Hospitals should examine their hazard vulnerability analysis and ensure that they are as prepared as possible for the hazards affecting their community, including the ability to operate as autonomously as possible for up to 96 hours (Joint Commission emergency medicine standards), or more if the risk of isolation of the facility is high. The importance of conducting exercises in crisis situations, from the provider to the incident command level, cannot be overemphasized.

The goal of incident management in situations involving mass casualties or catastrophic failure of critical infrastructure is to get the right resources to the right place at the right time. This may involve anticipating shortfalls, adapting responses, partnering with other stakeholder agencies to provide alternate care sites for patient volumes that cannot be accommodated within the usual medical facilities, and other strategies. Therefore, a regionally coordinated response is imperative to facilitate consistent standards of care within all affected communities after a disaster. Regional coordination enables the optimal use of available resources; facilitates obtaining and distributing resources; and provides a mechanism for policy development and situational awareness that is critical to avoiding crisis situations and, when a crisis does occur, ensuring fair and consistent use of resources to provide a uniform level of care across the region.

OUT-OF-HOSPITAL AND ALTERNATE CARE SYSTEMS

While much of disaster and surge capacity planning focuses on hospital-based care, approximately 89 percent of health care is delivered in outpatient settings (Hall et al., 2010; Schappert and Rechtsteiner, 2011). Especially during an epidemic, failure to leverage outpatient resources may result in catastrophic overload of inpatient and hospital-affiliated resources. For this reason, efforts to improve the integration of outpatient care assets into disaster response are critical, not only to ensure the provision of crisis care but also to *avoid* crisis care. However, the value of the outpatient sector—its diversity—is also its challenge: the numbers and varying types of clinics and providers in a given area (in addition to long-term care, outpatient surgery, and other medical facilities) hamper detailed coordinated planning. Unlike other emergency response entities (e.g., municipal or county-run EMS), private health care facilities and providers cannot simply be “assigned” by public health officials to develop outpatient surge capacity, and private health care cannot assume that public health can provide the clinical leadership or resources (especially medical providers) needed to establish effective alternate care systems. Both have a joint responsibility for and distinct but equally necessary roles in efforts to advance outpatient CSC planning to ensure that the health care goals of catastrophic disaster response can be accomplished through coordinated efforts.

PUBLIC ENGAGEMENT

The committee’s 2009 letter report highlighted meaningful public engagement as one of the five key elements of CSC planning. Policy makers should involve the public in a structured dialogue about the implications and likelihood of having to allocate health care delivery and essential vaccines or medicines ethically in the event of a catastrophic disaster. To facilitate this involvement, the committee developed a public engagement toolkit. This resource should support CSC planning efforts by enabling state and local health departments and other interested planners to initiate conversations with the community regarding these difficult issues. Community engagement probably is best timed to start after the planning teams (the state and regional disaster medical advisory committees) have had an opportunity to consider all of the pertinent issues and draft a plan, but before a plan is finalized.

RECOMMENDATION

To enhance and elaborate on the recommendations from its 2009 letter report, which it still fully supports, the committee developed a set of templates identifying the core functions and tasks for individuals and organizations involved in CSC planning and implementation. In developing these resources, the committee emphasized the use of a systems approach that integrates CSC planning into the larger context of overall surge capacity planning. The entire emergency response system—each component acting both independently and as part of a coherent and integrated group—should adopt such a framework to deliver the best care possible to the largest number of patients.

RECOMMENDATION: Federal, state, tribal, and local governments should develop a systems-based framework for catastrophic disaster response, which must be integrated into existing emergency response plans and programs. To facilitate the implementation of this framework, the committee specifically recommends that:

- Each level of government should ensure coordination and consistency in the active engagement of all partners in the emergency response system, including emergency management, public health, emergency medical services, public and private health care providers and entities, and public safety.
- Each level of government should integrate crisis standards of care into surge capacity and capability planning and exercises.
- The Department of Health and Human Services/Assistant Secretary for Preparedness and Response (e.g., through its regional emergency coordinators) should facilitate crisis standards of care planning and response among state and tribal governments within their region.
- In crisis standards of care planning and response efforts, states should collaborate with and support local governments.
- Federal disaster preparedness and response grants, contracts, and programs in the Department of Health and Human Services, the Department of Homeland Security, the Department of Defense, the Department of Transportation, and the Department of Veterans Affairs—such as the Hospital Preparedness Program, Public Health Emergency Preparedness Program, Metropolitan Medical Response System, Community Environmental Monitoring Program, and Urban Areas Security Initiative—should integrate relevant crisis standards of care functions.

REFERENCES

- George Washington University Institute for Crisis, Disaster and Risk Management. 2009. *Emergency management principles and practices for health care systems: Unit 5: Appendices*. Washington, DC: George Washington University, http://www.vibha.info/uploads/2/9/3/6/2936979/air_ambulance_5.pdf (accessed February 28, 2012).
- Gostin, L. O., and M. Powers. 2006. What does social justice require for the public's health? Public health ethics and policy imperatives. *Health Affairs* 25(4):1053-1060.
- Hall, M. J., C. J. DeFrances, S. N. Williams, A. Golosinskiy, and A. Schwartzman. 2010. *National hospital discharge survey: 2007 summary. Report no. 29*. Hyattsville, MD: National Center for Health Statistics.
- IOM (Institute of Medicine). 2009. *Guidance for establishing crisis standards of care for use in disaster situations: A letter report*. Washington, DC: The National Academies Press, http://www.nap.edu/catalog.php?record_id=12749 (accessed September 6, 2011).
- Schappert, S. M., and E. A. Rechtsteiner. 2011. Ambulatory medical care utilization estimates for 2007. *Vital and Health Statistics* 13(169):1-38.

Volume 1

1: Introduction

The last 2 years have seen catastrophic disasters in Haiti, Japan, New Zealand, and the United States. These incidents have been a stark reminder of the ability of disasters to overwhelm even the most advanced health systems and impact resource allocation. All of these incidents—earthquakes, a tsunami, a powerful tornado—were sudden and unexpected, and all resulted in a disruption of infrastructure, including extreme stress and strain on health care systems. During each incident, albeit to varying degrees, the delivery of medical services was impacted by the disruption. The need to allocate scarce resources during a catastrophic disaster is not unique to no-notice natural disasters; such circumstances may also arise in the aftermath of a catastrophic terrorist incident, particularly one due to the release of a bioagent or the detonation of a nuclear device, or a slow-onset event such as pandemic influenza.

This report differentiates between a catastrophic disaster and other disasters or emergencies. A catastrophic disaster is characterized by four attributes: (1) most or all of the community's infrastructure is impacted (it is the relative, rather than the total, infrastructure loss that matters); (2) local officials are unable to perform their usual roles for a period of time extending well beyond the initial aftermath of the incident; (3) most or all routine community functions—at places of work, recreation, worship, and education—are immediately and simultaneously interrupted; and (4) surrounding communities are similarly affected, and thus there are no regional resources to come to the aid of the affected local communities (Quarantelli, 2000). Each of these four attributes should be judged relative to the impact on the community in question rather than by an absolute standard: for instance, an incident that results in the inability of one hospital to function in a large metropolitan city may be classified as a disaster, but could be classified as catastrophic in a rural community. Similarly, while the initial phase of a disaster may include all four of these attributes, a catastrophic disaster is marked by their persistence into the recovery phase, well after the incident occurs.

In 2009, at the height of the influenza A (H1N1) pandemic, the Assistant Secretary for Preparedness and Response (ASPR) at the Department of Health and Human Services (HHS) asked the Institute of Medicine (IOM) to convene a committee of experts to develop national guidance for use by state and local public health officials and health-sector agencies and institutions in establishing and implementing standards of care that should apply in catastrophic disaster situations—both naturally occurring and man-made—under conditions of scarce resources. In its letter report, released the same year, titled *Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations* (IOM, 2009), the Committee on Guidance for Establishing Standards of Care for Use in Disaster Situations defined these “crisis standards of care”

(CSC) to be a “substantial change in the usual health care operations and the level of care it is possible to deliver . . . justified by specific circumstances and . . . formally declared by a state government in recognition that crisis operations will be in effect for a sustained period” (IOM, 2009, p. 3). CSC, planned and implemented in accordance with ethical values, are necessary for the allocation of scarce resources. Professional care delivered in a catastrophic disaster may need to be modified to address the demands of the situation, including by focusing more intently on the needs of the entire affected community. The committee’s 2009 letter report also enumerated five key elements that must underlie all CSC plans:

- a strong ethical grounding that enables a process deemed equitable based on its transparency, consistency, proportionality, and accountability;
- integrated and ongoing community and provider engagement, education, and communication;
- the necessary legal authority and legal environment in which CSC can be ethically and optimally implemented;
- clear indicators, triggers, and lines of responsibility; and
- evidence-based clinical processes and operations.

PHASE TWO: STUDY GOALS AND METHODS

At the request of ASPR, the Committee on Guidance for Establishing National Standards of Care for Use in Disaster Situations reconvened for a second phase of work. The task of phase two was to operationalize the CSC framework set forth in the 2009 letter report. Box 1-1 presents the phase two statement of task.

Building on the work of phase one, the committee developed detailed templates enumerating the functions and tasks of the key stakeholder groups involved in CSC planning and implementation—state¹ and local governments, emergency medical services (EMS), hospitals and acute care facilities, and out-of-hospital and alternate care systems. Additionally, a key component of CSC planning, as recommended in the 2009 letter report, is public engagement. In recognition of the challenges associated with simultaneously educating and receiving input from the public, the committee was tasked with providing public engagement tools that can be adapted by state and local jurisdictions based on where they are in the planning process, their communities’ experiences, and available resources. It is important to note that this report is not intended to be a detailed guide to emergency preparedness or disaster response. What is described in this report is an extrapolation of existing incident management practices and principles.

The reconvened committee continued to represent the diverse expertise of the fields and sectors responsible for implementing CSC, including emergency medicine, ethics, public health law, state and local public health, the public and private sectors, disaster response, nursing, palliative and mental health care, and EMS. Biosketches of the committee members can be found in Appendix F. To fully understand the challenges of developing and implementing CSC plans, the committee held two public meetings in May and July 2011. Presentations and comments were provided by a myriad of experts and practitioners, including representatives of state and local health departments, EMS, large and small health care systems, pediatric and maternal patient and provider groups, and the federal government (including ASPR, the U.S. Department of Trans-

¹ For the purposes of this report, the term “states” encompasses states, tribal jurisdictions, and territories.

BOX 1-1

Abbreviated Phase Two Statement of Task^a

The committee will:

- Review the impact of its 2009 letter report including progress made by state and local governments and health care organizations in establishing crisis standards of care guidance.
- Identify metrics to assess the development of crisis standards of care protocols.
- Develop templates for states, emergency medical services (EMS) systems, hospitals and individual clinicians to use to guide decision making. These templates will:
 - Address the inclusion of all critical components of the emergency response and health care system necessary to plan for and respond to crisis standards of care situations.
 - Examine the specific process of declaring a shift to crisis standards of care,
 - Identify clinical and administrative indicators that govern the transition from conventional surge response and conventional standards of care to crisis surge response and crisis standards of care.
 - Define terms and provide consistent language (e.g., definitions, situational markers) for communicating across jurisdictions and levels of government the status of health care systems related to crisis standards of care.

In addition, the IOM will develop a template for state and local governments for community engagement tools.

^a The complete statement of task can be found in Appendix E, Volume 7.

portation, and the Centers for Disease Control and Prevention [CDC]). The committee also conducted a thorough review of the relevant literature to understand and build on the progress made in developing and operationalizing CSC at the federal, state, and local levels since its letter report was published in 2009.

To fulfill its task of creating public engagement tools, the committee tapped the expertise of external consultants. The committee then piloted the materials developed by these experts in fall 2011 in two settings—Boston and Lawrence, Massachusetts. The pilots were not intended to collect participant data, but to refine the public engagement techniques and materials and broaden them so they can be adapted to suit individual local jurisdictions. These materials and pilots are discussed in greater depth in Chapter 9.

2009 LETTER REPORT: KEY ELEMENTS AND RECOMMENDATIONS

The committee's 2009 letter report identified five key elements of CSC planning and implementation and offered six recommendations.

Five Key Elements

The 2009 letter report described the framework and foundational elements for the development and implementation of CSC. The committee's vision for this original framework was based on fairness (i.e., standards are evidence based and recognized as fair by all they affect); equitable processes for decision making and implementation (i.e., transparency, consistency, proportionality, and accountability); community and provider engagement, education, and communication through formalized processes; and the rule of law (i.e., the authority to take necessary and appropriate response actions and an environment that facilitates the implementation of response actions through appropriate laws and regulations). Based on this vision, the committee, in its letter report, recommended the five key elements for CSC protocol development shown in Table 1-1 and described in the following subsections.

Ethical Considerations

Health care professionals must adhere to ethical norms even in conditions of overwhelming scarcity that limit practitioner and patient choices. As a starting point for CSC planning deliberations, ethical values should include the concept of fairness, together with professional duties to care for patients and steward resources. The CSC development process should be guided by key ethical values, including transparency, consistency, proportionality, and accountability.

Community and Provider Engagement, Education, and Communication

Meaningful, integrated, and ongoing engagement of CSC stakeholders (e.g., the public, at-risk populations, health care providers) is critical for effective CSC planning and implementation. State and local governments involved in CSC planning should ensure that strong public engagement occurs and that it promotes trust and transparency in the process, delineates roles and responsibilities, and gives particular attention to the needs of at-risk populations and those with special medical needs. Active engagement should contribute, as appropriate, to developing and refining CSC protocols, developing communication and educational messages/tools for the public and health care practitioners, developing and implementing strategies for community resilience, and improving future CSC responses.

Legal Authority and Environment

Establishing and implementing CSC plans requires careful consideration of the substantial legal challenges involved, including potential liability. Among the legal topics the committee identified as requiring assessment and potential resolution during the course of CSC planning efforts are emergency declarations (local, state, federal), medical versus legal standards of care, mutual-aid agreements, liability risks (including medical malpractice), liability protections (e.g., Public Readiness and Emergency Preparedness [PREP] Act) during emergencies, licensing and credentialing, regulation of EMS and health care facilities, and health care practitioners' scopes of practice.

Indicators and Triggers

For the assessment and potential management of CSC incidents, CSC planning efforts should include identifying specific indicators, including those based on situational awareness (e.g., hospital bed availability, ventilator availability, EMS call volume, divert status) and on factors specific to the incident (e.g., incidence

TABLE 1-1

Five Key Elements of Crisis Standards of Care Protocols and Associated Components from the 2009 Letter Report

Key Elements of Crisis Standards of Care Protocols	Components
Ethical considerations	<ul style="list-style-type: none"> • Fairness • Duty to care • Duty to steward resources • Transparency • Consistency • Proportionality • Accountability
Community and provider engagement, education, and communication	<ul style="list-style-type: none"> • Community stakeholder identification with delineation of roles and involvement with attention to vulnerable populations • Community trust and assurance of fairness and transparency in processes developed • Community cultural values and boundaries • Continuum of community education and trust building • Crisis risk communication strategies and situational awareness • Continuum of resilience building and mental health triage • Palliative care education for stakeholders
Legal authority and environment	<ul style="list-style-type: none"> • Medical and legal standards of care • Scope of practice for health care professionals • Mutual-aid agreements to facilitate resource allocation • Federal, state, and local declarations of <ul style="list-style-type: none"> ◦ Emergency ◦ Disaster ◦ Public health emergency • Special emergency protections (e.g., PREP Act, Section 1135 waivers of sanctions under EMTALA and HIPAA Privacy Rule) • Licensing and credentialing • Medical malpractice • Liability risks (civil, criminal, Constitutional) • Statutory, regulatory, and common-law liability protections
Indicators and triggers	<p>Indicators for assessment and potential management</p> <ul style="list-style-type: none"> • Situational awareness (local/regional, state, national) • Incident specific <ul style="list-style-type: none"> ◦ Illness and injury—incidence and severity ◦ Disruption of social and community functioning ◦ Resource availability <p>Triggers for action</p> <ul style="list-style-type: none"> • Critical infrastructure disruption • Failure of “contingency” surge capacity (resource-sparing strategies overwhelmed) <ul style="list-style-type: none"> ◦ Human resource/staffing availability ◦ Material resource availability ◦ Patient care space availability

continued

TABLE 1-1 Continued

Key Elements of Crisis Standards of Care Protocols	Components
Clinical process and operations	<p>Local/regional and state government processes to include</p> <ul style="list-style-type: none"> • State-level “disaster medical advisory committee” and local “clinical care committees” and “triage teams” • Resource-sparing strategies • Incident management (NIMS/HICS) principles • Intrastate and interstate regional consistencies in the application of crisis standards of care • Coordination of resource management • Specific attention to vulnerable populations and those with medical special needs • Communications strategies of the health system, including public health, emergency medical services, long-term care, primary care, and home care <p>Clinical operations based on crisis surge response plan:</p> <ul style="list-style-type: none"> • Decision support tool to triage life-sustaining interventions • Palliative care principles • Mental health needs and promotion of resilience

NOTE: EMTALA = Emergency Medical Treatment and Active Labor Act; HICS = hospital incident command system; HIPAA = Health Insurance Portability and Accountability Act; NIMS = National Incident Management System; PREP = Public Readiness and Emergency Preparedness.
 SOURCE: IOM, 2009, pp. 21-23.

and severity of illness or injury; disruption of social and community functioning; availability of resources, such as vaccines and oxygen). Planning efforts should also include establishing triggers for action (e.g., disruption of critical infrastructure, failure of surge capacity strategies).

Clinical Process and Operations

CSC plans should acknowledge the continuum of clinical capacity (i.e., conventional, contingency, crisis) during a disaster and should also establish local, regional, and state government clinical processes and operations—including the state disaster medical advisory committee, regional disaster medical advisory committees, and local clinical care committees and triage teams—that implement incident command system principles, resource-sparing strategies, and communication strategies. In addition, CSC plans should ensure that intra- and interstate plans for CSC implementation are consistent, but not necessarily identical; that resource management is coordinated; that specific attention is given to protecting the interests of at-risk populations and those with special medical needs; and that coordination occurs across all levels and elements of the health care system (e.g., EMS, public health, primary care, home care, long-term care).

Overview of Recommendations

The above five key elements remained the foundation—as well as the springboard—for the second phase of the committee’s work. In its phase two deliberations, the committee reviewed the six recommendations presented in the letter report (Box 1-2) and reaffirmed their fundamental validity and relevance to ongoing planning for catastrophic disaster response.

IMPACT OF THE 2009 LETTER REPORT

The six recommendations of the 2009 letter report are as relevant today as they were when the report was released. Since then, a number of private health care systems, as well as federal, state, and local governments, have begun CSC planning (as described below). Assessing the impact of the 2009 letter report not only provided the committee with feedback on how well the report met past needs, but also identified present needs and grounded the committee's second phase of work with respect to addressing remaining gaps. This qualitative assessment of impact made use of search engines—Google, Medline, LexisNexis—to explore the potential impact on state and local CSC plan development processes.² Impact also was assessed through discussions with the National Association of County and City Health Officials (NACCHO) and the Association of State and Territorial Health Officials (ASTHO) on behalf of their members, identification of salient presentations at conferences and workshops, and evidence from direct contact with state and local jurisdictions. The discussion below includes some notable examples of the letter report's impact, but is not an exhaustive summary (e.g., because not all ongoing plans or efforts are published or publicly available). The committee recognizes that many state and local jurisdictions throughout the country continue to make significant progress in this and related areas.

Federal Impact

Centers for Disease Control and Prevention's Public Health Preparedness Capabilities: National Standards for State and Local Planning

In March 2011, CDC published *Public Health Preparedness Capabilities: National Standards for State and Local Planning* as a guide for state and local health officials developing all-hazards preparedness capabilities. This guidance is among the first to focus on capabilities rather than a checklist of activities, leaving jurisdictions to decide where preparedness gaps currently exist and how to build sustainable, measurable capability in those areas; it identifies 15 core capabilities (CDC, 2011). For the first time, CSC plans are made a priority among medical surge capabilities. Specifically, “written plans should include processes (e.g., MOUs [memorandums of understanding] or other written agreements) to work in conjunction with [all entities involved in disaster response] to develop written strategies that clearly define processes and indicators as to when the jurisdiction's [health care system] transition[s] into and out of conventional, contingency, and crisis standards of care” (CDC, 2011, p. 94). The 2009 letter report is listed as the first “suggested resource” to which states are advised to turn for specific guidance on priority issues. The inclusion of CSC as a priority in both the Hospital Preparedness Program (HPP) and Public Health Emergency Preparedness cooperative agreements opens up a potential source of federal funding for states and local jurisdictions to develop CSC plans (ASPR, 2011). In fact, the 2012 HPP guidance announcement specifically references the present report (ASPR, 2012), identifying both the text and templates as reference material useful to grantees in developing and implementing CSC plans as part of their broader surge capability. In delineating requirements for CSC plans, the 2012 HPP guidance mirrors the ethical principles, utility, and systems approach

² The committee employed the following search parameters at several intervals during the period between February and November 2011 to capture information on impact. Databases searched: MedLine; Google Scholar; LexisNexis; New York Academy of Medicine; and the public websites of HHS, CDC, NACCHO, and ASTHO. Index terms included: Crisis Standard of Care, Altered Standard of Care, Allocation of Scarce Resources, Disaster Medicine, and Medical Practice Liability During Disasters. Limits: English; published on or after August 2009.

BOX 1-2

Recommendations from the 2009 Letter Report

Recommendation: Develop Consistent State Crisis Standards of Care Protocols with Five Key Elements

State departments of health, and other relevant state agencies, in partnership with localities should develop crisis standards of care protocols that include the key elements—and associated components—detailed in this report:

1. a strong ethical grounding;
2. integrated and ongoing community and provider engagement, education, and communication;
3. assurances regarding legal authority and environment;
4. clear indicators, triggers, and lines of responsibility; and
5. evidence-based clinical processes and operations.

Recommendation: Seek Community and Provider Engagement

State, local, and tribal governments should partner with and work to ensure strong public engagement of community and provider stakeholders, with particular attention given to the needs of vulnerable populations and those with medical special needs, in

- developing and refining crisis standards of care protocols and implementation guidance;
- creating and disseminating educational tools and messages to both the public and health professionals;
- developing and implementing crisis communication strategies;
- developing and implementing community resilience strategies; and
- learning from and improving crisis standards of care response situations.

Recommendation: Adhere to Ethical Norms During Crisis Standards of Care

When crisis standards of care prevail, as when ordinary standards are in effect, health care practitioners must adhere to ethical norms. Conditions of overwhelming scarcity limit autonomous choices for both patients and practitioners regarding the allocation of scarce health care resources, but do not permit actions that violate ethical norms.

that were foundational for the committee's 2009 letter report and that continue to inform and are expounded upon in the present report.

2011 National Level Exercise: Catastrophic Earthquake

The National Level Exercise (NLE) is an annual federally organized exercise designed to test and evaluate local, state, regional, and federal responses to a disaster. The scenario used in 2011 was a massive earthquake in the New Madrid Seismic Zone affecting eight states (Alabama, Arkansas, Illinois, Indiana, Kentucky,

Recommendation: Provide Necessary Legal Protections for Health Care Practitioners and Institutions Implementing Crisis Standards of Care

In disaster situations, tribal or state governments should authorize appropriate agencies to institute crisis standards of care in affected areas, adjust scopes of practice for licensed or certified health care practitioners, and alter licensure and credentialing practices as needed in declared emergencies to create incentives to provide care needed for the health of individuals and the public.

Recommendation: Ensure Consistency in Crisis Standards of Care Implementation

State departments of health, and other relevant state agencies, in partnership with localities should ensure consistent implementation of crisis standards of care in response to a disaster event. These efforts should include

- Using “clinical care committees,” “triage teams,” and a state-level “disaster medical advisory committee” that will evaluate evidence-based, peer-reviewed critical care and other decision tools and recommend and implement decision-making algorithms to be used when specific life-sustaining resources become scarce;
- Providing palliative care services for all patients, including the provision of comfort, compassion, and maintenance of dignity;
- Mobilizing mental health resources to help communities—and providers themselves—to manage the effects of crisis standards of care by following a concept of operations developed for disasters;
- Developing specific response measures for vulnerable populations and those with medical special needs, including pediatrics, geriatrics, and persons with disabilities; and
- Implementing robust situational awareness capabilities to allow for real-time information sharing across affected communities and with the “disaster medical advisory committee.”

Recommendation: Ensure Intrastate and Interstate Consistency Among Neighboring Jurisdictions

States, in partnership with the federal government, tribes, and localities, should initiate communications and develop processes to ensure intrastate and interstate consistency in the implementation of crisis standards of care. Specific efforts are needed to ensure that the Department of Defense, Veterans Health Administration, and Indian Health Services medical facilities are integrated into planning and response efforts.

Mississippi, Missouri, and Tennessee), which required coordinated disaster response over a period of days (FEMA, 2011). NLEs are constructed so that each element of the scenario corresponds to a measured task; the New Madrid scenario involved overwhelming participating emergency departments with hourly arrivals of trauma patients, sometimes at a ratio of 10:1 arriving trauma patients to available beds. This specific scenario element was meant to drive discussions of, among other things, CSC. The final NLE report had not been released as of this writing; however, the inclusion of CSC as a topic in an NLE demonstrates the issue’s penetration in federal emergency preparedness circles since 2009.

Department of Health and Human Services' Response to the 2010 Haiti Earthquake

In her statements to the committee during the open session of its second meeting, ASPR's Deputy Director for Preparedness Planning described how ASPR utilized the letter report to help guide its response to the 2010 Haiti earthquake (Knebel, 2011). As is typical of a no-notice disaster, the initial stages of international response were reactive, unstructured, and driven by clinical realities. Officials coordinating the U.S. response emphasized that treating injured Haitians locally was preferred to evacuating them to the United States. This decision was made in an effort to avoid further undermining the reconstruction of local medical infrastructure. It was also meant to avoid creating expectations for complex care that simply would not be available upon the repatriation of Haitian patients once their medical stabilization in the United States had been completed. For this reason and consistent with the committee's 2009 letter report, ASPR established a Medical Review Board to guide medical evacuation decision making. The composition of the Medical Review Board included, but was not limited to, representatives from the Department of Defense, the U.S. Agency for International Development, HHS, the State Department, the Department of Homeland Security, and several nongovernmental organizations. Participants represented a variety of clinical specialties and administrative authorities. The Medical Review Board sought to establish consistent evaluation criteria for patients whose physicians were requesting evacuation, and reevaluated these initial criteria one week into the crisis based on dynamic situational realities. Its decision-making process was iterative and allowed for appeals based on the emerging medical circumstances of a patient. ASPR's use of the letter report represents the first attempt to operationalize the guidance therein, and provided valuable real-world feedback for phase two of the committee's work.

Department of Defense's Response to the 2010 Haiti Earthquake

With the dispatch to Haiti of the USNS *Comfort*, a 1,000-bed hospital ship with 80 intensive care unit beds and numerous operating facilities, following the earthquake, the U.S. Navy initiated a "health care ethics committee" on board the ship in accordance with policies supported by the Navy's Bureau of Medicine and Surgery. This committee comprised eight clinicians (four doctors and four nurses), one health care administrator, one lawyer, one chaplain, and a hospital corpsman. Its purpose was to help make decisions regarding the types of care rendered in this setting of limited resources. In addition, the committee ensured that such decisions were made in conjunction with input from the Haitian Ministry of Public Health and Population (Etienne et al., 2010).

Department of Health and Human Services' Adaptation of the Letter Report into a Clinician's Toolkit

In response to the letter report's release, HHS convened a working group that adapted the letter report into an operational toolkit targeting state and local public health officials, health care institutions, and clinicians (HHS, 2009). *Guidance for Crisis Standards of Care for Use in Disaster Situations: A Toolkit for Healthcare Practitioners* (IOM, 2009) was designed to educate these groups on how to develop systematic and comprehensive protocols for allocating scarce resources during a disaster. The toolkit was offered to practitioners as one of HHS's primary resources on the subject, to be coupled with simultaneous working group efforts on strategic planning for emergency department, outpatient, and inpatient management of the 2009 H1N1 pandemic.

Agency for Healthcare Research and Quality's Evidence Review on the Allocation of Scarce Resources during Mass Casualty Events

To build on the work of the 2009 letter report, the Agency for Healthcare Research and Quality (AHRQ), through its Evidence-based Practice Centers, along with ASPR, commissioned a report comparing existing procedures and systems for allocating scarce resources during a mass casualty event (AHRQ, 2012). Before developing the present report, the committee had access only to a draft version of the AHRQ report, made available for public comment. The AHRQ report documents the quality and breadth of existing evidence on best practices for developing and implementing CSC at the federal, state, and local government levels and in the public and private sectors. To this end, a comprehensive, systematic review of the published literature on the allocation of scarce resources was conducted, and relevant governmental and nongovernmental plans, practice guidelines, and reports were examined. The provisional conclusion included in the draft for public comment is that research on the most effective ways to plan for the allocation of scarce resources is still nascent. The report proposes that ongoing efforts continue to focus on identifying the best protocols, techniques, and means for improving the capability and capacity to respond to mass casualty events at all levels of government.

State Impact

With the 2009 H1N1 influenza pandemic as a major driver, several states have initiated CSC planning efforts as part of broadening their overall surge capacity plans. Examples of plans that specifically reference the letter report's framework demonstrate its impact. However, use of the framework as a guide has varied among states, and some states clearly are further ahead than others in their CSC planning efforts. The following is not an exhaustive summary of state efforts, and the committee recognizes that there are ongoing efforts in multiple states throughout the country not recorded here.

In Georgia, a public-private collaboration between the Department of Community Health and the Georgia Hospital Association adapted the letter report's guidance into a template for regional hospitals. Both organizations further recommended the letter report as guidance for use by individual hospitals in specific organizational planning and potentially in implementation. As of April 2011, 86 percent of "eligible Georgia hospitals [had] submitted a signed Crisis Standards of Care Response Plan" incorporating the letter report's best practices for managing and allocating scarce resources (Georgia Hospital Association, 2011).

In Texas, a multidisciplinary medical ethics workgroup was convened by the Texas Department of State Health Services in fall 2009 to make recommendations on state-owned critical resources for pandemic influenza. The final document, released in August 2010, included recommendations on the allocation and distribution of state-owned critical resources such as vaccines, antiviral medications, medical surge resources, and ventilators in an influenza pandemic. In addition to utilizing content from other ongoing state and local work, the workgroup was provided with the letter report for reference purposes (Texas Department of State Health Services, 2010).

Late in 2009, the Louisiana Department of Health and Hospitals, in conjunction with leaders of major hospitals and hospital coalitions, drafted CSC guidelines that, while not directly citing the letter report, retain its hallmarks of public-private collaboration. The guidelines delineate metrics describing when CSC

might go into effect; a standardized, regionalized CSC template (although each hospital can decide individually whether to adopt the plan); and patient characteristics that would drive CSC decisions depending on the specific resources in scarcity (Fink, 2009). Like the letter report, the Louisiana draft guidance incorporates public engagement as a hallmark of public education (through the opportunity for public comment) and allows for flexibility should clinical judgment be at odds with the developed guidance (especially when that judgment is based on an evolving incident). In September 2011, the Louisiana Department of Health and Hospitals referenced and incorporated the constructs of the letter report in its CSC documents (Louisiana Department of Health and Hospitals, 2011).

The state of Ohio finalized draft guidance on CSC planning—the *Ohio Medical Coordination Plan*. This plan was developed through a partnership between the Ohio Hospital Association and the Ohio Department of Health, and references the letter report as the foundation for its own ethical and legal considerations and standards for care in a disaster (Ohio Hospital Association and Ohio Department of Health, 2011). The plan also utilizes the care continuum detailed in the letter report. It recognizes that a “catastrophic event will lead to excessive demand over capacity and capability,” and therefore defines concrete “triggers” related to this divide between demand for and supply of available resources (Ohio Hospital Association and Ohio Department of Health, 2011, p. 4). The triggers indicate transitions along the care continuum from conventional to contingency to crisis care. As the present report was being published, the Ohio Hospital Association was leading the preparation of public engagement events to allow the public to comment on the new CSC strategy, a specific recommendation in the letter report (see Box 1-2).

Most recently, Michigan published finalized guidance titled *Ethical Guidelines for Allocation of Scarce Medical Resources and Services during Public Health Emergencies in Michigan*, in development throughout the course of both phases of the committee’s work (State of Michigan, 2012). Like the letter report, the Michigan plan identifies criteria for the allocation of scarce medical resources that can be adapted according to the particulars of a disaster. The plan provides specific guidance to relevant stakeholders, including EMS and health care facilities, and on broader issues such as the legal considerations associated with allocating scarce resources. The ethical principles on which the Michigan plan is founded closely resemble those laid out in the letter report while expanding on them to reflect a more specific sense of the values in the state. The Michigan plan sets forth allocation criteria that are generally acceptable as means of differentiating among patients (their relative medical prognoses and essential social functions, such as provision of health care); criteria that are acceptable only if prioritization within otherwise indistinguishable patient groups is required by the scarcity of resources (age; lottery; and first-come, first-served); and criteria that are unacceptable as a basis for making allocation decisions (e.g., race, ethnicity, general perceptions of social worth). The plan goes on to recommend strategies for implementing these criteria, including identifying triggers that signal the need to transition to CSC. Throughout the document, robust surge capacity planning and exercising are strongly encouraged to obviate the need for CSC in the first place.

Local Impact

At the committee’s first phase two meeting in April 2011, representatives of local public health departments briefed on the letter report’s impact at the level of local public health departments. One of the architects of the Seattle-King County Department of Public Health’s planning effort described the letter report as a

foundational framework that approached CSC planning from a multistakeholder perspective (Lien, 2011). Among a number of highlights, the identification of potential partnerships for the development of CSC plans was noted as a specific contribution. The deputy commissioner of the Chicago Department of Public Health said the letter report filled a need for national-level guidance that had previously been unmet (McKinney, 2011).

On the other hand, beyond its contribution to the literature, a representative of the Napa County, California, Department of Public Health said the letter report had had minimal penetration in many local health departments, especially the smaller, more rural ones. Among respondents to an informal (and limited) survey of some members of NACCHO, half had not heard of the letter report, and only one had used it to guide the CSC planning process (Smith, 2011). A number of factors contributed to this low penetration rate, especially the burden on local health departments of handling competing responsibilities and/or having to comply with federal, state, and other requirements. As a result of increasingly reduced funding, many health departments were undergoing a loss of departmental infrastructure (including that in the area of emergency preparedness) due to reductions in programs and personnel. Additionally, at the time of the letter report's release, there was a pressing need to catalog the response to the H1N1 influenza outbreak, including the implementation of mass vaccination efforts in communities across the country. Nevertheless, progress had been made to date by some local public health departments across the nation in utilizing the letter report. Examples include those in Seattle–King County and Harris County (Texas), among others; some of these efforts are referenced later in this report (King County Healthcare Coalition et al., 2011; Shah, 2012). The difficulty of building an operational strategy for local health departments of varying resources and capabilities was a priority issue for the committee, and is discussed in greater detail in Chapter 5.

Impact on the Private Sector and Health Care Providers

While the private sector incorporates many of the health care providers who respond in a crisis, it also includes other actors that can contribute to CSC guidance at the state and national levels. An example of the letter report's impact within the private sector is the March 2011 resolution adopted by the Alaska Public Health Association entitled *Support for Legal Protections for Health Care Professionals Implementing Crisis Standards of Care* (APHA, 2011). The resolution quotes and endorses the six recommendations in the letter report (Box 1-2). This example further demonstrates the ability of the letter report to act as a common foundation for planning efforts at the state level, whether those efforts are spurred by state governments, as in the Georgia and Louisiana examples above, or by private-sector stakeholders.

As was the case for local public health officials, the letter report had maximum penetration among individual health care providers in areas where the issue was already a priority (e.g., large metropolitan areas) (Smith, 2011). As was the case with local health departments, however, many providers that served medium-sized and small populations likely were unaware of the report. One of the greatest impediments to involving private-sector providers in CSC planning is related to the general disconnect that exists between private practitioners and the formal emergency response system at the local, regional, state, and federal levels. At a July 2011 provider workshop in Seattle–King County—where the public health department has made substantial progress in developing CSC plans, has conducted public engagement sessions on CSC, and has worked with a coalition of private-sector providers to leverage community resources—participants who

were aware of the letter report thought of it as primarily a foundational document (King County Healthcare Coalition et al., 2011). While they valued the context and standard guidance the letter report provided, they were interested in the operational details of the roles they might have to assume in planning and implementing CSC.

Conclusion

The following chapters of this phase two report and the templates therein build on the foundation of the 2009 letter report and the progress that continues to be made on plans for the development and implementation of CSC. An apparent conclusion from the committee's review of the impact of its first report is that practical guidance for relevant stakeholders remains a burgeoning field; governments, EMS, hospitals, and providers within and external to the hospital system each have roles and responsibilities in preparing to allocate scarce resources, but the entire system should integrate its efforts if it is to be capable of responding successfully to a catastrophic disaster.

ORGANIZATION OF THE REPORT

This report has a functional format and design that reflect its purpose of providing a resource manual for individuals and organizations responsible for planning and implementing disaster response. It is organized as a series of stand-alone resources for ease of use and reference. The first volume includes Chapters 1 through 4. Following this introduction, the next three chapters establish a framework for a systems approach to the development and implementation of CSC plans (Chapter 2), and address the legal issues (Chapter 3) and the ethical, palliative care, and mental health issues (Chapter 4) that agencies and organizations at each level of a disaster response should address.³

The next four chapters are bound as separate volumes, each aimed at a key stakeholder group—state and local governments (Chapter 5), EMS (Chapter 6), hospitals and acute care facilities (Chapter 7), and out-of-hospital and acute care systems (Chapter 8). The text of the chapters defines the roles and responsibilities of these stakeholders, describes operational considerations associated with their development and implementation of CSC plans, and provides brief descriptions of templates that outline the specific functions and tasks for each stakeholder when allocating scarce resources in response to a disaster. The templates are easily located at the end of each chapter by the red bar that runs the length of each page.

Chapter 9, again published as a separate volume, includes a brief description of the committee's work to design the public engagement toolkit and the tools themselves.⁴

The final volume of the report consists of six appendixes: a glossary of terms used in the report (Appendix A), a sample hospital CSC plan (Appendix B), a listing of potentially scarce medical resources (Appendix C), a listing of resource challenges by disaster type (Appendix D), the committee's statement of task (Appendix E), and biographical sketches of the committee members (Appendix F).

³ All figures included in the report are original and generated by the committee, unless otherwise indicated.

⁴ The templates in Chapters 5-8 and the public engagement toolkit can also be downloaded via the project's website: <http://iom.edu/Activities/PublicHealth/DisasterCareStandards.aspx>.

REFERENCES

- AHRQ (Agency for Healthcare Research and Quality). 2012. *Allocation of scarce resources during Mass Casualty Events (MCEs)* [draft for public comment]. Rockville, MD: AHRQ.
- APHA (Alaska Public Health Association). 2011. *Support for legal protections for health care professionals implementing crisis standards of care*. Fairbanks, AK: APHA, http://www.alaskapublichealth.org/images/stories/Resolutions/2011-03_Legal_Protection_during_Crisis.pdf (accessed June 3, 2011).
- ASPR (Assistant Secretary for Preparedness and Response). 2011. *FY11 Hospital Preparedness Program (HPP) guidance*. Washington, DC: HHS, <http://www.phe.gov/Preparedness/planning/hpp/Documents/fy2011-hpp-funding-guidance.pdf> (accessed January 18, 2012).
- ASPR. 2012. *Healthcare preparedness capabilities: National guidance for healthcare system preparedness*. Washington, DC: HHS, <http://www.phe.gov/Preparedness/planning/hpp/reports/Documents/capabilities.pdf> (accessed February 14, 2012).
- CDC (Centers for Disease Control and Prevention). 2011. *Public health preparedness capabilities: National standards for state and local planning*. Atlanta, GA: CDC, http://www.cdc.gov/phpr/capabilities/DSLRCapabilities_July.pdf (accessed March 30, 2011).
- Etienne, M., C. Powell, and D. Amundson. 2010. Healthcare ethics: The experience after the Haitian earthquake. *American Journal of Disaster Medicine* 5(3):141-147.
- FEMA (Federal Emergency Management Agency). 2011. *National Level Exercise 2011 (NLE 11): Quick Look Report (QLR)*. Washington, DC: FEMA, http://www.fema.gov/pdf/media/factsheets/2011/nle11_quick_look_report.pdf (accessed June 17, 2011).
- Fink, S. 2009 (December 27). Louisiana health professionals drafting guidelines on access to critical care during a disaster. *ProPublica and New Orleans Times-Picayune*, <http://www.propublica.org/article/louisiana-professionals-drafting-disaster-critical-care-access-guidelines> (accessed June 1, 2011).
- Georgia Hospital Association. 2011. *Crisis standards of care in Georgia*. Atlanta, GA: Georgia Hospital Association, <https://www.gha.org/weekly/ZipPack0421.pdf> (accessed June 1, 2011).
- HHS (Department of Health and Human Services). 2009. *H1N1 compendium: A resource for H1N1-specific response guidance*. Washington, DC: HHS, <http://www.flu.gov/professional/hospital/h1n1compendium.pdf> (accessed October 11, 2011).
- IOM (Institute of Medicine). 2009. *Guidance for establishing crisis standards of care for use in disaster situations: A letter report*. Washington, DC: The National Academies Press, http://www.nap.edu/catalog.php?record_id=12749 (accessed September 6, 2011).
- King County Healthcare Coalition, Swedish Medical Center, and Public Health-Seattle and King County. 2011 (July 14). *Planning for crisis standards of care: Establishing the path forward for King County*. Seattle, WA: King County Healthcare Coalition.
- Knebel, A. 2011 (July 11). *The role of the federal government in CSC during a disaster*. Remarks presented at the Second Meeting of the IOM Committee on Guidance on Establishing Standards of Care for Use in a Disaster Situations, Washington, DC.
- Lien, O. 2011 (May 10). *Impact of 2009 IOM letter report: Implementation progress, challenges, and metrics for Public Health-Seattle and King County*. Remarks presented at the First Meeting of the IOM Committee on Guidance on Establishing Standards of Care for Use in a Disaster Situations, Washington, DC.
- Louisiana Department of Health and Hospitals. 2011. *Crisis standards of care summary*. Baton Rouge, LA: Louisiana Department of Health & Hospitals, <http://new.dhh.louisiana.gov/assets/oph/Center-PHCH/Center-CH/infectious-epi/Influenza/CSOCPublicFLYERvs210132011.pdf> (accessed February 5, 2012).
- McKinney, S. 2011 (May 10). *Impact of 2009 IOM letter report: Implementation progress, challenges, and metrics for Chicago Department of Public Health*. Remarks presented at the First Meeting of the IOM Committee on Guidance on Establishing Standards of Care for Use in a Disaster Situations, Washington, DC.
- Ohio Hospital Association and Ohio Department of Health. 2011 (June 10). *Ohio medical coordination plan*. Columbus, OH: Ohio Hospital Association and Ohio Department of Health.
- Quarantelli, E. L. 2000. *Emergencies, disaster and catastrophes are different phenomena*. University of Delaware Disaster Research Center Preliminary Paper #304, <http://dspace.udel.edu:8080/dspace/bitstream/handle/19716/674/PP304.pdf?sequence=1> (accessed February 1, 2012).

- Shah, U. 2012 (January 13). *Summary of HCPHES pandemic influenza public and Pandemic Influenza Public and partner engagement projects Partner Engagement Projects*. Harris County, TX: Harris County Public Health and Environmental Services.
- Smith, K. 2011 (May 10). *Impact of 2009 IOM letter report: Implementation progress, challenges, and metrics for Napa County Health and Human Services, California*. Remarks presented at the First Meeting of the IOM Committee on Guidance on Establishing Standards of Care for Use in Disaster Situations, Washington, DC.
- State of Michigan. 2012. *Ethical guidelines for allocation of scarce medical resources and services during public health emergencies in Michigan*. Lansing, MI: Department of Community Health, Office of Public Health Preparedness.
- Texas Department of State Health Services. 2010. *Final after action report: Texas Department of State Health Services response to the novel H1N1 pandemic influenza (2009 and 2010)*. Report number DSHS-2010-01-FINAL. Austin, TX: Texas Department of State Health Services, http://pandemicpreparations.org/files/566/566_aar.pdf (accessed February 13, 2012).

2: Catastrophic Disaster Response

Creating a Framework for Medical Care Delivery

When the committee reconvened in May 2011, it became clear that while the key elements and recommendations of the 2009 letter report, summarized in Chapter 1, remained a valid starting point for discussion of the issues related to crisis standards of care (CSC) planning, the depth, complexity, and scope of CSC planning and implementation would benefit from the use of a complex, dynamic systems approach. A system is composed of regularly interacting or interrelated components that can function independently (Merriam-Webster Dictionary, 2012). A systems approach is defined as a “management strategy that recognizes that disparate components must be viewed as interrelated components of a single system, and so employs specific methods to achieve and maintain the overarching system. These methods include the use of standardized structure and processes and foundational knowledge and concepts in the conduct of all related activities” (George Washington University Institute for Crisis, Disaster and Risk Management, 2009, p. 59). A systems approach views any organization as a unified, purposeful system composed of interrelated parts that, when woven together, create effective and efficient processes that improve upon the independent functioning of each individual component.

Where investments in disaster preparedness have proved successful in the decade since September 11, 2001, efforts to integrate the spectrum of relevant emergency response disciplines—health care, emergency medical services (EMS), public health, public safety, and emergency management—have been a priority. Much of this work has been focused on conventional disaster incidents that do not stress the capacity and capabilities of the health care system in a sustained or unprecedented way, allowing health and medical care to be delivered in the usual manner. The capacity and capabilities (Barbera and MacIntyre, 2007) required to manage such disaster incidents are in place, albeit in varying states of configuration, maturity, and functionality. However, systems to manage the truly catastrophic incidents that are the subject of this report, in which overwhelming numbers of casualties and cascading failures of infrastructure compound the incident, are rudimentary at best. As a result, in its renewed deliberations on developing and implementing CSC, the committee recognized the demand for a rigorous systems approach.

CONCEPTUALIZING A SYSTEMS APPROACH TO DISASTER RESPONSE

This section broadly outlines a framework for disaster response of which CSC is only one, albeit a critical, aspect. However, the development and implementation of CSC plans are the means to mount a response

to an incident that far exceeds the usual health and medical capacity and capabilities. Therefore, the same elements that come together to build any successful disaster response should also be used to develop robust CSC plans and guide their implementation.

Figure 2-1 illustrates the systems framework that the committee believes should inform the development and implementation of CSC plans. It is based on the five key elements of planning set forth in the 2009 letter report (see Table 1-1 in Chapter 1), which served as the starting point for the development of the committee’s recommendations in that report and are foundational for all disaster response planning. The figure depicts a strong *foundation* of underlying principles; *steps* needed to achieve the implementation of disaster response; and the *pillars* of the disaster response system, each separate and yet together supporting the jurisdictions—local, state, and federal governments—with the *overarching authority* for ensuring that CSC planning and implementation occur.

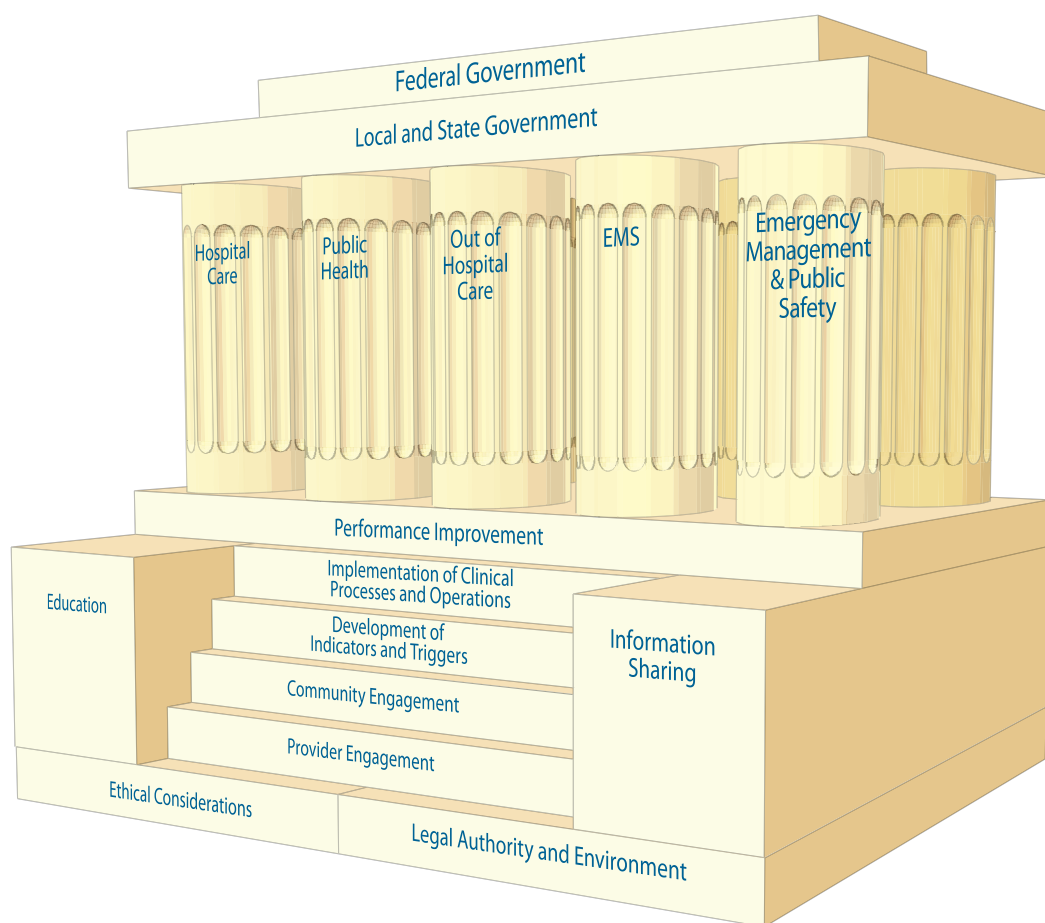


FIGURE 2-1
 The foundation for CSC planning comprises ethical considerations and legal authority and environment, located on either side of the steps leading up to the structure. The steps represent elements needed to implement disaster response; education and information sharing are the means for ensuring that performance improvement processes drive the development of disaster response plans. The response functions are performed by each of the five components of the emergency response system: hospitals and acute care, public health, out-of-hospital and alternate care systems, prehospital and emergency medical services, and emergency management/public safety. While these components are separate, they are interdependent in their contribution to the structure; they support and are joined by the roof, representing the overarching authority of local, state, and federal governments.

The two *cornerstones* for the foundation of this framework are the *ethical considerations* that govern planning and implementation and the *legal authority and legal environment* within which plans are developed. Ethical decision making is of paramount importance in the planning for and response to disasters. Without it, the system fails to meet the needs of the community and ceases to be fair, just, and equitable. As a result, trust—in professionals, institutions, government, and leadership—is quickly lost.

For public health, emergency responders, and health care professionals, the duty to care resonates deeply, and the duty to plan for such incidents is an ethical imperative. All stages of planning and implementation of disaster response should be guided by the universal ethical values of fairness, transparency, consistency, proportionality, and accountability. Adherence to ethical values is particularly important when professionals must operate in a crisis in which resources are scarce and the needs of the population should be considered. Incorporating these principles ensures that in stewardship of available scarce resources, the best possible care is given to individuals and the population as a whole. Thus, delivery of health care under crisis standards is ultimately about maximizing the care delivered to the population as a whole under austere circumstances that may limit treatment choices for both providers and patients. Ethical guidance ensures that decisions about allocating scarce resources stem from ethically and legally sound policies that promote population health and align with community values. Individuals who may not meet criteria for intensive curative measures should still receive compassionate palliative care.

The legal authority and legal environment within which CSC plans are developed are the other cornerstone of the framework's foundation. The legal authority and environment support the necessary and appropriate actions in response to a disaster.

Between those two cornerstones of the foundation are the *steps* needed to ensure that the development and implementation of CSC plans occur. They include provider and *community engagement* efforts, development of a process that permits individual communities to identify regionally coordinated and consistent *indicators* that denote a change in the usual manner of health care delivery during a disaster, and the *triggers* that should be activated in order to implement CSC. These lead to the top step, the *implementation of clinical processes and operations* that support the disaster response. All of these efforts are supported and sustained by an ongoing *performance improvement* process, an important element of any systems approach to monitor demand (improving situational awareness), evaluate the impact of implementation, and establish/share best practices. This process includes education of and information sharing among organizations and individuals responsible for both the planning and response phases of a disaster.

The *pillars* of medical surge response—hospital and out-of-hospital medical care; public health; EMS; and emergency management/public safety agencies, organizations, and authorities—stand on this strong base. Each of these pillars is an element of the disaster response system, representing a distinct discipline, but all need to be well integrated to ensure a unified disaster response. One acting independently of the others may delay, deter, and even disrupt the delivery of medical care in a disaster. Many of these disciplines work together during daily operations. For example, EMS transports bridge the out-of-hospital and hospital communities, public health bridges the public safety and hospital communities, and emergency management bridges the hospital and public health communities. But rarely, and in few communities, do all of these response elements come together in a manner that can ensure oversight and care for an overwhelming number of disaster victims (Arlington County, 2002; Commission on the Prevention of WMD Proliferation and Terrorism, 2008). The more complex and dynamic the incident, the more important strong and effective

coordination and integration among the pillars becomes, as emphasized by a systems approach. Priorities and objectives should be shared across the entire system to inform the development of unified strategies and the coordinated tactics required to implement them. Applying National Incident Management System/ National Response Framework principles and systems can help improve coordination and ensure the desired outcomes.

Atop the pillars are local, state, and federal *government functions*. Government at all three levels has an overarching responsibility for the development, institution, and proper execution of CSC plans, policies, protocols, and procedures. Good governance encompasses the functions of monitoring and evaluation, as well as accountability and meaningful contributions to policy development (Gostin and Powers, 2006). These functions are especially important in developing plans related to incidents in which the confidence of the public in government institutions may come into question, and the risk of cascading failures and multi-sector disruption, exacerbated by a lack of coordinated response, can mean the difference between thousands of lives lost and saved (OSTP, 2010).

FUNDAMENTAL FACTORS THAT INFLUENCE THE IMPLEMENTATION OF CRISIS STANDARDS OF CARE

While the previous section sets forth a broad systems approach to the development and implementation of CSC, this section addresses three fundamental factors that influence the need to implement CSC. First is the impact of situational awareness on decision making during a disaster. Without it, triage decisions will likely be made in the absence of information about the scope or scale of the demand on resources. Those providing care may not know when to adjust their approach to medical care delivery and which resources require conservation. In the worst-case scenario, this lack of knowledge may exacerbate the scarcity of already limited resources. Second, the extent to which a community can adjust to care for a significantly larger patient population, or its ability to implement surge capacity plans, will influence the need to implement CSC in response to a catastrophic disaster. Finally, individual communities can prepare several medical and public health supply-side mechanisms as a bulwark against the large patient increases expected during a disaster, thus reducing or eliminating the need to implement CSC.

The Impact of Situational Awareness on Decision Making During a Disaster

The equitable, just, and effective delivery of care under disaster response conditions begins with the need to establish good situational awareness, with a common operating picture shared by all components of the disaster response system. At the outset of any disaster incident, particularly one in which there is a no-notice impact, decision making about resource allocation will necessarily be based on reactive choices. A lack of context, including the scope and scale of the incident and the number of casualties generated, will likely lead to ad hoc decision making that may result in greater numbers of casualties if dwindling resources are not appropriately conserved, as well as inequities in allocating scarce resources, unethically disadvantaging some from receiving care. As the 2009 letter report emphasized, situational awareness is critical to transitioning decision making from a reactive to a proactive mode. A proactive approach to patient triage and resource allocation will, of necessity, be a structured, systems approach that weighs demand against resource avail-

TABLE 2-1

Reactive Versus Proactive Triage for Various Features of a Disaster

Feature	Reactive	Proactive
Incident type	Often no-notice incident (usually static or short timeline [e.g., earthquake, bombing]); triage occurs early in incident time frame	No-notice incident or anticipated, often dynamic incident (e.g., pandemic influenza); triage occurs later in incident time frame
Incident management implemented fully?	No (full implementation is transition point to proactive mode)	Yes
Situational awareness	Poor	Good
Resource availability	Extremely dynamic (over hours)	Relatively static or more gradual changes
Resource shortfall(s)	Stabilization care through definitive care	Definitive care, selection of medications or therapies
Dominant triage*	Primary, secondary	Tertiary
Most likely resource triaged	Operative care (may not be able to provide any operative care if massive incident), diagnostic imaging, fluid resuscitation or medications	Mechanical ventilation/critical care (improvised nuclear device is an exception because of delayed radiation illness)
Triage decision maker	Triage officer(s) on initial assessment	Triage team
Triage decision basis	Clinical assessment	Clinical assessment plus diagnostics (decision tool)
Decision making	Unstructured, ad hoc	Structured
Regional and state guidance and legal protections	No or limited	Yes
Regional partner assistance	Available	Unavailable (usually)

* Primary triage: performed at first assessment and prior to any interventions (e.g., triage upon entry to the emergency department or by emergency medical services (EMS) providers at a disaster scene). Secondary triage: performed after additional assessments and initial interventions (e.g., triage performed by surgery staff after administration of intravenous fluids and initial CT scan). Tertiary triage: performed after definitive diagnostics and medical care are performed or are ongoing (e.g., triage performed by critical care staff after intubation and mechanical ventilation with assessment of physiologic variables).

ability. Table 2-1 lists the characteristics of reactive versus proactive triage for various features of a disaster. Boxes 2-1 and 2-2, respectively, present examples of these two modes of response. Developing an approach to proactive triage helps optimize the potential health care outcomes, reducing morbidity and mortality in public health emergencies.

Surge Capacity and Capability

CSC planning should be linked to ongoing planning efforts by federal, state, and local governments and health care institutions focused on surge capacity and capability (see Box 2-3 for definitions). The Medical Surge Capacity and Capability (MSCC) framework, for instance, is a management system for integrating medical and health resources during disasters that was incorporated into the Hospital Preparedness Program guidance in 2006 (HHS, 2007). The integration of CSC into this framework is discussed in detail in the next section (HHS, 2007). In the MSCC framework, as in emergency response systems in general, much of the planning effort is focused on mass casualty and disaster incidents, including the expansion of clinical

BOX 2-1**An Example of Reactive Crisis Care: The Joplin, Missouri, Tornado**

On May 22, 2011, an EF-5 tornado struck the town of Joplin, Missouri, at 5:17 PM, with direct impact on Mercy/St. John's Medical Center, which held 183 patients at the time. Major structural damage occurred, and all critical systems were lost. Gas and water leaks, falling debris, and other hazards were pervasive. Within minutes, patients were presenting to the emergency department for care even though the structure was unsafe. Inpatient units rapidly evacuated patients to predesignated areas, and private vehicles (with some emergency medical services [EMS] assistance) were used to shuttle them to other area hospitals.

In the emergency department, usual supplies and medications could not be accessed because of electronic controls on pharmaceuticals and damage to supplies, but life-saving procedures continued to be performed in the dark, with limited equipment. These included intubations, insertion of chest tubes, and hemorrhage control. The emergency physicians on duty balanced the hazards in the department with the threats to life and made decisions about what interventions could not wait until patients could get to a safer area.

Communications were difficult to nonexistent, and each unit had to rely on its personnel and their levels of training and comfort in taking action to move patients to safety and provide life-saving interventions. The hospital was successfully evacuated in 90 minutes, a tremendous credit to the personnel and their training and ability to adapt. Emergency services were transitioned to a nearby hospital, and an alternate care site was established and supplied with staff and materials as better communications and situational awareness were obtained.

The following key points emerge from this example:

- In reactive crisis care, actions of unit personnel are critical to success.
- Appropriate training, exercising, and job aids are core aspects of preparedness for unit staff.
- Hospital evacuation plans may have to be implemented with minimum central coordination.
- Triage decisions should balance interventions (and their complexity and time demands) against the benefits of the interventions and any hazards of the environment.
- Reactive triage decisions rely on the clinical training of providers and the supplies at hand.
- Supplies (especially pharmaceuticals) may be inaccessible if power is lost, and contingencies should be available.
- An alternate care site plan is important, particularly if the hospital is the only such facility in the immediate area.

SOURCE: Kikta, 2011; <http://www.mercy.net/joplin/media-coverage>.

operations, commonly referred to as surge capacity (Barbera and MacIntyre, 2007; Barbisch and Koenig, 2006; Hanfling, 2006; Hick et al., 2004, 2009; Hodge and Brown, 2011; Kaji et al., 2006). Surge capacity can be envisioned as occurring along a continuum based on resource availability and demand for health care services (see Box 2-4). One end of this continuum is defined by conventional responses—those services that are provided in health care facilities on a daily basis and are expanded for disaster planning and response. At

the other end of the continuum is crisis care, when the best possible care is provided to the population of patients as a whole because of the very limited resources available. Significant changes are made in the methods and locations of care delivery, and decision-making shifts from patient-centered to population-centered outcomes. Crisis surge planning should be an integral part of overall surge capacity planning. Emergency plans, training, and exercises should reflect the continuity of care along this continuum, as opposed to the development of separate, stand-alone plans. Figure 2-2 illustrates how a surge response may shift across the continuum from conventional to crisis care based on the demand and supply mismatch that may occur over time, particularly as it affects the availability of patient care spaces; staff; and needed supplies, equipment, and pharmaceuticals. This crisis component remains a significant deficit in many emergency plans (Bascetta, 2010).

The Effect of Preparedness on Crisis Response

The continuum of surge capacity—conventional, contingency, or crisis—and the corresponding standards of care will be greatly influenced by supply-demand factors. Any incident in which the available resources are outstripped by the demand for care will necessarily result in a shift in the delivery of care from conventional toward contingency or even crisis standards (Figure 2-3). Note that contingency care is defined as providing “functionally equivalent” care, although care is rendered using different methodologies, medications, and locations. The difficulty arises as care shifts toward a crisis standard, whereby care may not be initiated and may conceivably be withdrawn from selected patients so it can be reallocated to others who may be considered more likely to survive.

Pandemic influenza preparations over the past few years highlight the importance of expanding surge capacity response from the traditional health care setting to the community. These preparations included the development of plans for delivering care in alternate care systems (Cinti et al., 2008; Lam et al., 2006; Weiss et al., 2010); developing more robust home health care options (DHS, 2009); changing EMS destination choices, EMS unit dispatch options, and the scope of practice of EMS agencies (AHRQ, 2009; Courtney et al., 2010) ensuring the availability of traditional, private practice, ambulatory-based care (CDC, 2009); and exploring the use of “flat-space” areas in the management of patients in nontraditional areas of a hospital (Cruz et al., 2010; Hick et al., 2004; Kelen et al., 2009). The intent of creating a stratified model of health care delivery during emergency incidents is to preserve the hospital setting for those patients who are most in need of hospital-level care (Hanfling, 2009). Stratification implies the matching of patients’ health care needs with a level of care capable of meeting those needs. This matching is more likely to be effective in a slow-onset sustained incident, such as a pandemic, as opposed to a sudden, no-notice incident, in which the time required to establish this stratified system presents obvious difficulties. Yet the importance of such efforts, even in the no-notice context, cannot be discounted. For example, current planning for response to detonation of an improvised nuclear device, the ultimate no-notice incident, includes the development of an alternate care system (Coleman et al., 2009). The greater the extent to which such systems are developed before the onset of an incident, the more likely such efforts are to be successful (Schultz et al., 2003).

Utilizing the full range of available medical resources, not simply relying on hospital-based care, is of paramount importance in a disaster to avoid having to shift to CSC. Resource availability influences the supply side of the health care delivery balance. Resources in the acute care sector include not just hospi-

BOX 2-2**An Example of Proactive Incident Response: The H1N1 Pandemic**

The 2009 H1N1 pandemic provided an opportunity for hospitals to test plans for surge capacity and allocation of scarce resources. Although not perceived to be a “crisis” (the pandemic was relatively mild), the incident required structured and evidence-based use of allocation criteria. While the resulting mortality (12,469 victims) was substantially less than in prior seasonal influenza epidemics, the pandemic provided an opportunity to further develop and evaluate systems for future, more severe epidemics. Notably, as a result of variations in priority group policies and distribution of vaccine, significant public relations issues developed within communities and across state borders (for example, health care workers with similar functions were a priority group for vaccination in one state and not another).

This incident featured the following key aspects of allocation/policy development:

Federal:

- Emergency use authorizations for selected antivirals
- Public health emergency declaration
- Allocation guidance for vaccine (priority groups)
- Allocation guidance for antiviral medications (priority groups)
- Guidance on use of personal protective equipment (PPE)
- Distribution of Strategic National Stockpile (SNS) masks, antivirals, and other materials
- Epidemiologic monitoring

State:

- Refinement of priority groups and distribution of limited vaccine

tal beds but also the equipment, supplies, pharmaceuticals, and staff needed to attend to patients. These resources can be augmented through a variety of strategies (Hanfling, 2006; Minnesota Department of Health, 2008; Rubinson et al., 2008a,b), including the development of hospital-based caches of supplies, equipment, and pharmaceuticals or expansion of such efforts as part of the development of local stockpiles. Resources may also become available from external supplies through resupply from vendors, access to external disaster caches (such as the Strategic National Stockpile), or materiel support via hospital coalitions and other mutual-aid agreements.

In addition, health care providers can take specific steps to steward available medical resources, making them last longer during an incident in which those resources may be in short supply or the means to replace them compromised. The 2009 letter report described the resource-sparing strategies that can be implemented when an incident occurs (Hick et al., 2009), which range from conservation; to substitution and adaptation of specific items in short supply; to reuse; to, in the worst-case scenario, reallocation. These strategies, too, are directly correlated with the prevailing standard of care under which treatment is delivered to patients during a disaster: conservation and substitution would be expected to occur under conditions of

- State and local guidance on utilization of N95 masks and PPE, distribution of SNS materials
- Coordination of policies among hospitals, clinics, and emergency medical services (EMS)
- Coordination of risk communication
- Situational status monitoring between local and federal levels
- Refinement of guidance on allocation of ventilators and other scarce resources for possible use

Local/coalition:

- Distribution and use of caches and supplied N95 masks and medications
- Triage mechanism for durable medical equipment
- Development (and in some cases activation) of “flu centers”
- Use of surge capacity plans, especially for outpatient surge, and particularly at children’s hospitals and those serving pediatric populations
- Use of alternate care sites associated with hospitals and clinics for outpatient care overflow
- Provision of joint information to the community
- Coordination with EMS on transport of suspect cases and coordination of “when to transport” if the situation worsens
- Coordination of vaccine and antiviral distribution
- Standard policies for PPE use by health care workers (which, in at least one case, was noted by the Occupational Safety and Health Administration [OSHA] as a best practice)
- Standard visitor infection control policies and hours among hospitals
- Phone triage/hotline information

SOURCES: CDC, 2010a,b; Chung et al., 2011; Scarfone et al., 2011; <http://www.flu.gov/planning-preparedness/hospital/hospitalchecklist.pdf>.

conventional or contingency surge response; adaptation and reuse would be expected to occur under conditions of contingency or crisis surge response; and reallocation of scarce resources would most likely occur only under CSC.

Figure 2-3 shows that as the demand for health care services (y-axis, left) rises rapidly over time (x-axis)—thereby resulting in a decrease in the immediate availability (supply) of resources (y-axis, right)—there may be a shift from conventional to contingency or crisis care. Figure 2-4 shows these same relationships with the added variable of preparedness. The degree to which any community demonstrates enhanced versus limited preparedness will likely affect the transition to contingency or crisis standards of care, represented graphically as the area between the intersecting lines. What is apparent from the analysis of these relationships is that a combination of positive influences on the supply of resources—especially management of the demand and expectations for patient care along with efforts to improve preparedness—will have an ameliorating effect that essentially allows conventional standards of care to continue for a longer period of time than if no such influences were present. Indeed, negative influences on supply and demand, such as poor risk communication strategies, decreased availability of medical providers, and a lack of preparedness efforts, may place

BOX 2-3 Surge Capacity and Capability

Surge Capacity: “The ability to evaluate and care for a markedly increased volume of patients—one that challenges or exceeds normal operating capacity. The surge requirements may extend beyond direct patient care to include such tasks as extensive laboratory studies or epidemiological investigations” (ASPR, 2010a).

Surge Capability: The ability to manage patients requiring unusual or highly specialized medical evaluation and care. Surge requirements span the range of specialized medical and health services (expertise, information, procedures, equipment, or personnel) that are not normally available at the location where they are needed (e.g., pediatric care provided at nonpediatric facilities or burn care services at a nonburn center). Surge capability also includes patient problems that require special intervention to protect medical providers, other patients, and the integrity of the medical care facility (ASPR, 2010b).

BOX 2-4 Conventional, Contingency, and Crisis Care

Conventional Capacity: The spaces, staff, and supplies used are consistent with daily practices within the institution. These spaces and practices are used during a major mass casualty incident that triggers activation of the facility emergency operations plan.

Contingency Capacity: The spaces, staff, and supplies used are not consistent with daily practices but provide care that is *functionally equivalent* to usual patient care. These spaces or practices may be used temporarily during a major mass casualty incident or on a more sustained basis during a disaster (when the demands of the incident exceed community resources).

Crisis capacity: Adaptive spaces, staff, and supplies are not consistent with usual standards of care, but provide sufficiency of care in the context of a catastrophic disaster (i.e., provide the best possible care to patients given the circumstances and resources available). Crisis capacity activation constitutes a *significant* adjustment to standards of care.

SOURCE: Hick et al., 2009.

a community in greater jeopardy of exceeding the availability of health care resources, resulting in an earlier transition from conventional to contingency or crisis standards of care.

The precious factor of time also affects the well-being of any community afflicted by disaster. Delays in attaining situational awareness, anticipating resource shortfalls, or making appropriate requests for assistance

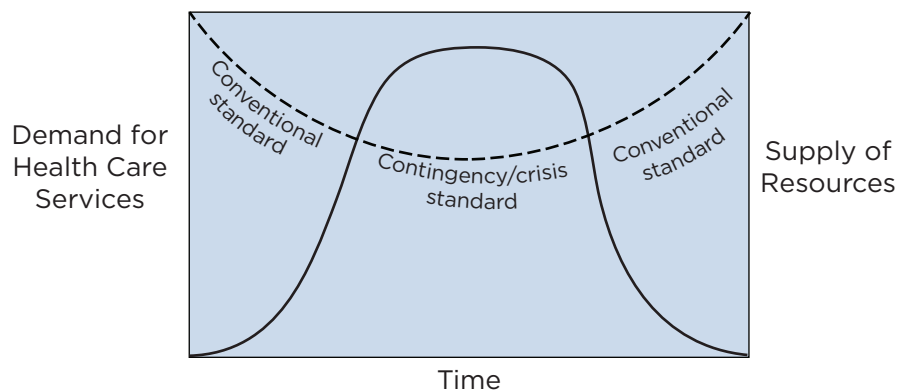


FIGURE 2-3
Demand for health care services and supply of resources as a function of time after disaster onset.

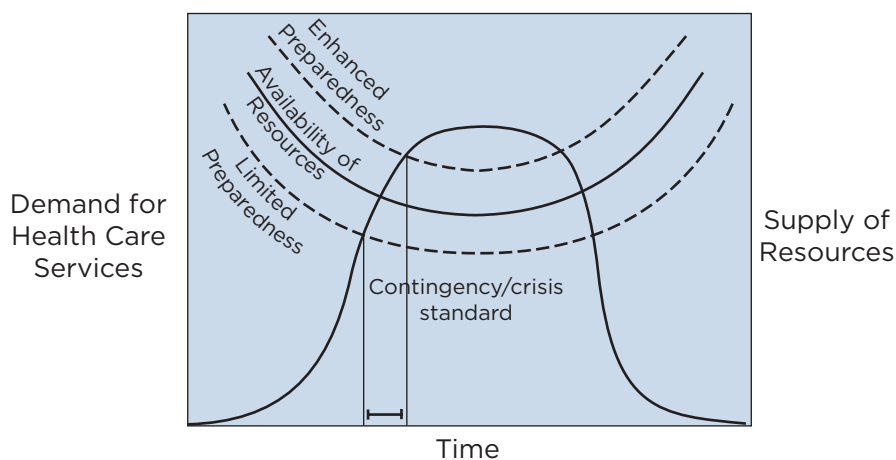


FIGURE 2-4
Demand for health care services and supply of resources as a function of time after disaster onset, taking into account care capacity as a function of time.

Federal, State, and Local Governments

Federal Government

The federal government (primarily the Department of Health and Human Services [HHS]) will continue to lead efforts to support and encourage the development of CSC plans for use in catastrophic disaster situations, primarily through continued emphasis on the importance of coordinating such planning within the larger context of surge capacity planning as part of a disaster response framework. Inclusion of specific language in HHS’s Hospital Preparedness Program and the Centers for Disease Control and Prevention’s (CDC’s) Public Health Emergency Preparedness cooperative agreements is the best way for the federal government to exert a positive influence on state government planning, which should be the ultimate driver of such efforts.

Federal agencies, particularly HHS (e.g., the Assistant Secretary for Preparedness and Response and

CDC), will play critical roles in helping to define triage strategies for available resources, such as access to vaccines or other medical countermeasures that may be in short supply. The federal government will also play an important role in augmenting health care delivery as part of the disaster response effort. The National Disaster Medical System (NDMS) can provide personnel, supplies, and patient evacuation services within affected areas and patient care outside of immediately affected areas. And the Strategic National Stockpile, managed by CDC, has the goal of getting an initial infusion of necessary medical countermeasures and equipment on the ground at a disaster site within 12 hours, and supplementing those resources with continued shipments in the days following the incident. There may also be a role for federal responders to serve as members of interstate triage teams, possibly under the auspices and legal protection of the NDMS.

The Department of Defense (DOD) and the Department of Veterans Affairs (VA) play major roles in disaster planning and response. DOD medical treatment facilities and VA medical centers and community-based outpatient clinics should support regional and state plans to implement CSC. Although these government facilities are part of a national health care delivery system, support to local communities is an important part of their humanitarian mission. Should a large region be affected, coordination with all affected health care systems and levels of government will be required; therefore, inclusion of DOD and the VA in the planning process is of major significance.

Finally, although states have primary responsibility for legal standards relating to tort liability, scope of practice, and the like, the federal government has a role to play here as well, particularly for health professionals who respond under the auspices of the NDMS. The federal government can also waive regulatory restrictions or sanctions (e.g., for failing to comply with certain Emergency Medical Treatment and Active Labor Act requirements) and waive the documentation requirements of Medicare and Medicaid, all of which facilitate the delivery of medical care under crisis conditions.

State and Local Governments

The leadership of state and local governments is paramount in the initiation of CSC planning and implementation. This is especially true because public health and governmental EMS agencies operate under the direct auspices of state and local government authority. It becomes more difficult to address CSC planning outside of state and local government influence, especially in the private health care sector. In this regard, a systems approach to planning ensures the unification of efforts, particularly with respect to the consistency of plan development and implementation.

One useful way to envision the relationship among hospital, public health, and local, state, and federal government functions is to think of CSC planning in the context of the Medical Surge Capacity and Capability framework (Barbera and MacIntyre, 2007). In Figure 2-5, this framework is adapted to include some of the specific functional elements described in the 2009 letter report, including the creation of state and regional disaster medical advisory committees and the role of triage teams, clinical care committees, and palliative care teams. The figure depicts how CSC planning and implementation occur across the continuum from individual health care institutions, to health care coalitions spanning multiple jurisdictions, to the state and federal levels. The figure shows the locations at which key emergency management functions occur, and so demonstrates how and where the appointed planning and response teams are expected to interact in the promulgation of CSC recommendations and decisions. The key responsibilities of the entities shown in the figure are listed in Table 2-2.

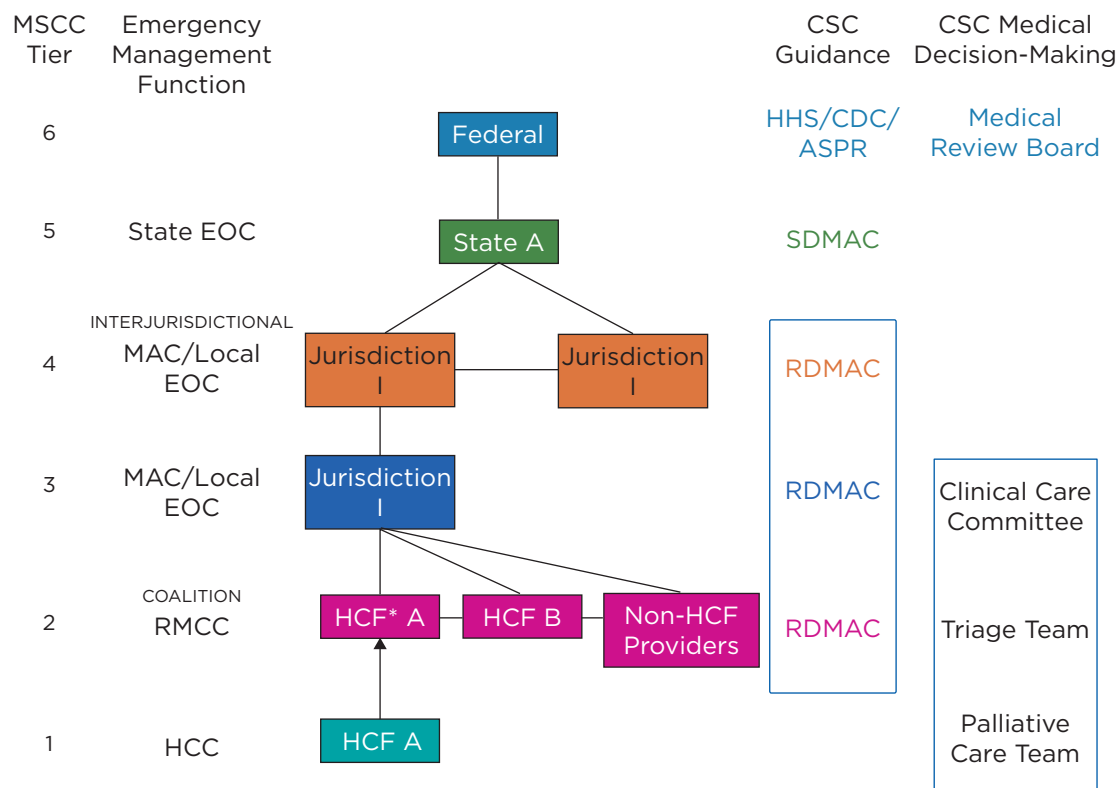


FIGURE 2-5 Integrating crisis standards of care planning into the Medical Surge Capacity and Capability framework. NOTES: Further detail is provided in Table 2-2. The clinical care committee, triage team, and palliative care team may be established at MSCC tiers 1, 2, or 3. ASPR = Assistant Secretary for Preparedness and Response (Department of Health and Human Services); CDC = Centers for Disease Control and Prevention; CSC = crisis standards of care; EOC = emergency operations center; HCC = health care coalition; HCF = health care facility; HHS = Department of Health and Human Services.

Emergency Medical Services

Because of their critical role in linking patients in the outpatient environment to hospitals and the delivery of care, EMS agencies should play a major part in the development and implementation of CSC plans. Adjustments to scopes of practice, treatment modalities, ambulance staffing, and call response will figure significantly in state, local, and EMS-specific disaster response plans. Other areas that can be leveraged to manage scarce EMS resources include the authority to activate restricted treatment and transport protocols. Integration of CSC planning with the efforts of public health planners will be necessary to ensure consideration of case management (advice line) call centers, poison control, use of alternate care system destination points for ambulance patients, and limitation of care to on-scene treatment without transport. It should also be recognized that much EMS activity in the United States is provided by volunteer staff in rural communities, where resources are often limited on a regular, ongoing basis.

Hospitals/Acute Care Facilities and Out-of-Hospital/Alternate Care Systems

Clinical operations in hospitals, ambulatory care clinics, and private practices make up the largest single element of the response framework in which CSC will be implemented. Therefore, careful planning

TABLE 2-2

Key Responsibilities of Entities Shown in Figure 2-5

Function	Key Responsibilities
State Emergency Operations Center (EOC)	<ul style="list-style-type: none"> • Communicates declarations and regulatory relief provided by the governor's office to response partners and the public • Maintains situational awareness • Brokers resource requests from local/regional EOCs and conveys resource needs to the federal government • Coordinates and ensures consistency of interstate implementation of disaster response plans
State Health Department	<ul style="list-style-type: none"> • Convenes state disaster medical advisory committee (SDMAC) to establish plans and guidelines • Provides situational awareness to state EOC and regional medical coordination center (RMCC) and hospitals • Requests declarations and regulatory relief from governor's office and manages requests to the federally controlled Strategic National Stockpile • Oversees and ensures regional consistency in the execution of disaster response plans • Makes declaration of emergency (e.g., disaster, health emergency, or public health emergency), which provides support for CSC implementation
State Disaster Medical Advisory Committee (SDMAC)	<ul style="list-style-type: none"> • Formulates guidance for the development and implementation of crisis standards of care (CSC) plans • Convenes to provide expert advisory input to state agencies during a response effort • Reviews intrastate (regional) and interstate application of CSC plans to ensure consistency
Regional Medical Coordination Center (RMCC)	<ul style="list-style-type: none"> • Maintains and provides situational awareness for member health care systems • Acts as a clearinghouse for management of health care issues • Manages resources and executes preincident memorandums of understanding and memorandums of agreement • Coordinates with local emergency response system partners to develop policies and guidance necessary for CSC response • Develops and implements regional triage plans and performance improvement processes for the oversight of medical care during a disaster
Regional Disaster Advisory Committee (RDMAC)	<ul style="list-style-type: none"> • May be convened by RMCC to assist in the evaluation and implementation of state guidance • May organize and compose a regional triage team that can assist with the implementation of performance improvement processes during the implementation of CSC guidance • Provides subject matter expertise to RMCC and health care coalition members
Health Care Coalition	<ul style="list-style-type: none"> • Develops strategies and tactics to support emergency preparedness, response, and recovery activities of substate regional health care systems involving member organizations • Provides multiagency coordination for the interface with the appropriate level of emergency operations to assist with the provision of situational awareness and the coordination of resources for health care organizations during a response
Clinical Care Committee (health care facility and/or regional)	<ul style="list-style-type: none"> • Implements clinical care guidance based on SDMAC/regional disaster medical advisory committee (RDMAC) inputs • Institutes performance measures for triage decision making • Institutes performance measures for allocation of scarce resource • Ensures coordination of CSC plan implementation with existing surge capacity plans • Reviews requests for patient appeals
Triage Team (health care facility and/or regional)	<ul style="list-style-type: none"> • Reviews and implements guidance developed by SDMAC/RDMAC and clinical care committee • Implements triage processes
Palliative Care Team (health care facility and alternate care systems)	<ul style="list-style-type: none"> • Ensures availability and implementation of comfort care for victims of a disaster

is required at both the local and regional levels, including plans to ensure intraregional coordination and cooperation. Disaster response plans should delineate protocols for a shift from conventional standards of care to ensure that essential health care services will be sustained during the response. It is assumed that under disaster response conditions, resources—including state, regional, and federal caches; access to medical countermeasures; and the ability to transfer patients—are unavailable elsewhere in the region or state and will not be resupplied in the short term.

MILESTONES FOR CRISIS STANDARDS OF CARE PLANNING AND IMPLEMENTATION

Listed below are critical milestones that can be used to assess the progress of CSC planning, along with the proposed lead agency responsible for facilitating discussion, plan development, and implementation for each milestone.

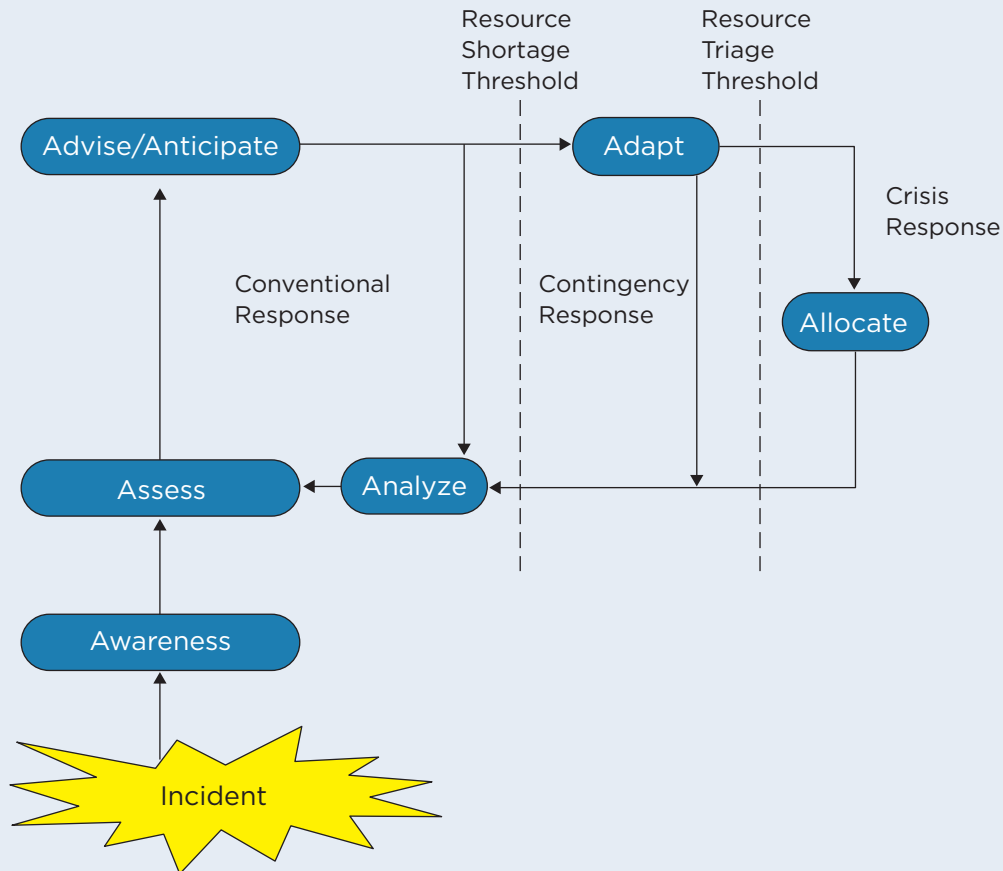
- Establish a state disaster medical advisory committee (SDMAC) or equivalent with representation that includes all emergency response partners (EMS, public health, emergency management, health care systems, community-based practitioners, public safety, others) (**governor’s office, state health department**).
- Ensure the development of a legal framework for CSC implementation in the state in collaboration with the state emergency management agency and EMS offices and the SDMAC (**governor’s office, state legislature, state attorney general’s office, state health department, state emergency management agency**).
- Promote understanding of the disaster response framework among elected officials and senior (cabinet-level) state government leadership (**state health department, state emergency management agency**).
- Develop a state health and medical approach to CSC planning that can be adopted at the regional/local level by existing health care coalitions, emergency response systems (including the regional disaster medical advisory committee [RDMAC]), and health care providers (**RDMAC, state health department**).
- Engage health care providers and professional associations by increasing their awareness and understanding of the importance and development of a CSC framework (**state and local health departments and EMS agencies, health care coalitions and member organizations**).
- Encourage participation of the out-of-hospital medical community in planning for disaster response, including the development of plans to maximize the effective use of all available materiel and personnel resources (**state and local health departments, health care coalitions, professional health care organizations**).
- Ensure that local and state plans include clear provisions that permit an adaptation of EMS systems under disaster response conditions, including changes in protocols, destinations, practices, and personnel (**state and local health departments, state EMS agencies**).
- Develop and conduct public community engagement sessions on the issue of CSC (**state and local health departments**).

- Support surge capacity and capability planning for health care facilities and the health care system, including the development of plans for allocating scarce resources and promotion of community resilience and mental health in surge response efforts (**state and local health departments, health care coalitions**).
- Plan for an alternate care system capability to manage a surge in demand for health and medical services (**state and local health departments, health care coalitions**).
- Support scarce resource planning by the RDMAC for health care facilities and the health care system so these plans can coalesce at the (regional) hospital coalition level (**state and local health departments, health care coalitions**).
- Incorporate risk communication strategies into CSC plans (**governor’s office, state and local health departments, EMS and emergency management agencies, health care coalitions and member organizations**).
- Exercise CSC plans at the local/regional level with state participation (including having the state exercise regional, intrastate, and interstate coordination if feasible) (**governor’s office, state and local health departments, emergency management and EMS agencies, health care coalitions and member organizations**).
- Exercise CSC plans at the interstate level (**governor’s office, HHS regional emergency coordinators, state health department, state EMS and emergency management agencies**).
- Use information identified during provider engagement, public/community engagement, and exercise events as elements of a process improvement cycle in order to further refine the development of disaster response plans (**governor’s office, state and local health departments and EMS agencies, health care coalitions and member organizations**).
- Develop a process for continuous assessment of disaster response capabilities based on existing information and knowledge management platforms, and create a mechanism for ensuring that these CSC planning milestones are being achieved (**governor’s office, state health department and emergency management agency**).

IMPLEMENTATION OF THE DISASTER RESPONSE FRAMEWORK

Regardless of the disaster response discipline—whether health care facility leadership, EMS, or public health—a number of steps should be considered during a real-time response to the potential need to initiate CSC. The “A Frame” approach (see Box 2-5) depicts the decision-making process that should be considered in the immediate aftermath of an incident. Modeled after what the emergency management community refers to as the “Planning P” (FEMA, 2008), this process helps establish the strategic implementation of disaster response capabilities. It provides a systematic approach to issue evaluation and decision points that help in determining whether health care delivery should remain at the conventional level, or contingency plans and/or crisis response may be necessary.

BOX 2-5
Implementation of the Surge Response Framework:
Conventional, Contingency, and Crisis Response Cycle



After an incident occurs, the first priority is to develop situational **Awareness**, and then to **Assess** the situation relative to the available resources. The incident commander, along with relevant technical experts and/or the clinical care committee (in a proactive response/longer-term incident) **Advise**s on strategies and **Anticipate**s any resource deficits (and recommends obtaining necessary supplies, staffing, etc.). If a resource is scarce, **Adaptive** strategies (such as conservation, substitution, adaptation, and reuse) should be implemented. In a crisis, a deliberate triage decision to **Allocate**/reallocate resources may be necessary. In all cases, the response and any strategies should be **Analyzed** at regular intervals as part of the disaster response planning cycle, and the elements repeated until the incident concludes. The terms in this figure can be further described as follows:

Awareness

- Incident commander recognizes current or anticipated resource shortfall(s) and assesses impact of current strategies.

Assess

- Technical experts are assigned to specific questions or areas of expertise.
- Clinical care committee performs assessment for more complex situations or when allocation of critical care resources is required during an ongoing incident.
- Logistics and liaison officers coordinate (across agencies) with suppliers, area public health and health care stakeholders, and emergency management as needed to obtain additional resources or assistance.

Advise/Anticipate

- Clinical care committee examines available resources, data, decision tools, and predictions of demand and determines possible adaptive actions. This analysis should also include what is happening within the region; the likely time frame for the crisis situation; and future impacts on demand, supplies, and staffing.
- Clinical care committee provides input to the planning section (or incident commander, depending on assignment) as to the specific adaptations necessary to accommodate ongoing demands and any recommended decision tools or policies. The committee also facilitates the transition back to conventional care as soon as possible.
- Public information and liaison officers coordinate with the planning section to ensure that the situation and adaptive strategies are included in risk communications provided to staff, patients, their families, and the community. A mechanism for addressing questions should also be available.

Adapt

- Clinical services are augmented or curtailed to allow the institution to focus on saving lives (e.g., subspecialty clinics may repurposed for outpatient acute care).
- Auxiliary equipment or spaces are utilized, including on-campus or off-campus alternate care sites, to support outpatient or inpatient overflow.
- Administrative changes involve little risk to patients and are usually the first adaptations.
- Changes are made in record-keeping and administrative duties.
- Ancillary personnel are used to provide basic hygiene and feeding services.
- Clinical changes involve escalating risk to patients and providers.
- Significant changes are made in shift lengths or number of patients supervised.
- Changes are made in criteria for evaluation (outpatient) and admission, as well as in criteria for admission to certain units (use of monitored units for critical care, for example).
- Changes are made in therapeutics, such as ventilation techniques and medication administration.

Allocate

- After approval of the incident commander, the plan is activated for the next operational period (during which the cycle begins again).
- Allocation policies are circulated (for example, use of medications or blood products).
- Reallocation decisions are made. A triage team is appointed if required for scarce critical care interventions, consisting of at least two specialists practicing and ex-

continued

BOX 2-5 Continued

perienced in the clinical specialty affected (e.g., critical care, infectious disease, nephrology) (this team may be institutional, health system, or regional).

- Triage team utilizes decision tools to determine prognoses and, when a clear difference in prognosis exists, recommends treatment for patients with a predicted better outcome (first-come, first-served applies if there is no difference in prognosis substantial enough to justify reassignment).
- Triage team decisions are communicated to the medical branch director (or designated unit supervisor), who orders appropriate patient movement and actions to implement the team's recommendations.
- Triage team decisions are documented in the medical record, as well as in the team's daily activity log.
- Transition plans are in place to maintain the dignity and comfort of patients (and their families) who should have certain forms of care withdrawn or are receiving only palliative care.

Analyze

- Quality assurance is performed for ongoing allocation strategies: Is new information available? Are the policies and procedures appropriate for the situation being followed?
- Situational and resource information is updated, and the current strategies are analyzed, with feedback to the incident commander.

Resource Shortage Threshold

- The resource shortage threshold denotes the “indicators” (described in the committee's letter report) (IOM, 2009) that demonstrate a point at which a potential or actual resource shortfall is recognized; however, substitution or other strategies may suffice to mitigate the problem.

Resource Triage Threshold

- The resource triage threshold denotes the “triggers” (described in the committee's letter report) that demonstrate that specific resources are in short supply or are altogether unavailable. Therefore, an allocation schema must be implemented, and access to a specific care resource must be triaged because of demand. The triage decision involves an assessment of need, benefit, and duration of use.

RECOMMENDATION

To enhance and elaborate on the recommendations from its 2009 letter report, which it still fully supports, the committee developed a set of templates identifying the core functions and tasks for individuals and organizations involved in CSC planning and implementation. In developing these resources, the committee emphasized the use of a systems approach that integrates CSC planning into the larger context of overall surge capacity planning. The entire emergency response system—each component acting both indepen-

dently and as part of a coherent and integrated group—should adopt such a framework to deliver the best care possible to the largest number of patients.

RECOMMENDATION: Federal, state, tribal, and local governments should develop a systems-based framework for catastrophic disaster response, which must be integrated into existing emergency response plans and programs. To facilitate the implementation of this framework, the committee specifically recommends that:

- Each level of government should ensure coordination and consistency in the active engagement of all partners in the emergency response system, including emergency management, public health, emergency medical services, public and private health care providers and entities, and public safety.
- Each level of government should integrate crisis standards of care into surge capacity and capability planning and exercises.
- The Department of Health and Human Services/Assistant Secretary for Preparedness and Response (e.g., through its Regional Emergency Coordinators) should facilitate crisis standards of care planning and response among state and tribal governments within their region.
- In crisis standards of care planning and response efforts, states should collaborate with and support local governments.
- Federal disaster preparedness and response grants, contracts, and programs in the Department of Health and Human Services, the Department of Homeland Security, the Department of Defense, the Department of Transportation, and the Department of Veterans Affairs—such as the Hospital Preparedness Program, Public Health Emergency Preparedness Program, Metropolitan Medical Response System, Community Environmental Monitoring Program, and Urban Areas Security Initiative—should integrate relevant crisis standards of care functions.

REFERENCES

- AHRQ (Agency for Healthcare Research and Quality). 2009. *Disaster alternate care facilities: selection and operation*. Publication no. 09-0062. Rockville, MD: AHRQ, <http://archive.ahrq.gov/prep/acfselection/dacfreport.pdf> (accessed February 28, 2012).
- Arlington County. 2002. *After-action report on the response to the September 11 terrorist attack on the Pentagon*. http://www.arlingtonva.us/departments/Fire/Documents/after_report.pdf (accessed February 29, 2012).
- ASPR (Assistant Secretary for Preparedness and Response). 2010a. *Medical surge capacity handbook: What is medical surge?* Washington, DC: HHS, <http://www.phe.gov/Preparedness/planning/mscc/handbook/chapter1/Pages/whatismedicalsurge.aspx> (accessed February 1, 2012).
- ASPR. 2010b. *Medical surge capacity handbook: Glossary*. Washington, DC: HHS, <http://www.phe.gov/Preparedness/planning/mscc/handbook/Pages/appendixd.aspx> (accessed February 1, 2012).
- Barbera, J. A., and A. G. MacIntyre. 2007. *Medical surge capacity and capability: A management system for integrating medical and health resources during large-scale emergencies*. 2nd ed. Washington, DC: HHS.
- Barbisch, D. F., and K. L. Koenig. 2006. Understanding surge capacity: Essential elements. *Academic Emergency Medicine* 13(11):1098-1102.
- Bascetta, C. A. 2010 (January 25). *State Efforts Plan for Medical Surge Could Benefit from Shared Guidance for Allocating Scarce Medical Resources*. Statement of Cynthia A. Bascetta, Director, Health Care, GAO before the U.S. House of Representatives, Committee on Homeland Security, Subcommittee on Management, Investigations, and Oversight, <http://www.hsc-democrats.house.gov/SiteDocuments/20100125111234-95004.PDF> (accessed February 29, 2012).
- CDC (Centers for Disease Control and Prevention). 2009. *Pandemic influenza pediatric office plan template: Product of a pediatric healthcare response to pandemic H1N1 influenza stakeholders meeting*. http://www.bt.cdc.gov/healthcare/pdf/pediatric_office_plan.pdf (accessed November 13, 2011).
- CDC. 2010a. Estimates of deaths associated with seasonal influenza—United States, 1976–2007. *Morbidity and Mortality Weekly Report* 59(33):1057-1062.
- CDC. 2010b. *2009 H1N1-related deaths, hospitalizations and cases: Details of extrapolations and ranges: United States, Emerging Infections Program (EIP) data*. http://www.cdc.gov/h1n1flu/pdf/Exact%20Numbers_AprilN.pdf (accessed November 13, 2011).
- Chung, S., S. Monteiro, T. Hogencamp, F. J. Damian, and A. Stack. 2011. Pediatric alternate site of care during the 2009 H1N1 pandemic. *Pediatric Emergency Care* 27(6):519-526.
- Cinti, S. K., W. Wilkerson, J. G. Holmes, J. Schlafer, C. Kim, C. D. Collins, K. Bandy, F. Krupansky, M. Lozon, S. A. Bradin, C. Wright, J. Goldberg, D. Wagner, P. Rodgers, J. Atas, and B. Cadwallender. 2008. Pandemic influenza and acute care centers: Taking care of sick patients in a non-hospital setting. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 6(4):335-344.
- Coleman, C. N., C. Hrdina, J. L. Bader, A. Norwood, R. Hayhurst, J. Forsha, K. Yeskey, and A. Knebel. 2009. Medical response to a radiologic/nuclear event: Integrated plan from the Office of the Assistant Secretary for Preparedness and Response, Department of Health and Human Services. *Annals of Emergency Medicine* 53(2):213-222.
- Commission on the Prevention of WMD Proliferation and Terrorism. 2008. *World at Risk: The Report of the Commission on the Prevention of WMD Proliferation and Terrorism*. New York: Vintage Books, <http://documents.scribd.com/docs/15bq1nrl9aerfu0yu9qd.pdf> (accessed February 29, 2012).
- Courtney, B., R. Morhard, N. Bouri, and A. Cicero. 2010. Expanding practitioner scopes of practice during public health emergencies: Experiences from the 2009 H1N1 pandemic vaccination efforts. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 8(3):223-231.
- Cruz, A. T., B. Patel, M. C. DiStefano, C. R. Codispoti, J. E. Shook, G. J. Demmler-Harrison, and P. E. Sirbaugh. 2010. Outside the box and into thick air: Implementation of an exterior mobile pediatric emergency response team for North American H1N1 (swine) influenza virus in Houston, Texas. *Annals of Emergency Medicine* 55(1):23-31.
- DHS (Department of Homeland Security). 2009. *Preparedness planning for home health care providers*. Washington, DC: DHS, http://www.dhs.gov/files/programs/gc_1221055966370.shtm (accessed February 29, 2012).
- FEMA (Federal Emergency Management Agency). 2008. *Incident Command System Training: Review Material*. Washington, DC: FEMA, <http://training.fema.gov/EMIWeb/IS/ICSRsource/assets/reviewMaterials.pdf> (accessed February 29, 2012).

- George Washington University Institute for Crisis, Disaster and Risk Management. 2009. *Emergency Management Principles and Practices for Health Care Systems: Unit 5: Appendices*. Washington, DC: George Washington University, http://www.vibha.info/uploads/2/9/3/6/2936979/air_ambulance_5.pdf (accessed February 28, 2012).
- Gostin, L. O., and M. Powers. 2006. What does social justice require for the public's health? Public health ethics and policy imperatives. *Health Affairs* 25(4):1053-1060.
- HHS (Department of Health and Human Services). 2007. *Medical surge capacity and capability*. Washington, DC: HHS, <http://www.phe.gov/Preparedness/planning/mscc/handbook/Documents/mscc080626.pdf> (accessed February 13, 2012).
- Hanfling, D. 2006. Equipment, supplies, and pharmaceuticals: How much might it cost to achieve basic surge capacity? *Academic Emergency Medicine* 13(11):1232-1237.
- Hanfling, D. 2009. *Alternate care systems: Stratification of care*. <http://www.iom.edu/~media/Files/Activity%20Files/PublicHealth/MedPrep/Jun-10-11-2009-Commissioned%20Papers/Jun-10-11-2009-Commissioned-Paper-Alternate-Care-Systems-Stratification-of-Care.ashx> (accessed October 30, 2011).
- Hick, J. L., D. Hanfling, J. Burstein, C. DeAtley, D. Barbisch, G. Bogdan, and S. Cantrill. 2004. Healthcare facility and community strategies for patient care surge capacity. *Annals of Emergency Medicine* 44:253-261.
- Hick, J. L., J. A. Barbera, and G. D. Kelen. 2009. Refining surge capacity: Conventional, contingency, and crisis capacity. *Disaster Medicine and Public Health Preparedness* 3(Suppl. 2):S59-S67.
- Hodge, J. G., and E. F. Brown. 2011. Assessing liability for health care entities that insufficiently prepare for catastrophic emergencies. *Journal of the American Medical Association* 306(3):308-309.
- IOM (Institute of Medicine). 2009. *Guidance for establishing crisis standards of care for use in disaster situations: A letter report*. Washington, DC: The National Academies Press, http://www.nap.edu/catalog.php?record_id=12749 (accessed September 6, 2011).
- Kaji, A., K. L. Koenig, and T. Bey. 2006. Surge capacity for healthcare systems: A conceptual framework. *Academic Emergency Medicine* 13(11):1157-1159.
- Kelen, G. D., M. L. McCarthy, C. K. Kraus, R. Ding, E. B. Hsu, G. Li, J. B. Shahan, J. J. Scheulen, and G. B. Green. 2009. Creation of surge capacity by early discharge of hospitalized patients at low risk of untoward events. *Disaster Medicine and Public Health Preparedness* 3(Suppl. 2):S10-S16.
- Kikta, K. 2011. 45 seconds: An ED physician in a tornado. *ACEP News*, July, <http://www.acep.org/Content.aspx?id=80810> (accessed November 3, 2011).
- Lam, C., R. Waldhorn, E. Toner, T. V. Inglesby, and T. O'Toole. 2006. The prospect of using alternative medical care facilities in an influenza pandemic. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 4(4):384-390.
- Merriam-Webster Dictionary. 2012. *Definition of "system"*. Springfield, MA: Encyclopaedia Britannica, <http://www.merriam-webster.com/dictionary/system?show=0&ct=1328115597> (accessed February 1, 2012).
- Minnesota Department of Health. 2008. *Minnesota healthcare system preparedness program standards of care for scarce resources*. <http://www.health.state.mn.us/oep/healthcare/standards.pdf> (accessed September 8, 2009).
- OSTP (Office of Science and Technology Policy). 2010. *Executive Office of the President Homeland Security Council Interagency Policy Coordination Subcommittee for Preparedness and Response to Radiological and Nuclear Threats, Planning Guidance for Response to a Nuclear Detonation (June 2010)*. www.ostp.gov (accessed February 1, 2012).
- Rubinson, L., J. L. Hick, D. Hanfling, A. V. Devereaux, J. R. Dichter, M. D. Christian, D. Talmor, J. Medina, J. R. Curtis, J. A. Geiling; Task Force for Mass Critical Care. 2008a. Definitive care for the critically ill during a disaster: A framework for optimizing critical care surge capacity. *Chest* 133(Suppl. 5):18S-31S.
- Rubinson, L., J. L. Hick, J. R. Curtis, R. D. Branson, S. Burns, M. D. Christian, A. V. Devereaux, J. R. Dichter, D. Talmor, B. Erstad, J. Medina, J. A. Geiling; Task Force for Mass Critical Care. 2008b. Definitive care for the critically ill during a disaster: Medical resources for surge capacity. *Chest* 133(Suppl. 5):32S-50S.
- Scarfone, R. J., S. Coffin, E. S. Fieldston, G. Falkowski, M. G. Cooney, and S. Grenfell. 2011. Hospital-based pandemic influenza preparedness and response: Strategies to increase surge capacity. *Pediatric Emergency Care* 27(6):565-572.
- Schultz, C. H., K. L. Koenig, and R. J. Lewis. 2003. Implications of hospital evacuation after the Northridge, California Earthquake. *New England Journal of Medicine* 348(14):1349-1355.
- Weiss, E. A., J. Ngo, G. H. Gilbert, and J. V. Quinn. 2010. Drive-through medicine: A novel proposal for rapid evaluation of patients during an influenza pandemic. *Annals of Emergency Medicine* 55(3):268-273.

3: Legal Issues in Emergencies

As noted in the committee’s 2009 letter report, significant legal challenges are associated with catastrophic disasters involving the allocation of scarce health care resources and the establishment of crisis standards of care (CSC). These issues cut across nearly all levels of the public and private sectors involved in coordinating and providing emergency care during disaster response. To assist state and local public health and emergency planners, this chapter explores how key principles of law and policy can impede or facilitate the provision of public health and health care services during a disaster. It also addresses inherent conflicts related to the need to balance individual and communal health interests during such incidents. At the core of these issues is the need to transition rapidly from individual- to population-centric health services to save as many lives as possible and prevent injuries among patients, practitioners, and responders.

MEDICAL AND LEGAL STANDARDS OF CARE

In its letter report, the committee addressed several key issues related to distinctions between medical and legal standards of care, as well as scopes of practice for licensed health care workers. Modern studies consistently note how health care services must change during emergencies pursuant to what have been labeled “altered,” “situational,” and now “crisis” standards of care (AHRQ, 2005; AMA, 2007; Christian et al., 2006; Devereaux et al., 2008; GAO, 2008; Kanter, 2007). While the development and implementation of CSC are distinct from an assessment of prevalent liability protections, emergency planners and responders may consider whether additional liability protections are warranted in their jurisdictions, as discussed below.

The letter report described how changes in medical standards of care during an emergency may not be reflected in the corresponding legal standards of care, a disconnect that can lead to potential liability exposure for health care practitioners, volunteers, and entities during their response efforts. While medical and legal standards of care often are regarded as interchangeable, by one view they are in fact distinct concepts. According to this view, *medical standards of care* describe the types and levels of medical care dictated by professional norms, professional requirements, and institutional objectives (AHRQ, 2005; Hick et al., 2009; Pegalis, 2009). These standards of care vary (1) among different types of health care facilities, such as hospitals, clinics, and alternate care facilities (Hick et al., 2009); and (2) based on prevailing circumstances,

including during emergencies.¹ Although existing, routine medical standards of care are flexible, they do not reflect the guidance needed to assist health care practitioners attempting to allocate scarce resources and make difficult decisions (including the potential withholding or withdrawal of life-sustaining treatment) during austere conditions in a public health emergency (GAO, 2008). *Legal standards of care*, on the other hand, may be defined as the minimum amount of care and skill a health care practitioner should exercise in particular circumstances based on what a reasonable and prudent practitioner would do in similar circumstances (Mastroianni, 2006).² Legal standards of care are necessarily fact-specific, flexible, and subject to differing interpretations by different courts (Dobbs, 2000). They may reflect medical standards, but do not always. For example, prior courts assessing standards of care have determined at times that prevailing medical practice was insufficient or unacceptable in exceptional cases.^{3,4} In these instances, practitioners have been found liable for their actions even though, based on the circumstances, their acts were consistent with the prevailing medical standards of care.

Another view suggests that legal standards of care are intrinsically tied to medical standards of care. This view assumes that changes in the medical standards, such as those during a crisis, are automatically incorporated into the way courts and other legal authorities assess whether a particular actor has breached the standards through negligence or intentional acts because the legal standards of care by definition are based on what a reasonable practitioner would do under the particular circumstances (Annas, 2010). Given the flexibility of legal standards of care, some suggest that laws offering immunity or other protections from liability for health care workers, volunteers, or entities are unnecessary or even detrimental to the extent that they may deny patients recourse for injuries caused by negligent acts (ABA, 2011).⁵ During some disasters (e.g., Hurricane Katrina in 2005), patients in specific at-risk populations, such as the elderly, racial minorities, and those of lower socioeconomic status, may suffer disproportionately relative to others. To some, it appears unfair to deny these patients direct recourse against potentially negligent health care workers. In prior national emergencies, government has created compensation funds for those impacted to help provide recourse for direct harms they may have sustained as a result of the emergency.

However, federal, state, and local governments, public health agencies, and public health and health care organizations have consistently supported limited liability or indemnification protections for health care and public health actors, especially volunteers, during emergencies. In 2008, the American Medical Association (AMA) endorsed states' consideration of the provisions of the Uniform Volunteer Emergency Health Practitioners Act for potential enactment, specifically including provisions that protect volunteer health care practitioners from liability claims grounded in negligence (AMA, 2008).⁶ In 2005, the AMA

¹ Note that medical standards of care should not be confused with a health care provider's scope of practice or associated privileges (Curie and Crouch, 2008; Pegalis, 2009). *Scope of practice* refers to the extent of a licensed professional's ability to provide health services in accordance with his or her competence and license, certification, privileges, or other authority to practice (AHRQ, 2005; Wise, 2008).

² *Hood v. Phillips*, 554 S.W.2d 160, 165 (Tex. 1977).

³ *Helling v. Carey*, 83 Wash. 2d 514, 519 P.2d 981 (1974).

⁴ *Canterbury v. Spence*, 464 F.2d 772 (D.C. Cir. 1972).

⁵ The American Bar Association's House of Delegates has expressed opposition to the adoption of laws that "would alter the legal duty of reasonable care in the circumstances owed to victims of a natural or manmade disaster by relief organizations or health care practitioners." It suggests that the flexible nature of the legal standards of care provides adequate assurance of protection from unwarranted liability claims without the need to deny patients their right to bring claims through immunity protections.

⁶ "RESOLVED, That our American Medical Association support the enactment in state legislatures of the National Conference of Commissioners on Uniform State Laws [NCCUSL] Uniform Emergency Volunteer Health Practitioners Act with the liability language of Alternative A as formally adopted by the NCCUSL in August 2007."

adopted a resolution declaring the need for “national legislation that gives qualified physician volunteers . . . automatic medical liability immunity in the event of a declared national disaster or federal emergency” (AMA, 2005).

Underlying the AMA’s and other health care professionals’ positions is the recognition that adherence to reasonable legal standards of care based on prevailing circumstances may lead to unpredictable outcomes when legal disputes arise. Lacking sufficient legal precedents, the provision of reasonable care through medical triage in a crisis may be viewed by many as insufficient or negligent because it may deviate extensively from normal standards as a result of the scarcity of resources. The development of national guidance on CSC may obviate some claims by clarifying the roles and responsibilities of practitioners during an emergency, against which the reasonableness of their actions or omissions may be adjudicated. Such results, however, are not assured. Facing potential uncertainty as to how courts or other arbitrators will assess claims arising from crisis care, qualified health care practitioners, volunteers, and entities naturally are concerned about their actual or perceived risks of liability. Nonetheless, all levels of government provide limited legal liability protections for many practitioners and entities responding during emergencies to offer assurances and incentives for their participation in emergency response efforts (as detailed later in the chapter).

There are two predominant paths to assessing and resolving potential negligence claims resulting from the implementation of CSC. One path is to suggest a policy of adhering to the standards of care as they evolve along the continuum described in Chapter 2 (Box 2-4). Via this path, a negligence claim arising during the implementation of CSC should be assessed later by experts and courts based on what a reasonable practitioner would do under similar circumstances. The other path reflects a different policy approach entailing how key legal liability protections from negligence claims take effect once a state of emergency has been declared. Instead of requiring adherence to evolving standards of care, these protections, documented further below, may dispel future negligence-based claims against practitioners, volunteers, and entities in recognition of the extreme variations in the provision of population-centric care in triage-like environments, when the applicable standards of care are constantly being evaluated and changing.

THE CHANGING LEGAL ENVIRONMENT IN DECLARED EMERGENCIES

Clarity concerning CSC is necessitated in part by the changing nature of the legal environment in declared emergencies. In nonemergencies, existing laws and policies offer reasonable guidance on the empowerment of actors and entities to allocate health resources and deliver health care. During declared emergencies, however, the legal environment changes. Emergency declarations trigger an array of nontraditional powers designed to facilitate response efforts by the public and private sectors. Emergency laws may (1) provide governments with sufficient flexibility to respond (e.g., by waiving specific regulatory requirements); (2) mobilize central commands and infrastructures; (3) encourage response efforts by limiting liability; (4) authorize interstate recognition of health care licenses; (5) allocate health care personnel and resources; (6) permit the provision of health care or public health services at nontraditional, alternate care sites; and (7) facilitate essential changes to the delivery of medical services and scopes of practice (Courtney et al., 2010; Hodge et al., 2009).

The extent of legal variations during emergencies, however, depends on the type of emergency declared. The federal government, every state, many territories, and some local governments may declare either general

states of “emergency” or “disaster” in response to crises that affect the public’s health (Hodge and Anderson, 2008). Such declarations largely authorize emergency management agencies and others to use general legal powers to coordinate emergency responses. The Department of Health and Human Services (HHS) and more than half the states may also declare states of “public health emergency” (Hodge et al., 2008) based in part on the Model State Emergency Health Powers Act (Centers for Law and the Public’s Health, 2001).⁷ Collectively, these declarations authorize an array of expedited public health powers coordinated by public health agencies in conjunction with emergency managers and other partners. The federal government and some states may declare states of both “emergency” or “disaster” and “public health emergency” in response to the same incident, such as during Hurricane Katrina and the 2009 H1N1 pandemic. These dual declarations can lead to confusion as divergent governmental powers and actors seek to respond in overlapping and potentially inconsistent ways (Hodge and Anderson, 2008).

LEGAL ISSUES IN DECLARED EMERGENCIES

From these varying emergency declarations arise a host of powers and protections that may impact the delivery of health care services depending, in part, on real-time legal interpretations. Health care practitioners and entities responsible for emergency preparedness should consider numerous legal issues that arise in responding to events along the continuum of care leading up to a declared state of emergency, as documented in Table 3-1 and summarized in relevant subsections below.

Legal Authorization to Allocate Personnel, Resources, and Supplies

Emergency declarations and ensuing orders, as noted above, can help shift how and where care is delivered and how resources (e.g., personnel, medical supplies, physical space) are allocated.^{8,9} Many states’ statutory emergency laws, for example, recognize out-of-state health care licenses for the limited duration of a declared emergency (Hodge et al., 2008). These “licensure reciprocity” provisions allow for the interstate sharing of out-of-state health care personnel whose licenses are viewed as in-state licenses for the duration of the declared emergency (although providers may still be subject to liability risks if they exceed their scope of practice in their home jurisdiction during their emergency response efforts). Memorandums of understanding, mutual-aid agreements, compacts, and other agreements can also facilitate the sharing of health care and other necessary resources during resource-scarce emergencies (CDC, 2011). The Emergency Management

⁷ While many states may have authorities to declare states of “public health emergency,” the following states have authorities based on the Model State Emergency Powers Act: Alabama, Arizona, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Louisiana, Maine, Maryland, New Jersey, New Mexico, North Carolina, Oklahoma, Oregon, South Carolina, South Dakota, Texas, Virginia, Washington, Wisconsin, and Wyoming.

⁸ The Commonwealth of Virginia provides immunity protections for health care practitioners during resource-scarce disasters following the declaration of a state or local emergency. “In the absence of gross negligence or willful misconduct, any health care provider who responds to a disaster shall not be liable for any injury or wrongful death of any person arising from the delivery or withholding of health care when (i) a state or local emergency has been or is subsequently declared in response to such disaster, and (ii) the emergency and subsequent conditions caused a lack of resources, attributable to the disaster, rendering the health care provider unable to provide the level or manner of care that otherwise would have been required in the absence of the emergency and which resulted in the injury or wrongful death at issue.” Code of Virginia § 8.01225.02 (2008).

⁹ Louisiana Senate Bill No. 301, SB 301, 2008 Regular Session, Louisiana Legislature, Act No. 538 (June 30, 2008), <http://www.legis.state.la.us/billdata/streamdocument.asp?did=503696> (accessed February 1, 2012).

TABLE 3-1

Selected Legal Issues of Concern to Health Care Practitioners and Entities Responsible for Emergency Preparedness

Subject	Legal Issues
Organization of Personnel	<ul style="list-style-type: none"> • How are employees, independent contractors, and volunteers legally distinguished for the purpose of coordinating services and benefits during an emergency? • Do existing labor contracts or union requirements affect the ability of the entity and its personnel to respond to an emergency? • Have appropriate contractual or other mechanisms been executed to facilitate the delivery of services by employed or volunteer personnel, ensure worker safety, or ensure the availability of workers' compensation or other benefits during an emergency?
Access to Treatment	<ul style="list-style-type: none"> • Has the entity assessed its strategy for conducting medical triage under legal requirements for treating existing and forthcoming patients? • Is the entity prepared to screen and potentially divert excess numbers of patients during an emergency consistent with the Emergency Medical Treatment and Active Labor Act (EMTALA), absent its waiver during a declared emergency? • Do health care personnel who are designated to treat existing and forthcoming patients pose any risks to patients either through (1) exposure to infectious or other conditions or (2) the use of personal protective equipment that may impede the delivery of medical services?
Coordination of Health Services	<ul style="list-style-type: none"> • Are health care personnel aware of the legal effects of a shift to crisis standards of care and changes relating to scopes of practice during a declared emergency? • Are health care personnel knowledgeable about conditions related to the issuance of emergency use authorizations (EUAs) by the Food and Drug Administration (FDA), including accompanying mandatory emergency use information for patients and providers? • Are adequate mechanisms in place to ensure compliance with surveillance, reporting, testing, screening, partner notification, quarantine, isolation, and other public health mandates during an emergency? • Are legal issues concerning the use of volunteer health professionals during an emergency addressed through the entity's emergency plan?
Patients' Interests	<ul style="list-style-type: none"> • Can patients with physical or mental disabilities be accommodated during the emergency consistent with disability protection laws? • Do patients have adequate access to available medical countermeasures to ensure their health and safety? • Are appropriate measures in place for attempting to ascertain patients' informed consent? • Barring waiver of national, state, or local privacy laws through emergency declarations, are the entity and its personnel prepared to respect patients' health information privacy rights during an emergency? • Is the entity prepared to evacuate at-risk patients in response to an emergency?
Allocation of Resources	<ul style="list-style-type: none"> • Is there a legitimate process for determining allocation of limited resources that is fair, reasonable, nondiscriminatory, and credibly based on protecting the health of patients and the public? • Are there federal, state, and/or local policies regarding resource allocation that should be followed? • Can government appropriate existing resources (with just compensation) for communal purposes during an emergency?
Liability	<ul style="list-style-type: none"> • When may the entity and its personnel be liable for their actions in treating patients under crisis standards of care during an emergency? • What legal protections from liability for entities, their health care personnel, independent contractors, and volunteers (including insurance coverage) apply during an emergency? • May entities and their personnel face potential liability for failure to adequately plan or train for emergencies?

continued

TABLE 3-1 Continued

Subject	Legal Issues
Reimbursement	<ul style="list-style-type: none"> • Are there established reimbursement protocols for treating patients during an emergency? • Are private health insurers or other payers legally required to reimburse for care delivered to patients in furtherance of the public's health? • Are entities organized to seek federal and state reimbursement through the Centers for Medicare & Medicaid Services, the Federal Emergency Management Agency, or other sources for care delivered in off-site facilities operated by the entity? • Have federal/state authorities accelerated, altered, or waived Medicare/Medicaid requirements for reimbursement during an emergency?
Interjurisdictional Cooperation	<ul style="list-style-type: none"> • Has the entity executed memorandums of understanding, mutual-aid agreements, or other agreements to facilitate interjurisdictional coordination of emergency health care services? • Are these agreements consistent with federal (Department of Health and Human Services/Assistant Secretary for Preparedness and Response or Centers for Medicare & Medicaid Services; Department of Homeland Security/National Incident Management System) or other government requirements? • Is the entity's all-hazards emergency plan integrated with community-level emergency planning and objectives? • Have state or local governments on international borders addressed specific concerns through lawful agreements across borders?

SOURCE: Hodge et al., 2009.

Assistance Compact (EMAC),¹⁰ for example, formalizes interstate mutual aid among all states, several territories, and the District of Columbia. Similar compacts at the regional, tribal, and municipal levels further facilitate care and distribute resources.

Liability Risks and Protections for Health Care Practitioners

As noted above, liability exposure is a prominent concern among health care practitioners and entities. The implementation of CSC is a dynamic process that entails difficult decisions, intense trade-offs, constant assessments of specific courses of action, and potentially unconventional acts (including denying or withdrawing health care services because of limited resources). Virtually any patient may feel aggrieved by failing to receive state-of-the-art medical care during an emergency that would have been provided in routine health care environments. Against this backdrop, the potential arises for legal action resulting from perceived or actual denial or limitation of health care services during a crisis. High-profile cases involving health care practitioners responding during Hurricane Katrina, for example, have garnered national attention.¹¹ Potential liability claims can result from alleged civil, criminal, and constitutional violations by health care practitioners, volunteers, and government or private entities (Hodge et al., 2009). Liability may stem from claims of medical malpractice, discrimination, invasions of privacy, or violations of other state and federal statutes (e.g., the Emergency Medical Treatment and Active Labor Act [EMTALA]).¹² Recently, Tenet

¹⁰ Public Law 104-321. EMAC was approved by Congress in 1996. All states, the District of Columbia, Puerto Rico, Guam, and the U.S. Virgin Islands have enacted EMAC legislation.

¹¹ The most publicized case of criminal liability associated with a health care professional's decisions during a resource-scarce situation is that of Dr. Anna Pou, a physician from Memorial Medical Center in New Orleans. Dr. Pou was charged with second-degree murder for allegedly hastening the deaths of several patients during Hurricane Katrina. While she was not criminally indicted, she also faced several civil wrongful death claims. In response, Louisiana enacted civil liability immunity protection laws aimed at protecting health care workers who act in good faith during emergencies. See, e.g., *Louisiana Senate Bill No. 301*, Act No. 538 (2008).

¹² The *Emergency Medical Treatment and Active Labor Act (EMTALA)*, 42 U.S.C.A. § 1395dd (1986). EMTALA, for example, requires hospitals that participate in Medicare and have a dedicated emergency department to provide a medical screening examination within their capability to individuals who report to the emergency department and request such an examination or treatment for a medical condition.

Health Systems, which operated Memorial Medical Center in New Orleans, settled claims brought by Hurricane Katrina victims for \$25 million. The victims' claims entailed negligence not only for Tenet's failure to respond, but also for its failure to plan and prepare properly for the emergency itself (Hodge and Brown, 2011). Such cases reaffirm the essential role of advance planning and preparedness activities in mitigating, at least in part, prospective liability claims.

While not all legal causes of action are viable or proliferate, health care practitioners and entities remain apprehensive about their potential exposure to liability risks especially during emergencies, when their actions and responsibilities may exceed the norm. After the unsuccessful indictment in 2006 of Dr. Anna M. Pou and other health care personnel on criminal charges related to their handling of several patients at Memorial Medical Center during Hurricane Katrina, the AMA, the Louisiana State Nurses Association, and other organizations expressed concern that the case would cause practitioners to reconsider whether to help people during disasters (Jervis, 2007). In developing additional guidance for the implementation of CSC, the committee heard directly from numerous state and local public health and emergency management representatives about their concerns regarding how liability risks may impact the willingness of practitioners and volunteers to participate in emergency response efforts. In addition to numerous anecdotal accounts documented by the committee and other credible sources, some empirical data support similar findings.

In 2006 the Community Health Planning and Policy Development Section of the American Public Health Association (APHA) conducted an electronic survey of prospective volunteer health practitioners. More than 1,000 responses were received. When asked, as a potential volunteer, "how important is your immunity from civil lawsuits in deciding whether to volunteer during emergencies," almost 70 percent of respondents indicated it was "important" (35.6 percent) or "essential" (33.8 percent) (Carpenter et al., 2008). A survey of 1,057 prospective Medical Reserve Corps (MRC) volunteers in Hawaii, published in 2008, found that liability protections were among respondents' primary concerns during operations (Quereshi et al., 2008). Concerns regarding liability risks (among others) also are noted in another study of prospective MRC volunteers conducted in 2007 (Schechter, 2007). A 2009 qualitative study of UK health care workers' willingness to respond during an influenza pandemic (conducted after substantial inquiries following the London bombings in 2005) found "both clinical and non-clinical participants were worried about being asked to perform a role they had not been trained for, and had concerns both about being a danger to patients and *being subject to litigation if something went wrong.... It was clear that many participants would be reluctant to take on extended roles without some assurance that they would be protected from litigation*" [emphasis added] (Ives et al., 2009).

Despite liability concerns during emergencies, there are no comprehensive national liability protections for health care practitioners or entities in all settings. Instead, an array of liability protections at all levels of government covers practitioners and entities—particularly volunteers and government entities and officials—that act in good faith and without willful misconduct, gross negligence, or recklessness (Hoffman, 2008; Hoffman et al., 2009; Rosenbaum et al., 2008; TFAH, 2008). Similar to protections bestowed upon emergency managers, police, firefighters, and other responders, emergency liability protections in all states may immunize or indemnify public health and health care actors or entities from specific claims or monetary damages. Federal or state suspensions of legal requirements or waivers of sanctions for failing to comply with

EMTALA also includes requirements for stabilizing and transferring patients. Physicians and health care entities that negligently fail to comply with EMTALA may be excluded from participation in the Medicare program and incur monetary penalties.

certain federal or state statutes during declared emergencies may offer additional protections.¹³ Some liability protections, including Good Samaritan statutes (HHS ASPR, 2009), volunteer protection acts,^{14,15} and tort claims acts,¹⁶ may apply outside of an emergency declaration. Other protections, such as those pursuant to EMAC¹⁷ or emergency laws, are triggered only by an emergency declaration (Centers for Law and the Public's Health, 2004). Table 3-2 lists specific statutory or regulatory language that currently provides various levels of liability protection for health care practitioners, volunteers, and entities.

Specific federal declarations provide targeted liability protections and authorize the emergency use of medical countermeasures needed for a response. For example, the federal Public Readiness and Emergency Preparedness (PREP) Act¹⁸ provides strong liability protections for individuals and entities implementing certain covered medical countermeasures (i.e., countermeasures that are Food and Drug Administration [FDA]-approved, authorized for investigational use, or authorized by an emergency use authorization [EUA]) (Binzer, 2008). Upon a PREP Act declaration by the Secretary of HHS, limited protection from tort liability is extended to “covered persons” (e.g., the United States, manufacturers of the countermeasures, drug distributors, pharmacies, state and local program planners) involved in the development, distribution, and administration of the medical countermeasure(s).¹⁹ The act expressly establishes a compensation fund for individuals injured as a result of the administration or use of covered countermeasures (HRSA, 2005). PREP Act liability protections, however, are limited. They apply only to persons and covered countermeasures specified by HHS: one lower court decision in New York, currently on appeal, suggests that the PREP Act liability protections do not immunize a school system or health practitioner involved in allegedly “bad faith” administration of the H1N1 vaccine to a minor student whose parents did not provide their consent.²⁰ PREP Act declarations also are effective only for a specified period of time; however, the effective date of a declaration can precede the date of issue (see, for example, HHS, 2007, issued February 1, 2007, but effec-

¹³ 42 U.S.C. § 1320b-5 (2008). Under section 1135 of the Social Security Act, the Secretary of HHS may temporarily waive or modify certain program requirements for Medicare, Medicaid, and the State Children's Health Insurance Program. For example, sanctions for failing to comply with certain EMTALA requirements may be waived by the Secretary during public health emergencies.

¹⁴ Public Law 105-19; 42 U.S.C. § 14501 et seq. All states and the District of Columbia have adopted state volunteer protection acts.

¹⁵ The *Uniform Emergency Volunteer Health Practitioners Act (UEVHPA)* was developed in 2007 in response to a lack of uniformity in states' protections for medical and other volunteers. It “establishes a system whereby health professionals may register either in advance of or during an emergency to provide volunteer services in an enacting state. Registration may occur in any state using either governmentally established registration systems, such as the federally funded ‘ESAR VHP’ [Emergency System for Advance Registration of Volunteer Health Professionals] or Medical Reserve Corps programs” (<http://www.uevhpa.org/DesktopDefault.aspx>).

¹⁶ Under the *Federal Tort Claims Act*, for example, a “covered employee [is] not personally liable for negligent acts committed within [the] scope of Federal employment” (HHS, *Federal Public Health Emergency Law: Implications for State and Local Preparedness and Response* [teleconference], April 28, 2009).

¹⁷ “Under EMAC, a person from one state who renders assistance in another and who holds a license, certificate, or other permit for the practice of professional, mechanical, or other skills is considered to be licensed, certified, or permitted to exercise those duties in the requesting state, subject to limitations or conditions set by the requesting state's Governor.” Still, licensure reciprocity is not automatically extended to volunteer health care practitioners who do not provide services pursuant to an EMAC request for assistance (Congressional Research Service, 2009).

¹⁸ 42 U.S.C. § 247d-6d.

¹⁹ “Countermeasures covered under a PREP Act declaration include products that are approved, cleared, or licensed under the FD&C [Food, Drug, and Cosmetics] Act or the PHS [Public Health Service] Act, authorized for investigational use under the FD&C Act, or authorized under an EUA. For example, if a person is given a countermeasure that is lawfully authorized for emergency use under an EUA, that person may be eligible under the PREP Act for compensation through the CICP [Countermeasures Injury Compensation Program] if serious physical injury or death results from use of the countermeasure.” See <http://www.fda.gov/EmergencyPreparedness/Counterterrorism/ucm269226.htm#prepcoverage>.

²⁰ *Parker v. St. Lawrence County Public Health Department*, No. 44-1-2011-0204 (Sup. Ct. N.Y. St. Lawrence County decided July 5, 2011) (unpublished decision).

TABLE 3-2

Selected Statutory and Regulatory Health Care Liability Protections in Emergencies

Source	Applies to	Provision
Model State Emergency Health Powers Act (MSEHPA)	Out-of-state emergency health care professionals (among others)	These professionals “shall not be held liable for any civil damages as a result of medical care or treatment related to the response to the public health emergency unless such damages result from providing, or failing to provide, medical care or treatment under circumstances demonstrating a reckless disregard for the consequences so as to affect the life or health of the patient.” ^a
Uniform Emergency Volunteer Health Practitioners Act (UEVHPA)	Volunteer health practitioners (VHPs) (whether public or private sector)	<p>Alternative A: VHPs are not liable for their actions or omissions while providing services during an emergency. This provision does not apply to VHPs engaged in willful, wanton, or grossly negligent acts, or to incidents involving criminal conduct, intentional torts, breaches of contract, or acts and omissions relating to the operation of vehicles.</p> <p>Alternative B: Protections similar to those of Alternative A, but applies only to VHPs who receive compensation of \$500 or less per year (not including reimbursement for reasonable expenses and continuation of salary while on leave).</p>
Emergency Management Assistance Compact (EMAC)	State or local officers or employees	“Officers or employees of a party state rendering aid in another state pursuant to this compact shall be considered agents of the requesting state for tort liability and immunity purposes.” ^b Those rendering aid are protected from civil liability, provided that they act in good faith and without “willful misconduct, gross negligence, or recklessness.” ^c
Federal Public Readiness and Emergency Preparedness (PREP) Act, ^d http://www.uevhp.org/DesktopDefault.aspx	“Covered persons” (e.g., U.S. government, manufacturers, distributors, pharmacies, state and local program planners)	“A covered person shall be immune from suit and liability under Federal and State law with respect to all claims for loss caused by, arising out of, relating to, or resulting from the administration to or the use by an individual” if he or she is administering an approved countermeasure during the declaration of an appropriate emergency or public health emergency. ^e
Federal Volunteer Protection Act (VPA)	Uncompensated, individual volunteers of nonprofit organizations or governmental entities	Volunteers shall not be liable for harm caused by their acts or omissions on behalf of the organization or entity so long as they are: (1) acting within the scope of the volunteer’s responsibilities; (2) properly licensed, certified, or authorized by the appropriate authorities as required by law in the state in which the harm occurred; (3) have not engaged in willful or criminal misconduct, gross negligence, reckless misconduct, or a conscious, flagrant indifference to the rights or safety of the individual(s) harmed by the volunteer; and (4) have not caused the harm by operating a motor vehicle, vessel, aircraft, or other vehicle for which the state requires its operator to possess an operator’s license or maintain insurance. ^f

continued

TABLE 3-2 Continued

Source	Applies to	Provision
Virginia Emergency Code	Health care providers	"In the absence of gross negligence or willful misconduct, any health care provider who responds to a disaster shall not be liable for any injury or wrongful death of any person arising from the delivery or withholding of health care when (i) a state or local emergency has been or is subsequently declared in response to such disaster, and (ii) the emergency and subsequent conditions caused a lack of resources, attributable to the disaster, rendering the health care provider unable to provide the level or manner of care that otherwise would have been required in the absence of the emergency and which resulted in the injury or wrongful death at issue." ^g
Louisiana State Statutes	Health care entities and providers	<p>"(b) During a state of public health emergency, any private person, firm or corporation and employees and agents of such person, firm or corporation in the performance of a contract with, and under the direction of the state or its political subdivisions . . . shall not be civilly liable for causing the death of, or injury to, any person or damage to any property except in the event of gross negligence or willful misconduct.</p> <p>(c) During a state of public health emergency, any health care providers shall not be civilly liable for causing the death of, or injury to, any person or damage to any property except in the event of gross negligence or willful misconduct."^h</p>
Maryland State Torts Claims Act	State personnel (including unpaid individuals performing state functions) ⁱ	Provides state personnel immunity for acts or omissions within the scope of their duties. ^j
Minnesota Indemnification Protections	Volunteers	Volunteers during an emergency or disaster are deemed employees of the state for purposes of torts claims defense and indemnification. ^k
Model Intrastate Mutual Aid Legislation (MIMAL)	All persons, including volunteers, responding under the operational control of the government entity requesting aid (these persons are considered employees of the government entity)	"Neither the participating political subdivisions nor their employees . . . shall be liable for the death of or injury to persons, or for damage to property when complying or attempting to comply with the statewide mutual aid system." Immunity does not apply to acts of willful misconduct, gross negligence, or bad faith. ^l

^a MSEHPA § 608(b)(3).^b EMAC, art. VI.^c EMAC § 2, art. VI.^d 42 U.S.C.A. § 247d-6d.^e 42 U.S.C.A. § 247d-6d.^f 42 U.S.C.A. § 14503 (2004).^g Va. Code Ann. § 8.01-225.02 (2008).^h La. Rev. Stat. Ann. § 29:771 (2003).ⁱ Md. Code. State Gov't § 12-101 (2005).^j Md. Code Ann. Cts. & Jud. Proc. § 5-522(b) (2005).^k Minn. Stat. Ann. § 12.22 (West).^l National Emergency Management Association, Model Intrastate Mutual Aid Legislation, Art. X (2004).

tive from December 1, 2006). This can be done at the discretion of the Secretary of HHS to extend liability protections to covered persons acting in response to a disaster but prior to a PREP Act declaration.

Liability protections may also be extended through the federal emergency allowance of specific drugs or other medical products that might otherwise be unavailable to the public. When the requisite emergency determination is in place (i.e., by the Secretary of HHS, the Department of Homeland Security [DHS], or the Department of Defense), the Secretary of HHS may declare an emergency justifying the authorization of emergency use for certain medical products. The FDA then can issue an EUA to allow the emergency use of drugs or other medical products that are either (1) not yet approved by the FDA for use or (2) sought for an unapproved use.²¹ EUAs were issued, for example, during the 2009 H1N1 pandemic to allow unapproved uses of zanamivir (Relenza[®]) and oseltamivir (Tamiflu[®]) for treatment and prophylaxis of young children and hospitalized patients (CDC, 2010). To issue an EUA, the Commissioner of the FDA must conclude that

- the agent specified in the declaration poses the risk of a serious or life-threatening disease or condition;
- it is reasonable to believe that the product may be effective in diagnosing, treating, or preventing the agent;
- the known and potential benefits of use of the product outweigh the known and potential risks; and
- no adequate, approved, and available alternative to the product exists to address the agent.²²

EUAs remain in effect for the duration of the emergency declaration (up to 1 year unless revoked). Both the declaration and EUAs issued under the declaration may be renewed if justified (FDA, 2009), as was the case with the antimicrobial doxycycline for prophylaxis of inhalational anthrax.²³

Once issued, EUAs take effect nationally irrespective of any additional state legal action in support of the authorization (FDA, 2007). The Commissioner of the FDA can set conditions on activities under an EUA to protect the public's health, including ensuring that health care professionals and patients are informed of risks, benefits, and alternatives and that adverse events are monitored through manufacturers, health care entities, or public health authorities.²⁴ From a liability perspective, EUAs allow the temporary use of a drug or product that would otherwise be prohibited, thus mitigating potential claims related to the unwarranted dispensing of unapproved drugs or other issues.

Although lacking consistency across all emergency responders and entities, the existing patchwork of liability protections can facilitate emergency planning and response efforts by providing assurances of liability protection against negligence claims during and after declared emergencies. These laws collectively provide an umbrella of protections covering hundreds of thousands of practitioners, volunteers, and entities that

²¹ *Project Bioshield Act of 2004*, Public Law 108-276, § 564(a)-(b).

²² *Project Bioshield Act of 2004*, Public Law 108-276, § 564(c). For more information on how these determinations are to be made and what information is included in a request for EUA consideration, see FDA guidance on EUAs (<http://www.fda.gov/RegulatoryInformation/Guidances/ucm125127.htm#intro>).

²³ 76 FR 44926. HHS's declaration justifying the emergency use of doxycycline hyclate tablets accompanied by emergency use information was originally issued in 2008 and subsequently renewed in 2009 and 2010 in response to continuing national security concerns. The declaration was also renewed and amended in 2011. An EUA (issued under that declaration) for doxycycline hyclate tablet emergency kits for U.S. Postal Service participants and their household members was originally issued in 2008 and subsequently amended in 2009, 2010, and 2011.

²⁴ *Project Bioshield Act of 2004*, Public Law 108-276, § 564(e).

are expected or asked to play critical roles in emergency response. Yet there are significant limits to liability protections overall. As noted above, some legal protections cover individuals or entities only for their acts during declared emergencies, and the effective date of a declaration of emergency may precede the actual date of the declaration. HHS's declarations pursuant to the PREP Act, for example, may be retroactive. In most cases, however, liability and other protections emanating from emergency declarations commence only on the date of the declaration and end the moment the declaration is terminated. This may leave some responders whose efforts precede or exceed the time period of the formal declaration unprotected.

Even when liability protections do apply, virtually none of the protections immunize or indemnify practitioners or entities for acts that constitute gross negligence, willful or wanton misconduct, or crimes. Volunteers seeking protection may have to be registered with government or private systems (Hoffman et al., 2009), follow government disaster plans or protocols, or act specifically under government authority.^{25,26} Liability protections for volunteers do not similarly immunize health care employees working alongside them (some of whom may be covered by medical malpractice insurance subject to insurers' exceptions), although some states also immunize compensated workers.^{27,28} Liability protections for health care entities, including hospitals, clinics, pharmacies, and others, are more limited than individual protections.²⁹

Health care practitioners may also be concerned about whether malpractice and other forms of insurance will cover unintentional errors or care given outside a provider's scope of practice under CSC. In the APHA survey noted above, prospective volunteer respondents were asked, "As a clinician, to what degree does knowing that you have medical malpractice insurance coverage influence your decision to travel out of state to volunteer in a clinical capacity during an emergency?" Nearly 60 percent of respondents indicated such coverage was "important" (24.3 percent) or "essential" (35.4 percent) (Carpenter et al., 2008). While malpractice insurance coverage differs across states and is dependent on specific insurance policy language, plans may not cover a practitioner's or volunteer's actions during a declared emergency if they fall outside the individual's normal scope of activities. To protect volunteers and other health care practitioners from rate increases following frivolous malpractice claims, Delaware state law restricts medical malpractice insurance

²⁵ For example, under HHS's National Disaster Medical System, "an individual appointed under paragraph (1) shall, while acting within the scope of such appointment, be considered to be an employee of the Public Health Service performing medical, surgical, dental, or related functions. With respect to the participation of individuals appointed under paragraph (1) in training programs authorized by the Assistant Secretary for Preparedness and Response or a comparable official of any Federal agency specified in subsection (a)(2)(B) of this section, acts of individuals so appointed that are within the scope of such participation shall be considered within the scope of the appointment under paragraph (1) (regardless of whether the individuals receive compensation for such participation)." 42 USC § 300HH-11.

²⁶ "Intermittent disaster-response personnel benefit from the same immunity from civil liability granted to employees of the U.S. Public Health Service. The only remedy for damages for personal injury, including death, resulting from the performance of medical, surgical, dental, or related functions by any commissioned officer or employee of the Public Health Service (acting within the scope of office or employment) is against the United States, and not against the officer or employee (or her estate) whose act or omission gave rise to the claim. The U.S. Attorney General is also required to defend these individuals" (Centers for Law and the Public's Health, 2005).

²⁷ *Code of Virginia* § 8.01225.02 (2008).

²⁸ *Louisiana Senate Bill No. 301*, Act No. 538 (2008).

²⁹ Entities may also be covered under state liability protection laws for Good Samaritan entities during emergencies. However, most state Good Samaritan laws leave significant gaps of liability exposure for both private and nonprofit organizations that are willing to assist government agencies voluntarily in responding to emergencies. As a result, at least 28 states and the District of Columbia have developed specific emergency liability protections for business and nonprofit organizations that act in good faith to assist government agencies voluntarily during emergencies. See, e.g., Louisiana House Bill 554 (2009) RS 29:735.3.1 (<http://www.legis.state.la.us/billdata/streamdocument.asp?did=662505>).

carriers from increasing the premiums of health care practitioners for their acts or omissions in providing relief care in declared emergencies.³⁰

Ultimately, health care practitioners, volunteers, and entities, in collaboration with emergency managers, legal representatives, and policy makers, should assess the gamut of legal liability protections in their jurisdictions and determine whether additional protections are needed to facilitate the implementation of CSC. Depending on their analyses, gaps may be addressed through existing models for legislative or policy reform (e.g., Model State Emergency Health Powers Act, Uniform Emergency Volunteer Health Practitioners Act), as well through real-time efforts to issue emergency orders, waive liability claims, or ensure malpractice coverage for claims that may arise.

Balance Between Individual Legal Rights and Responsibilities and Communal Objectives

At the core of emergency-related legal issues is the need to balance individual and communal interests to protect the public's health. Balancing respective legal interests in emergencies is complex. The interests of individuals and the community may conflict, leading to difficult issues in the establishment and implementation of CSC. Due process and other constitutional protections may differ among autonomous adults and children or other wards of the state (e.g., prisoners, persons lacking mental competence) (Gostin, 2008). Nonautonomous individuals may enjoy special constitutional protections intended to prevent individual harms. For example, government may be legally required to protect the health of minors (Courtney and Hodge, 2011) or other “wards,” even though autonomous adults may not be similarly protected (Hodge, 2009).

The Constitution affords everyone procedural due process protection if the state deprives an individual of a “liberty” interest. During a public health emergency, health professionals will have to make difficult decisions to allocate scarce medical resources (O’Callaghan, 2008).³¹ It is unclear whether a decision to withdraw or withhold certain treatment during an emergency would trigger due process protection. Even if individuals were entitled to some fair process, the Supreme Court has made clear that due process is a flexible concept that may entail a hospital-based impartial review of the facts under the applicable standards of care.³²

Individual privacy interests also should be assessed against the need for government or others to provide adequate care or share identifiable health data for public health reporting, research, or other communal purposes (Hodge et al., 2004). Decisions concerning standards of care that disproportionately affect individuals on grounds of ethnicity, religion, race, or other protected characteristics may raise claims of violation of equal protection (Congressional Research Service, 2009).

³⁰ “No act or omission of qualified medical personnel during such relief operations and activities shall affect an insured physician’s liability coverage in any way.” Del. Code Ann. tit. 20, § 3129(b) (TFAH, 2008, p. 26).

³¹ “By its terms the due process clause applies to particularized governmental decisions about whether an individual is to be granted a benefit or to be subjected to a burden” (O’Callaghan, 2008).

³² In ascertaining the due process procedures that are constitutionally required, the courts weigh three factors—the extent of the deprivation of liberty or property, the risk of an erroneous decision, and the burdens that additional procedures will entail. Thus, the procedures in any given circumstance depend on the public health context and vary from case to case. The process required can range from a full-blown hearing to an informal, nonadversarial review (Gostin, 2008). In *Parham v. J.R.*, for example, the Supreme Court ruled that the state did not have to provide a formal hearing. Since juvenile admission to a mental hospital was “essentially medical in character,” an independent review by hospital physicians was sufficient for due process purposes. *Parham v. J.R.*, 442 U.S. 584, 609 (1979) (holding juvenile commitment decision when made by a “neutral factfinder” sufficient to satisfy due process requirements).

SUMMARY

In summary, numerous critical issues of law and policy relate to the development and implementation of CSC. Emergency planners, public health officials, and others working within state and local governments and private-sector entities to plan for (or execute) CSC in declared emergencies should (1) be highly knowledgeable about prevalent legal concerns, (2) objectively evaluate the need for legal or policy changes or clarification, and (3) generate meaningful legal solutions in advance of and during emergencies to facilitate real-time implementation of CSC. This may include instituting reforms to provide enhanced liability protection for health care workers, volunteers, and entities working to implement CSC, depending on the policy objectives and preferences within their jurisdictions.

REFERENCES

- ABA (American Bar Association). 2011. Report to the House of Delegates Resolution 125 (revised August 6, 2011). In *American Bar Association House of Delegates: Delegate Handbook*. Chicago, IL: ABA, http://www.americanbar.org/content/dam/aba/administrative/house_of_delegates/final_new_delegate_handbook_2011_2012.authcheckdam.pdf (accessed February 29, 2012).
- AHRQ (Agency for Healthcare Research and Quality). 2005. *Altered standards of care in mass casualty events: Bioterrorism and other public health emergencies*. Publication no. 05-0043. Rockville, MD: AHRQ.
- AMA (American Medical Association). 2005. *House of Delegates Resolution 803: Emergency preparedness*. Dallas, TX: AMA.
- AMA. 2007. *Basic Disaster Life Support Manual Version 2.6*. Chicago, IL: AMA.
- AMA. 2008. *House of Delegates Resolution 206: Uniform Emergency Volunteer Health Practitioners Act*. Chicago, IL: AMA.
- Annas, G. J. 2010. Standard of care—in sickness and in health and in emergencies. *New England Journal of Medicine* 362:2126–2131.
- Binzer, P. 2008. The PREP Act: Liability protection for medical countermeasure development, distribution, and administration. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 6(4):293–298.
- Carpenter, M., J. G. Hodge, and R. Pepe. 2008. Deploying and using volunteer health practitioners in response to emergencies: Proposed uniform state legislation provides liability protections and workers' compensation coverage. *American Journal of Disaster Medicine* 3(4):17–23.
- CDC (Centers for Disease Control and Prevention). 2010. *Termination of the Emergency Use Authorization (EUA) of medical products and devices*. <http://www.cdc.gov/h1n1flu/eua/> (accessed September 5, 2011).
- CDC. 2011. *Mutual aid*. <http://www2a.cdc.gov/phlp/mutualaid/> (accessed August 20, 2011).
- Centers for Law and the Public's Health. 2001. *The Model State Emergency Health Powers Act (2001)*. http://www.turning-pointprogram.org/Pages/pdfs/statute_mod/phsm_emergency_law.pdf (accessed August 23, 2011).
- Centers for Law and the Public's Health. 2004. *Public health emergency legal preparedness checklist. Civil legal liability and public health emergencies*. <http://www.publichealthlaw.net/Resources/ResourcesPDFs/Checklist%203.pdf> (accessed February 29, 2012).
- Centers for Law and the Public's Health. 2005. *Hurricane Katrina response: Legal protections for intermittent disaster response personnel under a Federal Declaration of Public Health Emergency*. <http://www.publichealthlaw.net/Research/PDF/Katrina%20-%20Federal%20PH%20Dec%20and%20IDRP.pdf> (accessed February 29, 2012).
- Christian, M.D., L. Hawryluck, R. S. Wax, T. Cook, N. M. Lazar, M. S. Herridge, M. P. Muller, D. R. Gowans, W. Fortier, and F. M. Burkle. 2006. Development of a triage protocol for critical care during an influenza pandemic. *Canadian Medical Association Journal* 175(11):1377–1381.
- Congressional Research Service. 2009. *The 2009 influenza A(H1N1) outbreak: Selected legal issues*. Washington, DC: Library of Congress.
- Courtney, B., and J. G. Hodge. 2011. Legal considerations during pediatric mass critical care events. *Pediatric Critical Care Medicine* 12(6):S152–S156.
- Courtney, B., R. Morhard, N. Bouri, and A. Cicero. 2010. Expanding practitioner scopes of practice during public health emergencies: Experiences from the 2009 H1N1 pandemic vaccination efforts. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 8(3):223–231.
- Curie, J., and R. Crouch. 2008. How far is too far? Exploring the perceptions of the professions on their current and future roles in emergency care. *Emergency Medicine Journal* 25:335–339.
- Devereaux, A. V., J. R. Dichter, M. D. Christian, N. N. Dubler, C. E. Sandrock, J. L. Hick, T. Powell, J. A. Geiling, D. E. Amundson, T. E. Baudendistel, D. A. Braner, M. A. Klein, K. A. Berkowitz, J. R. Curtis, and L. Rubinson. 2008. Definitive care for the critically ill during a disaster: A framework for allocation of scarce resources in mass critical care. From a Task Force for Mass Critical Care summit meeting, January 26–27, 2007, Chicago, IL. *Chest* 133(Suppl. 5):S51–S66.
- Dobbs, D. 2000. *The Law of Torts*. St. Paul, MN: West Group.
- FDA (Food and Drug Administration). 2007. *Guidance—emergency use authorization of medical products*. <http://www.fda.gov/RegulatoryInformation/Guidances/ucm125127.htm#preemption> (accessed September 5, 2011).
- FDA. 2009. *Emergency use authorizations questions and answers*. <http://www.fda.gov/NewsEvents/PublicHealthFocus/ucm153297.htm> (accessed September 5, 2011).

- GAO (Government Accountability Office). 2008. *Emergency preparedness: States are planning for medical surge, but could benefit from shared guidance for allocating scarce medical resources*. GAO-08-668. <http://www.gao.gov/new.items/d08668.pdf> (accessed August 23, 2011).
- Gostin, L. O. 2008. *Public health law: Power, duty, restraint*, 2nd ed. Berkeley, CA: University of California Press.
- HHS (Department of Health and Human Services). 2007. Pandemic Countermeasures; Declaration Under the Public Readiness and Emergency Preparedness Act. *Federal Register* 72(21):4710-4711, <http://edocket.access.gpo.gov/2007/E7-1635.htm> (accessed February 13, 2012).
- HHS ASPR (Department of Health and Human Services Assistant Secretary for Preparedness and Response). 2009. *Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP): Legal and regulatory issues*. Washington, DC: HHS, pp. 1-184.
- Hick, J. L., J. A. Barbera, and G. D. Kelen. 2009. Refining surge capacity: Conventional, contingency, and crisis capacity. *Disaster Medicine and Public Health Preparedness* 3(Suppl. 2):S59-S67.
- Hodge, J. G. 2009. The legal landscape for school closures in response to pandemic flu or other public health threats. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 7(1):45-50.
- Hodge, J. G., and E. D. Anderson. 2008. Principles and practice of legal triage during public health emergencies. *New York University Annual Survey of American Law* 64(2):249-291.
- Hodge, J. G., and E. F. Brown. 2011. Assessing liability for health care entities that insufficiently prepare for catastrophic emergencies. *Journal of the American Medical Association* 306:308-309.
- Hodge, J. G., E. Brown, and J. O'Connell. 2004. The HIPAA privacy rule and bioterrorism prevention, planning, and response. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 2(2):73-80.
- Hodge, J. G., E. Anderson, L. A. Gable, J. V. Vernick, and S. P. Teret. 2008. *Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP): Legal and regulatory issues*. Washington, DC: HHS, pp. 1-187.
- Hodge, J. G., A. M. Garcia, A. D. Anderson, and T. Kaufman. 2009. Emergency legal preparedness for hospitals and health care personnel. *Disaster Medicine and Public Health Preparedness* 3(Suppl. 1):S37-S44.
- Hoffman, S. 2008. Responders' responsibility: Liability and immunity in public health emergencies. *Georgetown Law Journal* 96:1913.
- Hoffman, S., R. A. Goodman, and D. D. Stier. 2009. Law, liability, and public health emergencies. *Disaster Medicine and Public Health Preparedness* 3(2):117-125.
- HRSA (Health Resources and Services Administration). 2005. *Countermeasures Injury Compensation Program*. <http://www.hrsa.gov/gethealthcare/conditions/countermeasurescomp/> (accessed February 1, 2012).
- Ives, J., S. Greenfield, J. M. Parry, H. Draper, C. Gratus, J. I. Petts, T. Sorell, and S. Wilson. 2009. Healthcare workers' attitude to working during pandemic influenza: A qualitative study. *BMC Public Health* 9:56-69.
- Jervis, R. 2007. Charges against La. doctor dropped. *USA Today*. http://www.usatoday.com/news/nation/2007-07-24-katrina_N.htm (accessed August 23, 2011).
- Kanter, R. K. 2007. Strategies to improve pediatric disaster surge response: Potential mortality reduction and tradeoffs. *Critical Care Medicine* 35:2837-2842.
- Mastroianni, A. C. 2006. Liability, regulation and policy in surgical innovation: The cutting edge of research and therapy. *Health Matrix* 16:351-442.
- O'Callaghan, N. 2008. Dying for due process: The unconstitutional medical futility provision of the Texas Advance Directives Act. *Baylor Law Review* 60:527, 587.
- Pegalis, S. E. 2009. Physician and surgeon liability: Standard of care, generally. *American Law of Medical Malpractice* 3(3).
- Quereshi, K., R. M. Gershon, and F. Conde. 2008. Factors that influence Medical Reserve Corps recruitment. *Prehospital and Disaster Medicine* 23(3):s27-s34.
- Rosenbaum, S., M. B. Hartly, and J. Sheer. 2008. State laws extending comprehensive legal liability protections for professional health-care volunteers during public health emergencies. *Public Health Reports* 123:238-241.
- Schechter, S. 2007. *Medical Reserve Corps volunteers' ability and willingness to report to work for the Department of Health during catastrophic disasters*. PhD diss., Naval Postgraduate School.
- TFAH (Trust for America's Health). 2008. *TFAH liability protections relevant statutes*. <http://healthyamericans.org/reports/bioterror08/pdf/legal-preparedness-law-review-of-state-statutes-and-codes.pdf> (accessed February 1, 2012).
- Wise, E. 2008. Competence and scope of practice: Ethics and professional development. *Journal of Clinical Psychology* 64:626-637.

4: Cross-Cutting Themes

Issues related to ethics, palliative care, and mental health cut across the sector-specific guidance offered in Chapters 5-8 and are relevant at each stage of a disaster response. These issues are discussed in detail in this chapter; relevant aspects of each are reiterated in Chapters 5-8 where applicable.

The ethical allocation of scarce resources, discussed in the first section of this chapter, underlies any discussion of crisis standards of care (CSC). The committee's 2009 letter report recognized seven key features of ethics on which CSC must stand: (1) fairness, (2) the duty to care, (3) the duty to steward resources, (4) transparency, (5) consistency, (6) proportionality, and (7) **accountability**. **The framework of these key features sharply distinguishes between clinical practice that is acceptable in an environment of scarce resources and behaviors that are unacceptable regardless of the resource environment.** However, the framework goes further to make the case that each stakeholder group—from the public, to health care providers, to health care institutions, to governments—has certain responsibilities and is afforded certain protections during a disaster.

The ethical framework lists fairness as its first operating principle. In doing so, it recognizes that the environment of a catastrophic disaster necessarily means it may not be possible to give everyone the care needed to survive. The framework recognizes that being unable, because of the situation, to provide all desired or even required services to each individual is not inherently unfair. Rather, fairness relates to how limited resources are distributed in these unusual situations. The second section of this chapter, therefore, addresses the importance of providing palliative care when curative care is unavailable and describes ways to strengthen this aspect of disaster response planning and implementation.

The third section addresses the issue of mental health, which, like palliative care, must be incorporated into CSC plans and affects their implementation at all levels of a disaster response. The discussion of this issue explores recent examples that demonstrate comprehensive plans to consider the mental health needs of the general public and those involved in a disaster response. It also explores how mental health care is a vital component of community resilience. Building on past progress, the committee posits essential elements of mental health care during and after a disaster strikes.

Each of these three cross-cutting issues directly impacts individuals and organizations responsible for developing and implementing CSC plans. This chapter should therefore be viewed as an accompaniment to Chapters 5-9. Application of the principles set forth in this chapter is necessary to ensure a holistic and humane disaster response.

ETHICAL FRAMEWORK

As noted above, the committee's 2009 letter report outlined an ethical framework to serve as the basis for designing ethically and clinically sound policies for CSC. In constructing this framework, the committee kept two key concepts in mind. First, groups that are most at risk before a disaster are those most vulnerable during a disaster. Ethically and clinically sound planning will aim to secure equivalent resources and fair protections for these at-risk groups. Second, some health care professionals question whether they can maintain core professional values and behaviors in the context of a disaster. Providers ask how to recognize when core ethical values draw a clear line separating behaviors that are acceptable during a disaster from those that are unacceptable at any time. An effective framework can help guide those who wish to behave as ethical professionals even in the austere circumstances imposed by a public health emergency. The committee reiterates its recommendation from the letter report:

Recommendation: Adhere to Ethical and Professional Norms in Crisis Standards of Care. When crisis standards of care prevail, as when ordinary standards are in effect, health care practitioners must adhere to ethical and professional norms. Conditions of overwhelming scarcity limit autonomous choices for both patients and practitioners regarding the allocation of scarce health care resources, but do not permit actions that violate ethical norms. (IOM, 2009, p. 6)

The above recommendation sets hard limits on ethically acceptable behavior, irrespective of conditions of scarcity or other aspects of public health disasters. CSC not only do not condone but are specifically designed to prevent the commission of acts that are clearly outside of ethical standards at any time. Instead, CSC incorporate ethically and clinically viable guidance on how to adjust clinical actions under austere conditions.

Key Features

The ethical framework set forth in the letter report includes substantive and process features and should support ethical behavior for those at every level of disaster response, from government planners to individual providers. Its key features are as follows:

- fairness,
- the duty to care,
- the duty to steward resources,
- transparency,
- consistency,
- proportionality, and
- accountability.

Each of these features is discussed in turn below.

Fairness

An ethical policy does not require that all persons be treated in an identical fashion, but does require that differences in treatment be based on appropriate differences among individuals. If particular groups receive

favorable treatment, such as in access to vaccines, this priority should stem from such relevant factors as greater exposure or vulnerability and/or promote important community goals, such as helping first responders or other key personnel stay at work (CDC, 2009). Policies should account for the needs of the most at risk and support the equitable and just distribution of scarce goods and resources.

Different communities may have different priorities for allocating scarce resources in a catastrophic disaster. Through appropriate public engagement processes (Chapter 9), for example, some communities may decide that such factors as age or function within the community (e.g., first responder) should be considered in allocating scarce resources in a catastrophic disaster. However, community preferences should adhere to parameters set by ethical norms and laws. For instance, irrespective of community views, it would not be ethically or legally viable for a community to refuse to provide health care resources to inmates in a local prison or to disabled residents of a residential facility. Similarly, both ethical standards and existing laws prevent communities from allocating scarce health resources on the basis of such irrelevant factors as race, ethnicity, or religious affiliation. Public health authorities are urged to engage their communities in setting priorities within appropriate ethical and legal parameters. Particular attention is due to those whose vulnerabilities and specific needs require accommodation in disaster plans. Relevant groups might include those with mobility impairments, existing significant medical conditions, pharmacologic dependence, lack of English language proficiency, or other ethnic or cultural needs (HHS, 2011).

Duty to Care

Health professionals, by virtue of their training, have an obligation to provide care, especially during a disaster. However, they are educated to care for individuals rather than for populations and thus may need to adjust the goals of care as dictated by the situation. Recognizing that scarce resources may restrict treatment choices, clinicians must not abandon, and patients should not fear abandonment, when a catastrophic disaster forces a shift to CSC. Ethical elements of disaster policies should support the professional's duty to care. For instance, policies should separate triage responsibilities from the provision of direct care whenever possible. Those caring for individual patients should work to improve those patients' health and not simultaneously make decisions intended to benefit the group rather than the individual patient.

While professionals have a duty to care for patients, health care institutions have a reciprocal duty to support health care workers (Pandemic Influenza Ethics Initiative Workgroup of the Department of Veterans Affairs, 2009). Personal protective equipment, engineering controls, and a variety of other mechanisms to reduce the risk of infection operationalize institutional obligations to protect workers who face risks in providing care (IOM, 2010).

Of note, the health care professional's duty to provide care is neither absolute nor likely to be the only ethical obligation he or she faces. School closures and other shifts in services during a disaster may increase family obligations just when a professional is most needed at work. Among nurses, the vast majority are women, and many have primary child care responsibilities. A nurse who is also a responsible parent cannot leave a minor child at home unattended because of the duty to provide health care. Similarly, many emergency medical services (EMS) workers are volunteers who have full-time jobs and/or family responsibilities. These workers, too, face conflicting ethical obligations. As a logistical matter, such workers may not be available to serve for EMS during a disaster, and planning efforts should address this possibility. The reality of conflicting ethical obligations leads back to the concept of reciprocal obligations from systems to those who

serve within them. An ethically robust disaster response system should provide support that permits critical workers to meet personal obligations so they will also be able to meet professional obligations.

Duty to Steward Resources

Health care institutions, public health officials, physicians, and other health care professionals have a duty to steward scarce resources. The context of disaster, by definition, creates scarcity, since demand overwhelms supply. Ill-considered and wasteful use of limited medicines or other critical material may result in unnecessary deaths. The goal of preserving lives requires that professionals accept the responsibility to plan and to use resources prudently. As scarcity increases, balancing the obligation to honor the duties of care and stewardship will require more difficult choices (ACEP, 2006, 2008; Iserson and Pesik, 2003).

Transparency

A public engagement process is crucial for drafting ethical policies that reflect a community's values and merit its trust. Officials should communicate clearly those plans currently in place, and should also work with the community to ensure that policies reflect local values and preferences. An inclusive process will incorporate input from professional groups and other organized stakeholders, as well as from those who are less well represented in the political process but may be greatly affected by policy choices. An ethical process will likely be iterative, characterized by responsible planning, transparency in underlying values and priorities, robust efforts toward public engagement, response to public comment, commitment to ongoing revision of policy based on dialogue and data, and accountability for support and implementation (see the detailed discussion in Chapter 9). Public engagement events in Harris County, Texas, on pandemic influenza issues (sponsored by Harris County Public Health and Environmental Services [HCPHES]) and in Seattle (Washington), Minnesota, and Michigan in conjunction with their guidance on the allocation of scarce resources illustrate the public interest in participating in the process and the valuable feedback these events provide for policy makers (see also Chapter 1). For example, the series of eight day-long public engagement events held in Harris County, Texas, in summer 2011 saw diverse participation from more than 600 members of the general public (Shah, 2012). Thirty service organizations were represented at a corresponding day-long stakeholder engagement event as well (Shah, 2012). The outcome of these events was productive identification and subsequent discussion of the community's underlying values in allocating scarce resources during a disaster such as pandemic influenza. Officials at HCPHES reported to the committee that these deliberations are being incorporated into ongoing pandemic influenza planning efforts, including plans drafted by the Harris County Committee on Pandemic Influenza Medical Standards of Care. In addition to these public engagement efforts, HCPHES hosted more than 100 participants for a 2.5-day mass care/mass fatality planning workshop in summer 2011 aimed at convening multisector response partners who would have important roles in a severe influenza pandemic (Shah, 2012). Finally, the Louisiana Pandemic Flu Clinical Forum has engaged hospitals, providers, ethicists, religious leaders, attorneys, and the public to develop a CSC plan that addresses an extreme scenario—similar to that in the movie *Contagion*—wherein the severity of morbidity and mortality far exceeds the collective resources of health care available throughout the state or the nation (Louisiana Department of Health and Hospitals, 2011).

Consistency

Consistency in treating like groups alike is one way of promoting fairness. The public may feel that scarce resources have not been allocated fairly if patients at different hospitals in the same affected area receive vastly different levels of care. At the same time, however, efforts to keep policies consistent across institutions or geographic regions may limit local flexibility in implementing guidance.

Proportionality

Disaster policies may require burdensome recommendations, including social distancing, school closures, or quarantine. These burdens should be commensurate with the scale of the disaster and offer clear benefits in proportion to the burden.

Accountability

Effective disaster planning requires that individuals at all levels of the health care system (public and private sectors) accept and act upon appropriate responsibilities. Government entities are accountable to their communities for planning and implementing policies related to disasters, as outlined in this report. Accountability before, during, and after a disaster is key to building trust.

The Need to Make Difficult Choices

A major objective of public health preparedness is to build surge capacity so adequate medical care can be maintained even when numbers of patients rapidly increase and access to outside resources may not exist. Nonetheless, a disaster may force a community, at least temporarily, to confront the question of how to allocate medical resources that are insufficient for all those in need. Many different allocation systems may be proposed. Any ethically acceptable allocation system should adhere to the principles detailed above, including, most important, the principle of *fairness*. Generally, an allocation system will be more likely to pass the test of fairness if it reflects the additional principles of transparency, consistency, proportionality, and accountability. The ethics framework's greatest potential for impact is during the development of CSC plans. Personnel with the responsibility for ensuring that CSC plans incorporate such ethical principles benefit the process best when they themselves are well versed in the specific issues affecting and affected by CSC plans and their implementation. It is also important to recognize how those issues expand upon and differ from ethical issues associated with routine medical practice. To ensure that the issues entailed in the process are resolved in a way that reflects community values, the committee recommends that the public be engaged in a dialog to help establish the standards that will be applied (see Chapter 9).

Any resource allocation system will reflect underlying values regarding who should receive limited resources, irrespective of whether the plan is simple or complex. For instance, plans that attempt to assess survival by using such tools as the Sequential Organ Failure Assessment (SOFA) score reflect particular value choices, in this case that resources are best used for those likely to survive rather than for those who will not survive despite access to treatment. This particular ethical choice reflects a desire to save the most lives by using resources prudently. Although saving the most lives is a widely accepted goal, it is a value-based choice, and not all may accept it. Others may wish to give priority to the young and thus not necessarily save the most lives, but the greatest number of years of life. In a discussion of values, health care providers, public health officials, and others may have strong views about what groups to privilege or what principles

to uphold. Professionals have special training that helps them determine how best to achieve certain goals. However, their expertise regarding values is no greater than that of community members. This equality in expertise regarding values is why community engagement is so crucial. Professionals cannot use medical resources to support the goals and values of the community unless they know what those goals and values are.

Some ethicists have argued that no fair allocation system can be devised other than a random lottery (Peterson, 2008). However, such a system would fail to adhere to the principle of stewardship of resources. Use of a lottery with no reference to prognostic factors in the allocation of scarce medical resources would result in excess mortality since some patients would receive treatment despite having a high probability of mortality with or without treatment, while others who might have survived would die without it. For specific cohorts for whom differences in morbidity and mortality are particularly difficult to predict and no validated scoring system exists, as is the case with critically ill children, some authors believe use of a lottery may be justified (Pediatric Emergency Mass Critical Care Task Force, 2012).

Age as a Factor in Allocating Scarce Medical Resources

The question of whether age is an appropriate factor in determining access to scarce health care resources arises repeatedly in allocation discussions. For instance, the United Network for Organ Sharing sets policy for the allocation of solid organs for transplant. Recently proposed revisions for the allocation of kidneys to adults include changes that take age into account by assessing how long a potential recipient will likely survive with the donated kidney (Organ Procurement and Transplantation Network, 2011). In this context, as in others, consideration of age in allocating scarce resources has been controversial (Hippen et al., 2011).

Critical care physicians have expressed discomfort with using age as a prognostic indicator, as there is substantial physiological variability among elders of similar chronologic age. Age-related changes to organ function may, of course, be reflected in the SOFA score or other variables used by the triage team, even when age is not an overt criterion for allocation. Critical care physicians surveyed expressed a reluctance to triage specifically based on age until age 85 (Society of Critical Care Medicine Ethics Committee, 1994). Yet using age-based allocation only for those older than 85 severely limits the utility of the variable, as only 1.2 percent of the U.S. population falls into this range (Census Scope, 2011). Nonetheless, a Canadian workgroup developed guidance for the allocation of scarce resources in an influenza pandemic and listed age above 85 as an exclusion criterion (Christian et al., 2006). Others have incorporated age into their triage criteria, arguing that younger patients deserve an opportunity for a full life (Persad et al., 2009; Williams, 1997). Community engagement discussions in Minnesota and Seattle supported this general concept, although there was no consensus on age ranges or differences in age, or on how important age should be in the allocation process (Garrett et al., 2011; Public Health-Seattle and King County, 2009). While not specifically focused on age, a community engagement project in Massachusetts produced contrasting results: both consumers and health care providers objected to an allocation process that offered critical care resources only to those with an expected life span of more than 6 months (Levin et al., 2009). Additionally, participants in the community engagement discussions of a severe pandemic in Harris County, Texas, felt that using age alone as a factor in decisions about allocating critical resources was unacceptable; when age was shown to play a role in vulnerability to the disease, however, it was deemed a viable consideration (Shah, 2012). Finally, it is important to note that not all cultural groups value the young; some groups prize their elders and would not agree with giving younger patients priority.

There is no easy answer to the question of age as a triage criterion. Some participants in the disaster planning process see significant relevance in the “fair innings” argument, while others do not. However, all agree that decisions around age should incorporate community values. In particular, community engagement processes should address the following questions:

- How important is age? For example, should age be a criterion in itself, or only when two patients who are otherwise similar in terms of medical prognosis both require a scarce resource?
- What age ranges/differences should be considered? Should age be considered across the life span, or is there a ceiling above which advanced age should limit care options?
- How does this community weigh age in relation to other factors, such as prognosis or a critical work role (e.g., as a first responder)?

The Role of Families in Supplementing Scarce Health Care Resources

Families provide substantial amounts of medical care to injured and ill loved ones every day across the country. The role of family in protecting at-risk members of the population is of more, not less, importance in the setting of a disaster. Tragically, family advocacy can mean the difference between life and death. In the aftermath of Hurricane Katrina, some families in New Orleans were able to overcome a policy forbidding evacuation of patients with do-not-resuscitate orders, while patients who lacked successful advocates stayed and perished (Fink, 2009).

The question of whether families can appropriately supplement medical care in a disaster arises in a number of contexts. Family members may accompany ill relatives into the acute care setting. Indeed, many facilities will likely ask family members to serve as volunteers for nontechnical tasks, such as delivering food trays to acute care patients, to free trained personnel for more complex tasks. Facilities should be mindful, however, of whether family efforts benefit all patients or only the family member. For instance, a family member performing general assistance and custodial chores helps all patients and staff; in contrast, seeking out and harassing overtaxed staff to supply a higher level of care for a loved one than is available to other patients may benefit a single individual while disadvantaging many others. The possibility of threats to staff from family members may increase if and when resources become truly scarce. Facilities will need to consider plans for limiting family access to critical care settings in those circumstances.

The lack of family can be as life-threatening a scarcity as the lack of access to medical resources, and there is no public consensus on how to address the various consequences of social isolation. This problem arises with the question of using bag-valve ventilation as a supplement when critical care resources are in short supply. Those with family members may have willing volunteers to provide manual ventilation, while at-risk members of the community, including many elderly patients, may not have such volunteers. Among the options is to require those who are willing to provide manual ventilation to enter a lottery so they will not know to whom they will be assigned. This approach would allow those connected to large volunteer groups, such as through their church or family, to share their resources with those who are isolated. Depending on the nature of the disaster, other facilities may choose not to permit or encourage manual ventilation, citing its likely lack of efficacy or the exceptionally large use of labor, a scarce resource, needed to support a small number of patients in this fashion.

Summary

CSC permit clinicians to allocate scarce resources so as to provide necessary and available treatments to patients most likely to benefit. CSC do not permit clinicians to simply ignore professional norms and act without ethical standards or accountability. CSC justify limiting access to scarce treatments, but neither the law nor ethics support the intentional hastening of death, even in a crisis.

PALLIATIVE CARE

The nation may at any time be confronted with a disaster that can threaten its way of life or how Americans perceive it as a resource-rich, humane country. In the event of a mass casualty incident, such as pandemic influenza or the detonation of an improvised nuclear device, resources for the delivery of health care may be depleted, and resupply may be either slow or nonexistent. One problem that can be anticipated in a catastrophic disaster situation is having more people who require care than available resources to provide that care.

Despite a resource-poor situation, the obligation remains to provide people with care, comfort, and symptom management throughout a disaster. Although a relatively new component of disaster planning, the principle of palliative care (with specific regard to supportive care at the end of life) should include a holistic and humane approach to public health and health care services during such an incident, and should be considered in the development of community plans for disaster response. The provision of palliative care in the context of a disaster with scarce resources can be considered a moral imperative of a humane society.

The Imperative to Provide Palliative Care

Palliative care is a specialty that focuses on relief of pain and other symptoms of serious illness, with the goal of preventing and easing suffering and distress while offering patients and their families the best possible quality of life. Palliative care is appropriate at any stage of a serious or life-threatening illness and is not dependent on prognosis. It can also be provided at the same time as curative and life-prolonging treatment. The provision of palliative care improves health care quality in three key areas:

- relief of pain and other symptoms and emotional suffering for patients and families;
- enhanced communication and decision making among patients, health care practitioners, and families; and
- improved coordination of care across multiple health care settings.

In its 2009 letter report, the committee stated that palliative care should be available to all people affected by a disaster (IOM, 2009). The key services include comfort, compassion, and maintenance of dignity—services that can be provided with essentially no physical resources other than the presence of another human being.

The public would likely benefit from understanding that palliative care, in ordinary times or during a disaster, prevents a sense that society or its health care professionals have abandoned the patient or deliber-

ately caused death. Instead, palliative care respects the humanity of those who will die soon, minimizes their discomfort, supports their loved ones, and provides aggressive treatment of symptoms (e.g., pain, shortness of breath) (Domres et al., 2003; Matzo et al., 2009).

Ethical considerations and principles associated with scarce resources and CSC should be incorporated into CSC planning. As noted earlier, public health disasters justify temporarily adjusting practice standards and/or shifting the balance of ethical concerns from a focus on the needs of individuals to a focus on the needs of the community (Orr, 2003). Yet while the primary goal of a coordinated response to a disaster should be to maximize the number of lives saved, a practical plan also should provide the greatest comfort for those who will live for a while before dying as a result of the incident (Holt, 2008). Palliative care can play an important role in mass casualty incidents when resources are scarce. Special attention should be given to the planning and resources necessary to maximize care for patients with serious, advanced illness prior to a disaster, as well for those facing the end of life as a result of the disaster.

Resiliency in the face of a disaster requires a fully integrated and coordinated strategy to address how services will work together. All sectors of the health care system will be called upon to respond and save lives, or when that is not possible, to ensure a comfortable death. Advanced illness and end-of-life care pose particular challenges during health emergencies, given complex care needs and the often competing demands for health care practitioners, supplies, and space. Palliative care surge capacity will be needed across settings. This need brings many challenges, including educating professional staff unfamiliar with delivering palliative care, stockpiling and providing necessary medications for effective symptom management at the end of life, and establishing protocols for symptom management for at-risk populations. Meeting these challenges will require training nonprofessional caregivers in basic comfort measures and ensuring broad-based coordination among EMS, hospitals, hospice and palliative care professional organizations, home care agencies, long-term care facilities, and state and local public health authorities. The emerging role of health care coalitions will also be instrumental in the successful integration of palliative care planning and implementation into regional protocols for disaster response.

What should first responders, disaster personnel, and health care providers do when all in their care cannot reasonably survive given the scope of injuries, the magnitude of exposure, environmental conditions, and pre-existing medical conditions? At a minimum, disaster response palliative care services should include relief of severe symptoms and comfort as people are facing death. There will be a sizable number of people for whom death can be expected, although they may live for hours, days, or weeks. Those who are not expected to survive cannot simply be consigned to holding areas while still alive, nor should they and their family advocates overwhelm hospitals and EMS systems that could be addressing the needs of potential survivors (Matzo et al., 2009).

Those who are dying or near death as a result of or during a disaster can be cared for humanely if plans and protocols for such care are established in advance of the incident. When all people cannot reasonably be saved because of the immediacy and scope of mass injuries and in the face of suddenly scarce resources, choices should be made as to who will most likely benefit from life-saving treatment (i.e., survive in the short as well as long term). The ethical assessment of benefit, burden, and efficacy may shift in the context of a disaster. Facilities should devise plans to meet the needs of excess patients in a disaster. If, despite these planning efforts, triage policies are triggered, scarce curative treatment will likely be directed to those patients most likely to survive the short-term effects of acute injury and/or illness, although the potential for

long-term survival will be equally important, taking into consideration the prognosis for pre-existing chronic underlying medical condition(s) for patients in hospital or chronic care facilities.

Identifying transition points in a person's condition helps the patient, the family, and health care practitioners prepare for the final stage of life. A transition point can be defined as an incident in the trajectory of an illness or injury that moves the patient closer to death. For example, a patient with chronic obstructive pulmonary disease may experience no change in her condition until she contracts influenza and never fully recovers; for that patient, contracting influenza is a transition point in her condition (Berry and Matzo, 2004). Prognostication, aided by a risk index or scale, enables health care practitioners to formulate clinical strategies during a crisis situation. These tools may be helpful in determining whether a patient's illness has reached a terminal phase (Matzo, 2004). Providing a treatment category of "palliative care" for those not likely to survive will be an important service option for responders and triage officers. Acknowledging that a person is not likely to survive typically leads to discussions regarding goals of care, appropriateness of interventions, and efforts to help the patient and family begin to say goodbye (Matzo, 2004).

The Agency for Healthcare Research and Quality (AHRQ) published a report outlining principles to guide community planning for the delivery of health care in the face of overwhelming numbers of casualties (AHRQ, 2005). The intent of this planning guide was to assist state and local planners in developing plans that would optimize their ability to provide direct care for as many people as possible while protecting the rights of individuals to the extent possible under the circumstances. To achieve this goal, plans should promote the fair and equitable use of scarce resources. These resources may include emergency department, hospital, intensive care unit, or specialty care beds; transport assets; pharmaceuticals/countermeasures; medical equipment and materiel; and personnel. As in all situations of scarce medical resources, clinicians will use available triage tools and their professional judgment in identifying those individuals whose health condition suggests they will obtain the greatest benefit from the available resources (AHRQ, 2005).

A survey of disaster planning and palliative care key informants found that few in the disaster preparedness community or the palliative care community had been involved in coordinated planning activities in which the role of palliative care in emergency response was recognized (Matzo et al., 2009). Key informant discussions and an expert panel dialogue highlighted the importance of palliative care (e.g., aggressive symptom management) in a holistic and humane community disaster planning and response capability (Matzo et al., 2009). These discussions led to several recommendations: that specific roles and responsibilities and incident-driven resource requirements in all settings (e.g., the location of an incident, acute care hospitals, nursing homes and other alternate care sites, home) should be identified, defined, and provided; that palliative care services should be fully incorporated into all levels of state and local disaster planning/training guidelines, protocols, and activities; and that first responder personnel and local and regional disaster response planners (e.g., EMS; fire, police, and public health departments; community health clinics; local and regional government entities) should be involved in identifying and developing clear specifications for what levels of care are to be delivered in what settings (at the incident, in alternate care sites, in existing secondary referral sites such as nursing homes or individuals' homes) and by whom (e.g., first responders, rescue personnel, palliative care personnel, long-term care personnel). As discussed in Chapter 8, alternate care sites offer an opportunity to incorporate palliative or end-of-life care. For example, Michigan uses the Modular Emergency Medical System model and has been planning for end-of-life care consistent with the alternate care facilities planning guides (Cantrill et al., 2009).

Pain is the primary symptom in need of management in both disaster and war; “to prevent chronic pain and neuropathic pain as a result of amputation, burn injuries, delayed wound healing, malnutrition or infection, pain relief in disaster victims is of paramount importance” (Domres et al., 2003). Therefore, effective pain and symptom management should be a basic minimum in service delivery and training for palliative care during a disaster. Training for palliative care should be competency based, with programming specific to the individual’s role in emergency response. It should cover, at a minimum, the basic philosophy and goals of palliative care, basic symptom management (e.g., pain, anxiety, shortness of breath), the use and titration of oral and injectable narcotic analgesics for patients in pain and/or near death, symptom recognition in the case of pandemic influenza or a chemical or radiological attack, and basic psychosocial counseling and support. Disaster planning should take into account the potential benefits of stockpiling palliative care medications at accessible sites, including away from acute care hospitals (e.g., in nursing homes), and should include training for disaster responders in how to locate, access, and use these medications. The committee recognizes that federal, state, and local governments are already engaged in creating and maintaining pharmaceutical stockpiles, and while issues may exist with respect to stockpile management and rotation, those issues are beyond the scope of the committee’s charge and expertise.

A Triage Model

A triage model for use in palliative care includes categories not typically seen in other triage models (Cone and MacMillian, 2005; Janousek et al., 1999). Figure 4-1 presents the model of triage used for the expert

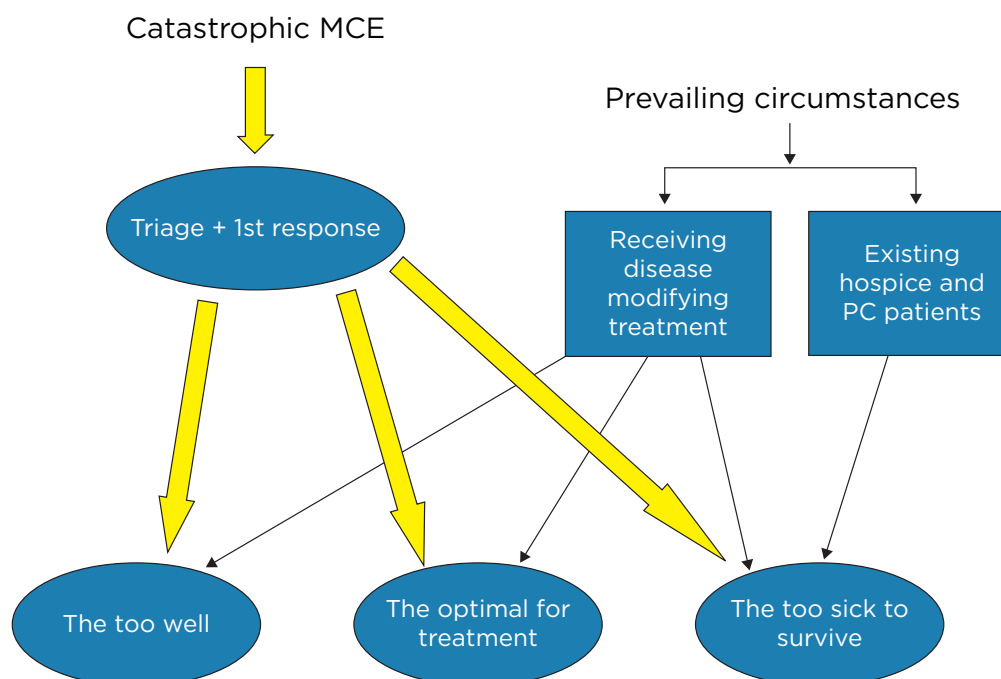


FIGURE 4-1
 A triage and response model.
 NOTE: MCE = mass casualty event; PC = palliative care.
 SOURCE: AHRQ, 2007, p. 107.

discussion cited above (Matzo et al., 2009). The term “likely to die” was defined as those people who are too sick or injured to survive hours, days, or weeks, most often categorized as the “expectant/black,” “non-salvageable,” or “non-savable” victims. In practice, however, this category may also include those labeled “immediate” if needed medical resources are unavailable. This category could also include cases in which an individual is already dependent upon the usual health care system to survive (e.g., ventilator-dependent patients), has an existing life-threatening illness (e.g., extensive cancer), or has illness secondary to injuries sustained in the disaster (Matzo et al., 2009).

The “likely to die” category is very broad but reflects the current state of the triage classification. Established triage schemes have substantial limitations when applied to the special circumstances of a disaster and the provision of palliative care. For example, many of the schemes do not attend to the likelihood of survival for patients with critical pre-existing medical conditions. Furthermore, there is a paucity of data addressing the critical question of whether correctly sorting casualties into the categories of any particular triage system results in improved outcomes, and one system may not handle all potential triage decisions in all triage settings (Cone and MacMillian, 2005). In practice, moreover, the “expectant” category often is applied only to those patients who are not breathing after one attempt at repositioning and opening the airway; all other critically ill or injured persons are treated as “immediate” or “delayed” (red or yellow). Finally, the usual triage schemes do not include palliative and comfort care measures as an alternative to curative treatment (Cone and MacMillian, 2005; Matzo et al., 2009).

A triage system for allocation of scarce resources will function best if it is transparent; fair; valid; consistent across settings and events; dynamic (applied at multiple places and times); and flexible enough to address changing circumstances, including responding when patients triaged as likely to die actually improve or when additional treatment resources become available (Matzo et al., 2009). Preserving a functioning health care system during and after a disaster will require the adoption of principles of field triage, limits on the use of ventilators and surgery, and the creation of alternate care sites. Research is beginning to provide a scientific underpinning for triage (Sacco et al., 2005), as well as to identify basic criteria for critical care triage during a disaster in which medical resources are scarce (Devereaux et al., 2008; Wilkinson et al., 2007). Future research will have to address the applicability of triage to palliative care, as well as the role of palliative care in disaster response. The arguments for incorporating palliative care into disaster response—humane treatment, diversion of dying people away from overburdened hospitals, more effective use of scarce resources, and the provision of care that patients want—have moral weight on their own, but research should still assess their impact.

In developing CSC plans, state and local public health agencies should work with hospice and other relevant partners to incorporate palliative care into disaster response plans. These efforts should include the development of

- evacuation plans for those who would be likely to benefit from palliative care;
- a community response plan, staffing plans, and training programs for first responders and other relevant medical personnel;
- transparent, community-based, explicit triage criteria for those not likely to survive;
- community conversations to engage, educate, and prepare the public;

- a plan for stockpiling needed medications and supplies at hospitals and at sites located away from hospitals (Wilkinson et al., 2007); and
- out-of-hospital considerations that may warrant moving individuals expected to die to care sites other than acute care hospitals.

In addition, palliative care professionals should participate in disaster planning, response and recovery training, and public education (Holt, 2008). First responders and health care providers at all disaster care sites (incident sites, alternate care sites, and hospitals) should have training in effective pharmacological pain and symptom management and psychosocial support. It is recognized that the burden to educate all of these personnel would be out of scope, but just-in-time training for those faced with palliative care responsibilities should be developed as part of the planning process.

Rebmann and colleagues' (2009) survey of 633 infection control professionals found that fewer than one-quarter of hospitals had convened their ethics committee to discuss preparedness issues or developed policies/procedures for CSC during a catastrophic disaster. During Hurricane Katrina, absent supplies and direction, the palliative care response was erratic and inefficient. One way to ameliorate a chaotic palliative care response is to form palliative care response teams comprising psychologists, chaplains, and health care providers with knowledge of palliative care as a core component of the emergency response process. Cross-training of personnel in other areas to serve in this capacity is also important. As the volume of patients

BOX 4-1
Essential Elements of Palliative Care Under
Crisis Standards of Care Conditions

- Principles of palliative care integrated into response structures/plans
- Rapid palliative care response team trained to provide palliative care at all service delivery sites (hospitals, local/regional and state response systems) in near real time:
 - education regarding pain and symptom management;
 - training for all community members of the response team in how to use narcotic analgesics, anxiolytics, and other medications to manage pain and symptoms until licensed personnel are available to manage these symptoms themselves;
 - consideration of stockpiling these medications for use under CSC; and
 - basic counseling and supportive training and support care as an integral part of all basic disaster training and for all responders.
- Education for all first responders and providers that includes
 - how to access the medication stockpile;
 - how to titrate opiates for people in pain and near death;
 - how to use the medications to manage symptoms so individuals experience a comfortable death; and
 - basics of psychosocial counseling and support for peer-to-peer and provider-patient services under mass casualty incident scenarios.

triaged to palliative care expands, so, too, will the strain of providing mass palliative care. Periodic emotional and psychological relief will be necessary for these palliative care providers through their rotation to other groups; this will be an important consideration for the welfare and morale of the provider corps as a whole.

Management of the dead can be one of the most difficult aspects of disaster response, and it has profound and long-lasting consequences for survivors and communities. Immediately after a catastrophic disaster, identification and disposal of human remains often are performed by local communities, primarily through local funeral directors and homes.

Summary

Facing the deaths of large numbers of its members while ensuring that those deaths are as pain and symptom free as possible is a major challenge for a community. Boxes 4-1 through 4-3 summarize key considerations in incorporating palliative care into CSC planning and implementation. Box 4-1 lists essential elements of palliative care under CSC conditions; Box 4-2 presents discussion topics for palliative care planning; and Box 4-3 details key points related to the implementation of palliative care in disaster situations.

BOX 4-2 **Discussion Topics for Palliative Care Planning**

- Define common medications for community stockpile and cache locations as a potential part of the regional planning effort.
- Develop the skills, materials, and memorandums of understanding needed to shelter and/or evacuate people with palliative care needs.
- Develop decision guidelines for who should receive palliative care, how it should be delivered, and how to handle large numbers of people expected to die and those already very sick or disabled.
- Develop criteria for allocating scarce and highly specialized clinical resources for palliative care.
- Identify differences and similarities in general considerations for the delivery of palliative care in a mass casualty event versus such events as bioterrorism and avian influenza.
- Determine whether the current system, given needs for shelter and evacuation, is sufficient, and if not, what additional support is required.
- Determine whether evacuation decisions are to be made for those requiring palliative care as part of overall regional evacuation planning efforts.
- Develop the key skills required for first responders regarding palliative care.
- Modify documentation standards to ensure that medical records reflect the delivery of palliative care without posing an undue administrative burden.
- Develop a plan for respectfully managing a large number of deaths and disposal of the bodies.
- Develop treatment protocols for those who are dying, in pain, or experiencing symptoms.

SOURCES: AHRQ, 2007; Wilkinson et al., 2007.

BOX 4-3 Implementation of Palliative Care in Disasters: Key Points for Planners

Incident Command and Operations

- Request the participation of local, regional, and state disaster planning leadership to form a network of leaders in home health, palliative care, hospice care, and long-term care that will be engaged in disaster planning.
- Integrate palliative care (e.g., clinical and spiritual/psychosocial support for casualties and providers) into command and operations. Consider
 - the role of opioids, steroids, diuretics, etc.; and
 - the role of providers.
- Coordinate with public health and emergency management to develop a registry of vulnerable populations. Oversee the development of planning and training efforts that support the delivery of palliative care.
 - Integrate palliative care planning into the development of alternate care systems.
 - Develop evacuation plans for existing and new palliative care patients.
 - Use social media (e.g., texting) and other methods to help family members stay in touch with each other.
 - Develop a community response plan, staffing plans, and training programs for first responders and other relevant medical personnel.
- Establish transparent, community-based, and explicit triage criteria for casualties not likely to survive.
 - Develop a public education program.
 - Consider stockpiling needed palliative care medications and supplies.
 - Have planners participate in otherwise provider-oriented disaster planning, response, and recovery training.

Planning Key Points

- Incorporate community-based long-term care and palliative care providers in all phases of planning, response, and recovery as integral members of the response team.
- Integrate specific planning for those likely not to live long into all established scenarios (all-hazards approach) and response plans. Include in planning issues of palliative care for pediatric and at-risk populations.

Training

- Incorporate palliative care training for disaster responders as an integral part of exercises, planning, and response, building on existing disaster planning and command and control structures.
- Determine who should deliver this care:
 - hospice staff/long-term care registered nurses/certified nursing assistants, etc.;
 - clergy/mental health professionals;

continued

BOX 4-3 Continued

- o rehabilitation personnel; and/or
- o volunteers.
- Identify the training/certification needed to deliver palliative care successfully in the setting of a disaster.
 - o Identify personnel who would be qualified to participate in the delivery of palliative care.
 - o Examine an expanded role for family participation in care.
 - o Coordinate with mental health resiliency efforts to support those responders engaged in the delivery of palliative care.

Development of Triage and Treatment Decisions

- Work with first responder personnel and local and regional disaster response planners (e.g., emergency medical services [EMS]; fire, police, and public health departments; community health clinics; local and regional government entities) to develop clear guidelines and protocols addressing the following issues:
 - o Triage
 - ♦ Develop criteria for triage into levels of care (achieving the greatest good for the greatest number; prioritization not based on social worth but on societal need). Demand for interventions will be progressive with the increased demand for resources.
 - ♦ Develop a classification of existing patients who are chronically ill; pediatric; geriatric; and in community, health care, or long-term care facilities (e.g., by prognosis from MDS/OASIS/Surprise Question, “Would you be surprised if this person were dead in 6 months?”): those expected to die imminently or in the very near future from injuries sustained in the disaster; those clinicians would expect to die in less than 6 months (from injuries or previously established disease)*; and those likely to live more than 6 months. Also develop criteria for reversal of triage decisions.

MENTAL HEALTH

The population-level impact of a disaster reflects a continuum of risk and resilience, and can include prevalence rates of mental health disorders among 30–40 percent of direct victims (Galea and Resnick, 2005). In addition, many individuals will experience transitory, subsyndromal distress that will dissipate as a result of resilience.

Comprehensive planning for the mental health and social consequences of CSC requires consideration of the full continuum of risk and resilience. The focus includes patients, their families, health care providers, and the general public. The use of CSC and the broader context in which it is required will significantly challenge the resilience of the community (and even the nation). There will also be unique opportunities to

- ♦ Decide what will be done about those expected to die imminently who do not (and establish a process for triage).
- Alternate care sites for palliative care
 - ♦ Decide what equipment (e.g., dialysis, oxygen, monitors/pulse oximeters/laboratory equipment/x-ray) is needed.
 - ♦ Determine the need for beds/facilities (e.g., nursing homes, retirement communities)—specific spaces vs. integrated.
 - ♦ Will mass casualties require facilities other than the ones they are in at the time of the incident (e.g., target patients in acute care facilities, alternate care sites)? Long-term care providers could provide shelter and daily care to at-risk elderly and disabled persons who ordinarily live at home at a time when home environments are unsafe (lack of power, water, etc.).
- What levels of care are to be delivered in what settings and by whom?
- Clearly identify lines of authority and responsible personnel.
- Address issues related to supplies/drugs (stockpiled where/by whom, how to deliver, shelf life, security, storage, controlled substance administration, subcutaneous butterfly needles [tegraderm so syringes can be reused to connect to the subcutaneous port for ongoing medication administration]). Consider specific drugs to alleviate symptoms:
 - opioids—oral and injectable—to treat anxiety, pain, dyspnea, agitation;
 - antianxiety drugs—benzodiazepines, antipsychotics (oral and injectable);
 - acetaminophen and other nonprescription, nonopioid comfort medications (non-steroidal anti-inflammatory drugs [NSAIDs], diphenhydramine);
 - diuretics to treat dyspnea;
 - steroids to manage pain from inflammation and dyspnea; and
 - antinausea and antidiarrheal medications.

*Note that this determination needs to accord with community expectations/priorities, and any triage scheme should be uniform, not designed to address a specific population (e.g., patients in long-term care).
 SOURCES: Holt, 2008; Wilkinson et al., 2007.

mitigate these impacts by incorporating the social and psychological aspects of disaster response into CSC planning, as proposed in the committee’s 2009 letter report (IOM, 2009).

Scope of the Issue and Range of Impact

CSC poses unique challenges for all involved in a disaster, including health care providers (and their families), patients receiving health care, and the public.

Although health care providers may confront life-and-death decisions on a daily basis and routinely experience the loss of patients, CSC differs from these experiences both quantitatively and qualitatively. For example, as soon as care shifts from a focus on the needs of individual patients to a focus on the greatest good

for the most people, the entire health care team may have very different experiences with life-and-death decisions. If a disaster results in mass casualties, a significant threat to the mental health of the health care workforce may result. If not sufficiently addressed, these foreseeable mental health consequences may further degrade the functionality of the health care system and its ability to implement CSC optimally. Health care workers may bear the double burden of stress due to their professional roles and that due to seeing their families and friends requiring care within the CSC context. In some public health emergencies, moreover (such as the epidemic of severe acute respiratory syndrome [SARS]), health care workers themselves are subject to elevated health and mental health risks (Hawryluck et al., 2004; Lin et al., 2007).

Patients and families also will face significant psychosocial impact. The idea that CSC treatment decisions are based on the most good for the most people may run counter to their previous experiences, expectations, and wishes. If patients encounter CSC decisions that involve life-and-death consequences for their loved ones (which also may include disproportionate numbers of children and their parents), a significant population-level mental health burden and even the potential to unravel the social fabric of communities may result. Relationships between providers and their patients and patients' families will face unprecedented complexities as CSC decisions are communicated and implemented and their consequences unfold at the clinic or bedside. Following the anthrax attacks in 2001, for example, the complexity of evolving risk communications and perceptions of differences in care among patient groups reflected episodic confusion among local and federal public health officials, medical providers, and patients (see Gursky et al. [2003] for a review). Public health emergencies that involve both CSC and social distancing may be particularly challenging as common sources of support, and hence resilience, are reduced (Gostin, 2006).

When these issues evolve on a regional or national scale, the potential for the perception of inequality in the application of CSC grows, and the protective impact of the sense that “we are in this together” is diminished, posing a threat to resilience. Although prosocial behavior is by far the most commonly observed collective response after a disaster (Glass and Schoch-Spana, 2002), planning should take into account the potential for negative social behaviors that may include aspects of panic. Indeed, there is limited consensus that certain features of emergency situations can trigger panic-like phenomena. For example, following the Three Mile Island nuclear incident, for every person that was asked to evacuate, 45 actually did, creating unintended gridlock. The prospect of pandemic influenza, which could entail significant morbidity and mortality, may also generate some undesirable collective behaviors among those attempting to avoid contagion, such as obtaining nonrecommended antiviral prophylaxis. Following the recent nuclear meltdown in Japan, for example, sales of potassium iodide, a treatment that prevents uptake of radioactive iodine by the thyroid gland, skyrocketed. Worldwide availability of potassium iodide ceased altogether for a period of time despite the quadrupling of prices (Aleccia, 2011). Factors that may be tied to the potential for mass panic in the CSC context include

- a belief that there is a small chance of escape from the agent,
- perceived high risk,
- available but limited treatment resources,
- no perceived effective response, and
- loss of credibility of authorities (DeMartino, 2001).

A high-mortality incident entailing CSC may have sufficient triggers to ignite panic behavior in some individuals and subpopulations. These risks occur against a backdrop of the recent finding that only 35 percent “of the American public is confident in the health care system’s readiness to respond effectively to a deadly flu pandemic” (National Center for Disaster Preparedness, 2005, p. 1). For example, among respondents to the Los Angeles County Health Survey, which included questions regarding terrorism preparedness, 17 percent reported having developed an emergency plan and 28 percent maintaining additional supplies of food, water, and clothing (Eisenman et al., 2006).

The full range of these impacts at the public level needs to be considered more fully. Traditional risk communications that focus on content are necessary but not sufficient to facilitate resilience and manage the emotional fallout that public health emergencies can engender. Engagement of the public (and health care providers) is essential to maintaining individual and community resilience (see Chapter 9). In fact, it should be regarded as a fundamental component of preparedness such that it is incorporated throughout the stages of response in a public health emergency that requires CSC.

Finally, there is a largely uncharted opportunity to leverage social media to facilitate national resilience in the face of a disaster. These media could be used to convey the notion that, despite challenges and traumatic outcomes for some, “we are in this together,” and to clarify the use of a common CSC approach governed by the ethical principles outlined in this report.

Patients with Psychiatric Emergencies as a Particular Crisis Standards of Care Subpopulation

In many communities across the United States, the allocation of scarce resource is already necessary to address chronic shortages of inpatient mental health beds for adults and children (Geller and Biebel, 2006; SAMHSA, 2007). In some communities, patients presenting to the emergency department with life-threatening mental health conditions are never transferred to an appropriate level of care or must wait days in the emergency department environment before receiving definitive psychiatric care (Schumacher Group, 2010). In some disaster scenarios, demand on these resources may be even greater, magnifying the need to develop CSC specific to psychiatric emergencies that entail immediate danger to those gravely disabled by their psychiatric illness or others. The development of CSC specific to the management of highly limited involuntary psychiatric resources will also be necessary. Strategies will need to consider cases in which psychiatric patients with comorbid medical conditions require care under CSC (see the HHS [2012] definition of at risk).

Operational Guidance to Enhance Resilience and Manage the Mental Health Consequences of Crisis Standards of Care

The 2009 letter report offered specific strategies and described several national best-practice initiatives with respect to managing the mental health consequences of mass casualty events (IOM, 2009). Here the committee offers more detailed operational guidance tailored to patients, providers, and the general public. At the various levels of hospital facility, local/regional, and state planning, the following elements are necessary to address the continuum of resilience and mental health issues tied to CSC (see also Box 4-4):

BOX 4-4**Functions for Mental Health Response to Crisis Standards of Care**

- Suggested: Concept of mental health operations in CSC integrated into incident command system and other response structures and plans
- Specific capabilities and capacities required for patients/families, providers, and the general public in response to CSC:
 - Rapid mental health triage system with “floating triage algorithm” linking disaster systems of care, including hospitals, clinics, etc., with local/regional and state response systems in near real time (Pynoos et al., 2004; Schreiber, 2005); real-world examples: PsySTART Rapid Triage System in Los Angeles County, State of Minnesota Department of Public Health, American Red Cross’s Disaster Mental Health Triage and Surveillance System
 - Continuum of acute phase evidence-based interventions
 - Psychological first aid adapted specifically for community resilience/social support enhancement in a CSC context and for use by the general public, health care workers, and disaster systems of care; example: Los Angeles Department of Public Health’s community resilience program with “Listen, Protect and Connect—neighbor to neighbor, family to family” psychological first aid/social support
 - Development of behavioral coping component of risk communications (NBSB, 2008), including creation of new “coping with CSC” messaging
 - Gap analysis with action plan to build key local disaster mental health and spiritual care capacities without mutual aid, including capacity to leverage novel, evidence-based Internet interventions for posttraumatic stress disorder (PTSD), depression, anxiety, and substance abuse
 - Development of health care provider resilience capabilities and approaches with preincident stress inoculation, “individual/family resilience planning,” acute phase self-triage and Internet-based interventions for higher-risk subset (see Ruggiero et al., 2011); example: the “Anticipate, Plan, and Deter” health protection/resilience system, which includes preincident preparedness (stress inoculation), development of responder “resilience plans” (including family plans, social support systems, and basic psychological first aid), and identification of cumulative stress burden with Internet-based interventions for those at risk

SOURCE: Pynoos et al., 2004; Schreiber, 2005.

- A disaster mental health concept of operations and operational disaster mental health plan should be developed.
 - These plans may guide the disaster mental health response in an all-hazards context but include incidents that trigger CSC (and surge demand) for mental health resources.
 - The plans should address the full continuum of those affected, from those with pre-existing mental illness, to those directly affected by the implementation of CSC and their families, to health care workers who must implement CSC, to the general public.
- Plans should address the anticipated consequences of CSC incidents through a gap analysis of the range of expected mental health impacts versus current resources. When informed by such an

analysis, triage decisions reflect a rational allocation of limited disaster mental health resources. During response, near-real-time awareness of needs and resources informs a floating triage algorithm of risk levels versus resources, guided by the ethical framework set forth in this report.

- Evidence-based interventions should be identified for the high-risk subset of providers; patients; and surviving family members, including children (e.g., trauma-focused cognitive-behavioral therapy for children, prolonged-exposure cognitive-behavioral therapy for adults, and other commonly employed techniques [IOM, 2007; Stokes and Jones, 1995]).
- Core competencies and training curricula should be developed for
 - o mental health, social services, and spiritual care staff;
 - o health care providers; and
 - o the public—basic strategies for community resilience that community members can use with friends and family (such as very basic psychological first aid, created specifically for these populations) (see also Chapter 9 on public engagement).
- Site, local/regional, and state-level incident command operations should be augmented to integrate mental health operations into emergency operations center operations. These efforts should encompass mental health needs assessment and operations for patients/disaster victims and responders (including health care workers and their families) to create user-defined situational awareness of acute mental health gaps, including
 - o a user-defined/common operating picture of the continuum of population-level mental health risks (traumatic loss, multiple traumatic losses);
 - o a user-defined/common operating picture of the continuum of mental health risks to health care workers; and
 - o a user-defined/common operating picture of mental health resources, including telephone, triage, and novel Internet-based interventions.
- Comprehensive resilience programs for health care workers/responders should be developed that integrate personal behavioral coping and agency preparedness. These programs should encompass preincident stress inoculation, development of personal resilience “plans,” simple peer-to-peer psychological first aid, self-triage, and linkage to Internet-based interventions for those at higher risk who desire further support.

For Patients and Their Families

In a mass casualty event involving high rates of illness, injury, and mortality, disaster mental health resources, like health care resources generally, are likely to experience significant surge demand. Although there may be considerable individual and community resilience, many others will be at risk for developing new-incidence comorbid disorders, such as posttraumatic stress disorder, depression, and substance abuse. Others with pre-existing mental health disorders, including those that are severe and persistent, may experience relapse or worsening of illness episodes (NBSB, 2008). The phenomenon known as “traumatic grief” can result when

the death of a loved one occurs in a particularly traumatic context; CSC may be such a context for many and thus could lead to widespread traumatic grief (NCTSN, 2004). When adults or children develop symptoms of traumatic grief, they require specialized interventions, such as trauma-focused cognitive-behavioral therapy for children and prolonged-exposure cognitive-behavioral therapy for adults (IOM, 2007). While resilience is common after the loss of loved ones, rates of resilience may drop by as much as 50 percent when traumatic grief is present (Norris, 2005; Shear et al., 2005). Therefore, the capacity to provide evidence-based care for traumatic loss is a key requirement under CSC.

There is also growing evidence that certain evidence-based interventions, when provided early after a traumatic incident, may significantly reduce long-term mental health consequences (Bisson, 2008; Roberts et al., 2010; Shalev et al., 2012). However, early rapid triage is needed to allocate these resources to those at risk (Schreiber, 2005; Schreiber et al., in press). The ability to provide a continuum of evidence-based care, based on triage risk, is a hallmark of community resilience planning. Both specific coping information on traumatic grief (NCTSN, 2004) and additional coping information specific to expected reactions to CSC need to be developed. Potential risk factors include experiencing traumatic loss (including missing family members); seeing many dead or injured or hearing cries of pain; being trapped or unable to evacuate; and experiencing persistent stressors, such as ongoing injury or illness due to a disaster, home loss, and disaster-induced relocation.

Therefore, strategies employed at the population level should utilize evidence-based rapid triage to help identify those at greatest risk for more sustained and serious consequences and allocate limited mental health resources to those at the highest level of evidence-based risk for sustained disorder and impairment. One example is the PsySTART disaster mental health rapid triage system, currently used by the American Red Cross and the Minnesota Department of Health, and available to 83 Los Angeles-area hospitals and community clinic agencies in the Los Angeles County Emergency Medical Services Agency Hospital Preparedness Program. Although there are certainly challenges to implementing such strategies, the ability to align and allocate limited mental health resources is necessary to address the needs of those at higher risk for acute psychiatric emergencies and enduring psychological consequences. The Los Angeles EMS agency has operationalized this model in proposed modifications to the hospital incident command system and evaluated its use in a recent statewide disaster medical exercise, which revealed acceptable levels of mental health triage accuracy in a simulated countywide mass casualty incident (Schreiber et al., 2011). There are certainly daily challenges in accessing care for psychiatric emergencies. Within the CSC/disaster context, however, there are unique opportunities to advance surge management of risk and to improve population-level resilience by employing the combination of *rapid disaster mental health triage* (using a shifting or “floating” triage algorithm of dynamic alignment of resources with highest risk); *“stepped” care case management* (Zatzick et al., 2011), which involves maximizing population-level mental health impact or reach through timely triage-informed allocation of high-intensity treatment resources and increasing service intensity only after lower-intensity efforts are found insufficient; and *evidence-based, internet-based interventions* (Ruggiero et al., 2011), which address surge demands and stigma through targeted modules for depression, posttraumatic stress, substance abuse, and anxiety.

For Health Care Providers

As noted above, responders and health care workers typically exhibit high levels of resilience following a disaster response. When CSC must be utilized, however, this may not be the case. A number of features of CSC—the potential for dramatically high mortality rates, including pediatric deaths; the stress of implementing and communicating about CSC with individual patients, their families, and others—pose severe mental health threats to health care workers. Available research suggests that many or most health care workers expect to face major barriers to their ability and/or willingness to perform hypothetical emergency health care roles (Chaffe, 2009; DiGiovanni et al., 2003; DiMaggio et al., 2005). In this regard, strategies needed for providers mirror those needed for patients—the use of rapid triage to identify those at highest risk and those with other concerns, and to align limited disaster mental health resources rationally and ethically to providers with the greatest needs.

A number of localities have developed pilot efforts to enhance resilience in disasters. Los Angeles County, one of several examples, has initiated a provider resilience project, called Anticipate, Plan and Deter, that leverages stress inoculation in the preparedness phase, including aspects of CSC, and self-triage/monitoring in the response phase for the creation of a “personal resilience plan” for the health care workforce (Schreiber and Shields, 2011; Schreiber et al., in press).

Psychological first aid is another approach that can be used by mental health workers, health care providers, and patients and their families, as well as the general public. Currently, there are a number of different models for psychological first aid: one that is among the most comprehensive and intended for use by trained mental health care providers (NCTSN, 2006); another that is intended for use by community disaster responders with no mental health background (American Red Cross, 2006); and yet another, called Listen, Protect and Connect, designed specifically for the provision of basic psychological first aid and psychosocial support by all members of the community (Gurwitch and Schreiber, 2010). Listen, Protect, and Connect is a method for enhancing social support using three simple principles at the family, neighborhood, and community levels. It is intended as an achievable community resilience capability to strengthen social ties at the most basic levels of social connection. So-called “Mhealth” versions and provider versions for CSC are currently in development as part of the Los Angeles County Community Disaster Resilience Project. Aimed at the general community, Listen, Protect, and Connect has versions for children and parents and for teachers, as well as a “neighbor-to-neighbor, family-to-family” all-ages version. These versions were recently adapted for the Los Angeles County Department of Public Health and its community disaster preparedness partners, including the medical reserve corps, community health clinics, hospitals, public health workers, schools, and first responders.¹

¹ These versions are available without cost from <http://www.cdms.uci.edu/protect.pdf>.

REFERENCES

- ACEP (American College of Emergency Physicians). 2006. *Disaster medical services*. Irving, TX: ACEP, <http://www.acep.org/Content.aspx?id=29176> (accessed March 4, 2012).
- ACEP. 2008. *Disaster planning and response*. Irving, TX: ACEP, <http://www.acep.org/Content.aspx?id=40342> (accessed March 4, 2012).
- AHRQ (Agency for Health Research and Quality). 2005. *Altered standards of care in mass casualty events: Bioterrorism and other public health emergencies*. Publication no. 05-0043. Rockville, MD: AHRQ.
- AHRQ. 2007. *Mass medical care with scarce resources: A community planning guide*. Publication no. 07-0001. Rockville, MD: AHRQ, <http://archive.ahrq.gov/research/mce/> (accessed February 28, 2012).
- Aleccia, J. 2011 (March 17). Popping potassium iodide already? Really bad idea. http://www.msnbc.msn.com/id/42135438/ns/health-health_care/ (accessed March 4, 2012).
- American Red Cross. 2006. *Psychological First Aid: Helping Others in Times of Stress*. DSCLS206A. Washington, DC: American Red Cross, <http://www.cincinnatiaredcross.org/pdf/Psychological%20First%20Aid%20Participant%20Workbook.pdf> (accessed March 1, 2012).
- Berry, P. H., and M. Matzo. 2004. Death and an aging society. In *Gerontological palliative care nursing*, edited by M. Matzo, and D. W. Sherman. St. Louis, MO: Mosby. Pp. 31-51.
- Bisson, J. I. 2008. Using evidence to inform clinical practice shortly after traumatic events. *Journal of Traumatic Stress* 21(6):507-512.
- Cantrill, S. V., P. T. Pons, C. J. Bonnett, S. Eisert, and S. Moore. 2009. *Disaster alternate care facilities: Selection and operation*. Prepared by Denver Health under Contract No. 290-20-0600-020. AHRQ Publication no. 09-0062. Rockville, MD: AHRQ.
- CDC (Centers for Disease Control and Prevention). 2009. *2009 H1N1 vaccination recommendations*. <http://www.cdc.gov/h1n1flu/vaccination/acip.htm> (accessed March 4, 2012).
- Census Scope. *Social science data analysis network*. http://www.censusscope.org/us/chart_age.html (accessed February 25, 2011).
- Chaffe, M. 2009. Willingness of health care personnel to work in a disaster: An integrative review of the literature. *Disaster Medicine and Public Health Preparedness* 3(1):42-56.
- Christian, M. D., L. Hawryluck, R. S. Wax, T. Cook, N. M. Lazar, M. S. Herridge, M. P. Muller, D. R. Gowans, W. Fortier, and F. M. Burkle. 2006. Development of a triage protocol for critical care during an influenza pandemic. *Canadian Medical Association Journal* 175(11):1377-1381.
- Cone, D. C., and D. S. MacMillian. 2005. Mass-casualty triage systems: A hint of science. *Academic Emergency Medicine* 12(8):739-741.
- DeMartino, R. 2001 (unpublished). *Planning for the unexpected: Behavioral health in a new era of bioterrorism* [at the National Summit on Addressing Terrorism]. Rockville, MD: SAMHSA (Department of Health and Human Services, Substance Abuse and Mental Health Agency).
- Devereaux, A. V., J. R. Dichter, M. D. Christian, N. N. Dubler, C. E. Sandrock, J. L. Hick, T. Powell, J. A. Geiling, D. E. Amundson, T. E. Baudendistel, D. A. Braner, M. A. Klein, K. A. Berkowitz, J. R. Curtis, and L. Rubinson. 2008. Definitive care for the critically ill during a disaster: A framework for allocation of scarce resources in mass critical care. From a Task Force for Mass Critical Care summit meeting, January 26-27, 2007, Chicago, IL. *Chest* 133(Suppl. 5):S51-S66.
- DiGiovanni, C., Jr. 2003. The spectrum of human reactions to terrorist attacks with weapons of mass destruction: Early management considerations. *Prehospital and Disaster Medicine* 18(3):253-257.
- DiMaggio, C., D. Markenson, G. Loo, and I. Redlener. 2005. The willingness of U.S. emergency medical technicians to respond to terrorist incidents. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 3(4):331-337.
- Domres, B., A. Manger, I. Steigerwald, and S. Esser. 2003. The challenge of crisis, disaster, and war: Experience with UN and NGOs. *Pain Practice* 3(1):97-100.
- Eisenman, D. P., C. Wold, J. Fielding, A. Long, C. Setodji, S. Hickey, and L. Gelberg. 2006. Differences in individual-level preparedness in Los Angeles County. *American Journal of Preventative Medicine* 30(1):1-6.
- Fink, S. 2009. Deadly choices at memorial. *NY Times Magazine*, August 27.
- Galea, S., and H. Resnick. 2005. Posttraumatic stress disorder in the general population after mass terrorist incidents: Considerations about the nature of exposure. *CNS Spectrums* 10(2):107-115.

- Garrett, J. E., D. E. Vawter, K. G. Gervais, A. W. Prehn, D. A. DeBruin, F. Livingston, A. M. Morley, L. Liaschenko, and R. Lynfield. 2011. The Minnesota Pandemic Ethics Project: Sequenced, robust public engagement processes. *Journal of Participatory Medicine* 3, <http://www.jopm.org/evidence/research/2011/01/19/the-minnesota-pandemic-ethics-project-sequenced-robust-public-engagement-processes/> (accessed January 18, 2012).
- Geller, J. L., and K. Biebel. 2006. The premature demise of public child and adolescent inpatient psychiatric beds. *Psychiatric Quarterly* 77:251-271.
- Glass and Schoch-Spana. 2002. Bioterrorism and the people: How to vaccinate a city against panic. *Clinical Infectious Diseases* 34(2):217-23.
- Gostin, L. O. 2006. Public health strategies for pandemic influenza. *Journal of the American Medical Association* 295(14):1700-1704.
- Gursky, E., T. V. Inglesby, T. O'Toole. 2003. Anthrax 2001: Observations on the medical and public health response. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 1(2):97-110.
- Gurwitch, R., and M. Schreiber. 2010. Coping with disaster, terrorism and other trauma. In *The parent's guide to psychological first aid*, edited by G. Koocher and A. LaGreca. Boston, MA: Oxford University Press. Pp. 342-351.
- Hawryluck, L., W. Gold, S. Robinson, S. Pogorski, S. Galea, and R. Strya. 2004. SARS control and psychological effects of quarantine, Toronto, Canada. *Emerging Infectious Diseases* 10(7):1208-1212.
- HHS (Department of Health and Human Services). 2011. *Guidance for integrating culturally diverse communities into planning for and responding to emergencies: A toolkit*. Washington, DC: HHS Office of Minority Health, http://www.hhs.gov/ocr/civilrights/resources/specialtopics/emergencypre/omh_diversitytoolkit.pdf (accessed January 11, 2012).
- HHS. 2012. *At-risk individuals*. Washington, DC: HHS, <http://www.phe.gov/Preparedness/planning/abc/Documents/at-risk-individuals.pdf> (accessed February 13, 2012).
- Hippen, B., R. Thistlethwaite, and L. Ross. 2011. Risk, prognosis, and unintended consequences in kidney allocation. *New England Journal of Medicine* 364(14):1285-1287.
- Holt, G. R. 2008. Making difficult ethical decisions in patient care during natural disasters and other mass casualty events. *Otolaryngology—Head & Neck Surgery* 139(2):181-186.
- IOM (Institute of Medicine). 2007. *Treatment of PTSD: An Assessment of The Evidence*. Washington, DC: The National Academies Press.
- IOM. 2009. *Guidance for establishing crisis standards of care for use in disaster situations: A letter report*. Washington, DC: The National Academies Press, http://www.nap.edu/catalog.php?record_id=12749 (accessed September 6, 2011).
- IOM. 2010. *Preventing transmission of pandemic influenza and other viral respiratory diseases: Personal protective equipment for healthcare personnel update 2010*. Washington, DC: The National Academies Press.
- Iseron, K.V., and N. Pesik. 2003. Ethical resource distribution after biological, chemical, or radiological terrorism. *Cambridge Quarterly of Healthcare Ethics* 12(4):455-465.
- Janousek, J. T., D. E. Jackson, R. A. DeLorenzo, and M. Coppola. 1999. Mass casualty triage knowledge of military medical personnel. *Military Medicine* 164(5):332-336.
- Levin, D., R. O. Cadigan, P. D. Biddinger, S. Condon, H. K. Koh; Joint Massachusetts Department of Public Health-Harvard Altered Standards of Care Working Group. 2009. Altered standards of care in an influenza pandemic: Identifying ethical, legal and practical principles to guide decision-making. *Disaster Medicine and Public Health Preparedness* 3(Suppl. 2):1-9.
- Lin, C. Y., Y. C. Peng, Y. H. Wu, J. Chang, C. H. Chan, and D. Y. Yang. 2007. The psychological effect of severe acute respiratory syndrome on emergency department staff. *Emerging Medicine Journal* 24(1):12-7.
- Louisiana Department of Health and Hospitals. 2011. *Crisis standards of care summary*. Baton Rouge, LA: Louisiana Department of Health and Hospitals, <http://new.dhh.louisiana.gov/assets/oph/Center-PHCH/Center-CH/infectious-epi/Influenza/CSOCPublicFLYERvs210132011.pdf> (accessed February 5, 2012).
- Matzo, M. L. 2004. Palliative care: Prognostication and the chronically ill. *American Journal of Nursing* 104(9):40-50.
- Matzo, M., A. Wilkinson, J. Lynn, M. Gatto, and S. J. Phillips. 2009. Palliative care considerations for mass casualty events with scarce resources. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 7(2):199-210.
- National Center for Disaster Preparedness. 2005. *Survey of Confidence in Government's Abilities in Face of Hurricanes, Pandemic Flu, and Threats of Terrorism*. New York: Columbia University Mailman School of Public Health, <http://www.ncdp.mailman.columbia.edu/files/Marist%20Survey%202005%20press%20release%20final.pdf> (accessed February 28, 2012).

- NBSB (National Biodefense Science Board). 2008. *Disaster mental health recommendations: report of the disaster mental health subcommittee of the National Biodefense Science Board*. Washington, DC: NBSB, <http://www.phe.gov/Preparedness/legal/boards/nbsb/Documents/nsbs-dmhreport-final.pdf> (accessed February 28, 2012).
- NCTSN (National Child Traumatic Stress Network). 2004. *What is childhood traumatic grief*. Los Angeles, CA: NCTSN, <http://www.nctsn.org/trauma-types/traumatic-grief/what-childhood-traumatic-grief> (accessed January 18, 2012).
- NCTSN. 2006. *Psychological First Aid: field operations guide 2nd edition*. Los Angeles, CA: NCTSN, http://www.nctsn.org/sites/default/files/pfa/english/2-psyfirstaid_final_no_handouts.pdf (accessed March 4, 2012).
- Norris, F. H. 2005. *Range, multitude, and duration of the effects of disasters on mental health: Review update, 2005*. Hanover, NH: Dartmouth College and the National Center for PTSD.
- Organ Procurement and Transplantation Network. 2011. *Concepts for kidney allocation*. <http://optn.transplant.hrsa.gov/SharedContentDocuments/KidneyConceptDocument.pdf> (accessed March 4, 2012).
- Orr, R. D. 2003. *Ethical issues in bioterrorism*. Bioterrorism email module #12. Burlington, VT: Fletcher Allen Health Care in conjunction with the University of Vermont College of Medicine.
- Pandemic Influenza Ethics Initiative Workgroup of the Department of Veterans Affairs. 2009 (April). *Meeting the Challenge of Pandemic Influenza: Ethical Guidance for Leaders and Health Care Professionals in the Veterans Health Administration*. Washington, DC: VA (Department of Veterans Affairs), http://www.ethics.va.gov/docs/pandemicflu/Meeting_the_Challenge_of_Pan_Flu-Ethical_Guidance_VHA_20100701.pdf (accessed March 4, 2012).
- Pediatric Emergency Mass Critical Care Task Force. 2012. Ethical issues in pediatric emergency mass critical care. *Pediatric Critical Care Medicine*.
- Persad, G., A. Wertheimer, and E. Emanuel. 2009. Principles for allocation of scarce medical interventions. *Lancet* 373:423-431.
- Peterson, M. 2008. The moral importance of selecting people randomly. *Bioethics* 22(6):321-327.
- Public Health-Seattle and King County. 2009. *Public engagement project on medical service prioritization during an influenza pandemic: Health care decisions in disasters, September 2009*. http://s3.amazonaws.com/publica/assets/docs/seattle_public_engagement_project_final_sept2009.pdf (accessed March 4, 2012).
- Pynoos, R., M. Schreiber, A. Steinberg, and B. Pfefferbaum. 2004. Impact of Terrorism on Children. In *Kaplan and Sadock's Comprehensive Textbook of Psychiatry*, 8th ed., edited by B. Sadock and V. Sadock. Philadelphia, PA: Lippincott, Williams and Wilkins. Pp. 3551-3564.
- Rebmann, T., R. Wilson, S. LaPointe, B. Russell, and D. Moroz. 2009. Hospital infectious disease emergency preparedness: A 2007 survey of infection control professionals. *American Journal of Infection Control* 37(1):1-8.
- Roberts, N. P., N. J. Kitchiner, J. Kenardy, and J. I. Bisson. 2010. Early psychological interventions to treat acute traumatic stress symptoms. *Cochrane Database of Systematic Reviews* 17(3):CD007944.
- Ruggiero, K. J., H. S. Resnick, L. A. Paul, K. Gros, J. L. McCauley, R. Acierno, M. Morgan, and S. Galea. 2011. Randomized controlled trial of an internet-based intervention using random-digit-dial recruitment: The Disaster Recovery Web project. *Contemporary Clinical Trials* 33(1):237-246.
- Sacco, W. J., M. Navin, K. E. Fiedler, and R. K. Waddell. 2005. Precise formulation and evidence-based application of resource-constrained triage. *Academic Emergency Medicine* 12(8):759-771.
- SAMHSA (Substance Abuse and Mental Health Services Administration). 2007. *Prolonged Exposure Therapy for Posttraumatic Stress Disorders*. Rockville, MD: HHS (Department of Health and Human Services), <http://nrepp.samhsa.gov/ViewIntervention.aspx?id=89> (accessed March 1, 2012).
- Schreiber, M. 2005. Learning from 9/11: Toward a national model for children and families in mass casualty. In *On the ground after 9/11: Mental health responses and practical knowledge gained*, edited by Y. Daneili. New York: Haworth. Pp. 605-609.
- Schreiber, M., and S. Shields. 2012. Anticipate, Plan, and Deter: Building resilience in emergency health responders. Presented at the 2012 NACCHO (National Association of City and County Health Officials) Public Health Preparedness Summit, Anaheim, California.
- Schreiber, M., K. Koenig, C. Schultz, S. Shields, and D. Bradley. 2011. PsySTART Rapid Disaster Mental Health Triage System: Performance During a Full Scale Exercise. *Academic Emergency Medicine* 18(5):s59 (supplement).
- Schreiber, M., B. Pfefferbaum, L. Sayegh, and J. Coady. In press. The way forward: The national children's disaster mental health concept of operations. *Disaster Medicine and Public Health*.
- Schumacher Group. 2010. *Emergency department challenges and trends: 2010 survey of hospital emergency department administrators*. Lafayette, LA: Schumacher Group, http://schumachergroup.com/_uploads/news/pdfs/ED%20Challenges%20and%20Trends%2012.14.10.pdf (accessed March 4, 2012).

- Shah, U. 2012 (January 13). *Summary of HCPHES pandemic influenza public and partner engagement projects*. Harris County, TX: Harris County Public Health and Environmental Services.
- Shalev, A. Y., Y. Ankri, Y. Israeli-Shalev, T. Peleg, R. Adessky, and S. Freedman. 2012. Prevention of posttraumatic stress disorder by early treatment: Results from the Jerusalem trauma outreach and prevention study. *Archives of General Psychiatry* 69(2):166-76.
- Shear, K., E. Frank, P. R. Houck, and C. F. Reynolds. 2005. Treatment of complicated grief: A randomized controlled trial. *Journal of the American Medical Association* 293(21):2601-2608.
- Society of Critical Care Medicine Ethics Committee. 1994. Consensus statement on the triage of critically ill patients. *Journal of the American Medical Association* 271(15):1200-1203.
- Stokes, J., and F. D. Jones. 1995. *Combat stress control in joint operations in War Psychiatry*. Alexandria, VA: Department of the Army.
- Wilkinson, A., M. Matzo, M. Gatto, and J. Lynn. 2007. Chapter VII: Palliative care. In *Mass medical care with scarce resources: A community planning guide*. Publication no. 07-0001. Rockville, MD: AHRQ, <http://archive.ahrq.gov/research/mce/> (accessed February 28, 2012). Pp. 101-116.
- Williams, A. 1997. Intergenerational equity: An exploration of the “fair innings” argument. *Health Economics* 6(2):117-132.
- Zatzick, D., F. Rivara, G. Jurkovich, J. Russo, S. G. Trusz, J. Wang, A. Wagner, K. Stephens, C. Dunn, E. Uehara, M. Petrie, C. Engel, D. Davydow, and W. Katon. 2011. Enhancing the population impact of collaborative care interventions: Mixed method development and implementation of stepped care targeting posttraumatic stress disorder and related comorbidities after acute trauma. *General Hospital Psychiatry* 33(2):123-134.



Crisis Standards of Care

A Systems Framework for
Catastrophic Disaster Response

State and Local Government

INSTITUTE OF MEDICINE
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Crisis Standards of Care

A Systems Framework for Catastrophic Disaster Response

Volume 2: State and Local Government

Committee on Guidance for Establishing Standards of Care for Use in Disaster Situations

Board on Health Sciences Policy

Dan Hanfling, Bruce M. Altevogt, Kristin Viswanathan, and Lawrence O. Gostin, *Editors*

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Willing is not enough; we must do.”*
—Goethe



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Acronyms

ASPR	Assistant Secretary for Preparedness and Response
ASTHO	Association of State and Territorial Health Officials
CDC	Centers for Disease Control and Prevention
CMS	Centers for Medicare & Medicaid Services
CONOPS	concept of operations
CSC	crisis standards of care
DHS	Department of Homeland Security
DMAT	disaster medical assistance team
DOD	Department of Defense
EMA	emergency management agency
EMAC	Emergency Management Assistance Compact
EMS	emergency medical services
EMTALA	Emergency Medical Treatment and Active Labor Act
EOC	emergency operations center
EOP	emergency operations plan
ESAR-VHP	Emergency System for Advance Registration of Volunteer Health Professionals
ESF	Emergency Support Function
FD&C	Food, Drug, and Cosmetic (Act)
FEMA	Federal Emergency Management Agency
FMS	federal medical station
HHS	Department of Health and Human Services
HPP	Hospital Preparedness Program

ICS	incident command system
LHD	local health department
MAC	multiagency coordination
MOU	memorandum of understanding
MRC	Medical Reserve Corps
MSCC	Medical Surge Capacity and Capability
NDMS	National Disaster Medical System
NIMS	National Incident Management System
PHEP	Public Health Emergency Preparedness
PHS	Public Health Service
RDMAC	regional disaster medical advisory committee
REC	regional emergency coordinator
RMCC	regional medical coordinating center
SDMAC	state disaster medical advisory committee
SNS	Strategic National Stockpile
VA	Department of Veterans Affairs

5: State¹ and Local Governments

Because crisis standards of care (CSC) responses will combine the efforts of health care, public health, and emergency management and response systems, they will necessitate interaction between public and private actors and resources and local, state, and federal authorities. While much of the health care component of a CSC response will occur in the private sector (because the health care system comprises largely nongovernmental partners, with some exceptions), government at all levels must play a crucial role in leading and coordinating CSC planning and implementation efforts. Government also is ultimately accountable for CSC activities, with states having “the political and constitutional mandate to prepare for and coordinate the response to disaster situations throughout their state jurisdictions” (IOM, 2009, p. 23). As recommended in the committee’s 2009 letter report, states in particular should lead the development and implementation of CSC protocols “both within the state and through work with neighboring states, in collaboration with their partners in the public and private sectors” (IOM, 2009, p. 4).

Building on existing strengths, authorities, and response structures within states, this chapter outlines the roles and responsibilities of state and local governments in CSC planning and implementation in the overall context of a CSC response system. It focuses on the unique role of the state health department² in leading CSC efforts within states, and on the interplay of local health department, regional, state emergency management, and federal partners in state planning and implementation efforts for CSC incidents. Two templates provide core functions for state and local planners to help guide the development and, when needed, the activation and implementation of CSC plans. In both the text and the templates, the role of local government is highlighted because of the importance of local and state partners working together closely in CSC planning and implementation. Local governments are uniquely positioned in the organizational structure of states to intersect with both state government partners and the communities in their local jurisdiction(s).

Because this chapter focuses primarily on the roles and processes for developing and implementing

¹ For the purposes of this report, the term “states” encompasses states, tribal jurisdictions, and territories.

² As described later in this chapter, there is significant variation in state organizational and reporting structures for public health. For ease of reference, the report uses the term “state health department” to refer to the state department, agency, office, commission, or other entity that is principally and directly responsible for coordinating public health services and programs in the state, whether that entity falls under an umbrella state agency or is an independent, stand-alone state agency. The terms “department” and “agency” are used interchangeably for local government public health entities.

governmental CSC plans, its content should be used in conjunction with the report's other chapters. Those chapters provide detailed guidance on specific CSC topics (e.g., related to legal issues, palliative care, mental health, hospital care, out-of-hospital and alternate care systems) that may be referenced only briefly as planning or implementation considerations in this chapter or the two accompanying templates.

ROLES AND RESPONSIBILITIES OF STATE GOVERNMENT

Emergencies rising to the level of CSC generally are expected to be multijurisdictional, statewide, or even multistate incidents that involve various local, regional, state, and federal roles and authorities. Therefore, considerable state-level coordination with intra- and interstate as well as federal partners is essential. In other words, even though this chapter focuses on the state as being in the best position to take the lead in CSC planning and implementation activities because it can serve as the nexus to link local, regional, state, federal, and private components, the response to this level of crisis requires a comprehensive systems approach (see Chapter 2). In this system, *all* levels of government (from local to federal) and *all* components of emergency response and health care are mobilized as a coordinated, interdependent, and interacting response network.

Depending on the specific nature of the incident, various state agencies, as well as private health care system entities, should be involved in CSC planning and implementation activities because no single agency or health or emergency response entity alone can be expected to handle the challenges presented by a CSC incident. As in most large-scale emergencies, the state emergency management agency (EMA) will likely play an essential coordinating role for the overall state response, such as by establishing the state emergency operations center (EOC) and otherwise supporting the state's emergency response efforts, since parallel response activities will be occurring at the local and regional levels. The involvement of other state government agencies and offices, such as those focused on emergency medical services (EMS) (see Chapter 6) or on at-risk populations, also will be necessary to facilitate specific aspects of a CSC response, depending on the nature of the emergency and patient needs.

In addition to state agencies, political and elected officials in the state can be expected to be involved in various aspects of CSC decision making and implementation. The governor, in particular, is ultimately responsible for his or her state's emergency planning and response actions and for ensuring that effective CSC planning occurs. Variations in state agency structures and authorities often will dictate emergency response leadership roles. Therefore, the guidance presented here is not intended to be prescriptive. Rather, states should have the flexibility to develop the organizational structure for CSC planning and implementation that makes the most sense for them. At the same time, however, recognizing the role of the state health department as Emergency Support Function (ESF)-8 lead and the fact that multiple state agencies and leaders will have pivotal CSC roles, the state health department is fundamentally the most appropriate agency to lead and coordinate CSC planning and implementation efforts at the state level and to advise state leadership on CSC issues.

This section focuses on the attributes of state health departments that make them especially well suited to lead CSC planning and implementation efforts. It also reviews the strengths of the state EMA and the federal government's role in CSC planning and implementation in relation to that of the state.

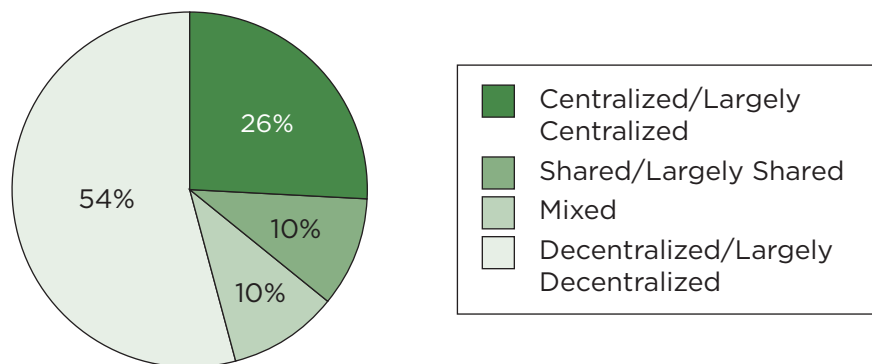


FIGURE 5-1
Organizational structure of public health agencies within states.
SOURCE: ASTHO, 2011, pp. 4, 26-27.

State Health Department

Intrastate partnerships and emergency response systems are essential to effective CSC planning and implementation. However, the state health department is in a unique position to assume the lead role in CSC planning and implementation at the state level (including determining when to implement the state CSC plan) because of its expertise in population-based public health; relationship to the provision of health care; already established local, regional, state, and federal connections with a wide range of stakeholders that may be involved in or affected by a CSC response; legal powers to use public health emergency response authorities; and role in ensuring the representation of appropriate substate (e.g., regional, local) stakeholders.

Structure

Despite considerable differences in the responsibilities, authorities, and structures (e.g., centralized or decentralized, shared governance, or mixed structures)³ of state departments of health (Figure 5-1), each state typically has a single, overarching body (i.e., an independent agency or a component of an umbrella agency)⁴ responsible for protecting the public's health and overseeing the public health system. More than half of state health agencies "provide all or some of the public health services offered at the community

³ The Association of State and Territorial Health Officials (ASTHO) reported in 2011 that "nearly 30 percent of states (n = 14) have a centralized or largely centralized governance structure where local health units are primarily led by employees of the state and the state retains authority over most decisions relating to budget, public health orders, and the selection of local health officers. Five states have a shared governance system where local health units may be led by state or local government employees. If they are led by state employees, the local government can make fiscal decisions, issue public health orders and/or select local health officials. In shared states where local health departments are led by local employees, the state health agency retains authority over most decisions relating to budget, public health orders, and the selection of local health officials. Over half of states (n = 27) have a decentralized/largely decentralized system where local health units are primarily led by employees of local governments, and the local governments retain authority over certain decisions. Ten percent of states have a mixed governance structure where some local health units are led by state employees and by local government employees. No one arrangement predominates in the state" (ASTHO, 2011, pp. 26-27).

⁴ "State health agency structure describes the placement of a state health agency within the larger departmental/agency organizational structure for the state. For example, in states where the public health agency is part of a larger umbrella agency, the larger agency may also be responsible for Medicaid, services for the aging population, substance abuse or mental health services, or public assistance, in addition to providing public health services. Fifty-five percent of state health agencies are free-standing, independent agencies; the remaining state health agencies are part of a super or umbrella agency. States with medium and large populations more frequently report free-standing, independent agencies (71 percent of medium-sized states and 65 percent of large states). There are no structural differences based on governance classification or U.S. region" (ASTHO, 2011, p. 24).

level” (ASTHO, 2011, pp. 26-27), but “[74] percent of states report an obligation to assume authority when local health agencies cannot perform their duties or when there is no coverage by a local health department. . . . Other reasons for state assumption of authority include emergency response or when issues are cross-jurisdictional. Eighty-five percent of state health agencies report that the obligation is legal while just over 10 percent characterize the obligation as professional” (ASTHO, 2011, p. 30).

Responsibilities

Depending on the state and the structure of its public health system, the state health department typically has a range of public health, health care, and emergency response system responsibilities, such as

- providing oversight of and/or support to local health departments, depending on whether the structure is centralized or decentralized;
- overseeing EMS agencies;
- regulating laboratories;
- licensing health care practitioners (e.g., through professional licensing boards);
- regulating health care;
- monitoring the health status of the population;
- providing prevention services (e.g., HIV, injury control, tobacco control);
- conducting disease surveillance and control;
- overseeing maternal and child health services and medical assistance programs;
- implementing health care reforms;
- providing and regulating mental health services; and
- collaborating on grants and programs with federal health partners (e.g., Department of Health and Human Services [HHS]) (ASTHO, 2011).

State health departments also are actively engaged in public health emergency preparedness (CDC, 2010; TFAH, 2010). For example, often in collaboration with other state agencies, they

- administer Public Health Emergency Preparedness (CDC, 2011a) and Hospital Preparedness Program (ASPR, 2012) cooperative agreements that HHS provides for state, local, and hospital preparedness;
- participate in state-level management of emergencies (e.g., as the state’s lead ESF-8 agency) (MEMA, 2009);
- develop pandemic, medical surge, and other emergency response plans (e.g., mass fatality management and hospital evacuation);
- coordinate state and local components of federal response programs (e.g., Cities Readiness Initiative for mass dispensing of antimicrobials following an anthrax attack) (CDC, 2011b);
- develop and participate in multidisciplinary emergency planning workgroups (Garrett et al., 2011);
- plan for the allocation and prioritization of scarce resources (e.g., vaccines and ventilators) during responses (Garrett et al., 2011);

- coordinate registration and credentialing systems for health care volunteers (e.g., Emergency System for Advance Registration of Volunteer Health Professionals [ESAR-VHP]) and health care response teams (e.g., Medical Reserve Corps [MRC]);
- manage stockpiles of medical countermeasures (e.g., antivirals) and other materiel;
- identify and develop plans for alternate care sites; and
- establish health care emergency communication systems (ASPR, 2011a).

State health departments' linkages to and role in regulating public and private components of the health care system, as well as health care practitioners, also are critical for effective CSC planning and implementation. State health departments "report a high level of collaboration with . . . entities in the health care field" (e.g., hospitals, physician/medical practices, community health centers, health insurers) (ASTHO, 2011, p. 32). Depending on the state, they may also have strong linkages with Department of Veterans Affairs (VA) and Department of Defense (DOD) health care facilities and systems. Given their critical role in the health care system and the large patient base they serve, these facilities and systems are important partners in the overall CSC response system.

Because all components of the health care system play such a pivotal role in CSC, this level of collaboration and knowledge is of particular importance in that it makes for optimal engagement in the CSC response system. For example, health agencies' knowledge of health regulations and partners through their regulation of the health care industry, combined with their ability to identify and even operate surge capacity sites through their emergency preparedness roles, is critical for providing oversight of alternate care systems that may be required during CSC implementation. These skills also are important for appropriately regulating the state's health care industry and practitioners during a CSC incident, such as by identifying where it would be most appropriate to relax certain state regulations or requirements (e.g., expanding practitioners' scopes of practice) (Courtney et al., 2010) or by partnering with federal regulators on the appropriate level of compliance with federal health care requirements within the state.

Authorities

State health department officials' legal authorities and powers also are critical to facilitating statewide CSC implementation and identifying resource needs (see Chapter 3). While these authorities and powers vary by state, they may include the authority and capability to authorize certain response actions and provide liability protections for responders; to initiate and facilitate emergency requests for federal (e.g., HHS) health and medical resources, technical assistance, and emergency declarations and waivers and for interstate support (e.g., through the Emergency Management Assistance Compact [EMAC]); to have in-depth access to state, regional, and local health information and resources for providing situational awareness; to establish quarantine and isolation orders; and to modify or provide specific treatment protocols. In terms of lines of authority, "half of state health officials report directly to the governor, and nearly one-third report to the [state's] secretary for health and human services. Other individuals and entities state health officials report to include administrators/directors of an umbrella agency or [the] director of the health division of an umbrella agency. One state health official reports to the governor and the agency director" (ASTHO, 2011, p. 29).

Through each of the above public health, health care, and emergency management system roles, relationships, and authorities, the state department of health often is in the best position to ensure that state, regional, and local CSC planning and implementation efforts are occurring and that they are being conducted systematically—that is, consistently, in a coordinated manner (i.e., within and across state boundaries), and in accordance with applicable state and federal laws and regulations.

State Emergency Management Agency

Each state has a state-level agency or office with responsibility for coordinating the state’s response to emergencies and disasters (e.g., state EMA; state office of emergency management, civil defense, or homeland security) (FEMA, 2012).⁵ While these agencies and offices vary in roles and structures, they often are responsible for a range of preparedness and response actions, such as

- developing and maintaining the state emergency operations plan (EOP);
- ensuring that the ESF functions (e.g., public health and medical services, communications, and transportation) outlined in the state EOP are fulfilled;
- conducting emergency training and exercises;
- managing homeland security and emergency management grant programs;
- establishing and managing the state EOC;
- developing and implementing mitigation strategies;
- ensuring that responses are conducted in accordance with National Incident Management System/ incident command system (ICS) principles and processes;
- coordinating public messaging and emergency communications (e.g., ensuring redundancy and interoperability of communications mechanisms);
- supporting and coordinating with local government and regional responses, including public safety and EMS components;
- collecting data on the emergency and providing situational awareness information to federal, state, regional, and local response partners;
- facilitating requests for and offers and receipt of federal, interstate, and intrastate assistance; and
- developing after-action reports to aid in improving future responses.

Given that CSC incidents are characterized by resource scarcity, the lead role that state EMAs may have in requesting, accepting, and providing mutual aid (e.g., through EMAC) and coordinating resources, including local resources, during a disaster is of particular significance. However, state EMAs and state health partners must work together closely during CSC incidents to ensure that appropriate resource requests and allocations are made, and to coordinate such requests and allocations that may occur through non-EMA channels (e.g., from HHS to the state health agency; interhospital sharing of resources through memorandums of understanding). In addition, coordinated planning with local emergency management programs is critical to ensuring integration into the state CSC plan and the state EOP. State health departments, with their links to local public health agencies and regional medical disaster planning groups, as well as their

⁵ For the purposes of this report, “EMA” is used throughout to refer to these offices and agencies.

possible role as the lead ESF-8 agency for the state, often will have the best awareness of specific health and medical resource needs—and the availability of such resources through its federal and other health and medical partners—during a disaster.

Because of the complex, multidisciplinary nature of CSC incidents and the vital coordinating and collaborating roles of state EMAs in emergency management, these agencies and offices should be directly involved in state-level CSC planning. To support consistency and avoid duplication of effort, the committee encourages state EMAs and state health departments to collaborate closely in CSC planning and implementation efforts. Depending on these entities' response structures and roles, as previously described, the level and type of such collaboration may vary by state. Therefore, state public health and emergency management partners should work together closely to assess and determine the optimal approach for structuring and delineating CSC planning and implementation processes and roles.

State-Federal Government Interaction

States have a number of important linkages to federal partners related to CSC responses. Given the complex nature of CSC incidents, the state health department's relationships with its HHS partners (e.g., Office of the Assistant Secretary for Preparedness and Response [ASPR], Centers for Disease Control and Prevention [CDC], Centers for Medicare & Medicaid Services [CMS]) are of particular significance in terms of emergency authorities, resource requests, and health system regulation. In support of a response requiring the implementation of CSC, for example, ASPR might authorize certain emergency actions or provide CSC guidance; CDC might conduct surveillance, provide medical countermeasures from the Strategic National Stockpile (SNS), and offer treatment and clinical care guidance; HHS agencies might offer response teams; and CMS might relax some of its federal program regulations. The federal government also might utilize state government as a conduit to facilitate information exchange and planning at the regional and local levels. This federal government role becomes even more critical when CSC incidents involve multiple states and interstate regional responses. In such situations, the federal role in facilitating optimal regional collaboration and response is crucial.

Emergency Authorities, Resources, and Regulation

Federal-level emergency declarations (e.g., HHS public health emergency declaration under Section 319 of the Public Health Service Act; HHS declaration of emergency justifying the emergency use of certain medical countermeasures under Section 564 of the federal Food, Drug, and Cosmetic [FD&C] Act) and waivers of federal law (e.g., under the Emergency Medical Treatment and Active Labor Act) can facilitate and support medical and public health responses by authorizing specific emergency actions, providing funding to support response or recovery efforts, or even waiving sanctions for failure to comply with specified federal laws and regulations during a disaster (CMS, 2009).⁶

The federal government also may disseminate (and set conditions on the receipt and use of) critical federal assets, such as the National Disaster Medical System (NDMS), the SNS, and federal medical stations, to support CSC responses at the state, regional, and local levels. States play a key role in receiving

⁶ *Public Health Security and Bioterrorism Preparedness and Response Act of 2002*, 42 U.S.C. § 1320b-5, Public Law 107-188, 107th Cong., 2d sess. (June 12, 2002), <http://www.law.cornell.edu/uscode/text/42/1320b-5> (accessed March 4, 2012).

requests for federal resources from within the state; assessing the need for, requesting, receiving, and allocating these federal resources; and determining the need for and requesting federal declarations and waivers. These activities often must occur within the context of specified lines of authority, in accordance with certain state emergency declarations, and through the governor, state health department leadership, or state EMA officials; pre-established federal processes and requirements may also apply.

HHS Regional Emergency Coordinators

Regional emergency coordinators (RECs) “work closely with state, local, territorial and tribal health officials in each of the country’s 10 disaster planning regions to develop high levels of emergency preparedness and to coordinate disaster response activities” (ASPR, 2011b), thereby serving as “ASPR’s primary representatives throughout the country at the regional level” (ASPR, 2011c). Specifically, RECs work to enhance “cross discipline integration among public health and medical and emergency management partners,” respond to emergencies, provide regional situational awareness information to HHS headquarters, provide command and control for HHS deployed resources, and provide support for exercises (ASPR, 2011d). Their regional positions and state-federal linkages make them important partners in the overall CSC planning and implementation system, putting them in a unique position to link CSC efforts across states and helping to ensure the flow of CSC-related information (e.g., guidance, situational awareness, resource needs) from the state to the federal level (and vice versa).

Consistency with State CSC Response

The state health department also can play a central role in ensuring, to the extent feasible, that the actions of federal health care responders are consistent with the state CSC plan and its implementation during a CSC incident. For example, if health care responder teams (e.g., HHS disaster medical assistance teams) coordinated by the federal government are deployed to a state to supplement local medical care, they should not necessarily be providing care in a substantially different way than nearby local health care facilities that may be operating under CSC protocols in accordance with the state CSC plan. To the extent possible, the approach to patient care under CSC within a state should be coordinated and consistent among local, state, and federal health care responders. Additionally, the state health department, based on its broad, statewide situational awareness of the emergency and knowledge of local and regional health care needs, generally will be in the best position to assess and determine how to allocate federal health and medical response assets.

The availability of assistance (e.g., response teams, medical materiel) to states from the federal government, as well as from other states through mutual-aid agreements (e.g., EMAC), is not always predictable, especially when multiple states are impacted by the same emergency and have shifted to a CSC response. Federal partners also do not have the authority to lead or participate in every aspect of a state-level CSC response. For example, certain critical response tools, such as state emergency declarations or waivers of state law necessary for facilitating the response, rest at the state level and may be activated only by state leaders (e.g., governor or state health secretary) or their designees. The role of the state is heightened because, even with RECs and other HHS regional coordinating entities, it is impractical to expect federal partners to have the detailed knowledge that states have of their available health care and emergency resources; populations and communities; established relationships with local, regional, and interstate partners; and state and local laws, regulations, and emergency authorities.

In addition to federal response assets, many states have VA and DOD health care facilities, which may have significant health care resources and serve large patient populations. For example, the VA is “home to the United States’ largest integrated health care system consisting of 152 medical centers [and] nearly 1,400 community-based outpatient clinics. . . . Together these health care facilities and the more than 53,000 independent licensed health care practitioners who work within them provide comprehensive care to more than 8.3 million veterans each year” (VA, 2011). Planning for disasters and CSC may already be under way at such facilities or in their respective health care systems. The first priority for VA and DOD facilities during a CSC incident will necessarily be the primary patient populations they serve. To the extent feasible, however, their coordination with state and local governments (and health care coalitions) in CSC planning is critical to building the overall CSC response system.

Roles of State Government in Regional Coordination

State-level CSC planning can also facilitate the coordination and linking of regional medical and public health disaster planning efforts, both within and across states. When collaborating and engaging with their local and regional partners, states are in a unique position to facilitate and encourage the intra- and inter-state coordination and consistency necessary for effective CSC planning and implementation. Examples of regional *intrastate* emergency planning structures/alliances include health care coalitions (ASPR, 2011a; Courtney et al., 2009) (which may be across or within jurisdictions), regional medical coordinating centers, and regional disaster medical advisory committees (RDMACs). States may have other regional emergency planning and response bodies, including multiagency coordination (MAC) groups and regional EMS councils that also can be leveraged for intrastate CSC purposes.

The integration of hospital coalition planning and response efforts into the intrastate regional emergency response system is especially important for CSC efforts. Ideally, an overall emergency response system that incorporates public health, health care, public safety, EMS, and emergency management partners and planning groups is needed. In some cases, though, state emergency planning and response efforts also cross state lines because of shared borders and interests, strong relationships, and mutual-aid agreements. Such *interstate* collaboration can be leveraged for coordination of CSC responses in the context of the CSC system and can facilitate resource sharing during an incident. However, a CSC response in any single state, not just those with a history of cross-state emergency collaboration, may necessitate interstate cooperation. In states that do not routinely collaborate with other states for emergency response, federal partners that work at the regional level (e.g., HHS, Department of Homeland Security [DHS]/Federal Emergency Management Agency [FEMA]) can facilitate and link existing state CSC efforts. For example, the HHS RECs are well positioned to support, facilitate, and encourage interstate CSC planning and implementation efforts and communication.

Through its lead role in CSC coordination, the state health department can work with its partners to identify various regional medical and public health disaster planning efforts occurring within the state; to link them so they can form a statewide, interdependent system that supports health and medical responses; and to promote consistency in planning and response among such entities and, when needed, across state lines.

ROLES AND RESPONSIBILITIES OF LOCAL GOVERNMENT

When considering the role of local government in CSC efforts, it is important to remember that vastly different local governmental structures and relationships exist across states nationwide, based on how states are constitutionally and functionally structured. Despite these variations, however, the role of local government in CSC planning and implementation remains crucial. Even though a CSC incident may be widespread and require a systems approach across all levels of government, especially as the geographic area of impact increases, all disasters are truly local. At some point, the state CSC plan will need to be incorporated into or adapted for local planning efforts (e.g., the health and medical annex of the local EOP) and will help guide local activities during a CSC response.

Appropriate local representation in statewide CSC planning efforts provides the opportunity for true state-local partnership and allows those involved to act as a conduit for information from the local to the state level and vice versa. Local political (e.g., mayor, county executive) and agency leadership also will be involved in local response decision making and resource requests during a CSC emergency. Thus, local CSC coordination, consistent with state planning and response actions, is critical to achieving the envisioned systems-based CSC response described in Chapter 2. Similarly, the local health department often is in the best position to coordinate CSC planning and implementation at the local level given its close linkages to the state, neighboring regional partners, the community, the health care system, and emergency management and response partners.

Local Health Department

While “the relationship between state health agencies and regional/local public health agencies differs across states” (ASTHO, 2011, p. 26), local health departments serve a unique and essential role in CSC planning and implementation. They typically represent the smallest form of government in a state and, where they exist, are well positioned to interface not only with the state government structure but also with community stakeholders and health systems within their own jurisdiction. Since local health departments are located within a local jurisdiction (e.g., city, county, or county-city), they are uniquely positioned to appreciate the needs and interests of their local populations; what resources are available and what planning efforts are under way (e.g., local health care coalitions); and how best to achieve CSC planning objectives (e.g., through implementation of the state CSC plan at the local level).

Structure and Authorities

Although state government bears the primary constitutional responsibility and authority for public health activities within a state, local health agencies were created to address a myriad of health conditions and to manage a variety of ongoing health threats facing populations in local communities. Local health departments often are considered the front line of public health agencies, generally providing direct public health services to the communities and populations they serve. Depending on how the term “local health department” is defined, they number from 2,500 to 3,000 throughout the United States (CDC, 2001; IOM, 1988, 2003; NACCHO, 2010). In addition to the sheer number of local health departments, “the organization and authority granted to . . . local public health agencies vary substantially across the country” (IOM, 2003, p. 108; see also IOM, 1988; see also Figure 5-1 presented earlier). In some states (e.g., Florida, Missouri),

there is a more centralized organizational structure in which state government has direct control of and/or authority for oversight of local health departments (IOM, 2003; NACCHO, 2010). Other states (e.g., California, Texas, Ohio) have a less centralized structure, with independent local health departments being run by local government structures and systems (IOM, 2003; NACCHO, 2010). CSC planning and potential implementation will need to take into account these varying structures and relationships in states and localities throughout the United States.

Responsibilities

While their specific roles, sizes, and structures vary across and within states, local health departments often have unique on-the-ground knowledge and relationships, including with local response agencies (e.g., emergency management, EMS, and other public safety agencies and offices), health care practitioners and facilities, communities, at-risk populations, academic institutions, and private-sector partners. Local health departments often have defined local public health emergency response roles (e.g., conducting biosurveillance activities, mass dispensing medical countermeasures directly to their constituents) and participate in established local and regional emergency preparedness partnerships (e.g., health care coalitions) (Courtney et al., 2009; Toner et al., 2009) through which they conduct joint planning with response partners (e.g., developing contracts to share resources and establishing shared communications systems) (ASPR, 2011a). The ability of local health departments to assess and provide local and regional jurisdictional information (e.g., demographic data, emergency and resource needs) is essential to the overall statewide situational awareness for emergency response.

Local Emergency Management Agency

Many local jurisdictions have their own EMA or emergency management office that is a component of their state's emergency management system. During a statewide emergency, for example, the local EMA would provide local situational awareness, establish forums for collaboration, or make resource requests through the state EMA. Local health agencies' relationships with local EMAs vary; some have strong working relationships (including by partnering with them in local health care coalitions), while others are less actively engaged.

Where local EMAs exist and where local health departments have the authority to collaborate with their local EMA, joint planning for CSC is encouraged as part of the overall CSC response system. In addition, these agencies or offices can help support the management of response issues not directly related to the public health, EMS, and health care components of a CSC incident (e.g., critical infrastructure, resource requests, public safety), enabling health agencies and the health care system to focus on the health-related aspects of the emergency. The level of collaboration and support that local EMAs, when available, can provide to local health agencies cannot be overstated. Such collaborative relationships are similar to the relationships of state EMAs with their state health department counterparts.

Local-State Government Interaction

The recommendation for state departments of health to assume the lead role in CSC planning and implementation in a state in no way undermines the unique and integral roles of local and regional stakeholders,

as applicable. Ultimately, during a CSC catastrophic disaster, state and local collaboration and coordination will be essential and may also help mitigate “forum shopping” (i.e., members of the public going to another hospital or jurisdiction where they perceive that a different or better level of care is being provided) and perceptions of inequity.

Local government is particularly crucial in CSC outreach and engagement at the community level, and these activities should be undertaken in partnership with appropriate planning and response partners. The state health department’s role in such outreach and engagement will depend largely on the structure of the state’s public health system. In some cases, it may be optimal for local health departments to take the lead role for CSC efforts with respect to public and stakeholder engagement in their communities. The nature of this type of state-local dynamic concerning engagement is dependent on the ongoing working relationships between the two levels of government, as well as the local community context. Regardless of whether the state or local health department, or both, take the lead in public engagement, it should be done consistently and not with cross purposes or intent.

Either way, the answer to the question of which entity should take the lead in such engagement depends on which health agencies—whether at the state or local level—have the optimal relationship with and trust of the community. In states with limited numbers of local health departments and in the approximately one-third of states in which the state health department assumes responsibility for providing local public health services (ASTHO, 2011), the state may need to take a more active role in ensuring appropriate local stakeholder representation in state-level CSC planning, as well as in furthering community and provider engagement. This includes local health departments having the opportunity to participate in the state disaster medical advisory committee (SDMAC), as described later, and to comment on the draft state CSC plan. Local health departments can, in turn, identify and engage appropriate local stakeholders as CSC planning proceeds.

It is clear that some local health departments (especially those representing large jurisdictions and communities) may be farther along the spectrum of CSC planning compared with their state counterparts. In these cases, states should give due consideration to such planning efforts already under way and leverage the good work that has been accomplished to best achieve the goal of optimizing CSC planning. At some point, state government will need to be involved in CSC planning and implementation given the roles and authorities that lie only at the state level. However, if such involvement has not already occurred and local jurisdictions in these instances have already taken significant steps forward in CSC planning, it would be prudent for states to build upon the local work already begun rather than start anew.

OPERATIONAL CONSIDERATIONS

In planning for CSC incidents and in implementing CSC plans in response to a catastrophic disaster, state and local governments should be aware of certain operational considerations that may affect their interactions with one another and with the entire CSC system. Three such considerations are the level of state engagement in the state’s CSC planning process, the level of consistency in CSC planning and implementation, and the level of consistency in care.

Level of State Engagement in CSC Planning

As noted, states are in varying stages of CSC planning (AHRQ, 2012; GAO, 2008). Some have been engaged in such planning for several years and have established multidisciplinary CSC advisory committees or conducted community engagement activities (Levin et al., 2009; Ohio Department of Health and Ohio Hospital Association, 2011). In other states, individual health care facilities or public health departments in large cities have initiated CSC planning, including the development of CSC protocols or the conduct of community engagement activities (Public Health-Seattle and King County, 2009; Shah, 2012). In some cases, such planning has occurred even when the state has not taken the lead role in, or even commenced, CSC planning. In other cases, regional planning efforts may be occurring (Inova Hospital Group, 2007). Even in states that are or plan to be actively involved, CSC efforts can be expected to occur outside of the state government context and formal planning structures (e.g., in local jurisdictions or in private health care facilities or systems).

The importance of comprehensive state CSC planning cannot be overemphasized. States that have engaged in no or only very limited CSC planning may have additional federal and interstate resource needs during an actual CSC emergency compared with those states that have planned for such an incident. Since resources (e.g., federal responders and materiel) may need to be diverted to a state that needs more support as a result of insufficient planning, a state's failure to plan could have a negative impact on responses in those states that *have* planned for CSC, in addition to the negative impact on its own response efforts. State agencies also should be cognizant of the fact that—depending on the scale of the disaster and associated needs—personnel, space, and supplies from federal and interstate sources may be limited or altogether unavailable. These and other factors reinforce the imperative for state-level CSC planning and coordination. The overall success of the state's CSC response will rest not on an assemblage of independently occurring efforts of local jurisdictions and health care entities but on a well-coordinated, interdependent, and transparent CSC system that is possible only through early, inclusive, and truly collaborative planning and partnership.

States with More Active Engagement

If a state health department has moved forward in CSC planning and done so in the spirit of true collaboration with local and regional partners, the process of ensuring that CSC planning occurs is best left to this multilevel collaborative process already under way and led by the state. By leveraging ongoing relationships, such a process enables CSC planning to occur in a more organized and methodical manner, taking into account the critical issues involved in a CSC response well in advance of a crisis. This collaborative approach also allows for the continual coordination and ongoing communication that are key to the success of CSC planning.

Once a crisis has begun to unfold and the decision has been made to implement the state CSC plan, the same collaborative relationships and protocols already utilized during the planning process will be essential to the success of implementation efforts. Building on this pre-established systems-based, collaborative approach will help ensure a common operating picture and a systematic, rather than piecemeal, response. The importance of these agency relationships cannot be overstated as they—along with sound assessment and communication processes—ensure that critical decisions during a crisis are made with a collaborative understanding of what the issues are and how they should be addressed.

The role for local health departments during the planning process can be twofold: (1) to ensure that statewide planning is inclusive of individual jurisdictional differences with respect to variations in systems, populations, roles, and resources at the local level; and (2) to help communicate the complex and challenging issues inherent in CSC planning to local community entities, whether institutions or lay members of the public. Even with strong state leadership and planning for CSC, defined local roles not only are encouraged, but also are necessary to ensure the penetration of state guidance at all levels of community within a state. These roles include but are not limited to establishing or engaging health care coalitions, providing linkages to health care facilities and/or practitioners, developing plans to implement state CSC planning efforts at the local level, and assisting with identifying and implementing CSC indicators and/or triggers relevant for the local context. Thus, state inclusion of local and regional players in CSC planning in an honest and transparent manner is critical to the success of CSC efforts within a given state.

Ultimately, the role of local health departments should not be viewed as a passive one, but as an active one that ensures optimal CSC planning and, in turn, appropriate incorporation of local perspectives and issues into the planning process. This active role will be furthered by providing for effective community and provider engagement, and by working with local and other partners to ensure that CSC planning efforts are understood at the local level and that local considerations are understood at the state level. Depending on the context of the crisis and the robustness of work already accomplished, the local role thus remains central to optimizing CSC planning.

Once CSC efforts have transitioned from the planning to the implementation phase, local health departments (and their local government partners) continue to play an important role in serving as the conduit for two-way communication between state government and what is occurring within the local community (and vice versa). This communication can further situational awareness and provide a means to monitor appropriate metrics (indicators and/or triggers) in both the activation and deactivation of CSC. Through routine monitoring and reporting mechanisms to establish local, regional, and state normative levels of seasonal and incident-based demand, resources, capacity (e.g., beds), and staffing, this communication can also further situational awareness and provide a means to monitor the most appropriate metrics (whether indicators and/or triggers) in both the activation and deactivation of CSC with essential real-world benchmarks. Close collaboration at the local health department level thus is key to achieving consistency during the implementation phase, as well as furthering community resilience once the crisis has passed. In the end, once the crisis has passed, the community as a whole will be looking to government entities, especially at the local level, with respect to how the CSC response was accomplished. There undoubtedly will be keen interest in how issues of accountability and fairness, as well as effectiveness and efficiency, played out in the response. As noted earlier, given the importance of working with communities, states that are actively engaged in but may still be only in the earlier stages of CSC planning should assess the work that is already occurring at the regional, local, and health system levels instead of initiating a de novo state-led process without these considerations in mind. In states that have conducted limited CSC planning and in which planning may be further developed in a region or local jurisdiction (e.g., a large city or even a health system), the state should consider leveraging, to the extent practical and appropriate, that ongoing work. States should consider actively engaging such partners in state-level planning efforts, as they may have useful expertise, resources, relationships, and lessons learned from their own CSC planning processes. This engagement also can help save duplication of effort, especially important at a time of increasingly limited resources.

States with Less Active Engagement

Where the state health department has not moved forward significantly in CSC planning, or has moved forward but without engaging its local and regional partners in a true partnership, the importance of the local health department's role cannot be overemphasized. In addition to the roles described earlier, this role may involve local health departments having to work in a strategic and deliberative manner with state government partners to raise awareness of the overall importance of engaging in CSC work—including by potentially highlighting planning efforts from across the nation or in neighboring states—and the critical role of the contribution of local government to the CSC planning process.

Some local government agencies may be required to take a more active role in driving state efforts to initiate or to further CSC work. In these cases, local health departments—especially those with sufficient capacity to do so—may need to take the lead in advancing CSC planning in partnership with their other local and regional partners.

Once CSC planning efforts are moving forward and gaining momentum, other partners, including state entities, are likely to see the advantage of becoming part of the process, even if it originated as a more locally or regionally driven effort. Eventually, the overall success of CSC planning will require the involvement of all levels of government within a state. Regardless of how state government becomes engaged—whether by taking the lead itself or by having local/regional partners assert leadership, followed by state involvement—state-level involvement eventually will become necessary, especially during the CSC implementation phase (e.g., to authorize certain response actions through state legal authorities, to formally request resources from federal and other state partners).

The transition from a locally or regionally driven CSC planning process to a state-led process is important to ensure consistency across various jurisdictions within a state. This transition ideally should occur as early as possible in the CSC planning process and certainly in advance of an actual crisis. As stated previously, the failure to plan for a CSC emergency within a state means that state's response during a CSC incident may be compromised, which in turn may needlessly endanger the health and well-being of the state's residents.

While CSC planning and implementation efforts should be coordinated at the state level, it is true partnership and collaboration with local entities that will ensure the success of CSC planning and, eventually, implementation within each state and across the nation during a catastrophic disaster. As noted earlier, for a variety of reasons, local and/or regional entities may need to take the lead at times when CSC efforts are not occurring adequately within a state. Ultimately, however, the engagement of all government players—with their inherent roles and responsibilities—will be necessary to ensure an appropriate response to an emergency of the magnitude that would require CSC implementation.

Consistency in CSC Planning and Implementation

While effective CSC planning and implementation require active local stakeholder participation, the state's lead coordinating role for CSC is essential in promoting consistency in intrastate (and, as needed and appropriate, interstate) planning, response, and recovery activities. But to what extent should CSC planning and implementation be consistent across local jurisdictions and regions?

Some level of *local* variation may be valid to address jurisdictional emergency needs, structures, and

resources. In fact, some level of local variation is inherent even under noncrisis conditions when resources are not so constrained. However, both local efforts that occur independently and are not coordinated within the overall context of the state-level CSC plan and state efforts that occur without adequate local involvement may in fact compromise the public's health, the public's trust, and ultimately the public's perceptions of fairness in resource allocation decisions and the rationale for varying approaches—especially when significant—to patient care. Such inconsistency (or even perceptions thereof) may also lead to forum shopping among those seeking medical care, evoke concerns about transparency from various responding authorities and agencies, and lead to liability claims.

Similar to what occurs at the local level under noncrisis conditions, some degree of *regional* (both within the state and across states) variation in CSC planning also may be necessary to address jurisdictional realities. However, if regional efforts are disjointed and/or undertaken independently and outside of the context of state-level and other regional and local CSC planning efforts, public health outcomes and trust may be compromised or eroded. Such disparate efforts also will make it difficult for federal, state, and local government partners to manage resource allocations appropriately and efficiently (both factors being of significant concern in a CSC incident when, by definition, resources are limited). As stated earlier, significant numbers of individuals can then also be expected to engage in forum shopping. While some forum shopping may be expected in limited forms during a CSC response, substantial forum shopping can lead to chaotic and disjointed levels of care across jurisdictions and regional and interstate lines.

Consistency in Care

In noncrisis situations, it is considered normal for the level of care provided in a state to vary depending on the levels and types of resources that are available to jurisdictions and, more specifically, to the health care organizations within jurisdictions. This is then referred to as the community “standard of care.” In some cases, especially in large jurisdictions with unequal distribution of resources, this standard may vary within a community. Absent significant resource inequalities, however, the standard of care ideally should be more or less the same within any one community.

For example, an academic health care center in a large urban area will likely have access to resources and expertise that may not be available to a practitioner in a rural health clinic or hospital in the same state (Baldwin et al., 2004; Escarce and Kapur, 2009). Therefore, a certain level of care may be provided in that urban facility that would not be possible for the rural facility, even after taking into consideration differences in demand or need for services, for instance. This differential can be seen, for example, in the case of an individual patient presenting to an emergency department for an acute myocardial infarction. Depending on the resources available to that facility, there may be a difference in access to invasive cardiac services. In a more resource-rich environment (e.g., a tertiary care center), the patient may be taken immediately to cardiac catheterization for revascularization; where such services are not available (e.g., a more rural critical access hospital), the patient may instead receive a less comprehensive level of care (e.g., acute thrombolytic therapy instead of immediate cardiac catheterization) (Andersen et al., 2003; Baron and Giugliano, 2011; Claeys et al., 2011; McNamara et al., 1987). While outcomes in both instances may be the same for some patients, in other cases the differences between receiving and not receiving timely cardiac catheterization may lead to significantly different outcomes, especially in those patients considered at higher risk (Andersen et al., 2003;

Claeys et al., 2011). The case of acute myocardial infarction exemplifies this point, but similar differences in care can be seen for other conditions (e.g., heart failure, pneumonia) (Joynt et al., 2011; Lutfiyya et al., 2007).

Thus, even in noncrisis conditions or when CSC do not need to be implemented, differences in the standard of care that is possible in one community versus another may exist based on a variety of factors, including the allocation and availability of relevant health care resources (and the ratio of these resources to the health care needs of individuals requiring them). If the ratio between needed and available health care resources increases, the level of care that can be provided in a community (or even institution) may vary accordingly, especially in comparison with a setting where resource needs and demand are better balanced.

As available resources begin to decrease across entire communities, as they will during a CSC incident, the impact on the level of care that can be provided across various communities becomes greater. As a result, differential levels of care may be provided in different communities during the incident, as well as compared with the same community operating in a time of conventional care (Figure 5-2).

Consistent processes or standards of care can help mitigate dramatic inconsistencies in provided services that may lead to forum shopping, since similar types of care will be provided across various settings as resources become less available (as is the case in situations requiring the implementation of CSC). Thus, it is important not to be overly prescriptive as to what types of care should be provided, but to encourage some flexibility across the system—especially in various communities and institutions therein—to meet state/local needs (but without promoting forum shopping).

The committee emphasizes that “consistent is not the same” and that such variations happen under both crisis and noncrisis conditions. The goal is to incorporate consistency into planning processes and the underlying tenets or principles used in planning. In fact, it is possible that input from the public engagement processes within communities may lead to additional variations in how care will be delivered in some communities. Again, coordination of CSC planning through a state-led process may help minimize variations not necessitated by the factors discussed above. More important, without consistent planning in communities across the state in advance of a crisis and consistent implementation of CSC during such an incident, these expected variations will be further accentuated when CSC are required. Thus the ideal way to maximize the consistency of service provision in a crisis situation is to engage in CSC planning in advance of a crisis and not when a crisis is already at hand.

TEMPLATE DESCRIPTIONS

Building on the five key elements and milestones for developing state-level CSC plans, as described in Chapters 1 and 2, respectively, and as outlined in detail in the committee’s letter report (IOM, 2009), the two core function-based templates that follow are intended primarily to provide detailed steps and structure to aid states in

- establishing the planning structure for and developing a CSC plan within the state (Template 5.1); and
- after its development, implementing the CSC plan within the state in response to a disaster (Template 5.2).

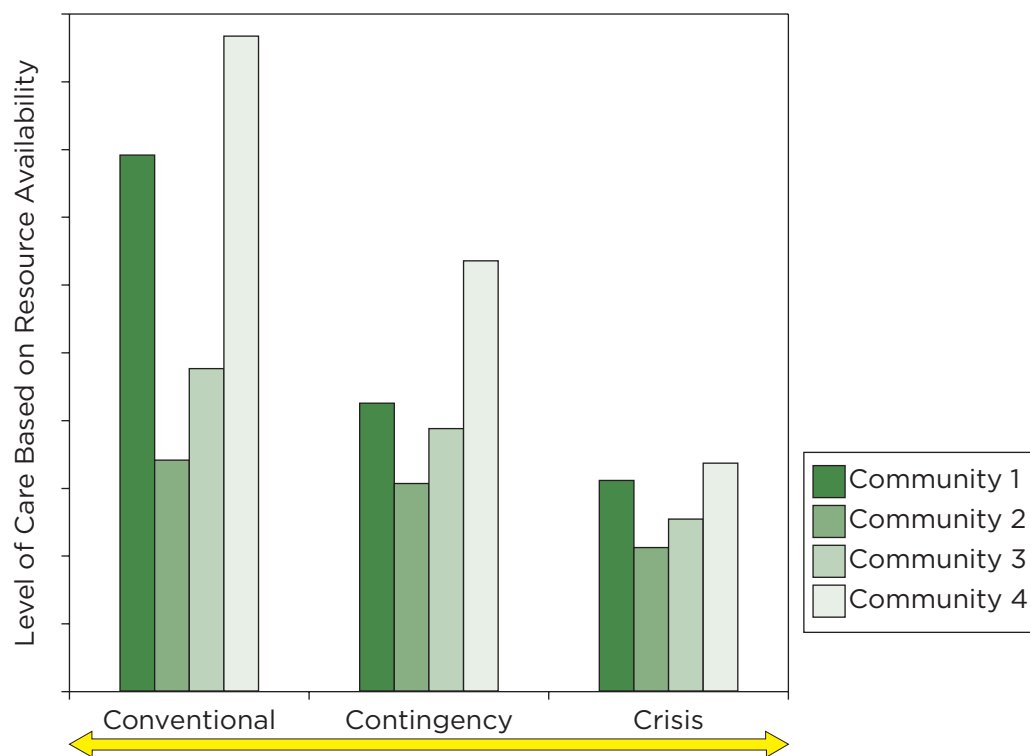


FIGURE 5-2

Model illustrating cross-community variability in the level of care based on resource availability. In this model, the bars that correspond to conventional care illustrate the potential—and normal—variation in the community standard of care (due to such differences as resource availability and patient demand for services) within states at routine times. As the availability of resources (supplies, space, and staff) decreases and demand for health care services increases during the shift from contingency to crisis care, this variability may become less distinct, particularly as resources are fairly and appropriately allocated through the CSC response system.

These templates were developed to provide guidance for states that are already engaged in CSC planning (so they can assess their planning efforts and identify any gaps), and to provide guidance and a roadmap for states that have not yet initiated or are in the earlier stages of planning.

These two templates can help define local roles and processes for CSC incidents when the state is actively engaged in CSC efforts (as described earlier in this chapter). Following local government efforts to partner with the state (also as described earlier in this chapter), if the state is not actively engaged in CSC preparedness, the templates can also be used to help guide local government agencies and/or regional planning and response activities. However, local government partners should understand that, as it unfolds, a CSC incident will necessitate state involvement and authorities. Therefore, not all components of the CSC planning and implementation templates will apply directly to local government disaster efforts.

To further support CSC planning and implementation efforts, other chapters of this report provide additional detail on critical planning components, including legal issues (Chapter 3); cross-cutting ethical, palliative care, and mental health issues (Chapter 4); EMS/prehospital care (Chapter 6), hospitals and acute care (Chapter 7); out-of-hospital and alternate care systems (Chapter 8); and public engagement (Chapter 9). Therefore, planners should use this chapter together with those other chapters, referring to them for specific details.

Template 5.1. Core Functions for CSC Plan Development Within States

This template outlines the recommended core functions for states in their CSC planning efforts (see also Figure 5-3). The template also provides the optimal tasks associated with achieving each function. While the state health department should be the lead coordinating agency for CSC planning and response in each state, a multidisciplinary group of experts from within the state—with appropriate representation of local governments and other non-state-level partners—should be convened to develop the state-level CSC plan.

Function 1. Establishment of CSC Planning Committee. The state health department, as the lead state agency for CSC planning and implementation, should establish and staff at the state level a multidisciplinary (i.e., representing public health, EMS, emergency management, the health care system, community-based practitioners, public safety, and other partners) and transparent state disaster medical advisory committee (SDMAC), with an appropriate balance of local, regional, and state representation, to draft the state CSC plan. An SDMAC or similar committee may already exist in the state. If so, that existing committee, depending on its size and composition, can be expanded or adapted to include the appropriate range of stakeholders for conducting CSC planning.

The development of the CSC plan should ultimately be driven by stakeholders, with the state serving the lead coordinating role in moving the CSC efforts forward and linking various partners. Neither the state, a local government, nor a hospital alone can effectively plan for or respond to catastrophic disasters. Effective CSC planning requires true collaboration at all levels of government, from the local through the state (and even federal) levels, and with the full range of nongovernment stakeholders (e.g., the health care system).

Once the initial plan development has been completed (i.e., after each core function in this template has been completed), the SDMAC can contract to a smaller, technical committee of CSC experts that assumes operational responsibility during CSC incidents or is otherwise available during routine times to inform and advise the state health department, state leadership, and other stakeholders on CSC plan development/improvement, implementation, and recovery issues. The technical committee of CSC experts can also assist regional disaster medical advisory committees and/or regional health care coalitions in engaging in CSC planning. The smaller SDMAC group should identify and have access to a range of other experts (e.g., critical care, burn, radiation injury, pediatrics) during a CSC response to ensure that a comprehensive range of expertise is available.

During this phase of planning, it may also be necessary to promote the importance of a disaster response framework for the state among elected officials and senior (i.e., cabinet-level) state and local government leadership.

Function 2. Plan Drafting. Plan drafting should occur once there is solid state agency and stakeholder (at all levels, from local to state) investment in the CSC planning process and when the state and its stakeholder partners have sufficient background to develop the state plan. The SDMAC should first assess the existing CSC literature and CSC planning efforts (e.g., at the local or health care system level) already occurring within the state and in neighboring jurisdictions, and consult and coordinate with various stakeholders to promote and ensure consistency in intrastate and interstate CSC planning and

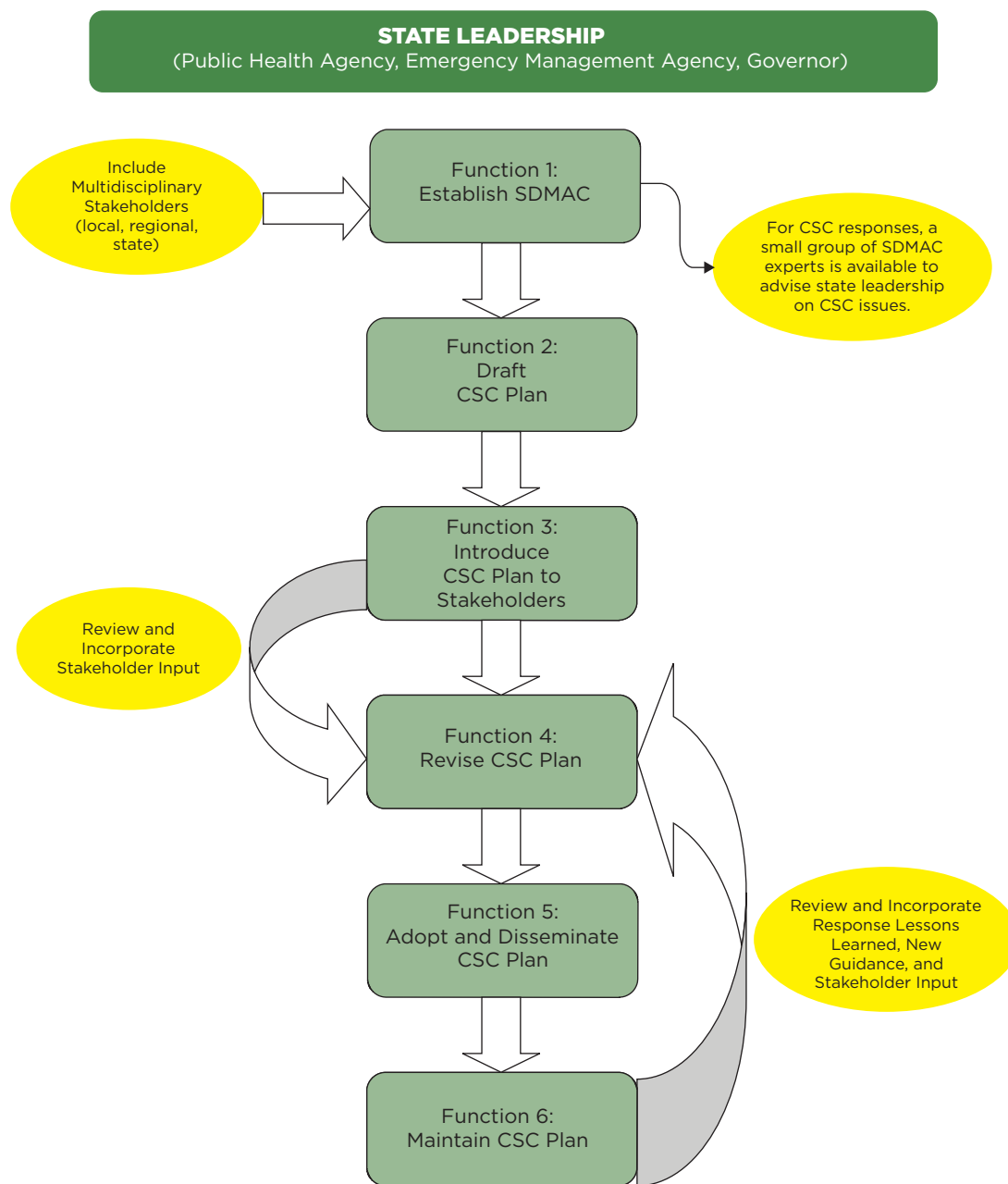


FIGURE 5-3
Core functions for CSC plan development within states.
NOTE: SDMAC = state disaster medical advisory committee.

implementation. The SDMAC should also consult with the state health department general counsel or attorney general’s office, as applicable, to conduct a CSC legal assessment and ensure the development of a legal framework for CSC implementation in the state.

The SDMAC should then begin drafting the CSC plan. The plan should be based on the vision, key elements, and recommendations outlined in the committee’s 2009 letter report and summarized in

Chapter 1 of this report, as well as on the specific recommendations, guidance, and functions set forth in this report. Once the draft plan has been developed, state health department leadership (and other state and local leadership, as applicable) should review the plan and collaborate with the SDMAC on any needed revisions.

Function 3. Plan Introduction and Review—Stakeholder and Public Engagement. As described in detail in Chapter 9, public and stakeholder review of the state CSC plan (or key planning concepts or components of the plan) is critical. Following the state health department’s review of the plan and any needed revisions, the state health department, with the support of the SDMAC, should coordinate the introduction of the draft CSC plan to stakeholders and the public for review and comment.

State health agencies should determine which agency or agencies will assume responsibility for conducting such activities (e.g., state health department or local health departments). Given that such engagement activities will involve community members—whether stakeholders or the lay public—local health departments should be involved as early as possible in the engagement planning process. States also should coordinate with local health departments on the importance of CSC planning and on the planning roles at the state, regional, and local levels; with health care stakeholders (including out-of-hospital practitioners and practitioners affiliated with hospitals, institutions, and coalitions) so they understand their roles and state roles in CSC planning and implementation; and with the public (in particular, at-risk populations).

The state should ensure that findings resulting from state- and locally led public engagement activities are shared with local health departments and other state, regional, and local planning partners, as appropriate, and are used to help inform the state-level CSC planning process and any corresponding regional and local planning efforts. Further, the state health department, with support of the SDMAC, should brief public officials within the state regarding the CSC plan, their roles in a CSC response, and the types of decisions they may need to make during such an incident.

During this review phase, the plan also should be reviewed closely by state legal counsel (e.g., state health department counsel) to ensure that it describes legal authorities appropriately and that recommended actions therein are undertaken in accordance with applicable federal, state, and local laws and regulations (see Chapter 3).

Function 4. Plan Revision. After all public engagement and state (and local, as appropriate) review activities have been completed, the state health department and the SDMAC should carefully review stakeholder input and make appropriate changes before finalizing the CSC plan. Following this review, they should revise the draft plan as needed and should consult with stakeholders about any clarifications or concerns. Where needed, substantive changes should also be reviewed and approved by state officials (e.g., legal counsel should confirm any revisions related to legal authorities).

Function 5. Plan Adoption, Notification, and Dissemination. After the appropriate revisions (based on stakeholder input as described in Function 3 above) have been incorporated into the CSC plan, the plan should be approved and adopted by state health department leadership (and other state leadership, if necessary, depending on the state’s lines of authority). While the state CSC plan will be developed in

collaboration with stakeholders to address and balance the range of state, regional, and local planning needs and issues, the plan itself should be housed and maintained at the state level to ensure that it is accessible to all relevant parties.

For example, the state health department, which is best positioned to maintain the CSC plan, should work with the state EMA to integrate the plan, as applicable, into the state EOP (e.g., in the ESF-8 public health and medical annex), state surge capacity plan or annex, or other appropriate state emergency response plan(s). State health officials should, as appropriate, also provide notice to public officials in the state and other stakeholders (including interstate and federal) about the adoption of the state CSC plan and its processes. In particular, state officials and the SDMAC should ensure that their regional partners (e.g., the RDMAC) and local health agency/local government partners promptly receive the plan for incorporation into regional and/or local CSC planning efforts (e.g., as part of the health and medical annex of the local jurisdiction's EOP). A public version of the plan should be made available on the state health department or other appropriate state agency website.

Function 6. Plan Maintenance. The state health department and the SDMAC will be responsible for ensuring that the state CSC plan is operational and ready for activation through such activities as reviewing and updating the plan on a regular or as-needed basis (e.g., following a CSC or other health emergency to incorporate lessons learned, the issuance of new guidance, and stakeholder input); conducting ongoing education with the public and stakeholders at all levels (local, state, and federal as necessary) and ongoing engagement with public officials at all levels of government about the plan and its implementation; tracking developments in CSC planning and guidance (within and external to the state); conducting workshops, tabletop exercises, and functional exercises involving the state CSC plan at the state, regional, and local levels in conjunction with EMA, public health, and hospital and health care coalition exercises, when possible; soliciting input from stakeholders and the public about the plan, including continuing to conduct public engagement activities, as needed; and notifying stakeholders and the public, as necessary, of any substantive plan updates. The state health department legal counsel (or, as applicable, others at the state level) also should work to revise state legal and regulatory authorities to address CSC needs if necessary.

Template 5.2. Core Functions for Implementing CSC Plans in States During CSC Incidents

This template outlines the recommended functions and tasks associated with implementing the state CSC plan during a catastrophic disaster. It is not intended to provide an exhaustive list of all local, regional, and state emergency management and public health emergency response processes, actions, and requirements. Rather, it focuses on the core functions that encompass the full range of a CSC-level response, from alerting and activation through demobilization of the plan and recovery.

While the full SDMAC will have a pivotal role during the state CSC planning phase (Template 5.1), the authorities and responsibilities of the state health department and other state (and local, as applicable) agencies and leadership include assuming the lead in the response to a CSC incident. However, a pre-established technical subgroup of the SDMAC should be available throughout the incident to advise state leadership on CSC response issues.

Function 1. Alerting and Activation. The state health department and state EMA should be able to receive and manage emergency alerts and requests from stakeholders (in particular, from local health department/local government, health care, and emergency management partners) that may trigger activation of the state CSC plan. If the state receives emergency information that indicates the need to activate its CSC plan, the state health department, as the lead state agency for CSC, should activate and, throughout the emergency, consult with the technical subgroup of the SDMAC, as well as with applicable state (e.g., governor, state EMA) and local (e.g., mayor, county executive, local health department) leadership, to assess the emergency and make an informed decision about activation of the state-level CSC plan.

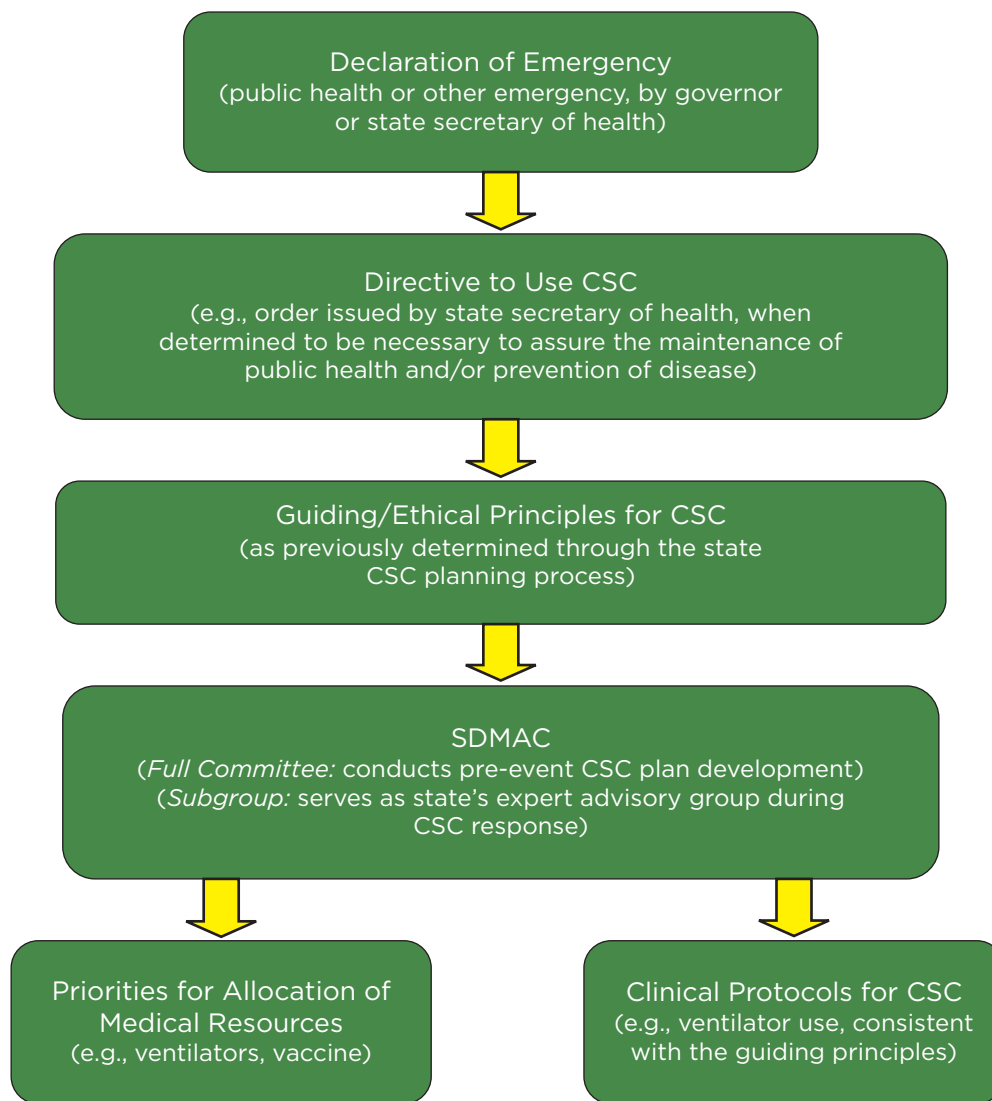
Plan activation and response actions should follow established emergency management processes, including ensuring that the appropriate state and local emergency declarations (e.g., public health emergency, catastrophic health emergency, state of emergency, or civil defense emergency, depending on the jurisdiction) are made or requested. The state health department should activate components of the state CSC plan based on the above assessment and on the ethical principles and indicators and triggers outlined in the plan (see Figure 5-4).

Concurrently with activation of the state CSC plan, the state health department and state EMA should support and work closely with local and regional partners to activate local and/or regional emergency planning and response committees, EOCs, emergency plans (including any local CSC response plans based on the state plan), and mutual-aid agreements, as applicable. State legal counsel also should be consulted closely on a range of legal issues, including the use of response authorities, various response actions, existing or needed liability protections, and regulatory requirements (or waivers thereof) (see Chapter 3).

Function 2. Notification. It is the responsibility of the state health department and state EMA to provide immediate notification—through pre-established, redundant, and interoperable communication systems—of activation of the state CSC plan and any related emergency declarations, and to provide access to the plan (e.g., via the state health department and state EMA websites) to applicable local, regional, state, federal, and private-sector stakeholders (e.g., state and local public officials, state health department and EMA staff, local health departments, local EMAs, health care entities, interstate and federal partners). In turn, these stakeholders should collaborate closely with their response partners to ensure full and prompt awareness of plan implementation.

The state health department, or other state agency as appropriate, also should provide timely and consistent notification to the media and the public about the emergency situation and CSC plan activation. Risk communication should focus on sustaining and building the public’s trust by clearly addressing what the problem is; what is being done; what is the expected duration/solution; where they can go (or should not go) to receive health care; what emergency declarations have been issued; how public safety, health services, and public health will be affected; and what is not currently known (see also Function 4 below).

Function 3. Command and Control, Communications, and Coordination. For *command and control*, the state EMA (with, as applicable, support of the state health department as the lead state agency for

**FIGURE 5-4**

Example algorithm to frame state CSC implementation actions and decisions.
SOURCE: Levin et al., 2009.

CSC) implements/expands the ICS consistent with incident-driven demands and activates the state EOC at a level appropriate to the situation. The state EMA provides support and makes recommendations, as needed, to local and regional EMAs on activation of local and regional EOCs and response plans. The state EMA and state health department also ensure that command staff are trained in CSC plan components and response and understand their roles, as well as the roles of local, regional, state, and federal stakeholders, in the state's CSC response. States and local jurisdictions that have public health department EOCs should activate and ensure appropriate operation of such operations centers (including providing notification of EOC activation to response partners).

For *communications*, the state should have established policies and procedures for providing, receiv-

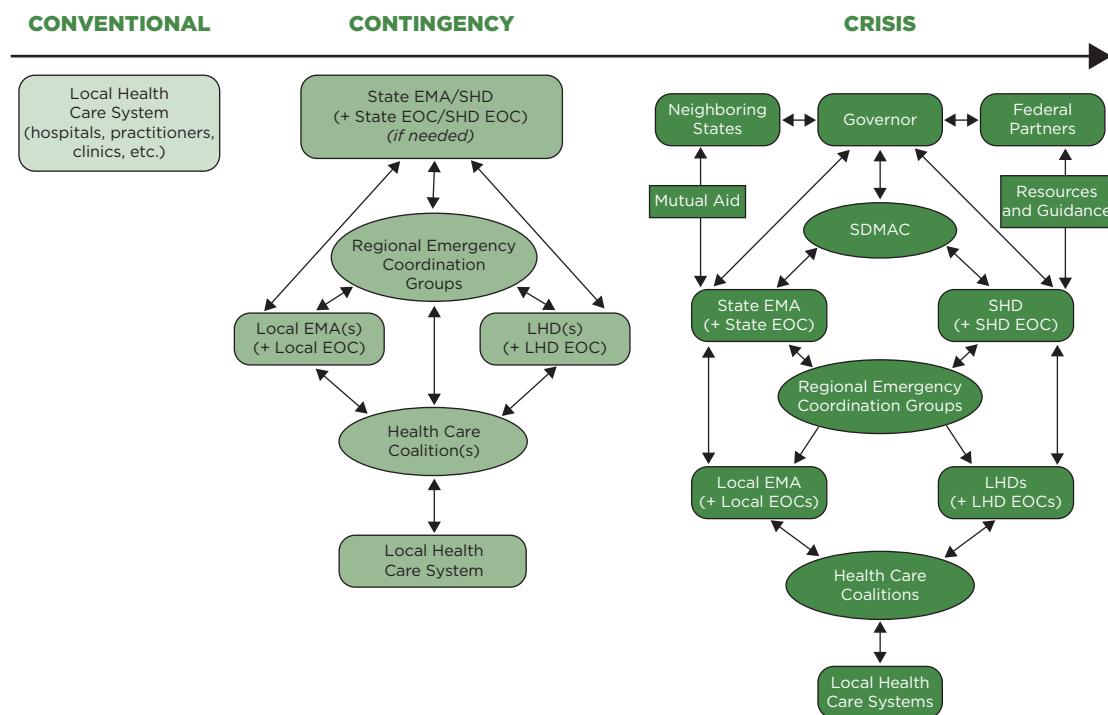
ing, and maintaining information that enables situational awareness throughout the CSC response and for communicating that information to stakeholders at all levels (e.g., through health alert networks, e-mail, text messaging, paging, telephone, amateur radio, satellite telephone, fax, social media). It is critical that the state have the ability to maintain proactive and transparent bidirectional communications throughout the CSC incident with the public, media, and stakeholders at the local through the state level.

For *coordination*, the state EMA and command staff, in collaboration with the state health agency, should be capable of serving as the interface for resource requests and managing the acquisition or donation process (as well as any existing plans for resource triage/allocation) (e.g., through the EMAC) with response partners. In addition, many substate regional health care coalitions that have established their Medical Surge Capacity and Capability Tier 2 support Medical Advisory Committees can use them to assist in the coordination of medical resources, including beds, supplies, and situational awareness. All response partners in the state also should be able to document response actions, including the tracking of resources, expenses, and lessons learned. States and local jurisdictions with public health department EOCs that are integrated into the state's or local jurisdiction's overall emergency management system should coordinate, as applicable, health care resource requests and allocations.

Function 4. Public Information. Because of its lead CSC role and expertise in public health and medical issues, the state health department should be responsible for overseeing the development of public and risk communication messaging at the state level. To facilitate timely and consistent risk communication during a CSC emergency, the state health department and state EMA should leverage pre-existing relationships with applicable media partners and communication processes and mechanisms (e.g., websites, calling programs, e-mail, social media). The state EMA and/or state health department (depending on pre-established risk communication roles in the state) should coordinate the dissemination of risk communication messages and participate in joint information system and joint information center activities. Independent local health departments (e.g., an independent health department for a large city), other local health departments (as applicable, based on the public health department structure within the state), or local government agencies also should be responsible for public and risk communication messaging for their jurisdictions in coordination with state messaging (and vice versa). Given the critical need for communication processes to be coordinated, state agencies should make every effort to work with local and other partners to ensure that messaging is appropriate, consistent, and effective.

Function 5. Operations. CSC operations occurring within a state should be considered in the context of the continuum of care (i.e., from conventional to contingency to crisis) (Figure 5-5; see also Chapter 2). For *conventional care* situations, government response partners should understand the roles and authorities of health care sector partners in augmenting emergency medical care through medically approved triage, treatment, and transport protocols and in using normal modes of transportation, staffing, and equipment, including mutual-aid agreements. Government response partners also should coordinate and provide guidance on the delivery of care for health care providers, as applicable.

For *contingency care* situations, government response partners should understand how to implement

**FIGURE 5-5**

State response structure along the continuum of care: Conventional to crisis.

NOTE: EMA = emergency management agency; EOC = emergency operations center; LHD = local health department; SHD = state health department; SDMAC = state disaster medical advisory committee.

response plans and intrastate and interstate mutual-aid agreements to substitute, conserve, and adapt staffing, transportation, patient triage, and destinations. They also should coordinate and provide guidance on the delivery of care for health care providers, as applicable.

For *crisis care* situations, government response partners should understand how to execute mass casualty, surge capacity, and CSC plans to maximize resources for meeting broad public health needs; should coordinate and provide guidance on the delivery of care under CSC for health care providers; and, as appropriate, should be able to link to and coordinate with federal and interstate response partners. Given the critical need for operations to be coordinated, state agencies should make every effort to work with local, regional, and other relevant partners to ensure that operations are appropriate and effective.

Although *mental health* resources are limited in many jurisdictions, mental health care under CSC will require specific competencies among mental health, social services, and health care staff (discussed in detail in the mental health section of Chapter 4). Simultaneously, efforts should be made to enhance community resilience through “neighbor-to-neighbor, family-to-family” support systems (such as by applying certain psychological first aid models specifically created for use by community members) as needed. The resilience of the health care workforce, including those in emergency medical services (EMS), is paramount to the success of the state’s CSC strategy.

One-time, one-size-fits-all approaches, such as some stress debriefing once common in EMS settings, no longer are recommended and may result in exacerbating the mental health problems of those most affected by a crisis (Bisson et al., 1997, 2007; IASC, 2007; McNally et al., 2003; NIMH, 2002). Those approaches have been replaced by more integrated preparedness efforts to enhance the resilience of the workforce specifically around mass casualty events, as part of CSC preparedness, by addressing their needs during response and recovery (Schreiber and Shields, 2012).

Integrated mental health operations should be a part of EMS incident command operations within overall ICS/EOC and medical/health operations. Recent models developed for Los Angeles County, Seattle/King County, the American Red Cross's National Operations Center/Disaster Mental Health, and a national prototype specifically for children utilize real-time situational awareness of triage for mental health risk among patients and disaster victims and responders (including health care workers, EMS workers, and their families). This includes situational awareness across various disaster systems of care (e.g., hospitals, schools, shelters, public health settings) to guide mental health operations within the ICS (Schreiber et al., in press). Also recommended is a common operating picture of

- population-level mental health risks (traumatic loss, multiple traumatic losses), using a common rapid mental health triage system across disaster systems of care, including EMS;
- mental health risks among EMS and health care workers; and
- mental health resources, including the use of emerging national models of Internet-based intervention (Ruggiero et al., 2006).

Addressing the social and psychological challenges of CSC requires the use of the triage-driven mental health incident management system, as well as community resilience efforts based on community engagement during the CSC planning phase (see Chapter 9). Also required are basic “neighbor-to-neighbor, family-to-family” psychological first aid competencies that leverage community members, responders, and family members as the first line of psychosocial support (see the American Red Cross’s “Coping in Times of Crises” and the “Listen, Protect and Connect” psychological first aid models).

The state CSC response also should address *palliative care* for all patients. The response should encompass palliative care principles and triage tools, supply issues for patients (including those who will not receive other treatment modalities), and recommendations for management of fatalities (see the palliative care section of Chapter 4). It is the state’s responsibility to provide information on palliative care training (including just-in-time training) to stakeholders and public information on palliative care (including the management of at-home deaths) during the response. In addition, the state needs to work with partners to ensure that appropriate palliative care is available during a CSC response.

Finally, the state CSC response should include working in close collaboration with local agencies to identify and address the functional needs of *at-risk populations*, including certain patient groups (e.g., pediatric, maternal, burn, elderly), as well as specific linguistic, cultural, ethnic, and other groups (Andrulis et al., 2007, 2011; Drexel University Center for Health Equality, 2008) that may require special consideration with respect to risk communication, transportation, treatment, equipment, and supplies. To ensure that such needs are appropriately met, the state should conduct a preliminary needs

assessment at the outset of the CSC incident and continually monitor, assess, and provide support for the needs of these populations throughout the response in collaboration with local and regional partners.

Function 6. Logistics. Logistics for a CSC response can be organized around staff, supplies, and space. Given the critical need for logistics to be coordinated, state agencies should make every effort to work with local, regional, and other partners (including the private sector) to ensure that logistics are appropriate and effective.

For *staff*, government response partners should have a clear understanding of the available staffing resources and needs within the state and utilize a resource monitoring system to track those resources. When staffing resources are needed, government response partners should understand when to activate mutual-aid agreements and utilize established legal processes for supplementing and allocating the workforce (e.g., through the Medical Reserve Corps, the ESAR-VHP, state strike teams, NDMS teams, scope-of-practice expansions). Government response partners also should help ensure the safety of their staff and of responders and their family members by providing personal preparedness training.

For *supplies*, government response partners should understand the types and locations of applicable resources (e.g., stockpiles of medical countermeasures, equipment trailers) available within the state and whether such resources fall under mutual-aid agreements. They also should know the processes for appropriately requesting, accepting, and utilizing resources from other jurisdictions (e.g., through EMAC) and from federal partners (e.g., SNS assets, NDMS teams), as well as how to donate resources to other jurisdictions. For highly at-risk supplies, government response partners can identify and share with applicable stakeholders strategies for their appropriate substitution, conservation, adaptation, reuse, and reallocation, and also utilize resource tracking methods to monitor the availability of applicable resources during the CSC response.

For *space*, government response partners should have awareness of the types and locations of applicable space resources related to CSC and the alternate care system in the state (see Chapter 8). They also should have systems for tracking available beds and alternate patient care space (e.g., beds in storage, cots, beds for lease, and other potential sources); be capable of accepting requests for such space; and develop plans for maximizing available space and converting non-patient care areas to patient care, as necessary. Government response partners, particularly at the state level, should be capable of making the necessary legal and regulatory changes (and coordinating with federal health care facility regulators, as applicable) to authorize the use of alternate patient care space during a CSC incident.

Consistent with broader surge capacity planning, the development of an outpatient capability will be important in helping to defray the patient surge at hospitals, thereby reducing the likelihood that, if not simply the time within which, a community must transition from conventional to contingency and to crisis response. The planning and execution of the development of alternate care system functions should be government driven and involve the coordination and collaboration of both public and private health care and non-health care partners. Preferential use of municipal buildings may help expedite the planning. Coordination with the private health care sector will be necessary, particularly in supporting staffing needs and the development of medical care protocols and related medical expertise.

Function 7. Termination, Demobilization, Recovery, and Evaluation. With support of the SDMAC, the state health department and state EMA, as well as local government response partners, should understand when to deactivate or scale down the state CSC plan and what their roles in deactivation are. Through established communication systems, they will need to notify stakeholders, media, and the public of the rationale for deactivating the state CSC plan and shifting back to contingency or conventional care, and what such deactivation means. If possible, health care stakeholders should receive advance notice of deactivation so they can plan appropriately for the shift to contingency or conventional care. Given the critical need for demobilization efforts to be coordinated, state agencies should make every effort to work with local and other partners to ensure that demobilization activities are appropriate and effective.

To document response efforts and improve future disaster responses, government response partners in the state, with support of the SDMAC, should coordinate a comprehensive evaluation of the response, including developing an after-action report and implementing improvement plan items. This documentation should be coordinated with appropriate other players in the response, including regional partners and local government, as well as health care and other partners. Government response partners also should understand their roles in the recovery phase, including ongoing mental health operations for the public and for health care practitioners.

Template 5.1. Core Functions for CSC Plan Development (Within States)



Function 1. Establishment of CSC Planning Committee

Task 1

State public health agency is identified as the lead state agency for CSC planning and implementation.

Task 2

State health department establishes and staffs a state-level, multidisciplinary, and transparent state disaster medical advisory committee (SDMAC) to draft the state CSC plan. During a CSC response, a smaller, technical subgroup of the SDMAC is available to serve as an operational, expert advisory body to inform and advise the state health department, state leadership, and other stakeholders on CSC plan development, implementation, and recovery issues.

Full SDMAC meets as needed. Full SDMAC CSC plan drafting group includes a broad range of stakeholders, such as

- state health department;
- local health departments and other local government agencies;
- state emergency management agency (EMA);
- state homeland security office;
- health care (including SDMAC members if such a committee already exists, regional medical coordination centers or regional DMACs [RDMACs], health care coalitions, private practitioners, hospitals, health care systems, specialty hospitals, professional boards and associations, and emergency medical services [EMS]);
- medical examiner;
- ethics experts;
- attorneys;
- academics;
- community members;
- representatives of at-risk populations (e.g., pediatric, mental health);
- governor's office;
- National Guard;
- Department of Veterans Affairs (VA) health care facilities (if located within the state);
- Department of Defense (DOD) health care facilities (if located within the state); and
- others as applicable (including federal partners, such as Department of Health and Human Services [HHS] regional emergency coordinators [RECs]).

Task 3

SDMAC recommends to the state the CSC response structure that would work best in the state (e.g., based on existing structures,

Notes and Resources

An SDMAC or similar committee may already exist in the state. If so, that existing committee can be adapted to conduct CSC planning, ensuring that its membership includes the appropriate range of stakeholders. After the planning phase, the SDMAC can contract to a smaller, technical subgroup that assumes operational responsibility for advising the state during CSC incidents.

strengths, and authorities of public health, emergency management, and health systems within the state).

Function 2. Plan Drafting

Task 1

SDMAC assesses existing CSC literature, plans, guidance, and planning efforts, including CSC efforts already occurring within the state (e.g., led by local jurisdictions or health care facilities/systems) and in neighboring jurisdictions.

Task 2

SDMAC consults and coordinates, as applicable, with stakeholders involved in existing health care facility, local, and regional (including regional medical coordination center or RDMAC) CSC planning efforts within the state—and in neighboring states—to promote and ensure consistency in intrastate and interstate CSC planning and implementation processes. State health department (and the SDMAC, as applicable) engages with local health departments on the importance of—and their role in—CSC planning and implementation.

Task 3

SDMAC consults and coordinates with the state health department general counsel/attorney general's office, as applicable, to conduct a CSC legal assessment by identifying and developing an inventory of applicable federal, state, and local legal authorities and regulations (and identifying areas that need strengthening) applicable to CSC, including those related to the following (see also Chapter 3):

- emergency declarations,
- sources of liability,
- liability protections,
- licensing and credentialing,
- mutual aid agreements,
- scopes of practice,
- regulation of the state's health care facilities and practitioners (including regarding care provided at alternate care sites during CSC conditions), and
- dispute resolution regarding CSC decisions.

Task 4

Following state agency and stakeholder investment in the CSC planning process, and when the state has sufficient background to develop the plan, SDMAC drafts the state CSC plan. At all levels, the CSC plan should include the following key elements:

- ethical considerations;
- community and provider engagement, education, and communication;
- legal authority and environment;
- indicators and triggers; and
- clinical processes and operations.

Notes and Resources

More detail is provided about each of the five key elements in the chapters indicated below:

- Ethical considerations—Chapter 4
- Community and provider engagement, education, and

Specifically, the plan should

- establish lines of authority and clear roles and responsibilities of stakeholders (e.g., state health department, local health departments, state EMA, local EMAs, EMS, health care, federal partners);
- identify clinical and administrative triggers for activating and terminating state CSC plan components (e.g., following local health department or local EMA reports of specific indicators of health care surge, critical infrastructure disruption, failure of contingency surge capacity; following a formal declaration of emergency by the governor and activation of the state CSC plan by the state health department), and identify indicators to prompt consideration of plan activation;
- establish connectivity and uniformity, as applicable, with local, regional, interstate, and federal CSC planning efforts to ensure consistency in CSC planning and implementation;
- identify, in collaboration with state and local EMAs, communication systems for ensuring connectivity during a CSC incident;
- incorporate risk communication strategies specific to catastrophic disaster response that include coping messages;
- identify processes for coordinating and facilitating resource requests and allocations (e.g., define role of state EMA in managing requests and allocations within and across states and with federal assets);
- ensure that local and state response plans include clear provisions that permit adaptations of EMS systems under disaster response conditions, including changes in protocols, practices, and personnel;
- establish routine and crisis monitoring/reporting mechanisms for documenting and analyzing normative levels of seasonal and incident-based health care demand, resources, capacity, and staffing at local, regional, and state levels;
- acknowledge the state role in determining when public alternate care sites are needed, and provide the leadership to support their opening and operation (see Chapter 8);
- promote collaboration with federal partners (e.g., HHS/Office of the Assistant Secretary for Preparedness and Response [ASPR], HHS RECs) and consistency in scope of care for federally deployed Emergency Support Function (ESF)-8 assets (i.e., across federal teams and with the state and local entities these federal teams support);
- integrate palliative care planning and resource/knowledge assessment into planning and educational processes (see Chapter 4); and
- address the needs of at-risk populations (e.g., mental health patients including responders and their families; pediatric populations) (see Chapter 4) through specific concept of operations (CONOPS) components, and include a “responder resilience” system for all responders.

Task 5

State health department leadership reviews the state CSC plan and collaborates with the SDMAC on revising the plan, if needed, prior to

- communication—Chapter 9
- Legal authority and environment—Chapter 3
- Indicators and triggers—Chapter 7
- Clinical processes and operations—Chapter 7

its introduction and stakeholder/public engagement (as outlined in Function 3).

Function 3. Plan Introduction and Review—Stakeholder and Public Engagement

Task 1

State health department, with the support of the SDMAC, continues to engage regularly with local health departments on CSC planning. Local health departments

- understand their role in CSC planning and response;
- understand the role of local health care stakeholders in CSC planning and response;
- understand state CSC processes;
- understand applicable federal, state, and local legal authorities and existing mutual aid agreements and processes; and
- have the opportunity to review and provide comments on the draft state CSC plan.

Task 2

State health department, with the support of the SDMAC, continues to engage with health care stakeholders (including practitioners, institutions, and coalitions) on CSC planning. Health care stakeholders

- understand their role in CSC planning and response,
- understand state and local CSC planning and response roles and processes, and
- have the opportunity to review and provide comments on the draft state CSC plan.

Task 3

To engage the public (including at-risk populations), state health department, with support of the SDMAC (see Chapter 9),

- determines when to conduct, and which agency or agencies will assume responsibility for coordinating and conducting, public engagement activities (i.e., state health department or local health departments);
- ensures that meaningful public engagement activities occur;
- applies public engagement findings to help inform the state CSC plan;
- shares public engagement findings with local health departments throughout the state to help inform local and regional CSC planning efforts; and
- makes a summary of the draft state CSC plan available for public review and comment.

Task 4

State health department, with support of the SDMAC, briefs applicable public officials within the state on the CSC plan and their roles in a CSC response.

Task 5

State CSC plan is reviewed by state legal counsel (e.g., state health

department counsel) to ensure that the plan describes legal authorities appropriately and that recommended actions in the plan are undertaken in accordance with applicable federal, state, and local laws and regulations (see Chapter 3).

Task 6

State health department and the SDMAC review input from Function 3 actions and update the draft state CSC plan as needed.

Function 4. Plan Revision

Task 1

State health department and the SDMAC carefully review the input of stakeholders, the public, and legal counsel before finalizing the state CSC plan.

Task 2

Following this review, state health department and the SDMAC revise the draft plan as needed and, as appropriate, consult with stakeholders about any clarifications or concerns. Where needed, substantive changes are reviewed and approved by the appropriate state officials.

Function 5. Plan Adoption, Notification, and Dissemination

Task 1

State health department leadership approves and adopts the CSC plan, and works with the state EMA to integrate it into the state emergency operations plan (EOP) (ESF-8 public health and medical annex) and state surge capacity plan/annex or other state emergency response plan(s), as applicable.

Task 2

State health department notifies public officials of plan adoption; state health department informs applicable stakeholders (including interstate and federal) about plan adoption and processes. In particular, local health departments and local EMAs are informed of the plan's adoption and are provided the plan so they can incorporate it into local emergency planning efforts (e.g., local EOP health and medical annex or surge plan for local implementation of the state CSC plan) and inform their local response partners (especially the health care community). Legal issues related to CSC are disseminated to legal partners (e.g., the judicial system through bench books; hospital legal counsel).

Task 3

State and local health departments support health care facility and system surge capacity and planning efforts, including by developing protocols and plans for allocation of scarce resources so these plans can coalesce at the regional hospital coalition level.

Task 4

State health department makes a public version of the state CSC plan available on the state health department website for public access.

Function 6. Plan Maintenance

Task 1

State health department and the SDMAC ensure that the state CSC plan is operational and ready for activation by

- conducting ongoing education with stakeholders, public officials, and the public about the plan and its implementation;
- tracking developments in CSC planning and guidance (within and external to the state), developing a process for continuous assessment of routine and catastrophic disaster response capabilities based on existing information and knowledge management platforms, and creating a mechanism for ensuring that CSC milestones are being achieved;
- conducting annual workshops, tabletop exercises, and functional exercises involving the state CSC plan at the interstate, state, regional, and local levels in conjunction with state/local EMA, public health, hospital, and federal exercises and partners, when feasible;
- reviewing and updating the plan on a regular basis or as needed (using information gained through provider and community engagement and through exercises and actual emergencies) as elements of a disaster planning process improvement cycle;
- soliciting input from stakeholders and the public about the plan, including continuing to conduct public engagement activities, as needed; and
- notifying stakeholders and the public, as necessary, of any substantive plan updates.

Task 2

State health department general counsel (or others at the state level) work to revise state legal and regulatory authorities to address CSC needs if necessary (see Chapter 3).

Template 5.2. Core Functions for Implementing CSC Plans in States During CSC Incidents



Function 1. Alerting and Activation

Task 1

State health department and the state emergency management agency (EMA) are able to receive and manage emergency alerts that may trigger activation of the state CSC plan from stakeholders, including local public health, health care, and emergency management partners.

Task 2

Upon receiving emergency information suggesting the need for activation of the state CSC plan, state health department (as the lead state agency for CSC) activates and consults with the state disaster medical advisory committee (SDMAC), and also consults with applicable state (e.g., governor, EMA) and local (e.g., mayor, local health department) leadership to assess the situation and make a determination on activation of the state CSC plan. Routine and crisis monitoring and reporting mechanisms are developed to establish local, regional, and state normative levels of seasonal/incident-based demand, resources, capacity (beds), and staffing.

Task 3

Before or concurrently with health department activation of the state CSC plan, state health department ensures that applicable state and local emergency declarations (e.g., public health emergency, catastrophic health emergency, state of emergency, or civil defense emergency, depending on the jurisdiction) are made or requested; the state also understands applicable federal, state, and local legal authorities and regulations (see Chapter 3).

Task 4

State health department activates components of the state CSC plan based on indicators and triggers outlined in the plan and on the assessment performed under Task 2 above; the state health department and state EMA also work with state, regional, and local partners to activate local and/or regional CSC or other emergency plans and mutual aid agreements, as applicable.

Task 5

Throughout the emergency, SDMAC members are available to the state for consultation, and the state health department and SDMAC are able to continually assess the situation, including whether the state CSC plan should remain activated.

Function 2. Notification

Task 1

State health department and the state EMA provide immediate notification through pre-established communication systems

of activation of the state CSC plan (and any related emergency declarations). They also provide access to the plan (e.g., via the state health department website) to applicable local, regional, state, federal, and private-sector stakeholders, including

- public officials;
- state health department staff;
- state EMA staff;
- local health departments and other local government agencies;
- local EMAs;
- health care entities (e.g., regional medical coordination centers or regional DMACs, local clinical care committee[s] and triage team[s], health care coalitions, private practitioners, hospitals, health care systems, specialty hospitals, mental health agencies, professional boards and associations, and emergency medical services [EMS]);
- interstate partners (e.g., neighboring states); and
- federal partners (e.g., Department of Health and Human Services [HHS] regional emergency coordinators [RECs]).

Task 2

State health department (or other state agency, as appropriate) notifies media and the public of the emergency situation and CSC plan activation, including what the problem is; what is being done; what is the expected duration/solution; what emergency declarations have been issued; and how public safety, health services, and public health will be affected.

Task 3

State EMA and the state health department ensure that notification mechanisms account for redundancy and interoperability in the event the disaster affects usual means of contact.

Function 3. Command and Control, Communications, and Coordination

Command and Control

Task 1

State EMA (with, as applicable, support of the state health department as the lead state agency for CSC) implements/expands the incident command system (ICS) consistent with event-driven demands and activates the state emergency operations center (EOC) at a level appropriate to the situation. The state EMA makes recommendations, as needed, to local EMAs on activation of local EOCs and response plans (see Chapter 6).

Task 2

State EMA and the state health department ensure that command staff

- are trained in CSC plan components and response;
- understand their roles, as well as the roles of local, regional, state, and federal stakeholders, in the state CSC response;
- are well versed in incident action planning during longer-term events;

- have access to appropriate resources (e.g., job aids) to guide decision making; and
- understand the role of the SDMAC and any regional medical coordination centers or regional DMACs, as well as the means by which information is received by or communicated to these bodies.

Communications

Task 3

State has policies and procedures in place for providing, receiving, and maintaining information that enables situational awareness throughout the response and for communicating information to stakeholders through a range of communication systems (e.g., Internet, radio, social media).

Task 4

State should have the ability to maintain proactive and transparent communications throughout the CSC incident with the public, media, and stakeholders, including

- state agencies and leadership;
- local health departments;
- local EMAs;
- the health care system (e.g., regional medical coordination centers or regional DMACs, local clinical care committees and triage teams, health care coalitions, private practitioners, hospitals, health care systems, specialty hospitals, professional boards and associations, and EMS);
- interstate partners (e.g., neighboring states); and
- federal partners (e.g., HHS RECs)

Task 5

State EMA and the state health department ensure that communication systems account for redundancy and interoperability in the event the disaster affects usual means of contact.

Coordination

Task 6

State EMA and command staff, in collaboration with the state health department, are capable of serving as the interface for resource requests and managing the acquisition or donation process (as well as any existing plans for resource triage/allocation) (e.g., through the Emergency Management Assistance Compact [EMAC]) with

- local health departments and local EMAs;
- local/regional health care coalitions;
- other intrastate and regional partners, as well as interstate partners; and
- federal partners (e.g., HHS).

Task 7

State health department, the state EMA, and other state agencies, as applicable, are capable of documenting response actions, including tracking of resources and expenses.

Function 4. Public Information

Task 1

State health department and the state EMA implement (and adapt as needed for the emergency) pre-established risk communication plans for routine and catastrophic disaster response.

Task 2

State health department and the state EMA leverage pre-existing relationships with applicable media partners to facilitate risk communication during the emergency.

Task 3

State health department and the state EMA have processes and mechanisms in place to ensure appropriate and timely risk communication and consistent messaging to the public via the media (e.g., websites, calling programs, e-mail, social media).

Task 4

State health department coordinates the development of messaging for public information/risk communication efforts (including where to direct those interested in volunteering for the response).

Task 5

State EMA and/or the state health department (depending on pre-established risk communication roles in the state) coordinate risk communication and participate in joint information system and joint information center activities.

Function 5. Operations

Conventional Operations

Task 1

For conventional care situations, state understands the roles and authorities of health care sector partners in augmenting emergency medical care through medically approved triage, treatment, and transport protocols and in using normal modes of transportation, staffing, and equipment, including mutual aid agreements. The state also coordinates and provides guidance on the delivery of care for health care providers, as applicable. Sharing of resources through mutual aid agreements and mechanisms is encouraged/promoted.

Contingency Operations

Task 2

For contingency care situations, state understands how to implement various applicable emergency response plans and intrastate and interstate mutual aid agreements to substitute, conserve, and adapt staffing, transportation, patient triage, and destinations. The state also coordinates and provides guidance on the delivery of care for health care providers, as applicable. Sharing of resources through mutual aid agreements and mechanisms is encouraged/promoted.

Notes and Resources

See Chapter 2 of this report and the committee's 2009 letter report for additional detail on conventional, contingency, and crisis care.

Crisis Operations

Task 3

For crisis care situations, state understands how to execute mass casualty, surge capacity, and CSC plans to maximize resources for meeting broad public health needs (including the institution and authorization of alternate care systems). The state also coordinates and provides guidance on the delivery of care under CSC for health care providers. To the extent feasible, sharing of resources through mutual aid agreements and mechanisms is encouraged/promoted.

Mental Health

Task 4

State utilizes a disaster mental health concept of operations, including the following features:

- provides a rapid mental health triage/incident management system linking local, regional, and state disaster systems of care, including health care facilities and mental health resources, in incident command operations;
- provides for access to a continuum of evidence-based interventions for adults and children;
- provides training in basic “neighbor-to-neighbor, family-to-family” psychological first aid with triage for the general public and health care workers;
- provides CSC-specific behavioral coping components for risk communications;
- completes a CSC gap analysis with a plan for enhancing local disaster mental health and spiritual care capacities and capabilities; and
- develops a health care worker resilience system with integrated triage and referral components.

Palliative Care

Task 5

State CSC response addresses palliative care for all patients, including palliative care principles and triage tools, supply issues for patients (including those who will not receive other treatment modalities), and planning for management of in-home deaths as part of the state mass fatality plan.

Task 6

State provides information on palliative care training (including just-in-time training) to stakeholders during the response.

Task 7

State provides public information on palliative care, including management of at-home deaths, during the response.

At-Risk Populations

Task 8

State CSC response identifies and addresses patient groups (e.g., pediatric, maternal, burn, elderly, non-English-speaking) requiring

Mental Health section of Chapter 4 of the report provides a more detailed discussion and examples.

special consideration for risk communication, transportation, treatment, equipment, and supplies.

Task 9

State conducts a preliminary assessment of needs of at-risk populations at the outset of the CSC incident, and continually monitors, assesses, and provides support for these populations' needs throughout the response in conjunction with local resources.

Function 6. Logistics

Staffing

Task 1

State understands available staffing resources and needs within the state (including for alternate care sites) and utilizes resource monitoring system(s), as available, to track staffing resources.

Task 2

State understands when to activate mutual-aid agreements and utilizes established legal processes for supplementing and allocating the workforce, including for appropriate use in alternate care sites.

Task 3

State ensures that agency call-back criteria and policies are in place and maintains current and accurate employee contact information.

Task 4

State ensures that staff receive personal preparedness training to assist with family needs and are prepared for on-site accommodation of staff and family members, as appropriate.

Supplies

Task 5

State understands the types and locations of applicable resources (e.g., medication caches, equipment trailers) available within the state (and whether such resources fall under mutual-aid agreements). The state also understands how to appropriately request, accept, and utilize resources from other jurisdictions (e.g., through EMAC) and from federal partners (e.g., Strategic National Stockpile [SNS] assets).

Task 6

State assesses and identifies, in collaboration with its local and regional partners, key potential scarce resources based on the type of event and the availability of stockpiled or identified alternative sources for these supplies.

Task 7

State identifies and shares with applicable stakeholders strategies for appropriate substitution, conservation, adaptation, reuse, and reallocation of highly at-risk supplies.

Notes and Resources

Task 2 examples include the Medical Reserve Corps (MRC), the Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP), state strike teams, National Disaster Medical System (NDMS) teams, and scope of practice expansions.

Task 8

State utilizes a resource tracking method to monitor the availability of applicable resources for the CSC response.

Space

Task 9

State understands the types and locations of applicable space resources related to CSC/alternate care sites in the state, including sites that may be established on the premises of a health care facility (see Chapter 8).

Task 10

State and local health departments track available beds and alternate patient care space (e.g., beds in storage, cots, space for lease, and other potential sources); accept requests for such space; and develop plans to maximize available space in patient care locations and convert non-patient care areas to patient care, as necessary (see Chapter 8).

Task 11

State makes appropriate legal and regulatory changes, as needed, to authorize use of alternate care sites during the CSC incident (see Chapter 3).

Function 7. Termination, Demobilization, Recovery, and Evaluation

Task 1

State health department and the state EMA, with support of the SDMAC, understand when to deactivate the state CSC plan and what their roles in deactivation are.

Task 2

State health department and the state EMA, with support of the SDMAC, notify stakeholders, media, and the public of reasons for deactivation of the state CSC plan and what such deactivation means through established communication systems.

Task 3

State health department and the state EMA, with support of the SDMAC, coordinate response evaluation, development of an after-action report, and implementation of improvement plan items so there is a continuous feedback loop for strengthening the state CSC plan.

Task 4

State health department and the state EMA, with support of the SDMAC, understand their roles in CSC recovery, including ongoing mental health operations.

REFERENCES

- AHRQ (Agency for Healthcare Research and Quality). 2012 [draft for public comment]. *Allocation of scarce resources during Mass Casualty Events (MCEs)*. Rockville, MD: AHRQ.
- Andersen, H., T. Nielsen, K. Rasmussen, L. Thuesen, H. Kelbaek, P. Thayssen, U. Abildgaard, F. Pedersen, J. K. Madsen, P. Grande, A. B. Villadsen, L. R. Krusell, T. Haghfelt, P. Lomholt, S. E. Husted, E. Vigholt, H. K. Kjaergard, L. S. Mortensen; DANAMI-2 Investigators. 2003. A comparison of coronary angioplasty with fibrinolytic therapy in acute myocardial infarction. *New England Journal of Medicine* 349(8):733-742.
- Andrulis, D. P., N. J. Siddiqui, and J. Gantner. 2007. Preparing racially and ethnically diverse communities for public health emergencies. *Health Affairs* 26(5):1269-1279.
- Andrulis, D. P., N. J. Siddiqui, and J. P. Purtle. 2011. *Guidance for integrating culturally diverse communities into planning for and responding to emergencies: A toolkit*. <http://www.healthpolicyinstitute.org/files/OMHDiversityPreparednessToolkit.pdf> (accessed January 12, 2012).
- ASPR (Assistant Secretary for Preparedness and Response). 2011a. *From hospitals to healthcare systems: Transforming health preparedness and response in our communities: Report on the Hospital Preparedness Program*. Washington, DC: ASPR, <http://www.phe.gov/Preparedness/planning/hpp/Documents/hpp-healthcare-coalitions.pdf> (accessed February 21, 2012).
- ASPR. 2011b. *Assuring regional emergency preparedness*. Washington, DC: ASPR, <http://www.phe.gov/Preparedness/responders/rec/Pages/regionalpreparedness.aspx> (accessed February 21, 2012).
- ASPR. 2011c. *Regional emergency coordinators*. <http://www.phe.gov/Preparedness/responders/rec/Pages/contacts.aspx> (accessed February 21, 2012).
- ASPR. 2011d. *Regional emergency coordinators overview*. <http://www.phe.gov/Preparedness/responders/rec/Pages/default.aspx> (accessed February 21, 2012).
- ASPR. 2012. *Hospital preparedness program*. Washington, DC: ASPR, <http://www.phe.gov/preparedness/planning/hpp/Pages/default.aspx> (accessed February 21, 2012).
- ASTHO (Association for State and Territorial Health Officials). 2011. *Profile of state public health*, Vol. 2. Arlington, VA: ASTHO, http://astho.org/uploadedFiles/_Publications/Files/Survey_Research/ASTHO_State_Profiles_Single%5B1%5D%20lo%20res.pdf (accessed February 21, 2012).
- Baldwin, L. M., R. F. MacLehose, L. G. Hart, S. K. Beaver, N. Every, and L. Chan. 2004. Quality of care for acute myocardial infarction in rural and urban US hospitals. *Journal of Rural Health* 20(2):99-108.
- Baron, S., and R. Giugliano. 2011. Effectiveness and safety of percutaneous coronary intervention after fibrinolytic therapy for ST-segment elevation acute myocardial infarction. *The American Journal of Cardiology* 107(7):1001-1009.
- Bisson, J. I., P. L. Jenkins, J. Alexander, and C. Bannister. 1997. Randomized controlled trial of psychological debriefing for victims of acute burn trauma. *British Journal of Psychiatry* 171:78-81.
- Bisson, J. I., M. Brayne, F. M. Ochberg, and G. S. Everly. 2007. Early psychosocial intervention following traumatic events. *American Journal of Psychiatry* 164(7):1016-1019.
- CDC (Centers for Disease Control and Prevention). 2001. *Public health's infrastructure: A status report*. Prepared for United States Senate Committee on Appropriations. Atlanta, GA: CDC, <http://www.uic.edu/sph/prepare/courses/ph410/resources/phinfrastructure.pdf> (accessed February 21, 2012).
- CDC. 2010. *Public health preparedness: Strengthening the nation's emergency response state by state*. <http://www.cdc.gov/phpr/pubs-links/2010/index.htm> (accessed February 21, 2012).
- CDC. 2011a. *Funding, guidance, and technical assistance to states, localities, and territories*. <http://www.cdc.gov/phpr/coop-agreement.htm#guidance> (accessed February 21, 2012).
- CDC. 2011b. *Strategic National Stockpile*. <http://www.cdc.gov/phpr/stockpile/stockpile.htm> (accessed March 4, 2012).
- Claeys, M., A. de Meester, C. Convens, P. Dubois, J. Boland, H. De Raedt, P. Vranckx, P. Coussement, S. Gevaert, P. Sinnave, P. Evrard, C. Beauloye, M. Renard, and C. Vrints. 2011. Contemporary mortality differences between primary percutaneous coronary intervention and thrombolysis in ST-segment elevation myocardial infarction. *Archives of Internal Medicine* 171(6):544-549.
- CMS (Centers for Medicare & Medicaid Services). 2009. *Waiver or modification of requirements under section 1135 of the Social Security Act*. https://www.cms.gov/H1N1/Downloads/1135WaiverSigned_H1N1.pdf (accessed February 21, 2012).

- Courtney, B., E. Toner, R. Waldhorn, C. Franco, K. Rambhia, A. Norwood, T. V. Inglesby, and T. O'Toole. 2009. Healthcare coalitions: The new foundation for national healthcare preparedness and response for catastrophic health emergencies. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 7(2):153-163.
- Courtney, B., R. Morhard, N. Bouri, and A. Cicero. 2010. Expanding practitioner scopes of practice during public health emergencies: Experiences from the 2009 H1N1 pandemic vaccination efforts. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 8(3):223-231.
- Drexel University Center for Health Equality. 2008. *National consensus statement on integrating racially and ethnically diverse communities into public health emergency preparedness*. http://www.healthpolicyinstitute.org/files/National_Consensus_Statement_508.pdf (accessed January 12, 2012).
- Escarce, J. J., and K. Kapur. 2009. Do patients bypass rural hospitals? Determinants of inpatient hospital choice in rural California. *Journal of Health Care for the Poor and Underserved* 20(3):625-644.
- FEMA (Federal Emergency Management Agency). 2012. *State offices and agencies of emergency management*. <http://www.fema.gov/about/contact/statedr.shtm> (accessed February 21, 2012).
- GAO (U.S. Government Accountability Office). 2008. *States are planning for medical surge, but could benefit from shared guidance for allocating scarce medical resources*. GAO-08-668. Washington, DC: GAO.
- Garrett, J. E., D. E. Vawter, K. G. Gervais, A. W. Prehn, D. A. DeBruin, F. Livingston, A. M. Morley, L. Liaschenko, and R. Lynfield. 2011. The Minnesota Pandemic Ethics Project: Sequenced, robust public engagement processes. *Journal of Participatory Medicine* 3, <http://www.jopm.org/evidence/research/2011/01/19/the-minnesota-pandemic-ethics-project-sequenced-robust-public-engagement-processes/> (accessed January 18, 2012).
- IASC (Inter-Agency Standing Committee). 2007. *IASC guidelines on mental health and psychological support in emergency settings*. Geneva, Switzerland: IASC.
- Inova Hospital Group, Virginia. 2007. *Emergency Preparedness Management Plan*. Policy # EMR 1-1. Falls Church, VA: Inova, <http://www.inova.org/upload/docs/Education%20&%20Research/GME/emergency-preparedness.pdf> (accessed February 21, 2012).
- IOM (Institute of Medicine). 1988. *The future of public health*. Washington, DC: National Academy Press.
- IOM. 2003. *The future of the public's health in the 21st century*. Washington, DC: The National Academy Press.
- IOM. 2009. *Guidance for establishing crisis standards of care for use in disaster situations: A letter report*. Washington, DC: The National Academies Press.
- Joynt, K., Y. Harris, E. J. Orav, and A. K. Jha. 2011. Quality of care and patient outcomes in critical access rural hospitals. *Journal of the American Medical Association* 306(1):45-52.
- Levin, D., R. O. Cadigan, P. D. Biddinger, S. Condon, H. K. Koh; Joint Massachusetts Department of Public Health-Harvard Altered Standards of Care Working Group. 2009. Altered standards of care in an influenza pandemic: Identifying ethical, legal and practical principles to guide decision-making. *Disaster Medicine and Public Health Preparedness* 3(Suppl. 2):1-9.
- Lutfiyya, M., D. Bhat, S. R. Gandhi, C. Nguyen, V. L. Weidenbacher-Hoper, and M. S. Lipsky. 2007. Comparison of quality of care indicators in urban acute care hospitals and rural critical access hospitals in the United States. *International Journal for Quality in Health Care* 19(3):141-149.
- McNally, R. J., R. A. Bryant, and A. Ehlers. 2003. Does early psychological intervention promote recovery from posttraumatic stress? *Psychological Science in the Public Interest* 4(2):45-79.
- McNamara, C., M. Burket, P. Brewster, R. F. Leighton, and T. D. Fraker Jr. 1987. Comparison of thrombolytic therapy for acute myocardial infarction in rural and urban settings. *American Journal of Medicine* 82(6):1095-1101.
- MEMA (Maryland Emergency Management Agency). 2009. *State of Maryland: Core plan for emergency operations*, Vol. 1. http://www.mema.state.md.us/MEMA/content/pdf/The_State_of_Maryland_Emergency_Operations_Plan_26Aug09.pdf (accessed February 21, 2012).
- NACCHO (National Association of County and City Health Officials). 2010. *National profile of local health departments*. Washington, DC: NACCHO, http://www.naccho.org/topics/infrastructure/profile/resources/2010report/upload/2010_Profile_main_report-web.pdf (accessed February 21, 2012).
- NIMH (National Institute of Mental Health). 2002. *Mental health and mass violence: Evidence-based early psychological intervention for victims/survivors of mass violence. A workshop to reach consensus on best practices*. NIH publication no. 02-5138. Washington, DC: U.S. Government Printing Office.
- Ohio Department of Health, and Ohio Hospital Association. 2011. *Ohio medical coordination plan*. Columbus, OH: Ohio Department of Health.

- Public Health–Seattle and King County. 2009. *Public engagement project on medical service prioritization during an influenza pandemic*. Seattle, WA: Public Health–Seattle and King County, www.kingcounty.gov/healthservices/health/preparedness/%7e/media/health/publichealth/documents/pandemicflu/MedicalServicePrioritization.aspx (accessed February 21, 2012).
- Ruggiero, K. J., H. S. Resnick, R. Acierno, S. F. Coffey, M. J. Carpenter, A. M. Ruscio, R. S. Stephens, D. G. Kilpatrick, P. R. Stasiewicz, R. A. Roffman, M. Bucuvalas, and S. Galea. 2006. Internet-based intervention for mental health and substance use problems in disaster-affected populations: A pilot feasibility study. *Behaviour Research and Therapy* 37(2):190–205.
- Schreiber, M., and S. Shields. 2012. *Anticipate, plan, and deter: Building resilience in emergency health responders*. Presented at the 2012 NACCHO (National Association of City and County Health Officials) Public Health Preparedness Summit, Anaheim, California.
- Schreiber, M., B. Pfefferbaum, L. Sayegh, and J. Coady. In press. The way forward: The national children’s disaster mental health concept of operations. *Disaster Medicine and Public Health*.
- Shah, U. 2012. *Summary of HCPHES pandemic influenza public and partner engagement projects*. Harris County, TX: Harris County Public Health and Environmental Services.
- TFAH (Trust for America’s Health). 2010. *Ready or not? Protecting the public from diseases, disasters, and bioterrorism*. <http://healthyamericans.org/reports/bioterror10/> (accessed February 21, 2012).
- Toner, E., R. Waldhorn, C. Franco, B. Courtney, K. Rambhia, A. Norwood, T. V. Inglesby, and T. O’Toole. 2009. *Hospitals rising to the challenge: The first five years of the Hospital Preparedness Program and priorities going forward*. Baltimore, MD: Center for Biosecurity of UPMC.
- VA (Department of Veterans Affairs). 2011. About VHA. <http://www.va.gov/health/aboutVHA.asp> (accessed March 1, 2012).



Crisis Standards of Care

A Systems Framework for
Catastrophic Disaster Response

EMS

INSTITUTE OF MEDICINE
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Crisis Standards of Care

A Systems Framework for Catastrophic Disaster Response

Volume 3: EMS

Committee on Guidance for Establishing Standards of Care for Use in Disaster Situations

Board on Health Sciences Policy

Dan Hanfling, Bruce M. Altevogt, Kristin Viswanathan, and Lawrence O. Gostin, *Editors*

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*“Knowing is not enough; we must apply.
Willing is not enough; we must do.”*
—Goethe



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Acronyms

ACS	American College of Surgeons
ALS	advanced life support
ASPR	Assistant Secretary for Preparedness and Response
BLS	basic life support
CDC	Centers for Disease Control and Prevention
CONOPS	concept of operations
CSC	crisis standards of care
DHS	Department of Homeland Security
DMAT	disaster medical assistance team
EIRRA	EMS Incident Response and Readiness Assessment
EMA	emergency management agency
EMAC	Emergency Management Assistance Compact
EMD	emergency medical dispatch
EMR	emergency medical responder
EMS	emergency medical services
EMT	emergency medical technician
EOC	emergency operations center
ESAR-VHP	Emergency System for Advance Registration of Volunteer Health Professionals
ESF	Emergency Support Function
FEMA	Federal Emergency Management Agency
HHS	Department of Health and Human Services
HRSA	Health Resources and Services Administration

ICS	incident command system
JIC	joint information center
JIS	joint information system
MIEMSS	Maryland Institute for Emergency Medical Services Systems
MMRS	Metropolitan Medical Response System
MRC	Medical Reserve Corps
NAEMSO	National Association of State EMS Officials
NDMS	National Disaster Medical System
NHTSA	National Highway Traffic Safety Administration
NIMS	National Incident Management System
PIO	public information officer
PSAP	public safety answering point
SALT	sort, assess, life-saving interventions, treatment/transport
SDMAC	state disaster medical advisory committee
START	simple triage and rapid treatment
VA	Department of Veterans Affairs
VF	ventricular fibrillation

Volume 3

6: Prehospital Care

Emergency Medical Services (EMS)

Prehospital care is provided by emergency medical services (EMS) responders, who are the initial health care providers at the scene of disaster. EMS personnel often are the first to recognize the nature of a disaster and can immediately evaluate the situation and determine the need for resources, including medical resources. These licensed/certified personnel (emergency medical dispatchers, emergency medical responders, emergency medical technicians, and paramedics) may be the first to apply crisis standards of care (CSC), and are integral partners in local and state¹ efforts related to the development and implementation of coordinated and integrated CSC plans (NHTSA, 2012). EMS agencies and personnel may already be engaged in such planning at the local level through their regional EMS/trauma advisory councils or health care coalitions (HHS, 2009; NASEMSO, 2011a; NHTSA, 2000). Their further involvement at all levels of CSC planning and implementation should be a goal.

This chapter outlines the roles and responsibilities of state EMS in CSC planning and implementation in the overall context of a CSC response system, as well as operational considerations entailed in carrying out those roles and responsibilities. Two templates provide core functions for EMS systems in CSC planning and for EMS systems and EMS personnel in the implementation of CSC plans. The content of this chapter should be used in conjunction with other chapters of this report that provide detailed guidance on specific CSC topics (e.g., related to legal issues, ethical considerations, palliative care, mental health, hospital care, and out-of-hospital and alternate care systems) that may be referenced only briefly as planning or implementation considerations in this chapter or the two accompanying templates.

ROLES AND RESPONSIBILITIES OF EMERGENCY MEDICAL SERVICES

Prehospital care is an essential part of the continuum of emergency health care that is frequently initiated by a 911 call to a dispatch center. Routinely, the need for emergency care is determined by trained personnel who receive such a call and dispatch appropriate air and ground ambulances and other EMS responders to triage, treat, and transport the patient(s) to the appropriate health care facility, where definitive care is ultimately provided. This continuum of conventional care is provided through a coordinated and integrated emergency health care system with well-trained and well-equipped personnel at dispatch centers, ambu-

¹ For the purposes of this report, the term “states” encompasses states, tribal jurisdictions, and territories.

lance agencies, hospitals, and specialty care centers (trauma, burn, pediatrics) using standardized protocols and guidelines approved by medical directors (HRSA, 2006; NHTSA, 2012). This emergency health care system will be stressed to its limits during a mass casualty incident. Dispatch and regional call centers, local EMS agencies, and hospitals will undertake contingency measures utilizing their emergency operations plans and medically approved protocols to implement surge medical capabilities (DOT, 2007; NHTSA, 2007a). These measures may include

- EMS agencies requesting assistance from neighboring jurisdictions for personnel and equipment through mutual-aid agreements (e.g., the Emergency Management Assistance Compact [EMAC] or statewide agreements);
- public safety answering points (PSAPs) and call centers altering their dispatch protocols, sending fewer resources, and allowing EMS providers to respond to fewer requests for assistance (DOT, 2007);
- transport destinations being adjusted to allow transport to clinics or other alternate sites of care in addition to hospitals (AHRQ, 2009a);
- EMS personnel utilizing disaster triage systems (sort, assess, life-saving interventions, treatment/transport; simple triage and rapid treatment [START]; and JumpSTART triage methods) so they can assess patients within 60 seconds and categorize them for immediate or delayed care (HHS, 2011; Lerner et al., 2011; Romig, 2011); and
- EMS personnel utilizing the National Incident Management System (NIMS) incident command system (ICS), which provides a consistent model for all organizations involved in the disaster response.

In the case of a mass casualty incident, in which emergency health care personnel, medical and transport equipment, and hospital beds are scarce, local EMS personnel will be forced to modify their care from conventional to crisis care (see Chapter 2, Box 2-4 and Figure 2-2). This means moving from usual standards of care, in which the goal is to save everyone, to CSC, in which as many lives as possible are saved with the resources that are available. Resource shortages may include limited staff, supplies, and equipment; a lack of fuel or medicines; limited mutual aid; or disruption of coordination and communication functions. Strategic approaches to utilizing these scarce resources should be planned and implemented, and should include maximizing the use of available personnel, community response teams and health care personnel registries, disaster triage criteria, and altered transport modes and patient destinations. Table 6-1 shows possible adaptations of prehospital care under conventional, contingency, and crisis conditions. Guidance produced by the state of Michigan, titled *Ethical Guidelines for Allocation of Scarce Medical Resources and Services During Public Health Emergencies*, is a source for more concrete examples of EMS protocols along the continuum of care (State of Michigan, 2012).

Fundamental changes in prehospital care may result during a disaster, including a change in the scope of practice (Courtney et al., 2010) for EMS personnel to allow them to administer vaccines or perform other tasks for which they receive just-in-time training. EMS personnel may be asked to function in extraordinary settings, such as shelters, alternate care sites, patient receiving centers, clinics, and tented free-standing medical units. They may be asked to alter the staffing levels for an ambulance, utilizing a driver and one medical

TABLE 6-1

Potential EMS Response Adaptations Under Conventional, Contingency, and Crisis Conditions^a

	Conventional	Contingency	Crisis ^b
Dispatch	<ul style="list-style-type: none"> Consider initial auto-answer during times of high call volume for medical emergencies 	<ul style="list-style-type: none"> Prioritize calls according to potential threat to life; “pend” apparently non-life-threatening calls (note this requires a medically trained dispatcher, not available at many public safety answering points [PSAPs]) 	<ul style="list-style-type: none"> Decline response to calls without evident potential threat to life (also requires a medically trained dispatcher)
Response	<ul style="list-style-type: none"> Modify resource assignments (e.g., only fire/rescue dispatched to motor vehicle crashes unless EMS are clearly required, single-agency EMS responses if fire agencies are overtaxed) Seek mutual-aid assistance from surrounding areas 	<ul style="list-style-type: none"> Modify resource assignments to a greater extent Change EMS assignments to closest available unit rather than advanced life support (ALS)/basic life support (BLS) Consider staffing configuration changes (e.g., from two paramedics to one paramedic plus one emergency medical technician [EMT]-B) Consider requests for disaster assistance 	<ul style="list-style-type: none"> Request EMS units from emergency management (if possible) Consider use of National Guard ambulances or other assets Utilize scheduled BLS providers to answer emergency calls Change staffing to one medical provider, one driver Further modify resource assignments as possible Attempt no resuscitation of cardiac arrests (except ventricular fibrillation [VF] witnessed by EMS)
Patient assessment	<ul style="list-style-type: none"> Allow patients with very minor injuries to use their own transportation 	<ul style="list-style-type: none"> Encourage patients with minor injury/illness to use their own transportation 	<ul style="list-style-type: none"> Assess patients and decline to transport those without significant injury/illness (according to guidance from EMS medical director)
Transportation	<ul style="list-style-type: none"> Transport patients to the closest appropriate facility (rather than the facility of the patient's choice) 	<ul style="list-style-type: none"> Consider batched transports—answer subsequent call(s) before transporting stable patients to the hospital 	<ul style="list-style-type: none"> Decline transports as above; employ batch transports as needed

^a EMS volumes will fluctuate significantly over time; thus, conventional, contingency, and crisis conditions may all occur in a single operational period. Dispatchers must therefore have excellent situational awareness of resources and deployment of personnel to provide the best service possible at a given time and have practice in managing these scenarios.

^b Crisis adaptations often require state or at least city declarations of emergency, as well as relief from usual staffing and response requirements of the state (often through a governor's emergency order).

attendant; use other modes of transportation, such as vans and buses; or not transport at all by treating and releasing patients. Extraordinary circumstances may require EMS personnel to assist in the evacuation of patients at a health care facility to alternate care sites. This, in turn, may require them to provide care to patients for longer than is usual for EMS providers, who normally provide care for patients at the scene and during transport and transfer (AHRQ, 2009b).

It is important to ensure that the planning and implementation of the above measures are reviewed and approved by state, regional, and local medical EMS directors for consistency with state-level CSC plans and protocols. A sample protocol in Maryland (Alcorta, 2011) demonstrates CSC strategies for use by EMS providers in a catastrophic public health incident. The measures include

- utilizing a triage screening algorithm to ensure that response is limited to severely ill or injured patients,
- discontinuing certain life-saving treatment efforts,
- applying strict criteria for the use of scarce equipment,
- transporting only the most severe cases, and
- having access to the emergency department only for patients with immediate needs.

These measures should have been reviewed and approved by medical directors and are applied across jurisdictions. Personnel should have been trained and exercised in their use, and their application should be understood among emergency health care system stakeholders (dispatch centers, hospitals).

State EMS Offices

The state EMS office generally is in a unique position within state government and can take a leadership role in the development and implementation of CSC plans. The state EMS office, together with regional and state advisory committees/councils and in collaboration with state health and emergency management departments, should ensure that CSC plans and protocols are consistent across jurisdictions and among emergency health care system stakeholders. The state EMS office can utilize existing committee structures for planning and the expertise of consultants serving on these committees for activating disaster plans, policies, and CSC strategies.

Most state EMS offices have statutory authority, scope, and jurisdiction to regulate and coordinate the provision of EMS statewide for conventional emergency care or when the need arises to provide contingency or crisis care. The authority for state EMS offices, mandated in statute, may include the roles and responsibilities listed in Box 6-1.

Strategic planning is a performance measure for EMS/trauma system development and provides accountability and consistency across jurisdictions. This places state EMS offices in a unique position to

BOX 6-1 General State EMS Office Authority

1. Licensure/certification of EMS personnel
2. Licensing air and ground ambulances and response vehicles
3. Establishing standardized field protocols
4. Designating hospitals as trauma centers
5. Establishing interoperable communications systems
6. Establishing state and regional advisory committees/councils
7. Gathering patient care data
8. Conducting performance improvement
9. Developing disaster plans and response capabilities
10. Providing statewide medical direction
11. Conducting public information, injury prevention and education programs
12. Statewide coordination of an EMS system and strategic planning

SOURCE: NHTSA, 1996.

BOX 6-2

Preparedness and Response Performance Measures

- Conduct a resource assessment for response to mass casualty incidents, and perform a gap analysis.
- Establish the need for protective resources for EMS providers and families.
- Within the EMS system plan, define methods for integrating preparedness plans, routinely exercising those plans, and supporting sufficient caches of equipment and backup personnel.
- Within the EMS system plan, specify means of allowing resources to be used across jurisdictions, both inter- and intrastate, using the Emergency Management Assistance Compact, memorandums of understanding, and the National Incident Management System.
- Within the EMS system, plan and develop specific provisions for pandemic influenza.
- As the state lead EMS system agency, have access to equipment, materials, and personnel, including the Strategic National Stockpile, for large-scale incidents.
- As the state lead EMS system agency, have a deployment mechanism for sharing personnel resources, and routinely exercise that mechanism.
- As the state lead EMS system agency, have legal authority, based on the example of the Model State Emergency Health Powers Act, to modify the scope of practice of EMS personnel during an influenza pandemic and other public health emergencies.

SOURCE: NHSTA, 2007b.

provide leadership and expertise for disaster preparedness planning and response. The state EMS office, whether it is formally part of the state health department or a separate agency, may augment state health departments in their role as the Emergency Support Function (ESF)-8 lead (although the state health department does not have this role in all states). The state EMS office may be responsible for requesting and coordinating federal medical assets; providing state medical assets; and working toward an all-hazards approach to disaster mitigation, planning, response, and recovery.

While no official national lead agency regulates EMS, the National Highway Traffic Safety Administration (NHTSA), Office of EMS, has taken a significant leadership role over the years in developing documents to guide state EMS offices in various aspects of system development, including a component for disaster preparedness and response (IOM, 2007). These documents provide valuable guidance for the development of statewide regionalized systems of care and help define the leadership role for state EMS offices. The NHTSA document *State Emergency Medical Services Systems: A Model* (NHTSA, 2007b) outlines clear performance measures that can be used by states to assess their preparedness and response capabilities for large-scale incidents that may consume scarce resources and precipitate the implementation of CSC plans. These measures are listed in Box 6-2.

Recently, NHTSA, through an agreement with the National Association of State EMS Officials (NASEMSO), developed an assessment tool for use by states in determining local, regional, and state capabilities to manage a mass casualty incident or other large-scale emergency along highways and roads. The *EMS Incident Response and Readiness Assessment (EIRRA)* document can be used to assess various capabili-

ties for CSC planning and implementation (NASEMSO, 2011b). The key capabilities and benchmarks are listed in Box 6-3.

Resources available through various organizations support the involvement of the state EMS office in disaster preparedness and response. According to the American College of Surgeons (ACS) in *Resources for Optimal Care of the Injured Patient 2006*, trauma system leadership, usually provided by the state EMS office, should develop a state plan that is integrated with EMS, public health, emergency preparedness, and emergency management. The document outlines a requirement for the lead state trauma office to assess the EMS system's preparedness, specifically in regard to its coordination with other disaster response agencies (e.g., public health, emergency management) (ACS, 2006).

The ACS document is closely aligned with the Health Resources and Services Administration's (HRSA's) *Model Trauma Systems Planning and Evaluation*, which presents a public health approach to trauma system development (HRSA, 2006). The HRSA document supports an all-hazards approach to preparedness and encourages state EMS and trauma lead agencies to

- develop disaster preparedness capabilities that are integrated with prehospital and hospital care within regional systems of care,
- involve the private and public sectors in planned responses, and
- include performance improvement in the planning and response effort.

Although standardized models for EMS system development and disaster planning are available, the administration of a statewide EMS system is extremely complex and varies widely from state to state (NASEMSO, 2004). Most state EMS offices reside within the state department of health. However, some reside within the department of public safety, while others are stand-alone agencies. Those EMS offices that reside within a state health department may be in a position to assist as the ESF-8 lead for public health and medical disaster response within the state. This alignment may be beneficial in providing a coordinated and integrated response for public health and medical needs during a disaster. In collaboration with the state health department and other state agencies, the state EMS office is in a unique position to take a leadership role in the development of both contingency and crisis standards of care plans and to coordinate the response to a disaster within established regional systems of care.

Dispatch Centers

Dispatch centers, poison centers, and other PSAPs play a key role in the activation and implementation of CSC. The PSAP may refer calls to or direct the public to call a 211, 311, or some other number for specific information relative to a disaster since the 911 system and routine communications systems will be overwhelmed. Several states, including Arkansas, Colorado, Louisiana, and Maryland, have developed regional dispatch centers or call centers that are used to monitor bed capacity and system management. These centers routinely facilitate the transport of critically injured patients from a referral facility to a trauma center. They can be a valuable resource during a disaster by assisting with patient transport to alternate care sites, providing system status management, and exercising other dispatching capabilities. As care is stratified during a disaster response, more front-end triage of patient complaints will be performed to limit the potential

BOX 6-3
Response and Planning Capabilities in
EMS Incident Response and Readiness Assessment (EIRRA)

Personnel

- Human resource availability
- Education and training
- Safety and support
- Medical direction

Infrastructure

- Public safety answering points
- Communications resources and systems
- Hardware and equipment
- EMS personnel and transportation
- Transportation operations
- Technology and situational awareness

Emergency Care System

- Medical facilities
- Specialty care systems
- Mass casualty support teams
- Alternate facilities
- Unique patient communications needs

Public Awareness and Notification

- Before incident
- During Incident

Evaluation

- Patient information systems
- Postincident review

Mass Casualty Planning

- Incident command system structure
- Uniform triage system
- Transportation determination planning
- Destination determination planning
- Special risk/hazard vulnerability
- Multiple fatality management
- Inventory resource management (sustainability)
- Rehabilitation services
- Exercises
- Highway mass casualty playbook (plans and procedures)
- Governance

burden on emergency departments and inpatient facilities so as to reduce overcrowding. The call centers may direct the public to nursing hotlines or to poison control centers for assistance with patient triage. EMS providers may be directed to deliver care at the scene utilizing treat-and-release protocols.

In a crisis situation, a central dispatch or call center may activate medically approved dispatch protocols and prearrival instructions designed to alleviate the burden on EMS response capabilities that are being overwhelmed. This action will assist EMS agencies, hospitals, and other community organizations in utilizing scarce resources during a disaster. It is important to note that these specialized protocols are used only when a disaster has been declared, when the EMS medical director has authorized their use, when they are included in the dispatch agency's emergency operations plan, and when staff have received training and exercise in recognizing triggers for their activation (National Academies of Emergency Dispatch, 2009).

OPERATIONAL CONSIDERATIONS

To operationalize the CSC framework set forth in the committee's 2009 letter report and reiterated in Chapter 2 of this report for EMS, CSC planning efforts should specifically enumerate EMS roles, responsibilities, and actions. To this end, the state agency taking the lead role in coordinating a systems-based response should establish consistent triggers and thresholds that indicate transitions from conventional to contingency to crisis care, define a clear mechanism for authorizing activation of CSC, provide liability protection for EMS personnel and altered modes of transportation, coordinate emergency operations across the affected region, and address reimbursement issues directly. While standardizing the planning process will contribute to consistency in implementing CSC, the different environments in which EMS operates should be taken into consideration. In a disaster, resource shortages may disproportionately affect rural areas that are already resource-constrained on a routine basis (see the discussion of a rural EMS perspective below). Therefore, providing for a robust EMS response through inclusive planning and attention to local EMS challenges is crucial in developing and implementing plans for and recovering from situations that require CSC.

CSC Planning Considerations

The state CSC plan should be developed to specifically outline the lead roles, responsibilities, and actions of the state EMS office. Critical EMS-related state CSC planning actions are listed in Box 6-4.

In a CSC incident, state resources will be exhausted, and federal resources will be necessary. Systems to support resource distribution and allocation are essential to the provision of emergency health care at the regional and local levels. Also essential is to ensure connectivity and uniformity within regional advisory committees/councils/coalitions for CSC planning efforts. The state EMS office and state medical director should ensure the application of consistent disaster triage guidelines during a crisis, similar to the application of EMS field triage guidelines in use for trauma patients (National Expert Panel on Field Triage, 2012). The state EMS office should formulate strategies for addressing the lack of resources in a CSC incident and identify clinical and administrative triggers for activation of the state CSC plan. In addition, it should take the lead in identifying clinical and administrative triggers for activation of CSC for all jurisdictions.

As previously mentioned, some of these strategies may include encouraging dispatch centers to modify prearrival instructions; allowing ambulance services to modify resource assignments and staffing configura-

BOX 6-4

Critical EMS-Related State CSC Planning Actions

These actions include

- establishing consistent triggers and thresholds for CSC,
- modifying protocols,
- transferring protocols,
- authorizing the use of CSC protocols and plans,
- providing liability protection for EMS personnel,
- providing coordination for regional and state emergency operations and CSC planning,
- addressing and assisting with reimbursement issues, and
- providing liability protection for altered modes of transportation and care.

tions; and using alternate resources to assist with crisis communications and triaging, such as 211 or 311 centers, regional call centers, nurse assistance call centers, and poison control centers. These types of resources should be identified during the CSC planning process.

It is equally important to outline regional and local EMS roles and responsibilities within the CSC plan. As every disaster begins at the local level, situational awareness among local EMS providers and regional EMS councils will make it possible to quickly determine when additional resources are needed or recognize when resources are scarce. For example, dispatch centers and EMS agencies may see that call volumes have doubled, recognize that resources are insufficient to meet the increased demand, and subsequently recognize that the activation of contingency plans is in order. Or, as noted earlier, several states have developed call centers that assist with identifying hospitals for patient transfers. These centers also have the capability to monitor demand for resources through web-based systems that can be used to track patients and hospital beds, thereby enhancing the distribution of patients to hospitals or appropriate specialty care centers for burn, pediatric, and severe trauma care. These regional resources and capabilities should be incorporated into the development of a state CSC plan that is inclusive of EMS provider needs, resources, and operational procedures.

Regardless of the jurisdiction, it is imperative to integrate several considerations and key principles into the CSC plan. These include

- utilizing a NIMS-compliant ICS,
- adhering to ethical norms and principles,
- providing palliative care services,
- addressing the needs of at-risk populations, and
- mobilizing mental health services for communities and health care providers (IOM, 2009a).

In all jurisdictions, the ICS should be used in disaster planning and response. Common terminology will result in better coordination and communications during a disaster. Also, as stated in the committee's letter report, "An ethical framework serves as the bedrock for public policy" (IOM, 2009a, p. 5). This framework

includes fairness, the duty to care, and the duty to steward resources. The CSC planning process should also be characterized by transparency, consistency, proportionality, and accountability.

The state EMS office, in cooperation with the state health department, should ensure that EMS agencies have an opportunity to review and discuss the CSC plan at the state, regional, and local levels. EMS agencies should be engaged in the planning process from the beginning, and this can easily be accomplished through regional advisory councils or committees. These entities are existing infrastructure in most states and provide a forum for discussion of routine patient care within the regional emergency health care systems, resulting in standardization and consistency in triage, treatment, transport, and transfer protocols and guidelines. A regionalized and integrated systems approach to CSC planning is consistent with other emergency health care planning guidelines, such as those for trauma system development, recognized by NASEMSO, NHTSA, and ACS (see Box 6-4).

Rural EMS Perspective

Rural EMS providers face particular challenges in a disaster as they routinely work with limited and scarce resources. During a recent Institute of Medicine (IOM) workshop on mass care in rural areas, many challenges to EMS care and disaster response were identified, including

- geographic barriers of vast expanses of unpopulated land mass,
- extreme weather conditions,
- communication challenges due to the lack of cell phone or radio coverage in some areas,
- difficulty recruiting and retaining trained volunteer personnel,
- funding and leadership,
- medical direction,
- political and cultural landscapes,
- existing statutes,
- contingency planning,
- hospital and trauma center availability,
- fragility of current rural EMS agencies,
- inconsistencies in cell phone service,
- psychological consequences,
- access to the scene, and
- patient tracking (IOM, 2011; Whitney et al., 2010).

At the workshop, participants outlined considerations for disaster planning and response from a rural perspective that are pertinent to CSC planning and response as well (see Box 6-5).

Participants also shared lessons learned that may be applicable to CSC planning. Several participants identified the need for EMS agencies to engage with other partners, such as the Department of Veterans Affairs (VA), the military, and the private sector, for resource sharing and to view regionalization of care as an opportunity to expand resources and facilitate partnerships. Specific suggestions for states also were made for consideration in disaster planning from a rural perspective:

BOX 6-5
Disaster Planning and Response Considerations
from a Rural Perspective

- Ensure an adequate day-to-day response capability.
- Conduct broad, inclusive planning and exercises.
- Train in and consistently use the incident command system.
- Formalize mutual-aid agreements and cross-jurisdictional planning and coordination.
- Develop realistic regionalization strategies with local input and stakeholders.
- Establish and develop strategic partnerships.
- Leverage existing federal programs and grants.
- Explore the use of technologies such as telemedicine.
- Strengthen the standing of EMS in the federal government.
- Ensure coordinated and dedicated EMS funding.

SOURCE: IOM, 2011.

- Establish command and control systems that integrate local, state, and federal emergency response using a common operating structure.
- Assess rural dispatch center capabilities, and enhance the development of priority dispatch training, prearrival instructions and protocols, and alternate dispatch capabilities for disaster response.
- Develop a safe, secure, and redundant communications system that can function without the commercial power grid.
- Define authority for rapidly altering standards of care and scopes of practice.
- Determine skill sets for large-scale response, and provide appropriate just-in-time training.
- Stockpile surge assets, including equipment and medical supplies, and identify surge personnel.
- Establish a quality improvement process for reviewing the system.

The last of these suggestions is relevant for all stakeholders in CSC planning and implementation. It is important not only to review after-action reports from disaster exercises and responses but also to review patient care data collected during a CSC incident. The evaluation process will provide an opportunity to improve relevant standards of care, plans, policies, statutes, and guidelines. Workshop participants identified several metrics that could be used to evaluate a CSC response, including

- frequency of incidents, time to ICS role, rural-specific patient outcome data, access to trauma care, ability to treat patients with special needs, triage and treatment guidelines, alternate care sites, extent of integration with public and private resources, and safety of transportation assets;
- geographic location of ground and air ambulances, clinics, hospitals and trauma centers, and personnel and equipment;
- education, training, skill expansion, medical supervision, and quality improvement; and
- risk-adjusted mortality, injury severity scores, interfacility transports, transport times, and referrals.

Evaluation capacity is a requirement for the federal funding available through the Centers for Disease Control and Prevention (CDC) for public health response, as the Pandemic and All Hazards Preparedness Act mandates that certain benchmarks be met. Cooperative agreements administered by both CDC and the Office of the Assistant Secretary for Preparedness and Response (ASPR) within the Department of Health and Human Services (HHS) require that states have specific capabilities. While limited federal disaster planning grants and programs are available to EMS agencies and state EMS offices, inclusion of an evaluation component in the CSC plan may enhance future funding opportunities by providing justification for addressing gaps in response capabilities identified through the evaluation process and established metrics.

TEMPLATE DESCRIPTIONS

Planning and implementation of the state CSC plan may reside with the state health department (see Chapter 5). However, it is essential for the state EMS office to be engaged in the process as well. To ensure incorporation of EMS-related CSC considerations in the plan, the state EMS office may find it helpful to review and utilize the state and local government templates found in Chapter 5, as well as the EMS-specific templates at the end of this chapter.

Template 6.1. Core Functions of EMS Systems in the Development of State CSC Plans

This template outlines the optimal core functions and specific tasks under each function for EMS systems—including state EMS offices, regional infrastructure, and local prehospital care providers—in the development of state CSC plans. These functions and tasks are described below.

Function 1. Assessment of Jurisdictional Authority and Planning Resources. A crucial aspect of planning for CSC is collaboration, cooperation, and inclusivity across jurisdictions and all emergency health care system stakeholders, including the public (see Chapter 9). The development of plans for the implementation of CSC with respect to EMS should begin with a review of the salient legal authorities and existing mutual-aid agreements. Legal considerations should include liability protection for EMS personnel and agencies when CSC are in effect, changes in dispatch protocols, use of disaster triage protocols, altered staffing and transportation modes, just-in-time training, and scope-of-practice modifications for EMS personnel. Additional legal considerations may be relevant to the provision of EMS under CSC conditions, as outlined in Chapter 4.

In general, state EMS offices have the statutory authority to license EMS agencies (ambulances), license or certify personnel (emergency medical responder, emergency medical technicians, paramedics), designate hospitals as trauma specialty centers, and establish statewide standardized protocols and guidelines for EMS. State EMS offices also may have the statutory authority, scope, and jurisdiction to develop disaster plans and to oversee and coordinate the provision of EMS within the state during a disaster. Therefore, it is imperative for the state EMS office, in conjunction with state legal counsel, to review legal and regulatory authorities for the protection of agencies and personnel during a disaster. This review should encompass provider liability, licensing and credentialing alternatives, and mutual-aid agreements. The state EMS office should understand how authorities and protections can be used to

facilitate CSC strategies, including the modification of treatment, triage, and dispatch protocols; staffing and operational standards; and destination policies.

The state EMS office also should review potential changes in scopes of practice for EMS personnel. Inclusion of the community paramedicine program may be helpful during a CSC incident, especially for providing more comprehensive medical care in rural communities (IOM, 2011). The liabilities and protection for this function should be reviewed with legal counsel and the state EMS medical director.

Function 2. Development of Consistent and Comprehensive Plans Under the State Disaster Medical Advisory Committee (SDMAC) Structure. In its 2009 letter report, the committee recommended the establishment of an SDMAC (IOM, 2009a). Prior to a disaster, the SDMAC has a critical role in developing CSC plans. During a disaster, it provides ongoing advice to the state health department and medical authority on the implementation of CSC, as well as on a variety of health and medical issues. The SDMAC should include broad representation from the state emergency health care system and be multidisciplinary, including specialists in pediatric, trauma, mental health, and palliative care, as well as the needs of at-risk populations. The committee should also address the ethical considerations in CSC planning (as discussed in Chapter 4).

The SDMAC may be a subcommittee of an existing committee. For example, most state EMS offices have state-level EMS/trauma system advisory committees that could serve as the disaster medical advisory committee, and should coordinate with the SDMAC and not create a new committee. However, if the state health department has provided leadership in the committee's establishment, the creation of an EMS workgroup may be considered to address specific EMS issues. The state EMS office and state EMS medical director can assist the state health department and SDMAC in the development of consistent CSC pertinent to EMS personnel and providers.

Conducting an inventory/assessment of existing plans and available resources within the state before initiating CSC planning will assist in identifying gaps. In some cases, regional EMS/trauma advisory committees and health care coalitions may already have developed CSC plans and also maintain an inventory of resources. It is important for the SDMAC and state EMS office to assess the availability of these plans/resources and to contact neighboring states regarding interstate integration, the subject of a recommendation in the committee's letter report (see Chapter 1). Several states have developed surge capacity plans through the ASPR cooperative agreement and may also have mass casualty incident plans. After-action reports from functional and tabletop exercises may provide some guidance for CSC planning as well.

Function 3. Stakeholder and Public Engagement. One of the recommendations in the committee's letter report was to seek community and provider engagement (see Chapter 9). Ensuring that the public and other stakeholders understand and provide input into CSC planning is essential. The public and other stakeholders need to understand the difficult decisions that will have to be made by various health care providers and how principles of fairness and equity can be applied to the distribution of scarce resources.

While responsibility for public engagement may reside with state and local health departments, EMS stakeholders should have an opportunity to provide input on the CSC plan. The state EMS

medical director can play an important role in this regard, utilizing the expertise and input of medical directors for EMS agencies, medical directors consulted via telemedicine, EMS personnel, and agency supervisors.

Function 4. Monitoring, Evaluation, and Modification of the CSC Plan. All stakeholders within the emergency health care system should understand and assess the application of CSC plans and policies. The EMS component of the CSC plan should be integrated with other state and regional/local operational plans. Stakeholders should know when the plan will be implemented, and partners at all levels should have a copy of the plan. Analysis of patient care reports and after-action reports should be completed to assess the plan's implementation. The state EMS office, in collaboration with the state health department and emergency management agency (EMA), should routinely exercise the plan, track changes, educate the public and stakeholders about any changes, and continue to solicit input from the public and stakeholders once the plan has been implemented.

Template 6.2. Core Functions of EMS Systems and EMS Personnel in the Implementation of CSC Plans

This template provides basic guidance on the optimal core functions and tasks for EMS systems and EMS personnel in the implementation of CSC plans at the state, regional, and local levels. It is understood that while disasters happen locally, resources at various jurisdictional levels are needed during a disaster. Note that no distinction is made here between public and private EMS ambulance providers. All means of ambulance transport should be planned for and integrated into a coordinated state CSC plan for response to a catastrophic disaster. Contract and union issues should be addressed and resolved as part of the planning process prior to the implementation of the CSC plan.

EMS Systems

Function 1. Assessment and Activation. The state EMS office should assume a lead role in collaboration with the state public health agency and state EMA regarding the response to a disaster. It is the responsibility of the state EMS office to assist local agencies in recognizing the magnitude of the incident and determining whether it is necessary to implement the state CSC plan. As the incident progresses, the state EMS office should confer with the SDMAC regarding medical care and policy issues and when to activate the CSC plan. It is essential for dispatch centers/call centers, EMS providers, and the state EMS office to recognize when to activate and authorize implementation of the CSC plan, including resources such as poison control centers, 211 centers, and nurse referral centers, based on the triggers identified in the plan.

Function 2. Alerts and Notifications. Each state EMS office should strive to develop and utilize a statewide integrated communications system to provide and receive timely alerts during a CSC incident. The state EMS office should be responsible for activating the CSC plan, in collaboration with the state health department and EMA, and for ensuring that notification of the plan's implementation reaches all key stakeholders. The state EMS office may also need to provide information directly to the public

or the news media, a role that should be managed in a timely manner and with prescribed messages, if possible. To ensure immediate notification, the system should be redundant and interoperable with the systems of all first-response agencies, including law enforcement, public health, EMS, and hospitals. The implementation of electronic incident management systems may assist in the notification process while also enabling monitoring of resources and patient destinations.

The regional infrastructure and local providers need to understand what actions to take when the state EMS office or lead ESF-8 agency sends notification of a crisis or potential crisis situation. They may also need to provide consistent messages and notifications to the public or the media. They should understand that communication with the state EMS office is essential for authorizing CSC strategies as additional resources will be scarce.

Dispatch and call centers also play a key role in the alert and notification process, and should understand when to send messages to stakeholders regarding the activation and termination of the CSC plan.

Function 3. Command. The state emergency management agency is responsible for implementing the ICS and will work with the state EMS office in activating appropriate emergency operations centers (EOCs) during a disaster. The state EMS office, along with regional and local EMS agencies, should utilize the ICS within affected jurisdictions. All staff should be trained and exercised in the use of CSC strategies, such as alternate destinations, transportation modes, and staffing configurations.

The state EMS office staff should be well trained in and understand incident action planning and how to incorporate appropriate technical experts into the planning process for long-term incidents. The state EMS office also should ensure that staff have the job aids needed to guide decisions to activate, implement, and terminate the CSC plan.

All stakeholders should understand the role of the ESF-8 lead agency in a CSC incident and how the chains of command of the state EOC and agency internal coordination center coordinate the development, communication, and implementation of new CSC strategies in response to incident-specific demands.

Function 4. Control. It is the ultimate responsibility of the state EMS office staff to understand how to request additional medical resources from the federal government. They also should know how to integrate and track the requested assets within jurisdictions, regional structures, and local emergency management and public health systems.

The state EMS office should ensure that EMS providers utilize triage, treatment, transport, and transfer protocols approved by the medical director within the response area as required during a CSC incident. Medical direction at the state and local levels is key to the successful implementation of CSC strategies. Local EMS providers need to be familiar with the CSC strategies and know when to implement them.

The regional EMS infrastructure and local EMS agencies should work in cooperation with local law enforcement and understand the EMS options for security and access control during a disaster. This consideration should be integrated into the planning process as well.

Function 5. Communications. The state EMS office, in coordination with the state joint information center (JIC), should have the staff and resources to ensure the real-time exchange of information among stakeholders necessary to assess the magnitude of the incident and evaluate ongoing resource needs and requests. This function is essential when federal resources may be needed and when the necessity of implementing the CSC plan must be determined.

The state EMS office also should ensure that policies and procedures are in place to provide and receive situational communications among staff, facilities, and agencies within the affected region. This means having the ability to use e-mail, text messaging, paging, telephone, amateur radio, satellite phone, and other devices. Communication with stakeholders and the public should be both transparent and timely. Other means of communicating with the public and the news media should be established, such as announcements, handouts, postings, traditional media, and web-based and social media.

State, regional, and local EMS agencies, as well as PSAPs (dispatch or call centers), should utilize interoperable and redundant systems to communicate with each other. The system should be able to access EOCs, hospitals, and law enforcement and public health entities.

To facilitate better communications among organizations, the state EMS office, regional and local EMS agencies, and medical directors need to understand the roles and functions of the SDMAC, state EMS medical director, state health officer/commissioner, regional medical coordination centers, regional call centers, regional EMS or trauma advisory committees, and local agencies and resources, and how information is received from or communicated to these bodies.

Function 6. Coordination. The state EMS office should understand how to request interstate assets through the EMAC process, as well as how to request medical and other assets through the federal coordinating center for the ASPR/National Disaster Medical System (NDMS). Through the planning process and in cooperation with the state EMA and state health department, the state EMS office should know how to integrate these outside assets with existing resources. The ability to utilize an electronic incident management system may be beneficial in tracking assets and patients. All stakeholders should be familiar with the incident management system, using it daily and exercising its capacity to manage assets and patients during a disaster. Therefore, it is essential for state and local EMS agencies to understand the authority, scope, and jurisdiction for all response organizations within a region and how they interface within the ICS during a CSC incident.

Function 7. Public Information. All EMS system providers and stakeholders need to be proactive in communications to the public (see Chapter 9). The state EMS office and local EMS agencies, utilizing the ICS, should ensure risk communication and consistent messaging to the public via the media. The public may need to receive instructions, coordinated through the state, on how to care for patients at home, where to seek alternate care, how to call a referral center, and what limitations may be set on EMS response.

With the implementation of the ICS, all stakeholders within the emergency health care system should coordinate information with other response organizations through the joint information system (JIS) and JIC to ensure accuracy and consistency of messaging.

Function 8. Operations. As discussed at the beginning of this chapter (and in greater detail in Chapter 2), there are three levels of emergency care: conventional, contingency, and crisis. Medical direction for determining which level of care to provide is essential for EMS personnel. Each level of care requires that stakeholders understand their roles and what strategies to implement and protocols to follow.

With *conventional care*, it is important for the state EMS office, regional infrastructure, and local EMS providers to understand their roles and authority in providing routine care through medically approved triage, treatment, and transport protocols and the use of normal modes of transportation, staffing, and equipment, including mutual-aid resources.

When *contingency care* is necessary, local EMS providers deploy and engage mutual-aid agreements/operations and response plans to substitute, conserve, and adapt staffing, transportation, patient triage, and destinations while still providing medical care that is functionally equivalent to conventional care.

When *crisis care* is required, EMS providers activate mass casualty and surge capacity plans/strategies that include reuse and reallocation of supplies, alternate modes of transportation (buses), sheltering in place and transport to alternate care sites, modification of the ambulance staffing configuration (one medical person and a driver), use of medically approved protocols for patient care based on established triggers in the CSC plan, dispatch screening protocols, regional call centers to assist with coordination of assets and patient destinations, treatment and release of patients under specific guidelines, and 211, 311, and other call centers (e.g., nurse call centers). Under CSC, the state EMS office and local EMS providers should understand and know how to declare and operate under emergency orders to facilitate the provision of sufficient care. As with conventional and contingency care, it is critically important during CSC to coordinate with regional health care coalitions to ensure a common operating picture and coordinated care delivery strategies.

Within the medical branch of the ICS, the state EMS office should understand when to shift from contingency to crisis care based on the assessment and recommendation of the SDMAC and should know how to identify specific needs of response organizations and resources at risk. This includes understanding the process for requesting resources and coordinating these resources with federal partners and regional and local response organizations.

The state EMA may activate the state EOC and the crisis care annex of the emergency operations plan. The state EMS office and state health department should understand their roles and how to utilize the expertise of the SDMAC. Agency responsibilities may include waivers of regulatory standards for transportation and staffing modes, activation guidelines and triggers, medical records, and triage decisions.

Mental health care under CSC will require specific competencies of mental health, social services, and health care staff (discussed in the mental health section of Chapter 4). Efforts also will be required to enhance community resilience through “neighbor-to-neighbor, family-to-family” support systems (such as certain psychological first aid models created specifically for use by community members). The resilience of the health care workforce, including those in EMS, is paramount to the success of the CSC strategy.

One-shot, one-size-fits-all approaches, such as some stress debriefing once common in EMS, are no longer recommended and may result in exacerbating the mental health problems of those most affected by a disaster (Bisson et al., 1997, 2007; IASC, 2007; McNally et al., 2003; NIMH, 2002). The

replacement for those outmoded approaches is more integrated efforts to enhance the resilience of the workforce specifically with respect to mass casualty events, including CSC, as part of CSC preparedness (Schreiber and Shields, 2012).

EMS incident command operations need to encompass integrated mental health care as part of overall ICS/EOC and medical/health operations. Recent models developed for Los Angeles County, Seattle/King County, the American Red Cross's National Operations Center/Disaster Mental Health, and a new national prototype specifically for children utilize real-time situational awareness of triage/mental health risk in patients/disaster victims and responders (including health care workers, EMS workers, and their families) across varied disaster systems of care (e.g., hospitals, schools, shelters, public health settings) to guide actual mental health operations within the ICS (Schreiber et al., in press). Other recommended features include a common operating picture of

- population-level mental health risks (traumatic loss, multiple traumatic losses) using a common rapid mental health triage system across disaster systems of care, including EMS;
- mental health risk among EMS and health care workers; and
- mental health resources, including emerging national models of Internet-based intervention (Ruggiero et al., 2006).

Addressing the social and psychological challenges of CSC requires a triage-driven mental health incident management system and community resilience efforts through community engagement (see Chapter 9). Also required are basic “neighbor-to-neighbor, family-to-family” psychological first aid competencies that leverage the community, responders, and family members as the first line of psychosocial support (see the American Red Cross’s “Coping in Times of Crises” and the “Listen, Protect and Connect” psychological first aid models).

The state and local CSC response should encompass *palliative care*. The state EMS office, with medical direction, should define the role of EMS personnel in providing symptomatic management for patients needing palliative care and should provide the necessary training and resources for EMS personnel (San Francisco Emergency Medical Services Agency, 2011). State and local medical directors should address palliative care in the CSC annex of the emergency operations plan, including triage tools and any agency-specific protocols or policies (which should be approved by medical directors at the state agency level).

Function 9. Logistics. At the state, regional, and local levels, it is important to know about the available *staffing resources* within jurisdictions and to utilize established processes for requesting and allocating the workforce (Medical Reserve Corps [MRC]; Emergency System for Advance Registration of Volunteer Health Professionals [ESAR-VHP]; state strike teams; NDMS teams; military/National Guard personnel, including ambulances). The state EMS office and local EMS providers should have the capability to assess the number of staff available for large-scale incidents, possibly through personnel rosters, licensing/certification databases, or personnel registries.

Local EMS agencies, through regional and state infrastructures, should utilize a resource monitor-

ing system to track staffing resources and understand when to activate mutual-aid agreements or alternate staffing patterns. Ambulance supervisors must be able to ensure that call-back criteria and policies are in place, including maintenance of current and accurate employee contact information. This is a function for state EMS office response staff as well.

Finally, state EMS offices and regional and local EMS providers should ensure that their staff receive personal preparedness training to assist with family needs and are prepared for on-site accommodation of staff and family members, as appropriate.

The management of *transportation* resources, such as ambulances, and essential *equipment* is a key logistical element of the EMS response to a CSC incident. Therefore, the state EMS office should conduct an assessment of the types and locations of EMS transportation and equipment resources available within the state and know how to request resources from other jurisdictions (through EMAC, the federal ambulance contract, the NDMS, medication caches, all public and private ambulance providers, equipment trailers). The state EMS office, regional EMS infrastructure, and local EMS agencies should utilize a resource tracking or deployment system to monitor the availability of ambulances and understand when to engage other modes of patient transportation. The state EMS office and local EMS agencies, with medical direction, should work together to identify strategies for appropriate substitution, conservation, adaptation, reuse, and reallocation of scarce equipment and supplies.

In a CSC response, *space* for treating patients in hospitals will become extremely limited. EMS providers play a key role in triaging patients and can reduce the burden placed on hospitals during a disaster. Therefore, and consistent with alternate care site planning under way through the Hospital Preparedness Program, the state EMS office and local EMS providers need to understand when to initiate plans to transport patients to alternate care sites and the processes for requesting and allocating such space. They need to be able to recognize when to activate alternate call centers to provide information to the public (such as 211 or nurse triage centers); implement treat-and-release protocols; and identify regional staging areas for use when major mutual aid will be required but specific assignments are not yet available, and understand support requirements for those sites.

The state EMS office should also assist with dispatcher training and certification and establish standards for medical priority dispatch systems that can be modified for use during a disaster. Dispatch centers should not only be capable of using prearrival instructions on a daily basis but also be prepared to utilize CSC dispatch protocols and alter resource assignments.

Finally, the state EMS office and local EMS providers, through state and regional advisory committees/councils and medical directors, should identify *special populations*—patient groups requiring special consideration with respect to transportation, treatment, equipment, and supplies. EMS personnel must be trained in managing children, the elderly, burn patients, special-needs patients, and non-English-speaking patients. Not only should EMS personnel be trained in and exercise these skills, but equipment and supplies should be readily available to support the needs of these at-risk populations. This work should be coordinated with local health departments and emergency management.

Function 10. Planning. The state EMS office may be assisting the state health department as the lead ESF-8 agency. It is important for the state EMS office’s ICS to understand how to interface with unified ICS, in particular the planning section and planning cycle, as well as how to work with the SDMAC, as technical experts, in activating the CSC plan and other strategies. Local EMS agencies should be familiar with the SDMAC and its role in determining the activation of the CSC plan. Additional technical specialists and state, regional, and local medical directors should understand how to interface with the ICS and planning section.

In collaboration with existing regional structures, state and local EMS agencies should establish policies and procedures to integrate external staffing resources (MRC, ESAR-VHP, state strike teams, disaster medical assistance team [DMAT]) during a disaster based on mutual-aid agreements, EMAC, the NDMS plan, the emergency operations plan, and appropriate annexes. To this end, they should develop an educational program and materials to orient external staffing resources on local, regional, and state triage and treatment policies and applicable elements of the state CSC plan.

Through established state and regional advisory committees, state and local EMS providers should develop policies for *personnel management*, such as altered staffing configurations, shift lengths, and staff roles, and address any collective bargaining issues that may arise prior to an incident. This phase of planning provides an opportunity to address issues related to workforce unions and private EMS providers. In addition, the need for nonmedical assistance for families, volunteers, and external staffing resources within the state should be addressed in regional and local emergency operations plans.

Function 11. Jurisdiction, Scope, Authority, and Legal/Regulatory Issues. Since most state EMS offices have the scope, jurisdiction, and authority to support disaster planning and to coordinate a medical response to a disaster, it is essential for the state EMS office and public EMS providers to examine the scope and delegation of authority to incident commanders during a disaster and make any necessary changes to ensure that CSC decisions are supported (i.e., that the incident commander is acting with the authority of the agency/jurisdiction). Similarly, it is important that state public health and EMS officials understand the impact of state and local laws and regulations on the ability of EMS providers to implement CSC and identify solutions to likely obstacles. During a crisis, policy makers may require additional communications and coordination with the incident commander, and the structure of the ICS will most likely be a unified command.

EMS Personnel Functions

It is important for not only state EMS offices, regional infrastructure, local EMS agencies, and dispatch centers but also individual personnel to be prepared to respond to a CSC incident. This template therefore provides basic functions for EMS personnel in response to a CSC incident, including having an understanding of the ICS, plans, protocols, communications systems, mutual-aid agreements, disaster triage, mental health training, and legal obligations and liabilities.

Function 1. Notification. It is critical that EMS personnel understand how their roles and responsibilities during CSC implementation may differ from the routine. To ensure efficient notification at the time of a disaster requiring CSC, all contact information and means of communication (e.g., telephone, text

messaging) should be up to date, and regular exercises in incident messaging should be conducted by EMS in coordination with all the relevant stakeholders.

Function 2. Command, Control, Communications, and Coordination. It is important that EMS personnel understand how to execute their individual roles—including to whom and where they should report, how to request resources, and how to use backup communications systems—prior to the implementation of CSC. Routine training and exercising of each role in the command structure can improve knowledge of the triage protocols, alternate resources, and staffing provided for by the CSC plan.

Function 3. Public Information. EMS personnel should know of all potential sources of information in a disaster and key contacts within each to facilitate efficient bidirectional communications and situational awareness.

Function 4. Operations. To ensure appropriate and timely transitions from conventional to contingency to crisis care, it is important that EMS personnel understand how to utilize their organizational resources—resource management system, disaster triage protocols, mass casualty plans—to assess available resources for a disaster situation and evolving needs for those resources. When a disaster has overcome organizational resources, EMS personnel should know when and how to activate mutual-aid agreements and set up and operate EOCs. It is important to train in and exercise operations within a unified ICS command structure so these personnel will be able to determine solutions for challenges that may arise during a disaster outside of the pressures of a real, unfolding incident.

Function 5. Logistics. To maintain situational awareness and consistency in applying CSC, it is important that individual EMS personnel maintain routine familiarity with backup *communications* systems; interoperable systems that interface with other first responders; and systems that track patients and resources in real time, whether web-based or in hardcopy format.

Because *staffing* issues, as discussed above, are critical to EMS agency functions during a disaster response, individual staff should understand and have appropriate expectations for the impact a disaster may have on the duration of their shifts and the potential ways in which their roles may change (expand or contract) at different phases of CSC implementation.

While EMS agencies should manage *transportation* (e.g., ambulances) and *equipment* resources and *supplies* on broad scale, individual EMS personnel are responsible for knowing how and from where to access additional assets. When resource demand outstrips availability such that all additional assets have been exhausted, EMS personnel should know how to allocate scarce resources using CSC protocols (including palliative care protocols if applicable).

Function 6. Mental Health. Disasters that require CSC can significantly impact the mental health of both responders and the affected public. As EMS personnel operate at the front lines of response, they should be instructed in how to recognize normal and abnormal stress responses, and know how to access mental health support for themselves and their patients.

Function 7. Legal Issues. EMS personnel will be better able to respond to a disaster if they are sure of their legal responsibilities and protection with regard to implementing CSC. A component of this awareness is an understanding of how and by whom a disaster is declared, and of their obligations and liabilities in providing care in traditional (in ambulances) and nontraditional (alternate patient care) settings.

Template 6.1. Core Functions of EMS Systems in the Development of State Crisis Standards of Care (CSC) Plans



Function 1. Assess Jurisdictional Authority and Planning Resources

State and Regional/Local Tasks

State Task 1

State EMS office participates with the state lead agencies responsible for CSC planning and implementation (state health department/emergency management agency [EMA]) in assessing the scope, jurisdiction, and authority of existing state and regional EMS infrastructure for CSC planning and implementation:

- advisory committees,
- regional trauma/EMS advisory councils/committees, and
- health care coalitions.

State Task 2

State EMS office, in collaboration with the state health department, EMA, and legal counsel, develops an inventory of applicable federal, state, and local legal and regulatory authorities and protections, including those related to EMS personnel and provider agency liability, licensing, credentialing, and mutual aid agreements. Includes

- understanding how authorities and protections can be used to facilitate CSC strategies and identifying gaps to be addressed for revision of the plan, including EMS agency licensing, operations (e.g., staffing, advanced life support [ALS]/basic life support [BLS] licensure), and dispatch center operations; and
- state and local medical directors examining regulatory implications with respect to changing dispatch protocols, ambulance staffing, scope of practice, treat-and-release policies, destination policies, and disaster triage decisions.

Notes and Resources

Guidance for Establishing Standards of Care for Use in Disaster Situations: A Letter Report (IOM, 2009b)

Preparedness and Response to a Rural Mass Casualty Incident: Workshop Summary (IOM, 2011)

Crisis Standards of Care: Summary of a Workshop Series (IOM, 2009b)

Principles of EMS Systems (ACEP, 2005)

Medical Surge Capacity and Capability: A Management System for Integrating Medical and Health Resources During Large Scale Emergencies (HHS, 2007)

EMS Incident Response and Readiness Assessment (EIRRA) (NASEMSO, 2011a)

Model Trauma Systems Planning and Evaluation Guide (HRSA, 2006)

State Emergency Medical Services Systems: A Model (NHTSA, 2007b)

State and Regional/Local Task 3

State EMS, regional infrastructure, and local EMS agencies identify and review existing state, regional, and local surge capacity, mass casualty, and CSC plans. Includes

- identifying gaps in the state/regional/local plans;
- reviewing after-action reports from previous functional exercises addressing surge capacity and CSC needs;
- searching resources from other states and national organizations (see the “Notes and Resources” column);
- identifying at-risk populations for inclusion in EMS CSC planning (refer to the EMS for Children program); and
- identifying and reviewing resource documents that may assist state, regional, and local EMS agencies in assessing CSC needs and developing CSC plans.

Operational Considerations During Pandemic Events: A Guide for State, Local, and Tribal Governments (FEMA, 2009)

Terrorist Injuries: Information and Dissemination Exchange Project (CDC, 2009)

State, regional, and local surge capacity plans

State, regional, and local mass casualty plans

Pre-arrival dispatch instruction protocols

State EMS statute and regulatory standards

Emergency Medical Assistance Compact (EMAC) and mutual-aid agreements

Area National Disaster Medical System (NDMS) and Metropolitan Medical Response System (MMRS) plans

EMS Pandemic Influenza Guidelines for Statewide Adoption (NHTSA, 2007a)

Resources for Optimal Care of the Injured Patient: 2006 (ACS, 2006)

State, regional, and local emergency operations plans

Function 2. Development of Consistent and Comprehensive Plans Under the State Disaster Medical Advisory Committee (SDMAC) Structure

State and Regional/Local Tasks

State Task 1

State EMS office establishes a state-level, multidisciplinary, and transparent EMS crisis care workgroup of the SDMAC) to draft portions of the state CSC plan pertaining to the provision of EMS. The workgroup's representation may include

- state health department/Emergency Support Function (ESF)-8 lead for consistency with SDMAC efforts;
- state EMS agency;
- regional EMS/trauma advisory committee;
- regional health care coalition representatives;
- state/local EMA;
- hospital specialty care (trauma, burn, poison control, pediatric);
- EMS agencies (urban, rural, private, and public providers);
- state EMS medical director and regional/agency directors;
- call center and dispatch center personnel;
- additional health care expertise (if applicable, regional medical coordination center or regional DMAC, local clinical care committee and triage team, private practitioners, community clinics, long-term care facilities, medical associations, hospital associations, professional health care associations, and mental health agencies and providers [including American Red Cross Disaster Mental Health]);
- EMS legal counsel; and
- EMS for Children.

State and Regional/Local Task 2

State EMS office, regional infrastructure, and local EMS agencies outline state and local EMS agency roles, responsibilities, and actions. Includes

- identifying when to activate CSC plans (indicators and triggers, process);
- establishing a CSC component activation and notification process;
- identifying how stakeholders will collaborate with state and federal partners;
- identifying communications and monitoring systems that support resource distribution and allocation;
- identifying strategies and processes for situational awareness; and
- ensuring that private-sector entities are included in planning efforts and identifying their roles.

State and Regional/Local Task 3

State EMS office, regional infrastructure, and local EMS agencies ensure connectivity and uniformity with regional advisory committees/councils and other regional resources. Includes

- ensuring consistent disaster triage policies;

Notes and Resources

This group may be a subcommittee of an existing advisory committee.

Refer to Template 5.1 in Chapter 5.

- addressing modified pre-arrival instructions and deferral of service or modified resource assignment; and
- integrating call centers, poison control centers, 211 centers and “ask a nurse” resources into CSC plans.

State and Regional/Local Task 4

State EMS office, regional infrastructure, and local EMS agencies identify clinical and administrative triggers for activation of the CSC plan. Includes

- considering critical infrastructure disruption;
- addressing the doubling of EMS and 911 call volume (or routinely pending calls with potentially life-threatening complaints);
- considering the failure of contingency plans to accommodate call volumes; and
- understanding the transitions from conventional to contingency to crisis standards of care and administrative and operational changes implemented at each level.

State and Regional/Local Task 5

State EMS office, regional infrastructure, and local EMS agencies consider aspects of palliative care in CSC plans. Includes considering the role of EMS in the provision and facilitation of palliative care, especially in prolonged incident, including necessary education and resources.

State and Regional/Local Task 6

State EMS office, regional infrastructure, and local EMS agencies integrate mental health response into CSC plans. Includes

- engaging and integrating existing mental health care resources in CSC planning and implementation to develop a mass casualty/ CSC mental health concept of operations (CONOPS);
- training EMS personnel in mass casualty variant of psychological first aid that includes rapid mental health triage; and
- providing a comprehensive EMS responder resilience system for mental health support for all EMS personnel that includes pre-event stress inoculation, personal resilience planning, and triage/self monitoring of responder stress.

State and Regional/Local Task 7

State EMS office, regional infrastructure, and local EMS agencies ensure that CSC planning at all levels

- establishes clear lines of authority and roles and responsibilities of stakeholders (e.g., state health department, local health departments, state EMA, local EMAs, EMS, health care, federal partners);
- identifies processes for coordinating and facilitating resource requests and allocations (e.g., defines role of state EMA in managing requests and allocations within and across states and with federal assets);
- promotes collaboration with federal partners (e.g., Department of Health and Human Services [HHS]/Office of the Assistant Secretary for Planning and Response [ASPR]) and consistency

in scope of care for federally-deployed ESF-8 assets (i.e., across federal teams and with the state and local entities these federal teams support);

- integrates incident command system principles; and
- ensures inclusion of EMS-specific CSC into state and regional plans as extension of mass casualty or surge capacity planning.

Function 3. Stakeholder and Public Engagement

State and Regional/Local Tasks

State and Regional/Local Task 1

State EMS office may assist the state health department and the SDMAC in engagement with local EMS stakeholders on CSC planning. Regional and local EMS stakeholders

- understand their role in CSC planning and implementation;
- understand the role of local health care stakeholders in CSC planning and implementation;
- understand state CSC processes;
- understand applicable federal, state, and local legal authorities; and
- have the opportunity to review and provide comments on the draft state CSC plan.

Regional/Local Task 2

Regional infrastructure and local EMS stakeholders interface with local health care facilities and local health departments/public health agencies to ensure congruency of assumptions and plans.

State Task 3

To engage the public (including at-risk populations), state EMS office may participate with the state health department and SDMAC to

- coordinate, conduct, and prepare findings on public engagement to help inform the public about the state CSC plan;
- share public engagement findings with regional and local EMS stakeholders to assist them in the development of local and regional CSC policies and plans; and
- make the draft state CSC plan, with the EMS component, available for public review and comment.

State Task 4

State EMS office reviews the EMS component of the state CSC plan with applicable public officials (and/or their senior staff) within the state and informs them of their roles in a CSC response.

State Task 5

State EMS office ensures that legal authorities are described appropriately in the plan and that recommended actions in the plan are in accordance with applicable federal, state, and local laws and regulations.

Notes and Resources

See Chapter 9 for a detailed discussion of public engagement.

See Template 5.1 in Chapter 5.

See Chapter 3.

Function 4. Monitoring, Evaluation, and Modification of the CSC Plan

State and Regional Task 1

State EMS office and regional infrastructure partner with state and regional EMAs to integrate the state CSC plan into appropriate emergency operations plan (ESF-8 Public Health and Medical Annex) and the state surge capacity plan/annex or other state emergency response plan with EMS-specific information, as applicable.

State and Regional/Local Task 2

State EMS office and regional infrastructure notify EMS stakeholders of plan adoption and strategies to be utilized.

State Task 3

State EMS office notifies intrastate (regional advisory committee and local EMS committees) and interstate EMS partners, as appropriate, of the adoption of the state CSC plan and distributes the plan to them to promote consistency and transparency in CSC planning and response efforts. State EMS offices informs applicable federal partners with EMS-relevant responsibilities (e.g., HHS regional emergency coordinators) of plan adoption and strategies or likely resource requests that would involve their personnel (e.g., national ambulance contract).

State and Regional Task 4

State and regional infrastructure make public versions of state and regional CSC plans available on the state EMS or other applicable website for public access. State EMS office and regional infrastructure conduct an awareness campaign throughout the state to inform stakeholders about the state CSC plan and processes.

State and Regional/Local Task 5

State EMS office, regional infrastructure, and local EMS agencies ensure that state, regional, and local EMS components of the overall CSC plan are operational, up-to-date, and ready for activation. Includes

- conducting regular education with EMS stakeholders, and as appropriate, public officials and the public regarding the plan and its implementation;
- tracking developments in EMS CSC planning and guidance (within and external to the state);
- conducting tabletop and functional exercises involving the EMS component of the CSC plan at the state, regional, and local levels;
- reviewing and updating the EMS component of the plan on a regular (annual or more frequent) basis, as needed;
- soliciting input from EMS and other stakeholders and the public about the plan, including continuing to conduct public engagement activities; and
- notifying EMS and other stakeholders and the public, as necessary, of any substantive changes to the plan.

Template 6.2. Core Functions of EMS Systems and EMS Personnel in the Implementation of CSC Plans



Function 1. Assessment and Activation

State Task 1

State EMS office, in collaboration with the state public health agency and state emergency management agency (EMA), assumes the role of state EMS lead in collaboration with the state public health agency/ Emergency Support Function (ESF)-8 lead and state EMA. (If the state EMS office is the ESF-8 lead, it follows guidance for state functions and delegates EMS-specific functions below.)

State Task 2

Dispatch/call centers, EMS providers, and state EMS office recognize incident and assess medical needs and the necessity of implementing the state CSC plan.

State Task 3

State EMS office consults with the state disaster medical advisory committee (SDMAC) regarding medical care and policy issues.

State Task 4

State EMS office, in collaboration with the SDMAC, activates/authorizes implementation of the EMS component of the state CSC plan based on triggers identified in the plan.

Regional/Local EMS and Dispatch Center Task 5

Regional/local EMS and dispatch centers understand when to initiate jurisdictional CSC plans based on local and regional emergency response plan triggers and the state CSC plan

Notes and Resources

State EMS office and local EMS providers, in collaboration with the state public health agency, regularly test the triggers in the CSC plan.

State EMS office has a mechanism in place for ready access to the SDMAC.

Function 2. Alerts and Notifications

State and Regional/Local Task 1

State EMS office utilizes the statewide integrated communications system to provide and receive timely alerts during a CSC incident.

State Task 2

State EMS office establishes redundant and interoperable communications systems in case a disaster affects routine communications systems.

Regional/Local Task 3

Regional infrastructure and local provides understand what actions to take when state EMS office or lead ESF-8 agency sends notifications about a crisis or potential crisis situation.

Notes and Resources

All EMS system stakeholders routinely test the notification system and redundant systems and develop predefined alert messages.

Regional/Local Task 4

Regional infrastructure and local providers understand when to request that the state ESF-8 lead agency activate/authorize CSC strategies.

Public Safety Answering Points (PSAPs) and Call Centers Task 5

PSAPs and call centers understand when to send alert messages to stakeholders if the CSC plan is anticipated, activated, and terminated.

Function 3. Command

State and Regional/Local Task 1

State EMS office implements the incident command structure (ICS) within affected jurisdictions. Includes

- ensuring that command staff are trained and have exercised the use of alternate care sites, transportation modes, and staffing configurations (and other crisis adaptations) according to local/regional plans;
- ensuring that command staff are well versed in incident action planning and how to incorporate appropriate technical experts (such as the SDMAC) into the planning process for long-term incidents; and
- ensuring that appropriate resources (job aids) are available to guide capacity expansion decisions as needed.

State Task 2

All stakeholders understand the ESF-8 role in CSC incident and how the chains of command of the state emergency operations center (EOC) and agency internal operations center coordinate the development, communication, and implementation of new CSC strategies in response to incident-specific demands.

Notes and Resources

Refer to National Incident Management System (NIMS) and CSC plans.

Refer to the committee's letter report (IOM, 2009b) for information on the SDMAC.

State EMS office works closely with the state EMA to regularly exercise operations of the jurisdictional EOCs.

Function 4. Control

State and Regional/Local Task 1

State EMS office understands how to request additional resources and integrate requested assets within existing resources. Involves

- jurisdictions, regional structures, and local emergency management and public health systems;
- regional hospital coalitions and regional EMS/trauma committees/councils;
- federal partners (Department of Health and Human Services [HHS]/Office of the Assistant Secretary for Planning and Response [ASPR], Federal Emergency Management Agency [FEMA], National Disaster Medical System [NDMS], Department of Homeland Security [DHS]);
- the Emergency Management Assistance Compact; and
- multistate regional coalitions.

Notes and Resources

Refer to the NDMS resources available through HHS and the availability of ambulance resources through the federal contract with American Medical Response.

State, regional, and local EMS medical directors strive for standardization

Regional/Local Task 2

State EMS office ensures that EMS providers utilize triage, treatment, transport, and transfer protocols approved by the medical director within the response area as required during a CSC incident.

Regional/Local Task 3

Regional EMS infrastructure and local EMS agencies work in cooperation with local law enforcement and understand the EMS options for security and access controls during a disaster.

of protocols to foster consistency for patient care across jurisdictional boundaries or service areas.

Function 5. Communications

State Task 1

State EMS office ensures real-time exchange of information among stakeholders to assess the magnitude of the incident and evaluate ongoing resource needs and requests.

State and Regional/Local Task 2

State EMS office ensures that policies and procedures are in place to provide and receive situational communications among staff, facilities, and agencies within the affected region, including by the following means:

- e-mail, text messaging, paging, telephone, amateur radio, satellite phone, and other devices;
- announcements, handouts, postings, and traditional media; and
- web-based and social media.

State, Regional/Local, and Dispatch Center Task 3

All stakeholders ensure that interoperable and redundant systems exist to communicate with

- local EMS and dispatch centers,
- EOCs (emergency management),
- the regional medical multiagency coordination center (as applicable),
- hospitals and alternate care facilities in the area,
- federal partners,
- law enforcement,
- other appropriate state agencies (e.g., department of mental health),
- local public health agencies, and
- neighboring states.

State and Regional/Local Task 4

State EMS office, regional and local EMS agencies, and medical directors understand the roles and functions of the SDMAC, state EMS medical director, state health officer/commissioner, regional medical coordination center, regional call centers, and regional EMS or trauma advisory committees and how information is received or communicated to these bodies.

Notes and Resources

Refer to the National Highway Traffic Safety Administration's (NHTSA's) EMS Pandemic Influenza Guidelines for State Adoption (NHTSA, 2007a).

Refer to the Pandemic Influenza Appendix of the Hennepin County EMS Council regarding telephone triage, call centers, and protocols (Hennepin County, 2009).

Refer to the Maryland Institute for Emergency Medical Services Systems (MIEMSS) website regarding disaster protocols.

Refer to safecom.gov for assistance with interoperable communications systems.

Implementation of CSC is exercised regularly to ensure understanding of roles.

Function 6. Coordination

State Task 1

State EMS office understands interstate assets and Emergency Management Assistance Compact (EMAC) process, as well as NDMS capabilities, and, in cooperation with the state EMA and state health department, how to integrate outside assets with existing resources.

State and Regional/Local Task 2

State EMS office implements available electronic incident management and patient tracking systems to manage assets and track patient movement.

State and Regional/Local Task 3

State and local EMS agencies understand the authority, scope, and jurisdiction for all response organizations and how they interface within the ICS during a CSC incident.

Notes and Resources

See <http://emacweb.org> for the Emergency Management Assistance Compact.

See the ASPR/NDMS website for resources.

Function 7. Public Information

State and Regional/Local Task 1

Through the ICS, state EMS office and local EMS agencies ensure appropriate risk communication and consistent messaging to the public via the media, as well as organization-/agency-specific means (website, calling programs, e-mail, social media) regarding use of 911 and EMS resources, when EMS should be called, limitations on response, etc.

State and Regional/Local Task 2

All stakeholders in the emergency health care system coordinate information with other response organizations through the joint information system (JIS) and joint information center (JIC).

Notes and Resources

Organizational public information officers (PIOs) are familiar with CSC plans and triggers.

Where possible, scripts are developed to address CSC implementation.

Refer to Public Information Overview: Joint Information (FEMA, 2012).

Function 8. Operations

Conventional Care

State and Regional/Local Task 1

All EMS stakeholders understand their roles and authority in providing routine care through medically approved triage, treatment, and transport protocols and using normal modes of transportation, staffing, and equipment, including mutual-aid resources.

Notes and Resources

See Chapter 2 for further discussion of distinctions among modes of care.

Contingency Care

State and Regional/Local Task 1

EMS providers expand mutual-aid agreements/operations and response plans to substitute, conserve, and adapt staffing, transportation, patient triage, and destinations while still providing medical care functionally equivalent to conventional care.

State EMS office refers to mapped EMS resources and a resource management system (<http://www.fema.gov/pao/joint.shtm>).

Crisis Care

State and Regional/Local Task 1

EMS providers expand mass casualty and surge capacity plans to include

- reuse and reallocation of supplies,
- alternate modes of transportation (buses),
- sheltering in place and transport to alternate care sites,
- modification of the ambulance staffing configuration (one medical person and a driver),
- use of medically approved protocols for patient care based on established triggers in the CSC plan,
- dispatch screening protocols,
- use of regional call centers to assist with coordination of assets and patient destination,
- treat-and-release protocols,
- 211, 311, and other call centers (e.g., nurse call centers), and
- declarations and emergency orders to facilitate the provision of sufficient care.

Refer to state, regional, and local surge capacity and mass casualty plans.

Medical Care Branch

State Task 1

State EMS office understands when to shift from contingency to crisis care on assessment of a response in progress or recommendation of the SDMAC and knows how to identify specific needs of response organizations and the resources at risk.

State Task 2

State EMS office understands the process for requesting resources and coordinating these resources with federal partners and regional and local response organizations.

State Task 3

State EMA activates the EOC (if not already done) and the crisis care annex that details the role of the SDMAC and waivers of regulatory standards. Includes

- activation guidelines and triggers,
- roles and responsibilities,
- documentation of decisions (medical records and incident documentation), and
- triage protocols and possible decision tools.

Refer to other operational plans such as those for pandemic influenza, regional/area NDMS, mass casualty incidents, and regional/state surge capacity.

Mental Health

State Task 1

State EMS office participates in a rapid mental health triage/incident management system linking local, regional, and state disaster systems of care, including health care facilities and mental health resources, in ICS operations.

State Task 2

State EMS office provides for access to a continuum of evidence-based mental health interventions for adults and children.

Regional/Local Task 3

Regional infrastructure and local public and private EMS agencies provide training in basic “neighbor-to-neighbor, family-to-family” psychological first aid for the general public and health care workers that includes triage.

Region/Local Task 4

Regional infrastructure and local public and private EMS agencies provide CSC-specific behavioral coping components in risk communications.

State and Regional/Local Task 5

All stakeholders complete a CSC gap analysis with plan to enhance local disaster mental health and spiritual care capacities and capabilities.

Regional/Local Task 6

Regional infrastructure and local public and private EMS agencies develop a health care worker resilience system with integrated triage and referral components.

Palliative Care

State Task 1

State EMS office, with medical direction, defines the role of EMS personnel in providing symptomatic management for patients needing palliative care and provides the necessary training and resources.

State Task 2

With palliative care experts, state EMS office provides just-in-time training that may be appropriate for EMS personnel, especially in a sustained CSC incident.

Regional/Local Task 3

State and local medical directors address palliative care, if appropriate, in the emergency operations plan, including triage tools and any agency-specific protocols or policies (which are approved by medical directors at the state or agency level).

Refer to the mental health section of Chapter 4 for a more a detailed list of functions and discussion of examples.

Refer to the palliative care section of Chapter 4 for additional information.

Function 9. Logistics

Staffing Resources

State and Regional/Local Task 1

State EMS office, regional infrastructure, and local EMS providers understand available staffing resources within jurisdictions and utilize established processes for requesting and allocating the workforce (Medical Reserve Corps [MRC], Emergency System for Advance Registration of Volunteer Health Professionals [ESAR-VHP], state strike teams, NDMS teams, military/National Guard personnel, including ambulances).

State and Regional/Local Task 2

State EMS office, regional infrastructure, and local EMS agencies utilize a resource monitoring system to track staffing resources and understand when to activate mutual-aid agreements or alternative staffing patterns.

State and Regional/Local Task 3

All stakeholders ensure that call-back criteria and policies are in place, including maintenance of current and accurate employee contact information.

State and Regional/Local Task 4

State EMS office, regional infrastructure, and local EMS providers have the capability to assess the number of staff available for large-scale incidents.

State and Regional/Local Task 5

State EMS office, regional infrastructure, and local EMS providers ensure that staff receive personal preparedness training to assist with family needs and are prepared for on-site accommodation of staff and family members, as appropriate.

Transportation and Equipment Resources

State and Regional/Local Task 1

State EMS office, regional infrastructure, and local EMS agencies conduct an assessment of the types and location of EMS transportation and equipment resources available within the state and know how to request resources from other jurisdictions (through EMAC, the federal ambulance contract, medication caches, equipment trailers).

State and Regional/Local Task 2

State EMS office, regional infrastructure, and local EMS agencies, with medical direction, identify strategies for appropriate substitution, conservation, adaptation, reuse, and reallocation of scarce equipment and supplies.

State/Regional/Local Task 3

State EMS office, regional EMS infrastructure, and local EMS agencies utilize a resource tracking or deployment system to monitor the availability of ambulances and understand when to engage other modes of patient transportation.

Notes and Resources

Refer to NDMS and EMAC websites.

Space

State and Regional/Local Task 1

State EMS office, regional infrastructure, and local EMS providers understand when to initiate plans to transport patients to alternate care sites and the processes for requesting and allocating such space.

State and Regional/Local Task 2

State EMS office, regional infrastructure, and local EMS providers are able to recognize when to activate alternate call centers (such as 211 or nurse triage centers) to provide information to the public.

Regional/Local Task 3

Regional infrastructure and local EMS providers understand when to initiate treat-and-release protocols and processes approved by state and agency medical directors.

Regional/Local Task 4

Regional infrastructure and local EMS providers identify regional staging areas for use when major mutual aid will be required but specific assignments are not yet available, and understand support requirements for those sites.

PSAPs and Call Centers Task 5

PSAPs, regional call centers, and dispatch centers understand when to utilize CSC dispatch protocols and alter resource assignments.

Special Populations

State and Regional/Local Task 1

State EMS office, regional infrastructure, local EMS providers, and medical directors identify patient groups requiring special consideration with respect to transportation, treatment, equipment, and supplies.

State and Regional/Local Task 2

Local EMS personnel are trained and exercised in managing special populations, including pediatric, burn, elderly, and non-English-speaking patients, and purchase and stockpile tools, equipment, and supplies to address special-population needs.

Refer to Maryland emergency medical dispatch (EMD) protocol.

Refer to the Pediatric Emergency Mass Critical Care Task Force supplement (Task Force for Pediatric Emergency Mass Critical Care, 2011). The full-text articles are available free of charge on the Pediatric Critical Care Medicine website.

Function 10. Planning

Disaster Medical Advisory Committee

State Task 1

State EMS office understands how to interface with incident command, in particular the planning section and planning cycle, as well as how to interface with the SDMAC, its role in activating the CSC plan, and other strategies.

State and Regional/Local Task 2

Technical specialists and medical directors understand their interface with command and planning sections.

Notes and Resources

Refer to SDMAC charter and state CSC plan.

Personnel Management

State and Regional/Local Task 1

In collaboration with existing regional structures, state and local EMS agencies establish policies and procedures to integrate external staffing resources (MRC, ESAR-VHP, state strike teams, disaster medical assistance team [DMAT]) during a disaster based on mutual-aid agreements, EMAC, the NDMS plan, emergency operations plan, and appropriate annexes.

State and Regional/Local Task 2

In collaboration with existing regional structures, state and local EMS agencies develop an educational program and materials to orient external staffing resources on local, regional, and state triage and treatment policies and applicable elements of the state CSC plan.

State and Regional/Local Task 3

State and local EMS providers develop policies for personnel management, such as altered staffing configurations, shift lengths, and staff roles, and address any collective bargaining issues that may arise prior to an incident.

State and Regional/Local Task 4

Need for nonmedical assistance for families, volunteers, and external staffing resources is addressed within the emergency operations plan.

Refer to information on the MRC, ESAR-VHP, NDMS, and EMAC on the ASPR and FEMA websites.

Function 11. Jurisdiction, Scope, Authority, and Legal/Regulatory Issues

State and Regional/Local Task 1

State EMS office and EMS providers examine the scope and delegation of authority to incident commanders during a disaster and make any necessary changes to ensure that CSC decisions are supported (i.e., that the incident commander is acting with the authority of the agency/jurisdiction). During a crisis, policy makers may require additional communications and coordination with the incident commander.

State and Regional/Local Task 2

State EMS officials understand the impact of the CSC plan on the provision of patient care within the appropriate jurisdiction, understand state and local laws and regulations that would impact the response organizations' ability to implement CSC, and identify possible solutions.

Notes and Resources

Refer to state and local legal counsel.

Refer to Chapter 2 for a detailed discussion of legal functions.

EMS Personnel Functions

Function 1. Notification

Task 1

EMS personnel understand call-back roles and responsibilities during an incident, including potential roles that may vary from routine, such as ICS positions.

Task 2

EMS personnel ensure up-to-date contact information. Exercises in incident messaging are conducted.

Function 2. Command, Control, Communications, Coordination

Task 1

EMS personnel understand where they report and to whom they answer during a disaster and how to execute their roles.

Task 2

EMS personnel understand how to contact and request resources from dispatch and/or EMS command personnel.

Task 3

EMS personnel undergo training and exercising in their appropriate role in the command structure, including

- knowledge of plans, resources, and actions for the full continuum of care in their jurisdiction, such as use of triage protocols, alternative resources, and staffing; and
- understanding and use of appropriate job action aids to guide decisions and activities based on applicable emergency operations plans.

Task 4

EMS personnel understand and are able to use interoperable communications and backup systems.

Function 3. Public Information

Task 1

EMS personnel know of all potential sources of information in a disaster and key contacts within each (web, Twitter, hotline, etc.).

Function 4. Operations

Task 1

EMS personnel understand how to utilize the resource management system and assess the need to expand from conventional to crisis care and activate the CSC plan.

Task 2

EMS personnel understand when and how to apply disaster triage protocols, the EMS pandemic influenza plan, and mass casualty plans, if available.

Task 3

EMS personnel understand when to activate mutual-aid agreements, the emergency operations center, and the emergency operations plan.

Task 4

EMS personnel undergo training and exercising in their ICS role and are able to function within the unified command or multiagency command ICS structure.

Function 5. Logistics

Communications

Task 1

EMS personnel understand how to utilize interoperable communications systems, backup communications systems, the patient tracking system, and the incident/resource management system (web-based and/or hard copy).

Staffing

Task 1

EMS personnel understand how staffing and hours may change during a disaster.

Task 2

EMS personnel understand how role may be changed/expanded (scope of practice) during crisis, including integration of staffing resources from other jurisdictions.

Task 3

EMS personnel understand how changes in record keeping and other duties may occur in crisis situations (e.g., where to find and how to use paper forms).

Task 4

EMS personnel are aware of changes to treat-and-release protocols.

Transportation, Equipment, and Supplies

Task 1

EMS personnel understand how to access supply caches and trailers from other jurisdictions.

Task 2

EMS personnel understand what to do in case of shortages when crisis plans are in place (shelter in place, reuse supplies, use alternative modes of transportation).

Function 6. Mental Health

Task 1

EMS personnel understand how to access local mental health and employee support resources, including any incident-specific mental health information or resources.

Notes and Resources

The mental health section of Chapter 4 provides a more

Task 2

EMS personnel are aware of the site-based mental health triage system in place for at-risk patients and coworkers and for self-triage.

Task 3

EMS personnel are trained in psychological first aid and integrated, evidence based mental health triage techniques.

detailed discussion of functions.

Function 7. Legal Issues

Task 1

EMS personnel understand their legal obligations and liabilities in providing crisis care in the ambulance and in alternate patient care settings when

- a disaster or public health emergency is declared;
- a disaster or public health emergency has not been declared; and
- they have other disaster relief functions (for example, serving as an MRC or DMAT member).

Notes and Resources

Chapter 3 describes legal issues in depth.

REFERENCES

- ACEP (American College of Emergency Physicians). 2005. *Principles of EMS systems*, 3rd ed., edited by J. A. Brennan and J. R. Krohmer. Irving, TX: ACEP.
- ACS (American College of Surgeons). 2006. *Resources for optimal care of the injured patient*. Chicago, IL: American College of Surgeons.
- AHRQ (Agency for Health Research and Quality). 2009a. *Disaster alternate care facilities: selection and operation*. Publication no. 09-0062. Rockville, MD: AHRQ, <http://archive.ahrq.gov/prep/acfselection/dacfreport.pdf> (accessed February 28, 2012).
- AHRQ. 2009b. *Recommendations for a national mass patient and evacuee movement, regulating, and tracking system*. <http://archive.ahrq.gov/prep/natsystem/natsys.pdf> (accessed February 27, 2012).
- Alcorta, R. 2011. *Crisis standards of care for EMS: State level implementation*. Presentation to the IOM Committee on Establishing Standards of Care for Use in Disaster Situations, Washington, DC.
- Bisson, J. I., P. L. Jenkins, J. Alexander, and C. Bannister. 1997. Randomized controlled trial of psychological debriefing for victims of acute burn trauma. *British Journal of Psychiatry* 171:78-81.
- Bisson, J. I., M. Brayne, F. M. Ochberg, and G. S. Everly. 2007. Early psychosocial intervention following traumatic events. *American Journal of Psychiatry* 164(7):1016-1019.
- CDC (Centers for Disease Control and Prevention). 2009. *TIIDE Project 2009 annual report. Terrorism injuries: Information, dissemination and exchange*. http://www.google.com/url?sa=t&rcrt=j&q=terrorism%20injuries%3A%20information%2C%20dissemination%20and%20exchange%20and%20annual%20report%202009&source=web&cd=1&ved=0CC EQFjAA&url=http%3A%2F%2Fwww.acep.org%2FWorkArea%2Flinkit.aspx%3FLinkIdentifier%3D%26ItemID%3D48532%26libID%3D48561&ei=1hpMT_XOD-b30gG3w8WHDg&usg=AFQjCNGpcUBNIId3b5CW2L77WtL71IKL52Q&cad=rja (accessed February 27, 2012).
- Courtney, B., R. Morhard, N. Bouri, and A. Cicero. 2010. Expanding practitioner scopes of practice during public health emergencies: Experiences from the 2009 H1N1 pandemic vaccination efforts. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 8(3):223-231.
- DOT (U.S. Department of Transportation). 2007. *Preparing for pandemic influenza: Recommendations for protocol development for 9-1-1 personnel and public safety answering points (PSAPs)*. Washington, DC: DOT, <http://www.nhtsa.gov/people/injury/ems/pandemicinfluenza/PDFs/Task%206.1.4.2Lo.pdf> (accessed February 28, 2012).
- FEMA (Federal Emergency Management Agency). 2009. *Operational considerations during pandemic events: A guide for state, territorial, local and tribal governments* (Version 0.01) (July 13, 2009). Washington, DC: FEMA, <http://www.google.com/url?sa=t&rcrt=j&q=operational%20considerations%20during%20pandemic%20events%3A%20a%20guide%20for%20state%2C%20territorial%2C%20local%20and%20tribal%20governments&source=web&cd=1&ved=0CC EQFjAA&url=http%3A%2F%2Fwww.nasemso.org%2FProjects%2FDomesticPreparedness%2Fdocuments%2FCPG70420090713.doc&ei=ALBNT9nAH-rb0QHSoH-Ag&usg=AFQjCNGQf3VkyX3oCVZfqfbKClseAdyA&cad=rja> (accessed February 28, 2012).
- FEMA. 2012. *Public information overview: Joint information center*. Washington, DC: Department of Homeland Security, <http://www.fema.gov/emergency/nims/PublicInformation.shtml> (accessed February 24, 2012).
- Hennepin County. 2009. *Pandemic influenza appendix*. Minneapolis, MN: Hennepin County EMS Council, http://www.hcmmc.org/education/ems/documents/Pandemic_Influenza_Appendix_Approved_4-9-09.pdf (accessed February 24, 2012).
- HHS (Department of Health and Human Services). 2007. *Medical surge capacity and capability: A management system for integrating medical and health resources during large-scale emergencies*, 2nd ed. Washington, DC: HHS.
- HHS. 2009. *Medical surge capacity and capability: The healthcare coalition in emergency response and recovery*. Washington, DC: HHS, <http://www.phe.gov/Preparedness/planning/mscc/healthcarecoalition/Pages/default.aspx> (accessed February 27, 2012).
- HHS. 2011. *START adult triage algorithm*, Washington, DC: HHS, <http://www.remm.nlm.gov/startadult.htm> (accessed February 27, 2012).
- HRSA (Health Resources and Services Administration). 2006. *Model trauma system planning and evaluation*. <http://www.ncdhhs.gov/dhsr/ems/trauma/pdf/hrsatraumamodel.pdf> (accessed March 4, 2012).

- IASC (Inter-Agency Standing Committee). 2007. *IASC guidelines on mental health and psychological support in emergency settings*. Geneva, Switzerland: IASC.
- IOM (Institute of Medicine). *Emergency medical services: At the crossroads (future of emergency care)*. Washington, DC: The National Academies Press.
- IOM. 2009a. *Guidance for establishing crisis standards of care for use in disaster situations: A letter report*. Washington, DC: The National Academies Press.
- IOM. 2009b. *Crisis standards of care: Summary of a workshop series*. Washington, DC: The National Academies Press.
- IOM. 2011. *Preparedness and response to a rural mass casualty incident: Workshop summary*. Washington, DC: The National Academies Press.
- Lerner, E. B., D. C. Cone, E. S. Weinstein, R. B. Schwartz, P. L. Coule, M. Cronin, I. S. Wedmore, E. M. Bulger, D. A. Mulligan, R. E. Swinton, S. M. Sasser, U. A. Shah, L. J. Weireter Jr., T. L. Sanddal, J. Lariet, D. Markenson, L. Romig, G. Lord, J. Salomone, R. O'Connor, and R. C. Hunt. 2011. Mass casualty triage: An evaluation of the science and refinement of a national guideline. *Disaster Medicine and Public Health Preparedness* 5(2): 129-137.
- McNally, R. J., R. A. Bryant, and A. Ehlers. 2003. Does early psychological intervention promote recovery from posttraumatic stress? *Psychological Science in the Public Interest* 4(2):45-79.
- NASEMSO (National Association of State EMS Officials). 2004. *State EMS rural needs survey*. Falls Church, VA: NASEMSO, <http://nasemso.org/Projects/RuralEMS/documents/RuralNeedsSurvey2004.pdf> (accessed February 27, 2012).
- NASEMSO. 2011a. *National EMS Assessment*. Falls Church, VA: NASEMSO, http://ems.gov/pdf/2011/National_EMS_Assessment_Final_Draft_12202011.pdf (accessed February 27, 2012).
- NASEMSO. 2011b. *EMS Incident Response and Readiness Assessment (EIRRA). A self-assessment tool to measure the level of EMS preparedness for responding to a highway mass casualty incident or other large scale emergency. NASEMSO High Mass Casualty Readiness Project*. [http://www.ems.gov/pdf/2011/July2011/8-EMS.Incident.Response-Readiness.Assessment.\(EIRRA\).pdf](http://www.ems.gov/pdf/2011/July2011/8-EMS.Incident.Response-Readiness.Assessment.(EIRRA).pdf) (accessed March 4, 2012).
- National Academies of Emergency Dispatch. 2009. *Pandemic Flu and Protocol 36*. <http://www.emergencydispatch.org/sites/default/files/downloads/flu/AUE%20CC%2036.pdf> (accessed February 27, 2012).
- National Expert Panel on Field Triage. 2012. Guidelines for field triage of injured patients: Recommendations of the national expert panel on field triage, 2011. *Morbidity and Mortality Weekly Report* 61(1):1-21, <http://www.cdc.gov/mmwr/pdf/rr/rr6101.pdf> (accessed February 28, 2012).
- NHTSA (National Highway Traffic Safety Administration). 1996. *EMS agenda for the future*. <http://www.nhtsa.gov/people/outreach/trafftech/pub/tt134.pdf> (accessed February 28, 2012).
- NHTSA. 2000. Emergency medical services: Education agenda for the future: A systems approach. <http://www.nhtsa.gov/people/injury/ems/EdAgenda/final/> (accessed February 27, 2012). NHTSA. 2012. *What is EMS?* Washington, DC: NHTSA, <http://www.ems.gov/emssystem/whatisems.html> (accessed February 13, 2012).
- NHTSA (U.S. Department of Transportation). 2007a. *EMS pandemic influenza guidelines for statewide adoption*. Washington, DC: NHTSA, <http://www.nhtsa.gov/people/injury/ems/PandemicInfluenzaGuidelines/> (accessed February 27, 2012).
- NHTSA. 2007b. *State emergency medical services systems: A model*. Washington, DC: NHTSA, http://www.nasemso.org/documents/modelplandraft_12-31-07_model_document.pdf (accessed February 28, 2012).
- NIMH (National Institute of Mental Health). 2002. *Mental health and mass violence: Evidence-based early psychological intervention for victims/survivors of mass violence. A workshop to reach consensus on best practices*. NIH publication no. 02-5138, Washington, DC: U.S. Government Printing Office.
- Pediatric Emergency Mass Critical Care Task Force. 2011. Supplement, Deliberations and recommendations of The Pediatric Emergency Mass Critical Care Task Force 6. *Pediatric Critical Care Medicine* 12(November 2011 supplement):S103-S179.
- Romig, L. E. 2011. *The JumpSTART Pediatric MCI Triage Tool and other pediatric disaster and emergency medicine resources*. <http://www.jumpstarttriage.com/> (accessed February 27, 2012).
- Ruggiero, K. J., H. S. Resnick, R. Aciermo, S. F. Coffey, M. J. Carpenter, A. M. Ruscio, R. S. Stephens, D. G. Kilpatrick, P. R. Stasiewicz, R. A. Roffman, M. Bucuvalas, and S. Galea. 2006. Internet-based intervention for mental health and substance use problems in disaster-affected populations: A pilot feasibility study. *Behaviour Research and Therapy* 37(2):190-205.
- San Francisco Emergency Medical Services Agency. 2011. Glossary: Definition of Supportive Care. San Francisco, CA: City and County of San Francisco Department of Emergency Management, <http://www.sfdem.org/Modules/ShowDocument.aspx?documentid=794> (accessed February 8, 2012).

- Schreiber, M., and S. Shields. 2012. Anticipate, Plan, and Deter: Building resilience in emergency health responders. Presented at the 2012 NACCHO (National Association of City and County Health Officials) Public Health Preparedness Summit, Anaheim, California.
- Schreiber, M., B. Pfefferbaum, L. Sayegh, and J. Coady. In press. The way forward: The national children's disaster mental health concept of operations. *Disaster Medicine and Public Health*.
- State of Michigan. 2012. *Ethical Guidelines for Allocation of Scarce Medical Resources and Services during Public Health Emergencies in Michigan*. Lansing, MI: Department of Community Health, Office of Public Health Preparedness.
- Whitney, J. R., S. Werner, S. Wilson, N. Sanddal, V. Conditt, P. Sale, C. Mann, J. Nemec, J. J. Jones, G. Sandeno, and D. Hartford. 2010. Rural trauma and emergency medical service challenges in a sample of Western States. *Journal of Trauma Nursing* 17(3):158-162.

ADDITIONAL RESOURCES

- AHRQ (Agency for Health Research and Quality). 2003. *Surge capacity assessments and regionalization issues: Web conference*. <http://archive.ahrq.gov/news/ulp/surge/> (accessed February 27, 2012).
- AHRQ. 2005. *Altered standards of care in mass casualty events: Bioterrorism and other public health emergencies*. Washington DC: AHRQ.
- AHRQ. 2011a. *Mass medical care with scarce resources: The essentials*. <http://archive.ahrq.gov/prep/mmcessentials/> (accessed February 27, 2012).
- AHRQ. 2011b. *Mass medical care with scarce resources: Community planning guide*. <http://archive.ahrq.gov/research/mce/> (accessed February 27, 2011).
- Alson, R. 2011. Impact of 2009 IOM CSC Letter Report: EMS. Presentation to the IOM Committee on Guidance for Establishing Standards of Care for Use in Disaster Situations, Washington, DC.
- AMR (American Medical Response). 2010. *EMS scope of practice, protocols, and medical control and direction for AMR/FEMA federal disaster deployments (Rev. 7/27/2010)*. <http://www.amr.net/Files/PDFs/DRT-References-and-Resources/EMS-Scope-of-Practice-for-AMR-FEMA-Federal-Disaste.aspx> (accessed February 27, 2012).
- ANA (American Nurses Association). 2008. *Adapting standards of care under extreme conditions guidance for professional during disaster, pandemics, and other extreme emergencies*. Silver Spring, MD: ANA.
- Arkansas Department of Health. 2011. *Trauma Section*. Little Rock, AR: <http://www.healthy.arkansas.gov/programsServices/injuryPreventionControl/TraumaticSystems/Pages/default.aspx> (accessed February 28, 2012).
- CDC. 2011. *Public health emergency response guide for state, local, and tribal public health directors (Version 2.0)*. <http://emergency.cdc.gov/planning/pdf/cdcreponseguide.pdf> (accessed February 27, 2012).
- FEMA. 2008. *National Incident Management System (NIMS) Training Program*. <http://www.fema.gov/emergency/nims/index.shtm> (accessed February 28, 2012).
- FEMA Emergency Management Institute. 2011. *Understanding the Emergency Management Assistance Compact (EMAC) E431 student manual: 2011-2011*. Washington, DC: FEMA.
- FICEMS (Federal Interagency Committee for Emergency Medical Services). 2011. *2011 national EMS assessment*. Washington, DC: NHTSA, http://www.nasemso.org/documents/National_EMS_Assessment_Final_Draft_12202011.pdf (accessed January 10, 2012).
- IOM. 2001. *Crossing the quality chasm: A new health system for the 21st century*. Washington, DC: National Academy Press.
- IOM. 2005. *Quality through collaboration the future for rural health care*. Washington, DC: The National Academies Press.
- IOM. 2006. *Committee of the future of emergency care in the US health system*. Washington, DC: The National Academies Press.
- IOM. 2009. *2009 Annual Report. Forum on medical and public health preparedness for catastrophic events*. Washington, DC: The National Academies Press.
- IOM. 2010. *The public health emergency medical countermeasures enterprise: Innovative strategies to enhance products from discovery through approval—workshop summary*. Washington, DC: The National Academies Press.
- IOM and Committee on Pediatric Emergency Medical Services. 1993. *Institute of Medicine report: Emergency medical services for children*, edited by J. S. Durch and K. N. Lohr. Washington, DC: National Academy Press.
- Johnson, K. 2011. Responding before a call is needed. *New York Times*, September 18.
- McCallion, T. 2011. NASEMSO survey provides snapshot of EMS industry. *EMS Insider*, November 15.

- MIEMSS (Maryland Institute for Emergency Medical Services Systems). 2012. *EMS Provider Protocols*. Baltimore, MD: MIEMSS, <http://www.miemss.org/home/default.aspx?tabid=106> (accessed March 5, 2012).
- NASEMSO. 2008. *Consensus report: EMAC and EMS resources for national disaster response*. <http://www.nasemso.org/NewsAndPublications/News/documents/ConsensusReportEMAC-EMSResources.pdf> (accessed February 28, 2012).
- NASEMSO. 2010. *State emergency medical services system models project: Model statutory and regulatory content for state EMS systems*. <http://www.nasemso.org/Projects/ModelEMSPlan/documents/StateEMSSystemModel.pdf> (accessed February 28, 2012).
- NASEMSO. 2011. *Proof of concept for a nationwide highway mass casualty readiness measurement project: Model Inventory of Emergency Care Elements "MIECE"*. Falls Church, VA: NASEMSO, <http://www.ems.gov/pdf/2011/July2011/7-ModelInventory.of.Emergency.Care.Elements.%28MIECE%29.pdf> (accessed February 28, 2012).
- Pepe, P. 2011. Presentation to the IOM Committee on Establishing Standards of Care for Use in Disaster Situations, Washington, DC.
- Sasser, S., M. Varghese, A. Kellermann, and J. D. Lormand. 2005. *Prehospital trauma care systems*. Geneva, Switzerland: World Health Organization.
- Trotter, G. 2010. Sufficiency of care in disasters: Ventilation, ventilator triage, and the misconception of guideline-driven treatment. *Journal of Clinical Ethics* 21(4):294-307.
- U.S. Fire Administration. 2007. *Pandemic influenza: Best practices and model protocols*. http://www.usfa.fema.gov/downloads/pdf/PI_Best_Practices_Model.pdf (accessed February 28, 2012).
- Utah Department of Health. 2009. *Utah EMS pandemic influenza guidelines (approved 10/7/2009)*. http://www.nasemso.org/Resources/documents/Utah_EMS_Pandemic_Flu_Plan_final.pdf (accessed February 28, 2012).
- Utah Hospitals and Health Systems Association for the Utah Department of Health. 2009. *Utah pandemic influenza hospital and ICU triage guidelines*. http://pandemicflu.utah.gov/plan/med_triage081109.pdf (accessed February 28, 2012).



Crisis Standards of Care

A Systems Framework for
Catastrophic Disaster Response

Hospital

INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

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Volume 4: Hospital

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Board on Health Sciences Policy

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The serpent has been a symbol of long life, healing, and knowledge among almost all cultures and religions since the beginning of recorded history. The serpent adopted as a logotype by the Institute of Medicine is a relief carving from ancient Greece, now held by the Staatliche Museen in Berlin.

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Willing is not enough; we must do.”*
—Goethe



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This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We wish to thank the following individuals for their review of this report:

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Acronyms

ARDS	acute respiratory distress syndrome
ASPR	Assistant Secretary for Preparedness and Response
CDC	Centers for Disease Control and Prevention
CSC	crisis standards of care
DMAT	disaster medical assistance team
ECG	electrocardiogram
ECMO	extracorporeal membrane oxygenation
EMS	emergency medical services
EMTALA	Emergency Medical Treatment and Active Labor Act
EOC	emergency operations center
ESAR-VHP	Emergency System for Advance Registration of Volunteer Health Professionals
HICS	hospital incident command system
HIPAA	Health Insurance Portability and Accountability Act
ICS	incident command system
ICU	intensive care unit
IOM	Institute of Medicine
IVIG	intravenous immune globulin
JIC	joint information center
JIS	joint information system
MRC	Medical Reserve Corps
MSOFA	Modified Sequential Organ Failure Assessment

NIMS	National Incident Management System
PACU	postanesthesia care unit
PHEP	Public Health Emergency Preparedness
RDMAC	regional disaster medical advisory committee
SDMAC	state disaster medical advisory committee
SNS	Strategic National Stockpile
SOFA	Sequential Organ Failure Assessment
VA	Department of Veterans Affairs
VAMC	VA Medical Center
VHA	Veterans Health Administration
VISN	Veterans Integrated Service Network

7: Hospitals and Acute Care Facilities

Hospitals and acute care facilities providing acute medical care to the community have a “duty to plan” (Hodge and Brown, 2011)¹ for mass casualty incidents, including planning for the expansion of clinical operations, commonly referred to as surge capacity (Barbera and MacIntyre, 2004; Barbisch and Koenig, 2006; Hick et al., 2004, 2008; Joint Commission, 2008; Kaji et al., 2006). Surge capacity occurs across a continuum that is based on resource availability and demand for health care services (see Chapter 2). One end of the continuum is defined by conventional responses—the maximal utilization of services usually provided in health care facilities; at the other end of the continuum is crisis care, when the care provided is the best possible given the very limited resources available. Along this continuum, significant changes are made in the methods and locations of care delivery, and the focus of decision making shifts from being primarily on individuals to being more population centered. Crisis care planning is a significant deficit in many emergency plans (GAO, 2008).²

An overview of the importance of planning for a tiered approach that utilizes many of the key components of crisis standards of care (CSC) is provided in Chapter 1. This chapter presents the roles and responsibilities of health care facilities in a disaster response and operational considerations entailed in carrying out those roles and responsibilities. It also includes a template detailing the core functions of hospitals and hospital providers in the implementation of CSC. While this chapter is not intended to provide a review of hospital disaster preparedness, there is some overlap because crisis care depends on good underlying plans. Although hospitals providing acute care to the community are the focus of this discussion, other health care facilities—such as free-standing surgery centers, urgent cares, ambulatory clinics, free-standing emergency departments, nursing homes, federally qualified health centers, and other facilities that can be adapted to provide acute or critical care—can play key roles in a surge response and should refer to this chapter, as well as the following chapter on out-of-hospital and alternate care systems.

¹ *Preston v. Tenet Healthsystem Memorial Medical Center Inc.*, no. 05-11709-B-15 (La. Civ. Dist. Ct. settled March 23, 2011).

² This report addresses resource deficits in the setting of disasters, although it should be acknowledged that daily capacity challenges in emergency departments and hospitals may risk patient complications due to capacity issues (Bernstein et al., 2009; IOM, 2006; Maa, 2011).

ROLES AND RESPONSIBILITIES OF HEALTH CARE FACILITIES

Hospitals may be individual facilities, part of a corporate chain, or part of a federal system (such as Department of Veterans Affairs [VA] medical centers or military hospitals). The committee recognizes that it may be very difficult to create policy across institutions located in disparate geographic areas that is consistent with local policy and incidents, as the impact, resources, and cultural or societal expectations associated with an incident may differ.

The committee believes that health system facilities, whether private or public, should be expected to provide care and resources commensurate with what is being provided in the community in which they are located. Thus, if the hospital system has resources in excess of those available in the community, it should allow patients into the system or commit resources to the community to allow equilibration of resource availability. For example, VA resources may be tasked to support the response to civilian disasters under the Stafford Act, or at the discretion of their medical center director may assist the community during a disaster. A VA medical center could potentially offer care to veterans' families, other service-connected personnel, or the general public, depending on resources, or support community facilities with staff or pharmaceuticals.³ The same should be expected of military and other governmental or private health system facilities. This expectation includes a commitment on the part of specialty hospitals (children's, rehabilitation, women's health, cardiac) to provide care or resources to patients outside their usual patient population if an incident otherwise results in underutilization of their facilities and services.

By contrast, if specific groups (e.g., pediatric patients) are disproportionately affected by a disaster, plans should be in place for triaging patients to those facilities most capable of providing specialty care. For example, a recommendation has been made that children's hospitals provide care to those aged 5-8 and under who are most likely to benefit from pediatric specialty care (Christian et al., 2011; Nap et al., 2010). Regional management of access to pediatric intensive care units could have a significant beneficial effect on overall mortality in an incident affecting primarily children (Kanter, 2007). Similarly, regional burn plans in some areas concentrate the most severely burned patients at recognized burn centers, and include relocation of patients from those facilities to make room for burn patients.

For facilities in corporate or government health systems that cross regional planning areas or state borders, close coordination with the community medical advisory committees and the state is critical to ensure that system and local guidelines are as consistent as possible, since identical guidance is unrealistic unless provided at the federal level. Within health care systems, there may be a strong inclination to set incident-related policy at the corporate/national level. While this inclination is understandable, overly specific policies set at this level may conflict with attempts to provide local consistency among institutions. This balance should be considered by those in health system emergency management.

Regional Coordination

The regional resource management illustrated by the pediatric and burn hospital examples above requires active coordination of all disaster response stakeholders. In fact, a regionally coordinated response is impera-

³ *Department of Veterans Affairs Emergency Preparedness Act of 2002*, Public Law 107-287, 107th Cong., 2d sess. (November 7, 2002), 38 U.S.C. § 1785.

BOX 7-1
Key Steps for Veterans Affairs Medical Center (VAMC) Emergency Management Planning

- designate an Emergency Preparedness Coordinator (EPC);
- establish the Emergency Management Committee (EMC);
- develop the all-hazard Emergency Operations Plan (EOP);
- conduct an HVA;
- develop incident specific planning guides;
- coordinate the Emergency Management Program (EMP) with external entities;
- train key staff;
- exercise the EOP; and
- conduct program review/evaluation and plan for improvements.

SOURCE: VA, 2010.

tive to facilitate a consistent standard of care within all affected communities after a disaster. Regional coordination allows the maximum use of available resources; facilitates obtaining and distributing resources; and provides a mechanism for policy development and situational awareness that is critical to avoiding crisis situations and, when a crisis does occur, ensuring fair and consistent use of resources to provide a uniform level of care across the region. Without such coordination, some facilities may be operating with crisis care in effect while others maintain conventional care; coordination can prevent such inconsistencies (Fisher et al., 2011). Box 7-1 highlights the steps that are taken across VA Medical Centers (VAMCs) under their comprehensive emergency management program to ensure that each facility is addressing the needs of emergency planning and response. Box 7-2 describes some of the specific functions by which the medical centers, which are organized regionally within the Veterans Integrated Service Network (VISN) will coordinate in the planning for implementation of crisis standards of care in a catastrophic disaster.⁴ More information on regional coordination and the state and regional roles therein can be found in Chapter 5.

Box 7-3 describes the health coalition model and the success it has had in coordinating regional disaster preparedness efforts (see also Figure 2-5 in Chapter 2). A regionally coordinated health care response effort includes

- coalition or other mutual-aid agreements among hospitals (Box 7-2);
- coordination with local public health, emergency management, and emergency medical services (EMS) to formulate an operational response plan and describe how that plan intersects with agencies and facilities in the surrounding regional area (may include plans for a health and medical coordination center or multiagency coordination center) (Burkle et al., 2007; Maldin et al., 2007);
- communication and information sharing mechanisms and agreements among the above entities; and
- a concept of operations for the allocation of scarce resources:

⁴ After initial distribution of the report, Boxes 7-1 and 7-2 were added to provide more specific information regarding the responsibilities of the VAMC and the VISN.

BOX 7-2
Key CSC Roles and Responsibilities for the
Veterans Health Administration

Key Roles in the Veterans Health Administration (VHA)

Responsibilities in CSC Planning

VAMC

Quadrad Leadership

Medical Center Director

Provide oversight of CSC planning, including specific administrative and clinical response plans; ensure that surge capacity and capability planning is expanded to include CSC principles

Associate Director

Support VAMC participation in local/regional hospital coalition efforts

Chief of Staff

Implement specific medical care planning, including implementation of VHA guidance (see below); provide recommendations for Scarce Resource Allocation (SRA) Team members and Associate Director for Nursing Triage Team members

Emergency Preparedness Coordinator

Help to coordinate administrative support to CSC, including integrating logistics, Pharmacy, HR, Public Affairs, Engineering, Police and Quadrad; present CSC issues at appropriate committee meetings; participate in regional hospital coalition meetings

Veterans Integrated Service Network (VISN)

VISN Director

Ensure consistency in VISN preparations for CSC planning; ensure Medical Center Directors are provided all necessary planning resources, including VHA and other Federal Guidance (IOM)

Area Emergency Manager

Develop CSC plans in context of VHA NDMS responsibilities, including patient reception function; serve as resource support to Medical Center planning efforts

SOURCES: VA, 2006, 2012, n.d.; Veterans Health Administration, 2010.

- o How do local hospitals coordinate and prioritize resource requests?
- o How is regional situational awareness maintained?
- o Who makes allocation decisions if there are not enough supplies to fill the requests?
- o How is regional policy guidance developed for clinical care, and who is responsible?
- o Is there a provision for regional triage or appeals teams?

The incident commander and planning section chief at each health care facility are responsible for ensuring that liaison exists with local public health and other health care facilities and regional coalitions to provide for regional situational awareness and consistency.

During ongoing incidents, hospitals should understand what communication structures are used in

BOX 7-3 **Best Practices: Hospital Coalitions**

Over the past decade, robust regional hospital and health care coalitions have developed that often started as mutual-aid agreements or simply meetings as part of hospital preparedness grant programs. Some are led by an executive director, with hospital administrators serving as the board of directors (Northern Virginia Hospital Alliance); others are led by a public health agency (e.g., King County, Washington) or a consortium of state public health and health departments (Southeastern Regional Pediatric Disaster Surge Network); and still others are led by elected members of the emergency preparedness group (e.g., Minneapolis/St. Paul). These coalitions have been extremely successfully in planning and exercising for disasters, as well as demonstrated operational response functions during actual incidents. Key features of strong coalitions are

- collaborative and invested leadership;
- written agreements specifying how and when the coalition is to be activated and what its delegated responsibilities are;
- a trusted agency or entity to represent the facilities to the emergency management and public health communities;
- collaborative work in concrete response areas (e.g., regional HAZMAT training and planning);
- linkages to cooperative agreements, grants, and programs such as the Hospital Preparedness Program, Metropolitan Medical Response System, Urban Area Security Initiative, and Centers for Disease Control and Prevention's (CDC) Public Health Emergency Preparedness (PHEP) cooperative agreements (notably, the PHEP cooperative agreement has adopted the conventional/contingency/crisis framework for health care surge capacity);
- operational experience in representing or coordinating policy and resources during exercises and incidents; and
- multiagency collaboration and integration with other response partners, ensuring recognition of the coalition as a defined entity within the emergency response framework of the community.

SOURCES: CDC, 2011a; CIDRAP, 2011; County of Santa Clara, 2007; Courtney et al., 2009; King County Health-care Coalition, 2011; O'Toole, 2009; Toner et al., 2009.

their area and how they receive and share information with the state disaster medical advisory committee (SDMAC) and (if operational) the regional disaster medical advisory committee (RDMAC) (IOM, 2009), both of which are expected to provide clinical guidance and policy support to hospitals and public health agencies. The SDMAC membership usually is weighted toward technical experts who can interpret epidemiologic and other incident information to provide clinical and triage guidelines for the hospitals in the state and coordinate with adjacent states to ensure consistency of approaches. The Minnesota Department of Health used its Science Advisory Team (the state's SDMAC construct) to define a rationing strategy for N95 masks that could provide consistency across the state (Minnesota Department of Health, 2009).

In some areas, RDMACs are required where there are geographic areas with unique issues and concerns that require interpretation of state guidance for local issues or conditions, especially those that cut across state boundaries. This can be the case in very large urban areas in otherwise less populated states, multiple states with very few referral centers among them, or urban areas that are contiguous across state or jurisdictional borders.

As with the clinical care committee (discussed in detail below), the functions, authorities, and scope of operations of the RDMAC should be defined and exercised prior to an incident. This is usually part of a health care coalition agreement and should be reflected in the hospital's scarce resource plans (Appendix B). The RDMAC should interface with a regional health and medical coordination center or multiagency coordination center, but its role is distinct from that of an actual emergency operations center (EOC) in that it provides medical guidance rather than operational or management support. The RDMAC may provide oversight and policy support for a regional triage team or regional management of specialty patient transfers.

Roles of the Clinical Care Committee

A group of technical experts (referred to as the clinical care committee), drawn from numerous disciplines within and sometimes outside the facility (e.g., toxicologists), should be convened to determine how the facility's resources can best be utilized to meet community needs, and to develop clinical and other guidance or policies required to support the response to a disaster. This assessment should involve assessing the core responses of the facility and how its departments and service lines provide or support those responses. Membership of the clinical care committee will vary depending on the size of the institution, the type and duration of an incident, and the scope of the challenges entailed. Possible member disciplines include (AHRQ, 2007; Hick et al., 2007; IOM, 2009)

- administrative leadership,
- chief medical officer,
- facilities,
- nursing supervisor/manager,
- pharmacy,
- respiratory therapy,
- infection prevention and control/infectious diseases,
- critical care,
- emergency medicine,

- EMS,
- state EMS medical directors,
- ethics,
- law, and
- pediatrics or other affected specialties.

Possible members should be identified prior to an incident and should understand the analysis and action processes that will be followed. These members may work on an ongoing basis with the emergency management program at the facility to identify potential scarce resources (e.g., N95 masks, antiviral medications, ventilators, extracorporeal membrane oxygenation [ECMO] equipment) and potential coping strategies or caching recommendations.

In some areas (e.g., pediatrics, critical care, trauma, burn, toxicologic events), expertise itself will be a scarce resource. Since local specialists will be occupied with incident-related patients, it is optimal to plan with other geographic areas to provide telemedicine or hotline specialist support for clinicians at affected facilities (Xiong et al., 2010). Burn centers, trauma centers, academic hospitals, children's hospitals, renal dialysis networks (Kopp et al., 2007), and poison control centers are likely partners in these efforts. Planning for this type of support should be done at the regional or state level, and activation and operational policies established prior to an incident. Some facilities may already use telemedicine for trauma or critical care, but may have to leverage expertise from outside the immediate area in a disaster.

Analysis of demands and possible coping strategies, both current and anticipated, may be based on usual surge capacity constructs (Table 7-1). Ideally, the hospital incident command system (HICS) planning section chief (EMSA, 2007) should request this sort of analysis for any prolonged or large-scale incident. This analysis can anticipate potential adaptations and drive resource and patient transfer requests that might help avoid or reduce the need to operate under CSC conditions. Those personnel who would play a role in incident analysis (e.g., the planning section chief) or clinical leadership (e.g., the medical director) should have disaster exercise experience, written plans, and resource materials to inform their decisions.

Preparedness Efforts

Scarce resource situations may affect an isolated medication or therapy, or they may affect multiple resource categories (staff, supplies, infrastructure, delivery), greatly increasing the complexity of decision making and the impact on providers and patients. Learning from systemwide exercises and real-world events can help prepare health care facilities and providers to implement CSC.

Hospitals should examine their hazard vulnerability analysis and ensure that they are as prepared as possible for the hazards affecting their community, including having the ability to operate as autonomously as possible for up to 96 hours (Joint Commission, 2008), or more, if the risk of isolation of the facility is high. The importance of exercising crisis situations from the provider to the incident command level cannot be overemphasized. Appendixes C and D detail specific resource deficits and situations that hospitals may wish to assess and for which they may wish to exercise their responses. It is difficult to simulate an overwhelming number of casualties in exercises, but through scenario-based learning and the posing of "extension" questions during smaller exercises or debriefs, providers can gain experience with the building blocks of manag-

TABLE 7-1
Implications of the Care Capacity Continuum for Resources

	Low Risk, Low Impact	Moderate Risk, Moderate Impact	High Risk, High Impact
Space	<ul style="list-style-type: none"> Expand hours and use procedural spaces for out-of-hospital care (e.g., surgery and procedure center recovery areas) (Chung et al., 2011; Scarfone et al., 2011) Use postanesthesia care areas for inpatient capacity 	<ul style="list-style-type: none"> Use operative spaces for inpatient care Use alternate care sites to divert outpatients (e.g., “flu centers”) (Cruz et al., 2010) or provide basic nonambulatory care (hospital overflow) 	<ul style="list-style-type: none"> Use cot-based care in flat-space areas Make major changes to admission criteria (e.g., no admission for cardiac rule-outs if no electrocardiogram [ECG] changes and normal troponin)
Staff	<ul style="list-style-type: none"> Change documentation requirements Delegate nonclinical duties (e.g., meal serving) to administrative or other staff 	<ul style="list-style-type: none"> Change staffing patterns, hours, or supervision Change frequency of clinical assessments (e.g., vital signs based on clinical changes) 	<ul style="list-style-type: none"> Provide just-in-time training to staff to allow them to provide lower-impact interventions and overall patient care (e.g., inhaler administration, change of burn dressings) so specialty staff can concentrate on higher-impact interventions (e.g., ventilator management, burn debridements)
Supplies	<ul style="list-style-type: none"> Implement conservation strategies (e.g., restrict oxygen use to those that have hypoxia) Recommend substitute medication classes where possible 	<ul style="list-style-type: none"> Adapt medications or supplies to the incident (e.g., use of BiPAP or selected anesthesia machines as ventilators) Reuse otherwise disposable products that can easily be cleaned or disinfected (e.g., cervical collars, tourniquets) 	<ul style="list-style-type: none"> Reuse products that require high-level disinfection or sterilization (e.g., central lines, ventilator circuits) Reallocate medications or supplies to those who will derive the greatest benefit and/or make the least demand on resources (duration of use or amount used for outcome)

ing a much larger incident. Triage teams can effectively gain experience through tabletop and other simulation experiences, as can incident command/hospital command center teams (DHS, 2007). Use of structured decision-making frameworks for routine scarce resource situations, such as medication shortages, may offer great benefit during a disaster incident (see Box 7-4).

OPERATIONAL CONSIDERATIONS

CSC often involve triage decisions. The impact of triage on the primary goal of CSC—to provide the best outcomes for the largest number of patients—depends on the number of patients presenting, the duration for which they use specific resources, and their outcomes relative to other patients (Utley et al., 2011).

There are three basic types of triage (Hick et al., 2011; IOM, 2009; Iserson and Moskop, 2007):

- *primary triage*—performed at first assessment and prior to any interventions (e.g., triage upon entry to the emergency department or by EMS providers at a disaster scene) (Benson et al., 1996; Lerner et al., 2008; Sasser et al., 2009);
- *secondary triage*—performed after additional assessments and initial interventions (e.g., triage performed by surgery staff after administration of intravenous fluids and an initial CT scan); and

BOX 7-4

Hospital Pharmaceutical Shortages

Drug and supply shortages are increasingly common. A recent survey found that 240 common hospital supplies or pharmaceuticals were delayed or unavailable, representing a dramatic increase from prior years. Fully 89 percent of facilities responding indicated that a medication or clinical safety issue resulted from these shortages. In some cases, shortages have led to more uniform and considered use of therapies. For example, limited supplies of intravenous immune globulin (IVIG) led to national discussions, guidelines for use, and expert published opinions regarding the indications and efficacy of these agents for certain conditions. In other cases, institutional guidelines for conservation and adaptation have been developed. And sometimes, no guidance is circulated, leaving the physician to make decisions on a case-by-case basis.

Key points:

- Drug and supply shortages are common, and offer the opportunity to utilize the incident command system framework and the input of technical experts to resolve scarce resource issues in a nondisaster situation.
- Facility guidelines developed through these processes provide accountability and consistency and reduce ad hoc decision making that can lead to inconsistent use of scarce resources.
- Proactive approaches to drug shortages provide a model and support for other disaster response activities.

SOURCES: AHA, 2011; Fox and Tyler, 2004; Gurwitch et al., 1998; Hollak et al., 2010; Premier, Inc., 2011.

- *tertiary triage*—performed after or during the provision of definitive diagnostics and medical care (e.g., triage performed by critical care staff after intubation and mechanical ventilation with assessment of physiologic variables).

Primary and secondary triage are taught and performed routinely in mass casualty or other high-volume situations. For example, primary triage is used daily to determine who is seen next in the emergency department, and secondary triage often is used to determine who will be first to receive a CT scan or go to the operating room. However, most of these routine, and even mass casualty, decisions revolve around *priority* access and not *absolute* access to a resource, and thus they have minimal clinical consequences. Triage tools have been developed for use in predicting resource utilization (Challen et al., 2007; Talmor et al., 2007), and therefore the type of bed or unit to which a patient should be assigned. However, these decisions also are distinct from those that involve absolute access, which are much more difficult to make.

Reactive Resource Allocation

Primary and secondary triage generally are reactive, rather than proactive, in the early stages of an incident. This means providers are making resource allocation decisions individually and without structured guide-

lines, often without knowledge of the scope of the incident. Therefore, providers should gain experience in deciding when usual modes of care should be abandoned in favor of more limited interventions. When an overwhelming number of casualties present, for example, operative care should be deferred in favor of interventions that provide the greatest benefit for the least expenditure of time and resources (e.g., hemorrhage control or needle thoracostomy) (Casagrande et al., 2011; Hick et al., 2011; USAISR, 2009).

Decisions during this reactive phase rely on the best clinical judgment of providers based on their knowledge of the incident and patients' conditions (usually trauma, burns, or chemical exposures). Triage decisions are influenced by rapidly changing patient volumes and often reflect the prior experience of the provider (e.g., previous military or mass casualty training). Experienced triage officers can potentially limit overtriage (which would commit more resources than necessary) and undertriage (which would risk a viable patient's dying) (Frykberg, 2002). Providers likely to perform triage should understand their facility's ethical and procedural grounding; otherwise they may make implicit value judgments that do not reflect institutional and community values (e.g., giving priority to children, among others with similar injuries, for surgical intervention).

The goal is to reach a point in the incident as early as possible when reactive triage is replaced by proactive triage strategies (see Boxes 2-1 and 2-2, respectively, in Chapter 2). Reactive triage is unavoidable in the early stages of an incident but should be limited to the time prior to situational awareness, and proactive strategies should be instituted as soon as possible, with a consistent process for decisions that are as evidence based as possible.

Tertiary triage seldom is practiced, but involves a decision about whether to initiate or continue certain therapies on the basis of a relatively complete knowledge of the patient's diagnosis and prognosis so as to maximize the use of available resources to save more patients (Kanter, 2007). In many cases, allocation decisions do not critically impact survivability (e.g., the use of certain medications, appropriateness for discharge, diagnostic testing). In other cases, access to a life-saving intervention, such as mechanical ventilation or ECMO, may not be available to all patients who need it. These allocation decisions are extremely challenging, and require careful consideration, strong ethical grounding (O'Laughlin and Hick, 2008; Powell et al., 2008; Tabery and Mackett, 2008; University of Toronto, 2005; Vawter et al., 2010), and thoughtful transition to palliative care (see Chapter 4 for a detailed discussion of palliative care) (Eschun et al., 1999; Society of Critical Care Medicine Ethics Committee, 1994a). The dynamic nature of events requires that patients be reassessed in relation to their changing clinical condition as well as to changes in resource availability (both when resources grow scarcer and when they are replenished). During the Hurricane Katrina response, of the 50 patients initially assigned to the "expected to die—comfort care only" category at Louis Armstrong Airport by federal disaster medical assistance team (DMAT) members responsible for triaging thousands of patients, only 26 actually died. This was because patients were reassessed and reprioritized as additional resources became available or the patients' conditions improved (Klein et al., 2008).

Structured reassessment of the strategies being used and the ability to make real-time adjustments to plans are important, as incidents are likely to encompass several supply and demand spikes involving different resources (e.g., operative and pharmacy supply issues today, staffing issues tomorrow). Incidents will not affect all health care facilities (or all areas of a single facility) at the same time in the same way. Thus, there is no standard approach to resource triage. This is why it is important that the ethical and procedural prin-

ciples of the facility be clearly stated (see the ethics section of Chapter 4 for further discussion). The same principles can then be applied consistently regardless of the allocation decision to be made (e.g., allocating limited N95 masks, reserving a stock of antivirals for staff, or making patient intervention decisions).

Surge Capacity and the Care Continuum

Each hospital should have concrete goals for expansion during a disaster, including outpatient, inpatient, and specialty unit capacity. However, the extent to which a hospital can surge will vary. Recommendations are not standardized; for example, Israeli hospitals are required by the government to be able to increase their capacity by 20 percent within hours (Peleg and Kellermann, 2009), while a U.S. critical care workgroup recommended surge capacity of 200 percent over usual intensive care capacity (Rubinson et al., 2008a), which would involve significant operational planning (Gomersall et al., 2006; Hota et al., 2010; Rubinson et al., 2005). The role of the institution in the community and its size contribute to this calculus. For example, it may be easier for a smaller hospital to surge to 200 percent of a small number of critical care beds, and a higher goal may be in order (as compared with a tertiary hospital). Similarly, a level 1 trauma hospital with an accredited burn unit will be expected to be prepared for a much larger number of operative and burn patients than a hospital that does not usually receive trauma cases. A consensus group has recommended that pediatric intensive care units be prepared to provide 100 percent surge capacity (doubled volume) for 10 days (Bohn et al., 2011). An example surge capacity template for a moderate-sized hospital is found in Table 7-2.

As noted earlier, mass casualty response in a health care facility spans a continuum from conventional to crisis care, depending on the incident demands (Box 7-5, presented also in Chapter 2) (Hick et al., 2009; IOM, 2009). The better prepared the institution and the more resources available, the longer a facility can stay in conventional and contingency mode before the shift to CSC becomes necessary, when the threat of morbidity and mortality to patients becomes significant as a result of the lack of resources. The ability to meet demand for hospital resources, especially during an incident involving infection or potential contamination (e.g., radiation), is highly dependent on capable out-of-hospital and alternate care systems, good risk communication, sound transport policies, and other community-based resources that can radically reduce (or increase) patient demand on hospitals during an incident. Table 7-2 presents a template for planning hospital inpatient surge capacity.

The goal of incident management in mass casualty situations or catastrophic critical infrastructure failure is to get the right resources to the right place at the right time. This may involve anticipating shortfalls, adapting responses (Table 7-3), partnering with other stakeholder agencies to provide alternate care sites for patient volumes that cannot be accommodated within the usual medical facilities, and other strategies.

Only when no alternatives are possible should the institution provide crisis care—when the focus shifts from patient-centered to population-centered care. Patients' prognosis and the degree of resource commitment required should be considered, and patients and/or resources may have to be triaged. Planning for CSC should not be done in isolation, but should be incorporated into the facility emergency operations plan and mutual-aid agreements. A sample scarce resource annex for a facility emergency operations plan is provided in Appendix B.

TABLE 7-2
 Template for Hospital Inpatient Surge Capacity

Accommodate incident demands within the time frame shown, progressing from conventional to contingency, then crisis strategies, and returning to conventional as soon as possible.

	Time (hours)	0-2	2-4	4-12	12-24
Major Incident	Conventional Care	<ul style="list-style-type: none"> Fill available staffed beds. Cancel/hold elective surgeries if operative capacity needed or if expected to require admission. Begin “surge discharge”: <ul style="list-style-type: none"> Medicine on-call Surgery on-call Unit supervisors Identify patients for “early” discharge, and begin to organize for move. 	<ul style="list-style-type: none"> Provide staff for unstaffed but available beds through unit call-in. Add in-storage beds to usual patient rooms (total X additional possible beds) on the following units, and contact leasing agencies if additional beds required; consider intensive care unit (ICU) bed needs (below): list units and beds here. Move “surge discharge” patients to halls initially to open beds, and then to preidentified discharge holding area; ensure that physicians and nurses attend to the pharmacy, transport, and home care needs of these patients. 	<ul style="list-style-type: none"> Obtain additional beds through leasing or from storage, and add to existing patient rooms; move patients from temporary areas (e.g., postanesthesia care unit [PACU]) to these beds as soon as available. 	<ul style="list-style-type: none"> Cancellation of elective cases begins to have an impact (but does not open new beds).
Contingency Care (functionally equivalent care—most incidents will require this level of care for a short period of time/adjustment period)	<ul style="list-style-type: none"> Clear patients out of preinduction/phase 1 recovery areas, and fill available beds (total number) in: <ul style="list-style-type: none"> Unit 1 (#) Unit 2 (#) PACU (#) Preinduction (#) Consider area for overflow of minor trauma cases from emergency department vs. overflow from clinics (list locations). 	<ul style="list-style-type: none"> Preinduction and procedural areas fully available. Consider adding GI lab (#), pulmonary/bronchitis lab (#), and (X) areas; Phase 2 recovery areas/preinduction areas (#); and same-day admission/recovery areas (#). Reserve beds in recovery as needed for cases coming out of surgery. Transfer patients from higher-acuity care areas to lower-acuity care areas (e.g., from ICU to monitored floor) to free ICU space (can shift from private to double ICU rooms, but limited in storage/lease bed availability. Bio has (#) contingency monitors). Transfer overflow ICU patients to (list stepdown units in order of preference). 	<ul style="list-style-type: none"> Assess the situation—consider mechanisms for returning to conventional care, and contact regional health care coalition for necessary resources if unable to return to conventional status within following 8-12 hours. 	<ul style="list-style-type: none"> If transfer possible and unable to return to conventional care status within 8-12 hours, initiate local or regional patient transfers. 	

- Consider “inpatient” care on rehab/observation units subject to availability/discharges (X beds).
 - Set up preplanned facility areas for austere inpatient care:
 - o Area 1 (conference rooms or other flat space)
 - o Area 2
 - o Area 3
 - Contact regional hospital coalition—(XXX) XXX-XXXX—on call to advise of situation, and arrange resources/staff or local/interregional patient transfers sufficient to return to contingency care operations and/or activate alternate care sites.
 - Request that units identify patients for possible transfer, and prioritize patients for evacuation based on the situation. Create transfer patient lists for regional/federal use. Request units identify patients for possible transfer and prioritize patients for evacuation based on situation. Create transfer patient lists for regional/federal use.
- Crisis Care**
(provide best care possible in the circumstances—rare situation)
- Place patients in hallways or lobby areas (unit name(s)) on cots if floor beds are immediately lacking. Cots stored in:
 - o Storage location 1 (#)
 - o Storage location 2 (#)
 - Evaluate options for patient transfer to reduce demand.
- Evacuation***
- Mobilize resources for alternate care sites if needed; coordinate with regional hospital coalition.
 - o Prepare patient belongings and charting, and begin local/regional patient transfers.
 - Begin patient transfers to alternate care sites if activated. Federally facilitated (National Disaster Medical System) patient movement (if activated) begins at about 36 hours postincident.

*If no evacuation of patients is possible and the crisis care situation is prolonged, the incident commander should convene the clinical care committee to prioritize resources/service delivery.

BOX 7-5**Conventional, Contingency, and Crisis Care**

Conventional Capacity: The spaces, staff, and supplies used are consistent with daily practices within the institution. These spaces and practices are used during a major mass casualty incident that triggers activation of the facility emergency operations plan.

Contingency Capacity: The spaces, staff, and supplies used are not consistent with daily practices but provide care that is *functionally equivalent* to usual patient care. These spaces or practices may be used temporarily during a major mass casualty incident or on a more sustained basis during a disaster (when the demands of the incident exceed community resources).

Crisis capacity: Adaptive spaces, staff, and supplies are not consistent with usual standards of care, but provide sufficiency of care in the context of a disaster (i.e., provide the best possible care to patients given the circumstances and resources available). Crisis capacity activation constitutes a *significant* adjustment to standards of care.

SOURCE: Hick et al., 2009.

Principles of Crisis Care in Hospitals

Crisis care and triage may be required in the early phase of a no-notice incident, prior to the establishment of situational awareness or incident management. This is termed the reactive phase (discussed more fully in Chapter 2). Triage decisions are made by bedside providers in this phase, but the goal is to move toward a more proactive, incident-specific, structured, and reproducible decision-making process as rapidly as possible once reasonable situational awareness has been attained and an incident management structure is in place. This approach is consistent with a recommendation from the American College of Physicians that “resource allocation decisions are policy decisions that are most appropriately made at the system level, not at the bedside” (American College of Physicians, 2011). General prerequisites for making proactive resource triage decisions are as follows (IOM, 2009):

- Critically limited resource(s) and infrastructure are identified.
- Surge capacity is fully employed within health care facilities (and regionally) if capacity/space is the limited resource.
- Maximal efforts to conserve, substitute, adapt, and reuse are insufficient if supplies are the limited resource.
- Regional, state, and federal resources are insufficient or cannot meet demand.
- Patient transfer or resource importation is not possible or will occur too late for bridging therapies (such as bag-valve ventilation or other temporizing measures) to be considered.
- Necessary resources have been requested from local and regional health officials (as applicable).
- A state of emergency has been declared, or other health powers (as applicable) have been activated.

TABLE 7-3
Sample Strategies to Address Resource Shortfalls

	Definition	Example*
Prepare	Plan and train for responses and emergency patient care, anticipate potential resource shortfalls and likely adaptive strategies	Cache equipment and common pharmaceuticals (e.g., narcotic analgesics, burn dressings, ventilators) (24), pre-incident mutual aid agreements with other facilities, and plans for staff and space adaptations in place
Substitute	Functionally equivalent device or supply used	Benzodiazepines substituted for other sedation agents, alternate antibiotics when first-line unavailable
Conserve	Restrictions are placed on the use of therapies or interventions to preserve supply	Oxygen is used only for patients with documented hypoxia
Adapt	Re-purpose a medical device	Saturation monitors with rate alarms used in lieu of full-featured monitors, anesthesia machines used for temporary ventilators
Reuse	Re-use a device with appropriate cleaning, disinfection, or sterilization	Re-use of cervical collars, nasogastric tubes, and other supplies
Re-allocate	Prioritization of therapy to those patients with the best chance of a good outcome, most likely to benefit, or with the least resource investment required	Treatment of subset of patients with vaccine/antiviral treatments, prioritization of patients to receive mechanical ventilation

*Note that these examples may be carried across the conventional/contingency/crisis continuum to reflect their impact on patient care. For more detailed information, see <http://www.health.state.mn.us/oep/healthcare/standards.pdf>.
SOURCE: IOM, 2009, p. 54.

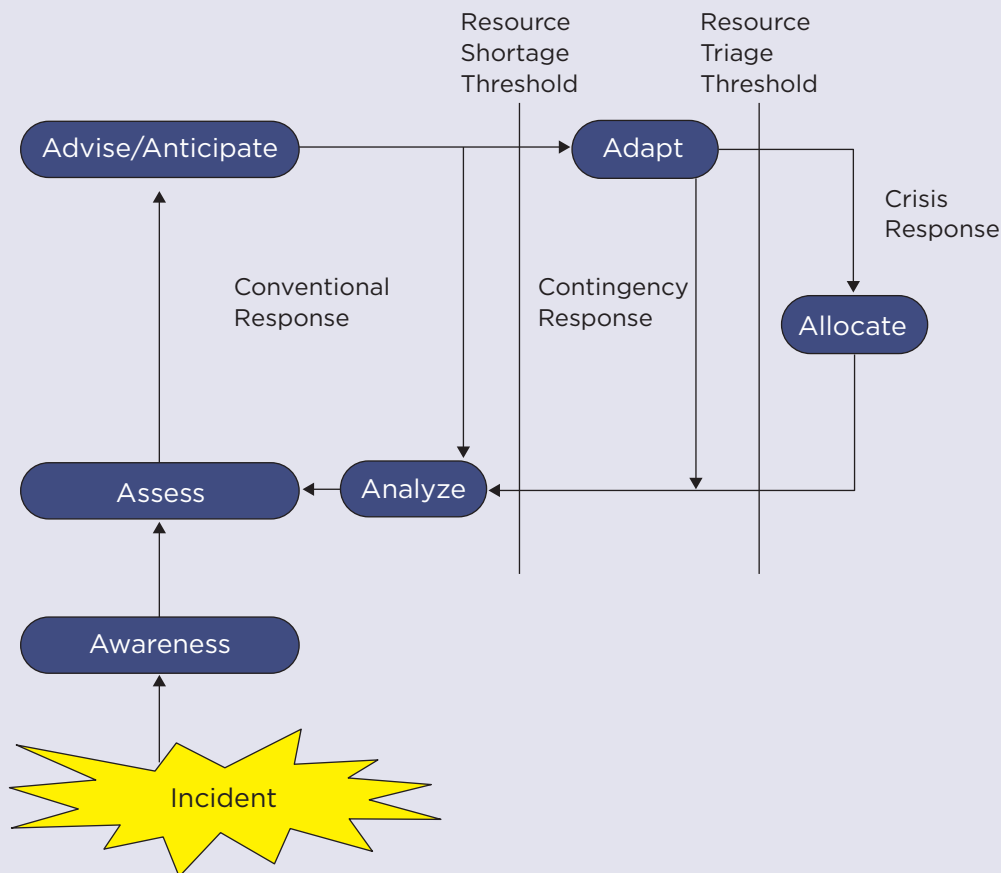
Box 7-6 (repeated from Chapter 2) details the proactive plan components (familiar to those that utilize the “Planning P” in incident action planning) that will enable an institution to implement CSC, emphasizing integration with the incident command system.

Triage Decision Tools

The process and structure by which a facility moves from reactive to proactive triage decision making are what is critical, not the decision tools utilized; for example, burn triage, trauma triage, and influenza triage utilize different variables, but they should be used within a common facility concept of operations. Decision tools often change during an incident as more information becomes available about the disease-specific process, predicted demands, and resources that will become available or depleted. The clinical care committee should, as part of its work, identify relevant incident-specific prognostic indicators and share or obtain incident-specific information from other entities (e.g., RDMAC, state, CDC). During the 2009 H1N1 pandemic, for example, CDC circulated guidelines on high-risk patient characteristics and corresponding treatment recommendations (CDC, 2009a). These guidelines were widely used as a decision tool in allocating antiviral therapy to patients.

For therapies that are not binary—meaning they can be shared or titrated—consideration of minimum qualifications for survival may be relevant when the supply of that resource becomes scarce. The ceiling on resource use may be related to the patient’s prognosis and the resources available; it may not be an absolute

BOX 7-6
Implementation of the Surge Response Framework:
Conventional, Contingency, and Crisis Response Cycle



After an incident occurs, the first priority is to develop situational **Awareness**, and then to **Assess** the situation relative to the available resources. The incident commander, along with relevant technical experts and/or the clinical care committee (in a proactive response/longer-term incident) **Advise**s on strategies and **Anticipate**s any resource deficits (and recommends obtaining necessary supplies, staffing, etc.). If a resource is scarce, **Adaptive** strategies (such as conservation, substitution, adaptation, and reuse) should be implemented. In a crisis, a deliberate triage decision to **Allocate**/reallocate resources may be necessary. In all cases, the response and any strategies should be **Analyzed** at regular intervals as part of the disaster response planning cycle, and the elements repeated until the incident concludes. The terms in this figure can be further described as follows:

Awareness

- Incident commander recognizes current or anticipated resource shortfall(s) and assesses impact of current strategies.

Assess

- Technical experts are assigned to specific questions or areas of expertise.
- Clinical care committee performs assessment for more complex situations or when allocation of critical care resources is required during an ongoing incident.
- Logistics and liaison officers coordinate (across agencies) with suppliers, area public health and health care stakeholders, and emergency management as needed to obtain additional resources or assistance.

Advise/Anticipate

- Clinical care committee examines available resources, data, decision tools, and predictions of demand and determines possible adaptive actions. This analysis should also include what is happening within the region; the likely time frame for the crisis situation; and future impacts on demand, supplies, and staffing.
- Clinical care committee provides input to the planning section (or incident commander, depending on assignment) as to the specific adaptations necessary to accommodate ongoing demands and any recommended decision tools or policies. The committee also facilitates the transition back to conventional care as soon as possible.
- Public information and liaison officers coordinate with the planning section to ensure that the situation and adaptive strategies are included in risk communications provided to staff, patients, their families, and the community. A mechanism for addressing questions should also be available.

Adapt

- Clinical services are augmented or curtailed to allow the institution to focus on saving lives (e.g., subspecialty clinics may repurposed for outpatient acute care).
- Auxiliary equipment or spaces are utilized, including on-campus or off-campus alternate care sites, to support outpatient or inpatient overflow.
- Administrative changes involve little risk to patients and are usually the first adaptations.
- Changes are made in record-keeping and administrative duties.
- Ancillary personnel are used to provide basic hygiene and feeding services.
- Clinical changes involve escalating risk to patients and providers.
- Significant changes are made in shift lengths or number of patients supervised.
- Changes are made in criteria for evaluation (outpatient) and admission, as well as in criteria for admission to certain units (use of monitored units for critical care, for example).
- Changes are made in therapeutics, such as ventilation techniques and medication administration.

Allocate

- After approval of the incident commander, the plan is activated for the next operational period (during which the cycle begins again).
- Allocation policies are circulated (for example, use of medications or blood products).
- Reallocation decisions are made. A triage team is appointed if required for scarce critical care interventions, consisting of at least two specialists practicing and ex-

continued

BOX 7-6 Continued

perienced in the clinical specialty affected (e.g., critical care, infectious disease, nephrology) (this team may be institutional, health system, or regional).

- Triage team utilizes decision tools to determine prognoses and, when a clear difference in prognosis exists, recommends treatment for patients with a predicted better outcome (first-come, first-served applies if there is no difference in prognosis substantial enough to justify reassignment).
- Triage team decisions are communicated to the medical branch director (or designated unit supervisor), who orders appropriate patient movement and actions to implement the team's recommendations.
- Triage team decisions are documented in the medical record, as well as in the team's daily activity log.
- Transition plans are in place to maintain the dignity and comfort of patients (and their families) who should have certain forms of care withdrawn or are receiving only palliative care.

Analyze

- Quality assurance is performed for ongoing allocation strategies: Is new information available? Are the policies and procedures appropriate for the situation being followed?
- Situational and resource information is updated, and the current strategies are analyzed, with feedback to the incident commander.

Resource Shortage Threshold

- The resource shortage threshold denotes the "indicators" (described in the committee's letter report) (IOM, 2009) that demonstrate a point at which a potential or actual resource shortfall is recognized; however, substitution or other strategies may suffice to mitigate the problem.

Resource Triage Threshold

- The resource triage threshold denotes the "triggers" (described in the committee's letter report) that demonstrate that specific resources are in short supply or are altogether unavailable. Therefore, an allocation schema must be implemented, and access to a specific care resource must be triaged because of demand. The triage decision involves an assessment of need, benefit, and duration of use.

limit, but at least prompts consideration of the impact of continued interventions (Beekley et al., 2007; Christian et al., 2010). This can be particularly useful with blood products and certain other medications to avoid committing the majority of an available resource to a minority of patients. In one series of military mass casualty patients, for example, each patient received an average of 3.5 units of packed red blood cells, but 4 of 24 patients (17 percent) consumed 43 percent of the blood products used (Propper et al., 2009).

Decision tools that predict patient prognosis are extremely helpful in the triage process, as they provide

- common criteria that can be applied in a relatively uniform fashion by multiple providers,
- objective indicators with which to determine prognosis (rather than gestalt),
- improved consistency of decisions across multiple providers and facilities,
- prognostic value that is evidence based, and
- a degree of protection from legal action if the provider is following published guidelines or facility plans in good faith.

The benefits and limitations of several commonly used triage tools are discussed in the following subsections.

Allocation of Life-Preserving Resources

Since the committee's 2009 letter report was issued, incidents involving ventilator triage have occurred, most notably during the response to the Haiti earthquake (Burnweit and Stylianos, 2011; Ytzhak et al., 2012). The decision process considered organ system function, prognosis, and duration of resource use, consistent with prior Institute of Medicine (IOM) and other recommendations. While the process and criteria used were considered valuable, the experience in Haiti reinforced the reality that prognosis in disaster situations is rarely well defined; therefore, the reassessment of patients who did not receive intervention is an important part of the ongoing triage process (Ytzhak et al., 2012).

Recent additions to ventilator stockpiles at the federal (CDC, 2011b), state, regional, and local levels have decreased the chances that triaging of ventilators will be necessary in the United States, although it is still a real possibility during a major pandemic (notably, development of a universal influenza vaccine would render most ventilator triage scenarios moot). In some cases of mass respiratory failure (e.g., mass chemical exposure, burns, local epidemics, terrorist use of botulism), temporizing the use of bag-valve ventilation is reasonable when additional resources will become available in a timely manner and adequate personnel are on hand. Although some authors have advocated for mass use of bag-valve ventilation (Trotter, 2010), several factors argue against its use in an epidemic/pandemic situation except in isolated instances or as a temporizing measure. These difficult resource allocation decisions need to be made in the context of the incident by the facility and community (Box 7-7).

With growing interest in ECMO as salvage therapy for refractory hypoxemia comes a higher likelihood that access to this therapy may have to be triaged, even during severe seasonal influenza years, because of the small number of institutions providing it. Note that ECMO at present is not considered standard critical care for these situations, but evidence and practical experience in this regard are evolving (ANZ ECMO Investigators, 2009; Noah et al., 2011; Peek et al., 2009). The use of ECMO entails the following considerations:

- The total ECMO capacity within a community and region should be known prior to an incident, and staff providing ECMO should consider possible related surge needs, including catheters, oxygenators, and staff. Equipment requirements for ECMO continue to evolve, with simpler, smaller machines and catheters now available (Müller et al., 2011).
- In an epidemic, staffing, space, and supply constraints may require that ECMO (or other intensive care therapies) no longer be offered, as the resource commitment is unjustified compared with the

BOX 7-7**Considerations Regarding Bag-Valve Ventilation of Patients**

- Bag-valve ventilation is appropriate, even for a large number of patients, while additional supplies or patient transfers are being awaited, in particular for chemical or inhalational (Darcy, 2003) incidents and power failures (Barkemeyer, 2006). In short-term situations, hospitals should be prepared to provide bag-valve ventilation to a large number of patients (usually constrained by oxygen delivery rates [see below]), as these devices are inexpensive and usually available in large quantities in major hospitals. If the patient is intubated, which should be the case for any prolonged intervention, the technique is easy to learn (Lin et al., 2009).
- Bag-valve ventilation consumes large volumes of oxygen with constant flow rates usually ranging from 10 to 15 liters/minute, compared with the small volumes used by ventilators. Hospital oxygen systems are not designed to operate with high flow rates being delivered to more than a fraction of non-intensive care rooms. Portable oxygen systems similarly are not designed to provide high flow rates of oxygen. Thus, significant pressure drops in the system may occur if multiple bag-valve units are in use.
- The physical effort to provide bag-valve ventilation is substantial. Some members of the committee have had personal experience with this in austere settings for up to 48 hours, and can attest that these efforts require multiple persons, and providers can usually bag for no more than 1 hour at a time.
- Room air ventilation without supplemental oxygen is extremely unlikely to benefit patients with pneumonitis from influenza, who usually have significant and sometimes refractory hypoxemia, although it may have limited application in muscular disorders such as botulism (or, historically, polio) (West, 2005).
- Airway resistance is usually high and ventilatory management can be difficult for patients with pneumonitis, and these conditions are unlikely to respond well to bag-valve ventilation or simple, pressure-cycled ventilation.
- It is ethically inappropriate to allow patients to be ventilated by family members while others without family members do not receive the same support. The facility clinical care committee and ethics committee should determine how to handle these situations, as they are likely to arise and will require a thoughtful response. Additionally, individuals unable to keep up with the physical requirements of bagging may feel that they have contributed to the patient's death.

life-saving potential those resources would have for a larger number of patients. The clinical care committee should be prepared to examine this possibility, especially when highly intensive therapies are being provided.

- Triage decisions in this setting may have to be made in the absence of any state declaration of emergency or activation of a full incident response by the facility. Critical care, cardiothoracic, and ethics committee members should have a plan for making decisions in these situations, including the process to be followed, documentation to be required, and any recommended decision tools.

Sequential Organ Failure Assessment Scores

The development of tertiary triage schemas has focused on the triage of mechanical ventilation (Christian et al., 2006), as this has been viewed as a life-saving resource with limited availability. The most commonly utilized decision tool in triaging of mechanical ventilators has been the Sequential Organ Failure Assessment (SOFA) score (Lemeshow et al., 1993; Moreno et al., 1999; Pettila et al., 2002; Vincent et al., 1996, 1998), as it relies on minimum clinical variables and is easier to calculate than other predictive models. Some authors have recommended use of a Modified SOFA (MSOFA) score (Grissom et al., 2010) that requires even fewer laboratory variables. Although MSOFA is promising, studies confirming its predictive value are as yet relatively small, and some of the assumptions MSOFA makes (including elimination of some categories of scoring) have not been examined carefully. MSOFA scores, if obtained, should not be compared directly with SOFA scores because of these differences (Rubinson et al., 2010). In limited studies, some authors have examined adding more factors to the SOFA score (Adeniji and Cusack, 2011). A simpler assessment tool or laboratory value capable of predicting mortality with accuracy across multiple underlying causes of organ system failure (e.g., infection, trauma) would be welcome, but at present no such tool or value is available.

While these scoring systems have the potential to standardize decisions on the allocation of scarce resources, they are subject to the following limitations:

- SOFA and other scores are predictive in retrospective cohorts, but their use in prospective systems has not been validated (Zygun, 2005). Thus, the difference of a few points among SOFA scores may be significant in a large retrospective cohort but of minimal significance when used in a prospective fashion. For example, a difference of 2 points on the SOFA scale may indicate a survival probability of 20 percent versus 35 percent, but predicting prospectively which 20 or 35 of 100 patients will survive is impossible; thus the difference of 15 percent is not significant (IOM, 2009).
- The mortality of the underlying disease process is critical in determining prognosis. This is why SOFA performs poorly in influenza patients, where the mortality of the underlying disease process is relatively low compared with that of septic shock. Thus if the SOFA sensitivity is 80 percent and the mortality of septic shock is 80 percent, the death rate will correlate well with the score; if influenza mortality is 20 percent, the death rate correlation will be poor (Khan et al., 2009; Rubinson et al., 2010). A recent study found that a SOFA score of 11, which has been used as an exclusion criterion in some triage schemes, was associated with a mortality range of 26-67 percent, depending on the underlying pathology (Shahpori et al., 2011).
- Scoring systems do not account for disease- or condition-specific factors, which are critical. All workgroups and committees considering issues of critical care triage should ensure that disease-specific factors enter into their decision process.
- Failure of a score to improve over a selected period of time is generally a poor criterion. Static, very high scores may be a helpful predictor, but failure to improve is irrelevant when the scores are lower or when the underlying pathology predicts the need for a prolonged course of therapy (e.g., acute respiratory distress syndrome [ARDS]) (Khan et al., 2009).

Other Considerations for Triage Decisions

Numeric scores and disease-specific factors provide information about prognosis, but other factors may need to be weighed. The American Medical Association has published guidelines on transplant organ allocation that include and support these factors (AMA, 1995). The committee proposes that triage teams consider the following factors in their decision process:

- the prognosis of underlying diseases and any severe limitations on life span that this implies (e.g., severe underlying heart or liver disease);
- the resource commitment and duration (e.g., consideration of the duration of ventilator use for flash pulmonary edema versus ARDS or use of minimum qualifications for survival to determine ceilings for the commitment of blood product resources);
- ongoing resource needs—not likely to be relevant in the United States, but a consideration in certain situations (In Haiti after the earthquake, for example, the context of the resource scarcities at the country level led to the consideration of whether short-term interventions were likely futile in the long term because of the broader limitations of medical care [e.g., intensive treatment for high spinal cord injury.]) (Merin et al., 2010); and
- age, a medical factor in certain situations, such as burn or trauma, in which advanced age is a clear contributor to increased mortality (discussed below).

Although age clearly affects mortality in trauma and burn situations (Kuhne et al., 2005; Saffle et al., 2005) and can impact overall survival (Lieberman et al., 2009), there is substantial physiologic variability among elders of similar chronologic age (Society of Critical Care Medicine Ethics Committee, 1994b). The ethics section of Chapter 4 provides a more detailed discussion of age as a factor in triage decisions. It should be noted that there is no currently accepted scoring system for pediatric patients (Antommaria et al., 2010). Common scores (Pollack et al., 1996) require a significant number of laboratory values and are relatively complex. This is an area that requires additional research and policy work. A recent CDC workgroup on pediatric critical care in disaster situations did not recommend a pediatric-specific system (Christian et al., 2011). However, consistent with the ethical framework previously discussed, any scoring system must be fair and equitable.

A Schema for Making Triage Decisions

Having considered currently available decision tools, the committee continues to support the triage schema originally proposed by Devereaux and colleagues (2008) (and adopted or adapted by others [Christian et al., 2010]) when triage of life-saving, binary resources (e.g., ventilators that cannot be shared or titrated) is required (Figure 7-1). However, the committee does so with the following comments and caveats:

- Decision tools should *not* be used to exclude patients preemptively from use of life-saving resources when these resources are available. Even in an epidemic, available resources will vary among facilities, and if a resource is available (e.g., a ventilator), it should be provided to a patient in need unless the clinical care committee finds compelling reasons for not doing so—for example, if the demand

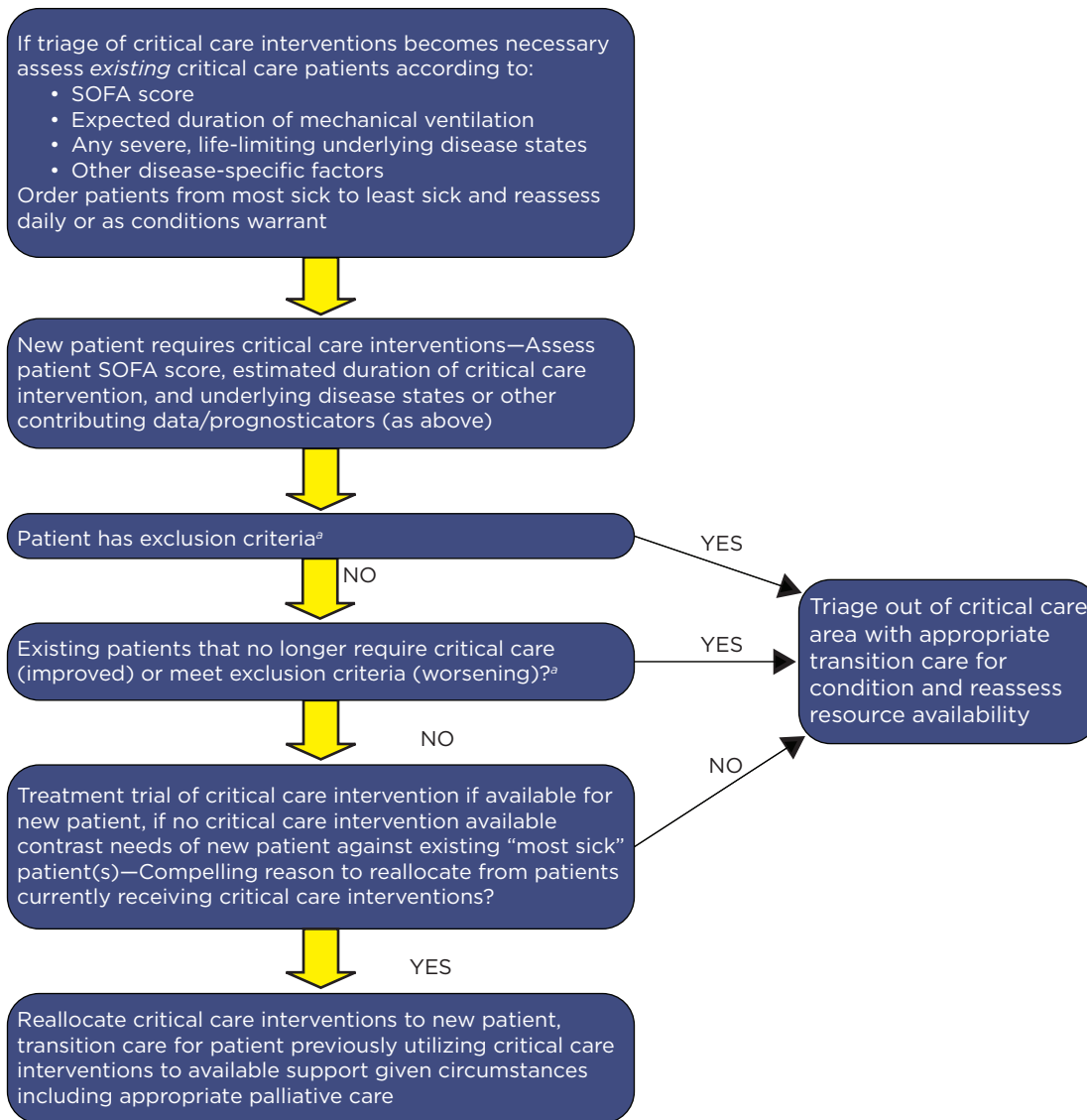


FIGURE 7-1

The basic triage process.

NOTE: SOFA = Sequential Organ Failure Assessment.

^aExclusion criteria should be limited if utilized, and may include factors, such as age extremes or organ system failure with extreme life span limitations or severe, irreversible neurologic compromise, that the community agrees upon.

SOURCE: Adapted from IOM, 2009, p. 87.

rate is so high that it is certain the patient will not have the resource for more than a few hours. It is notable, however, that even at the peak of a moderate pandemic, an average level 1 trauma center was calculated to receive a patient in respiratory failure only once every 1.3 days, based on CDC FluSurge predictions and local data.⁵ This decision to provide life-saving resources when they are

⁵ Hennepin County, Minnesota data used in the CDC FluSurge predictive model, available at: CDC (Centers for Disease Control and Prevention). 2009. FluSurge special edition. Atlanta, GA: CDC, <http://www.cdc.gov/h1n1flu/tools/flusurge/> (accessed March 5, 2012).

available regardless of the patient’s prognosis was reinforced by experiences in Haiti, where the decision was made to provide resources that were available until there was competition for them (Ytzhak et al., 2012).

- Incident-driven decision tools may be developed to direct care (e.g., antiviral medications) to groups of patients who are in greatest need or who stand to benefit the most. However, these tools should emphasize the need for flexibility in the triage process and reinforce the idea that the process for decision making, not the decision tool, is the key component of crisis care planning.
- Disease-specific predictors of mortality should be the dominant factor in decision making when prognostic information is available (Singanayagam et al., 2011). This emphasizes the need for the SDMAC and RDMAC to tailor guidance to the incident, and for epidemiologic data to be gathered in a timely manner and incorporated as they become available.
- A specific SOFA score should *not* be used to exclude or differentiate among treatment/allocation groups because prospective correlation with mortality is not sufficiently accurate to be the sole driver of allocation decisions. SOFA scores may be used to compare prognoses among patients requiring a critical care therapy, with the limitations noted previously.
- Factors incorporated into decision tools should be validated and follow accepted ethical and community principles. Incorporation of invalidated variables is not recommended (e.g., the Glasgow Coma Score, which, despite its good predictive ability in certain head injury cases, is not accepted as a medical triage criterion).

It may be hoped that progress in the field of triage decision tools will lead to the identification of better predictors of mortality that will allow health care providers to determine patient outcomes accurately and prospectively. Until that time, however, resource allocation decisions will have to rely on measures and assessments that, while imperfect, at least prompt consideration of the key clinical factors in a structured process.

Implementation Issues for Crisis Standards of Care

A broad spectrum of responses and resource deficits is possible within crisis medical care. The scope of the guidance required from the clinical care committee may range from circulating general guidelines for the use of antivirals to ceasing all but emergency department operations and providing only basic emergent interventions (airway, wound, and comfort care) during a disaster. In some situations, radical changes to usual practice are required, but are appropriate for the situation (Lin et al., 2010). It is the responsibility of the clinical care committee and incident commander to ensure that transitions to crisis care are as graceful as possible, as more and more resources are committed to certain areas while other care activities (e.g., specialty clinics, outpatient and elective surgeries) are deferred. It is crucial that institutional support be provided for what otherwise might be controversial decisions in implementing CSC. As noted earlier, however, no-notice incidents can require immediate adaptations; therefore, key providers should be familiar with triage and surge plans for their area and be prepared to implement them without formal guidance.

Implementing CSC often is not an intuitive process, as daily medical care is extremely patient focused. Thus when faced with scarce resources, providers may be subject to “cognitive lock” (Aarts and Dijksterhuis,

2000) in which they default to the choices they usually make and with which they have experience. All personnel who may be in a position to make triage decisions or will be participating in a command or supervisory role during a response should understand the transition that occurs from considering the needs of individual patients to considering the needs of the community. Written prompts in response plans and job aids, as well as experience with exercising hospital CSC plans, can facilitate provider choices that balance a broader range of needs but also reflect an understanding of the facility's core ethical goals.

TEMPLATE DESCRIPTION

This section describes the core functions and associated tasks of hospital facilities and hospital providers in CSC implementation that are included in Template 7.1 at the end of the chapter.

Hospital Facilities

Function 1. Alerting. The hospital should be able to receive a broad range of communications from public health agencies, other hospitals, EMS, poison control, emergency management, and other partners. Although notifications for a mass casualty or weather incident often are provided by web or radio systems that are monitored around the clock, the actions that are taken and each party's responsibilities should be clear. More difficult is ensuring that the multiple health alert, email, and other updates are captured during longer-term incidents and incorporated into the incident management process; for example, a health alert or CDC bulletin sent by e-mail during a weekend may not reach a recipient in a timely fashion, or there may be no accountability for getting that information to the situation unit leader. Expectations for the monitoring and processing of information should be clear prior to an incident.

Activation of the CSC plan should begin with recognition by the incident commander that a scarce resource situation exists or may exist, and therefore requires proactive management beyond immediate requests for resources and assistance (thus, the incident is likely to be longer term). Activation may be based on triggers (Table 7-4) or on identified indicators that predict progression to crisis conditions (e.g., epidemiologic forecasts, demand on intensive care beds, or other community or facility indicators). Further discussion of indicators and triggers is found in Chapter 2 of this report.

Function 2. Notification. Hospitals should predetermine the groups that will be notified if a specific incident occurs, such as a mass casualty, HAZMAT, or epidemic incident. Hospital staff should understand how they will be contacted, what their responsibilities are, and where they are to report during an incident. Personnel expected to serve on a clinical care committee should be assigned to one of these groups if possible, with other technical experts being added according to the needs of the incident. All participating personnel, including any backup personnel, should clearly understand their responsibilities and exercise their roles prior to an incident. Provision of crisis care should prompt notification of other hospitals in the area, as well as local and state health or emergency management authorities, depending on local plans. This can be facilitated through the Tier 2 health care coalition role in situational awareness and supporting communications about resources.

Function 3. Command. Hospital personnel should be trained in a National Incident Management System (NIMS)-compatible incident management system (such as a hospital incident command system [HICS]) (EMSA, 2007; FEMA, 2011) according to their roles and responsibilities. Command staff, especially those who have responsibilities to interact with agencies outside of the hospital setting, ideally should be trained at the incident command system (ICS) 300/400 level (FEMA, 2007a,b), which emphasizes incident action planning, a key component of incident management during a prolonged incident.

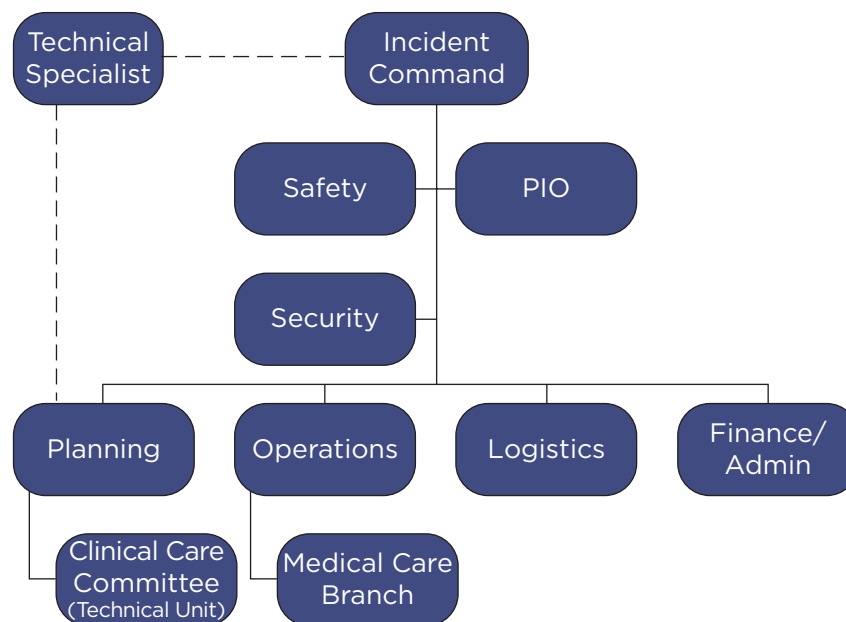
The incident commander directs planning and logistics, in coordination with the operations section, to determine options for ameliorating a scarce resource situation. If it is clear that proactive approaches are required, and they are not self-evident to the incident commander and/or will be necessary over a prolonged period, the incident commander should task the clinical care committee to develop strategies for addressing resource shortfalls. In some cases, a single or few technical experts (e.g., in pharmacy) may be required to address the situation. In more complex cases, particularly if proactive triage of life-saving resources is required, the full clinical care committee is likely to be needed. Generally, if specific or intermittent input is required, the technical specialists directly inform the incident commander or operations section. When a technical unit (such as the clinical care committee) is required for ongoing analysis and input, it generally is located within the planning section (Figure 7-2) (FEMA, 2011).

An incident commander's authorities are delegated to him or her, usually by the hospital administrator. The process for delegation and specification of scope of authorities should be outlined in writing prior to an incident, if possible. During a crisis, close communication and involvement with the administrator are required, as accountability for the strategies and tactics employed should belong, to the extent possible, to the institution as a whole rather than to individuals. Individual decisions made in crisis settings, particularly under severe emotional and physical strain or in unfamiliar areas of expertise, may place both patients and providers at risk (Fink, 2009).

TABLE 7-4
CSC Triggers by Category

Category	Trigger
Space/Structure	Need to use non-patient care locations for patient care (e.g., cot-based care, care in lobby areas) to accommodate demand; specific space resources overwhelmed (operating rooms), and delay poses a significant risk of morbidity or mortality; disrupted or unsafe facility infrastructure (damage, systems failure)
Staff	Specialty staff unavailable to provide or adequately supervise care (pediatric, burn, surgery, critical care) in timely manner, even after call-back procedures have been implemented
Supply	Supplies absent or cannot be substituted for (e.g., absence of available ventilators, lack of specific antibiotics), leading to risk to patient of morbidity (including untreated pain) or mortality

SOURCE: IOM, 2009, p. 64.

**FIGURE 7-2**

Usual location of technical specialist(s) and technical units within the incident command framework.
NOTE: PIO = public information officer.

Function 4. Control. Incident command training should be supplemented by facility- and department-specific training and exercises, as familiarity with incident management does not correlate with competency in initiating or supervising a departmental response. Staff at all levels should attain competency in facility protective actions (e.g., securing of entrances/exits, whom to contact to manage the ventilation system) and expansion or reassignment of their area's resources to support the incident response. Some of these actions will be predetermined—such as central supply bringing a disaster cart to the emergency department in a mass casualty incident—while others will be implemented on an as-needed basis by the incident commander, often with input from the clinical care committee or technical experts. Job action sheets and response guides (Hick et al., 2008) should provide initial information to unit supervisors and command staff about how their units' space and staffing will expand should there be a need to transition from conventional to contingency and even to crisis care.

Function 5. Communications. Internal communications to patients and staff, as well as to external staff and, optimally, patients' families, are critical. Hotlines, the Internet, text messaging, e-mail, written letters, updates on social media (at a minimum Facebook and Twitter), and other means of communication may be used to provide incident information. It is helpful to provide updates both at scheduled times and when new information is available. The public information officer serves as the conduit for information to the internal and external stakeholders, including staff, visitors, families, and news media, as approved by the incident commander (California Emergency Medical Services Authority, 2006a). Following ICS principles, a process should be in place for rapidly vetting new information or status

changes from general staff and other command or technical specialists via the public information officer, as approved by the incident commander.

Function 6. Coordination. A large part of incident management for a hospital is working with EMS and public health/emergency management to manage, to the extent possible, the flow of victims to the facility. If a hospital is overwhelmed and other facilities have capacity, EMS and public information can help avoid further burden on the affected hospital and organize the transfer of patients or resources as needed to restore the facility to contingency and eventually to conventional footing. Accomplishing this involves coordination among command staff, the liaison officer, and the public information officer to assess the situation and make appropriate requests to the jurisdictional EOC or EMS agencies/media consistent with the community plan. The EOC, in turn, will need a liaison to speak for area hospitals and help coordinate information and a common operating picture for health care that will drive resource requests and actions from the EOC. Without coordination mechanisms, a hospital can easily become an “island,” as happened at Charity Hospital in New Orleans after Hurricane Katrina (Deboisblanc, 2005). If a regional health care coordination center or multiagency coordination center (FEMA and Emergency Management Institute, 2008) is activated, the hospital should understand the authorities, resources to support coordination, and purpose of and how to interface with this entity.

If proactive triage of resources is necessary, command staff should understand how the hospital can provide input into the deliberations of the state and/or regional disaster medical advisory committee and receive guidance on implementing guidelines and triage mechanisms. This coordination helps promote regional consistency. A regional system for coordinating patient transfers, if in use, potentially can affect mortality by “gatekeeping,” or triaging the transportation of patients with key underlying needs to regional centers (Kanter, 2007; Kirby, 2010; Noah et al., 2011).

Function 7. Public Information. Providing the public with clear messages about when and where to seek care is a priority in a stressed health care system. The bigger the incident, the more important this issue becomes. To get effective messages out in a timely manner, the hospital will need to coordinate with its usual media sources via the public information officer (FEMA, 2007c), but also work closely with any joint information system (JIS) (FEMA and Emergency Management Institute, 2010), usually managed at the jurisdictional or state EOC level. The JIS ensures consistency of messages and provision of these messages to the media. If public health, health care, and EMS lack consistency in their recommendations for when and where to seek care, when to use 911, and so on, the public will quickly become confused, and trust will be lost.

Managing expectations during an incident is extremely important because a clear understanding of resource limitations gained from the major media at least facilitates a “frame shift” for patients seeking care and health care providers. Messages should include what the institution is doing, why, what the priorities are for the hospital and its patients, and what is being done at other levels to address the problems.

Function 8. Operations. The operations section, including the triage team and clinical care providers under operations, is responsible for developing and implementing strategies and tactics needed to meet

incident action plan objectives as approved by the incident commander (see Figure 7-2 above for operations' position on the abbreviated ICS organizational chart) (California Emergency Medical Services Authority, 2006b).

Especially in a no-notice incident, the operations section chief may be responsible for a wide variety of tasks, such as facility assessment and evacuation, patient triage and treatment, and the expansion of clinical care areas. The section chief should be well versed in gaining situational awareness and promoting communication with the clinical units, as well as with the command staff. Delegation is critical to ensure that strategies and tactics are properly implemented. Job aids can facilitate the process of situational assessment and guide initial actions. These aids may include job action sheets, initial action prompts or assessment tools, tables reflecting expansion or evacuation needs, and other resources (Hick et al., 2008).

Based on the situational assessment, the incident commander or appropriate section chief should decide how much to expand or “surge” clinical care (California Department of Public Health, 2008). Default actions may be taken when a disaster alert is called. In a mass casualty incident, for example, surgeries may be held and postanesthesia care and preinduction areas cleared for patient care. *Conventional* capacity can easily be maximized by summoning additional staff. Expansion to *contingency* and, if necessary, *crisis* capacity should be template driven and may involve space and supply adaptations in addition to staffing changes. During the 2009 H1N1 pandemic, for example, facilities had success remaining in conventional operations by implementing their surge plans (Meites et al., 2011). Table 7-2 provides an example of a template expansion plan. These templates should be supported by policy and other documents, and, while they may take many forms, are useful as a quick reference. If it is clear to the operations section chief that crisis capacity should be utilized, the incident commander and planning section chief should be made aware so that external assistance can be sought or plans made to cope with the demand. It is fundamentally important that a decision to implement CSC not be made independently, but jointly with other health care institutions in the region. In the HICS, the operations section's infrastructure branch is responsible for maintaining hospital infrastructure, including power, water, HVAC (heating, ventilation, air-conditioning), medical gases, and environmental and food services. It will be important for the operations section to coordinate infrastructure with the planning and logistics sections in developing surge capacity during conventional, contingency, and crisis conditions (California Emergency Medical Services Authority, 2006b).

The *medical care branch* director implements the incident action plan for clinical care. He/she may be the first to recognize an impending shortfall of resources and alert the incident commander and operations section chief. In a crisis, they should oversee and be accountable for the actions taken at the unit level (e.g., emergency department, intensive care) and any triage processes. Their input to the *clinical care committee* is crucial to the committee's understanding of the existing challenges and needs, as well as how the strategies and tactics in use are working or failing. The clinical care committee should work with the medical care branch director to determine what services the hospital can provide and how and where to provide them, and to recommend to the incident commander courses of action for coping with the scarce resource situation.

The clinical care committee also should determine crisis clinical policies for the hospital, which can include the surgeries that may be performed, what triage criteria the emergency department will use

BOX 7-8 Appeals

A **process appeal** is an appeal generated when an invested individual (family member or patient's clinician) believes that a decision was arrived at unfairly or deviated substantially from guidelines without justification. This is a *retrospective* appeal, and requires that the clinical care committee examine documentation and discuss the case with the triage team members and additional technical experts. If there are findings of an unfair or unjust decision, a process should be in place for communicating this to the invested individual(s). Regionally, there may be an appeals committee that examines these cases if there is any initial finding of merit. Note that this is not a legal proceeding, but essentially an ethics opinion on whether triage personnel executed their duties in good faith.

A **clinical appeal** is an appeal generated when the patient's clinician believes the clinical data used for the triage decision do not reflect recent improvements in the patient's condition. This is an urgent appeal that, if the triage team reconsiders, may affect the clinical decision. Clinical staff should be aware of the mechanism and indications for initiating such an appeal.

based on volume, what patients may be seen in what clinics, and what adjunct spaces and equipment are to be used for critical care (Rubinson et al., 2008b). Recommendations on when and how to implement substitution, adaptation, conservation, or reuse/reallocation strategies for specific resources also may be required (Hanfling, 2006; IOM, 2009; Minnesota Department of Health, 2011; Peleg and Kellermann, 2009; Rubinson et al., 2008a,b). These recommendations should be developed in close collaboration with the clinical departments and the medical care branch director prior to adoption. The clinical care committee also should provide any required modifications to guidelines and triage tools that are available from other sources, including regional and state disaster medical advisory committees. Examples of how this process has been structured are available in the literature (Frolic et al., 2009; Kaposy et al., 2010).

Finally, the clinical care committee is responsible for quality assurance of allocation and triage decisions, including review of the decisions and related documentation and discussion with clinical staff and triage team members about pending process modifications that might aid their performance. The clinical care committee also should review any process appeals (that is, any challenge to a triage decision on the basis of faulty reasoning or malfeasance) and either address them or refer them to a regional appeals committee (if established) (Box 7-8). Process appeals are retrospective and do not change the allocation decision (Debruin et al., 2010).

A *triage team* is used when proactive triage decisions are made regarding the allocation of scarce, potentially life-saving interventions (for example, mechanical ventilation and ECMO). The team should comprise at least two physicians trained in critical care or with substantial expertise in critical care decision making (or in the specialty area within which the allocation decisions are being made) (Hick et al., 2007; IOM, 2009).⁶ These physicians may be supported by other technical or ethics personnel at the

⁶ It may be advantageous to have an odd number of individuals serve on the triage team.

facility's discretion. They should review objective evidence for the patients requiring the intervention and determine who should receive the resources available. These decisions are then communicated to the medical care branch director or designated unit leader (e.g., critical care unit leader) for action.

Optimally, triage team members should understand their possible roles and have exercise experience in making such decisions prior to an incident to ensure their familiarity with the operational components involved (including, e.g., patient data, work flow, documentation). Note that it would be unusual for a facility triage team not to be available for other duties most of the time, as proactive triage decisions will be relatively infrequent; a mechanism for conference calls or other decision making should therefore be available. However, it is not ideal for the triage team members to be the clinical care providers for the patients they are considering, as it is difficult to remain a patient advocate and avoid bias due to knowledge of the full scope of the patient's situation (Kirby, 2010).

The team should document its decisions in both the patient chart and a unit log. Clinical documentation for those not receiving resources should follow a template and reflect the current situation, the demands of the incident, and the data considered in the decision relative to those patient(s) who received the resources. Unit staff should document the transition of care and continued palliative or other ongoing care, as well as communications to the family and the patient if they are able to understand the situation. Reevaluation of these patients is important to ensure their continued consideration for resources as the incident and their conditions evolve (Klein et al., 2008). The legal and ethical implications of withdrawal of care are substantial, and should be examined with the assistance of legal counsel in advance of an incident in conjunction with analysis of applicable state laws (see Chapter 3) (Eastman et al., 2010).

Given the expertise involved, coalitions or health systems may elect to have centralized, regional, or even state-based triage teams to facilitate decision making at multiple sites, with the added benefit of maintaining situational awareness across multiple facilities. In these cases, a process for ensuring documentation of the decision process in the patient's medical record is essential, whether in the form of a dictation, faxed or e-mailed template, or other mechanism.

If a resource is being assigned among persons not yet receiving it, it should be assigned to those patients with the better prognosis. An ethically fair triage process requires that physicians use the best available data and system to assess patient prognosis. Once this step is accomplished, some patients will have an essentially equal prognosis. When the medical prognosis is equal, any allocation scheme must ensure consistency in order to be fair. Community engagement strategies (see Chapter 9) may help solicit community values regarding prioritization of care schema, such as prioritizing patient age or using a first-come, first-served or lottery approach. If such engagement processes have not yet occurred, an allocation system should follow a consistent and fair approach, and the health care system should communicate that strategy broadly to the public. Close coordination among the health care institution and regional and state entities is thus required to prevent inconsistencies in triage when medical prognoses are equal, and the state ideally should define secondary processes to be followed, which should be understood by providers.

The threshold for withdrawal of a critical resource for reassignment to another patient should be much higher. The patient who is using the resource should, in the judgment of the triage team, have a substantially worse prognosis to justify withdrawal and reassignment of the resource. Therapies are

not assigned in this setting, but offered as therapeutic trials; the triage team should weigh whether the patient with the resource has had an adequate trial of the therapy with respect to prognosis and benefit. Patient condition and clinical data should be reexamined at least every 24 hours (although, as noted above, failure to improve over this period of time may be expected rather than indicate failure of treatment).

More triage decisions are likely to be required early in an incident when, using influenza management as an example, patients already on ventilators are likely to have more organ system failures and poor predicted survival compared with healthier patients with more isolated respiratory failure. As this cohort of patients is ventilated, it will be less and less likely that arriving patients will have a substantially better chance of a good outcome, and thus few reallocations of ventilators will occur.

The triage team may occasionally receive clinical appeals and may need to reconsider its decisions if there has been a substantial improvement in parameters and/or prognosis. The institution should have a process in place for requesting these appeals and communicating any appeals holds or changes in decisions to unit staff, as well as mechanisms for ensuring that timely data are supplied to the triage team.

Triage situations will have a profound emotional impact on patients, families, and providers. *Mental health* issues should be addressed in a proactive fashion by the incident command team (see Chapter 4 for detail on these issues).

Mental health under CSC will require specific competencies of mental health, social services, and health care staff. Efforts also will be required to enhance community resilience through “neighbor-to-neighbor, family-to-family” support systems (such as certain psychological first aid models created specifically for use by community members as needed). The resilience of the health care workforce is paramount to the success of the CSC strategy.

One-shot, one-size-fits-all approaches, such as some once-common stress debriefing, are no longer recommended and may result in exacerbating the mental health problems of those most affected by a disaster (Bisson et al., 1997, 2007; IASC, 2007; McNally et al., 2003; NIMH, 2002). The replacement for those outmoded approaches is more integrated efforts to enhance the resilience of the workforce specifically with respect to mass casualty events, including CSC, as part of CSC preparedness (Schreiber and Shields, 2012).

Hospital incident command operations need to encompass *integrated mental health operations* as part of ICS/EOC and medical/health operations. Recent models developed for Los Angeles County, Seattle/King County, the American Red Cross’s National Operations Center/Disaster Mental Health, and a new national prototype specifically for children utilize real-time situational awareness of triage/mental health risk in patients/disaster victims and responders (including health care workers and their families) across varied disaster systems of care (e.g., hospitals, schools, shelters, public health settings) to guide actual mental health operations within the ICS (see Schreiber et al., in press). Other recommended features include a common operating picture of

- population-level mental health risks (traumatic loss, multiple traumatic losses) using a common rapid mental health triage system across disaster systems of care;
- mental health risks among health care workers; and

- mental health resources, including emerging national models of Internet-based intervention (Ruggiero et al., 2006).

Addressing the social and psychological challenges of CSC requires a triage-driven mental health incident management system and community resilience efforts through community engagement (see Chapter 9). Also required are basic “neighbor-to-neighbor, family-to-family” psychological first aid competencies that leverage the community, responders, and family members as the first line of psychosocial support (see the American Red Cross’s “Coping in Times of Crises” and the “Listen, Protect and Connect” psychological first aid models).

Palliative care focuses on the relief of suffering and distress (e.g., pain, nausea) during serious, life-threatening illness to help patients and families have the best possible quality of life. The emphasis is on coping, comfort, and well-being. One goal of disaster response is to provide comfort to the most people possible. Therefore, efforts to plan for appropriate palliative care for *all* victims are a high priority, along with caching and adequate use of medications to provide comfort (Bogucki and Jubanyik, 2009; Matzo et al., 2009). During triage situations, planning for thoughtful care transitions if support and interventions are unavailable is critical to maintaining comfort and dignity. Multidisciplinary planning is helpful to identify processes and interventions that can be implemented at the hospital and support that can be offered to patients and their families. Planning in advance for these activities is as critical as planning for the triage process, yet often is overlooked; the result may be greatly increased suffering and emotional distress for all during an incident (Downar and Seccareccia, 2010). More in-depth discussion of palliative care planning and the needs of patients can be found in Chapter 4.

Function 9. Logistics. Logistical planning for scarce resource incidents begins with anticipating possible deficits (see Appendix C) based on

- hospital location (geographic risks of facility impact and isolation by natural, terrorist, or other incidents);
- hospital role in the community (e.g., trauma center, children’s hospital);
- fragility of vendor supplies and anticipated supply lines; and
- facility goals and resources.

Often, hospitals in a geographic area rely on the same vendors for *supplies* of medical equipment (such as hospital beds and ventilators), which can lead to rapid depletion of these items during an incident. Also, vendors may not be able to deliver items because of access problems. Hospitals should determine minimum amounts of equipment to be kept on hand. Durable medical equipment is expensive, but retaining monitors, ventilators, and hospital beds that have been removed from service may be a good strategy. Increasing par levels of medications and supplies can be difficult in times of just-in-time inventory management, but often there are no good substitutes for inexpensive caches of medications (e.g., narcotic analgesias) that are rotated through stock. Forecasting demand can reveal staggering supply needs, especially during a prolonged incident (Hota et al., 2010).

The logistics section provides for maintenance of the physical environment, providing human resources, materiel, and services to support the incident response activities. The logistics section should coordinate with the operations and planning sections to expand alternate care locations (California Emergency Medical Services Authority, 2006c). *Space* expansion plans should include planning for both inpatient and outpatient surge, and may require preincident or just-in-time modification of spaces, including creation of temporary walls, changes in room configurations, ventilation modifications, or other changes. Predictive and historical demand forecasting can yield helpful information about the likely impact on the institution (Sills et al., 2011). In addition to a surge of patients, accommodations may have to be made for the family members or pets of staff during an incident that severely damages community infrastructure.

The logistics section also is responsible for the labor pool and credentialing unit, a collection point for available hospital staff and volunteers that may be a resource for addressing staffing shortages (California Emergency Medical Services Authority, 2006d). *Staffing* patterns and shift lengths may be changed during an incident, although such changes should be balanced against the detrimental effects of fewer staff per patient, less experienced staff, and fatigue (Cheung et al., 2008; Clarke et al., 2002; Gershengorn et al., 2011; Needleman et al., 2002). Consistent with the Assistant Secretary for Preparedness and Response's (ASPR's) Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP), an adequate staff must be held in reserve, especially in no-notice incidents, when many staff may self-report and then be unable to supplement shifts later that day or night. Agreements for obtaining and integrating additional staff from the Medical Reserve Corps, federal teams, and local sources should be in place prior to an incident (ASPR, 2011; HHS, 2012). The logistics unit should make requests to the EOC or partner facilities and ensure adequate credentialing, check-in, privileging, orientation, and supervision. Use of supplemental personnel should conform to the hospital's staffing bylaws and policies.

Special challenges during an incident may include the need for patient isolation, decontamination, or special equipment. Managing contaminated belongings and washwater, creating negative airflow or isolation areas, and ensuring that adequate equipment is available for pediatric or burn patients in advance of an incident, as well as identifying multiple vendors and sources for resupply, can greatly reduce the potential for scarce resource situations and prevent staff exposure to harmful agents.

Another challenge is providing for the nearly one-third of the U.S. population that qualifies in some manner as at-risk, whether by virtue of functional limitations, age, medical conditions, pregnancy, or mental health problems (among other factors). Hospital planning should focus on those factors that require specialized planning, training, or equipment, such as the following:

- *Maternal health:* Pregnant patients represent two lives to be saved, and they may be at higher risk of complications from influenza or other disease processes or trauma. Considerations for planning for a crisis with respect to maternal health include (Beigi, 2007; Rasmussen et al., 2008)
 - *Triage:* Discussion should encompass whether pregnancy results in triage priority when other factors are relatively equal. A model for triage of pregnant patients has been proposed, but it does not address how such decisions are integrated with decisions about other patients being

triaged (Beigi et al., 2010). The committee believes triage processes should be inclusive of all patients requiring the same resource, although the prognostic predictors may vary depending on the underlying disease.

- o *Prioritization of maternal care:* What is required and what may become optional for prenatal care and evaluation of symptoms (e.g., abdominal pain)?
 - o *Infection:* Is a separate area or process for pregnant patients required to prevent them from acquiring an illness in the health care environment (CDC, 2009b)? Do pregnant women access vaccine in the same way as the general population?
 - o *Delivery:* What deliveries may be accomplished more safely at home, particularly during an epidemic? Few providers are knowledgeable about the process of labor and delivery or management of common complications.
 - o *Information and consultation:* Hotlines and other resources that do not require an actual provider visit are strongly preferred during an epidemic, and may reduce workload during other incidents (University of Minnesota, 2007).
- *Pediatrics:* Children represent 24.3 percent of the U.S. population, and 6.9 percent of the U.S. population is under age 5 (U.S. Census Bureau, 2012). Children evoke emotional responses in most health care providers, which can complicate their care and lead to additional psychological stressors for providers, particularly if they are not accustomed to caring for children who are severely injured or ill. Community emergency departments see 90 percent of pediatric emergency cases (American Academy of Pediatrics et al., 2009), few of which involve critical injury or illness. The following are a few key tenets of pediatric care planning (see also Box 7-9):
 - o Age-appropriate equipment and sufficient volumes and types of supplies should be stocked for pediatric emergency use.
 - o Providers should have at least basic skills in pediatric resuscitation, including quick reference materials.
 - o The facility should plan for unaccompanied minors and their physical and emotional support.
 - *Functional limitations:* The institution's usual resources (for example, wheelchairs or sign language interpreters) may be unavailable during a disaster, and contingency plans for those needing these resources should be developed.
 - *Medically dependent patients:* Those on home oxygen and electrical devices may arrive at the hospital during blackouts and other community infrastructure losses for assistance. Outpatient dialysis systems usually have robust disaster plans, but local transportation and infrastructure may be too damaged to meet dialysis needs initially.
 - *Mental health:* Disasters are extremely destabilizing for patients with mental health issues. Additionally, patients may run out of or become separated from their medications or be unable to fill prescriptions. Planning should account for the potential for disaster stocking of psychotropic and anxiolytic medication for both maintenance and acute use.

BOX 7-9**Pediatric Issues in the Tuscaloosa Tornado**

On April 27, 2011, an EF-4 tornado struck Tuscaloosa, Alabama. DCH Regional Medical Center in Tuscaloosa treated 600-800 patients in the first 24 hours after the tornado, the vast majority in the first 14 hours. One hundred patients were admitted. DCH is not a usual receiving facility for pediatric trauma but received at least 50 pediatric victims, including three pediatric fatalities (all of whom were apparently dead on arrival and one of whom was unclaimed for days after the storm). After initial assessment, stabilization, and management, 30 patients were transferred to Children's Hospital of Alabama for admission and further care, representing a high percentage of transferred and admitted patients. Although the area hospitals have outstanding referral criteria for pediatric patients and participate in the Southeastern Regional Pediatric Disaster Response Network (a multistate pediatrics preparedness network) to improve surge response, no just-in-time training, network support, or follow-on resources could substitute for the availability of pediatric-specific supplies and the response of emergency and pediatric providers to the local hospital. Additional supplies were brought to DCH Regional as the evening wore on, but initial stabilization efforts relied on supplies that were present at the institution. Many children presented without family members, and families often were separated as a result of transfers or admission to other facilities. These children required significant staff support. One staff member recalled being moved at the sight of a 6-year-old crying in the hospital hallway, injured, and knowing his parents were dead.

Key points:

- Regional plans for specialty patients (e.g., burn, pediatrics) are critical for ongoing care and referral. In overwhelming situations, concentrating those less than 5 years of age at children's hospitals may offer the best outcomes when all patients cannot be admitted to specialty facilities. This requires regional coordination.
- Stabilization care often will occur at the institution closest to the incident, requiring a commitment to stocking basic supplies and providing basic training and immediate reference materials.
- Planning for unaccompanied minors and their support (including their safe disposition once medical care has been completed) often is underemphasized.

SOURCES: AAP, 2011; Branson, 2011; EMSC National Resource Center, 2010; Kanter and Cooper, 2009; National Commission on Children and Disasters, 2009; NYCDHMH, 2007.

Function 10. Planning. The planning section is responsible for gathering incident-related data, which encompass up-to-date incident information, analyses, and forecasts regarding operations and assigned resources, including the development of alternatives for tactical operations. The planning section conducts planning meetings and prepares the incident action plan. It also provides awareness through material and personnel tracking, and situational awareness through patient and bed tracking (California Emergency Medical Services Authority, 2006d). The planning section is responsible as well for working with command staff, technical specialists, and the operations section to identify objectives for the next operational period (usually 12-24 hours) (Plourde and Moats, 2006). In addition, the planning section

may be asked to activate, support, and facilitate interactions with *technical specialists* and the *clinical care committee* to obtain input on clinical care strategies for meeting excess demand or specialty consultation.

Personnel management includes ensuring that current staff can be contacted easily (with up-to-date information and processes) and that modifications to shift durations and other staffing changes are checked against current personnel policies and any union or other agreements. A range of options may be implemented, including changing staffing patterns and responsibilities, using administrative staff to provide basic patient care and feeding, adding supplemental staff if possible, and changing staffing ratios. Those changes that result in the least impact on patient care should be implemented first (AHRQ, 2007).

Additional training and orientation materials may need to be developed and provided to current staff either as a refresher or to introduce new concepts. The emphasis should be on reassigning personnel so that those with technical expertise can focus on those areas, and others can perform less technical (and less consequential) tasks. For example, respiratory therapists may concentrate on supervising ventilator use while other staff are delegated to administer inhaled medications (nebulizers and metered dose inhalers).

Function 11. Administration. The administrator of the facility should work with legal counsel and any corporate administrators to determine the institution's *authority* and liability in crisis settings, and how declarations of emergency may change those rights and responsibilities. These issues should be understood before an incident occurs.

Regulations affecting patient care and information exchange (such as the Emergency Medical Treatment and Active Labor Act [EMTALA] and the Health Insurance Portability and Accountability Act [HIPAA]) (California Hospital Association, 2009; HHS, 2011) should be examined in advance of an incident; certain actions, such as suspension of selected federal requirements, may be requested and granted during disaster situations. Usually, exceptions to the regulations are made for emergencies, including permitting information sharing to allow family reunification and the exchange of public health and safety information. A crisis is not the time to scramble to research these issues. Administration and counsel should have a good understanding of applicable state laws and federal regulations (see also the detailed discussion of legal issues in Chapter 3).

It is important for hospitals and providers to understand their *regulatory and legal* protections and liabilities. Both can be held liable for their clinical and administrative decisions (Hodge and Brown, 2011).⁷ Clear documentation of actions and use of standard or community guidelines can mitigate that liability. Activation of emergency health powers may confer additional protections, depending on the state. Having a preplanned, systematic approach consistent with that of other facilities in the community contributes to protecting institutions and providers. Triage decisions may have to be made in the absence of a declaration of emergency (e.g., an isolated ECMO triage decision during a seasonal influenza epidemic, no other regional/community resources available). Thus, it is important to consider the process within or between institutions when there is no disaster situation. In most states, when an inci-

⁷ *Preston v. Tenet Healthsystem Memorial Medical Center Inc.*, No. 05-11709-B-15 (La. Civ. Dist. Ct. settled Mar. 23, 2011).

dent is large enough to warrant a declaration, early actions may be protected by dating the emergency orders to cover the entire incident timeline regardless of when the declaration was issued.

Providers should be familiar with their protections in daily operations, during disasters (when some state laws provide additional protections for clinical decisions), and during declared health emergencies. There often are significant differences in liability when care is provided in nonhospital versus hospital settings and in situations where reimbursement is not expected. Furthermore, there is significant state-to-state variability in protections, so providers responding to assist in other states who are not protected as federal or state employees should understand their obligations and liabilities.

Hospital Providers

It is important for providers to take an active interest in their facility's disaster preparedness and response plan, with specific attention to its CSC indicators, triggers, and implementation protocols. This section of the template enumerates the functions and associated tasks of those providing health care during a disaster.

Function 1. Notification. Providers that have agreed to act as technical specialists or members of the clinical care committee or triage team should understand their responsibilities to those groups during a disaster. These duties may need to be reconciled with their other clinical responsibilities, especially if the duration of the response is lengthy. All providers should regularly update and ensure the accuracy of their contact information, as the facility will need to get in touch with staff to meet rapidly changing demand. It is important for all providers to participate actively in tests and exercises of the facility's notification systems so they can gain insight into those systems prior to an incident, and so the facility has an opportunity to identify and rectify any issues.

Function 2. Command, Control, Communications, and Coordination. All providers should receive role-appropriate incident command training, including knowledge of how to access available resources to guide their actions as the standard of care progresses from conventional to crisis. In the reactive phase of triage, providers may not have an understanding of the scope and scale of the incident, so it is important that they know how to contact their facility's command center to determine resource availability. Beyond their commitment to a particular facility, providers may have obligations that involve public-sector disaster response roles, including serving as a part of the Medical Reserve Corps or ESAR-VHP. For each of their roles, providers should be clear about whom to contact, where to report, and how to execute their responsibilities.

Function 3. Public Information. While facilities will be responsible for managing internal and external communications systems, individual providers should familiarize themselves with processes for inputting information into and extracting information from facility and public sources (likely electronic or telephone based).

Function 4. Operations. Providers should know their unit's protocols for expanding care as demand overwhelms available resources. To operate effectively under CSC conditions, providers should thor-

oughly understand their triage roles (if any), as well as acceptable and unacceptable bases for triage decisions.

Function 5. Logistics (space, staff, supplies). While local and state governments and facilities bear responsibility for managing resources to avoid or mitigate scarcity on a regional level, individual providers will have to adapt to any deficits that occur in their unit. It is important that providers be well versed in how to expand their patient care space to accommodate a significant increase in patient volume. Providers themselves may become a scarce resource as patient volume increases; familiarity, through education and exercises, with the ways in which their own roles will change with shifts in the care continuum will enable maximal use of their time and energy. These changes can include an expansion or contraction of their traditional scope of practice, changes in documentation duties, and incorporation of external staff into the unit. Finally, providers should know where to access additional supplies and how guidance is to be received on substituting, conserving, adapting, and reusing those supplies.

Function 6. Operations (mental health). Changes to the clinical care environment during disaster response can take a toll on providers' emotional health. For this reason, it is important that providers be able to recognize the signs and symptoms of abnormal (as opposed to normal) responses to stress and be clear on how to access employee mental health services. Greater detail on mental health care can be found in the mental health section of Chapter 4.

Function 7. Legal Issues. The legal implications of providing care during a disaster, especially one that requires the use of CSC, can be daunting. Providers should not wait until an incident has occurred to learn about their legal protections and liabilities in different disaster scenarios (e.g., in a declared versus a nondeclared emergency, as a public versus private care provider). Chapter 3 provides a detailed discussion of the legal issues associated with disaster response.

Template 7.1. Core Functions of Hospital Facilities and Providers in the Implementation of CSC Plans



Hospital Facilities

Function 1. Alerting

Task 1

Health care facility is able to receive and manage alerts from emergency medical services (EMS), public safety, hospital partners, the department of public health (Health Alert Network), and the National Weather Service.

Task 2

Health care facility emergency response plan provides the triggers and process for incident command to activate the CSC plan and indicators (if applicable) to prompt consideration of activation.

Notes and Resources

Triggers and indicators are consistent with regional and state plans as applicable.

Function 2. Notification

Task 1

Institution is able to alert staff within and external to the facility, including

- EMS and coalition/partner health care facilities;
- medical, administrative, and support staff;
- clinical care committee members; and
- technical experts, including those in toxicology, radiation safety, infectious disease, critical care, emergency medicine, trauma surgery, blood banking, dialysis, pediatrics, burn surgery, and mental health (those institutions without in-house expertise should identify other sources for consultation).

Notification mechanisms account for redundancy in case a disaster affects usual means of contact/consultation.

Task 2

Expectations of staff, including technical experts and those staffing the clinical care team, are understood prior to an incident, and appropriate activation/notification policies are in place.

Notes and Resources

Institution tests notification systems at least annually and ensures that up-to-date contact information is available.

Function 3. Command

Task 1

Hospital incident command system (HICS) (or other national incident management system [NIMS]) and community-compliant system is in place. Includes

- understanding where technical specialists, the clinical care committee, and the triage team fit into the incident management structure;
- training and exercising with key staff, including those on the clinical care committee and potential triage team members;
- command staff being trained and exercised (at least table-top) in activation of the full continuum of care, including use of crisis spaces and staffing;
- command staff understanding incident action planning and use of the planning section during longer-term events; and
- appropriate resources (job aids) being available to guide capacity expansion.

Notes and Resources

See Appendix B for a sample hospital CSC plan.

See Table 7-2 in Chapter 7 for a sample surge capacity template.

Function 4. Control

Task 1

Command staff understand interfaces for resource requests and acquisition (as well as any existing plans for resource triage/allocation) with

- Local public health and emergency management,
- Local/regional hospital coalitions, and
- State resources (usually via local emergency management and/or state public health).

Task 2

Command and other appropriate staff understand transfer and diversion policies in the area and their function during a disaster.

Task 3

Command staff understand the process for sheltering, relocation, and evacuation in response to threats to the facility.

Task 4

Command staff understand options for security/access controls and community law enforcement support during a disaster.

Task 5

Facility plan reflects a phased expansion of surge capacity/capabilities for conventional, contingency, and crisis situations.

Task 6

Command staff understand the process for rapid facility and incident

Notes and Resources

See Appendixes B, C, and D.

assessment in the immediate aftermath of an incident to gain situational awareness.

Task 7

Command staff understand the state public health department authorities and resource allocation/policy/plans for an epidemic or other public health crisis, including how the health care facility interfaces with local and state public health (this affects facility isolation, personal protective equipment, quarantine, vaccination, countermeasures, and other actions taken to contain an outbreak).

Function 5. Communications

Task 1

Facility has policies and procedures in place for sharing situational information with staff, patients, and other facilities and agencies within the region.

Task 2

Facility has redundant ability to communicate with

- local EMS,
- the local emergency operations center,
- the local/regional health and medical multiagency coordination center (as applicable), and
- other hospitals/facilities in the area.

Task 3

Facility has around-the-clock capability to receive health alerts and other local, state, and federal health communications and a process for rapidly analyzing those communications, and developing or modifying policy accordingly.

Function 6. Coordination

Task 1

Command staff understand the interface between the institution and local public health, emergency management, and local/regional hospital coalitions, as well as any multiagency coordination constructs.

Task 2

Facility understands the function of the state disaster medical advisory committee and any regional medical coordination center or regional disaster medical advisory committees, as well as the means by which information is received from or communicated to these bodies.

Task 3

If the facility is part of a health care system, plans document the responsibilities of the facility vs. the corporate response structure and the process by which corporate policy and other region- or community-developed policies and processes are integrated.

Task 4

If facility has a limited patient population (Department of Veterans Affairs [VA] hospital, children’s hospital, military hospital, rehabilitation hospital), there is guidance/a plan for how that facility will contribute to the response when an incident affects either its usual target population or other groups disproportionately.

Function 7. Public Information

Task 1

Facility has a process in place to ensure the development of appropriate risk communications in conjunction with coalitions and/or public agencies, as well as facility-specific means of dissemination (website, calling programs, e-mail, social media).

Task 2

Facility coordinates information with other agencies and facilities and participates in joint information system (JIS) and joint information center (JIC) activities when implemented by the jurisdiction, state, or coalition. This includes the ability to reach key cultural groups served by the facility.

Function 8. Operations

Conventional Care

Task 1

Command and unit staff are aware of actions to be taken to maximize the availability of staffed beds, including canceling elective admissions/surgeries and invoking early patient discharge (“surge discharge”) or movement.

Contingency Care

Task 1

Command and unit staff are aware of how to implement institutional plans for supply substitution, conservation, and adaption; staff responsibility extension; and patient care area repurposing (e.g., opening pre- and postanesthesia care units for general patient care).

Crisis Care

Task 1

This task is the same as Task 1 for contingency care, but options are expanded to include

- reuse and reallocation of supplies,
- changes in staff roles,
- use of cot-based care, and
- resource allocation and triage decisions and interface with the triage team (if activated).

Standards for patient care are adjusted according to circumstances (e.g., changed thresholds for intensive care unit or floor admission).

Notes and Resources

See Appendix B.

See Appendix C.

Medical Care Branch, Clinical Care Committee, and Triage Team

Task 1

Facility has planned for crisis care by convening potential members of an institutional clinical care committee and triage team (for tertiary triage of inpatients, not for no-notice incidents) to identify specific risks to the facility and specific resources at risk.

Task 2

Facility emergency operations plan includes a crisis care annex that details the use of the clinical care committee and triage team, including

- membership,
- activation,
- roles and responsibilities,
- considerations prior to implementing triage strategies,
- documentation of decisions (medical records as well as incident documentation),
- the triage process and possible decision tools to be used (including the ability to incorporate incidents or community-specific modifications),
- an appeals process for triage decisions, and
- anticipated clinical and administrative strategies.

Mental Health

Task 1

Facility has non-mental health personnel trained in basic psychological first aid and psychological triage and assigns a role to mental health operations within its incident command system.

Task 2

CSC-specific coping information/resources are provided to patients, family members, and staff, including CSC-specific “neighbor-to-neighbor, family-to-family” psychological first aid.

Task 3

Facility has a plan for triage-driven management of psychological casualties, including participation in local/regional plans for mental health incident management.

Task 4

Facility participates in the development of risk communications that include a behavioral component related to “coping with CSC” for patients, their families, and health care workers.

Task 5

Facility has a personal resilience plan for health care workers that includes triage and referral to a continuum of evidence-based care.

Task 6

Facility participates in a local gap analysis and develops an action plan to build key local disaster mental health and spiritual care capacities.

See Appendix B.

The mental health section of Chapter 4 provides more detailed discussion and examples.

Task 7

Facility has a plan to engage community faith-based and other support providers, as well as key cultural groups within the community, during crisis care operations to expand mental health care capacity, particularly in times of resource triage.

Palliative Care

Task 1

Facility has planned for adequate symptomatic management (analgesia, antiemetics, anxiolytics) for all patients (including those that will not receive other treatment modalities).

Task 2

Palliative care, including palliative care principles, triage tools, and any facility-specific procedures, is addressed in the emergency operations plan.

Task 3

Palliative care training (including just-in-time training) is developed and provided according to the facility plan.

Palliative care may be addressed in the CSC/scarce resources annex or elsewhere in the facility emergency operations plan.

The palliative care section of Chapter 4 provides a more detailed discussion.

Function 9. Logistics

Supplies

Task 1

In conjunction with the clinical care committee, emergency management committee identifies key potential scarce resources based on different types of incidents and, to the extent possible, stockpiles or identifies alternative sources for these supplies.

Task 2

For highly vulnerable supplies, facility identifies strategies for appropriate substitution, conservation, adaptation, reuse, and reallocation.

Task 3

For local or state cached supplies (such as a local pharmaceutical cache) or Strategic National Stockpile (SNS) supplies, facility understands the process for requesting, receiving, and distributing these supplies.

Notes and Resources

For an example, see the Minnesota Department of Health's *Strategies for Scarce Resource Situations*.

Space

Task 1

Facility examines available beds, beds in storage, cots, beds for lease, and other potential sources and develops a plan for maximizing available patient care space and converting non-patient care areas to patient care as necessary.

Staffing

Task 1

Call-back criteria and policies are in place and include maintenance of current and accurate employee contact information.

Task 2

Facility assesses number of staff available for selected large-scale events, including those that limit access to the facility or result in provider illness. Consideration is given to the need for extended staffing requirements or for holding back adequate staff for future operational periods.

Task 3

Facility plans for on-site accommodation of staff and family members as appropriate.

Special Challenges

Task 1

Patient groups requiring special consideration are identified, and to the extent possible, equipment and supplies to address their needs are purchased and/or stockpiled in relation to the facility's size and role in the community. These groups include (but are not limited to)

- pediatric patients,
- burn patients,
- patients requiring airborne isolation,
- patients requiring decontamination,
- patients with functional limitations (e.g., hearing or visually impaired), and
- patients requiring dialysis/renal replacement therapy.

Task 2

Facility understands regional/state plans or resources for specific groups (e.g., pediatric-specific disaster supplies, regional pediatric or dialysis networks) and how to access/activate them.

All institutions should prepare to initially stabilize and treat all types of victims during a disaster.

Function 10. Planning

Technical Specialists and Clinical Care Committee

Task 1

Clinical care committee understands its interface with incident command, and in particular the medical care branch director, planning section chief, and planning cycle, including its role in developing strategies for the next operational period.

Task 2

Technical specialists understand their interface with the command and planning sections.

Task 3

Clinical care committee reviews current response strategies, including any triage decisions made, and modifies strategies, tools, or processes based on evolving incident information as part of the incident planning cycle.

Personnel Management

Task 1

Hospital bylaws, credentialing policies and procedures account for disaster use of nonhospital staff (including use of local/regional staff in accordance with coalition agreements).

Task 2

Emergency operations plan includes anticipating orientation, mentoring, education, and clinical care policies for outside staff.

Task 3

Policies for altered staffing ratios, shift lengths, and staff roles are examined, and any collective bargaining issues are identified, if not addressed.

Task 4

As needed, emergency operations plan addresses the use of nontraditional assistance (family members, volunteers, Medical Reserve Corps [MRC] providers) to provide non-medical patient care.

Task 5

Hospital understands the process and supporting agreements (e.g., worker's compensation, liability) for sharing staff with outside facilities in need, including staffing of alternate care systems.

Task 6

Hospital understands the need to attend to staff resilience and mental health risk to maintain the hospital's continuity of operations.

Function 11. Administration

Authority

Task 1

Administration (including corporate administration) has examined its disaster delegation of authority to incident commanders and made any changes necessary to ensure that crisis care decisions are supported (i.e., that the incident commander is acting with the authority of the institution). During a crisis, the administration may require additional communications and coordination with the incident commander.

Task 2

Administration understands relevant changes to agency/facility authorities and protections when the state declares an emergency/public health emergency, including legal protections or obligations for medical providers (e.g., duty to serve).

Regulatory/Legal Issues

Task 1

Facility and/or corporate legal counsel are aware of CSC plans and implications for patient care.

Notes and Resources

See Chapter 3 for a more detailed discussion.

Task 2

Legal department identifies state and local laws and regulations that would impact the institution's ability to implement CSC plans and possible solutions (see Chapter 3 for a full list of functions).

Core Functions of Hospital Facilities and Providers in the Implementation of CSC Plans

Hospital Provider Functions

Function 1. Notification

Task 1

Providers understand their call-back responsibilities during an incident, including potential roles as technical specialists or clinical care committee/triage team members.

Task 2

Providers ensure up-to-date contact information and acknowledge receipt of exercise and incident messaging.

Function 2. Command, Control, Communications, and Coordination

Task 1

Providers receive information on community disaster roles, including the Medical Reserve Corps (MRC) and Emergency System for the Advance Registration of Volunteer Health Professionals (ESAR-VHP).

Task 2

Providers understand where they report, to whom they answer during a disaster, and how to execute their roles. (This may include private as well as public roles, e.g., MRC member.)

Task 3

Providers know how to contact hospital command center and request resources.

Task 4

Providers receive incident command training appropriate to their role in the command structure, including

- location of plans and actions taken to implement the continuum of care in their area, including use of conventional/crisis spaces and
- resources (job aids) or unit-based plans to guide capacity expansion.

Notes and Resources

If provider is a member of command staff, additional training is required; see Function 3 in "Hospital Facilities" section of this template.

Function 3. Public Information

Task 1

Providers understand key sources of facility/community information in disaster (web, Twitter, hospital hotline, etc.).

Function 4. Operations

Task 1

Providers understand unit-based actions during expansion of care from conventional to crisis (surge discharge, adapted care on unit, cot-based care, etc.).

Task 2

Providers are prepared to perform triage as it relates to their roles (may involve, e.g., triage for early discharge, triage for resources in emergency department/surgery/other units, participation in triage team).

Task 3

Providers likely to perform triage (both reactive and proactive) understand the criteria they may consider (as well as what not to consider) when making triage decisions.

Function 5. Logistics

Space

Task 1

Providers understand disaster space utilization on their units, including contingency/crisis expansion as applicable.

Staffing

Task 1

Providers understand how their unit staffing and hours may change during a disaster.

Task 2

Providers understand through education and other communications how their roles may be changed/expanded during a crisis (e.g., burn nurses may have responsibility only for burn/wound care as other nurses assume responsibility for overall patient care), including incorporation process for staff from outside the unit or facility as applicable.

Task 3

Providers understand how changes in record-keeping and other duties may occur in crisis situations (e.g., where to find and how to use paper forms).

Supplies

Task 1

Providers can access supplies from pharmacy/central/sterile supply and understands any existing contingency plans in case of shortage.

Function 6. Operations

Mental Health

Task 1

Providers understand employee resilience plan, including sources of employee mental health support.

Task 2

Providers are trained in anticipating normal stress reactions, developing a personalized “resilience plan” and identifying coping resources, as well as self-triage indicators of traumatic stress.

Notes and Resources

See mental health section of Chapter 4 for a more detailed discussion.

Function 7. Legal Issues

Task 1

Providers understand legal obligations and liabilities for practice both within and outside of their hospitals when

- * a disaster or public health emergency has been declared;
- * a disaster or public health emergency has not been declared; and
- * when providing other disaster relief functions (for example, if serving as MRC or disaster medical assistance team member).

Notes and Resources

Chapter 3 provides more detailed discussion.

REFERENCES

- AAP (American Academy of Pediatrics). 2011. *Children & disasters*. Grove Village, IL: AAP, <http://www.aap.org/disasters/hospitals.cfm> (accessed November 29, 2011).
- Aarts, H., and A. Dijksterhuis. 2000. Habits as knowledge structures: Automaticity in goal-directed behavior. *Journal of Personality and Social Psychology* 78(1):53–63.
- Adeniji, K. A., and R. Cusack. 2011. The Simple Triage Scoring System (STSS) successfully predicts mortality and critical care resource utilization in H1N1 pandemic flu: A retrospective analysis. *Critical Care* 15(1):R39.
- AHA (American Hospital Association). 2011. *AHA survey on drug shortages*. Chicago, IL: AHA, www.aha.org/aha/content/2011/pdf/drugshortagesurvey.pdf (accessed November 29, 2011).
- AHRQ (Agency for Healthcare Research and Quality). 2007. *Providing mass medical care with scarce resources: A community planning guide*, edited by Phillips, S. J., and A. Knebel. Publication no. 07-0001. Rockville, MD: AHRQ, <http://archive.ahrq.gov/research/mce/mceguide.pdf> (accessed February 27, 2012).
- AMA (American Medical Association). 1995. Ethical considerations in the allocation of organs and other scarce medical resources among patients. Council on Ethical and Judicial Affairs, American Medical Association. *Archives of Internal Medicine* 155(1):29–40.
- American Academy of Pediatrics, American College of Emergency Physicians, and Emergency Nurses Association. 2009. Joint policy statement—guidelines for care of children in the emergency department. *Pediatrics* 124(4):1233–1243. <http://aappolicy.aappublications.org/cgi/reprint/pediatrics;124/4/1233.pdf> (accessed February 27, 2012).
- American College of Physicians. 2011. *How can our nation conserve and distribute health care resources effectively and efficiently?* Policy Paper. Philadelphia, PA: American College of Physicians, http://www.acponline.org/advocacy/where_we_stand/policy/health_care_resources.pdf (accessed February 27, 2012).
- Antommara, A. H., J. Sweney, and W. B. Poss. 2010. Critical appraisal of: Triage pediatric critical care resources during a pandemic: Ethical and medical considerations. *Pediatric Critical Care Medicine* 11(3):396–400.
- ANZ ECMO Investigators (The Australia and New Zealand Extracorporeal Membrane Oxygenation Influenza Investigators). 2009. Extracorporeal membrane oxygenation for 2009 influenza A(H1N1) acute respiratory distress syndrome. *JAMA* 302(7):1888–1895.
- ASPR (Assistant Secretary for Preparedness and Response). 2012. *National Disaster Medical System*. Washington, DC: Department of Health and Human Services, <http://www.phe.gov/preparedness/responders/ndms/Pages/default.aspx> (accessed February 27, 2012).
- Barbera, J. A., and A. G. MacIntyre. 2004. *Medical surge capacity and capability: A management system for integrating medical and health resources during large-scale emergencies*, 2nd ed. Washington, DC: HHS.
- Barbisch, D. F., and K. L. Koenig. 2006. Understanding surge capacity: Essential elements. *Academic Emergency Medicine* 13(11):1098–1102.
- Barkemeyer, B. M. 2006. Practicing neonatology in a blackout: The University Hospital NICU in the midst of Hurricane Katrina: Caring for children without power or water. *Pediatrics* 117(Supplement 4):S369–S374.
- Beekley, A. C., B. W. Starnes, and J. A. Sebesta. 2007. Lessons learned from modern military surgery. *Surgical Clinics of North America* 87(1):157–184, vii.
- Beigi, R. H. 2007. Pandemic influenza and pregnancy: A call for preparedness planning. *Obstetrics and Gynecology* 109(5):1193–1196.
- Beigi, R. H., J. Hodges, M. Baldisseri, D. English; Magee-Womens Hospital Ethics Committee. 2010. Clinical review: Considerations for the triage of maternity care during an influenza pandemic—one institution's approach. *Critical Care* 14(3):225.
- Benson, M., K. L. Koenig, and C. H. Schultz. 1996. Disaster triage: START, then SAVE—a new method of dynamic triage for victims of a catastrophic earthquake. *Prehospital and Disaster Medicine* 11:117–124.
- Bernstein, S. L., D. Aronsky, R. Duseja, S. Epstein, D. Handel, U. Hwang, M. McCarthy, K. John McConnell, J. M. Pines, N. Rathlev, R. Schafermeyer, F. Zwemer, M. Schull, B. R. Asplin; Society for Academic Emergency Medicine, Emergency Department Crowding Task Force. 2009. The effect of emergency department crowding on clinically-oriented outcomes. *Academic Emergency Medicine* 16:1–10.
- Bisson, J. I., P. L. Jenkins, J. Alexander, and C. Bannister. 1997. Randomized controlled trial of psychological debriefing for victims of acute burn trauma. *British Journal of Psychiatry* 171:78–81.

- Bisson, J. I., M. Brayne, F. M. Ochberg, and G. S. Everly. 2007. Early psychosocial intervention following traumatic events. *American Journal of Psychiatry* 164(7):1016-1019.
- Bogucki, S., and K. Jubanyik. 2009. Triage, rationing, and palliative care in disaster planning. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 7(2): 221-224.
- Bohn, D., R. K. Kanter, J. Burns, W. D. Barfield, and N. Kissoon. 2011. Supplies and equipment for pediatric emergency mass critical care. *Pediatric Critical Care Medicine* 12(Suppl.):S120-S127.
- Branson, R. D. 2011. Disaster planning for pediatrics. *Respiratory Care* 56(9):1457-1463.
- Burkle, F. M., Jr., E. B. Hsu, M. Loehr, M. D. Christian, D. Markenson, L. Rubinson, and F. L. Archer. 2007. Definition and functions of health unified command and emergency operations centers for largescale bioevent disasters within the existing ICS. *Disaster Medicine and Public Health Preparedness* 1(2):135-141.
- Burnweit, C., and S. Stylianos. 2011. Disaster response in a pediatric field hospital: Lessons learned in Haiti. *Journal of Pediatric Surgery* 46(6):1131-1139.
- California Department of Public Health. 2008. *Standards and guidelines for healthcare surge during emergencies*. <http://preparedcalifornia.ca.gov/EPO/CDPHPrograms/PublicHealthPrograms/EmergencyPreparednessOffice/EPOProgramsServices/Surge/StandGuide/SSG1.htm> (accessed February 25, 2011).
- California Emergency Medical Services Authority. 2006a. *Incident commander: Job action sheet*. http://www.emsa.ca.gov/HICS/files/JAS_Command.pdf (accessed February 5, 2012).
- California Emergency Medical Services Authority. 2006b. *Operations section chief: Job action sheet*. http://www.emsa.ca.gov/HICS/files/JAS_Ops.pdf (accessed February 5, 2012).
- California Emergency Medical Services Authority. 2006c. *Logistics section chief: Job action sheet*. http://www.emsa.ca.gov/HICS/files/JAS_Logs.pdf (accessed February 5, 2012).
- California Emergency Medical Services Authority. 2006d. *Planning section chief: Job action sheet*. http://www.emsa.ca.gov/HICS/files/JAS_Plan.pdf (accessed February 5, 2012).
- California Hospital Association. 2009. *EMTALA requirements and options for hospitals in a disaster*. <http://www.calhospitalprepare.org/node/675> (accessed February 27, 2012).
- Casagrande, R., N. Wills, E. Kramer, M. Mussante, R. Kurinsky, P. McGhee, L. Katz, D. M. Weinstock, and C. N. Coleman. 2011. Using the Model of Resource and Time-based Triage (MORTT) to guide scarce resource allocation in the aftermath of a nuclear detonation. *Disaster Medicine and Public Health Preparedness* 5(Suppl. 1):S98-S110.
- CDC (Centers for Disease Control and Prevention). 2009a. *Updated interim recommendations for the use of antiviral medications in the treatment and prevention of influenza for the 2009-2010 season*. <http://www.cdc.gov/h1n1flu/recommendations.htm> (accessed February 27, 2012).
- CDC. 2009b. *Interim guidance: Considerations regarding 2009 H1N1 influenza in intrapartum and postpartum hospital settings*. <http://www.cdc.gov/h1n1flu/guidance/obstetric.htm> (accessed February 27, 2012).
- CDC. 2011a. *Public health emergency preparedness cooperative agreement*. Funding Number CDC-RFA-TP11-1101CONT11. Atlanta, GA: CDC, http://www.cdc.gov/phpr/documents/PHEP_FY_2011.pdf (accessed November 29, 2011).
- CDC. 2011b. *Strategic National Stockpile (SNS)*. <http://www.cdc.gov/phpr/stockpile/stockpile.htm> (accessed February 27, 2012).
- Challen, K., J. Bright, A. Bentley, and D. Walter. 2007. Physiologicalsocial score (PMEWS) vs. CURB-65 to triage pandemic influenza: A comparative validation study using community-acquired pneumonia as a proxy. *BMC Health Services Research* 7:33.
- Cheung, L. Y. S., G. M. Joynt, C. D. Gomersall, and A. Lee. 2008. Is the nurse workload:staffing ratio associated with the outcome of critically ill patients. *Intensive Care Medicine* 34:S8.
- Christian, M. D., L. Hawryluck, R. S. Wax, T. Cook, N. M. Lazar, M. S. Herridge, M. P. Muller, D. R. Gowans, W. Fortier, and F. M. Burkle. 2006. Development of a triage protocol for critical care during an influenza pandemic. *Canadian Medical Association Journal* 175(11):1377-1381.
- Christian, M. D., G. M. Joynt, J. L. Hick, J. Colvin, M. Danis, and C. L. Sprung. 2010. Chapter 7: Critical care triage. *Intensive Care Medicine* 36(Suppl. 1):S55-S64.
- Christian, M. D., P. Toltzis, R. K. Kanter, F. M. Burkle, D. D. Vernon, and N. Kissoon. 2011. Treatment and triage recommendations for pediatric emergency mass critical care. *Pediatric Critical Care Medicine* 12(Suppl.):S109-S119.
- Chung, S., S. Monteiro, T. Hogencamp, F. J. Damian, and A. Stack. 2011. Pediatric alternate site of care during the 2009 H1N1 pandemic. *Pediatric Emergency Care* 27(6):519-526.

- CIDRAP (Center for Infectious Disease Research & Policy). 2011. Creating a regional pediatric disaster preparedness network: The importance of collaboration (AL, FL, LA, MS, TN). Public Health Practices: Enhancing Emergency Preparedness and Response. Minneapolis, MN: University of Minnesota. <http://www.publichealthpractices.org/practice/creating-regional-pediatric-disaster-preparedness-network-importance-collaboration-al-fl-0> (accessed February 5, 2012).
- Clarke, S. P., D. M. Sloane, and L. H. Aiken. 2002. Effects of hospital staffing and organizational climate on needlestick injuries to nurses. *American Journal of Public Health* 92(7):1115-1119.
- County of Santa Clara. 2007. *County of Santa Clara hospital mutual aid system memorandum of understanding*. Santa Clara, CA: County of Santa Clara, <http://www.sccgov.org/SCC/docs/SCC%20Public%20Portal/keyboard%20agenda/BOS%20Agenda/2007/February%2027,%202007/TMPKeyboard201832702.pdf> (accessed September 8, 2009).
- Courtney, B., E. Toner, R. Waldhorn, C. Franco, K. Rambhia, A. Norwood, T. V. Inglesby, and T. O'Toole. 2009. Healthcare coalitions: The new foundation for national healthcare preparedness and response for catastrophic health emergencies. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 7(2):153-163.
- Cruz, A. T., B. Patel, M. C. DiStefano, C. R. Codispoti, J. E. Shook, G. J. Demmler-Harrison, and P. E. Sirbaugh. 2010. Outside the box and into thick air: Implementation of an exterior mobile pediatric emergency response team for North American H1N1 (swine) influenza virus in Houston, Texas. *Annals of Emergency Medicine* 55(1):23-31.
- Darcy, M. J. 2003. Tragedy and response—the Rhode Island nightclub disaster. *New England Journal of Medicine* 349(21):1990-1992.
- Deboisblanc, B. P. 2005. Black hawk, please come down: Reflections on a hospital's struggle to survive in the wake of Hurricane Katrina. *American Journal of Respiratory and Critical Care Medicine* 172:1239-1240.
- Debruin, D. A., M. F. Marshall, E. Parilla, J. Liaschenko, J. P. Leider, D. J. Brunnuquell, J. E. Garrett, and D. E. Vawter. 2010. Implementing ethical frameworks for rationing scarce health resources in Minnesota during severe influenza pandemic. Minneapolis, MN: Minnesota Department of Health, <http://www.health.state.mn.us/divs/idepc/ethics/implement.pdf> (accessed February 29, 2012).
- Devereaux, A. V., J. R. Dichter, M. D. Christian, N. N. Dubler, C. E. Sandrock, J. L. Hick, T. Powell, J. A. Geiling, D. E. Amundson, T. E. Baudendistel, D. A. Braner, M. A. Klein, K. A. Berkowitz, J. R. Curtis, and L. Rubinson. 2008. Definitive care for the critically ill during a disaster: A framework for allocation of scarce resources in mass critical care. From a Task Force for Mass Critical Care summit meeting, January 26-27, 2007, Chicago, IL. *Chest* 133(Suppl. 5):S51-S66.
- DHS (U.S. Department of Homeland Security). 2007. *Homeland security exercise and evaluation program. Volume II: Exercise planning and conduct*. <https://hseep.dhs.gov/support/VolumeII.pdf> (accessed February 27, 2012).
- Downar, J., and D. Seccareccia. 2010. Educational fellows in care at the end of life. Palliating a pandemic: "All patients must be cared for." *Journal of Pain and Symptom Management* 39(2):291-295.
- Eastman, N., B. Phillips, and A. Rhodes. 2010. Triaging for adult critical care in the event of overwhelming need. *Intensive Care Medicine* 36(6):1076-1082.
- EMSA (California Emergency Medical Services Authority). 2007. Disaster medical services division—Hospital Incident Command System (HICS). <http://www.emsa.ca.gov/hics/> (accessed February 5, 2012). EMSC (Emergency Medical Services for Children) National Resource Center. 2010. *Pediatric disaster preparedness*. Silver Spring, MD: EMSC, <http://www.childrensnational.org/EMSC/PubRes/OldToolboxPages/PDPreparedness.aspx> (accessed November 29, 2011).
- Eschun, G. M., E. Jacobsohn, D. Roberts, and B. Sneiderman. 1999. Ethical and practical considerations of withdrawal of treatment in the intensive care unit. *Canadian Journal of Anaesthesia* 46(5):497-504.
- FEMA (Federal Emergency Management Agency). 2007a. *Fact sheet: NIMS ICS-400 training in FY 2007: Who must take it, what it covers*. http://www.fema.gov/pdf/emergency/nims/ics_400_fs.pdf (accessed February 27, 2012).
- FEMA. 2007b. *Fact sheet: NIMS ICS-300 training: Who must take it, what it covers*. http://www.fema.gov/pdf/emergency/nims/ics_300_fs.pdf (accessed February 27, 2012).
- FEMA. 2007c. *National Incident Management System (NIMS) basic guidance for Public Information Officers (PIOs)*. <http://www.fema.gov/library/viewRecord.do?id=3095> (accessed February 27, 2012).
- FEMA. 2011. *NIMS resource center*. <http://www.fema.gov/emergency/nims/> (accessed February 27, 2012).
- FEMA and Emergency Management Institute. 2008. *National Incident Management System independent study 701—Multi-Agency Coordination System (MACS) course*. Emmitsburg, MD: FEMA. <http://training.fema.gov/EMIWeb/IS/is701.asp> (accessed July 31, 2008).

- FEMA and Emergency Management Institute. 2010. *IS-702.a National Incident Management System (NIMS) public information systems*. <http://training.fema.gov/EMIweb/IS/IS702a.asp> (accessed February 27, 2012).
- Fink, S. 2009. The deadly choices at memorial. *ProPublica*, August 27. <http://www.propublica.org/topic/deadly-choices-memorial-medical-center-after-katrina/> (accessed May 5, 2011).
- Fisher, D., D. S. Hui, Z. Gao, C. Lee, M. D. Oh, B. Cao, T. T. Hien, K. Patlovich, and J. Farrar. 2011. Pandemic response lessons from influenza H1N1 2009 in Asia. *Respirology* 16(6):876-882.
- Fox, E. R., and L. S. Tyler. 2004. Measuring the impact of drug shortages. *American Journal of Health-System Pharmacy* 61(19):2009.
- Frolic, A., A. Kata, and P. Kraus. 2009. Development of a critical care triage protocol for pandemic influenza: Integrating ethics, evidence and effectiveness. *Healthcare Quarterly* 12(4):54-62.
- Frykberg, E. R. 2002. Medical management of disasters and mass casualties from terrorist bombings: How can we cope? *Journal of Trauma* 53:201-212.
- GAO (U.S. Government Accountability Office). 2008. *States are planning for medical surge, but could benefit from shared guidance for allocating scarce medical resources*. GAO-08-668. Washington, DC: GAO.
- Gershengorn, H. B., H. Wunsch, R. Wahab, D. Leaf, D. Brodie, G. Li, and P. Factor. 2011. Impact of nonphysician staffing on outcomes in a medical ICU. *Chest* 139(6):1347-1353.
- Gomersall, D. C., D. Y. Tai, S. Loo, J. L. Derrick, M. S. Goh, T. A. Buckley, C. Chua, K. M. Ho, G. P. Raghavan, O. M. Ho, L. B. Lee, and G. M. Joynt. 2006. Expanding ICU facilities in an epidemic: Recommendations based on experience from the SARS epidemic in Hong Kong and Singapore. *Intensive Care Medicine* 30:381-387.
- Grissom, C. K., S. M. Brown, K. G. Kuttler, J. P. Boltax, J. Jones, A. R. Jephson, and J. F. Orme, Jr. 2010. A modified sequential organ failure assessment score for critical care triage. *Disaster Medicine and Public Health Preparedness* 4(4):277-284.
- Gurwitch, K. D., M. A. Goldwire, and C. J. Baker. 1998. Intravenous immune globulin shortage: Experience at a large children's hospital. *Pediatrics* 102(3 Pt. 1):645-647.
- Hanfing, D. 2006. Equipment, supplies, and pharmaceuticals: How much might it cost to achieve basic surge capacity? *Academic Emergency Medicine* 13(11):1232-1237.
- HHS (Department of Health and Human Services). 2011. *Emergency preparedness planning and response*. <http://www.hhs.gov/ocr/privacy/hipaa/understanding/special/emergency/index.html> (accessed February 27, 2012).
- HHS. 2012. *Division of the Civilian Volunteer Medical Reserve Corps*. Washington, DC: HHS, <http://www.medicalreservecorps.gov/HomePage> (accessed February 27, 2012).
- Hick, J. L., D. Hanfling, J. Burstein, C. DeAtely, D. Barbisch, G. Bogdan, and S. Cantrill. 2004. Healthcare facility and community strategies for patient care surge capacity. *Annals of Emergency Medicine* 44:253-261.
- Hick, J. L., L. Rubinson, D.T. O'Laughlin, and J. C. Farmer. 2007. Clinical review: Allocating ventilators during large-scale disasters—problems, planning, and process. *Critical Care* 11(3):217.
- Hick, J. L., K. L. Koenig, D. Barbisch, and T. A. Bey. 2008. Surge capacity concepts for health care facilities: The CO-S-TR model for initial incident assessment. *Disaster Medicine and Public Health Preparedness* 2(Suppl. 1):S51-S57.
- Hick, J. L., J. A. Barbera, and G. D. Kelen. 2009. Refining surge capacity: Conventional, contingency, and crisis capacity. *Disaster Medicine and Public Health Preparedness* 3(Suppl. 2):S59-S67.
- Hick, J. L., D. Hanfling, and S. V. Cantrill. 2011. Allocating scarce resources in disasters: Emergency department principles. *Annals of Emergency Medicine* (e-published ahead of print).
- Hodge, J. G., and E. F. Brown. 2011. Assessing liability for health care entities that insufficiently prepare for catastrophic emergencies. *JAMA* 306(3):308-309.
- Hollak, C. E., S. vom Dahl, J. M. Aerts, N. Belmatoug, B. Bembi, Y. Cohen, T. Collin-Histed, P. Deegan, L. van Dussen, P. Giraldo, E. Mengel, H. Michelakakis, J. Manuel, M. Hrebicek, R. Parini, J. Reinke, M. di Rocco, M. Pocovi, M. C. Sa Miranda, A. Tylki-Szymanska, A. Zimran, and T. M. Cox. 2010. Force majeure: Therapeutic measures in response to restricted supply of imiglucerase (cerezyme) for patients with Gaucher disease. *Blood Cells, Molecules & Diseases* 44(1):41-47.
- Hota, S., E. Fried, L. Burry, T. E. Stewart, and M. D. Christian. 2010. Preparing your intensive care unit for the second wave of H1N1 and future surges. *Critical Care Medicine* 38(Suppl. 4):e110-e119.
- IASC (Inter-Agency Standing Committee). 2007. *IASC guidelines on mental health and psychological support in emergency settings*. Geneva, Switzerland: IASC.
- IOM (Institute of Medicine). 2006. *Hospital-based emergency care: At the breaking point*. Washington, DC: The National Academies Press.

- IOM. 2009. *Guidance for establishing crisis standards of care for use in disaster situations: A letter report*. Washington, DC: The National Academies Press.
- Iserson, K. V., and J. C. Moskop. 2007. Triage in medicine, part I: Concept, history, and types. *Annals of Emergency Medicine* 49:275-281.
- Joint Commission. 2008. *Emergency management standards in compliance elements of performance*. Chicago, IL: The Joint Commission.
- Kaji, A., K. L. Koenig, and T. Bey. 2006. Surge capacity for healthcare systems: A conceptual framework. *Academic Emergency Medicine* 13(11):1157-1159.
- Kanter, R. K. 2007. Strategies to improve pediatric disaster surge response: Potential mortality reduction and tradeoffs. *Critical Care Medicine* 35(12):2837-2842.
- Kanter, R. K., and A. Cooper. 2009. Mass critical care: Pediatric considerations in extending and rationing care in public health emergencies. *Disaster Medicine and Public Health Preparedness* 3(Suppl. 2):S166-S171.
- Kaposy, C., N. Bandrauk, D. Pullman, R. Singleton, and F. Brunger. 2010. Adapting the Hamilton Health Sciences critical care pandemic triage protocol. *Healthcare Quarterly* 13(2):60-63.
- Khan, Z., J. Hulme, and N. Sherwood. 2009. An assessment of the validity of SOFA score based triage in H1N1 critically ill patients during an influenza pandemic. *Anaesthesia* 64(12):1283-1288.
- King County Healthcare Coalition. 2011. *Welcome to the coalition*. <http://www.kingcountyhealthcarecoalition.org/> (accessed November 29, 2011).
- Kirby, J. 2010. Enhancing the fairness of pandemic critical care triage. *Journal of Medical Ethics* 36(12):758-761.
- Klein, K. R., P. E. Pepe, F. M. Burkle, Jr., N. E. Nagel, and R. E. Swinton. 2008. Evolving need for alternative triage management in public health emergencies: A Hurricane Katrina case study. *Disaster Medicine and Public Health Preparedness* 2(Suppl. 1):S40-S44.
- Kopp, J. B., L. K. Ball, A. Cohen, R. J. Kenney, K. D. Lempert, P. E. Miller, P. Muntner, N. Qureshi, and S. A. Yelton. 2007. Kidney patient care in disasters: Emergency planning for patients and dialysis facilities. *Clinical Journal of the American Society of Nephrology* 2(4):825-838.
- Kuhne, C. A., S. Ruchholtz, G. M. Kaiser, and D. Nast-Kolb. 2005. Mortality in severely injured elderly trauma patients—when does age become a risk factor? *World Journal of Surgery* 29(11):1476-1482.
- Lemeshow, S., D. Teres, J. Klar, J. S. Avrunin, S. H. Gehlbach, and J. Rapoport. 1993. Mortality probability models based on an international cohort of intensive care unit patients. *Journal of the American Medical Association* 270:2478-2486.
- Lerner, E. B., R. B. Schwartz, P. L. Coule, E. S. Weinstein, D. C. Cone, R. C. Hunt, S. M. Sasser, J. M. Liu, N. G. Nudell, I. S. Wedmore, J. Hammond, E. M. Bulger, J. P. Salomone, T. L. Sanddal, D. Markenson, and R. E. O'Connor. 2008. Mass casualty triage: An evaluation of the data and development of a proposed national guideline. *Disaster Medicine and Public Health Preparedness* 2(Suppl. 1):S25-S34.
- Lieberman, D., L. Nachshon, O. Miloslavsky, V. Dvorkin, A. Shimoni, and D. Lieberman. 2009. How do older ventilated patients fare? A survival/functional analysis of 641 ventilations. *Journal of Critical Care* 24(3):340-346.
- Lin, G., H. Lavon, R. Gelfond, A. Abargel, and O. Merin. 2010. Hard times call for creative solutions: Medical improvisations at the Israel Defense Forces Field Hospital in Haiti. *American Journal of Disaster Medicine* 5(3):188-192.
- Lin, J. Y., N. Bhalla, and R. A. King. 2009. Training medical students in bag-valve-mask technique as an alternative to mechanical ventilation in a disaster surge setting. *Prehospital and Disaster Medicine* 24(5):402-406.
- Maa, J. 2011. The waits that matter. *New England Journal of Medicine* 364(24):2279-2281.
- Maldin, B., C. Lam, C. Franco, D. Press, R. Waldhorn, E. Toner, T. O'Toole, and T. V. Inglesby. 2007. Regional approaches to hospital preparedness. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 5:43-53.
- Matzo, M., A. Wilkinson, J. Lynn, M. Gatto, and S. J. Phillips. 2009. Palliative care considerations for mass casualty events with scarce resources. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 7(2):199-210.
- McNally, R. J., R. A. Bryant, and A. Ehlers. 2003. Does early psychological intervention promote recovery from posttraumatic stress? *Psychological Science in the Public Interest* 4(2):45-79.
- Meites, E., D. Farias, L. Raffo, R. Albalak, O. L. Carlino, L. C. McDonald, and M. A. Widdowson. 2011. Hospital capacity during an influenza pandemic—Buenos Aires, Argentina, 2009. *Infection Control and Hospital Epidemiology* 32(1):87-90.
- Merin, O., N. Ash, G. Levy, M. J. Schwaber, and Y. Kreiss. 2010. The Israeli field hospital in Haiti: Ethical dilemmas in early disaster response. *New England Journal of Medicine* 362(11):e38.

- Minnesota Department of Health. 2009. *MDH Interim 2009 H1N1 Influenza Infection Prevention and Control Guidelines are posted*. Minneapolis, MN: Minnesota Department of Health, <http://www.health.state.mn.us/mls/LabAlerts/091109update5.pdf> (accessed February 28, 2012).
- Minnesota Department of Health. 2011. *Patient care strategies for scarce resource situations*. St. Paul Minneapolis, MN: Minnesota Department of Health, <http://www.health.state.mn.us/oep/healthcare/standards.pdf> (accessed February 1727, 2012).
- Moreno, R., J. L. Vincent, R. Matos, A. Mendonca, F. Cantraine, L. Thijs, J. Takala, C. Sprung, M. Antonelli, H. Bruining, and S. Willatts. 1999. The use of maximum SOFA score to quantify organ dysfunction/failure in intensive care. Results of a prospective, multicentre study. *Intensive Care Medicine* 25(7):686-696.
- Müller, T., A. Philipp, M. Lubnow, C. Weingart, M. Pfeifer, G. A. J. Riegger, and C. Schmid. 2011. First application of a new portable, miniaturized system for extracorporeal membrane oxygenation. *Perfusion* 26(4):284-288.
- Nap, R. E., M. P. Andriessen, N. E. Meessen, M. J. Albers, and T. S. van der Werf. 2010. Pandemic influenza and pediatric intensive care. *Pediatric Critical Care Medicine* 11(2):185-198.
- National Commission on Children and Disasters. 2009. *National Commission on Children and Disasters homepage*. <http://www.childrenanddisasters.acf.hhs.gov> (accessed November 29, 2011).
- Needleman, J., P. Buerhaus, S. Mattke, M. Stewart, and K. Zelevinsky. 2002. Nurse-staffing levels and the quality of care in hospitals. *New England Journal of Medicine* 346(22):1715-1722.
- NIMH (National Institute of Mental Health). 2002. *Mental health and mass violence: Evidence-based early psychological intervention for victims/survivors of mass violence. A workshop to reach consensus on best practices*. NIH publication no. 02-5138, Washington, DC: U.S. Government Printing Office.
- Noah, M. A., G. J. Peek, S. J. Finney, M. J. Griffiths, D. A. Harrison, R. Grieve, M. Z. Sadique, J. S. Sekhon, D. F. McAuley, R. K. Firmin, C. Harvey, J. J. Cordingley, S. Price, A. Vuylsteke, D. P. Jenkins, D. W. Noble, R. Bloomfield, T. S. Walsh, G. D. Perkins, D. Menon, B. L. Taylor, and K. M. Rowan. 2011. Referral to an extracorporeal membrane oxygenation center and mortality among patients with severe 2009 influenza A(H1N1). *JAMA* 306(15):1659-1668.
- NYCDHMH (New York City Department of Health and Mental Hygiene). 2007. *Preparedness focus areas: Pediatric preparedness*. New York: NYCDHMH, <http://www.nyc.gov/html/doh/html/bhpp/bhpp-focus-ped-toolkit.shtml> (accessed November 29, 2011).
- O'Laughlin, D. T., and J. L. Hick. 2008. Ethical issues in resource triage. *Respiratory Care* 53(2):190-197; discussion 197-200.
- Peek, G. J., M. Mugford, R. Tiruvoipati, A. Wilson, E. Allen, M. M. Thalany, C. L. Hibbert, A. Truesdale, F. Clemens, N. Cooper, R. K. Firmin, and D. Elbourne. 2009. Efficacy and economic assessment of conventional ventilatory support versus extracorporeal membrane oxygenation for severe adult respiratory failure (CESAR): A multicentre randomised controlled trial. *Lancet* 374(9698):1351-1363.
- Peleg, K., and A. L. Kellermann. 2009. Enhancing hospital surge capacity for mass casualty events. *Journal of the American Medical Association* 302:565-567.
- Pettilä, V., M. Pettilä, S. Sarna, P. Voutilainen, and O. Takkunen. 2002. Comparison of multiple organ dysfunction scores in the prediction of hospital mortality in the critically ill. *Critical Care Medicine* 30(8):1705-1711.
- Plourde, K. L., and J. Moats. 2006. The Incident Command System: A process to move our response stance from reactive to proactive. *The Coast Guard Journal of Safety & Security at Sea* 63:11-14, www.uscg.mil/proceedings (accessed February 27, 2012).
- Pollack, M. M., K. M. Patel, and U. E. Ruttiman. 1996. PRISM III: An updated pediatric risk of mortality score. *Critical Care Medicine* 24:743-752.
- Powell, T., K. C. Christ, and G. S. Birkhead. 2008. Allocation of ventilators in a public health disaster. *Disaster Medicine and Public Health Preparedness* 2(1):20-26.
- Premier, Inc. 2011. *Hospital drug shortages*. Charlotte, NC: Premier, Inc, <http://www.premierinc.com/about/advocacy/issues/11/Hospital-Drug-Shortages-Premier-Policy-Paper.pdf> (accessed November 29, 2011).
- Propper, B. W., T. E. Rasmussen, S. B. Davidson, S. L. Vandenberg, W., D. Clouse, G. E. Burkhardt, S. M. Gifford, and J. A. Johannigman. 2009. Surgical response to multiple casualty incidents following single explosive events. *Annals of Surgery* 250(2):311-315.
- Rasmussen, S. A., D. J. Jamieson, and J. S. Bresee. 2008. Pandemic influenza and pregnant women. *Emerging Infectious Diseases* 14(1):95-100.

- Rubinson, L., J. B. Nuzzo, D. S. Talmor, T. O'Toole, B. R. Kramer, and T. V. Inglesby. 2005. Augmentation of hospital critical care capacity after bioterrorist attacks or epidemics: Recommendations of the Working Group on Emergency Mass Critical Care. *Critical Care Medicine* 33(10):2393-2403.
- Rubinson, L., J. L. Hick, D. Hanfling, A. V. Devereaux, J. R. Dichter, M. D. Christian, D. Talmor, J. Medina, J. R. Curtis, J. A. Geiling; Task Force for Mass Critical Care. 2008a. Definitive care for the critically ill during a disaster: A framework for optimizing critical care surge capacity. *Chest* 133(Suppl. 5):18S-31S.
- Rubinson, L., J. L. Hick, J. R. Curtis, R. D. Branson, S. Burns, M. D. Christian, and A. V. Devereaux, J. R. Dichter, D. Talmor, B. Erstad, J. Medina, and J. A. Geiling; Task Force for Mass Critical Care. 2008b. Definitive care for the critically ill during a disaster: Medical resources for surge capacity. From a Task Force for Mass Critical Care summit meeting, January 26-27, 2007, Chicago, IL. *Chest* 133(Suppl. 5):32S-50S.
- Rubinson, L., A. Knebel, and J. L. Hick. 2010. MSOFA: An important step forward, but are we spending too much time on the SOFA? *Disaster Medicine and Public Health Preparedness* 4(4):270-272.
- Ruggiero, K. J., H. S. Resnick, R. Acierno, S. F. Coffey, M. J. Carpenter, A. M. Ruscio, R. S. Stephens, D. G. Kilpatrick, P. R. Stasiewicz, R. A. Roffman, M. Bucuvalas, and S. Galea. 2006. Internet-based intervention for mental health and substance use problems in disaster-affected populations: A pilot feasibility study. *Behaviour Research and Therapy* 37(2):190-205.
- Saffle, J. R., N. Gibran, and M. Jordan. 2005. Defining the ratio of outcomes to resources for triage of burn patients in mass casualties. *Journal of Burn Care & Rehabilitation* 26(6):478-482.
- Sasser, S. M., R. C. Hunt, E. E. Sullivent, M. M. Wald, J. Mitchko, G. J. Jurkovich, M. C. Henry, J. P. Salomone, S. C. Wang, R. L. Galli, A. Cooper, L. H. Brown, and R. W. Sattin. 2009. Guidelines for field triage of injured patients. Recommendations of the National Expert Panel on Field Triage. *Morbidity and Mortality Weekly Report. Recommendations and Reports* 58(RR-1):1-35.
- Scarfone, R. J., S. Coffin, E. S. Fieldston, G. Falkowski, M. G. Cooney, and S. Grenfell. 2011. Hospital-based pandemic influenza preparedness and response: Strategies to increase surge capacity. *Pediatric Emergency Care* 27(6):565-572.
- Schreiber, M., and S. Shields. 2012. *Anticipate, Plan, and Deter: building resilience in emergency health responders*. Presented at the 2012 NACCHO (National Association of City and County Health Officials) Public Health Preparedness Summit, Anaheim, California.
- Schreiber, M., B. Pfefferbaum, L. Sayegh, and J. Coady. In press. The way forward: The national children's disaster mental health concept of operations. *Disaster Medicine and Public Health*.
- Shahpori, R., H. T. Stelfox, C. J. Doig, P. J. Boiteau, and D. A. Zygun. 2011. Sequential Organ Failure Assessment in H1N1 pandemic planning. *Critical Care Medicine* 39(4):827-832.
- Sills, M. R., M. Hall, H. K. Simon, E. S. Fieldston, N. Walter, J. E. Levin, T. V. Brogan, P. D. Hain, D. M. Goodman, D. D. Fritch-Levens, D. B. Fagbuyi, M. B. Mundorff, A. M. Libby, H. O. Anderson, W. V. Padula, and S. S. Shah. 2011. Resource burden at children's hospitals experiencing surge volumes during the spring 2009 H1N1 influenza pandemic. *Academic Emergency Medicine* 18(2):158-166.
- Singanayagam, A., A. Singanayagam, V. Wood, and J. D. Chalmers. 2011. Factors associated with severe illness in pandemic 2009 influenza A (H1N1) infection: Implications for triage in primary and secondary care. *Journal of Infection* 63(4):243-251.
- Society of Critical Care Medicine Ethics Committee. 1994a. Attitudes of critical care medicine professionals concerning distribution of intensive care resources. *Critical Care Medicine* 22:358-362.
- Society of Critical Care Medicine Ethics Committee. 1994b. Consensus statement on the triage of critically ill patients. *Journal of the American Medical Association* 271:1200-1203.
- Tabery, J., and C. W. Mackett, III. 2008. Ethics of triage in the event of an influenza pandemic. *Disaster Medicine and Public Health Preparedness* 2(2):114-118.
- Talmor, D., A. E. Jones, L. Rubinson, M. D. Howell, and N. I. Shapiro. 2007. Simple triage scoring system predicting death and the need for critical care resources for use during epidemics. *Critical Care Medicine* 35(5):1251-1256.
- Toner, E., R. Waldhorn, C. Franco, B. Courtney, K. Rambhia, A. Norwood, T. Inglesby, and T. O'Toole. 2009. *Hospitals rising to the challenge: The first five years of the U.S. hospital preparedness program and priorities going forward*. Baltimore, MD: Center for Biosecurity of UPMC.
- Trotter, G. 2010. Sufficiency of care in disasters: Ventilation, ventilator triage, and the misconception of guideline-drive treatment. *Journal of Clinical Ethics* 21(4):294-307.

- University of Minnesota. 2007. *Caring for pregnant/birthing women and their newborns during disasters: An introduction to the issues*. http://www.nursing.umn.edu/meret/MERET_Courses/moms_module.html (accessed February 27, 2012).
- University of Toronto. 2005. *Stand on guard for thee: Ethical considerations in preparedness planning for pandemic influenza*. University of Toronto Joint Centre for Bioethics Pandemic Influenza Working Group. Toronto, Canada: University of Toronto.
- U.S. Census Bureau. 2012. *State & county QuickFacts*. <http://quickfacts.census.gov/qfd/states/00000.html> (accessed February 27, 2012).
- USAISR (U.S. Army Institute of Surgical Research). 2009. *Tactical Combat Casualty Care guidelines*. <http://www.usaisr.amedd.army.mil/tccc/TCCC%20Guidelines%20091104.pdf> (accessed February 25, 2011).
- Utley, M., C. Pagel, M. J. Peters, A. Petros, and P. Lister. 2011. Does triage to critical care during a pandemic necessarily result in more survivors? *Critical Care Medicine* 39(1):179-183.
- VA (Department of Veterans Affairs). 2006. *Staff discussion forum materials: Ethical issues in pandemic influenza preparedness and response—material to guide staff discussions*. Washington, DC: http://www.ethics.va.gov/docs/pandemicflu/VA_Pandemic_Flu_Forum_Guide_040507.pdf (accessed March 15, 2012).
- VA. 2010. *Emergency Management Program Guidebook*. Washington, DC.
- VA. 2012. *Ethical issues in pandemic influenza preparedness*. Washington, DC: Department of Veterans Affairs, http://www.ethics.va.gov/docs/pandemicflu/Meeting_the_Challenge_of_Pan_Flu-Ethical_Guidance_VHA_20100701.pdf (accessed March, 15, 2012).
- VA. [no date]. *VA fact sheet for health care staff: Meeting the ethical challenges of a severe pandemic influenza*. Washington, DC: VA, http://www.ethics.va.gov/docs/pandemicflu/Ethics_and_Pandemic_Flu_Fact_Sheet_508_2010-09-30.pdf (accessed March 15, 2012).
- Veterans Health Administration. 2010. *Meeting the challenge of pandemic influenza: Ethical guidance for leaders and health care professionals in the Veterans Health Administration*. Washington, DC: Veterans Health Administration, http://www.ethics.va.gov/activities/pandemic_influenza_preparedness.asp (accessed March 15, 2012).
- Vawter, D. E., J. E. Garrett, K. G. Gervais, A. W. Prehn, D. A. DeBruin, C. A. Tauer, E. Parilla, J. Liaschenko, and M. F. Marshall. 2010. *For the good of us all: Ethically rationing health resources in Minnesota in a severe influenza pandemic*. St. Paul, MN: Minnesota Center for Health Care Ethics and University of Minnesota Center for Bioethics, <http://www.health.state.mn.us/divs/idepc/ethics/> (accessed February 27, 2012).
- Vincent, J. L., R. Moreno, J. Takala, S. Willatts, A. De Mendonça, H. Bruining, C. K. Reinhart, P. M. Suter, and L. G. Thijs. 1996. The SOFA (Sepsis-related Organ Failure Assessment) score to describe organ dysfunction/failure. On behalf of the Working Group on Sepsis-Related Problems of the European Society of Intensive Care Medicine. *Intensive Care Medicine* 22(7):707-710.
- Vincent, J. L., A. de Mendonca, F. Cantraine, R. Moreno, J. Takala, P. M. Suter, C. L. Sprung, F. Colardyn, and S. Blecher. 1998. Use of the SOFA score to assess the incidence of organ dysfunction/failure in intensive care units: Results of a multicenter, prospective study. Working group on “Sepsis-related problems” of the European Society of Intensive Care Medicine. *Critical Care Medicine* 26(11):1793-1800.
- West, J. B. 2005. The physiological challenges of the 1952 Copenhagen poliomyelitis epidemic and a renaissance in clinical respiratory physiology. *Journal of Applied Physiology* 99(2):424-432.
- Xiong, W., A. Bair, C. Sandrock, S. Wang, J. Siddiqui, and N. Hupert. 2010. Implementing telemedicine in medical emergency response: Concept of operation for a regional telemedicine hub. *Journal of Medical Systems* (e-publication ahead of print).
- Ytzhak, A., R. Sagi, T. Bader, A. Assa, A. Farfel, O. Merin, and Y. Kreiss. 2012. Pediatric ventilation in a disaster—clinical and ethical decision making. *Critical Care Medicine* 40(2):603-607.
- Zygun, D. A. 2005. Limited ability of SOFA and MOD scores to discriminate outcome: A prospective evaluation in 1,436 patients. *Canadian Journal of Anaesthesia* 52(3):302-308.



Crisis Standards of Care

A Systems Framework for
Catastrophic Disaster Response

Alternate Care Systems

INSTITUTE OF MEDICINE
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Crisis Standards of Care

A Systems Framework for Catastrophic Disaster Response

Volume 5: Alternate Care Systems

Committee on Guidance for Establishing Standards of Care for Use in Disaster Situations

Board on Health Sciences Policy

Dan Hanfling, Bruce M. Altevogt, Kristin Viswanathan, and Lawrence O. Gostin, *Editors*

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*“Knowing is not enough; we must apply.
Willing is not enough; we must do.”*
—Goethe



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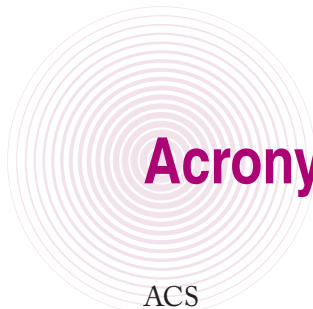
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Acronyms

ACS	Alternate Care System
CDC	Centers for Disease Control and Prevention
CSC	crisis standards of care
DMAC	disaster medical advisory committee
EMS	emergency medical services
EOC	emergency operations center
ESAR-VHP	Emergency System for Advance Registration of Volunteer Health Professionals
ESF	Emergency Support Function
FEMA	Federal Emergency Management Agency
HHS	Department of Health and Human Services
HICS	hospital incident command system
ICS	incident command system
JIS	joint information system
MAC	multiagency coordination
MOU	memorandum of understanding
MRC	Medical Reserve Corps
NDMS	National Disaster Medical System
NIMS	National Incident Management System

PFA	psychological first aid
SDMAC	state disaster medical advisory committee
SNS	Strategic National Stockpile
VA	Department of Veterans Affairs

8: Out-of-Hospital and Alternate Care Systems

Although much of disaster and surge capacity planning focuses on hospital-based care, approximately 89 percent of health care is delivered in outpatient settings. Of an estimated 1.2 billion outpatient visits in 2007, fewer than 17 percent were to emergency departments or hospital-associated clinics (Schappert and Rechtsteiner, 2011); total hospitalizations were 34.4 million in the same year (Hall et al., 2010). Especially during an epidemic, failure to leverage outpatient resources may result in catastrophic overload of inpatient and hospital-affiliated resources (Sills et al., 2011). For this reason, efforts to improve the integration of outpatient care assets into disaster response are critical, not only to improve the provision of crisis care but also to *avoid* crisis care. Current federal, state, and local disaster planning efforts have focused on integrating the hospital system and public health agencies. Following recent mass evacuations of residential care facilities (for hurricanes and fires), increased attention has been paid to outpatient nursing and long-term care units; however, individual and small-group practice settings have received little attention or integration into broader disaster planning efforts.

The value of the outpatient sector—its diversity—is also its challenge; the numbers and types of clinics and providers in a given area (in addition to long-term care, outpatient surgery, and other medical facilities) hamper detailed coordinated planning. Some outpatient facilities may be part of larger health care systems and thus much more able to coordinate information and develop policies that are consistent with a larger community response. Some may be community health centers—publicly funded entities with more than 8,000 sites across the nation. Those that are federally funded through the Department of Health and Human Services (HHS) recently have been required to improve their level of disaster preparedness. Such publicly funded clinics and programs benefit from the fact that they often serve at-risk populations with publicly employed providers, and provide an established mechanism and chain of command for clinical policy development, expertise, and medical direction that can be leveraged in public health emergencies. However, most facilities are independent group and solo private practices that may have no connection to local disaster planning and indeed, may not have a disaster or surge capacity plan at all. The ability of local public health or other government response agencies to engage all of these providers and clinics is compromised by their heterogeneity and the lack of available personnel, time, and funding. This gap in disaster preparedness is a potential barrier that can undermine the delivery of crisis care in mass casualty incidents such as a pandemic.

This chapter focuses on the need to include outpatient facilities and providers in disaster response to

maximize a community’s available resources. It describes the roles and responsibilities of the outpatient sector in a disaster response and the operational considerations associated with incorporating these facilities and providers into local and regional response. Although the chapter is not designed to be an operational guide for selection or operation of these facilities, it enumerates the functions and tasks required of outpatient facilities and providers to plan for and respond to a disaster. The template at the end of the chapter provides further detail on these functions and tasks for each type of outpatient care entity. While emergency medical services (EMS) may contribute to some of these strategies, their role in disaster response is addressed separately in Chapter 6.

ROLES AND RESPONSIBILITIES OF OUT-OF-HOSPITAL AND ALTERNATE CARE SYSTEMS

Disaster outpatient care—particularly the use of alternate care systems (hotlines, alternate care sites)—has been a gray area where public health and health care responsibilities frequently overlap. The result often has been less than optimal planning, with public health entities unwilling or unable to take responsibility for coordinating the care of ill or injured patients, and private health care systems unwilling or unable to take responsibility for setting up alternate care sites that would be established in unregulated facilities and therefore not within their current regulatory standards. Preincident discussion and strategizing between the two sectors are critical to a successful disaster response. Public health entities cannot simply “assign” private health care to develop outpatient surge capacity, and private health care cannot assume that public health can provide the clinical leadership or resources (especially medical providers) needed to establish effective alternate care systems. The two have a joint responsibility and distinct but equally necessary roles in efforts to advance planning for outpatient care under crisis standards of care (CSC) conditions to ensure that health care goals during a disaster can be accomplished through coordinated efforts. The coordination of these efforts can be facilitated through public health agencies and health care coalitions. Table 8-1 provides a sampling of the respective responsibilities of the outpatient and public health sectors during a disaster.

Outpatient Care Resources

Outpatient care resources include solo and group practices, surgical and procedure centers, long-term care facilities, group home and congregate environments, and home care/durable medical equipment vendors. All of these entities should have a disaster plan. (Facilities that are reviewed by the Joint Commission often are better prepared than solo practices or nonresidential facilities.) These plans should include mechanisms to

- *Communicate*—receive health alerts and other public information, as well as communicate with staff, patients, and partner facilities during a disaster.
- *Contribute*—adjust practices to the demands of the incident, and assist in meeting patients’ health needs through expanded or novel mechanisms.
- *Coordinate*—coordinate policies and practices with either a partner health system or local government emergency response (including public health) recommendations. This process should be determined in advance of an incident, and the necessary electronic and other mechanisms should

TABLE 8-1

Sample of Responsibilities of the Outpatient and Public Health Sectors During a Disaster

Function	Health Care Sector	Public Health Sector
Overall	Providers, private infrastructure, medical materiel support, medical care and decision making, clinical policy development/technical expertise	Organizational support, situational awareness, liaison to emergency management/emergency operations center (EOC) and state/local government (including legal authorities and regulatory, policy, and logistical support [e.g., sites for care])
“Electronic care”: telephone triage/expanded patient hotlines/web-based assessment and prescribing	Augment and unify telephone advice and prescribing systems; update and modify advice “scripting”	Set up public lines/resources when demand exceeds available augmented resources; provide mechanisms for backup to 911 and other call centers; facilitate phone script coordination; address prescribing and practice regulatory issues
Ambulatory alternate care sites (e.g., “flu centers” or minor trauma care sites)	Augment existing clinics, and open new clinics in other spaces; assist in staffing public health clinics	Set up clinics in high-incidence/impact areas where health care resources are inadequate; provide site and logistics support (and potential staffing from Medical Reserve Corps and other public sources); address prescribing and practice regulatory issues
Nonambulatory alternate care sites (hospital overflow; may include medical shelter for nonambulatory patients)	Provide policy, medical direction, staffing, and special medical materiel support to site	Provide site and logistical support in conjunction with emergency management; legal/regulatory protections
Population-based interventions	Provide vaccinations and prophylaxis in conjunction with public health policy and directives (may include closed points of distribution)	Coordinate overall provision of interventions, including public sites and their staffing

be in place and tested. The process for changing clinical policies should be understood in advance since adjustments are required during an incident (e.g., to staffing, personal protective equipment, treatment guidelines, referral guidelines).

Outpatient Providers and Facilities

Providers

The roles and responsibilities of outpatient providers fall into two categories:

- *Medical skills*—may be utilized in their usual practice environment; in alternate care systems/assignments (including, e.g., serving as members of the Medical Reserve Corps [MRC], answering patient hotlines); and perhaps even in their neighborhood, as they may become a nexus for care that their neighbors cannot otherwise access (e.g., after an earthquake or flood that isolates the area or during an epidemic when they are a trusted and available source of information) (Schultz et al., 1996).

- *Infrastructure*—practice environments may be adjusted to help meet the demands of an overwhelming incident. For example, clinic functions may be
 - o expanded—using expanded hours, modifying care practices, and adjusting schedules to accommodate increased acute care (and deferring elective appointments), clinics can “surge” to accommodate additional patients; and
 - o repurposed—outpatient infrastructure may be repurposed during an incident as, for example, when a subspecialty clinic adjusts its hours or closes to enable the space to be used for acute care.

Integrating outpatient providers into a disaster response requires that they have both an awareness of their role within their facility and system and a way to coordinate their practice with broader community efforts; this includes having a mechanism with which to monitor the common operating picture of the incident. Hospitals and acute care facilities, in coordination with government emergency response entities (including public health agencies), should educate out-of-hospital and alternate care providers on a variety of response topics prior to an incident to support an effective response. Table 8-2 lists disaster planning issues for outpatient providers.

In some communities, providers offer their skill set for disaster response by preregistering with a local MRC (Medical Reserve Corp, 2011) unit or with the Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP) (ASPR, 2011b). This facilitates their credentialing and integration into a community response, such as by assisting at shelters. These providers then can serve under the umbrella of the government emergency response entity (e.g., emergency management agency, public health agency) with state and/or federal liability protections. A preregistration system also may help mitigate the convergent volunteerism that results in many providers coming to the site of an incident in an unstructured manner that does not support the response effort (Cone et al., 2003). However, these public health emergency response systems often do not offer providers a mechanism for surging in their own private-practice

TABLE 8-2
Disaster Planning Issues for Outpatient Providers

General	<ul style="list-style-type: none"> • Knowledge of significant/likely hazards to facility • Mechanisms of staff and patient notification/incident communications • Facility resources
Staffing	<ul style="list-style-type: none"> • Usual resources • Supplemental resources and their sources • Education and training (including source and mechanism for just-in-time training) • Staff surge planning (e.g., change in hours) • Legal/regulatory issues (e.g., liability, contract issues, reimbursement issues)
Clinical Care	<ul style="list-style-type: none"> • Patient flow, triage, scheduling, diversion • Infection prevention and control • Surveillance/detection responsibilities • Treatment protocols/patient prioritization (including, e.g., telephone prescribing, hotline/advice line referrals)

NOTE: Adapted from CDC working group on Alternate Care Systems and used with permission of Cpt. Deborah Levy, PhD, MPH.

settings or a means of integrating their practice with the community response. A basic infrastructure of preparedness is a requisite for the delivery of care during a disaster, but is not often considered in a busy practice. Augmentation of simple day-to-day activities and integration into existing disaster communication channels can help providers contribute to the response without imposing large financial or time commitments.

Clinics

This category encompasses a broad array of organizational structures, from multispecialty system-affiliated clinics and federally qualified health clinics to solo independent practitioners. The vast majority of this infrastructure is private, although there are some publicly operated clinics. Additionally, urgent care facilities, clinics based in retail stores, and pharmacies that may provide some medical screening and care should be engaged in disaster response. Finally, contributions from providers of nontraditional care, such as dentists, veterinarians, and others, may be required to support surge requirements during a disaster.

Surgical and Procedure Centers

These facilities may be repurposed to provide acute care, nonambulatory hospital overflow care, or elective surgeries not possible at hospitals (during infectious disease incidents), depending on the demands of the incident, the specifics of the facility, and the needs of the community. The need for modified regulatory and licensure standards (e.g., changes in the scope of care) should be addressed in advance in the event that federal, state, or local government entities (such as public health) mandate the delivery of triaged care in these facilities.

Long-Term Care Facilities

Many types of facilities are encompassed by this category. Most long-term care facilities have limited surge capacity to accommodate hospital discharges, although they should not be overlooked as a resource. They may have a role in particular in rural areas, where hospital-associated long-term care facilities may not operate at capacity, and demand in the community may not justify a separate alternate care site. Long-term care facilities should be prepared to shelter in place (including without power) during a major incident, and to modify patient care and referral policies (including when patients are referred to the emergency department) depending on the resources available within the health care system. Long-term care facilities also should plan for a disproportionate impact of certain incidents (e.g., a pandemic involving a novel influenza strain) on their residents (AHRQ, 2007a). Finally, a long-term care facility should have memorandum of understanding (MOU) in place both within its jurisdiction and in a distant jurisdiction to support evacuations or the delivery of CSC during an incident.

Group Home and Congregate Environments

These types of locations (e.g., schools, businesses) with on-site medical personnel may provide dispensing or vaccination/prophylaxis services in conjunction with government disaster response efforts, especially those of public health agencies. They also should be prepared to provide sheltering or isolation for their residents/students during an incident and adjust referral criteria and care policies to reflect current community practices during a disaster.

BOX 8-1

Home Care Agencies' Allocation of Scarce Resources

During the 2011 Southern California blackout, home oxygen generators failed and had to be replaced by nonpowered oxygen tanks and systems, which were in short supply. A home care agency determined that it would give priority to patients with active treatment plans (i.e., hospice patients were last to be served). As a result, many hospice patients were taken to area emergency departments for symptomatic relief.

Key issues:

- Many home medical devices are dependent on electrical power.
- Home care agencies should have a plan for prioritizing support for these patients, and these plans should be communicated prior to an incident. Overall guidance (e.g., from respiratory care societies) is needed on the management of home oxygen and ventilator patients during a disaster to help standardize support and backup systems.
- The cost of maintaining portable oxygen cylinders for rare incidents is problematic.
- Device-dependent patients should have a care plan in case of system failure.
- Emergency departments may be overwhelmed by patients with chronic care needs when home care services cannot be maintained.

SOURCE: Greenwald et al., 2004.

Home Care/Durable Medical Equipment Vendors

Home care/durable medical equipment vendors should have plans to prioritize their services based on the nature of an incident (and adjust them as the incident evolves over time). These plans also should cover clients that are quarantined, isolated, or sheltering in place because of weather or other emergencies (see Box 8-1). Home care and durable medical equipment vendors may play critical roles as well in providing equipment and services to shelters and alternate care sites (AHRQ, 2011; Rebmann et al., 2011).

Family-Based Care

Home care provided by family members can play a critical role in preventing the medical system from being overloaded, whether during a pandemic or an incident such as a blackout. Families should be prepared for expanded responsibilities during an incident. Further, home care agencies should develop mechanisms to communicate issues related to CSC during an incident.

Alternate Care Systems

Although the previous section addressed outpatient entities whose existence is not tied to disaster response, recent experience (e.g., the H1N1 pandemic, Hurricane Katrina) demonstrates that such entities can serve to reduce patient volume at hospitals and are a crucial response component. When a disaster overwhelms the surge capacity of both hospitals and these traditional outpatient entities, alternate care systems may be established. The common types of alternate care systems and their functions are described in the following sections. Each type provides for the needs of specific patient groups (e.g., ambulatory and nonambulatory,

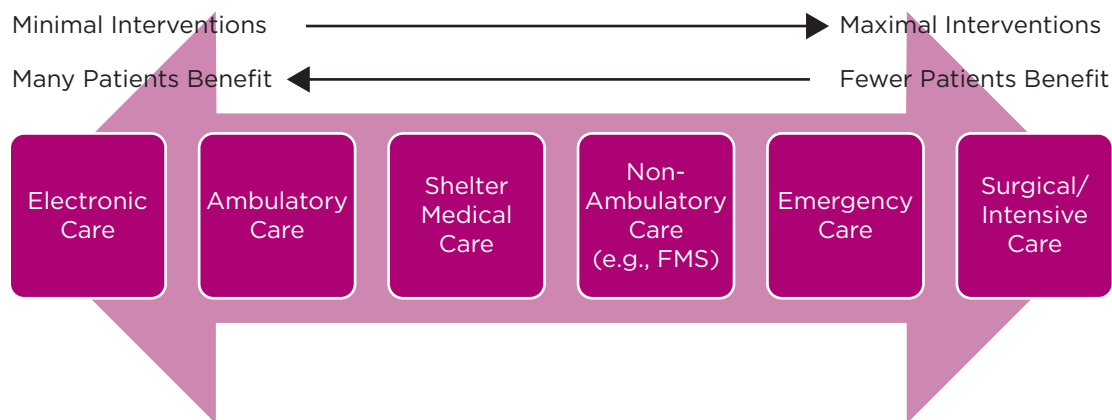


FIGURE 8-1

Relationship between degree of intervention at an alternate care site and number of patients that can benefit from the intervention.
NOTE: FMS = federal medical station.

surgical, emergency, shelter based), requires a certain amount of time to set up, and may be more appropriate in certain types of disasters (e.g., an evolving epidemic versus a no-notice mass casualty incident). Figure 8-1 illustrates that as the degree of intervention increases, the number of patients that can receive the intervention decreases. Especially when CSC are in effect, the goal of providing the most benefit to the greatest number of people should influence the types of alternate care systems established. The following discussion expands on foundational work sponsored by the U.S. Soldier Biological and Chemical Command on modular emergency medical systems planning for disasters, including documents on acute care centers and neighborhood emergency help centers (DOD, 2001a,b).

One of the primary benefits of alternate care systems is their flexibility: both government emergency response entities and private health care institutions can establish them to maximize the efficiency of reaching an entire community. For instance, mass prophylaxis and vaccination centers are used in campaigns to inoculate a large population, and thus are generally operated by public health departments in community locations (NACCHO, 2008). However, health care facilities also may have a critical role to play in administering these interventions as closed points of dispensing (NACCHO, 2008) for their own institutions, as may nonhealth facilities (such as businesses or corporations) for their employees. These strategies should be incorporated into local public health dispensing plans and those associated with established health care coalitions.

Electronic Alternate Care Systems

Basic interventions can be provided to a large number of people for specific criteria/symptoms using minimal resources via electronic means. Online and telephone assessment and prescribing (implemented successfully in many jurisdictions for early antiviral treatment during the 2009 H1N1 pandemic, for example, through poison control centers) provide a method for treating at-risk individuals rapidly and without face-to-face encounters (Kellermann et al., 2010). Health insurance- and health system-based telephone and web systems, augmented by government emergency response systems as needed, can help meet demand (AHRQ, 2005, 2007c). Referral policies and telephone scripting may have to be adjusted to provide consistency across agencies/entities. Similar systems also can provide psychological assessments for patients with anxiety or

depression related to a disaster. In addition, telemedicine may be used to augment specialty care (Nicogossian and Doarn, 2011). Experts from outside the affected area may be used to provide consultation to support overwhelmed local resources; for example, burn experts outside an affected area may provide hotline or telemedicine support to community providers. Emerging social media technologies may also play a role.

Ambulatory Care Facilities

These facilities (e.g., “flu centers” or casualty collection points) are intended to serve the minimally ill or injured who cannot be accommodated by the usual outpatient infrastructure. The need for such facilities, as well as their staffing and supply, varies greatly depending on the type of incident and the phase of the incident. Acute need for such sites may be seen during a pandemic or after a massive no-notice incident, such as an earthquake or detonation of an improvised nuclear device. Health care facilities may set these units up in nontraditional locations on their premises (CBS News, 2009; Chung et al., 2011; Cruz et al., 2010) or at other sites under their control. Public sites may be initiated if the capacity of the health care system is overwhelmed or if selected populations or areas are disproportionately affected. These public sites also may be in nontraditional locations (e.g., veterinary clinics, dental clinics, schools). Preplanned supplies for infectious and trauma incidents should be considered for ambulatory care facilities. However, it is advisable to work with state Centers for Medicare & Medicaid Services offices to ensure that appropriate waivers are obtained.

Shelter-Based Care

The medical care needs of the sheltered population may be extensive, and a high level of medical expertise and materiel may be required at public shelters (e.g., for patients that are oxygen dependent, receive dialysis, or have behavioral health needs). Current recommendations are to avoid special shelters for those with medical or other physical/functional limitations because of the potential for discrimination due to failure to prepare for their needs in general shelters. Thus, the medical community should work with government emergency response entities (and the MRC and other groups) to ensure adequate medical staff and supply support for shelters, depending on demographics and the specifics of an incident.

Nonambulatory Care/Hospital Overflow

Often set up in flat-space areas (convention or event centers, gymnasiums, armories), these sites provide overflow for patients that are nonambulatory but have less intensive medical needs than hospitalized patients. Significant work has been done on the planning and supply of these sites (AHRQ, 2007b; Hick et al., 2004; JCAHO, 2005; Skidmore et al., 2003; State of California, 2012a,b).

Federal Medical Stations

These 150-bed units are designed to provide basic nonambulatory care to hospital overflow patients with minimal medical needs or to shelter patients with more advanced outpatient needs. Requested by state health or emergency management agencies, they are designed to be moved into “structures of opportunity” in the community, such as schools or convention centers. Although multiple federal medical stations are available, the supply is clearly inadequate for a multistate or national event (e.g., a pandemic, a major earthquake), and the request and setup process requires days. Federal medical stations may be integrated with shelter-based or nonambulatory care or be independent (ASPR, 2012). The federal medical station organization and logistics may be helpful templates for local planning for nonambulatory care centers.

Emergency Care Replacement/Overflow

Usually provided in a specialty trailer or temporary specialty structure, emergency care replacement or overflow sites provide replacement capacity for damaged emergency departments (particularly in smaller communities). They also can provide temporary increased capacity for a single facility or area during a special event or major incident, particularly one involving health care or transportation infrastructure damage that limits access to emergency care. The level of care provided often can be equal to that provided in a hospital environment. Setup usually takes a matter of hours. The number of patients that can be served is limited by the size of the structure (Blackwell and Bosse, 2007; D’Amore and Hardin, 2005).

Surgical/Intensive Care or Inpatient Replacement/Overflow

Also provided in specialty trailers or temporary specialty structures, these care sites provide specialty services in communities whose infrastructure is damaged or inadequate (Bar-Dayana et al., 2005; D’Amore and Hardin, 2005; Rhodas et al., 2005). The infrastructure requirements of such sites are significant (D’Amore and Hardin, 2005; Kreiss et al., 2010). Although these sites often can provide advanced services, at times they can be inserted into situations in which they are the only advanced care infrastructure, which can lead to both capacity and capability issues with respect to supplies and specialty providers (Bar-On et al., 2011; Burnweit and Stylianos, 2011; Kreiss et al., 2010; Merin et al., 2010).

Mass Mortuary

Although not a matter of clinical care per se, structured planning for mortuary services during a major incident is critical to maintaining the dignity and timely and orderly processing of the deceased, as well as social order. Plans for surge capacity mass mortuary sites should be planned in coordination with the jurisdiction’s coroner and office of emergency management for possible logistical support. In addition, plans should include options for staffing (incorporating a National Disaster Medical System [NDMS] disaster mortuary operational response team when possible, as well as state-based resources to support a mass fatality or mortuary incident) (ASPR, 2011A), equipment, identification, family support/viewing, processing, and holding/storage. Such sites are an important part of disaster planning, but are not addressed further in this report. In developing mass mortuary plans, coordination with EMS and hospitals is essential.

OPERATIONAL CONSIDERATIONS

In many communities, public health agencies are the only entities capable of harnessing the vast array of out-patient resources for disaster care for the community’s benefit. In other communities, public health agencies have a role that involves coordination or is secondary to efforts being led by health care entities themselves. Given the variability in both structure and relationships among entities engaged in health-related activities in communities nationwide, it is not possible to identify which entity should take the lead in all cases in harnessing resources for disaster care. Regardless, it is important that this entity be able to monitor, communicate about, and coordinate public and private resources across a region. Such entities will have to leverage the resources and expertise of health care, health care coalitions, and private-sector partners, as well as other public emergency response agencies, to accomplish these goals. This section describes how such entities

can coordinate the expansion of outpatient care and summarizes a framework for maximizing the utility of outpatient disaster medical care.

Expansion of Care

As demand exceeds existing outpatient resources, it becomes necessary to maximize the ability of hospitals and acute care facilities and systems to expand capacity. Every response coordination entity, especially departments of public health, should monitor this situation and work with health care entities to determine the next steps to be taken if private capacity and capabilities become overwhelmed or demand forecasting predicts that this will occur. Proactive planning for the next steps is critical to avoid falling behind the demand curve. Close coordination is required, and each incident will demand different utilization of the resources of outpatient facilities and alternate care systems. This is perhaps the most difficult aspect of planning as, given the variations across facilities and systems in the resources needed and available, no single strategy applies, and the success of the response depends on the commitments and coordination of the stakeholder entities in responding to incident-driven needs in a flexible, scalable fashion. Hospitals and acute care facilities should work closely with local public health agencies to determine priorities for therapies and services. Emergency response entities should ensure that appropriate regulatory and logistical issues of care are addressed in coordination with other public and private agencies. Hospitals and acute care facilities should ensure that a clinical care committee (in some cases, a very small command group/staff) determines what services can be offered and how these services fit with community priorities. In some cases, this decision making may occur at the health system level. The goal for independent facilities is that, although these decisions are made by a small group, they are informed by broad information sources channeled through emergency response coordination entities and are consistent with a common response strategy. Box 8-2 provides an example of the difficulties that can arise in making decisions about the allocation of outpatient resources even when high-level guidance is available. Table 8-3 illustrates how the emphasis of the outpatient response shifts according to the incident type, duration, and phase.

Local Emergency Response Planning to Incorporate Outpatient Care

Local emergency response planning for outpatient disaster medical care entails the following five elements:

- *Communication and coordination plan*—The ways in which providers and facilities exchange information with government agencies, such as public health and other health entities, is critical to maintaining the flexibility required to implement strategies and tactics that are usually incident and time dependent. Outpatient facilities often are left out of usual notification loops and may not have an around-the-clock point of contact. Also, these entities generally are not involved in traditional mass casualty incidents, so determining at what point they have a role and then activating that role requires a process, such as a multiagency coordination plan (FEMA and Emergency Management Institute, 2008), that includes assessment of the situation and determination of what health care assets will be required to address the demand. Additionally, robust public and provider engagement efforts should be undertaken in advance of and during a mass casualty incident to

BOX 8-2 **Allocation of Outpatient Resources**

During the 2009 H1N1 pandemic, the Centers for Disease Control and Prevention's (CDC's) Advisory Committee on Immunization Practices (ACIP) provided recommendations on priority groups for influenza vaccine (CDC, 2009a). However, initial vaccine supplies were limited, and states had to determine which priority groups would receive vaccinations first. One state decided to make health care workers the highest-priority group, while an adjoining state determined that the highest priority would be children with at-risk health conditions. A consequence was that providers in health care systems that spanned the border were eligible for priority vaccine at some of their worksites but not others. This led to significant frustration being directed at the hospital infection control unit and local and state public health agencies.

Key issues:

- Federal guidance is valued by the states for several reasons, including provision of a rationale for otherwise contentious allocation decisions.
- Limitations of this guidance may create inconsistencies that necessitate appropriate risk communication to minimize confusion and mistrust.
- Situational awareness requires communication with adjoining jurisdictions that may be implementing justifiable but different plans.
- Health care workers often work at institutions in multiple jurisdictions, creating the potential for significant inconsistencies.

enhance both communication and coordination (see Chapter 9). Finally, local public health often maintains contact information for private health care entities and practices for purposes of health communications in nonemergency situations, which could be utilized as a resource during CSC.

- *Leadership for public alternate care systems*—This includes planning for solutions that distribute patient volume (e.g., hotlines) and establishing public sites for ambulatory and nonambulatory care based on the community's resources (Cinti et al., 2008; Lam et al., 2006). These plans should be flexible, particularly with respect to ambulatory care, to allow for the spontaneous development of sites near a disaster scene (and management of the convergence of victims, family members, and volunteers on that area) (Cone et al., 2003). Support for these ambulatory sites of care (especially in a no-notice incident) requires close coordination with EMS, emergency management, and other response entities.
- *Provider engagement*—This includes education about disaster relief opportunities (e.g., MRC registration) and the provision of crisis care (e.g., principles, sources of information, community engagement efforts).
- *Provider mobilization in an emergency*—In an era when many outpatient providers have limited or no hospital or health system practices/privileges, a designated organizer of unaffiliated outpatient providers is required (e.g., public health agency, health care institution consortium, local/state medical society). Official tasking and activation by government emergency response entities often confers legal and regulatory protections that should be defined prior to an incident.

- *Interface for crisis care between local/regional emergency response entities, including public health agencies, medical systems, and the state*—This interface includes the relationship between the state disaster medical advisory committee (SDMAC) and any regional constructs, such as the regional DMAC, regional triage teams, and other mechanisms. The activation of such groups and their operational role should be established and exercised.

TABLE 8-3

Out-of-Hospital Response Emphasis According to Incident Type,* Duration, and Phase

Type of Incident	Early in Incident	Mid-Incident	Late in Incident
Anthrax Terrorist Attack (1 week)	<ul style="list-style-type: none"> • Outpatient surge capacity, including screening guidelines • Private alternate care sites • Hotline and web-based triage and prescribing for exposures • Public and closed points of distribution of prophylaxis 	<ul style="list-style-type: none"> • Early incident strategies plus <ul style="list-style-type: none"> ◦ Nonambulatory alternate care sites (for hospital overflow—including federal medical stations) ◦ Mass fatality management 	<ul style="list-style-type: none"> • Nonambulatory alternate care sites (for hospital overflow or as bridge to transfers) • Mass fatality management
Catastrophic Earthquake (24 weeks)	<ul style="list-style-type: none"> • Outpatient surge capacity for minor trauma • Private alternate care sites for minor trauma • Public alternate care sites (support of spontaneous and preplanned sites of care) 	<ul style="list-style-type: none"> • Shelter medical support • Nonambulatory alternate care sites (often as bridge to transfers) • Emergency and surgical care—replacement for damaged infrastructure 	<ul style="list-style-type: none"> • Shelter medical support • Emergency, surgical, and intensive care—replacement for damaged infrastructure
Detonation of Improvised Nuclear Device (4 weeks)	<ul style="list-style-type: none"> • Outpatient surge capacity for minor trauma • Private alternate care sites for minor trauma • Public alternate care sites for trauma (support of spontaneous and preplanned sites of care) 	<ul style="list-style-type: none"> • Shelter medical support • Nonambulatory alternate care sites (often as bridge to transfers) • Public screening sites for triage/treatment of radiation injuries • Outpatient surge capacity for trauma and radiation injuries (symptomatic management and laboratory evaluation) • Evacuation point medical care (for medical evacuees) • Palliative care • Mass fatality management 	<ul style="list-style-type: none"> • Shelter medical support • Outpatient surge capacity for follow-up evaluation and care for radiation injuries • Palliative care • Mass fatality management
Pandemic (12 weeks)	<ul style="list-style-type: none"> • Outpatient surge capacity, including isolation • Private alternate care sites • Hotline and web-based triage and prescribing for early illness/exposure • Vaccination sites—private and public 	<ul style="list-style-type: none"> • Early incident strategies plus <ul style="list-style-type: none"> ◦ Public “flu centers” ◦ Augmented home care ◦ Nonambulatory alternate care sites (for hospital overflow) ◦ Mass fatality management 	<ul style="list-style-type: none"> • Outpatient surge capacity • Private alternate care sites • Hotline and web-based triage and prescribing for early illness/exposure • Mass fatality management

*The emphasis is heavily influenced by the actual impact of an incident.

Reimbursement and Financing Issues

Reimbursement of hospitals and acute care facilities for disaster-related expenditures often is difficult even with proper documentation given the private nature of most facilities and the reimbursement requirements of the Federal Emergency Management Agency (FEMA). Time and material expenses should be carefully tracked and, when possible, purchases and authorization of personnel time should be public actions (that is, ordered by public health or emergency management agencies rather than by a private health care facility) to enhance the prospects for reimbursement. Reimbursement by insurance companies for care provided in nontraditional settings (e.g., “flu centers”) is an area that requires further clarification. If the site is staffed by usual health care providers and meets usual regulatory and other requirements, billing and reimbursement may be pursued in the normal manner (CMS, 2009). If, however, public sites, personnel, or supplies are used, private reimbursement usually is not possible (or necessarily permissible). Discussion of different scenarios with public and private payers prior to an incident is advisable.

TEMPLATE DESCRIPTION

Many of the functions and tasks required of the various outpatient care entities to plan for and implement CSC are similar in nature. Thus, the following descriptions of the general functions of outpatient care facilities are meant to serve as a broad guide; specific functions and tasks for outpatient care facilities, long-term care facilities, home care/medical equipment vendors, and alternate care systems are enumerated in Template 8.1 at the end of this chapter. The functions presented in this section should be regarded as optimal, not minimal, and are unlikely to be implemented without significant time and funding commitments that are not priorities in current preparedness programs. Nonetheless, they offer concrete goals for outpatient sector preparedness. The term “facility” often is used below, but the principles apply equally to the other types of outpatient entities cited above. Following these general descriptions for outpatient care entities is a section describing the function and tasks of outpatient providers; these functions and tasks make up the final section of Template 8.1.

General Functions of Outpatient Care Facilities

Function 1. Alerting. It is crucial that a facility’s disaster plan include indicators and triggers delineating the transitions from conventional to contingency to crisis care. The actions subsequently taken should be based not only on these indicators and triggers but also on the specific context of the disaster. Facilities should be able to disseminate alerts to and receive alerts from all relevant local and regional stakeholders (including partner facilities, local and state governments, and the National Weather Service).

Function 2. Notification. Facilities should maintain up-to-date contact information for staff and exercise their notification systems. Command staff and leadership should be aware of how they will be notified and how they can contact their facility in the event of a disaster. Facilities also should designate

technical experts and determine and exercise ways of exchanging input with them, including advice on incident-specific issues and policies (e.g., infection control in a pandemic).

Function 3. Command. The command staff or leadership of a facility should receive training appropriate to the facility’s size and potential response role in a National Incident Management System (NIMS)-compliant system (e.g., the hospital incident command system [HICS]) (California Emergency Medical Services Authority, 2007; FEMA, 2011a). This includes ensuring the availability of job aids to guide decision making and an understanding of how and when to transition care standards.

Function 4. Control. During or after a disaster, facilities should be able to rapidly secure their location or relocate if they cannot, implement situational assessment capabilities, request resources and acquire additional staff, and integrate those additional resources into their operations. The command staff or leadership of the facility should understand the protocols and procedures for each of these tasks and how their staff interfaces with local and regional command centers.

Function 5. Communication. Widespread disasters are likely to affect traditional lines of communication, so facilities should have procedures in place to maintain situational awareness and communication with their staff, patients, and local and regional public and private care providers through electronic, web-based, and hardcopy means. As part of an integrated response network, outpatient care providers also should know how to request local resources (e.g., ambulances through the 911 system) and how to contact local and regional command centers. Finally, there is a need for channels of communication with the local emergency operations center (EOC), health department, and emergency management agency.

Function 6. Coordination. Coordination of outpatient care requires true joint planning and unified command during an incident. It is critical that a trusted source be identified that can represent the outpatient sector’s situation, needs, and policy issues to the public health/Emergency Support Function (ESF)-8 decision makers at the EOC or multiagency coordination center. This entity provides a “seat at the table” for the many outpatient facilities and disciplines represented and can process and filter this information for the ESF-8 lead agency.

Separate representation for clinics, long-term care facilities, and other entities may be required, depending on the area and the incident. The specific mechanism used to coordinate is not as important as the fact that it exists and is understood by stakeholders. Although many successful hospital coalitions exist in the United States, few can claim to represent the outpatient sector effectively. Increased funding and time need to be allocated to reaching these providers and practices to ensure that they have a voice in planning and implementing the response to emergencies that affect the outpatient sector. This may be accomplished through existing coalitions or the establishment of new mechanisms for coordination and collaboration among outpatient care entities. These public-private partnerships are critical to a successful whole-community response during a disaster.

Function 7. Public Information. Based on situational awareness, demand forecasts, and other information, consistent risk communications should be developed to inform the public about where and when

to seek medical care. Failure to maintain consistency in this information may rapidly lead to chaos or inappropriate overburdening of existing infrastructure. Timely and effective messages may significantly reduce patient volumes, allowing resources to be applied to those who most require and/or will benefit from care. A robust jurisdictional joint information system with the ability to integrate the needs of the outpatient sector and public information officers will greatly facilitate this process (FEMA, 2011b).

Function 8. Operations. As resource shortages increase in the face of growing demand, command/supervisory staff should know how transitions from conventional to contingency and crisis care affect their resource use. These effects include the need for changes to staff scopes of practice, increased repurposing of patient care space, and the reuse and reallocation of supplies.

The societal impact of a disaster requiring the outpatient sector's response cannot be underestimated. Communities can expect a large surge in demand for *mental health* support services (discussed in detail in the mental health section of Chapter 4). Mental health under CSC will require specific competencies of mental health, social services, and health care staff. Efforts also will be required to enhance community resilience through “neighbor-to-neighbor, family-to-family” support systems (such as certain psychological first aid models created specifically for use by community members as needed). The resilience of the health care workforce is paramount to the success of the CSC strategy.

One-shot, one-size-fits-all approaches, such as some stress debriefing once common for providers, are no longer recommended and may result in exacerbating the mental health problems of those most affected by a disaster (Bisson et al., 1997, 2007; IASC, 2007; McNally et al., 2003; NIMH, 2002). The replacement for those outmoded approaches is more integrated efforts to enhance the resilience of the workforce specifically with respect to mass casualty events, including CSC, as part of CSC preparedness (Schreiber and Shields, 2012).

Incident command operations need to encompass *integrated mental health operations* as part of incident command system (ICS)/EOC and medical/health operations. Recent models developed for Los Angeles County, Seattle/King County, the American Red Cross's National Operations Center/Disaster Mental Health, and a new national prototype specifically for children utilize real-time situational awareness of triage/mental health risk in patients/disaster victims and responders (including health care workers, support staff, and their families) across varied disaster systems of care (e.g., hospitals, schools, shelters, public health settings) to guide actual mental health operations within the ICS (see Schreiber et al., in press). Other recommended features include a common picture of

- population-level mental health risks (traumatic loss, multiple traumatic losses) using a common rapid mental health triage system across disaster systems of care, including EMS;
- mental health risks among health care workers; and
- mental health resources, including emerging national models of Internet-based intervention (Ruggiero et al., 2006).

Addressing the social and psychological challenges of CSC requires a triage-driven mental health incident management system and community resilience efforts through community engagement (see Chapter 9). Also required are basic “neighbor-to-neighbor, family-to-family” psychological first aid

competencies that leverage the community, responders, and family members as the first line of psychosocial support (see the American Red Cross’s “Coping in Times of Crises” and the “Listen, Protect and Connect” psychological first aid models).

Although most outpatient and long-term care facility staff have some experience with end-of-life issues, they are unlikely to be comfortable with the provision and management of *palliative care* on a broader scale. Facilitating provision of the medications and education required for families to administer this care in the home environment may be critical during epidemics and other catastrophic incidents. Accomplishing this requires education of home care, ambulatory care, and alternate care system providers and the availability of basic medications and instructional resources. See the palliative care section of Chapter 4 for further discussion.

Function 9. Logistics. Logistical requirements at alternate care sites are substantial. A few key considerations are noted in Table 8-4. Additional information on logistics related to other functions is provided under those functions.

Staffing resources may be significantly impacted by the incident itself. Access to the facility, family obligations, duty to other facilities/agencies (e.g., in cases of employment at multiple sites), and provider illness all may impact the availability of these resources. Agreements with partner facilities and staffing agencies may be helpful in maintaining adequate staffing levels. Planning for the incorporation of external staff should address credentialing, privileging, reimbursement, worker’s compensation, liability protection (including adequate legal protection for staff actions [see Chapter 3]), roles, orientation, mentoring and supervision, and access (e.g., to the facility, technology systems). In some cases, on-site accommodation of staff may be necessary (e.g., a blizzard that maroons staff at a long-term care facility), which also requires advance planning.

The MRC and other sources of volunteer providers are likely better suited to staffing public sites of care than to assisting at private institutions. The roles of MRC personnel should be discussed and agreed upon by the agencies involved.

Scope-of-practice issues may arise in scarce resource situations. Providers should always act in the best interest of the community. It may be necessary to offer just-in-time training to equip providers with new knowledge and skills, but this training should be geared to the minimum risk and maximum population benefit possible (e.g., training a provider to administer an inhaler for bronchospasm would be a minimal-risk extension of practice, whereas training a provider to manage a ventilated patient would present a potential significant risk).

Facilities and agencies should determine in advance what *supplies* are likely to be problematic during a major incident. These may include high-technology interventions that have limited availability, disposables required in large quantities during an incident, and supplies available from limited sources/vendors or available in limited numbers. Examples are liquid and tank oxygen sources for situations in which home care clients who rely on powered oxygen generators are without power and N95 masks during a pandemic. Optimally, coping strategies should be identified prior to an incident.

Facilities should understand the mechanism for requesting resources from public agencies, such as local public health departments, if their vendor supplies are inadequate. This includes Strategic National Stockpile resources as applicable in accordance with the jurisdictional plan. A mechanism for triag-

TABLE 8-4

Sample Logistical Considerations for Alternate Care Sites

Category	Considerations
Site	Access/permissions, timeline to operational, availability (e.g., schools not always available), size, function, access for those with functional limitations, safety issues, restrooms, water/showers, loading dock, etc.; may include supplemental water, oxygen, power, and other considerations
Traffic Control	Parking and vehicle movement for staff, emergency medical services (EMS), families
Communications	Including radio, web-based, public address
Staffing	Medical, administrative, and support (including lab and pharmacy)
Medical Supplies	Durable and disposable (pharmaceuticals, intravenous fluids, dressings, diagnostics, protective equipment, etc.)
Administrative Supplies	Including computers and networks
Personal Care Supplies	Bedding, cots/beds, personal hygiene supplies
Food Services	Staff and patients
Security Services	External and internal, accountability for valuables
Transportation	Patients (internal and external) and materials
Check-in/Check-out and Badging	Time keeping, badges
Credentialing	Verification system
Registration and Patient Tracking	Patient registration and tracking systems
Medical Records	Records, filing, archiving/storage
Sanitation	Usual and medical waste
Animal Control/Husbandry	If pets kept on site

ing resources when requests exceed available stocks should be in place and acceptable to stakeholders. Selected medications, vaccine, or durable medical equipment may be in short supply, and facilities may have to implement resource allocation strategies (e.g., follow Centers for Disease Control and Prevention [CDC] recommendations for treatment, apply community standards for use of N95 masks by health care workers).

Surge capacity often is limited in outpatient health care facilities because of the lack of classrooms and *flat-space* areas that often are available in hospitals. However, it may be possible to repurpose some clinic areas (e.g., a physical therapy area could be used for outpatient care). Additionally, tenting or other temporary facility capacity may be used in some situations. The capacity for ambulatory care is likely best enhanced by triage of appointment types, use of electronic assessment and prescribing, and adjustments to hours of operation.

Optimal alternate care site locations are dependent on the mission of the site. Ambulatory care sites may use venues (e.g., churches or schools) similar to those used for vaccination and mass prophylaxis sites, although they should not collocate without careful consideration of the risks involved. Nonambu-

latory care sites require larger flat-space areas and significantly more infrastructure (e.g., showers, food). Thus, a convention center, large gymnasium, or incident center may be more suitable for these functions. Some capacity is potentially available on hospital grounds, but often is limited. Tools for the identification of alternate care sites have been developed (AHRQ, 2004, 2009).

The operation of such sites requires partnership among public health agencies, emergency management agencies, and private health care entities to ensure that staffing and supply needs are met. Generally speaking, the higher the level of care required, the more infrastructure is required per patient; the higher associated costs and space requirements limit the ability of jurisdictions to prepare for this level of mass care. Field hospitals from federal and other sources may be available and useful in certain situations. The ability of these units to be self-sufficient is helpful in environments where infrastructure is damaged, but greatly increases cost and complexity. Using existing infrastructure to house alternate care sites often is preferable to using fully portable infrastructure. Utilizing public spaces and codifying operations at such sites requires emergency management and public health authorities.

Certain incidents may require *special considerations*, planning, and adaptations. For example, an incident involving a transmissible infectious agent will have implications for patient flow, quarantine, isolation, exposure of noninfected patients, personal protective equipment, visitor/escort policies, vaccination, and home care recommendations (APIC, 2009; CDC, 2009b).

Many patients require specialized resources and planning for adequate outpatient care. Examples include pediatric patients, those with physical or cognitive limitations, those with limited access to transportation, and those who are dependent on health care technologies (e.g., power-dependent ventilator, oxygen generator, dialysis equipment). Special considerations in the planning process also are entailed for those with limited English skills and other cultural and/or ethnic needs (HHS, 2011).

As an example, planning for pediatric care in a disaster includes components of specialized provider education, specialized clinical equipment, dietary needs, bedding and care materials, child/age-appropriate activities, family reunification/family resources, behavioral health support, and supervision (especially for unaccompanied minors). These components are significantly different from those involved in usual shelter/outpatient care planning (NYCDHMH, 2007).

Regional specialty centers and groups may have plans for some of these situations (e.g., burn care, pediatric care, renal replacement therapy [Kopp et al., 2007]), and outpatient facilities should understand their role in/interface with these plans. Outpatient facilities should ensure that they have appropriate supplies and resources available according to their role in community disaster referral plans (e.g., office-based pediatric-specific equipment or basic dressing supplies) (AAFP, 2012; AAP, 2011; National Commission on Children and Disasters, 2009).

Long-term care patients who should be evacuated from their facilities present special challenges. For example, more than 50 percent of nursing home residents have cognitive impairments (AHAF 2012; The American Geriatrics Society Foundation for Health in Aging, undated). When possible, it is highly beneficial for nursing staff to remain with these patients and for as many personal supplies (e.g., glasses, dentures) and records as possible to be moved with the patients. During Hurricane Irene, nursing home residents whose staff remained with them at the shelters fared much better than those who

were turned over to general shelter staff.¹ However, long-term care facilities should include plans for evacuation of any special populations as part of their organization’s emergency response plan.

Planning for patients with physical disabilities at alternate care and shelter sites is critical, as 12 percent of the population have severe disabilities that should be accommodated, and many more are impacted at lower levels of disability (U.S. Census Bureau, 2006). Physical access, assistance with activities of daily living, control of the environment for those with cognitive impairments, and accommodation of other physical impairments should be addressed. Failure to address these issues may lead to further illness, injury, or unnecessary hospitalization.

Function 10. Planning. Outpatient facility planning should emphasize the following functions and tasks:

- the decision-making and incident management process at the facility (and/or within the facility’s health care system), including
 - how and when to activate emergency plans at the facility and what this involves (many outpatient facilities have very basic emergency plans and little experience with incident management),
 - decision making in response to a threat (e.g., shelter in place, evacuate),
 - authorities at the facility level (versus the corporate or system level),
 - availability of technical experts—regionally or system based—that can provide policy and clinical guidance related to the specifics of the incident (e.g., infection control, burn care, pediatric care),
 - use of an action planning process for ongoing assessment and adjustment of strategies and tactics, and
 - exercise and evaluation plans;
- facility resources and redundancy of logistical elements, such as supply chains and critical services (e.g., electricity, water);
- the interface mechanism/process between the facility and partner facilities, coalitions, and local government emergency response entities (such as public health), including the facility or coalition role in multiagency coordination and the process for resource requests;
- the primary role (and potential secondary roles) of the facility and its providers during an incident (including, e.g., shelter in place, augmented services, restricted services);
- the potential role of the facility providers within an alternate care system or as support staff at affected hospitals (with increasing emphasis on hospitalist services, few outpatient providers maintain hospital privileges); and
- means of communication between the facility and its patients, staff, and liaison/partner agencies (many outpatient facilities do not have staff notification mechanisms—these may be simple calling lists or technology based).

¹ Personal communication, Lewis Soloff, New York City Department of Health, November 16, 2011.

Function 11. Administration. Administrators and clinic managers should examine what authorities they have during a crisis, and if an incident commander is designated, what authorities they are delegated. During crisis situations, having adequate authority and decision-making processes ensures that the decisions made will have the support of the administration. Especially within multifacility health systems, specific policy language may be necessary to clarify the scope of proactive decision making when triage of treatment or resources is required. Within health systems, surge capacity plans should be reviewed by corporate administration so adopted plans have overarching support.

Regulatory and legal protocols governing the provision of care, reimbursement, provider licensure and practice, EMS transport, facility licensure, and other elements may have to be modified or suspended to facilitate the provision of whole-community care. Applicable statutes and regulations should be identified prior to an incident, as well as emergency orders and regulatory changes that would facilitate response. This may be an appropriate task for corporate clinic entities and medical societies.

The generation of medical records at alternate care sites raises additional issues that should be addressed in planning. These issues include what level of records is to be kept, who will be responsible for their storage, and what will be done about access and data privacy, as well as the public versus private nature of the records and the data they contain.

Emergency management and public health agencies should understand their powers during a disaster, including during a public health versus a general emergency, and any regulatory or other relief that can facilitate the use of alternate care systems. They also should have a clear understanding of their authorities relative to their political leadership and a process for keeping their administrators and political leaders informed during the response to the incident.

Functions of Outpatient Providers

Function 1. Notification. Providers should maintain up-to-date contact information at all of their affiliated institutions. They also should participate in exercises of notification systems, both to ensure their own familiarity with those systems and to allow the facility to identify and resolve any related issues.

Function 2. Command, Control, Communications, and Coordination. Providers should receive role-appropriate incident command training that encompasses where to report, what their place is in the organizational structure of the facility's and the region's response, and how to provide and access situational updates. Providers also should be aware of volunteer opportunities beyond their commitment to a particular facility, including as a part of the MRC and/or the ESAR-VHP.

Function 3. Public Information. Individual providers should familiarize themselves with how to input information into and extract information from facility and public sources (likely electronic or telephone based). Coordination of communication with the joint information system is crucial to the success of risk communication efforts.

Function 4. Operations. Providers should know their facility’s process for expanding care—including relevant strategies used in their area—as demand overwhelms available resources. To operate effectively under CSC conditions, providers must thoroughly understand their triage roles (if any), be able to recognize psychological issues that may arise, and be aware of their potential role as palliative care providers.

Function 5. Logistics (space, staff, supplies). Providers should be well versed in how to expand their patient care space to accommodate a significant increase in patient volume, which in a no-notice incident can overwhelm their facility quickly. Providers themselves may become a scarce resource as patient volume increases; familiarity, through education and exercises, with the ways in which their own roles will change with shifts in the care continuum will allow them to maximize the use of their time and effort. These changes can include an expansion or contraction of their traditional scope of practice, adjusted documentation requirements, and incorporation of external staff into the unit. Finally, providers should know how to request additional resources and what procedures they should follow to substitute, conserve, adapt, and reuse those resources.

Function 6. Legal Issues. The legal terrain of providing care during a disaster, especially one that requires the use of CSC, can be daunting. Providers should not wait until an incident has occurred to learn about their legal protections and liabilities in different disaster scenarios (e.g., in a declared versus a nondeclared emergency, as a public versus private care provider). Chapter 3 provides a detailed discussion of the legal issues associated with disaster response.

Template 8.1. Core Functions of the Out-of-Hospital and Alternate Care Systems in CSC and Planning Implementation



Outpatient Care Facilities

Function 1. Alerting

Task 1

Health care facility is able to receive and manage alerts from partner facilities (corporate, health care coalitions, hospital, or other facility partners), public health agencies (health alert network), and the National Weather Service.

Task 2

Emergency response plan provides triggers and process for incident command to activate the CSC plan and indicators (if applicable) to prompt consideration of activation.

Function 2. Notification

Task 1

Institution is able to alert staff within and external to the facility, including

- medical, administrative, and support staff; and
- command/supervisory staff (especially if part of the larger system).

Notification mechanisms account for redundancy in case a disaster affects usual means of contact/consultation.

Task 2

Facility identifies technical experts that can work with the administration to determine issues/policies related to infection control, infectious diseases, pediatric care, mental health care, and other specialties as required by the role of the facility. (These may be identified regionally.)

Notes and Resources

Institution should at least annually test notification systems and ensure that up-to-date contact information is available.

Function 3. Command

Task 1

A hospital incident command system (HICS) (or other modified National Incident Management System [NIMS]- and community-compliant system) appropriate to the institution's size and role is utilized. Includes

- understanding how decisions regarding changes to facility policy or clinical practice are implemented during an incident (decisions system- or facility-based?);
- training and exercising with key staff;
- command staff being trained in the full continuum of care, including use of crisis spaces and staffing;
- command staff understanding incident action planning and use of the planning section during longer-term incidents (including the interface with the corporate structure as applicable); and
- appropriate resources (job aids) being available to guide capacity expansion decisions.

Function 4. Control

Task 1

Command staff/leadership understand, to the degree necessary for the size/scope of the facility's engagement, the interface for resource requests and the acquisition process (as well as any existing plans for resource triage/allocation) with

- local public health and emergency management,
- local/regional hospital or other partner coalitions, and
- state resources (usually through local emergency management).

Task 2

Command and other appropriate staff understand transfer and diversion policies in the area and their function during disaster situations (including any agreements to receive ambulances or referral patients and what to do when emergency medical services [EMS] cannot rapidly transfer a patient from the facility to the hospital).

Task 3

Command staff understand the processes for sheltering, relocation, and evacuation in response to threats to the facility.

Task 4

Command staff understand options for security/access controls and community law enforcement support during a disaster.

Task 5

Facility plan reflects a phased expansion of surge capacity/capabilities for conventional, contingency, and crisis care situations.

Task 6

Command staff understand the process for rapid facility and response assessment in the immediate aftermath of an incident to gain situational awareness.

Task 7

Command staff/administrators understand the process for determining facility shut-down procedures (if required) and notification/diversion of patients.

Task 8

Command staff/administrators understand their authorities relative to the facility and its role in any larger system (e.g., authority to change staffing, hours, policy).

Function 5. Communications

Task 1

Facility has policies and procedures in place for sharing situational updates with staff, patients, and other facilities and agencies as necessary (ideally via multiple methods, potentially including):

- staff e-mails, text messages, paging, telephone, and other devices;
- announcements, handouts, and postings; and
- web-based and social media.

Task 2

Facility has the ability to communicate with

- local EMS (911 system) for emergency transportation,
- the local emergency operations center (or representative to same),
- the local/regional health and medical multiagency coordination center (as applicable), and
- other hospitals/partner facilities in the area.

Function 6. Coordination

Task 1

Command staff understand the interface between the institution and local public health and emergency management agencies and any local/regional health care coalitions during a disaster.

Task 2

Institution understands the function of the state disaster medical advisory committee and any regional medical coordination center or regional disaster medical advisory committees, as well as the means by which information is received from or communicated to these bodies.

Task 3

If facility is part of a health care system, plans document the integration of facility response with the corporate response structure and processes.

Task 4

If facility has a limited patient population (Department of Veterans Affairs [VA], pediatric, or other specialty facility), there is guidance/a plan for how that facility contributes to the response when an incident affects either its usual target population or other groups disproportionately.

Function 7. Public Information

Task 1

Facility coordinates information with other agencies and facilities and participates in jurisdictional joint information system (JIS) activities as appropriate.

Function 8. Operations

Conventional, Contingency, and Crisis Care Conditions

Task 1

Under conventional care conditions, command/supervisory staff know how to maximize capacity, including postponing elective appointments, adjusting staffing and hours, and other changes.

Task 2

Under contingency care conditions, command/supervisory staff can implement plans for repurposing patient care areas (e.g., changes to waiting areas to segregate infectious patients, space expansion) and understand the decision process for changes to clinical practice.

Task 3

Under CSC conditions, same as under contingency care conditions, but options are expanded to include

- reuse and reallocation of supplies,
- changes in staff roles or facility role (e.g., change from specialty clinic to “flu center”), and
- adjusted standards for patient care according to circumstances.

Mental Health

Task 1

Facility has a plan for triage-driven management of psychological casualties, including participation in local/regional plans for disaster mental health incident management.

Task 2

Facility has all personnel trained in basic “neighbor-to-neighbor, family-to-family” psychological first aid that includes psychological triage.

Task 3

Facility has a health care worker personal resilience plan with inoculation, self-triage, and evidence-based care elements.

Palliative Care

Task 1

Facility has anticipated the need for adequate symptomatic management (analgesia, antiemetics, anxiolytics) for its patients (including those that will not receive other treatments). These medications may be in short supply in community pharmacies.

Notes and Resources

The mental health section of Chapter 4 provides a more detailed discussion and examples.

The palliative care section of Chapter 4 provides a more detailed discussion.

Task 2

Palliative care is addressed in the emergency operations plan, including palliative care principles, triage tools if applicable, home care and medical equipment referrals, counseling referrals, and family support resources.

Task 3

Palliative care training (including just-in-time training) can be made available to facility staff.

Function 9. Logistics**Staffing****Task 1**

Call-back criteria and policies are in place and include maintenance of current and accurate employee contact information.

Task 2

Facility assesses the number of staff potentially available during whole-community incidents, including situations that limit access to the facility, affect staff families, or result in provider illness/injury.

Task 3

Facility has planned for on-site accommodation of staff and family members as appropriate.

Supplies**Task 1**

Identify key potential scarce resources based on types of incidents and stockpiles or identify alternative sources for these supplies if possible (e.g., N95 masks, selected medications).

Task 2

For highly vulnerable supplies, identify strategies for appropriate substitution, conservation, adaptation, reuse, and reallocation.

Task 3

For local or state cached supplies (such as a local pharmaceutical cache) or Strategic National Stockpile (SNS) supplies, facility understands the process for request, receipt, and distribution of these supplies through public health agencies.

Space**Task 1**

Facility has examined available patient care space and conversion of non-patient care areas to patient care, as possible.

Special Considerations**Task 1**

Patient groups requiring special consideration are identified, and, to the degree possible, equipment and supplies to address the needs of these

Notes and Resources

See <http://www.health.state.mn.us/oep/healthcare/scarce/index.html>.

groups are purchased and/or stockpiled in relation to the facility's size and role in the community. Considerations include (but are not limited to)

- pediatric patients;
- potential need for airborne isolation;
- patients with functional limitations (e.g., hearing or visually impaired);
- patients needing dialysis/renal replacement therapy; and
- severely mentally ill adults/severely emotionally disturbed children.

Task 2

Facility understands any regional plans or resources for specific groups (e.g., regional pediatric or dialysis networks) and its role in such plans.

Function 10. Planning

Task 1

Facility understands how to access appropriate technical specialists and how they interface with the facility's (or corporate) command and planning functions (may be a regionally shared function—for example, a regional disaster medical advisory committee).

Task 2

Facility and/or system uses an action planning process and can modify the strategies, tools, or process based on evolving incident information.

Task 3

Facility and/or corporate bylaws and credentialing policies and procedures account for the use of outside staff during a disaster, including the use of local/regional staff in accordance with coalition agreements, and for the integration of outside staff, including orientation, mentoring, and supervision.

Task 4

Policies for altered staffing ratios, shift lengths, and staff roles are examined, and any collective bargaining issues are identified, if not addressed.

Task 5

Facility understands the process and supporting agreements (e.g., related to worker's compensation, liability) for sharing staff with other facilities in need, including staffing of alternate care sites.

Function 11. Administration/Legal Issues

Task 1

Administration (including corporate administration outside of the facility) examines its delegation-of-authority processes and makes any changes necessary to ensure that CSC decisions are supported

Notes and Resources

See Chapter 3 for a more detailed discussion.

(i.e., that facility decision makers are acting with the support of administration).

Task 2

Administration understands relevant changes to facility authorities and protections when state declarations of emergency/public health emergency are made, including legal protections or obligations for medical providers (e.g., duty to serve).

Task 3

Facility and/or corporate legal counsel are aware of surge capacity plans and implications for patient care.

Task 4

State and local laws and regulations that would constrain the institution's ability to implement CSC plans and possible solutions are identified (may be a regional effort—see Chapter 3 for a detailed discussion of functions).

Core Functions of the Outpatient Sector in CSC Planning and Implementation

Long-Term Care Facilities

Function 1. Alerting

Task 1

Long-term care facility is able to receive and manage alerts from partner facilities (corporate, hospital, or other facility partners), public health agencies (health alert network), and the National Weather Service.

Task 2

Emergency response plan provides triggers and the process for incident command activation.

Function 2. Notification

Task 1

Institution is able to alert staff within and external to the facility, including

- medical, administrative, and support staff; and
- command/supervisory staff (especially if part of the larger system).

Notification mechanisms should account for redundancy in case a disaster affects usual means of contact/consultation.

Task 2

Facility identifies technical experts (may be shared regionally) that can work with administration to determine issues/policies for infection control, infectious diseases, palliative care, and other specialty considerations.

Function 3. Command

Task 1

An HICS system (or other modified NIMS- and community-compliant system) is in place. Includes

- understanding how decisions regarding changes to facility policy or clinical practice are implemented during an incident (decisions system- or facility-based?);
- training and exercising with key staff;
- command staff being trained in the full continuum of care, including use of crisis spaces and staffing;
- command staff understanding incident action planning and use of the planning section during longer-term incidents (including the interface with the corporate structure as applicable); and
- appropriate resources (job aids) being available to guide capacity expansion decisions.

Function 4. Control

Task 1

Command staff understand the interface for resource requests and the acquisition process (as well as any existing plans for resource triage/allocation) with their local partners (regional medical coalitions and public health and emergency management agencies as applicable).

Task 2

Command and other appropriate staff understand the interface with EMS and what services EMS will provide during evacuation and other events associated with an incident.

Task 3

Command staff understand the processes for sheltering, relocation, and evacuation in response to threats to the facility.

Task 4

Command staff understand options for security/access controls and community law enforcement support at their facility during a disaster.

Task 5

Command staff/administrators understand the process for determining facility shut-down procedures (if required).

Function 5. Communications

Notes and Resources

Task 1

Facility has policies and procedures in place for providing situational updates to staff, patients, and their families. Ideally, these mechanisms have redundancy in case of failure of the primary system.

Task 2

Facility has the ability to communicate with

- local EMS (911 system) for emergency transportation,
- the local emergency operations center (or representative to same),
- the local/regional health and medical multiagency coordination center (as applicable), and
- other partner facilities as applicable.

Function 6. Coordination

Task 1

Command staff understand how they are expected to interface with local public health and emergency management agencies and/or existing health care coalitions during an incident.

Task 2

Institution understands the function of the state disaster medical advisory committee and any regional medical coordination center or regional disaster medical advisory committees, as well as the means by which information is received from or shared with these bodies.

Task 3

If facility is part of a health care system, plans document the integration of facility response with the corporate response structure and processes.

Function 7. Public Information

Task 1

Facility contributes to jurisdictional JIS activities as appropriate.

Function 8. Operations

Conventional, Contingency, and Crisis Care Conditions

Notes and Resources

Task 1

Under contingency care conditions, command and unit staff are aware of how to adjust staff hours and responsibilities and resident locations to maximize capacity.

Task 2

Under CSC conditions, same as under contingency care conditions, but options are expanded to include

- reuse and reallocation of supplies;
- significant changes in staff roles; and
- adjusted standards for patient care according to circumstances (e.g., adjusting referral criteria to medical care vs. care at long-term care facility).

Mental Health

Task 1

Facility has a plan for triage-driven management of psychological casualties, including participation in local/regional plans for disaster mental health incident management.

See Chapter 4 for a more detailed discussion.

Task 2

Facility has all personnel trained in basic psychological first aid (PFA) that includes psychological triage.

Task 3

Facility has a health care worker personal resilience plan with triage and referral elements.

Palliative Care

Task 1

Facility has planned for adequate symptomatic management (e.g., analgesia, antiemetics, anxiolytics) for patients (including those that will not receive other treatments).

See Chapter 4 for a more detailed discussion.

Task 2

Palliative care is addressed in the emergency operations plan, including palliative care principles and resources, incorporation of incident-specific triage criteria when applicable, and patient/family support resources.

Task 3

Palliative care awareness training is provided to staff, and just-in-time training can be made available.

Function 9. Logistics

Staff

Task 1

Call-back policies are in place, including maintenance of current and accurate employee contact information.

Task 2

Facility considers alternative staffing plans during incidents that limit access to the facility or result in provider illness/family illness.

Notes and Resources

Task 3

Facility has planned for on-site accommodation of staff and family members as appropriate.

Supplies

Task 1

Identify key potential scarce resources based on types of incidents and, to the degree possible, stockpiles or identify alternative sources for these supplies (e.g., N95 masks, antivirals, vaccines).

See <http://www.health.state.mn.us/oep/healthcare/scarce/index.html>.

Task 2

For highly vulnerable supplies, identify strategies for appropriate substitution, conservation, adaptation, reuse, and reallocation as appropriate.

Task 3

For local or state cached supplies (such as a local pharmaceutical cache) or SNS supplies, facility understands the process for request, receipt, and distribution of these supplies.

Space

Task 1

Facility has examined available patient care space and conversion of non-patient care areas to patient care, as possible.

Function 10. Planning

Task 1

Facility and/or corporate bylaws and credentialing policies and procedures account for the use of outside staff during a disaster, including use of the Medical Reserve Corps or staff from partner facilities.

Task 2

Need for orientation, mentoring, education, and supervision of outside staff is anticipated.

Task 3

Policies for altered staffing ratios, shift lengths, and staff roles are examined, and any collective bargaining issues are identified, if not addressed.

Task 4

Facility understands the process and supporting agreements (e.g., related to worker's compensation, liability) for sharing staff with other facilities in need, including staffing of alternate care sites.

Function 11. Administration/Legal Issues

Task 1

Administration (including corporate administration outside of the facility) examines its delegation-of-authority processes and makes any changes necessary to ensure that CSC decisions are supported (i.e., that facility decision makers are acting with the support of administration).

Task 2

Administration understands relevant changes to facility authorities and protections when state declarations of emergency/public health emergency are made, including legal protections or obligations for medical providers (e.g., duty to serve).

Task 3

Laws and regulations that would constrain the institution's ability to implement CSC plans and possible solutions are discussed/identified. (This may be a regional process.)

Notes and Resources

See Chapter 3 for a more detailed discussion.

Core Functions of the Outpatient Sector in CSC Planning and Implementation

Home Care/Medical Equipment Vendors (referred to as "Home Care")

Function 1. Alerting

Task 1

Home care agencies are able to receive and manage alerts from public safety, corporate administration, public health agencies (health alert network), and the National Weather Service as appropriate.

Task 2

Emergency response plan provides triggers and process for supervisor (incident commander if ICS used) to activate the surge capacity/CSC plan and indicators (if applicable) to prompt consideration of activation.

Function 2. Notification

Task 1

Able to alert staff within and external to the agency, including health care system partners as appropriate.

Task 2

Staff understand what they are to do in a disaster, and appropriate notification policies are in place.

Function 3. Command

Task 1

Emergency response plan accounts for

- understanding the organization and authorities of the incident management structure,
- training and exercising with key staff on the disaster response plan/crisis plan,
- familiarizing command staff with incident action planning principles, and
- appropriate resources (job aids) being available to guide disaster decisions.

Function 4. Control

Task 1

Command staff understand the interface for resource requests (as well as any existing plans for resource triage/allocation) with local public health/emergency management agencies and/or local health coalitions as applicable.

Task 2

Command staff understand the processes for sheltering, relocation, and evacuation in response to threats to the agency, including facility assessment (includes suspension of services because of unsafe delivery conditions).

Task 3

Command staff understand options for community law enforcement support for their personnel during a disaster if required.

Task 4

Agency plan reflects a phased expansion of surge capacity/capabilities for conventional, contingency, and crisis care conditions.

Function 5. Communications

Task 1

Agency has policies and procedures in place for sharing situational updates with staff and clients (optimally redundant strategies in case of power or other system failures).

Task 2

Agency has the ability to communicate with (as appropriate)

- the local emergency operations center,

- the local/regional health and medical multiagency coordination center (as applicable), and
- other partner agencies/facilities in the area.

Function 6. Coordination

Task 1

Command staff understand the policy interface between the agency and local public health and emergency management agencies and local/regional hospital coalitions.

Task 2

If agency is part of a health care system, plans document the integration of agency response with the corporate response structure and processes.

Task 3

Agency has a plan for coordinating the scope of home care services provided with other home care agencies to avoid significant inconsistencies.

Function 7. Public Information

Task 1

Agency provides information to the JIS for public dissemination as appropriate to its services.

Notes and Resources

See <http://www.fema.gov/emergency/nims/PublicInformation.shtm>.

Function 8. Operations

Conventional, Contingency, and Crisis Care Conditions

Task 1

Under contingency care conditions, command and unit staff can implement strategies for supply substitution, conservation, and adaptation; extension of staff responsibilities; and patient care strategies (which patients will receive services depending on demand).

Task 2

Under CSC conditions, same as under contingency care conditions, but expanded options to include

- reuse and reallocation of supplies (e.g., triage of home oxygen supplies),
- changes in staff roles,
- increased family provision of care and necessary education,
- provision/facilitation of palliative care,

Notes and Resources

- resource allocation and triage decisions and interface with any regional triage teams/regional disaster medical advisory committees, and
- adjustments to patient care protocols according to circumstances.

Mental Health Care

Task 1

Understand how to access local mental health system resources.

Task 2

A mental health triage system for at-risk patients, co-workers, and self-triage (for example, PsySTART) is in place.

Task 3

Staff are trained in psychological first aid to support at-risk patients, co-workers, and themselves.

Palliative Care

Task 1

Agency has planned for adequate symptomatic management (analgesia, antiemetics, anxiolytics) for clients (including those that will not receive other treatment modalities).

Task 2

Palliative care is addressed in the emergency operations plan, including palliative care resources, the physician decision-making process, education, and any agency-specific procedures.

Task 3

Palliative care training (including just-in-time training) is developed and performed according to the agency plan.

The mental health section of Chapter 4 provides a more detailed discussion.

The palliative care section in Chapter 4 provides a more detailed discussion.

Function 9. Logistics

Staffing

Task 1

Call-back criteria and policies are in place, including maintenance of current employee contact information.

Task 2

Agency assesses the number of staff potentially available for large-scale incidents, anticipating limits due to community access problems (e.g., flooded roads), family obligations, or employee illness.

Supplies

Task 1

Identify key potential scarce resources based on types of incidents and to the degree possible stockpiles or identify alternative sources for these supplies (e.g., home oxygen concentrators, oxygen tanks for use during power failures).

Notes and Resources

See <http://www.health.state.mn.us/oep/healthcare/scarce/index.html>.

Task 2

For highly vulnerable supplies, identify strategies for appropriate substitution, conservation, adaptation, reuse, and reallocation.

Task 3

For local or state cached supplies (such as a local pharmaceutical cache) or SNS supplies, agency understands the process for request, receipt, and distribution of these supplies.

Special Considerations

Task 1

Patient groups requiring special consideration are identified and, to the degree possible, equipment and supplies to address the needs of these groups are purchased and/or stockpiled in relation to the agency's size and role in the community. Includes (but is not limited to)

- pediatric patients;
- need for isolation/infection control;
- patients with functional limitations (e.g., hearing or visually impaired); and
- patients needing dialysis/renal replacement therapy.

Task 2

Agency understands any regional plans or resources for specific groups (e.g., pediatric-specific disaster supplies, regional pediatric or dialysis networks) and its role in such plans.

Function 10. Planning

Task 1

Agency is aware of the role of the state or regional disaster medical advisory committees and understands how to receive information from those bodies (or communicate with them if applicable).

Task 2

Agency (or partner) has a plan for the clinical care committee or technical experts to review current response strategies and make modifications based on evolving information during a long-term incident.

Task 3

Policies for altered shift lengths and staff roles are examined, and any collective bargaining issues are identified, if not addressed.

Task 4

Use of nontraditional assistance (family members, volunteers, Medical Reserve Corps providers) to provide care is addressed as needed within the emergency operations plan.

Task 5

Orientation, mentoring, education, and clinical care policies for nonagency supplemental staff are anticipated (e.g., Medical Reserve Corps).

Task 6

Agency understands the process and supporting agreements (e.g., related to worker’s compensation, liability) for sharing staff with other agencies or facilities in need, including staffing of alternate care sites.

Function 11. Administration/Legal Issues

Task 1

Administration (including corporate administration outside of the facility) examines its delegation of authority to incident commanders during a disaster and makes any changes necessary to ensure that CSC decisions are supported (i.e., that the incident commander is acting with the authority of the agency). During a crisis, administration may require additional communications and coordination with the incident commander.

Task 2

Administration understands relevant changes to agency authorities and protections when state declarations of emergency/public health emergency are made, including legal protections or obligations for medical providers (e.g., duty to serve).

Task 3

Agency and/or corporate legal counsel are aware of surge capacity/ CSC plans and implications for patient care (e.g., plans to triage the provision of home care or of medical resources).

Task 4

Legal counsel identifies state and local laws and regulations that would constrain CSC plans and possible solutions (this may be a regional analysis).

Notes and Resources

See Chapter 3 for more detailed discussion.

Core Functions of the Outpatient Sector in CSC Planning and Implementation

Alternate Care Systems (ACS)

Function 1. Alerting

Task 1

Public health and health care coalitions (at a minimum—likely also includes emergency management and EMS) identify a multiagency coordination (MAC) group prior to an incident that can assess and address the need for alternate care sites.

Task 2

Process (and triggers and indicators, as applicable) for alerting the

medical advisory committee is defined in emergency operations plans at the agency, coalition, and jurisdiction levels according to local plans.

Function 2. Notification

Task 1

MAC group has a notification mechanism (including a redundant mechanism in case of failure of the primary mechanism) for informing stakeholders of activation/demobilization of Alternate Care Systems (ACS), including

- EMS;
- hospital coalitions/partner health care facilities;
- regional disaster medical advisory committee/clinical care committee members; and
- appropriate technical experts (including those in toxicology, radiation safety, infectious disease, critical care, emergency medicine, trauma surgery, blood banking, dialysis, pediatrics, and burn surgery as required).

Task 2

Expectations of involved agencies and technical experts are understood prior to an incident, and appropriate activation/notification policies are in place.

Notes and Resources

Institution should at least annually test notification systems and ensure that up-to-date contact information is available.

Function 3. Command

Task 1

Public health takes a leadership role in ESF-8 (Health and Medical) at the local and state levels to assess available resources vs. actual or potential demand, and to implement public alternate care systems as required to supplement the usual health care system and any private (health care organized) alternate care sites.

Task 2

A NIMS-compliant ICS is utilized to coordinate ESF-8 assets. Includes

- use of unified command when no one agency has the lead role (e.g., public health and hospital system);
- an understanding of where technical specialists, the clinical care committee, and the triage team fit into the incident management structure;
- training and exercises with key staff;
- use of incident action planning and planning section functions during longer-term incidents; and
- appropriate resources (job aids) to guide decisions regarding ACS.

Task 3

Public agencies (public health, emergency management) understand their authorities to initiate ACS within the community at public sites

(private sites are established by the health care facilities that operate them).

Function 4. Control

Task 1

MAC group and ACS site staff understand the interface for resource requests and the acquisition process (as well as any existing plans for resource triage/allocation) with local and state emergency management.

Task 2

Emergency management agreements/plans reflect how public health and health care facilities support sheltered populations with medical needs.

Task 3

ACS site staff understand the need for security/access controls and community law enforcement support options as appropriate.

Task 4

ACS options reflect a phased expansion of surge capacity/capabilities for conventional, contingency, and crisis care situations (from electronic to augmented services at private and public sites).

Task 5

MAC group has a process for ongoing incident analysis to maintain situational awareness and facilitate ACS decisions.

Function 5. Communications

Task 1

Public health agencies have policies and procedures for exchanging situational updates with hospitals/outpatient care facilities, EMS, and emergency management.

Task 2

MAC group/center has a means of communicating with key stakeholders (including those listed under Function 2, Task 1) to maintain incident communications (including redundant communications mechanisms as required).

Function 6. Coordination

Task 1

MAC group understands the interfaces among local public health and emergency management agencies and local/regional hospital coalitions, including existing agreements.

Task 2

MAC group understands the function of the state disaster medical

advisory committee and any regional medical coordination center or regional disaster medical advisory committees, and can activate/facilitate regional groups according to local plans.

Function 7. Public Information

Task 1

MAC group ensures that appropriate risk communications relevant to ACS are developed for the public regarding when and where to seek care (e.g., traditional media, websites, calling programs, e-mail, social media). This includes the ability to reach key cultural groups served by ACS.

Task 2

MAC group or public health agencies coordinate information with other agencies and participate in JIS and JIC activities when implemented by the jurisdiction, state, or coalition.

Notes and Resources

See <http://www.fema.gov/emergency/nims/PublicInformation.shtm>.

Function 8. Operations

Task 1

Local/state public health agencies maintain an inventory of usual and surge medical resources.

Task 2

Local/state public health agencies understand private/public ACS capacities to augment health system capacity, including

- telephone hotlines and other “electronic care” (including coordination with private and public safety answering points);
- ambulatory care (“flu centers” or triage/casualty collection points); and
- nonambulatory care (shelter-based care, hospital overflow, federal medical station integration, limited emergency/surgical care).

Task 3

For each of these public sites (or for similar sites that are incident specific) MAC group understands the activation process (and any authorities or agreements involved).

Task 4

Plans are made for patient registration, tracking, and record keeping, including access to and storage of medical records.

Task 5

Plans are made for laboratory and pharmacy services appropriate to the site, including clinical ordering and results systems.

Task 6

Scope of clinical operations is defined and modified according to the evolving needs of the incident and the supplies available.

Task 7

ACS site has staff trained to provide psychological first aid to patients/evacuees, can implement psychological triage processes (such as PsySTART) as required, and has a referral/management plan for those with acute mental health needs.

Task 8

ACS policies and education address the provision of palliative care (either on site or facilitated in the home environment).

Function 9. Logistics

Staffing

Task 1

Local public health agencies identify sources of potential staffing (e.g., health care systems/coalitions, Medical Reserve Corps, EMS) for the various types of public ACS sites.

Task 2

ACS credentialing policies and procedures are congruent with applicable regulations and statutes.

Task 3

Plans are made for staff orientation, education, and supervision.

Task 4

Capacity of nontraditional resources (family members, volunteers) to provide nonmedical care is examined and addressed as needed within the ACS operations plan.

Task 5

Legal liability, worker's compensation, compensation, and other issues are addressed according to the source of the staff (e.g., hospital, volunteer, MAC group).

Supplies

Task 1

Supply lists for each type of ACS (shelter, ambulatory, nonambulatory) are developed, optimally, including the source of initial supply and resupply.

Task 2

Emergency management and public health agencies, health care facilities, and medical supply vendors understand their role in the ACS setup, resupply, and delivery processes.

Task 3

For local or state cached supplies (such as a local pharmaceutical cache) or SNS supplies, MAC group/ACS facility understands the process for request, receipt, and distribution of these supplies.

Space

Task 1

Health care facilities identify privately owned spaces for ACS establishment on site or at other owned and modified sites.

Task 2

Public health and emergency management agencies identify public spaces for major ACS facilities and establish any necessary agreements or authorities required to utilize them (recognizing that no-notice incidents may require ACS sites at ad hoc locations).

Special Considerations

Task 1

Patient groups requiring special consideration are identified, and, to the degree possible, equipment and supplies to address the needs of these groups are purchased and/or stockpiled in relation to the expected size of the alternate care site, potentially including

- pediatric patients,
- patients with behavioral and cognitive impairment,
- the need for isolation/infection control, and
- the need for contamination assessment (post-HAZMAT or radiological dispersal device with population-based exposure).

Task 2

Facility understands any regional plans or resources for specific groups (e.g., pediatric-specific disaster supplies, regional pediatric or dialysis networks) and the ACS site's role in these plans.

Function 10. Planning

Task 1

Technical specialists are available as needed to provide input on infection control, clinical care, and other issues arising at the ACS site. This may include input from the regional or state disaster medical advisory committee.

Task 2

Planning section maintains situational awareness and modifies clinical care guidelines or supply/staffing requests to meet demand/anticipated demand.

Task 3

Planning section addresses policy modifications and demobilization based on incident demands.

Function 11. Administration

Authority

Task 1

Public health and emergency management examine their delegation of authority to public ACS site incident commanders during a disaster and make any changes necessary to ensure that CSC decisions to open an ACS site are supported (i.e., that the incident commander is acting with the authority of the agency and any necessary political entities). During a crisis, the administration may require additional communications and coordination with the incident commander.

Task 2

Public health and emergency management agencies understand their authorities to open and provide ACS services, including the ability to facilitate private ACS sites through use of regulatory relief and emergency orders.

Regulatory and Legal Issues

Task 1

Health care facilities and emergency management agencies understand relevant changes to agency/facility authorities and protections when state declarations of emergency/public health emergency are made, including legal protections or obligations for medical providers (e.g., duty to serve).

Task 2

Agency heads/political leaders are aware of surge capacity/CSC plans and implications for patient care, including ACS sites.

Task 3

Legal counsel identify state and local laws and regulations that would constrain public and private ability to open ACS sites and potential relief mechanisms.

Notes and Resources

See Chapter 4 for a more detailed discussion.

Core Functions of the Outpatient Sector in CSC Planning and Implementation

Out-of-Hospital Providers

Function 1. Notification

Task 1

Providers ensure that up-to-date contact information and acknowledgment of receipt of exercise and incident messaging are provided to employers (and any other relevant groups, such as the MRC).

Function 2. Command, Control, Communications, and Coordination

Task 1

When a disaster occurs that affects the providers' facility/agency, providers understand where they report, to whom they answer, and how to execute their roles. They also understand the range of their potential roles within the rest of the health care system and opportunities for volunteer assignment (for example, reassignment to an alternate care site or a hospital within the corporate system).

Task 2

Providers know how to contact and provide situational updates to and/or request resources from their administrator/emergency operations center/command center as applicable to the facility/agency plan.

Task 3

Providers receive incident command training appropriate to their role in the command structure, including

- knowledge of the location of plans and actions for the full continuum of care in their area, including the use of crisis spaces and staffing; and
- understanding of appropriate resources (job aids) to guide capacity expansion decisions or other unit-based plans.

Function 3. Public Information

Task 1

Providers understand key sources of facility/community information in a disaster (e.g., web, social media, e-mail, hotline).

Function 4. Operations

Task 1

Providers understand facility-based actions during expansion of care from conventional to crisis (e.g., expanded facility hours, scheduling changes, triage of appointments, use of ancillary spaces).

Task 2

Providers are prepared to perform triage as it relates to their role (may involve triage of appointments, or may involve another triage role within their system, such as telephone triage).

Task 3

Providers likely to perform triage (both reactive and proactive) understand the criteria they may consider (as well as what not to consider) when making triage decisions.

Notes and Resources

See the ethics section of Chapter 4.

Task 4

Providers understand sources of employee mental health support.

Task 5

Providers understand normal stress reactions and coping mechanisms, as well as danger signs, and receive training in psychological first aid and psychological triage appropriate for their roles.

Task 6

Providers understand their potential role in providing/facilitating palliative care during a disaster.

See the mental health and palliative care sections of Chapter 4 for a more detailed discussion.

Function 5. Logistics

Task 1

Providers understand the utilization of space in their facility and other expansion plans that involve their department/unit.

Task 2

Providers understand how their unit staffing and hours may change during a disaster.

Task 3

Providers understand how their role may be changed/expanded during a crisis, including incorporation of staff from outside the unit or facility, and any potential roles at other sites within their health system (if applicable).

Task 4

Providers understand how record keeping and other duties may change in crisis situations (e.g., where to find and how to use paper forms).

Task 5

Providers understand the process for requesting necessary clinical resources during an incident.

Function 6. Legal Issues

Task 1

Providers understand legal obligations and liabilities for practice both within and outside of their facility/agency when

- a disaster or public health emergency has been declared,
- a disaster or public health emergency has not been declared, and
- when providing other disaster relief functions (for example, if serving as a Medical Reserve Corps or disaster medical assistance team member).

Notes and Resources

Chapter 3 provides a more detailed discussion.

REFERENCES

- AAFP (American Academy of Family Physicians). 2012. *Disaster recovery and response*. Leawood, KS: AAFP, http://www.aafp.org/online/etc/medialib/aafp_org/documents/clinical/bt/resouces/disasterrecovery.Par.0001.File.dat/DisasterRecovery.pdf (accessed February 27, 2012).
- AAP (American Academy of Pediatrics). 2011. *Disaster preparedness for pediatric practices: An online tool*. <http://practice.aap.org/disasterpreptool.aspx> (accessed February 27, 2012).
- AHAF (American Health Assistance Foundation). 2012. *The facts on Alzheimer's disease*. <http://www.ahaf.org/alzheimers/about/understanding/facts.html> (accessed February 27, 2012).
- AHRQ (Agency for Healthcare Research and Quality). 2004. *Rocky Mountain regional care model for bioterrorist events: Locate alternate care sites during an emergency*. Publication No. 04-0075. Rockville, MD, <http://archive.ahrq.gov/research/altsites.htm> (accessed February 27, 2012).
- AHRQ. 2005. *Health Emergency Assistance Line and Triage Hub (HEALTH model)*. <http://archive.ahrq.gov/research/health/> (accessed February 27, 2012).
- AHRQ. 2007a. *Nursing homes in public health emergencies: Special needs and potential roles*. Publication No. 07-0029-1. Rockville, MD: AHRQ, <http://archive.ahrq.gov/prep/nursinghomes/nhomerep.pdf> (accessed February 27, 2012).
- AHRQ. 2007b. *Providing mass medical care with scarce resources: A community planning guide*, edited by Phillips, S. J., and A. Knebel. Publication no. 07-0001. Rockville, MD: AHRQ, <http://archive.ahrq.gov/research/mce/> (accessed March 4, 2012).
- AHRQ. 2007c. *Adapting community call centers for crisis support*. <http://archive.ahrq.gov/prep/callcenters/callcenters.pdf> (accessed February 27, 2012).
- AHRQ. 2009. *Disaster alternate care facilities: Selection and operation*. Publication no. 09-0062. Rockville, MD: AHRQ, <http://archive.ahrq.gov/prep/acfselection/dacprep.htm> (accessed February 27, 2012).
- AHRQ. 2011. *Home health patient assessment tools: Preparing for emergency triage*. Publication no. 11-M020-EF. Rockville, MD: AHRQ, <http://archive.ahrq.gov/prep/homehealth/homehealth.pdf> (accessed February 27, 2012).
- The American Geriatrics Society Foundation for Health in Aging. Undated. *Nursing home care*. http://www.healthinaging.org/agingintheknow/chapters_print_ch_trial.asp?ch=15#Lives (accessed May 30, 2009).
- APIC (Association for Professionals in Infection Control and Epidemiology, Inc.). 2009. *Infection Prevention for Alternate Care Sites—APIC*. Washington, DC: APIC, <http://www.mintie.com/assets/pdf/education/APIC%20IP%20for%20ACS%202009.pdf> (accessed February 27, 2012).
- ASPR (Assistant Secretary for Preparedness and Response). 2011a. *Disaster Mortuary Operational Response Teams (DMORTs)*. Washington, DC: HHS (Department of Health and Human Services), <http://www.phe.gov/Preparedness/responders/ndms/teams/Pages/dmort.aspx> (accessed February 27, 2012).
- ASPR. 2011b. About ESAR-VHP. <http://www.phe.gov/esarvhp/pages/default.aspx> (accessed March 5, 2012).
- ASPR. 2012. *Federal Medical Station (FMS)*. Washington, DC: HHS, <http://www.phe.gov/Preparedness/support/medicalassistance/Pages/default.aspx#fms> (accessed February 27, 2012).
- Bar-Dayan, Y., A. Leiba, P. Beard, D. Mankuta, D. Enselhart, Y. Beer, M. Lvnn, Y. Weiss, G. Martonovits, P. Benedek, and A. Goldberg. 2005. A multidisciplinary field hospital as a substitute for medical hospital care in the aftermath of an earthquake: The experience of the Israeli Defense Forces field hospital in Duzce, Turkey 1999. *Prehospital Disaster Medicine* 20(2):103-106.
- Bar-On, E., E. Lebel, Y. Kreiss, O. Merin, S. Benedict, A. Gill, E. Lee, A. Pirotsky, T. Shirov, and N. Blumberg. 2011. Orthopaedic management in a mega mass casualty situation: The Israel Defense Forces field hospital in Haiti following the January 2010 earthquake. *Injury* 42(10):1053-1059.
- Bisson, J. I., P. L. Jenkins, J. Alexander, and C. Bannister. 1997. Randomized controlled trial of psychological debriefing for victims of acute burn trauma. *British Journal of Psychiatry* 171:78-81.
- Bisson, J. I., M. Brayne, F. M. Ochberg, and G. S. Everly. 2007. Early psychosocial intervention following traumatic events. *American Journal of Psychiatry* 164(7):1016-1019.
- Blackwell, T., and M. Bosse. 2007. Use of an innovative design mobile hospital in the medical response to Hurricane Katrina. *Annals of Emergency Medicine* 49(5):580-588.
- Burnweit, C., and S. Stylianos. 2011. Disaster response in a pediatric field hospital: Lessons learned in Haiti. *Journal of Pediatric Surgery* 46(6):1131-1139.

- California Emergency Medical Services Authority. 2007. *Disaster Medical Services Division—Hospital Incident Command System (HICS)*. <http://www.emsa.ca.gov/hics/> (accessed February 27, 2012).
- CBS News. 2009. *Kids with H1N1 camp out at hospital*. www.cbsnews.com/stories/2009/09/23/.../main5331312.shtml (accessed September 23, 2009).
- CDC (Centers for Disease Control and Prevention). 2009a. *2009 H1N1 vaccination recommendations*. Atlanta, GA: CDC, <http://www.cdc.gov/h1n1flu/vaccination/acip.htm> (accessed February 27, 2012).
- CDC. 2009b. *Pandemic influenza pediatric office plan template: Product of a pediatric healthcare response to pandemic H1N1 influenza stakeholder meeting*. Atlanta, GA: CDC, http://www.bt.cdc.gov/healthcare/pdf/pediatric_office_plan.pdf (accessed February 27, 2012).
- Chung, S., S. Monteiro, T. Hogencamp, F. J. Damian, and A. Stack. 2011. Pediatric alternate site of care during the 2009 H1N1 pandemic. *Pediatric Emergency Care* 27(6):519-526.
- Cinti, S. K., W. Wilkerson, J. G. Holmes, J. Shlafer, C. Kim, C. D. Collins, K. Bandy, F. Krupansky, M. Lozon, S. A. Bradin, C. Wright, J. Goldberg, D. Wagner, P. Rodgers, J. Atas, and B. Cadwallender. 2008. Pandemic influenza and acute care centers: Taking care of sick patients in a nonhospital setting. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 6(4):335-344.
- CMS (Centers for Medicare & Medicaid Services). 2009. *Hospital alternative care sites during H1N1 public health emergency*. <http://www.cms.gov/H1N1/Downloads/AlternativeCareSiteFactSheet.pdf> (accessed February 27, 2012).
- Cone, D. C., S. D. Weir, and S. Bogucki. 2003. Convergent volunteerism. *Annals of Emergency Medicine* 41:457-462.
- Cruz, A. T., B. Patel, M. C. DiStefano, C. R. Codispoti, J. E. Shook, G. J. Demmler-Harrison, and P. E. Sirbaugh. 2010. Outside the box and into thick air: Implementation of an exterior mobile pediatric emergency response team for North American H1N1 (swine) influenza virus in Houston, Texas. *Annals of Emergency Medicine* 55(1):23-31.
- D'Amore, A. R., and C. K. Hardin. 2005. Air Force Expeditionary Medical Support Unit at the Houston floods: Use of a military model in civilian disaster response. *Military Medicine* 170(2):103.
- DOD (Department of Defense). 2001a (December 1). *Acute care center: A mass casualty care strategy for biological terrorism incidents*. Washington, DC: DOD, http://www.ecbc.army.mil/downloads/bwirp/ECBC_acc_blue_book.pdf (accessed February 13, 2012).
- DOD. 2001b (May 1). *Neighborhood emergency help center: A mass casualty care strategy for biological terrorism incidents*. Washington, DC: DOD, http://disasterhelp.net/resources/nehc_green_book.pdf (accessed February 13, 2012).
- FEMA (Federal Emergency Management Agency). 2011a. *NIMS resource center*. <http://www.fema.gov/emergency/nims/> (accessed February 27, 2012).
- FEMA. 2011b. *Public information*. <http://www.fema.gov/emergency/nims/PublicInformation.shtm> (accessed February 27, 2012).
- FEMA and Emergency Management Institute. 2008. *National Incident Management System independent study 701—Multi-Agency Coordination System (MACS) course*. Emmitsburg, MD: FEMA. <http://training.fema.gov/EMIWeb/IS/is701.asp> (accessed July 31, 2008).
- Greenwald, P. W., A. F. Rutherford, R. A. Green, and J. Giglio. 2004. Emergency department visits for home medical device failure during the 2003 North America blackout. *Academic Emergency Medicine* 11(7):786-789.
- Hall, M. J., C. J. DeFrances, S. N. Williams, A. Golosinskiy, and A. Schwartzman. 2010. *National hospital discharge survey: 2007 summary*. Report no. 29. Hyattsville, MD: National Center for Health Statistics.
- HHS (Department of Health and Human Services). 2011. *Guidance for integrating culturally diverse communities into planning for and responding to emergencies: A toolkit*. Washington, DC: HHS Office of Minority Health, http://www.hhs.gov/ocr/civilrights/resources/specialtopics/emergencypre/omh_diversitytoolkit.pdf (accessed January 11, 2012).
- Hick, J. L., D. Hanfling, J. Burstein, C. DeAtely, D. Barbisch, G. Bogdan, and S. Cantrill. 2004. Healthcare facility and community strategies for patient care surge capacity. *Annals of Emergency Medicine* 44:253-261.
- IASC (Inter-Agency Standing Committee). 2007. *IASC guidelines on mental health and psychological support in emergency settings*. Geneva, Switzerland: IASC.
- JCAHO (Joint Commission on Accreditation of Healthcare Organizations). 2005. *Surge hospitals: Providing safe care in emergencies*. Oakbrook Terrace, IL: JCAHO, http://www.jointcommission.org/assets/1/18/surge_hospital.pdf (accessed February 27, 2012).
- Kellermann, A. L., A. P. Isakov, R. Parker, M. T. Handrigan, and S. Foldy. 2010. Web-based self-triage of influenza-like illness during the 2009 H1N1 influenza pandemic. *Annals of Emergency Medicine* 56(3):288-294.

- Kopp, J. B., L. K. Ball, A. Cohen, R. J. Kenney, K. D. Lempert, P. E. Miller, P. Muntner, N. Qureshi, and S. A. Yelton. 2007. Kidney patient care in disasters: Emergency planning for patients and dialysis facilities. *Clinical Journal of the American Society of Nephrology* 2(4):825-838.
- Kreiss, Y., O. Merin, K. Peleg, G. Levy, S. Vinker, R. Sagi, A. Abargel, C. Bartal, G. Lin, A. Bar, E. Bar-On, M. J. Schwaber, and N. Ash. 2010. Early disaster response in Haiti: The Israeli field hospital experience. *Annals of Internal Medicine* 153(1):45-48.
- Lam, C., R. Waldhorn, E. Toner, T. V. Inglesby, and T. O'Toole. 2006. The prospect of using alternative medical care facilities in an influenza pandemic. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science* 4(4):384-390.
- McNally, R. J., R. A. Bryant, and A. Ehlers. 2003. Does early psychological intervention promote recovery from posttraumatic stress? *Psychological Science in the Public Interest* 4(2):45-79.
- Medical Reserve Corp. 2011. *Homepage of the Division of the Civilian Volunteer Medical Reserve Corps*. <http://www.medicalreservecorps.gov/HomePage> (accessed March 5, 2012).
- Merin, O., N. Ash, G. Levy, M. J. Schwaber, and Y. Kreiss. 2010. The Israeli field hospital in Haiti: Ethical dilemmas in early disaster response. *New England Journal of Medicine* 362(11):e38.
- NACCHO (National Association for County and City Health Officials). 2008. *Alternative methods of dispensing: Model highlights*. Washington, DC: NACCHO, http://www.naccho.org/topics/emergency/SNS/upload/POD-Article-5_nonlinear.pdf (accessed February 27, 2012).
- National Commission on Children and Disasters. 2009. *National Commission on Children and Disasters homepage*. <http://www.childrenanddisasters.acf.hhs.gov> (accessed November 29, 2011).
- Nicogossian, A. E., and C. R. Doarn. 2011. Armenia 1988 earthquake and telemedicine: Lessons learned and forgotten. *Telemedicine Journal and E-Health* 17(9):741-745.
- NIMH (National Institute of Mental Health). 2002. *Mental health and mass violence: Evidence-based early psychological intervention for victims/survivors of mass violence. A workshop to reach consensus on best practices*. NIH publication no. 02-5138, Washington, DC: U.S. Government Printing Office.
- NYCDHMH (New York City Department of Health and Mental Hygiene). 2007. *Preparedness focus areas: Pediatric preparedness*. New York: NYCDHMH, <http://www.nyc.gov/html/doh/html/bhpp/bhpp-focus-ped-toolkit.shtml> (accessed November 29, 2011).
- Rebmann, T., B. Citarella, D. S. Subramaniam, and D. P. Subramaniam. 2011. A home health agency's pandemic preparedness and experience with the 2009 H1N1 pandemic. *American Journal of Infection Control* 39(9):725-731.
- Rhodas, E., A. Vicuna, and R. C. Merrell. 2005. Intermittent and mobile surgical services: Logistics and outcomes. *World Journal of Surgery* 29(10):1335-1339.
- Ruggiero, K. J., H. S. Resnick, R. Acierno, S. F. Coffey, M. J. Carpenter, A. M. Ruscio, R. S. Stephens, D. G. Kilpatrick, P. R. Stasiewicz, R. A. Roffman, M. Bucuvalas, and S. Galea. 2006. Internet-based intervention for mental health and substance use problems in disaster-affected populations: A pilot feasibility study. *Behaviour Research and Therapy* 37(2):190-205.
- Schappert, S. M., and E. A. Rechtsteiner. 2011. Ambulatory medical care utilization estimates for 2007. *Vital and Health Statistics* 13(169):1-38.
- Schreiber, M., and S. Shields. 2012. *Anticipate, Plan, and Deter: Building resilience in emergency health responders*. Presented at the 2012 NACCHO (National Association of City and County Health Officials) Public Health Preparedness Summit, Anaheim, California.
- Schreiber, M., R. Gurwitch, and M. Wong. 2006. "Listen, Protect, and Connect—Model & Teach" psychological first aid for children. Washington, DC: FEMA, http://www.ready.gov/sites/default/files/documents/files/PFA_SchoolCrisis.pdf (accessed February 27, 2012).
- Schreiber, M., B. Pfefferbaum, L. Sayegh, and J. Coody. In press. The way forward: The national children's disaster mental health concept of operations. *Disaster Medicine and Public Health*.
- Schultz, C. H., K. L. Koenig, and E. K. Noji. 1996. A medical disaster response to reduce immediate mortality after an earthquake. *New England Journal of Medicine* 34(7):438-444.
- Sills, M. R., M. Hall, H. K. Simon, E. S. Fieldston, N. Walter, J. E. Levin, T. V. Brogan, P. D. Hain, D. M. Goodman, D. D. Fritch-Levens, D. B. Fagbuyi, M. B. Mundorff, A. M. Libby, H. O. Anderson, W. V. Padula, and S. S. Shah. 2011. Resource burden at children's hospitals experiencing surge volumes during the spring 2009 H1N1 influenza pandemic. *Academic Emergency Medicine* 18(2):158-166.

- Skidmore, S., W. Wall, and J. Church. 2003. *Modular emergency medical system: Concept of operations for the acute care center (ACC). Mass casualty strategy for a biological terror incident*. http://disasterhelp.net/resources/acc_conops.pdf (accessed February 27, 2012).
- State of California. 2012a. *Development of standards and guidelines for healthcare surge during emergencies—alternate care sites* [draft text]. <http://bepreparedcalifornia.ca.gov/NR/rdonlyres/3C71BC63-5B32-486E-A66F-917CC53E9A77/0/DraftAltCareSitesWTO.pdf> (accessed February 27, 2012).
- State of California. 2012b [draft text]. *Government-authorized alternate care site operational tools manual*. http://bepreparedcalifornia.ca.gov/NR/rdonlyres/C2AD6528-F781-4D8C-B900-828A1C2C6F0C/0/Operational_ACS_Ops_Tool_FINAL.pdf (accessed February 27, 2012).
- U.S. Census Bureau. 2006. *Profile America facts for features*. Washington, DC: U.S. Census Bureau, http://www.census.gov/newsroom/releases/archives/facts_for_features_special_editions/cb06-ff10-2.html (accessed February 27, 2012).



Crisis Standards of Care

A Systems Framework for
Catastrophic Disaster Response

Public Engagement

INSTITUTE OF MEDICINE
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Crisis Standards of Care

A Systems Framework for Catastrophic Disaster Response

Volume 6: Public Engagement

Committee on Guidance for Establishing Standards of Care for Use in Disaster Situations

Board on Health Sciences Policy

Dan Hanfling, Bruce M. Altevogt, Kristin Viswanathan, and Lawrence O. Gostin, *Editors*

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Willing is not enough; we must do.”*
—Goethe



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This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We wish to thank the following individuals for their review of this report:

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its release. The review of this report was overseen by **Dr. Georges Benjamin**, American Public Health Association. Appointed by the Institute of Medicine, he was responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authoring committee and the institution.



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Acronyms

ARS	audience response systems
CSC	crisis standards of care
HPP	Hospital Preparedness Program
PHEP	Public Health Emergency Preparedness
SOFA	Sequential Organ Failure Assessment

9: Public Engagement

In its 2009 letter report, the committee emphasized the need for a robust community engagement process on the values associated with the allocation of scarce medications (e.g., medical countermeasures) and equipment (e.g., face masks) during a catastrophic disaster. This chapter provides a framework and offers a set of tools for conducting public engagement or “community conversations” about crisis standards of care (CSC).

GOALS AND BENEFITS OF PUBLIC ENGAGEMENT

Public engagement is necessary not only to ensure the legitimacy of the CSC planning process and guidelines, but also to achieve the best possible results in the event of a catastrophic disaster. A meaningful public engagement process will inform members of the community about the concept of CSC so that individuals and organizations responsible for CSC planning and implementation and members of the general public will understand why and when CSC guidelines may become necessary and how they will be applied. Recent examples (discussed below) also demonstrate that public engagement facilitates deliberation and provides policy makers with community perspectives on the fundamental ethical dilemmas involved in decisions about allocating scarce medical resources in crisis situations. As noted in the 2009 letter report, “ethically sound disaster policies require more than technical expertise. These policies should reflect specific values in choices about contested issues, such as priority setting for access to scarce resources (e.g., medical countermeasures, antivirals) and restrictions on individual choice (e.g., which provider to see, where care is received). A public engagement process is crucial for drafting ethical policies that reflect the community’s values and deserve its trust” (IOM, 2009, p. 31). The ultimate goal for public engagement is to ensure that CSC guidelines reflect community values and priorities and therefore will be more acceptable to the public if activated in a crisis. An additional benefit is that public engagement on CSC can raise individual and community awareness about the need to focus on the broader goals of disaster preparedness.

A MODEL FOR PUBLIC ENGAGEMENT: RESOURCES FOR STATE AND LOCAL AUTHORITIES

To encourage and support public engagement initiatives by state, regional, and local health authorities, the committee developed a model process and set of tools for community conversations on CSC. The development of these tools was guided by public and community engagement efforts already initiated in various parts of the country, including Seattle/King County (Washington), Harris County (Texas), and Minnesota (discussed in the ethics section of Chapter 4).¹ In addition, in fall 2011, the committee conducted two pilot community conversations in Boston and Lawrence, Massachusetts, to test and refine these methods and tools.

The final products can be found at the end of this chapter. The materials include (1) detailed agendas for half- and full-day sessions structured around facilitated large- and small-group discussions; (2) surveys, scenarios, slides, and other tools with which to educate participants from the general public about the need for CSC and to explore community views on the ethical underpinnings that should be reflected in CSC guidelines; and (3) separate guidebooks for sponsors, lead facilitators, and table facilitators/note takers to assist them in planning and leading a CSC public engagement process.

Although these materials are comprehensive, they were designed with the expectation that state and local jurisdictions will tailor the process and tools to their particular objectives and needs. The rest of this chapter addresses the fundamental principles and considerations that should govern public engagement and outlines some strategies for meeting the challenges of planning and executing successful CSC public engagement processes. It should be emphasized that while the committee is confident that communities utilizing and adapting these materials will be able to pursue public engagement productively, the strategies presented here are not the only ways of moving such engagement processes forward. The committee encourages planners to review this chapter, as well as other public engagement efforts carried out across the country, before deciding on the best way to move forward.

ESSENTIAL PRINCIPLES OF PUBLIC ENGAGEMENT

There is no single right way to conduct public engagement. Successful processes can take many forms depending on the nature of the issues, available resources, and the local culture and conditions. Nevertheless, certain basic principles are common to all public engagement processes (NIH, 2011).

¹ Beginning in 2008, Seattle/King County engaged 153 members of the community in four events on the topic of priorities in resource allocation and scarce resource allocation (Seattle and King County, 2012).

In 2011, Harris County Public Health and Environmental Services held eight day-long public engagement events, convening more than 600 members of the general public, and one day-long community engagement event, convening 30 organizational representatives. The goal was to receive input on the community's values and how these should be incorporated in a severe pandemic requiring the allocation of scarce resources (Shah, 2012).

The Minnesota Pandemic Ethics Project was undertaken to plan for the allocation of scarce resources. Public input on the plan was garnered through a series of small- and large-group public engagement sessions. This project was among the first of its kind to develop public engagement methods and analyze their success (Garrett et al., 2011).

Policy Makers Genuinely Want Advice and Are Committed to Considering Public Input

Public engagement is a useful approach for obtaining public input about pending policy decisions that require difficult choices among competing values. Although average citizens may lack the expertise to comment on technical issues (e.g., the use of Sequential Organ Failure Assessment [SOFA] scores to allocate ventilators), they are perfectly capable of deliberating on the values underlying such decisions as whether to withhold or withdraw life-preserving care in situations of scarce resources. As noted above, policy makers benefit from public engagement. But to reap these benefits, they should clearly define in advance the questions on which they want input. They also should be willing to commit time and effort to a process that is more complex than the typical rule-making processes with which they are familiar and to seriously consider the information gained through the process in their final decisions.

Participants Represent the Diversity of the Community

Both those responsible for planning for and implementing CSC and members of the general public should be at the table to promote the exchange of ideas across different sectors and interest groups. Those planning public engagement events should develop outreach and recruitment strategies to reach a broad cross section of the community and to involve difficult-to-reach and at-risk populations that are typically underrepresented in public discourse.

Participants Are Provided with Information and a Meaningful Opportunity to Engage in Discussion

The goal of public engagement is to inform and discuss. Any agenda should begin with presentations or activities designed to educate participants from the general public about the issues they will need to understand to engage fully in the session. Skilled, neutral facilitators should then lead participants through user-friendly exercises designed to prompt discussion and elicit information about predefined issues.

Deliberation Is a Goal in and of Itself

Sometimes participants will reach consensus, or the weight of opinion will be apparent. But consensus and absolute clarity are not essential to a successful outcome, nor are they likely to emerge on issues such as CSC. One of the values of public engagement is that it can help reveal misunderstandings, biases, and areas of deep disagreement. Policy makers then can work to address these matters during the development of CSC plans, as well as during the dissemination phase when interested community partners and the general public are informed of the policies that have been adopted.

Input from the Public Engagement Sessions Receives Consideration in the Decision Making Process

Planners should establish in advance how they will give consideration to the recommendations, conclusions, and other information that emerge from the public engagement sessions, and should disclose these plans to

participants at the start of each session. It should be clear that participants may not have a “vote” on final policy since policy makers ultimately may reach different conclusions. Regardless of the outcome, the best practice is for the sponsoring agency to communicate the final results or policy decision(s) to community participants. Such communications should explain the basis for the decision(s) and how the public engagement data were weighed. If policy conclusions differ from views expressed at the public engagement sessions, this, too, should be communicated to participants to provide for transparency and a sense of integrity in the input process to the extent possible.

Top-Down Support and Sufficient Resources Are Allocated to the Task

Public engagement on CSC planning is a significant undertaking. Health authorities should assess the sufficiency of internal and community resources for planning community conversations on CSC and leverage more support if necessary. They also should consider the political and other environments for public conversations about these important but challenging issues and establish a suitable communications strategy to address political and other considerations.

CHALLENGES AND STRATEGIES

To conform to the above principles, sponsors of public engagement should plan to address the following considerations at the outset.

When Is the Best Point in the Process to Conduct CSC?

Public engagement should take place somewhere midway in a jurisdiction’s development of CSC guidelines. The development process should be mature enough that a sponsoring agency can identify the key issues to be addressed through public engagement. That point might occur prior to the drafting of a CSC plan, for example, while the plan is in development, or after an initial draft has been completed. Planning should not, however, be so far along that it is unlikely that public input could have any significant impact on the final product or that the draft CSC guidelines might be perceived as not being subject to revision. Based on local planning considerations, entities can best decide then when public engagement should be conducted and how the results will be used in ongoing planning efforts.

How Should Community Partners Be Engaged?

Prior to the public engagement sessions, it is important for sponsors to seek advice and support from community partners, including health care providers and community advocates representing the interests of various constituencies that might have unique perspectives on issues related to CSC (e.g., elders, children, people with disabilities, immigrants and refugees, geographically isolated communities). One approach is for sponsors to convene a series of smaller meetings or roundtable discussions with representatives of each these groups. While sponsors should consider including health care providers in broader public engagements, this group may require special outreach given their unique responsibilities for implementing CSC, and sponsors

should consider holding a larger session to solicit their perspectives. Collaboration with community partners will inform the agenda for the public engagement sessions and assist in the recruitment of diverse community participants, and could provide crucial political or other support if needed.

How Can Sponsors Achieve Diverse Community Participation?

A truly inclusive public engagement process has broad participation that reflects the diversity of the community and includes at-risk, difficult-to-reach populations that are not well represented in the political process. Efforts should be made to incorporate ethnically and racially diverse populations as well (Drexel University Center for Health Equality and HHS Office of Minority Health, 2008; HHS, 2011). Involving community members in the development of CSC is important because the values of ordinary community members—including those who may need greater levels of assistance, have special medical needs, or can offer unique perspectives—should inform the actions of professionals and engender community trust in the CSC guidelines that are developed and the development process.

Outreach and recruitment are among the greatest challenges sponsors will face in the public engagement process. Whatever the methodology, community members are being asked to devote a significant amount of their limited free time to attending a meeting on a topic that is unfamiliar and perhaps unsettling. Specific recruitment strategies are covered in more detail in the sponsor guidebook that is part of the toolkit at the end of this chapter. The following are major considerations that sponsors will have to weigh and resolve.

Defining Community

The first step in achieving diverse representation is to determine the demographic mix of the target community, which in turn requires defining the boundaries of that community. Those boundaries are obvious for a statewide process, but may be less clear for local public health sponsors that may consider collaborating with neighboring agencies. Best practice is for each session of the public engagement process to include a mix of participants drawn from various constituencies so that participants can hear and reflect upon different perspectives. This ideal can be difficult to achieve, however, if people are reluctant to travel or mix with others outside of their immediate community, geographic or otherwise. Another approach is to aim for process-wide diversity so that even if each session is not perfectly diverse, all of the key constituencies are represented in at least some of the sessions, and overall diversity is achieved.

Offering Incentives

Recruiting sufficient numbers of participants for a CSC public engagement session may prove difficult without the offer of a stipend (or some other type of incentive) that compensates for out-of-pocket expenses (e.g., missed work, dependent care, and transportation) or simply provides an incentive to give up significant free time. The offer of a stipend will likely yield higher levels of attendance, encourage participants to remain until the end of the session, and/or introduce more socioeconomic diversity by eliminating one barrier to attending a session. Although stipends now are a typical recruitment strategy for public engagement, however, agencies could be criticized for using public funds to pay people to attend such a meeting or even face questions about whether the results are somehow biased because of the incentives offered. An additional concern is whether federal Public Health Emergency Preparedness (PHEP) or Hospital Preparedness Pro-

gram (HPP) cooperative agreements may be used to cover the cost of stipends. These and other issues will need to be considered by the sponsor’s planning group.

Including Non-English-Speaking and Difficult-to-Reach Groups

In areas with large numbers of non-English-speaking residents, sponsors should consider the most effective ways to recruit these groups. One option is to provide translation and interpreter services at sessions conducted in English. Another is to conduct one or more session in the predominant language(s) of non-English-speaking groups. Sponsors also should consider recruiting or even holding sessions for difficult-to-reach groups (e.g., some immigrant and refugee populations) where they live. Although these strategies impose additional costs, they are the best way to ensure that the voices of such populations are heard.

Including People with Disabilities or Other Functional Needs

Including people with disabilities in the discussion is especially important given that many of these individuals are likely to face greater-than-average barriers to accessing care during a catastrophic disaster. Planners should make accessibility a priority and plan to accommodate various needs to the extent possible. People with disabilities should be recruited not only as participants but also as facilitators and note takers.

What Is the Appropriate Length of a Public Engagement Session?

Depending on the goals for the session, the resources available, and other logistical considerations, the sponsor should decide on the appropriate length of a community conversation. Both the half-day and full-day versions of the Massachusetts test sessions yielded valuable information and were well received by participants; as expected, the longer session afforded greater opportunity for in-depth discussion of a wider range of issues and for participants’ thoughts to evolve. CSC will be a complex and novel topic for most, so sufficient time should be allotted for participants to absorb and digest the background information and to develop and express their ideas on the issues as fully as possible. Adequate time also will minimize the risk that participants will be left with the impression that the sponsor did not give them the chance to be heard or to receive answers to their questions.

The materials in the toolkit at the end of this chapter include a 5-hour agenda with suggestions for lengthening or shortening the time consistent with the sponsoring agency’s purposes and resources. It will not be possible to cover every issue related to CSC in a single session regardless of its duration. The main goal is to derive outputs that are actionable. Sponsors will have to decide what information is most needed and estimate how long the session must be to yield it. Sponsors also should anticipate and allow time to answer participants’ questions about local public health and emergency preparedness issues.

Will Participants Understand the Program Materials?

One of the greatest challenges of public engagement is the presentation of information about issues as complex and easily misunderstood as CSC in a format that is accessible to a general public audience. The language should be clear and simple without sacrificing accuracy or key ideas. Many words that are central to CSC, such as “allocation,” “scarce,” and “resources,” will not resonate with the full range of people who should be included in a public engagement process. One strategy for overcoming literacy barriers is for

facilitators to read survey questions and scenarios aloud even if participants have received written materials. Another strategy is to minimize the need for participants to write responses to questions.

The pre- and post-survey instrument in the toolkit at the end of this chapter (see the sponsor guidebook) was designed not only to collect data on participants' opinions but also to jump start participants' understanding of the issues for discussion. The introductory slides provide additional background and reinforcement. If simultaneous sessions are being held and/or there is a desire to provide consistent introductory information to participants regardless of which session they attend, videotaping of the introductory presentation may be considered. Participants will come with different levels of knowledge and understanding and will learn in different ways. Offering the information through varied vehicles and formats increases the chance that, one way or another, everyone will absorb the information needed to be an active participant. Sponsors are encouraged to review and consider various strategies for engaging participants before deciding which strategies they will use.

What Skills and Background Do Facilitators Need?

Sponsors should make it a high priority to identify and recruit lead facilitators and table (small-group) facilitators with the experience and facilitation skills necessary to ensure the success of the conversation. Lead facilitators should be knowledgeable about CSC and the jurisdiction's CSC planning efforts and have a deep understanding of the public engagement process and program materials. The most effective lead facilitators are excellent communicators who enjoy connecting with the general public and are able to explain complex issues in terms that are accessible to lay audiences of varying literacy and education levels. It is preferable, but certainly not necessary, for the lead facilitator to have a clinical background because he or she may then be more prepared to answer questions that might be raised about medical care in a disaster, and because the public tends to trust clinicians on matters related to health care. Regardless, the key requirement for the lead facilitator is the ability to put participants at ease and make them comfortable with discussing difficult and challenging topics.

The most effective table (small-group) facilitators will be drawn from the local community (with an eye toward the ethnic and other characteristics of the participants) and will be highly skilled at leading small-group discussions. They need not have prior subject matter expertise, but should commit to familiarizing themselves with the guidebook for table facilitators and note takers in the toolkit and attending a training session conducted by the sponsor or the lead facilitator prior to the public engagement session.

How Will Data Be Collected and Analyzed?

A highly effective and engaging option to collect survey responses during public engagement is to use one of the audience response systems (ARS) now on the market. With ARS, participants use "clicker" devices to respond to questions and statements presented on slides. Data are automatically recorded for later analysis, eliminating the need for manual data entry. Another benefit of ARS is that facilitators can immediately display aggregated responses that reveal such information as how the group "voted" on a particular ques-

tion and whether changes of opinion occurred between the beginning and end of the session.² Participants and facilitators thereby gain additional knowledge about the views in the room, which in turn enriches the subsequent discussion. In the Massachusetts test sessions, one of which used ARS and the other of which relied on paper surveys, it was evident that the participants who used ARS liked using the clicker technology. Facilitators and observers also noted that the ARS session appeared to be more interactive and that the instant display of the range of opinions in the room had a significant impact on the depth of the discussion. Sponsors will need to consider cost and other factors before deciding whether to use such technologies in their engagement efforts.

Qualitative data are at least as important as quantitative data. Yet they can be more difficult to capture because skilled listeners should extract and synthesize key ideas from free-flowing conversations. The listening, analytical, and writing skills of note takers are critical because they will determine the usefulness of the information recorded during scenario discussions and report-outs. Note taking is thus an important role, and sponsors should recruit an appropriate number of note takers who are up to the task. Alternative strategies include digitally recording large- and small-group discussions. Although recording technology is now inexpensive, however, the cost of transcription or the time spent by staff listening to recordings after the sessions may be prohibitive.

How Can Sponsors Manage the Message?

Sponsors should establish an effective communications strategy to manage the message in a challenging environment before they initiate recruitment activities. Such a strategy should include talking points aimed at explaining CSC to various target audiences, including the general public. It also should include development of a list of spokespersons comprising opinion leaders and community partners who have been trained to speak about the purposes of CSC and who are willing to be called upon to discuss the issues with community organizations, the press, or others should the need arise. As above, it is also helpful to have agency leadership or staff members attend some or all of the sessions to engender trust among participants, as well as to be able ultimately to speak for the utility of holding such community conversations.

Is It “Research” or “Deliberative Democracy”?

The sessions conducted in Massachusetts were simulations intended to test the process and tools for community conversations on CSC, and consequently required Institutional Review Board approval as human subjects research. Actual community conversations conducted by health authorities may be considered part of deliberative democracy, analogous to soliciting public comment on proposed regulations, guidelines, or other policies, not research. However, health authorities should seek confirmation concerning this aspect of their public engagement process.

² However, it should be noted that data collected are only representative of individuals in the room, and similar to the limitations of any public engagement exercise, may not necessarily reflect the majority or consensus view for the entire community.

TOOLKIT DESCRIPTION

The following materials form the committee’s public engagement toolkit: a sponsor guidebook, a lead facilitator guidebook, a guidebook for table facilitators and note takers, and a set of introductory slides. The toolkit is meant to provide a framework that can assist local and state agencies, especially public health agencies, in engaging the general public in their community on the values that underlie the allocation of scarce resources in response to a catastrophic disaster. Individual groups are encouraged to modify the materials to incorporate pertinent local details. Each guidebook is meant to identify issues relevant to a specific group responsible for funding, planning, and executing a public engagement event. The introductory slides are meant to be a part of the planning materials, but are provided separately for ease of editing as local groups may deem necessary.

Sponsor Guidebook

This guidebook is designed for use by state, regional, and local sponsoring public health agencies (“sponsors”) in organizing and convening community conversations on CSC. It identifies principles and strategies to assist with the planning process, while the two facilitator guidebooks (described below) provide detailed agendas, tools, and scripts for use during the sessions.

Lead Facilitator Guidebook

The lead facilitator of an event is responsible for introducing participants to the subject matter, moving the larger group discussions through and between activities, and highlighting themes elicited in small-group discussion. The lead facilitator guidebook provides the information and tools needed to lead productive discussion about the allocation of scarce medical resources during a disaster. It includes

- background information on CSC,
- the purpose and goals of the community conversation,
- an annotated agenda of the day’s activities,
- talking points and specific guidance on how to use the various program materials,
- copies of surveys, scenarios, and discussion questions, and
- general advice on facilitation.

The guidebook also familiarizes the lead facilitator with the context of CSC, the ethical questions to be addressed, and the design and goals of the public engagement program.

Guidebook for Table Facilitators and Note Takers

A table facilitator leads small-group discussions and engages participants in scenario activities. Therefore, this guide has many of the same elements as the lead facilitator guidebook, but provides scripts and rhetorical devices for leading small-group discussion. It also offers guidance for those taking notes on the proceedings.

Included as well is context for the ethical questions associated with CSC and the design and goals of the program.

Introductory Slides

The public engagement sessions provide an opportunity to communicate the concept of CSC and background on previous preparedness work to participants. The PowerPoint slides included in the toolkit are an example framework for imparting this information, but sponsors should adapt them to relevant examples based on the diversity of and ability to connect with the expected participants.

CONCLUSION

The Massachusetts test sites, as well as various other public engagement initiatives across the country for CSC/critical resource allocation, confirm that diverse community participants are willing and able to engage in productive deliberations about CSC, and that the provision of information and a forum for discussion can help shape and elicit public opinion in ways that can be useful to policy makers in developing CSC guidelines. The methods and tools for community conversations offered in this report are a starting point for use by state, local, and regional health authorities in planning their own successful public engagement processes. When they are used together with information and practices gleaned from other communities across the nation that have conducted public engagement sessions to date, it is anticipated that the challenging task of incorporating community values into CSC planning will more easily be accomplished.

REFERENCES

- Drexel University Center for Health Equality, and HHS Office of Minority Health. 2008. *National consensus statement on integrating racially and ethnically diverse communities into public health emergency preparedness*. http://www.healthpolicyinstitute.org/files/National_Consensus_Statement_508.pdf (accessed January 12, 2012).
- Garrett, J. E., D. E. Vawter, K. G. Gervais, A. W. Prehn, D. A. DeBruin, F. Livingston, A. M. Morley, L. Liaschenko, and R. Lynfield. 2011. The Minnesota Pandemic Ethics Project: Sequenced, robust public engagement processes. *Journal of Participatory Medicine* 3, <http://www.jopm.org/evidence/research/2011/01/19/the-minnesota-pandemic-ethics-project-sequenced-robust-public-engagement-processes/> (accessed January 18, 2012).
- HHS (Department of Health and Human Services). 2011. *Office of Minority Health*. Washington, DC: HHS, <http://minorityhealth.hhs.gov/templates/browse.aspx?lvl=1&lvlID=7> (accessed February 28, 2012).
- IOM (Institute of Medicine). 2009. *Guidance for establishing crisis standards of care for use in disaster situations: A letter report*. Washington, DC: The National Academies Press.
- NIH (National Institutes of Health). 2011. *Principles of Community Engagement*. Publication no. 11-7782. Bethesda, MD: NIH, http://www.atsdr.cdc.gov/communityengagement/pdf/PCE_Report_508_FINAL.pdf (accessed February 28, 2012).
- Seattle and King County. 2012. *Public engagement report*. Seattle, WA: Seattle and King County, http://vulnerablepopulation-stoolkit.com/knowning/public_engagement (accessed January 18, 2012).
- Shah, U. 2012 (January 13). *Summary of HCPHES pandemic influenza public and partner engagement projects*. Harris County, TX: Harris County Public Health and Environmental Services.

*“CRISIS STANDARDS OF CARE”
IN DISASTERS AND PANDEMICS
A Community Conversation*

SPONSOR GUIDEBOOK

Developed by the Institute of Medicine of the National Academies

What Are Community Conversations on Crisis Standards of Care?

Crisis standards of care should reflect the ethical values and priorities of the community about the use of scarce medical resources during a catastrophic disaster or pandemic. Meaningful community engagement—before a disaster strikes—is therefore essential to the successful development, dissemination, and implementation of crisis standards of care guidelines.

Community conversations on crisis standards of care offer opportunities for members of the public to talk with planning agencies and each other about how to deliver health care under circumstances when resources are insufficient to provide care as usual to all who need it. Community conversations on crisis standards of care are designed to

- inform members of the public about crisis standards of care and why they are necessary;
- ensure broad participation and ensure that vulnerable, hard-to-reach populations are represented;
- increase awareness and understanding about the development of a crisis standards of care plan or an existing draft plan; and
- gather input on the ethical considerations and priorities that should be the basis of a crisis standards of care plan or that are included in a draft crisis standards of care plan under review.

CRISIS STANDARDS OF CARE

Guidelines developed before disaster strikes to help health care providers decide how to provide...

THE BEST POSSIBLE MEDICAL CARE

...when there are not enough resources to give all patients the level of care they would receive under normal circumstances

The Purpose of This Guide

This guide, and the accompanying lead facilitator and table facilitator/note taker guides, are designed to be used by state, regional, and local sponsoring public health agencies (“sponsors”) to organize and convene community conversations on crisis standards of care. The sponsor guide identifies principles and strategies to assist with the planning process, while the two facilitator guides include detailed agendas, tools, and scripts for use during the sessions.

Principles of Public Engagement on Crisis Standards of Care

There is no single “right” way to conduct a community conversation on crisis standards of care. Successful processes can take many shapes and forms depending on the nature of the issues, available resources, and local customs. Nevertheless, certain basic principles should be observed.

Sponsors genuinely want advice and are committed to considering public input

Public engagement is a useful approach for obtaining public input about policy decisions that require hard choices between competing values. Although average citizens may lack expertise to weigh in on technical issues, they are perfectly capable of deliberating on the underlying values related to decisions such as whether to withhold or withdraw life-preserving care in situations of scarcity. To reap the benefits of a community conversation, sponsors must clearly define in advance the questions on which input is needed. Sponsors also must be willing to commit time and effort to a process that is more com-

plex than typical rule-making processes and to seriously consider the information that comes out of the process when making final decisions.

Participants represent the diversity of the community

Both community stakeholders and members of the general public should be at the table to promote an exchange of ideas across different sectors and interest groups. Sponsors should develop outreach and recruitment strategies to reach a broad cross-section of the community and to target hard-to-reach and at-risk populations that are typically underrepresented in public discourse.

Participants are provided with information and a meaningful opportunity to engage in discussion

The main goals of community conversations are to inform and discuss. Any agenda should lead off with presentations or activities designed to educate general public participants about the issues they will need to understand in order to fully engage in the session. Skilled, neutral facilitators should then lead participants through user-friendly exercises designed to prompt discussion and elicit information about predefined issues.

Deliberation is a goal in and of itself

Sometimes participants will reach consensus or the weight of opinion will be apparent. But consensus and absolute clarity are not essential to a successful outcome. Nor are they likely to emerge on issues such as crisis standards of care. One of the values of public engagement is that it can help reveal misunderstandings, biases, and areas of deep disagreement so that sponsors can work to address these during the dissemination phase, when community stakeholders and the general public are informed of the policies that have been adopted.

Input from the public engagement sessions receives consideration in the decision-making process

Sponsors should establish in advance how they will give consideration to the recommendations, conclusions, and other information that come out of the community conversation, and should disclose these plans to participants at the start of each session. It should be clear that citizen participants will not have a “vote” on final policy and that sponsors ultimately may reach different conclusions. Regardless of the outcome, best practice is for the sponsor to communicate the final results or policy decision to community participants. Such communications should explain the basis for the decision and how the data were weighed.

Top-down support and sufficient resources are allocated to the task

Community conversations on crisis standards of care are a significant undertaking. Sponsors should assess the sufficiency of internal and community resources for planning a community conversation, and leverage more support if necessary. Sponsors also should consider the political environment for public conversations about these important but challenging issues and put into place a suitable communications strategy.

The major costs associated with a community conversation are

- venue rental and audiovisual equipment;
- catering;
- web pages and registration modules;
- Audience Response System rentals or data entry and analysis;
- printing of materials and signs;
- host fees;
- lead facilitator and subject matter expert fees;
- table facilitator and note taker fees;
- participant stipends;
- accommodations for people with disabilities; and
- media coordinator fees.

Community Conversations: Challenges and Strategies

As sponsor, you should address the following considerations early in your planning.

When is the best point in the process to conduct crisis standards of care?

Public engagement should take place somewhere in the middle of a jurisdiction’s development of crisis standards of care guidelines. The development process must be far enough along for your agency to be able to identify the key issues to be addressed through public engagement. That point might occur prior to the drafting of a crisis standards of care plan, while the plan is in development, or after an initial draft has been completed. Planning should not, however, be so far along that it is unlikely that public input could have any significant impact on the final result—or that the perception might be created that draft crisis standards of care guidelines are a “done deal.”

How and when should community stakeholders be engaged?

Prior to the community conversations, it is important to seek advice and support from community stakeholders, including health care providers and community advocates who represent the interests of various constituencies that might have unique perspectives on issues related to crisis standards of care (e.g., elders, children, people with disabilities, immigrants and refugees, geographically isolated communities). One approach is to convene a series of smaller meetings or roundtable discussions with representatives of each of these groups. Health care providers will require special outreach given their unique responsibilities for carrying out crisis standards of care, and you should consider holding a larger session to solicit their particular perspectives. Collaboration with community stakeholders will inform the agenda, assist recruitment of diverse community participants, and provide crucial political support if needed.

How can diverse community participation be achieved?

A truly inclusive public engagement process has broad participation that reflects the diversity of the community and ensures that at-risk, hard-to-reach populations who are not well represented in the political process are included. Involving community members in the development of crisis standards of care is important because the values of ordinary citizens—including those who may need greater levels of assistance, have special medical needs, or offer unique perspectives—should inform the actions of

professionals and engender community trust in the process and the standards. As noted above, stakeholders are part of the community and their place at the table ensures that all perspectives are heard.

Outreach and recruitment are among the biggest challenges. Whatever the methodology, community members are being asked to devote a significant amount of their limited free time to attend a meeting about a topic that is foreign and perhaps unsettling. Specific recruitment strategies are covered in more detail below. Major considerations are as follows.

Defining community

The first step to achieving diverse representation is to determine the demographic mix of the target community, which, in turn, requires defining the boundaries of that community. Those boundaries are obvious for a statewide process, but might be less so for local public health agencies that are collaborating with neighboring agencies. Best practice is for each session of the public engagement process to include a mix of participants drawn from various constituencies so that participants can hear and reflect on different perspectives. That ideal can be hard to achieve, however, if people are reluctant to travel or mix outside of their immediate communities, geographic or otherwise. The second-best approach is to aim for process-wide diversity so that even if each session is not perfectly diverse, all of the key constituencies are represented in at least some of the sessions.

Stipends

Recruiting sufficient numbers of participants to attend a crisis standards of care public engagement session may prove difficult without the offer of a stipend that provides compensation for out-of-pocket expenses (e.g., missed work, dependent care, and transportation) or simply provides an incentive to give up significant free time. Offering stipends will likely yield higher levels of attendance, encourage participants to remain until the end of the session, and introduce more socioeconomic diversity by eliminating one barrier to attending a session. Keep in mind that although stipends are now a typical recruitment strategy in public engagement, sponsors could face criticism for using public funds to pay people to attend meetings. An additional concern is whether your source of funding (e.g., federal cooperative agreements, the Public Health and Emergency Preparedness and the Hospital Preparedness Program) may be used to cover the cost of stipends.

Non-English-speaking populations and hard-to-reach groups

If your area includes large numbers of non-English-speaking residents, you should consider the most effective ways to recruit these communities. One option is to provide translation and interpreter services at sessions conducted in English. Another is to conduct one or more sessions in the predominant language(s).

You also should consider going out to meet certain hard-to-reach groups (e.g., some immigrant and refugee populations) “where they live.” Although these strategies impose additional costs, they are sometimes the only way to ensure that the voices of such populations are heard.

People with disabilities

Including people with disabilities in the discussion is an especially important goal given that many of these individuals are likely to face higher-than-average barriers to accessing care in a disaster. You should prioritize accessibility and plan to accommodate various needs to the extent possible. People with disabilities should be recruited not only as participants, but as facilitators and note takers.

Certain groups will not be able to participate in community conversations directly (e.g., people with severe developmental disabilities, children). Invite advocates or service providers for these constituencies to represent their interests at the table.

What is the appropriate length of a crisis standards of care public engagement session?

Depending on your goals for the conversation, available resources, and other logistical considerations, you must decide on the appropriate length of the community conversation. A longer session will afford greater opportunity for in-depth discussion of a wider range of issues and for participants' thoughts to evolve. Crisis standards of care will be a complex and novel topic for most, so sufficient time should be allotted for participants to absorb and digest the background information and to develop and express their ideas on the issues as fully as possible. Adequate time also will minimize the risk that participants will be left with the impression that the sponsor did not give them the chance to be heard or to receive answers to their questions.

The accompanying facilitator guides include a 5-hour agenda with suggestions for lengthening or shortening the time consistent with local purposes and resources. It will not be possible to cover every issue raised by crisis standards of care in a single session, no matter how long the duration. The main goal is to end up with outputs that are actionable. You will have to decide what information is most needed in your jurisdiction and estimate how long a deliberation is necessary to obtain it. You also should anticipate and build in time to answer participant questions about local public health and emergency preparedness issues.

Will participants understand the program materials?

One of the greatest challenges of public engagement is the presentation of information about issues as complex and easily misunderstood as crisis standards of care in a format that is accessible to general public audiences. The language must be clear and simple without sacrificing accuracy or key ideas. Words that are central to crisis standards of care, such as "allocation," "scarce," and "resources," will not resonate with the full range of people who should be included in a public engagement process. One strategy for overcoming literacy barriers is for facilitators to read survey questions and scenarios aloud even if participants have been provided written materials. Another strategy is to minimize the need for participants to write responses to questions.

The pre- and postsurvey instrument included with this guide was designed not only to collect opinion data, but to jump-start participants' understanding of the issues for discussion. The introductory slides provide additional background and reinforcement. Participants will come with different levels of knowledge and understanding and will learn in different ways. Offering the information through varied vehicles and formats increases the chance that, one way or another, everyone will absorb the information they need to be active participants.

What skills and background do facilitators and note takers need?

You should identify and recruit lead facilitators and table (small-group) facilitators who have the experience and facilitation skills necessary to ensure the success of the conversation. Lead facilitators should be knowledgeable about crisis standards of care and the jurisdiction's crisis standards of care planning efforts, and must develop a deep understanding of the public engagement process and program materials. The most effective lead facilitators are excellent communicators who enjoy connecting with the general public and are able to explain complex issues in terms that are accessible to lay audiences of varying literacy and education levels. It is preferable, but certainly not necessary, for the lead facilitator to have a clinical background, because he or she might be more prepared to answer questions participants might raise about medical care in disasters, and because the public tends to trust clinicians on matters related to health care.

The most effective table (small-group) facilitators will be drawn from the local community and will be highly skilled at leading small-group discussions and able to remain neutral on the issues. They need

not have prior subject matter expertise, but must commit to familiarizing themselves with the accompanying table facilitator guide and attending a training session prior to the public engagement session.

How will data be collected and analyzed?

A highly effective and engaging way to collect survey response data during public engagement is to use one of the Audience Response Systems (ARSs) now on the market. With an ARS, participants use “clicker” devices to respond to questions and statements presented on slides. Data are automatically recorded for later analysis, eliminating the time and cost of manual data entry. Another benefit of an ARS is that facilitators can immediately display aggregated responses that reveal information such as how the group “voted” on a particular question and if changes of opinion occurred between the beginning and end of the session. Participants and facilitators gain additional knowledge about the views in the room, which in turn enriches the subsequent discussion.

Qualitative data are at least as important as quantitative data in public engagement. They can be more difficult to capture, however, because skilled listeners must extract and synthesize key ideas from free-flowing conversations. The listening, analytical, and writing skills of the note takers are critical because they will determine the usefulness of the information recorded during scenario discussions and report-outs. Note taking is thus an important role, and you should recruit note takers who are up to the task. Alternative strategies include digitally recording large- and small-group discussions. Although recording technology is now inexpensive, the cost of transcription or the time spent by staff listening to recordings after the sessions might be prohibitive.

How can sponsors manage the message?

You should put in place an effective communications strategy to manage the message in a challenging environment before initiating recruitment activities. Such a strategy should include a plan for earned and paid media to generate awareness and interest in crisis standards of care and the community conversations. It also should include talking points aimed at explaining crisis standards of care to various target audiences, including the general public. Finally, it should include development of a list of spokespersons made up of opinion leaders and community partners who have been trained to speak about the purposes of crisis standards of care and who are willing to be called on to discuss the issues with stakeholders, the press, or others, should the need arise.

Consider in advance how to manage media representatives who attend the community conversation by invitation or on their own initiative. Press should observe but not participate in the discussions, and should agree not to quote individual participants. Make sure that participants know they will not be identified in any media coverage to avoid a chilling effect on the discussion.

Is it “research” or “deliberative democracy”?

You should consider whether the particular community conversation that you have planned requires institutional review board (IRB) approval as human subject research. Community conversations on crisis standards of care might be considered research, or they might be viewed as a process analogous to public comment on proposed regulations. In any case, you should seek confirmation concerning the status of your particular process.

Planning a Community Conversation

As noted above, sponsors should consider collaborating with other area organizations that are involved in emergency preparedness or that can support the development or implementation of crisis

standards of care guidelines. To help manage logistics and participant recruitment, most sponsors will benefit from identifying partners with event planning experience and strong ties to diverse parts of the community. Although sponsors should, as needed, seek general advice and support with event management and community outreach, the following guidance is specific to planning a community conversation on crisis standards of care.

Definitions of key roles

Host: An organization or individual chosen by the sponsor to manage logistics and recruitment of facilitators, note takers, and participants. Hosts should have strong community networks and experience with event planning and recruitment of diverse participants. The role of a host varies according to the needs of the sponsor. A sponsor with sufficient staff resources might be able to act as its own host.

Lead facilitator: A person skilled in large-group facilitation who has a solid foundation—if not expertise—in crisis standards of care or public health. The lead facilitator introduces the program agenda and tasks, facilitates large-group report-outs, and closes the event. Behind the scenes, the lead facilitator might work with the sponsor to develop the agenda. The lead facilitator also participates in or leads the training of table facilitators and note takers prior to the community conversation.

Subject matter expert: An individual who can present an overview of crisis standards of care to participants and be available to answer substantive questions that arise during the community conversation. The lead facilitator and subject matter expert roles can be combined, assuming that the individual possesses both sets of skills and content knowledge.

Table facilitators: Individuals who are skilled at small-group facilitation and who, through training, have acquired a good understanding of crisis standards of care. Table facilitators lead small-group activities during the community conversation.

Note takers: Individuals who are paired with table facilitators to document and synthesize participant comments at the small table discussions and during the report-back sessions. Note takers receive the same pre-session training as table facilitators to gain an understanding of crisis standards of care.

Participant recruitment and demographic targets

Consider who needs to be in the room, and in what proportion, to make the results of the community conversation credible:

- Review the demographics in the location where the community conversation will be held. An excellent source of data is the U.S. Census Bureau’s *State & County QuickFacts* website at <http://quickfacts.census.gov>.
- Set registration targets for each demographic category that you want represented. Demographic categories include age, sex, education, household income, race/ethnicity, minority language groups, and people with disabilities.
- Design participant preregistration materials to track recruitment goals.
- Conduct targeted outreach to particular groups through local civic, service, and advocacy organizations that serve those constituencies.
- Once you reach your preregistration target for a particular demographic group, waitlist (and notify) additional registrants in that category and focus further recruitment efforts on the underrepresented groups.

- Preregister 25-33 percent more people than you want to attend, the typical no-show rate for free public events such as these.

Reducing barriers to participation

To participate, some people will need additional services above and beyond wheelchair accessibility. Because the goal is to engage every sector in the community conversation, consider offering the following accommodations:

- Large print or Braille
- ASL (American Sign Language) or CART (Communication Access Realtime Translation) services
- Language translation/interpretation if there are significant non-English-speaking populations in the region
- Child care

Alert potential participants as to which of these services will be available by listing them on the preregistration form and other recruitment materials.

Stipends

Stipends often take the form of cash or gift cards. The size of the stipend depends on the length of the session and local practice. A typical stipend in 2012 is around \$50 for a half-day session and \$100 for a full-day session, although amounts vary. In any case, the stipend should cover reasonable out-of-pocket expenses that participants might incur in order to attend the community conversation (e.g., transportation, dependent care) and provide them with some nominal compensation for their time. The terms of any stipend should be made clear to participants in the recruitment and preregistration materials and again at the onsite registration to avoid any confusion or disappointment. Stipends cover time and expenses, and should not be conditioned on the level or quality of a person's contributions at the session. In most jurisdictions, it is acceptable to condition receipt of a stipend on arriving at the community conversation on time and staying through the duration. Some jurisdictions (and IRBs, if applicable) have different rules related to stipends that should be confirmed prior to any offer of compensation.

Venue and set-up

The venue for the community conversation should be reachable by public transportation, have adequate parking, and be fully accessible to people with disabilities. Meeting rooms at a local library or community center are good choices. Other options include hotel and academic conference facilities, although these venues might feel less inviting to some community members.

The accompanying community conversations agenda and tools were designed for multiple groups of 8 participants, with a table facilitator and note taker seated at small tables (up to 100 participants in the room). All of the activities take place in the same large room; breakout space is not necessary.

If possible, preassign participants to tables to separate family members and friends and to promote diversity within the small groups. Alternatively, randomly assign participants to tables during onsite registration.

Trainings for table facilitators and note takers

Table facilitators and note takers should receive and review the accompanying guidebook at least 1 week prior to the session. A group training of approximately 2 hours in length should be conducted by the host, lead facilitator, and/or subject matter expert. Ideally, this training should take place in the days immediately prior to the session so that table facilitators and note takers have sufficient time to digest and rehearse the materials on their own. If it is too impractical to convene everyone on an earlier date, the training can be conducted on the same day as the event.

Participant handbook

Consider creating and distributing a short handbook for participants to take home from the community conversation. The handout could include (1) a brief description of crisis standards of care; (2) information about the status of crisis standards of care planning efforts in your jurisdiction; (3) an explanation of how the information from the community conversations will be used in policy making; and (4) contact information for the sponsor.

Additional Crisis Standards of Care Public Engagement Resources

- ASTHO (Association of Territorial Health Officials). 2010. *Effective public engagement: A planning guide*. Arlington, VA: ASTHO.
- Garrett, J. E., D. E. Vawter, K. G. Gervais, A. W. Prehn, D. A. DeBruin, F. Livingston, A. M. Morley, L. Liaschenko, and R. Lynfield. 2011. The Minnesota Pandemic Ethics Project: Sequenced, robust public engagement processes. *Journal of Participatory Medicine* 3. <http://www.jopm.org/evidence/research/2011/01/19/the-minnesota-pandemic-ethics-project-sequenced-robust-public-engagement-processes/> (accessed January 18, 2012).
- NACCHO (National Association of County and City Health Officials). 2012. *Public engagement lessons learned*. Washington, DC: NACCHO. <http://www.naccho.org/topics/HPDP/immunization/public-engagement.cfm> (accessed January 18, 2012).
- Seattle & King County. 2012. *Public engagement report*. Seattle, WA: Seattle & King County. http://vulnerablepopulationstoolkit.com/knowning/public_engagement (accessed January 18, 2012).
- Shah, U. 2012. *Summary of HCPHES pandemic influenza public and partner engagement projects*. Harris County, TX: Harris County Public Health & Environmental Services.
- University of Nebraska Public Policy Center. 2011. *Evaluation of influenza pandemic-focused public engagement for Harris County Public Health Services*. Lincoln, NE: University of Nebraska Public Policy Center. http://ppc.unl.edu/userfiles/file/Documents/projects/Harris_County_Public_Engagement_Evaluation.pdf (accessed January 18, 2012).

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LEAD FACILITATOR GUIDEBOOK

Including Annotated Agenda and Program Materials

Developed by the Institute of Medicine of the National Academies

This Guide

Thank you for serving as the lead facilitator for this community conversation on crisis standards of care. This guide will provide you with the information and tools you will need to lead a discussion about the allocation of scarce medical resources during extreme disasters and pandemics. It includes

- background information on crisis standards of care;
- the purpose and goals of this community conversation;
- an annotated agenda of the day’s activities;
- talking points and specific guidance on how to use the various program materials;
- copies of the surveys, scenarios, and discussion questions; and
- general advice on facilitation.

Meaningful public engagement on this complex topic starts with community conversations like the one you are about to facilitate. This session is designed to engage citizens of diverse backgrounds in discussing the difficult decisions about who should receive health care in a disaster or pandemic when medical resources are insufficient to provide a normal level of care to everyone in need.

This guide will familiarize you with the context of crisis standards of care, the ethical questions to be addressed, and the design and goals of the program you will facilitate. Thank you again for your willingness to contribute in this important way.

What are “crisis standards of care” and why do we need them?

States, counties, tribes, and territories across the United States have been preparing for disaster situations, whether naturally occurring or manmade. If a disaster or pandemic were to strike, temporarily overwhelming our ability to provide health care as usual to everyone in need, how should scarce medical resources be allocated? How could the delivery of care be altered to maximize lives saved? How can this all be coordinated to ensure the most fair, ethical, and nondiscriminatory use of resources? Recent events at home and abroad—from Hurricane Katrina to the H1N1 pandemic to the Haiti earthquake—show the importance of addressing these concerns in advance. One part of this disaster planning is the development of **crisis standards of care**—ethical and clinical protocols and frameworks for delivering health care when medical resources are insufficient to provide care as usual.

One of the main goals of crisis standards of care is to save more lives than would be saved by business as usual. Crisis standards of care help conserve and stretch medical resources so they can help as many patients as possible in order to

- give critical resources to those who need them and/or will benefit the most;
- prevent hoarding and overuse of scarce resources;
- protect at-risk groups against discrimination in access to care; and
- ensure patients and their families trust that they will receive fair access to the best possible care under the circumstances.

CRISIS STANDARDS OF CARE

Guidelines developed before disaster strikes to help health care providers decide how to administer...

THE BEST POSSIBLE MEDICAL CARE

...when there are not enough resources to give all patients the level of care they would receive under normal circumstances.

How would crisis standards of care work?

Crisis standards of care guidelines

- promote best possible medical practice under the circumstances;
- allow reasonable health care provider discretion;
- adapt to the ever-changing circumstances of disasters; and
- emphasize early conservation, adaptation, and substitution of medical resources to avoid having to resort to more extreme measures.

Crisis standards of care guidelines stay in effect only until it is possible to return to normal care. The measures taken are only those needed to cope with the degree of lack of resources (so that the restrictions are proportional, or balanced to the demand).

Without a plan and good communication, different providers and hospitals may be functioning with different levels of resources and make very different decisions. This could lead to inconsistent levels of care in the community from hospital to hospital, which would be not only confusing, but unfair. Crisis standards of care require that medical providers, facilities, public health agencies, and public safety agencies have a plan to work together to do the most they can with the resources available.

When might crisis standards of care be needed? Examples

Two recent disasters offer examples of when crisis standards of care might be needed, as described in the following boxes.

Example 1: Hurricane Katrina—Hospital Overload

The week after Hurricane Katrina, 1,749 patients and 7,600 others sought shelter at 11 area hospitals. Hospitals required employees to work longer and longer shifts under increasingly desperate conditions. There was little or no power, backup generators were failing, and temperatures above 100 degrees destroyed drugs and equipment. Eyewitness accounts included

- doctors making rounds by flashlight;
- hospital staff unable to electronically control even basic equipment; and
- no food, clean water, or plumbing.

These conditions lasted for days. Individual doctors and nurses were left to decide how to use their limited resources. In the following months, ethical and legal inquiries were made about their decisions and actions because many decisions were made as individuals, and not as part of a crisis response plan.

Example 2: Flu Pandemic (H1N1)—Vaccine Shortage

In the early months of the H1N1 flu pandemic in 2009, officials at the Centers for Disease Control and Prevention (CDC) realized that not enough vaccine could be made fast enough to cover the whole population right away. The CDC identified the following groups to get vaccine first:

- pregnant women;
- household contacts and caregivers for children under age 6;
- health care and emergency medical services personnel;
- all people ages 6 months through 24 years; and
- people ages 25 through 64 years who had health conditions that put them at higher risk of medical complications from the flu.

These groups were considered highest priority because they were most likely to get the flu and/or suffer the most severe complications.

Why are community conversations on crisis standards of care necessary?

Involving community members in the development of crisis standards of care is important because the values of ordinary citizens should inform the actions of professionals, especially when there are no reliable ways to predict survival that help providers make decisions. Meaningful community engagement is critical for successful development, dissemination, and implementation of crisis standards of care. Community conversations take place before a disaster strikes for the purpose of enabling participants to understand each other's perspectives while tackling complex issues associated with allocating scarce medical resources.

What are the goals of a community conversation?

Community conversations on crisis standards of care are designed to

- inform members of the public about the concept of crisis standards of care and why they are necessary;
- ensure broad participation and ensure that vulnerable, hard-to-reach populations are represented;
- increase awareness and understanding about the development of a crisis standards of care plan or an existing draft plan; and
- gather input on the ethical considerations and priorities that should be the basis of a crisis standards of care plan or that are included in a draft crisis standards of care plan under review.

What is the public's role in developing crisis standards of care?

The voices of community members are important to the development of crisis standards of care. This is because crisis standards of care must reflect the community's ethical values and priorities about the use of scarce medical resources during disasters.

At this community conversation, participants will have a chance to share their opinions and concerns—not just hear from the “experts.” All participants will be encouraged to consider what principles should guide crisis standards of care, and to hear what others think.

How is the information from community conversations used?

Crisis standards of care raise challenging issues over which reasonable people will disagree. Community conversations help public health officials understand what values are important to individuals and to the entire group, and on what issues people differ.

The goal is *not* to reach consensus or agreement, or to take a vote. Instead, the opinions and concerns raised in this discussion will ensure that any final crisis standards of care guidelines accurately reflect, as much as possible, the views of the community about what is as fair and ethical as possible.

Lead Facilitator Guiding Principles

Facilitation is a way of providing leadership without taking over control. A facilitator’s job is to get others to assume responsibility and to take the lead.

1. Preparation is key!

- Prior to the session it is crucial that you thoroughly familiarize yourself with the agenda and program materials.
- Do a mental “dress rehearsal” to become more comfortable with the content and the flow and to identify any parts for which you need to seek clarification from the sponsor.

2. Facilitator responsibilities:

- You are in charge of managing the entire agenda.
- Enforce the ground rules:
 - *Participate actively*
 - *Listen with respect—only one person talks at a time*
 - *Keep an open mind*
 - *What is shared in the room stays in the room*
 - *Silence cell phones*
- Facilitators set the tone and make it an engaging, inclusive event for everyone:
 - Explain or repeat questions if necessary
 - Keep the discussion on topic
 - Explore disagreements, but defuse unproductive arguments
 - Encourage the “quieter” members to participate at a level that is comfortable
 - Manage individuals who are dominating the discussion
 - Thank participants for their contributions

3. You are neutral for purposes of the discussions and should not offer opinions regarding the substance of the issues.

4. Do not expect or push for consensus. It is more important to elicit and understand the wide range of opinions on these issues.

5. **Keep track of time** or ask someone else to serve as your timekeeper. Remind people when the current conversation will end and intermittently let the group know how much time remains.
6. **Move around the room** during discussion periods and monitor the table conversations. Support the table facilitators as needed and answer any questions.

All good facilitation relies on judgment in the moment as to how best to move the conversation, but here are various techniques and prompts that might be helpful.

Facilitation Skill	Examples of Verbal Prompts
Set up the discussion clearly and simply	“Our task in the next 20 minutes is to explore this question....”
Manage the allotted time	Announce the time allowed for each activity. Give periodic time warnings. “You have about 5 minutes left, so see if there are any other key ideas that have not been discussed so far.”
Stay neutral	Focus on the process and avoid offering your opinions about the topic under discussion. Give examples that are in the materials rather than from your experience.
Listen actively and paraphrase	Look people in the eye, use attentive body language, and paraphrase what they say. “Let me see if I can repeat your point in slightly different words. I want to make sure I understand what you are saying.” Or “Are you saying....?”
Synthesize	Help people to comment and build on each other’s thoughts to ensure that the ideas recorded represent collective thinking. This builds consensus and commitment. “Can anyone add to Aaron’s comments?”
Identify possible disagreements	Ask: “Bill, how does this fit with X that you said earlier?”
Summarize periodically	Listen attentively and then offer concise and timely summaries. Summarize when the group is stuck or when you want to wrap up a discussion. “What I have heard you all say is first....second....and finally....”
Ask questions	Questions should serve to further understand what has been said, to elicit comments from others, and to explore issues that might be overlooked.
Play ping pong	If someone asks a question or makes a comment, redirect it by sending it back to someone else to answer or build on. “Can anyone answer that question that Bill has posed to me?”
Allow participants to reflect	“Before we start, let’s take a minute to think to ourselves about the discussion question and our responses.”
Draw out participants	Use eye contact to let people know they can speak next and to prompt the quiet ones in the crowd to participate. “I want to make sure that we get a chance to hear from everyone.”

Gently limit dominant voices to equalize participation	“I want to see if we could include some other folks in this conversation....”
Curb anecdotes	Lengthy personal anecdotes can quickly sidetrack table discussions. When this occurs, try to gently coax the participant to conclude a lengthy anecdote. You may say, “So, that example leads you to say....”
Explore different points of view	“So, Joe has talked about the importance of X, and Mary has raised some concerns with X. I’m wondering how others see X.”
Test for support among ideas	“Apparently, several people share the view that....”
Check perceptions	Describe what you perceive is the other person’s inner state. “You appear upset by the last comment that was made. Are you?”
Test for clarity/ shared agreement	“Does this statement convey what you’ve been saying about....”

Community conversation goals

Keep in mind that, following this session, **participants** should be able to

- explain the concept of crisis standards of care and why they are necessary;
- understand the difficulty of making medical decisions in this context and clarify the values and principles that inform their decisions through the use of scenarios;
- in their small groups, identify areas of general agreement and disagreement regarding values and principles; and
- understand how the results of this meeting will inform and contribute to local or state crisis standards of care during a crisis.

The **sponsor’s objective** for the community conversation is to facilitate a meaningful discussion that achieves all of the participant goals listed above, and in which participants believe they can voice their opinions and be heard. The sponsor’s objectives also include collecting public opinion data that will be useful in developing policies on crisis standards of care.

Definitions of key roles

You are part of a team that interacts with the participants and supports them. To help you understand the context, below is a description of the other players with whom you will interact. Collaboration, inclusion, transparency, and respect are the values all of us are striving toward as we work on this project together.

Sponsor: A government agency or other organization that is developing a policy for crisis standards of care. This agency will recruit partners as needed to support community conversations; provide support as needed to hosts, facilitators, and subject matter experts; and ensure that the results and data from community engagement activities are properly collected.

Host: An organization or individual responsible for logistics, recruiting participants, and supporting the lead facilitator, table facilitators, and note takers in holding the community conversation. In some cases, the sponsor might also serve as the host for the community conversation.

Table facilitators: Individuals experienced with small-group facilitation. Their role is to lead a small group of participants at the table through the exercises and discussions. Table facilitators follow, and sometimes supplement, the instructions given by the lead facilitator. Table facilitators are given background materials and attend an orientation session to introduce them to the program design and agenda. They are expected to have prior experience facilitating small-group discussions and should have a good understanding of the concept of crisis standards of care.

Note takers: Individuals assigned to document what is said at the small-table discussions and during the report-back sessions.

ANNOTATED AGENDA¹

TIME	ELEMENT	PURPOSE	METHOD/TOOLS
~1:00	Participant Registration	<ul style="list-style-type: none"> • Attendance • Table assignments • Consent (if required) 	<ul style="list-style-type: none"> • Registration form • Name tags/tent cards with first names only • Participants (Ps) read and sign consent form (if required)
0:00	Opening Remarks	<ul style="list-style-type: none"> • Welcome participants • Introduce leaders/facilitators • Briefly describe topic • Explain charge of the day 	<ul style="list-style-type: none"> • By lead facilitator (LF) • Script
0:10	Table Introductions and Exercise	<ul style="list-style-type: none"> • Break ice • Take temperature—why did they attend, what is on their minds 	<ul style="list-style-type: none"> • Tool: Worksheet • Table facilitators (TFs) lead introductions, note takers (NTs) record on template • Group selects one hope/one fear to report out
0:25	Brief Report-Out	<ul style="list-style-type: none"> • Introduce Ps to report-out method • Segue into crisis standards of care (CSC) 	<ul style="list-style-type: none"> • Moderated by LF • Volunteer from each table reports one hope and one fear
0:35	Presurvey	<ul style="list-style-type: none"> • Quick immersion into CSC: context, scope, and complexity of the issues • Help maintain focus on CSC vs. other preparedness or health care issues • Establish baseline opinions 	<ul style="list-style-type: none"> • Tools: <ul style="list-style-type: none"> ○ PPT slides of survey statements ○ Audience Response System² (ARS) or paper answer sheets • LF reads statements aloud; Ps use “clicker” devices to respond or circle responses on answer sheets • No review of responses or discussion; LF explains that survey will be repeated and responses discussed later in the session
0:50	Presentation on CSC and Q&A	<ul style="list-style-type: none"> • Educate Ps about CSC: what, when, why, how 	<ul style="list-style-type: none"> • Tools: Slides • LF or content expert presents slides, responds to questions • LF introduces scenario discussion, turns it over to TFs

¹ For a 5-hour session of ≤100 Ps seated at tables of 6-8 with TFs and NTs. If necessary, the session could be shortened by eliminating one of the two scenario discussions and reducing the numbers of participants so that the report-outs can be accomplished in less time. It can be lengthened by increasing the scenario discussion times, and by adding more content around community and individual preparedness awareness.

² Software and handheld devices for automated data collection and display.

1:10	Earthquake Scenario Discussion	<ul style="list-style-type: none"> Designed to elicit views specifically on age and likelihood of survival as criteria for resource allocation. Also, withdrawals of treatment, and whether all of the regions' health care providers should follow the same rules. Other features: sudden onset, geographically contained event. Methodology: Ps asked to do forced ranking of patients and share their perceptions of the associated challenges. Ps asked to share views on what underlying values and goals should drive decisions. Give table groups chance to share key thoughts and identify points of difference and intersection with the larger group Spark larger group discussion, input Further inform, influence thinking of Ps 	<ul style="list-style-type: none"> Scenario and discussion questions
1:50	Earthquake Scenario Report-Out	<ul style="list-style-type: none"> Facilitated by LF, with one NT recording key points on flip charts Volunteer from each table presents short summary of scenario findings—emphasis on points of agreement/disagreement, most notable impressions 	<ul style="list-style-type: none"> Scenario and discussion questions
2:20	Break		
2:50	Deadly Virus Scenario Discussion	<ul style="list-style-type: none"> Designed to elicit views on key worker status as criterion for resource allocation. Also addresses the issues of the role of government agencies in promoting consistent application of CSC rules within the affected area, and withdrawal of treatment. Ps asked to share views on what underlying values and goals should drive decisions Give table groups chance to share key thoughts and identify points of difference and intersection within the larger group Spark larger group discussion, input Further inform, influence thinking of Ps 	<ul style="list-style-type: none"> Scenario and discussion questions
3:30	Deadly Virus Scenario Report Out	<ul style="list-style-type: none"> Facilitated by LF, with one NT recording key points on flip charts Volunteer from each table presents short summary of scenario findings—emphasis on points of agreement/disagreement, most notable impressions 	<ul style="list-style-type: none"> Scenario and discussion questions
4:00	Postsurvey and Discussion	<ul style="list-style-type: none"> Identify changes in P views pre- and postsession Give Ps chance to consider range of opinions in the room Satisfy P interest in survey results Final opportunity to elicit more information on P views around CSC issues 	<ul style="list-style-type: none"> Tools: Survey slides and clickers LF reads statements aloud; Ps use clicker devices to respond or circle responses on answer sheets LF shows slides with pre- and postsurvey responses (if using ARS) LF leads large group through discussion of statements where there was the most change or disagreement

4:30	Final Question and Wrap-Up	<ul style="list-style-type: none"> • Big-picture question to wrap up discussion • Words from sponsor about local disaster preparedness planning initiatives and resources, and the importance of individual and community preparedness • Thank Ps 	<ul style="list-style-type: none"> • LF leads brief large-group discussion of final question • Sponsor gives brief presentation on local preparedness landscape and resources
4:50	Evaluation		<ul style="list-style-type: none"> • Tool: Evaluation form (ARS or paper) • TF and NT offer help to participants who need it
5:00	Participants Depart		<ul style="list-style-type: none"> • Ps turn in ARS devices and receive stipends, if applicable
5:15	Facilitator/Note Taker Debrief	<ul style="list-style-type: none"> • To gather data and elicit other relevant information or impressions not contained in the notes and templates 	<ul style="list-style-type: none"> • Led by Sponsor and LF
6:00	Adjourn		

*Lead Facilitator Script and Guidance*¹

¹ For a 5-hour session using an Audience Response System (ARS).

Lead Facilitator Script

NOTE: Italicized text is designed to be stated as written, though you should feel free to paraphrase or convey the ideas in your own voice. The tools referenced in the script are included in the program materials section.

0:00 *Opening (10 min.)*

- *Hello, my name is _____. Thank you for coming to today’s community conversation on crisis standards of care. I will be guiding the conversation with the help of your table facilitators.*
- *Your voice is critical in developing policies for crisis standards of care.*
 - *[BRIEFLY]: Crisis standards of care are guidelines to use in extreme public health emergencies to help decide how to provide medical care when there are not enough resources to give all patients the care they would receive under normal conditions.*
- *I will tell you more about crisis standards of care shortly.*
- *Agenda for community conversation*
 - *Today’s agenda includes a series of presentations, surveys, and discussion exercises to introduce you to the concept of crisis standards of care and give you the chance to share your views with others in the room.*
 - *Your input will help us develop of crisis standards of care guidelines that reflect the values and perspectives of the community.*
- *This is a “community conversation.” It is different from other public meetings that you might have attended in the past. Some of the differences are [use all or some of these ideas if you find them helpful]:*

Typical Debate	Community Conversation
Assumes there is a right answer and you have it	Assumes that many people have pieces of the answer that together can craft a new solution
Combative: Participants attempt to prove the other side wrong	Collaborative: Participants work together toward common understanding
Critiquing the other side’s position	Reexamining all positions
Defending one’s own views against those of others	Admitting that others’ thinking can improve on one’s own
Seeking a conclusion or vote that ratifies your position	Discovering new options, not seeking closure

- *Any information we collect from you (e.g., survey responses, discussion notes) is anonymous—and will remain so. Please help us by NOT writing your name on any of the worksheets you will be using.*
- *We also ask each of you to preserve the confidentiality of today’s conversations. Although we encourage you to discuss today’s session with friends and family, please do not identify your fellow participants by name when relating the opinions and other comments expressed in this room.*

- *This session will run for around [5] hours with a refreshment break.*
 - [Any other relevant logistics]
- Introduce key participants:
 - *Table facilitators will help lead the activities for your small group.*
 - *Note takers will ensure that the key discussion points at your table are recorded and reported back.*
 - *Facilitators and note takers, please stand up.*
 - Introduce anyone else in the room whom participants should know about (staff, etc.).
- [If media are present, explain their role and how they will operate during the meeting.]

0:10 *Table introductions (15 min.)*

- Set-up
 - *We want you to get to know the people at your tables, so I am now going to give you time for introductions.*
 - *When you are done, I will ask one person from each table to report back to the large group.*
- Turn over to table facilitators, who will lead participants through an introductory exercise.

0:25 *Brief report-out (10 min.)*

- Set-up
 - *I want to hear one hope and one fear from each table. Table 1—someone share one hope that you heard in your group. Table 2.... Table 3...., etc.*
- [Write the hopes and fears on two flip charts or have a note taker record this for you so you can remain facing the audience and focused on the feedback.]

0:35 *Presurvey (15 min.)*

- Set-up
 - *Before we get started, I am going to have you take a short survey.*
 - *This survey is designed to introduce and spark discussion about the ethical dilemmas that health care providers and communities could face during a major disaster when critical medical resources are in short supply.*
 - Explain how to use Audience Response System (ARS) clicker devices. If using paper answer-sheets, ask table facilitators to distribute them to participants and modify instructions accordingly.
 - *To answer, simply push the button that matches your response on your clicker.*
 - *If you make a mistake, you can change your answer by pushing another button as long as I have not moved on to the next slide.*
 - *Ask for a show of hands by anyone who needs help.*
 - *The first several slides ask you to answer some basic questions about you.*
 - *The rest of the slides contain a series of statements about medical care in disasters and pandemics. You will indicate how strongly you agree or disagree with each of these statements by using your clicker device.*
 - *THERE ARE NO RIGHT OR WRONG ANSWERS. Even though you probably won't be sure of your opinion about many of the statements, please respond to them all, even if it is just your gut reaction.*
 - *Your responses will be anonymous—we do not know whose clicker belongs to whom.*

- *Later in the day, I will show you the results of the survey.*
- *Show statements on PowerPoint slides, and read them out loud at a reasonable pace.*
- *PLEASE KEEP TRACK OF YOUR CLICKERS. We will use them again later. And we need you to return them at the end of the day—they are very expensive, but of no use to you outside of this room!*

0:50 Crisis standards of care slide show and Q&A (20 min.)²

- Set-up
 - *You no doubt are beginning to have many questions about crisis standards of care. I will now present some background and answer some of your questions.*
- Present crisis standards of care slides (screen shots of slides are attached).
- Notes for Slide 4:

KATRINA:

The week after Hurricane Katrina, 1,749 patients and 7,600 others sought shelter at 11 area hospitals. Hospitals required employees to work longer and longer shifts under increasingly desperate conditions. There was little or no power, backup generators were failing, and temperatures above 100 degrees destroyed drugs and equipment. Eyewitness accounts included

- *doctors making rounds by flashlight;*
- *hospital staff unable to electronically control even basic equipment; and*
- *no food, clean water, or plumbing.*

These conditions lasted for days. Individual doctors and nurses were left to decide how to use their limited resources. In the following months, ethical and legal inquiries were made about their decisions and actions because many decisions were made as individuals, and not as part of a crisis response plan.

H1N1:

In the early months of the H1N1 flu pandemic in 2009, officials from the Centers for Disease Control and Prevention, or CDC, realized that not enough vaccine could be made fast enough to cover the whole population right away. The CDC identified the following groups to get vaccine first:

- *pregnant women;*
- *household contacts and caregivers for children under age 6;*
- *health care and emergency medical services personnel;*
- *all people ages 6 months through 24 years;*
- *people ages 25 through 64 years who had health conditions that put them at higher risk of medical complications from the flu.*

These groups were considered highest priority because they were most likely to get the flu and/or suffer the most severe complications.

² Can be presented by lead facilitator or another subject matter expert.

- Notes for Slide 10:

When a disaster leads to shortages of critical medical resources, it will not be possible to treat all patients the way they would be treated under normal conditions. In the presurvey, we asked you to tell us if you agreed or disagreed with certain ways of deciding who should get what care when it is impossible to give all patients everything they need.

*In an actual disaster, many of these choices will require **trade-offs**. For example, some of you probably agreed that we should both (1) save as many lives as possible and (2) give special treatment to health care workers. But what if prioritizing health care workers leads to fewer people being saved overall? How should we balance these competing goals?*

There are no easy answers—just pros and cons to every possible strategy:

Distributing resources “first-come, first-served”

Pro: Easy to administer; feels “fair” to many

Con: Some may question whether they’ll have the same notice and ability to “get in the line” as others

Treating all patients equally (lottery, drawing straws, etc.)

Pro: A lottery feels fair, is hard to manipulate

Con: A lottery ignores the fact that some people will need treatment more than others in order to survive

Saving the most lives possible

Pro: It makes sense to save as many people as possible—so it makes sense to use resources for those with the best chance to benefit from treatment

Con: Certain groups of people (people with health conditions related to age, disability, or chronic disease) who might be less likely to live or who take more resources to treat may end up lower on the priority list

Taking care of health care workers and emergency responders who risk their own health to help others

Pro: It is important to protect people who take risks to say “thank you”; if they aren’t protected, maybe they’ll decide not to go to work

Con: These workers have jobs—that’s already a privilege over people who can’t get work; many of them took an oath—they will and should go to work regardless

Protecting people whose jobs keep society functioning (utility, health care, and transportation workers, etc.)

Pro: Disasters pose two kinds of threats to life and health: the disaster itself (like flooded waters or disease) and the threats caused by collapse of life-saving functions (like power and heat going out or clinics being closed). Prioritizing preventive care and treatment to key workers can help keep them healthy or allow them to recover so they can continue to help others.

Con: If you give too many resources to workers, there won’t be enough left for the general public. Badly injured or very sick workers won’t recover in time to help during the crisis.

- Offer to take questions about what was covered in the slides for whatever time is left. Ask for a show of hands.

1:10 Earthquake scenario discussion (40 min.)

- Set-up
 - *We will now discuss a scenario about a shortage of medical resources following a major earthquake. You will be asked to make and explain some hard choices about which patients should receive care.*
 - Ask table facilitators to hand out the scenario and worksheets.
 - Read the scenario out loud to the large group (just the scenario, not the associated questions).
 - Ask if anyone needs clarification about the facts of the scenario.
 - *Your table facilitator will review the scenario with you and explain your task in more detail.*
 - *Your note taker will record the key points from your discussion on a master worksheet. The note taker will not record the names of who said what.*
 - *Later on, I will ask one person from each group to report back your table's key decisions and discussion points to the larger group.*

- Turn over to table facilitator

1:50 Earthquake scenario report-out (30 min.)

- Set-up
 - You will guide a representative from each table through the report-out of key decisions and takeaways from the earthquake scenario.
 - A note taker will record key points on flipcharts at the front of the room, if practical.

- Report-out
 - Ask for volunteers from each of the tables.
 1. *How did your table come out on the ranking activity?*
 - *Which patients did you select to receive treatment?*
 - *Which patients did you select NOT to receive treatment?*
 - *Was there a high level of agreement or disagreement among people at your table?*
 - *What were the main reasons behind your table's decisions?*
 - Then, pose the following questions to the large group:
 1. *Did you consider:*
 - **Likelihood of survival**
 - *How important was likelihood of survival in deciding who should receive treatment?*
 - *Did the patient's expected quality of life affect your decision?*
 - **Age**
 - *How important was age in deciding who should receive treatment?*
 - *What were your reasons for favoring or not favoring younger people? Older people?*
 - **Other considerations?**
 2. *Is there anything else people wanted to know about **the patients** or **the circumstances** before deciding who to treat?*
 3. *Did most of your group feel that their choices seemed fair? Why or why not?*
 - Ask all tables to report on the values and goals that they believe are most important to decisions like these.
 - One last question to large group: *What did your group find most challenging about this exercise?*

2:20 *Break (30 min.)*

- We will now take a break. Please be back in 30 minutes.

2:50 *Deadly virus scenario discussion (40 min.)*

- Set-up
 - We will now conduct a discussion about a scenario about a deadly virus for which there is not enough of a lifesaving drug to go around. You will be asked to make and explain some hard choices about which patients should receive the limited supply of the drug.
 - Your table facilitator will hand out the scenario and discussion. He or she will read through the scenario with you and explain the task in more detail.
 - As before, your note taker will record the key points from your discussion on a master worksheet. The note taker will not record the names of who said what.
 - Later on, one person from each group will report back your table's key decisions and discussion points to the larger group.
- Turn over to table facilitator

3:30 *Deadly virus scenario report-out (30 min.)*

- Set-up
 - Ask for table volunteers to report out. Try to start with tables that spoke last during the earthquake scenario report out.
- Report-out
 - Ask half of the tables to report on the first question. After the first table reports out, ask subsequent tables to focus on points that are different from or build off the previous tables' comments:
 1. Should the agency's guidelines give health care workers priority for treatment? How about other workers on whom society relies for saving lives (e.g., electrical power and water supply workers, police, firefighters, and other key workers)?
 - *What did your group find were the best reasons for and against such a policy?*
 - *Did a health care worker's specific role or contact with patients matter to people at your table? (e.g., patient care providers such as doctors and nurses; custodians or food service workers; managers or administrative staff)?*
 - *Did people in your group think it mattered whether the worker would recover in time to return to work during the crisis?*
 - *How did your group respond to the question: Should key workers' family members who catch the virus be given priority for treatment?*
 - Ask the other half of the tables to report on the second question, again building off the comments of previous tables:
 2. In order to save the most lives, the agency is planning to direct all hospitals and clinics to restrict use of the antiviral drug to sick patients in the two high-risk groups (pregnant women and previously healthy young adults) until more of the drug becomes available.
 - *What did your group think about this policy? What were your reasons for agreeing or disagreeing?*
 - *Is it important for all hospitals and clinics in the city to follow the same rules when deciding which patients to treat?*

- *What did your group think? Why or why not?*
- *Did those who thought everyone should follow the same rules believe there are some circumstances when individual hospitals or doctors should be allowed to make decisions that go against the rules?*
- Ask all tables to report on the following question:

“It is now day 3 of treatment for patients in the first group to receive the drug. Two of those patients have not responded to treatment, and their doctors now believe they will almost certainly die. If treatment is stopped now, there will still be enough of the drug left over to treat one more patient who might be saved. The families of the two dying patients will not agree to end the treatment.”

 - *What did your group think about the question: Should the hospital go against the patients’ and families’ wishes and use the remaining doses to try to save another patient?*
- Ask all tables to report on the values and goals that they believe are most important to decisions like these.

4:00 *Postsurvey and large-group discussion (30 min.)*

- **Set-up**
 - *You are now going to retake the same survey you completed at the beginning of the session. Use your clickers to respond.*
 - *After you are done, I will show you the results of both surveys and how they compare. Then we can discuss.*
- **Conduct survey**—read slides out loud as in presurvey
- **Display comparison slides**
 - As you run through slides, identify those where there is either wide variation in opinions OR a significant change between the pre- and postsurveys.
 - Ask participants what they conclude from these variations or changes.
 - Ask participants to volunteer WHY they took the position they did on these questions.

4:30 *Final large-group question and wrap-up (20 min.)*

- **Final Question** to the full group
 - *In an actual disaster, what do you think would make people more likely to understand and accept decisions to give scarce medical treatments to some groups or individuals over others? What do you think would make them less likely to accept such decisions?*
- Have participants raise their hands to offer a comment.
- Ask a note taker to record key points on a piece of paper.
- **Words from Sponsor**
 - Brief presentation on local disaster preparedness planning initiatives and resources, and the importance of individual and community preparedness
- **Wrap-up**
 - *This almost concludes our community conversation.*

- *We have covered a lot of ground. If you have questions or comments that were not addressed during the session, please feel free to write them on one of the index cards on your table. If it is a question to which you would like a response, please include your name and a way you can be reached and someone will get back to you.*

4:50 Evaluation (10 min.)

- *Finally, I am going to ask you to use your clickers to answer some questions about what you thought of today's session [show slides and read questions aloud].*
- *Your table facilitator will now hand you a comment form for you to complete and turn in.*
- *Please write your table number in the space at the top of the form, but DO NOT write your name.*
- *Your evaluation of this community conversation is very important to us. I know you have been working hard all day, but please take some time to share your thoughts.*
- *Your table facilitator will collect from each of you:*
 - *Your evaluation/comment form.*
 - *Any index cards on which you wrote questions or comments.*

5:00 Participants adjourn

- *Thank you for your attention and hard work throughout this session.*
- *Your participation in this session has made a valuable contribution to this important work on crisis standards of care.*
- **Remind facilitators and note takers to gather all materials and clickers, place them in the large envelope, and convene for debriefing.**
- *Say goodbye and thank participants for coming.*

Program Materials

Table Introductions and Exercise*

GROUND RULES

1. Participate actively
2. Listen with respect—only one person talks at a time
3. Keep an open mind
4. What is shared in the room stays in the room
5. Silence cell phones

Why did you decide to attend today's community conversation?

"In a disaster, my greatest hope for my community is that..."

"In a disaster, my greatest fear is that..."

*This worksheet will help you collect your thoughts. Writing is always optional. The note takers will record key points—but not anyone's name.

Pre- and Postsurvey¹

A few questions about you...²

1. Sex	<input type="checkbox"/> Male	<input type="checkbox"/> Female			
2. Age	<input type="checkbox"/> 18-30	<input type="checkbox"/> 31-50	<input type="checkbox"/> 51-65	<input type="checkbox"/> 66-80	<input type="checkbox"/> 81+
3. Does your household include any dependents:					
a. Children	<input type="checkbox"/> Yes	<input type="checkbox"/> No			
b. Adults	<input type="checkbox"/> Yes	<input type="checkbox"/> No			
4. Do you work in health care (as a patient care provider, administrator, researcher, or educator)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No			
5. Do you work in public safety or emergency response?	<input type="checkbox"/> Yes	<input type="checkbox"/> No			

IMAGINE that a major disaster or pandemic has struck. Suddenly, there is not enough medical care to give the normal level of treatment to everyone in need.

Do you agree or disagree with the following statements?

1. It is better to save the most lives—even if it means that some people won’t get all of the medical care they would get under normal conditions.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
2. More medical care should go to save younger patients because they have the most years to live.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
3. Health care providers should be allowed to perform services different from their usual duties if that might save more patients.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
4. The sick and injured should be treated “first-come, first-served”—whether or not they are likely to survive.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
5. Firefighters, police, and other first responders should be at the front of the line for medical care because they are important for public safety.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree

¹ Sponsors should choose from (or add to) the following opinion statements so that they reflect the actual scope of the issues on which they are seeking public input.

² Sponsors should ask these demographic questions only if they intend to analyze the results according to these sub-groups.

6. Family members of health care workers should be at the front of the line for vaccines and treatment if they face an increased risk of illness.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
7. People should not get limited medical resources if they will survive, but end up severely disabled.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
8. Health care providers should be at the front of the line for care if they will be able to help save others when they recover.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
9. Most medical care should go to patients who probably will die unless they receive treatment.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
10. Elderly patients should get less medical care so that more children and young adults can be saved.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
11. Health care providers should be at the front of the line for treatment if they are risking their health and safety to care for others.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
12. A person's ability to pay should not matter when deciding who should receive limited medical resources in a crisis.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
13. Every hospital in the disaster area should follow the same rules when deciding how to use limited medical resources.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
14. People who do jobs that keep society running (transportation workers, utility workers, etc.) should be at the front of the line for treatment.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
15. Elderly patients should get more medical care than younger people because they have important wisdom and experience.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
16. Doctors and nurses should be free to make their own decisions about which patients will get treatment and which ones will not.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
17. More medical care should go to save young and middle-aged adults because they care for children and elders and make up society's workforce.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
18. The best way to decide who should be treated is to do a lottery or draw straws.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree

Introductory Slides

1

“Crisis Standards of Care”

A Community Conversation

[Location]
[Date]

[Sponsor]

“Disaster” Defined

What do disasters have in common?

- People’s needs exceed available resources
- Help cannot arrive fast enough



How do disasters differ?

- Some are long-lasting and widespread (*flu pandemic*)
- Others are sudden and geographically limited (*earthquake, terrorist attack*)



Preparing for Disasters: *The Challenge*

- Disasters can lead to **shortages of critical medical resources**
- Shortages require **hard decisions**, *for example*—
 - Who should be at the front of the line for vaccines or antiviral drugs?
 - Which patients should receive lifesaving ventilators or blood?
- In extreme cases, **some people will not receive all of the treatment they need**

How do we give the best care possible under the worst possible circumstances?

Recent Examples

Hurricane Katrina

- **Hospital overload**



H1N1 Pandemic

- **Vaccine shortage**



The Response: “Crisis Standards of Care”

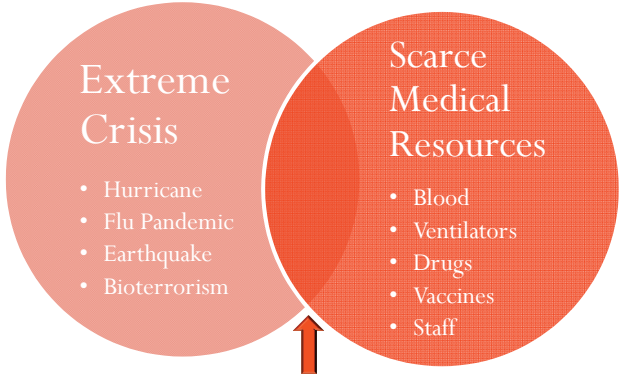
Guidelines developed **before disaster strikes**—

To help healthcare providers decide how to administer...

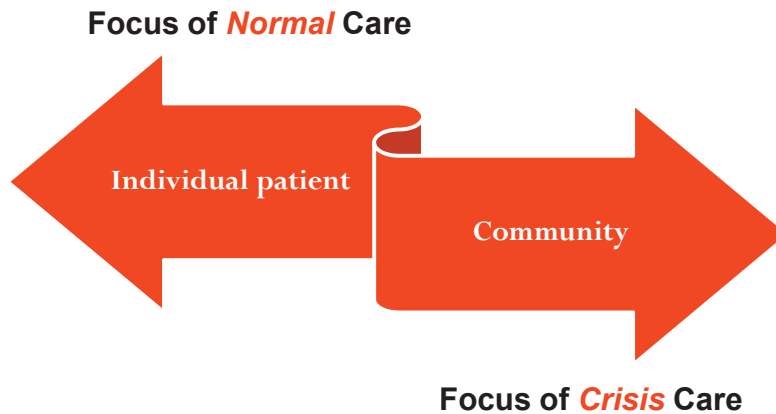
THE BEST POSSIBLE MEDICAL CARE

...when there are not enough resources to give all patients the level of care they would receive under normal circumstances.

When Might We Need Crisis Standards of Care?



How Are Crisis Standards of Care **Different?**

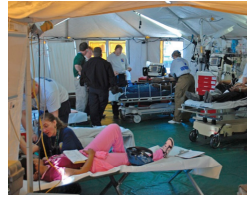


Possible Reasons for Crisis Standards of Care

- To make sure that critical resources go to those who will **benefit the most**
- To **prevent hoarding** and **overuse** of limited resources
- To **conserve limited resources** so more people can get the care they need
- To **minimize discrimination** against vulnerable groups
- So all people can **trust** that they will have fair access to the best possible care under the circumstances

Possible Strategies to Maximize Care

- **Space**
 - Put patient beds in hallways, conference rooms, tents
 - Use operating rooms only for urgent cases
- **Supplies**
 - Sterilize and reuse disposable equipment
 - Limit drugs/vaccines/ventilators to patients most likely to benefit
 - Prioritize comfort care for patients who will die
- **Staff**
 - Have nurses provide some care that doctors usually would provide
 - Have family members help with feeding and other basic patient tasks



When there isn't enough to save everyone... how should we decide who gets what?

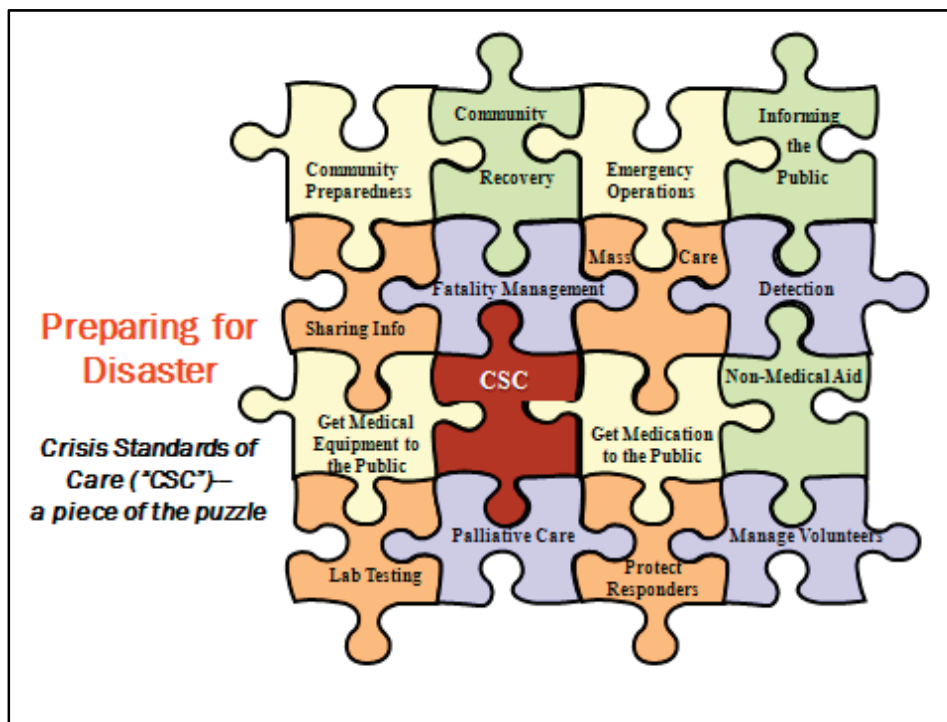
Some options--

1. First-come, first-served?
2. Lottery?
3. Save the most lives possible by giving more care to people who need it the most?
4. Favor certain groups?
 - The old OR the young?
 - Healthcare workers and other emergency responders?
 - Workers who keep society running (utility workers, transportation workers, etc.)?

Where Do *You* Come In?

Community Conversations help policy makers:

- **Understand community concerns about** the use of limited medical resources during disasters
- **Develop crisis standards of care guidelines** that reflect *community values and priorities*



Scenario 1: Major Earthquake

Early one morning, without warning, a violent earthquake strikes your community. Buildings sway and many crumble to the ground. Water shoots out from broken water-main lines, and electric power seems to be out everywhere.

Highways and main streets are blocked by debris, bridges have collapsed into the river, and railroad tracks and airport runways are badly damaged. Phone service, television, radio, and other means of communications are severely disrupted, adding to the anxiety and concern of people in the community. The number of injured and dead is quickly rising.

It is now 12 hours after the earthquake. Your community's only hospital is caring not only for earthquake victims, but for patients with other serious health problems unrelated to the earthquake. Critical medical supplies are starting to run out. The health care workers and emergency personnel who were able to report to work are stretched to the limit. Patients are being placed in hallways and cafeterias as space begins to run out. The community is cut off from outside federal and state help and will not be reconnected for some time. The hospital has nowhere to turn.

The hospital has nine critically injured or sick patients, but only enough medical supplies and staff to treat five of them. The four patients who do not receive treatment probably will die before more help arrives—these patients will continue to receive comfort care to minimize their suffering.

1. Which of the following patients should receive treatment?

Patients Who Need Immediate Treatment			Rank 1 = Treat First 9 = Treat Last
Patient ID	Age	Chance of Survival with Treatment	
A	2	Low (10-30%)	
B	35	Low (10-30%)	
C	80	Low (10-30%)	
D	11	Medium (40-60%)	
E	55	Medium (40-60%)	
F	75	Medium (40-60%)	
G	8	High (70-90%)	
H	25	High (70-90%)	
I	85	High (70-90%)	

2. Discussion Questions

1. Patient ranking

- a. Which patients did you select to receive treatment?
- b. Which patients did you select NOT to receive treatment?

2. What were the **main reasons** behind your decisions? Did you consider:

a. Chance of survival

- i. How important is chance or likelihood of survival in deciding who should receive treatment?
- ii. Would the patient's long-term quality of life affect your decision?

b. Age

- i. How important is age in deciding who should receive treatment?
- ii. What would be your reason(s) for favoring or not favoring younger people? Older people?

c. Any other factors?

3. Is there anything else you wanted to know about **the patients** or **the circumstances** before deciding who to treat?

4. When you can't save everyone, what matters most? What values or goals are most important?

- a. Providing care on a "first-come, first-served" basis?
- b. Lottery or drawing straws?
- c. Saving the most lives—by giving limited resources to people who need them the most?
- d. Other?

5. Did your decisions about whom to treat seem **fair** to you?

- a. Why or why not?

For your information, see the next page for the guidance provided to table facilitators and note takers on how to conduct this scenario

FOR TABLE FACILITATORS AND NOTE TAKERS

Scenario Discussion 1—Earthquake

Purpose: This scenario is designed to elicit views specifically on *age* and *chance of survival* as criteria for scarce resource allocation. It also seeks opinion on what *values and goals* should drive these hard decisions.

Method:

1. Distribute Scenario Worksheet
2. Read scenario aloud
3. Ask participants to rank patients on the chart
4. Lead a discussion of the follow-up questions
5. Give participants a chance to revise their patient rankings based on the discussion
6. Record key points on template for use in report-out session
7. Have the group select one person to report out your table's key points (if no one is willing, one of you can perform this role)

Remember: Participants do not have to write their answers to the scenario questions. You are responsible for reading the scenario, leading the discussion, and recording key points.

Discussion:

1. Affirm that today's questions are unusual and challenging (intellectually and emotionally), and this is why broad public input is important. If the answers were obvious, there would be no need for input.
2. Stress the importance of hearing from everyone and respectfully listening to one another.
3. Explain in advance that you might have to interrupt from time to time, not because someone's comment is unimportant, but because it's important that all have a chance to be heard.
4. Ask for (but do not force) responses from everyone at the table. Work at a friendly and crisp pace. Try to manage the conversation so that one or two voices do not dominate the discussion. Use your own judgment about intervening a little (if the group is conversing easily and well) or a lot (if the group is struggling or going off track).
5. Groups are free to come to agreement (and you may assist them to get there). However, consensus is *not* required, and opposing views do not have to be reconciled. It is more important that various perspectives and ideas are shared and heard within the group.
6. **Ask WHY!** This is one of the main objectives of the day: to understand the WHYS. Emphasize the importance of sharing the reasons behind opinions. This will help everyone understand each other better. Ask what values and criteria people use to guide their answers. Probe for the underlying values, goals, interests, fears, hopes.
7. State and seek confirmation of the key themes you hear, including views held in common and issues seen differently around the table.

Scenario 2: New Deadly Virus

A new deadly virus has killed many thousands of people around the world. It is highly contagious and is now spreading quickly in the United States.

There is only one known treatment for people who fall ill with this virus—an antiviral drug that is in short supply worldwide. It will take several months to make enough of this drug to treat most of the people in this country who need it. A vaccine to protect against this virus will not be ready for even longer, so the numbers of people sickened by the virus will continue to rise.

The virus reached your community last week. People of all walks of life have started to fall ill, including health care and other emergency workers. Of those people who catch the virus, 20 percent will die if they are not treated with the drug. Although everyone is at risk of dying, experts have determined that among those who catch the virus, healthy young adults and pregnant women face the highest risk of death by far.

Your community's public health agency will receive its first supply of the antiviral drug in a few days, but only enough to treat fewer than half of the seriously ill patients who currently need this treatment. The agency will divide the drugs between the local hospitals and temporary clinics that have been set up to handle the overflow of patients. The hospitals and clinic will have to make do with whatever supply of the antiviral drug they receive—there is no other source from which they can get more at the present time. Patients who are chosen for treatment will need to take the drug for 7 days.

The agency is now preparing guidelines to help the hospitals and clinics decide which patients to treat with this limited supply of the antiviral drug.

Discussion Questions

1. Should the agency's guidelines give health care workers priority for treatment? How about other workers on whom society relies for saving lives (e.g., electrical power and water supply workers, police, firefighters, and other key workers)?
 - a. What are the best reasons for and against such a policy?
 - b. Does a health care worker's specific role or contact with patients matter (e.g., patient care providers such as doctors and nurses; custodians or food service workers; managers or administrative staff)?
 - c. Does it matter whether the worker would recover in time to return to work during the crisis?
 - d. Should key workers' family members who catch the virus be given priority for treatment?

2. To save the most lives, the agency is planning to direct all hospitals and clinics to restrict use of the antiviral drug to sick patients in the two high-risk groups (pregnant women and previously healthy young adults) until more of the drug becomes available.
 - a. Do you agree with this policy? Why or why not?
 - b. Is it important for all hospitals and clinics in the city to follow the same rules when deciding which patients to treat?
 - i. If not, why?
 - ii. If so, are there some circumstances in which individual hospitals or doctors should be allowed to make decisions that go against the rules?
3. It is now day 3 of treatment for patients in the first group to receive the drug. Two of those patients have not responded to treatment, and their doctors now believe that they will almost certainly die. If treatment is stopped now, there will still be enough of the drug left over to treat one more patient who might be saved. The families of the two dying patients will not agree to end the treatment. Should the hospital go against their wishes and use the remaining doses to try to save another patient?

For your information, see the next page for the guidance provided to table facilitators and note takers on how to conduct this scenario

FOR TABLE FACILITATORS AND NOTE TAKERS

Scenario Discussion 2: Deadly Virus

Purpose: To elicit views on **key worker status** as a criterion for scarce resource allocation. Also addresses role of government in promoting **consistent application of rules** and **withdrawal of treatment**.

Method:

1. Distribute scenario worksheet
2. Read scenario aloud
3. Lead a discussion of the questions
4. Record key points on template for use in report out session
5. Have the group select one person to report out your table's key points (if no one is willing, one of you can perform this role)

Strategies to encourage participants to take a position:

- Some people will find creative ways to avoid making decisions like these altogether. The idea of withholding or denying critical medical care is uncomfortable, and some participants may offer suggestions to avoid such an outcome, such as “develop domestic manufacturing capacity,” “increase stockpiles,” or “use isolation and quarantine to prevent the spread of the disease.”
- To move the conversation along, consider the following PROMPTS:
 - Withholding critical medical resources is always a last resort. Federal and state governments have stockpiled drugs and other critical medical supplies, and have plans for isolation and quarantine. Everyone agrees on the desire to avoid denying anyone life-saving care, so let's not spend time on that.
 - When confronting a new, deadly virus, no matter how much we plan in advance and work to control the disease's spread, shortages are inevitable. We're here to discuss what should happen when, despite the best planning, there are not enough resources to go around.
 - Invite participants to write their other suggestions on a 3x5 card.

Strategies for addressing suggestions by participants that some groups should be “excluded”:

- PROMPT: The emphasis of this discussion is to determine who should come first, second, and so on, not whether some groups should be excluded completely. Focusing on the “tail end” of the problem isn't the most important aspect of the discussion.
- PROMPT: Ask for clarification: “Are you saying that X group should get no resources at all under any circumstances, or are you saying that X group should be ‘deprioritized’ and receive resources later than other groups?”
- Note takers should capture “exclusion” concerns/recommendations.
- Remind participants of the option to put such concerns/recommendations on 3x5 cards.

Evaluation

Your Table Number: _____				
A. The <i>table introductions</i> and community <i>hopes and fears exercise</i> helped me feel comfortable and got my table's conversation started.				
Strongly Agree <input type="checkbox"/>	Somewhat Agree <input type="checkbox"/>	Undecided <input type="checkbox"/>	Somewhat Disagree <input type="checkbox"/>	Strongly Disagree <input type="checkbox"/>
B. The <i>first survey</i> gave me a good idea of what today's program would be about.				
Strongly Agree <input type="checkbox"/>	Somewhat Agree <input type="checkbox"/>	Undecided <input type="checkbox"/>	Somewhat Disagree <input type="checkbox"/>	Strongly Disagree <input type="checkbox"/>
C. The <i>introductory slide presentation</i> helped me understand what crisis standards of care are about.				
Strongly Agree <input type="checkbox"/>	Somewhat Agree <input type="checkbox"/>	Undecided <input type="checkbox"/>	Somewhat Disagree <input type="checkbox"/>	Strongly Disagree <input type="checkbox"/>
D. The <i>earthquake and deadly virus scenarios</i> were a good way to discuss how decisions about limited medical resources should be made.				
Strongly Agree <input type="checkbox"/>	Somewhat Agree <input type="checkbox"/>	Undecided <input type="checkbox"/>	Somewhat Disagree <input type="checkbox"/>	Strongly Disagree <input type="checkbox"/>
E. When I took the <i>second survey</i> , I had a better understanding of the statements.				
Strongly Agree <input type="checkbox"/>	Somewhat Agree <input type="checkbox"/>	Undecided <input type="checkbox"/>	Somewhat Disagree <input type="checkbox"/>	Strongly Disagree <input type="checkbox"/>
F. The session helped me understand the difficult decisions that health care providers might have to make in a disaster.				
Strongly Agree <input type="checkbox"/>	Somewhat Agree <input type="checkbox"/>	Undecided <input type="checkbox"/>	Somewhat Disagree <input type="checkbox"/>	Strongly Disagree <input type="checkbox"/>
G. Overall, the program gave me a chance to express my ideas.				
Strongly Agree <input type="checkbox"/>	Somewhat Agree <input type="checkbox"/>	Undecided <input type="checkbox"/>	Somewhat Disagree <input type="checkbox"/>	Strongly Disagree <input type="checkbox"/>
H. Overall, the program gave me a chance to hear other people's views.				
Strongly Agree <input type="checkbox"/>	Somewhat Agree <input type="checkbox"/>	Undecided <input type="checkbox"/>	Somewhat Disagree <input type="checkbox"/>	Strongly Disagree <input type="checkbox"/>
I. I would recommend that my friends and family attend an actual community conversation on crisis standards of care if they have the chance.				
Strongly Agree <input type="checkbox"/>	Somewhat Agree <input type="checkbox"/>	Undecided <input type="checkbox"/>	Somewhat Disagree <input type="checkbox"/>	Strongly Disagree <input type="checkbox"/>

Which parts of this session did you find most valuable?

Was there anything missing (e.g., certain information you wish we had provided, other topics you thought the survey or scenarios should have covered)?

Please share any additional thoughts.

*“CRISIS STANDARDS OF CARE”
IN DISASTERS AND PANDEMICS
A Community Conversation*

GUIDEBOOK FOR TABLE FACILITATORS AND NOTE TAKERS

Including Annotated Agenda and Program Materials

Developed by the Institute of Medicine of the National Academies

This Guide

Thank you for serving as a table facilitator or note taker for a community conversation on crisis standards of care. This guide will provide you with the information and tools you will need to help lead a meaningful discussion about the allocation of scarce medical resources during extreme disasters and pandemics. It includes

- background information on crisis standards of care;
- the purpose and goals of community conversations like the one in which you are about to participate;
- an annotated agenda of the day’s activities;
- copies of the surveys, scenarios, and discussion questions;
- general advice on facilitation and note taking; and
- talking points and specific guidance on how to use the various program materials.

Please read this guide in its entirety before arriving at the session. Although you will complete a pre-session training, you will get more out of that training and be more comfortable leading your groups if you are already familiar with the activities and discussion questions, the types of questions we anticipate, and strategies for responding and moving your table discussions forward.

What are “crisis standards of care” and why do we need them?

States, counties, tribes, and territories across the United States have been preparing for disaster situations, whether naturally occurring or manmade. If a disaster or pandemic were to strike, temporarily overwhelming our ability to provide health care as usual to everyone in need, how should scarce medical resources be allocated? How could the delivery of care be altered to maximize lives saved? How can this all be coordinated to ensure the most fair, ethical, and nondiscriminatory use of resources? Recent events at home and abroad—from Hurricane Katrina to the H1N1 pandemic to the Haiti earthquake—show the importance of addressing these concerns in advance. One part of this disaster planning is the development of **crisis standards of care**—ethical and clinical protocols and frameworks for delivering health care when medical resources are insufficient to provide care as usual.

One of the main goals of crisis standards of care is to save more lives than would be saved by business as usual. Crisis standards of care help conserve and stretch medical resources so they can help as many patients as possible in order to

- give critical resources to those who need them and/or will benefit the most;
- prevent hoarding and overuse of scarce resources;
- protect at-risk groups against discrimination in access to care; and
- ensure patients and their families trust that they will receive fair access to the best possible care under the circumstances.

CRISIS STANDARDS OF CARE

Guidelines developed before disaster strikes to help health care providers decide how to administer...

THE BEST POSSIBLE MEDICAL CARE

...when there are not enough resources to give all patients the level of care they would receive under normal circumstances.

How would crisis standards of care work?

Crisis standards of care guidelines

- promote best possible medical practice under the circumstances;
- allow reasonable health care provider discretion;
- adapt to the ever-changing circumstances of disasters; and
- emphasize early conservation, adaptation, and substitution of medical resources to avoid having to resort to more extreme measures.

Crisis standards of care guidelines stay in effect only until it is possible to return to normal care. The measures taken are only those needed to cope with the degree of lack of resources (so that the restrictions are proportional, or balanced to the demand).

Without a plan and good communication, different providers and hospitals may be functioning with different levels of resources and make very different decisions. This could lead to inconsistent levels of care in the community from hospital to hospital, which would be not only confusing, but unfair. Crisis standards of care require that medical providers, facilities, public health agencies, and public safety agencies have a plan to work together to do the most they can with the resources available.

When might crisis standards of care be needed? Examples

Two recent disasters offer examples of when crisis standards of care might be needed, as described in the following boxes.

Example 1: Hurricane Katrina—Hospital Overload

The week after Hurricane Katrina, 1,749 patients and 7,600 others sought shelter at 11 area hospitals. Hospitals required employees to work longer and longer shifts under increasingly desperate conditions. There was little or no power, backup generators were failing, and temperatures above 100 degrees destroyed drugs and equipment. Eyewitness accounts included

- doctors making rounds by flashlight;
- hospital staff unable to electronically control even basic equipment; and
- no food, clean water, or plumbing.

These conditions lasted for days. Individual doctors and nurses were left to decide how to use their limited resources. In the following months, ethical and legal inquiries were made about their decisions and actions because many decisions were made as individuals, and not as part of a crisis response plan.

Example 2: Flu Pandemic (H1N1)—Vaccine Shortage

In the early months of the H1N1 flu pandemic in 2009, officials at the Centers for Disease Control and Prevention (CDC) realized that not enough vaccine could be made fast enough to cover the whole population right away. The CDC identified the following groups to get vaccine first:

- pregnant women;
- household contacts and caregivers for children under age 6;
- health care and emergency medical services personnel;
- all people ages 6 months through 24 years; and
- people ages 25 through 64 years who had health conditions that put them at higher risk of medical complications from the flu.

These groups were considered highest priority because they were most likely to get the flu and/or suffer the most severe complications.

Why are community conversations on crisis standards of care necessary?

Involving community members in the development of crisis standards of care is important because the values of ordinary citizens should inform the actions of professionals, especially when there are no reliable ways to predict survival that help providers make decisions. Meaningful community engagement is critical for successful development, dissemination, and implementation of crisis standards of care. Community conversations take place before a disaster strikes for the purpose of enabling participants to understand each other's perspectives while tackling complex issues associated with allocating scarce medical resources.

What are the goals of a community conversation?

Community conversations on crisis standards of care are designed to

- inform members of the public about the concept of crisis standards of care and why they are necessary;
- ensure broad participation and ensure that vulnerable, hard-to-reach populations are represented;
- increase awareness and understanding about the development of a crisis standards of care plan or an existing draft plan; and
- gather input on the ethical considerations and priorities that should be the basis of a crisis standards of care plan or that are included in a draft crisis standards of care plan under review.

What is the public's role in developing crisis standards of care?

The voices of community members are important to the development of crisis standards of care. This is because crisis standards of care must reflect the community's ethical values and priorities about the use of scarce medical resources during disasters.

At this community conversation, participants will have a chance to share their opinions and concerns—not just hear from the “experts.” All participants will be encouraged to consider what principles should guide crisis standards of care, and to hear what others think.

How is the information from community conversations used?

Crisis standards of care raise challenging issues over which reasonable people will disagree. Community conversations help public health officials understand what values are important to individuals and to the entire group, and on what issues people differ.

The goal is *not* to reach consensus or agreement, or to take a vote. Instead, the opinions and concerns raised in this discussion will ensure that any final crisis standards of care guidelines accurately reflect, as much as possible, the views of the community about what is as fair and ethical as possible.

Facilitator and Note Taker Guiding Principles

Facilitation is a way of providing leadership without taking over control. A facilitator’s job is to get others to assume responsibility and to take the lead.

1. Preparation is key!

- Familiarize yourself with the agenda, activities, and goals of this session by reading this guide. Make note of any questions so that you can ask them at the presession training.
- Pay close attention to the text boxes labeled “*For Facilitators and Note Takers*” in the program materials below. These contain step-by-step instructions and suggestions for running each of the small-group activities.

2. Facilitator Responsibilities:

- You are in charge of keeping the table discussions flowing and on topic.
- You can take notes if you wish. At the end of the session, please turn in any notes that help supplement your note taker’s notes.
- Facilitators set the tone and make it an engaging, inclusive event for everyone:
 - Explain or repeat questions if necessary
 - Keep the discussion on topic
 - Explore disagreements, but defuse unproductive arguments
 - Encourage the “quieter” members to participate at a level that is comfortable
 - Manage individuals who are dominating the discussion
 - Enforce the ground rules (see below)
 - Thank participants for their contributions

3. Note Taker Responsibilities:

- You are in charge of capturing the discussion—what people recommend, what concerns them, and always “why, why, why”—the reasons behind their opinions.
- Think of yourselves as “co-facilitators.” If you see that the group is stuck or has strayed off topic, offer a suggestion. If you don’t understand someone’s comment, ask for clarification.
- Note takers record major themes, comments, and ideas:
 - During table discussions, record your notes on the notepads provided
 - After the discussion, summarize your notes on the templates provided for each activity

- **To preserve confidentiality and privacy, do NOT record any names.** Who said what is not important
 - Be as detailed, accurate, and neat as possible
 - Make note of significant non-verbal behavior (e.g., facial expressions, group dynamics)
 - Do not include your own opinions in the notes
4. **Facilitators and note takers are neutral for purposes of the discussions and should not offer opinions regarding the substance of the issues.**
 5. **Do not expect or push for consensus.** It is more important to elicit and understand the wide range of opinions on these issues.
 6. **Keep track of time** in small-group discussions. Remind people when the current conversation will end and intermittently let the group know how much time remains.
 7. **Be aware of the resources and support available to you:**
 - This guide.
 - The “Quick Reference” sheet that contains an outline of the program and your main tasks and talking points for each activity.
 - 3x5 cards on tables for capturing questions/recommendations.
 - Flip chart—use it if it helps your group, but not if it doesn’t.
 - Roving experts to answer questions and help you facilitate if your group gets “stuck.”

All good facilitation relies on judgment in the moment as to how best to move the conversation, but here are various techniques and prompts that might be helpful.

Facilitation Skill	Examples of Verbal Prompts
Set up the discussion clearly and simply	“Our task in the next 20 minutes is to explore this question....”
Manage the allotted time	The time allowed for each table discussion and task will be announced by the lead facilitator, who also will give periodic time warnings. Additionally, you may find it useful to ask someone at your table to play timekeeper. “We have about 5 minutes left, and I want to see if there are any other key ideas that we’ve not heard so far.”
Stay neutral	Focus on the process and avoid offering your opinions about the topic under discussion. Give examples that are in the materials rather than from your experience.
Listen actively and paraphrase	Look people in the eye, use attentive body language, and paraphrase what they say. “Let me see if I can repeat your point in slightly different words. I want to make sure I understand what you are saying.” Or “Are you saying....?”
Synthesize	Help people to comment and build on each other’s thoughts to ensure that the ideas recorded represent collective thinking. This builds consensus and commitment. “Jackie, what can you add to Aaron’s comments?”

Identify possible disagreements	Ask: “Bill, how does this fit with X that you said earlier?”
Summarize periodically	Listen attentively and then offer concise and timely summaries. Summarize when the group is stuck or when you want to wrap up a discussion. “What I have heard you all say is first....second....and finally....”
Ask questions	Questions should serve to further understand what has been said, to elicit comments from others, and to explore issues that might be overlooked.
Use “round robin” or “popcorn”	Ask participants to go around the table so that each participant contributes. In other situations you may prefer “popcorn” style where anyone who has an idea speaks up.
Play ping pong	If someone asks a question or makes a comment, redirect it by sending it back to someone else to answer or build on. “Sally, how would you answer that question that Bill has posed to me?”
Allow participants to reflect	“Before we start, let’s take a minute to think to ourselves about the discussion question and our responses. Feel free to jot some ideas on page X in your guide or on your worksheet.”
Draw out participants	Use eye contact to let people know they can speak next and to prompt the quiet ones in the crowd to participate. “I want to make sure that we get a chance to hear from everyone.”
Gently limit dominant voices to equalize participation	“I want to see if we could include some other folks in this conversation....”
Curb anecdotes	Lengthy personal anecdotes can quickly sidetrack table discussions. When this occurs, try to gently coax the participant to conclude a lengthy anecdote. You may say, “So, that example leads you to say....”
Explore different points of view	“So Joe has talked about the importance of X, and Mary has raised some concerns with X. I’m wondering how others see X.”
Test for support among ideas	“Apparently several people share the view that....”
Check perceptions	Describe what you perceive is the other person’s inner state. “You appear upset by the last comment that was made. Are you?”
Test for clarity/ shared agreement	“Does this statement convey what you’ve been saying about....”

Thank you

Thank you for taking the time to help lead this community conversation. We know that you have limited free time, and appreciate your willingness to spend some of it at this session. Please know that you are performing a valuable public service, and that your contributions will make a difference.

ANNOTATED AGENDA

TIME	ELEMENT	PURPOSE	METHOD/TOOLS
-1:00	Participant Registration	<ul style="list-style-type: none"> Attendance Table assignments Consent (if required) 	<ul style="list-style-type: none"> Registration form Name tags/tent cards with first names only Participants (Ps) read and sign consent form (if required)
0:00	Opening Remarks	<ul style="list-style-type: none"> Welcome participants Introduce leaders/facilitators Briefly describe topic Explain charge of the day 	<ul style="list-style-type: none"> By lead facilitator (LF) Script
0:10	Table Introductions and Exercise	<ul style="list-style-type: none"> Break ice Take temperature—why did they attend, what is on their minds 	<ul style="list-style-type: none"> Tool: Worksheet Table facilitators (TFs) lead introductions, note takers (NTs) record on template Group selects one hope/one fear to report out
0:25	Brief Report-Out	<ul style="list-style-type: none"> Introduce Ps to report-out method Segue into crisis standards of care (CSC) 	<ul style="list-style-type: none"> Moderated by LF Volunteer from each table reports one hope and one fear
0:35	Presurvey	<ul style="list-style-type: none"> Quick immersion into CSC: context, scope, and complexity of the issues Help maintain focus on CSC vs. other preparedness or health care issues Establish baseline opinions 	<ul style="list-style-type: none"> Tools: <ul style="list-style-type: none"> PPT slides of survey statements Audience Response System¹ (ARS) or paper answer sheets LF reads statements aloud; Ps use “clicker” devices to respond or circle responses on answer sheets No review of responses or discussion; LF explains that survey will be repeated and responses discussed later in the session
0:50	Presentation on CSC and Q&A	<ul style="list-style-type: none"> Educate Ps about CSC: what, when, why, how 	<ul style="list-style-type: none"> Tools: Slides LF or content expert presents slides, responds to questions LF introduces scenario discussion, turns it over to TFs

¹ Software and handheld devices for automated data collection and display.

1:10	Earthquake Scenario Discussion	<ul style="list-style-type: none"> Designed to elicit views specifically on age and likelihood of survival as criteria for resource allocation. Also, withdrawals of treatment, and whether all of the regions' health care providers should follow the same rules. Other features: sudden onset, geographically contained event. Methodology: Ps asked to do forced ranking of patients and share their perceptions of the associated challenges. Ps asked to share views on what underlying values and goals should drive decisions. Give table groups chance to share key thoughts and identify points of difference and intersection with the larger group Spark larger group discussion, input Further inform, influence thinking of Ps 	<ul style="list-style-type: none"> Scenario and discussion questions
1:50	Earthquake Scenario Report-Out	<ul style="list-style-type: none"> Give table groups chance to share key thoughts and identify points of difference and intersection with the larger group Spark larger group discussion, input Further inform, influence thinking of Ps 	<ul style="list-style-type: none"> Facilitated by LF, with one NT recording key points on flip charts Volunteer from each table presents short summary of scenario findings—emphasis on points of agreement/disagreement, most notable impressions
2:20	Break		
2:50	Deadly Virus Scenario Discussion	<ul style="list-style-type: none"> Designed to elicit views on key worker status as criterion for resource allocation. Also addresses the issues of the role of government agencies in promoting consistent application of CSC rules within the affected area, and withdrawal of treatment. Ps asked to share views on what underlying values and goals should drive decisions 	<ul style="list-style-type: none"> Scenario and discussion questions
3:30	Deadly Virus Scenario Report Out	<ul style="list-style-type: none"> Give table groups chance to share key thoughts and identify points of difference and intersection within the larger group Spark larger group discussion, input Further inform, influence thinking of Ps 	<ul style="list-style-type: none"> Facilitated by LF, with one NT recording key points on flip charts Volunteer from each table presents short summary of scenario findings—emphasis on points of agreement/disagreement, most notable impressions
4:00	Postsurvey and Discussion	<ul style="list-style-type: none"> Identify changes in P views pre- and postsession Give Ps chance to consider range of opinions in the room Satisfy P interest in survey results Final opportunity to elicit more information on P views around CSC issues 	<ul style="list-style-type: none"> Tools: Survey slides and clickers LF reads statements aloud; Ps use clicker devices to respond or circle responses on answer sheets LF shows slides with pre- and postsurvey responses (if using ARS) LF leads large group through discussion of statements where there was the most change or disagreement

4:30	Final Question and Wrap-Up	<ul style="list-style-type: none"> • Big-picture question to wrap up discussion • Words from sponsor about local disaster preparedness planning initiatives and resources, and the importance of individual and community preparedness • Thank Ps 	<ul style="list-style-type: none"> • LF leads brief large-group discussion of final question • Sponsor gives brief presentation on local preparedness landscape and resources
4:50	Evaluation		<ul style="list-style-type: none"> • Tool: Evaluation form (ARS or paper) • TF and NT offer help to participants who need it
5:00	Participants Depart		<ul style="list-style-type: none"> • Ps turn in ARS devices and receive stipends, if applicable
5:15	Facilitator/Note Taker Debrief	<ul style="list-style-type: none"> • To gather data and elicit other relevant information or impressions not contained in the notes and templates 	<ul style="list-style-type: none"> • Led by Sponsor and LF
6:00	Adjourn		

*Program Materials
and Table Facilitator/Note Taker
Guidance*

“CRISIS STANDARDS OF CARE” IN DISASTERS AND PANDEMICS
A Community Conversation

Quick Reference for Table Facilitators and Note Takers

Time	Activity	Table Facilitator (TF)/Note Taker (NT) Actions
0:00	Opening Remarks	
0:10	Table Introductions and Exercise	Distribute introductions worksheet to participants TF—Lead table through introductions and exercise on p. 18 of Guide NT—Record notes on template Select participant to give report-out
0:25	Brief Report-Out	
0:35	Presurvey	Distribute clickers to participants (if using ARS)
0:50	Presentation on CSC and Q&A	
1:10	Earthquake Scenario Discussion	See program materials for detailed guidance on this scenario See program materials for facilitation hints and prompts Distribute earthquake scenario to table participants TF—Lead table through scenario NT—Record notes on template Select participant to give report-out Collect ranking chart
1:50	Earthquake Scenario Report-Out	
2:20	Break	
2:50	Deadly Virus Scenario Discussion	See program materials for detailed guidance on this scenario See program materials for facilitation hints and prompts Distribute earthquake scenario to table participants TF—Lead table through scenario NT—Record notes on template Select participant to give report-out
3:30	Deadly Virus Scenario Report-Out	
4:00	Postsurvey and Discussion	
4:30	Final Question and Wrap-Up	
4:50	Evaluation	Distribute and collect evaluation forms
5:00	Participants Depart	Thank participants
5:15	TF/NT Debrief	
6:00	Adjourn	

Table Introductions and Exercise

FOR TABLE FACILITATORS AND NOTE TAKERS

Starting the small-group process

1. Make participants feel welcome. Thank them for coming.
2. Introduce yourself and the note taker and your respective roles.
3. **Note taker:** Explain that you are NOT writing down participants' names. You're taking notes about what gets said, not who says it.
4. **Facilitator:** Instruct participants not to write their names on any of the program materials so that everything stays anonymous.
5. Explain the ground rules:
 1. *Participate actively*
 2. *Listen with respect—only one person talks at a time*
 3. *Keep an open mind*
 4. *What is shared in the room stays in the room*
 5. *Silence cell phones*
6. Give participants a few minutes to think about the questions on the worksheet below. Tell them that they can jot notes if they would like, but that it is entirely optional.
7. Go around the table and ask people to state their first names and briefly share their answers to the table introduction questions with the group.
8. Ask the group to agree to the one “hope” and one “fear” that they want to report out. Pick two backups for each category in case another table expresses the same ideas before yours.
9. Also recruit a participant volunteer to make the report to the large group.

Table Introductions and Exercise*

GROUND RULES

1. Participate actively
2. Listen with respect—only one person talks at a time
3. Keep an open mind
4. What is shared in the room stays in the room
5. Silence cell phones

Why did you decide to attend today’s community conversation?

“In a disaster, my greatest hope for my community is that...”

“In a disaster, my greatest fear is that...”

*This worksheet will help you collect your thoughts. Writing is always optional. The Note Takers will record key points—but not anyone’s name.

Pre- and Postsurvey

A few questions about you...

1. Sex	<input type="checkbox"/> Male	<input type="checkbox"/> Female			
2. Age	<input type="checkbox"/> 18-30	<input type="checkbox"/> 31-50	<input type="checkbox"/> 51-65	<input type="checkbox"/> 66-80	<input type="checkbox"/> 81+
3. Does your household include any dependents:					
a. Children	<input type="checkbox"/> Yes	<input type="checkbox"/> No			
b. Adults	<input type="checkbox"/> Yes	<input type="checkbox"/> No			
4. Do you work in health care (as a patient care provider, administrator, researcher, or educator)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No			
5. Do you work in public safety or emergency response?	<input type="checkbox"/> Yes	<input type="checkbox"/> No			

IMAGINE that a major disaster or pandemic has struck. Suddenly, there is not enough medical care to give the normal level of treatment to everyone in need.

Do you agree or disagree with the following statements?

1. It is better to save the most lives—even if it means that some people won’t get all of the medical care they would get under normal conditions.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
2. More medical care should go to save younger patients because they have the most years to live.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
3. Health care providers should be allowed to perform services different from their usual duties if that might save more patients.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
4. The sick and injured should be treated “first-come, first-served”—whether or not they are likely to survive.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
5. Firefighters, police, and other first responders should be at the front of the line for medical care because they are important for public safety.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
6. Family members of health care workers should be at the front of the line for vaccines and treatment if they face an increased risk of illness.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
7. People should not get limited medical resources if they will survive, but end up severely disabled.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree

8. Health care providers should be at the front of the line for care if they will be able to help save others when they recover.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
9. Most medical care should go to patients who probably will die unless they receive treatment.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
10. Elderly patients should get less medical care so that more children and young adults can be saved.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
11. Health care providers should be at the front of the line for treatment if they are risking their health and safety to care for others.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
12. A person's ability to pay should not matter when deciding who should receive limited medical resources in a crisis.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
13. Every hospital in the disaster area should follow the same rules when deciding how to use limited medical resources.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
14. People who do jobs that keep society running (transportation workers, utility workers, etc.) should be at the front of the line for treatment.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
15. Elderly patients should get more medical care than younger people because they have important wisdom and experience.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
16. Doctors and nurses should be free to make their own decisions about which patients will get treatment and which ones will not.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
17. More medical care should go to save young and middle-aged adults because they care for children and elders and make up society's workforce.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree
18. The best way to decide who should be treated is to do a lottery or draw straws.	1 Strongly Agree	2 Agree	3 Disagree	4 Strongly Disagree

Scenario 1: Major Earthquake

Early one morning, without warning, a violent earthquake strikes your community. Buildings sway and many crumble to the ground. Water shoots out from broken water-main lines, and electric power seems to be out everywhere.

Highways and main streets are blocked by debris, bridges have collapsed into the river, and railroad tracks and airport runways are badly damaged. Phone service, television, radio, and other means of communications are severely disrupted, adding to the anxiety and concern of people in the community. The number of injured and dead is quickly rising.

It is now 12 hours after the earthquake. Your community's only hospital is caring not only for earthquake victims, but for patients with other serious health problems unrelated to the earthquake. Critical medical supplies are starting to run out. The health care workers and emergency personnel who were able to report to work are stretched to the limit. Patients are being placed in hallways and cafeterias as space begins to run out. The community is cut off from outside federal and state help and will not be reconnected for some time. The hospital has nowhere to turn.

The hospital has nine critically injured or sick patients, but only enough medical supplies and staff to treat five of them. The four patients who do not receive treatment probably will die before more help arrives—these patients will continue to receive comfort care to minimize their suffering.

1. Which of the following patients should receive treatment?

Patients Who Need Immediate Treatment			Rank 1 = Treat First 9 = Treat Last
Patient ID	Age	Chance of Survival with Treatment	
A	2	Low (10-30%)	
B	35	Low (10-30%)	
C	80	Low (10-30%)	
D	11	Medium (40-60%)	
E	55	Medium (40-60%)	
F	75	Medium (40-60%)	
G	8	High (70-90%)	
H	25	High (70-90%)	
I	85	High (70-90%)	

2. Discussion Questions

1. **Patient ranking**
 - a. Which patients did you select to receive treatment?
 - b. Which patients did you select NOT to receive treatment?
2. What were the **main reasons** behind your decisions? Did you consider:
 - a. **Chance of survival**
 - i. How important is chance or likelihood of survival in deciding who should receive treatment?
 - ii. Would the patient's long-term quality of life affect your decision?
 - b. **Age**
 - i. How important is age in deciding who should receive treatment?
 - ii. What would be your reason(s) for favoring or not favoring younger people? Older people?
 - c. **Any other factors?**
3. Is there anything else you wanted to know about **the patients** or **the circumstances** before deciding who to treat?
4. When you can't save everyone, what matters most? What values or goals are most important?
 - a. Providing care on a "first-come, first-served" basis?
 - b. Lottery or drawing straws?
 - c. Saving the most lives—by giving limited resources to people who need them the most?
 - d. Other?
5. Did your decisions about whom to treat seem **fair** to you?
 - a. Why or why not?

For your information, see the next page for the guidance provided to table facilitators and note takers on how to conduct this scenario

FOR TABLE FACILITATORS AND NOTE TAKERS

Scenario Discussion 1—Earthquake

Purpose: This scenario is designed to elicit views specifically on *age* and *chance of survival* as criteria for scarce resource allocation. It also seeks opinion on what *values and goals* should drive these hard decisions.

Method:

1. Distribute Scenario Worksheet
2. Read scenario aloud
3. Ask participants to rank patients on the chart
4. Lead a discussion of the follow-up questions
5. Give participants a chance to revise their patient rankings based on the discussion
6. Record key points on template for use in report-out session
7. Have the group select one person to report out your table's key points (if no one is willing, one of you can perform this role)

Remember: Participants do not have to write their answers to the scenario questions. You are responsible for reading the scenario, leading the discussion, and recording key points.

Discussion:

1. Affirm that today's questions are unusual and challenging (intellectually and emotionally), and this is why broad public input is important. If the answers were obvious, there would be no need for input.
2. Stress the importance of hearing from everyone and respectfully listening to one another.
3. Explain in advance that you might have to interrupt from time to time, not because someone's comment is unimportant, but because it's important that all have a chance to be heard.
4. Ask for (but do not force) responses from everyone at the table. Work at a friendly and crisp pace. Try to manage the conversation so that one or two voices do not dominate the discussion. Use your own judgment about intervening a little (if the group is conversing easily and well) or a lot (if the group is struggling or going off track).
5. Groups are free to come to agreement (and you may assist them to get there). However, consensus is *not* required, and opposing views do not have to be reconciled. It is more important that various perspectives and ideas are shared and heard within the group.
6. **Ask WHY!** This is one of the main objectives of the day: to understand the WHYS. Emphasize the importance of sharing the reasons behind opinions. This will help everyone understand each other better. Ask what values and criteria people use to guide their answers. Probe for the underlying values, goals, interests, fears, hopes.
7. State and seek confirmation of the key themes you hear, including views held in common and issues seen differently around the table.

Note Taker Template

Earthquake Scenario

1. Treatment priorities
[Collect patient ranking charts from participants and attach to this template]
2. What were the main reasons behind the patient ranking decisions? Did they consider:
 - a. **Likelihood of survival**
 - i. How important is likelihood of survival in deciding who should receive treatment?

 - ii. Would the patient's expected quality of life affect the decision?

 - b. **Age**
 - i. How important is age in deciding who should receive treatment?

 - ii. What would be the reason(s) for favoring or not favoring younger people? Older people?

 - c. **Other significant ideas?**
3. Is there anything else participants wanted to know about ***the patients*** before deciding who to treat?
Major themes:

Minor themes of note:

4. Is there anything else participants wanted to know about *the circumstances* before deciding who to treat?

Major themes:

Minor themes of note:

5. *When not everyone can be saved*, what *values or goals* were most important to participants?
 - a. Providing care on a first-come, first-served basis?
 - b. Lottery or drawing straws?
 - c. Saving the most lives—by giving limited resources to people who need them the most?
 - d. Other?
6. Did their choices seem *fair* to participants? Why or why not?

Major themes:

Minor themes of note:

Scenario 2: New Deadly Virus

A new deadly virus has killed many thousands of people around the world. It is highly contagious and is now spreading quickly in the United States.

There is only one known treatment for people who fall ill with this virus—an antiviral drug that is in short supply worldwide. It will take several months to make enough of this drug to treat most of the people in this country who need it. A vaccine to protect against this virus will not be ready for even longer, so the numbers of people sickened by the virus will continue to rise.

The virus reached your community last week. People of all walks of life have started to fall ill, including health care and other emergency workers. Of those people who catch the virus, 20 percent will die if they are not treated with the drug. Although everyone is at risk of dying, experts have determined that among those who catch the virus, healthy young adults and pregnant women face the highest risk of death by far.

Your community's public health agency will receive its first supply of the antiviral drug in a few days, but only enough to treat fewer than half of the seriously ill patients who currently need this treatment. The agency will divide the drugs between the local hospitals and temporary clinics that have been set up to handle the overflow of patients. The hospitals and clinic will have to make do with whatever supply of the antiviral drug they receive—there is no other source from which they can get more at the present time. Patients who are chosen for treatment will need to take the drug for 7 days.

The agency is now preparing guidelines to help the hospitals and clinics decide which patients to treat with this limited supply of the antiviral drug.

Discussion Questions

1. Should the agency's guidelines give health care workers priority for treatment? How about other workers on whom society relies for saving lives (e.g., electrical power and water supply workers, police, firefighters, and other key workers)?
 - a. What are the best reasons for and against such a policy?
 - b. Does a health care worker's specific role or contact with patients matter (e.g., patient care providers such as doctors and nurses; custodians or food service workers; managers or administrative staff)?
 - c. Does it matter whether the worker would recover in time to return to work during the crisis?
 - d. Should key workers' family members who catch the virus be given priority for treatment?

2. To save the most lives, the agency is planning to direct all hospitals and clinics to restrict use of the antiviral drug to sick patients in the two high-risk groups (pregnant women and previously healthy young adults) until more of the drug becomes available.
 - a. Do you agree with this policy? Why or why not?
 - b. Is it important for all hospitals and clinics in the city to follow the same rules when deciding which patients to treat?
 - i. If not, why?
 - ii. If so, are there some circumstances in which individual hospitals or doctors should be allowed to make decisions that go against the rules?
3. It is now day 3 of treatment for patients in the first group to receive the drug. Two of those patients have not responded to treatment, and their doctors now believe that they will almost certainly die. If treatment is stopped now, there will still be enough of the drug left over to treat one more patient who might be saved. The families of the two dying patients will not agree to end the treatment. Should the hospital go against their wishes and use the remaining doses to try to save another patient?

For your information, see the next page for the guidance provided to table facilitators and note takers on how to conduct this scenario

FOR TABLE FACILITATORS AND NOTE TAKERS**Scenario Discussion 2: Deadly Virus**

Purpose: To elicit views on **key worker status** as a criterion for scarce resource allocation. Also addresses role of government in promoting **consistent application of rules** and **withdrawal of treatment**.

Method:

1. Distribute scenario worksheet
2. Read scenario aloud
3. Lead a discussion of the questions
4. Record key points on template for use in report out session
5. Have the group select one person to report out your table's key points (if no one is willing, one of you can perform this role)

Strategies to encourage participants to take a position:

- Some people will find creative ways to avoid making decisions like these altogether. The idea of withholding or denying critical medical care is uncomfortable, and some participants may offer suggestions to avoid such an outcome, such as “develop domestic manufacturing capacity,” “increase stockpiles,” or “use isolation and quarantine to prevent the spread of the disease.”
- To move the conversation along, consider the following PROMPTS:
 - Withholding critical medical resources is always a last resort. Federal and state governments have stockpiled drugs and other critical medical supplies, and have plans for isolation and quarantine. Everyone agrees on the desire to avoid denying anyone life-saving care, so let's not spend time on that.
 - When confronting a new, deadly virus, no matter how much we plan in advance and work to control the disease's spread, shortages are inevitable. We're here to discuss what should happen when, despite the best planning, there are not enough resources to go around.
 - Invite participants to write their other suggestions on a 3x5 card.

Strategies for addressing suggestions by participants that some groups should be “excluded”:

- PROMPT: The emphasis of this discussion is to determine who should come first, second, and so on, not whether some groups should be excluded completely. Focusing on the “tail end” of the problem isn't the most important aspect of the discussion.
- PROMPT: Ask for clarification: “Are you saying that X group should get no resources at all under any circumstances, or are you saying that X group should be ‘deprioritized’ and receive resources later than other groups?”
- Note takers should capture “exclusion” concerns/recommendations.
- Remind participants of the option to put such concerns/recommendations on 3x5 cards.

Note Taker Template

New Deadly Virus Scenario

1. Should the agency's guidelines give healthcare workers priority for treatment? Yes or no (why?).

2. How about other workers on whom society relies for saving lives (e.g., electrical power and water supply workers, police, firefighters, and other key workers)? Yes or no (why?).
 - a) What are the best reasons for and against such a policy?

 - b) Does a health care worker's specific role or contact with patients matter (e.g., patient care providers such as doctors and nurses; custodians or food service workers; managers or administrative staff)?

 - c) Does it matter whether the worker would recover in time to return to work during the crisis?

 - d) Should key workers' family members who catch the virus be given priority for treatment?

3. To save the most lives, the agency is planning to direct all hospitals and clinics to restrict use of the antiviral drug to sick patients in the two high-risk groups (pregnant women and previously healthy young adults) until more of the drug becomes available.
 - a) Did participants agree with this policy? Why or why not?

- b) Is it important for all hospitals and clinics in the city to follow the same rules when deciding which patients to treat?
- i. Yes or no (why?).

 - ii. If so, are there some circumstances when individual hospitals or doctors should be allowed to make decisions that go against the rules?
 - A. Yes or no (why?).
3. It is now day 3 of treatment for patients in the first group to receive the drug. Two of those patients have not responded to treatment, and their doctors now believe they will almost certainly die. If treatment is stopped now, there will still be enough of the drug left over to treat one more patient who might be saved. The families of the two dying patients will not agree to end the treatment. **Should the hospital go against their wishes and use the remaining doses to try to save another patient?**
Yes (why?)

No (why?)

Evaluation

Your Table Number: _____				
A. The <i>table introductions</i> and community <i>hopes and fears exercise</i> helped me feel comfortable and got my table's conversation started.				
Strongly Agree <input type="checkbox"/>	Somewhat Agree <input type="checkbox"/>	Undecided <input type="checkbox"/>	Somewhat Disagree <input type="checkbox"/>	Strongly Disagree <input type="checkbox"/>
B. The <i>first survey</i> gave me a good idea of what today's program would be about.				
Strongly Agree <input type="checkbox"/>	Somewhat Agree <input type="checkbox"/>	Undecided <input type="checkbox"/>	Somewhat Disagree <input type="checkbox"/>	Strongly Disagree <input type="checkbox"/>
C. The <i>introductory slide presentation</i> helped me understand what crisis standards of care are about.				
Strongly Agree <input type="checkbox"/>	Somewhat Agree <input type="checkbox"/>	Undecided <input type="checkbox"/>	Somewhat Disagree <input type="checkbox"/>	Strongly Disagree <input type="checkbox"/>
D. The <i>earthquake and deadly virus scenarios</i> were a good way to discuss how decisions about limited medical resources should be made.				
Strongly Agree <input type="checkbox"/>	Somewhat Agree <input type="checkbox"/>	Undecided <input type="checkbox"/>	Somewhat Disagree <input type="checkbox"/>	Strongly Disagree <input type="checkbox"/>
E. When I took the <i>second survey</i> , I had a better understanding of the statements.				
Strongly Agree <input type="checkbox"/>	Somewhat Agree <input type="checkbox"/>	Undecided <input type="checkbox"/>	Somewhat Disagree <input type="checkbox"/>	Strongly Disagree <input type="checkbox"/>
F. The session helped me understand the difficult decisions that health care providers might have to make in a disaster.				
Strongly Agree <input type="checkbox"/>	Somewhat Agree <input type="checkbox"/>	Undecided <input type="checkbox"/>	Somewhat Disagree <input type="checkbox"/>	Strongly Disagree <input type="checkbox"/>
G. Overall, the program gave me a chance to express my ideas.				
Strongly Agree <input type="checkbox"/>	Somewhat Agree <input type="checkbox"/>	Undecided <input type="checkbox"/>	Somewhat Disagree <input type="checkbox"/>	Strongly Disagree <input type="checkbox"/>
H. Overall, the program gave me a chance to hear other people's views.				
Strongly Agree <input type="checkbox"/>	Somewhat Agree <input type="checkbox"/>	Undecided <input type="checkbox"/>	Somewhat Disagree <input type="checkbox"/>	Strongly Disagree <input type="checkbox"/>
I. I would recommend that my friends and family attend an actual community conversation on crisis standards of care if they have the chance.				
Strongly Agree <input type="checkbox"/>	Somewhat Agree <input type="checkbox"/>	Undecided <input type="checkbox"/>	Somewhat Disagree <input type="checkbox"/>	Strongly Disagree <input type="checkbox"/>

Which parts of this session did you find most valuable?

Was there anything missing (e.g., certain information you wish we had provided, other topics you thought the survey or scenarios should have covered)?

Please share any additional thoughts.

Wrap Up

Collect and place in the large manila envelope:

- All program materials (scenarios, worksheets, sorting cards)
- Any index cards with participant questions or comments
- Evaluation forms
- Note Taker templates and any other notes
- CLICKERS (if using ARS)**

Remember to **thank the participants** for their contributions to the session.

Thank you!

Introductory Slides

"Crisis Standards of Care"

A Community Conversation

[Location]

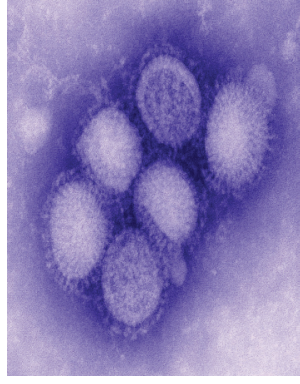
[Date]

[Sponsor]

“Disaster” Defined

What do disasters have in common?

- People’s needs exceed available resources
- Help cannot arrive fast enough



How do disasters differ?

- Some are long-lasting and widespread (*flu pandemic*)
- Others are sudden and geographically limited (*earthquake, terrorist attack*)



Preparing for Disasters: The Challenge

- Disasters can lead to shortages of critical medical resources
- Shortages require hard decisions, for example—
 - Who should be at the front of the line for vaccines or antiviral drugs?
 - Which patients should receive lifesaving ventilators or blood?
- In extreme cases, some people will not receive all of the treatment they need

How do we give the best care possible under the worst possible circumstances?

Recent Examples

Hurricane Katrina

- Hospital overload



H1N1 Pandemic

- Vaccine shortage



The Response: “Crisis Standards of Care”

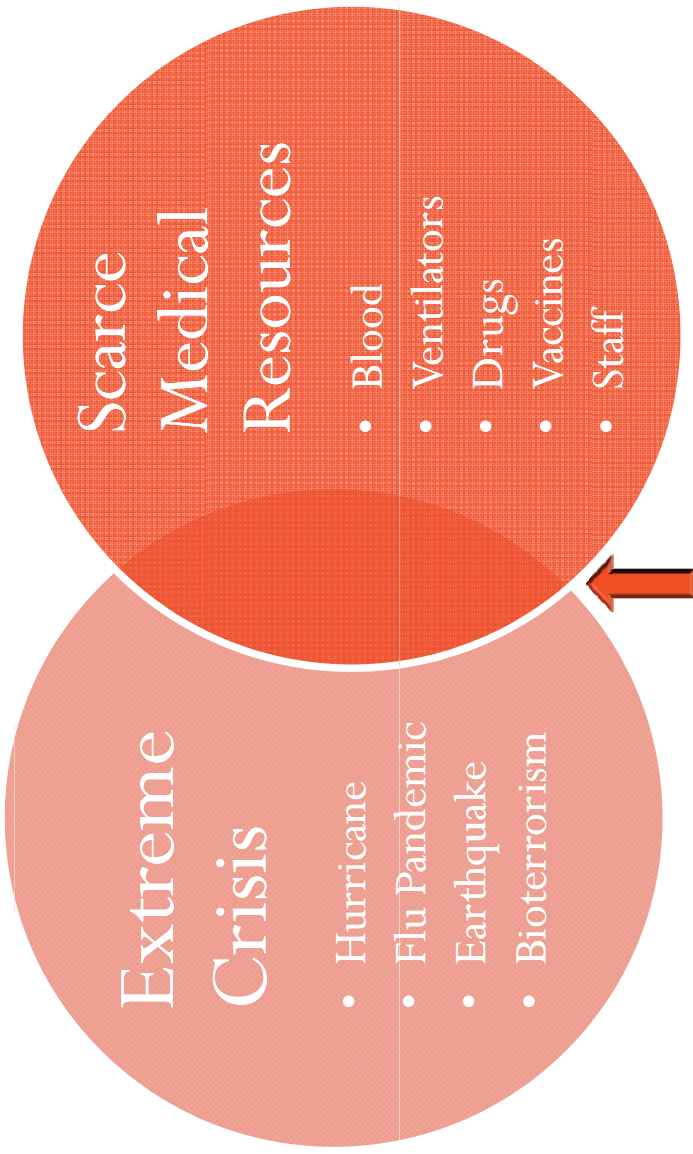
Guidelines developed **before disaster strikes**—

To help healthcare providers decide how to administer...

THE BEST POSSIBLE MEDICAL CARE

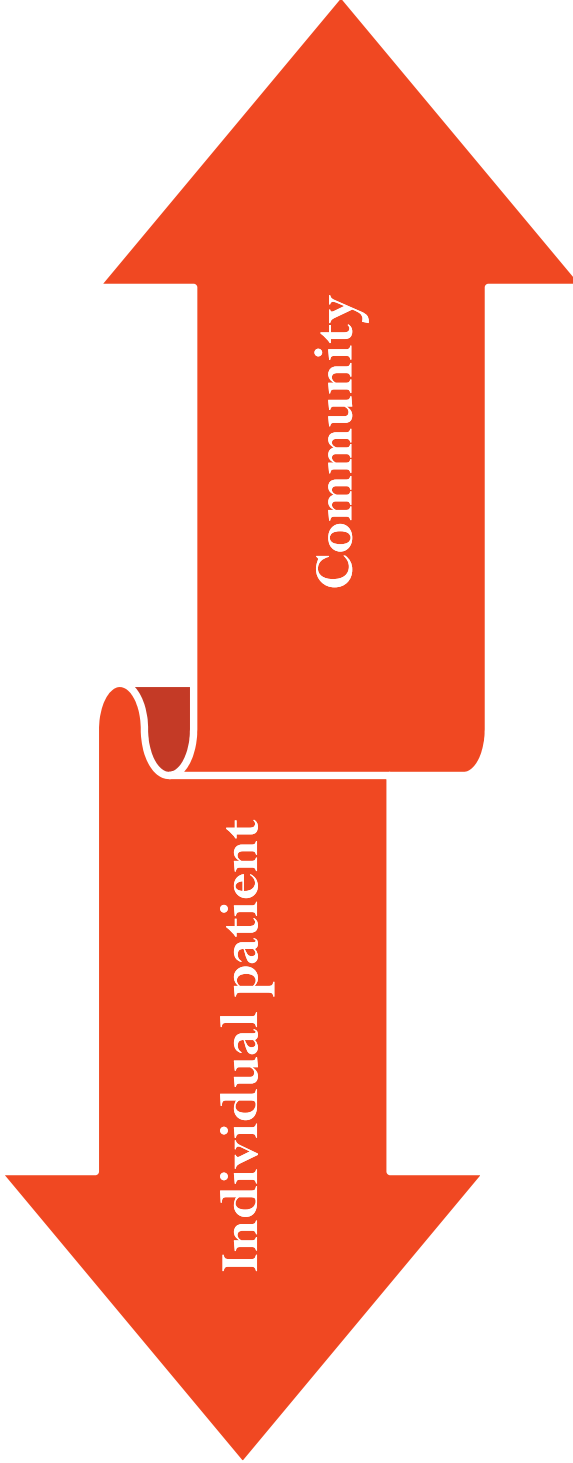
...when there are not enough resources to give all patients the level of care they would receive under normal circumstances.

When Might We Need Crisis Standards of Care?



How Are Crisis Standards of Care Different?

Focus of **Normal** Care



Focus of **Crisis** Care

Possible Reasons for Crisis Standards of Care

- To make sure that critical resources go to those who will **benefit the most**
- To **prevent hoarding** and **overuse** of limited resources
- To **conserve limited resources** so more people can get the care they need
- To **minimize discrimination** against vulnerable groups
- So all people can **trust** that they will have fair access to the best possible care under the circumstances

Possible Strategies

to Maximize Care

- **Space**
 - Put patient beds in hallways, conference rooms, tents
 - Use operating rooms only for urgent cases
- **Supplies**
 - Sterilize and reuse disposable equipment
 - Limit drugs/vaccines/ventilators to patients most likely to benefit
 - Prioritize comfort care for patients who will die
- **Staff**
 - Have nurses provide some care that doctors usually would provide
 - Have family members help with feeding and other basic patient tasks



When there isn't enough to save everyone...
how should we decide who gets what?

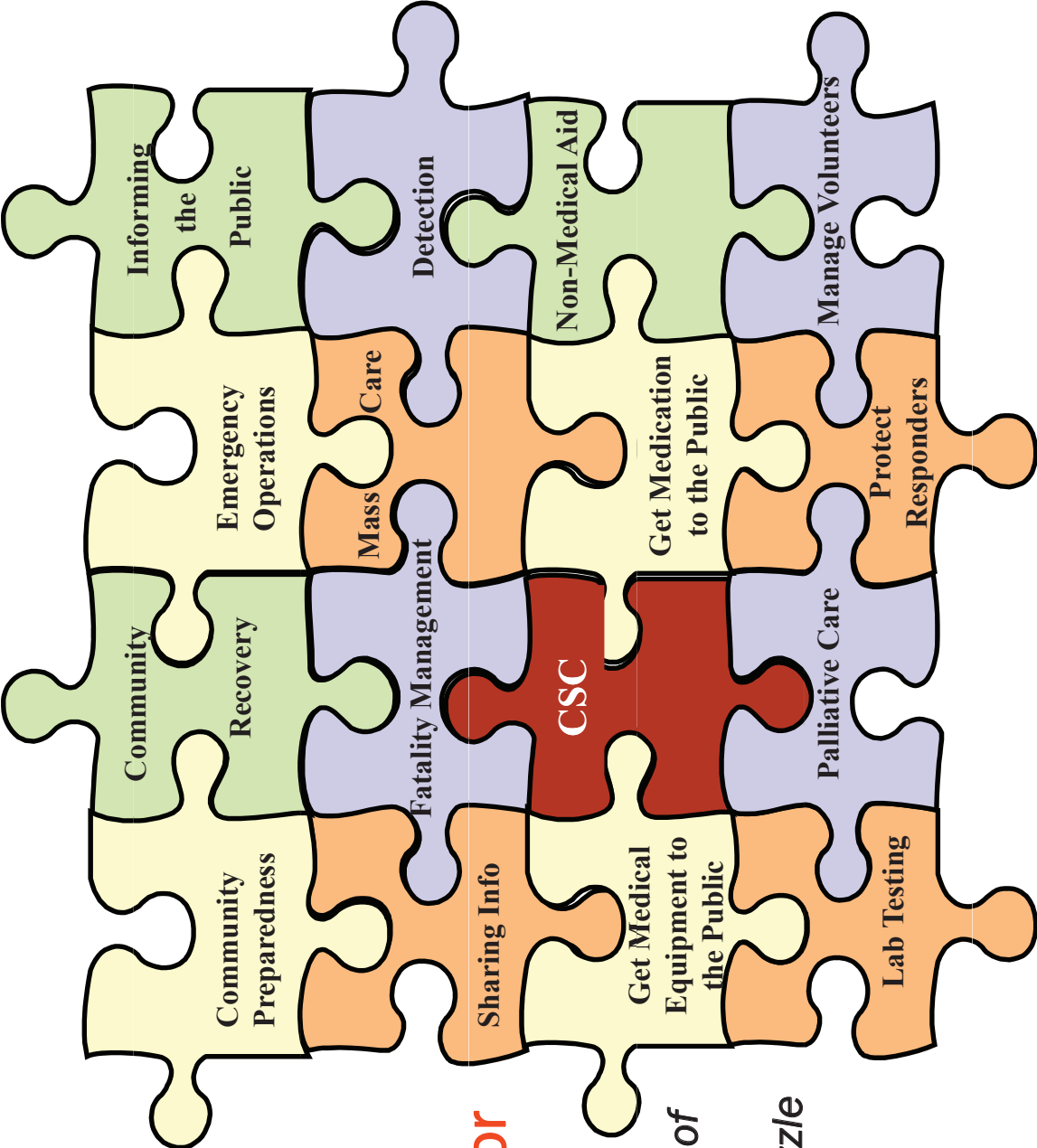
Some options--

1. First-come, first-served?
2. Lottery?
3. Save the most lives possible by giving more care to people who need it the most?
4. Favor certain groups?
 - The old OR the young?
 - Healthcare workers and other emergency responders?
 - Workers who keep society running (utility workers, transportation workers, etc.)?

Where Do **You** Come In?

Community Conversations help policy makers:

- **Understand community concerns about the use of limited**
medical resources during disasters
- **Develop crisis standards of care guidelines that reflect**
community values and priorities



Preparing for Disaster

Crisis Standards of Care ("CSC")—
a piece of the puzzle



Crisis Standards of Care

A Systems Framework for
Catastrophic Disaster Response

Appendixes

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Crisis Standards of Care

A Systems Framework for Catastrophic Disaster Response

Volume 7: Appendixes

Committee on Guidance for Establishing Standards of Care for Use in Disaster Situations

Board on Health Sciences Policy

Dan Hanfling, Bruce M. Altevogt, Kristin Viswanathan, and Lawrence O. Gostin, *Editors*

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The serpent has been a symbol of long life, healing, and knowledge among almost all cultures and religions since the beginning of recorded history. The serpent adopted as a logotype by the Institute of Medicine is a relief carving from ancient Greece, now held by the Staatliche Museen in Berlin.

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*“Knowing is not enough; we must apply.
Willing is not enough; we must do.”*

—Goethe



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Advisers to the Nation on Science, Engineering, and Medicine

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This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We wish to thank the following individuals for their review of this report:

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its release. The review of this report was overseen by **Dr. Georges Benjamin**, American Public Health Association. Appointed by the Institute of Medicine, he was responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authoring committee and the institution.



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A: Glossary

Alternate care facility A temporary site, not located on hospital property, that is established to provide patient care. It may provide either ambulatory or nonambulatory care. It may serve to “decompress” hospitals that are maximally filled, or to bolster community-based triage capabilities. Has also been referred to as an “alternate care site.”

Clinical care committee Composed of clinical and administrative leaders at a health care institution, this committee is responsible for prioritizing the allocation of critical life-sustaining interventions. The clinical care committee may also be formed at the health care coalition level (e.g., hospital, primary care, emergency medical services agency, public health, emergency management, and others), playing the role of the disaster medical advisory committee at the regional level (see **disaster medical advisory committee**). May appoint a triage team (see **triage team**) to evaluate case-by-case decisions.

Contingency surge The spaces, staff, and supplies used are not consistent with daily practices, but provide care that is *functionally equivalent* to usual patient care practices. These spaces or practices may be used temporarily during a major mass casualty incident or on a more sustained basis during a disaster (when the demands of the incident exceed community resources).

Conventional capacity The spaces, staff, and supplies used are consistent with daily practices within the institution. These spaces and practices are used during a major mass casualty incident that triggers activation of the facility emergency operations plan.

Crisis standards of care The level of care possible during a crisis or disaster due to limitations in supplies, staff, environment, or other factors. These standards will usually incorporate the following principles: (1) prioritize population health rather than individual outcomes; (2) respect ethical principles of beneficence, stewardship, equity, and trust; (3) modify regulatory requirements to provide liability protection for health-care providers making resource allocation decisions; and/or (4) designate a crisis triage officer and include provisions for palliative care in triage models for scarce resource allocation (e.g., ventilators). Crisis standards of care will usually follow a formal declaration or recognition by state government during a pervasive (pandemic influenza) or catastrophic (earthquake, hurricane) disaster which recognizes that contingency surge

response strategies (resource-sparing strategies) have been exhausted, and crisis medical care must be provided for a sustained period of time. Formal recognition of these austere operating conditions enables specific legal/regulatory powers and protections for health care provider allocation of scarce medical resources and for alternate care facility operations. Under these conditions, the goal is still to supply the best care possible to each patient.

Crisis surge Adaptive spaces, staff, and supplies are not consistent with usual standards of care, but provide sufficiency of care in the setting of a catastrophic disaster (i.e., provide the best possible care to patients given the circumstances and resources available). Crisis capacity activation constitutes a *significant* adjustment to standards of care.

Disaster medical advisory committee At the state or regional level, evaluates evidence-based, peer-reviewed critical care and other decision tools and recommends decision-making algorithms to be used when life-sustaining resources become scarce. May also be involved in providing broader recommendations regarding disaster planning and response efforts. When formed at the regional level, this group may take on the same functions as that of the clinical care committee. Those functions are focused in two distinct areas—medical advisory input and resource allocation decision approval. The state development and implementation templates, at the end of Chapter 5, describe planning and response roles for the State Disaster Medical Advisory Committee (SDMAC).

Emergency Management Assistance Compact (EMAC) The first national disaster-relief compact, the EMAC has been adopted by all fifty states and the District of Columbia. It utilizes a responsive system that connects states with each other and federal government agencies during governor-declared emergencies, allowing them to request and send personnel, equipment, and other resources to the site of disasters.

Emergency response system A formal or informal organization covering a specified geographic area minimally composed of health care institutions, public health agencies, emergency management agencies, and emergency medical service providers to facilitate regional preparedness planning and response.

EMS (emergency medical services) The full spectrum of emergency care from recognition of the emergency, telephone access of the system, provision of prehospital care, through definitive care in the hospital. It often also includes medical response to disasters, planning for and provision of medical coverage at mass gatherings, and interfacility transfers of patients. However, for the purposes of this document, the definition of EMS is limited to the more traditional, colloquial meaning: prehospital health care for patients with real or perceived emergencies from the time point of emergency telephone access until arrival and transfer of care to the hospital.

Health care coalition A group of individual health care assets (e.g., hospitals, clinics, long-term care facilities, etc.) in a specified geographic location that have partnered to respond to emergencies in a coordinated manner. The coalition has both a preparedness element and a response organization that possess appropriate structures, processes, and procedures. During response, the goals of the coalition are to facilitate

situational awareness, resource support, and coordination of incident management among the participating organizations.

Health care institution Any facility providing patient care. This includes acute care hospitals, community health centers, long-term care institutions, private practices, and skilled nursing facilities.

Health care practitioners Includes “health care professionals” and other nonlicensed individuals who are involved in the delivery of health care services.

Health care professionals Individuals who are licensed to provide health care services under state law.

Indicator Measurement or predictor that is used to recognize surge capacity and capability problems within the health care system, suggesting that crisis standards of care may become necessary and requiring further analysis or system actions to prevent overload.

Legal standard of care The minimum amount of care and skill that a health care practitioner must exercise in particular circumstances based on what a reasonable and prudent health care practitioner would do in similar circumstances; during nonemergencies and disasters, they are based on the specific situation.

Medical standard of care The type and level of medical care required by professional norms, professional requirements, and institutional objectives; these standards vary as circumstances change, including during emergencies or crisis events.

Memorandums of Understanding (MOUs) Voluntary agreements among agencies and/or jurisdictions for the purpose of providing mutual aid at the time of a disaster.

Mutual aid agreements (MAAs) Written instruments among agencies and/or jurisdictions in which they agree to assist one another on request by furnishing personnel and equipment. An “agreement” is generally more legally binding than an “understanding.”

Palliative care Care provided by an interdisciplinary team to prevent and relieve suffering and to support the best possible quality of life for patients and their families, regardless of the stage of the disease or the need for other therapies. Palliative care affirms life by supporting the patient and family’s goals for the future, including their hopes for cure or life prolongation, as well as their hopes for peace and dignity throughout the course of illness, the dying process, and death.

Protocol A written procedural approach to a specific problem or condition.

Public health system A complex network of individuals, organizations, and relevant critical infrastructures that have the potential to act individually and together to create conditions of health, including communities, health care delivery systems (e.g., home care, ambulatory care, private practice, hospitals, skilled nursing

facilities, and others), employers and business, the media, homeland security and public safety, academia, and the governmental public health infrastructure.

Region An organizational area defined for the purpose of efficiently coordinating, administering, and facilitating disaster preparedness, response, and recovery activities. The area is typically determined by geographic, jurisdictional, demographic, political, and/or functional service area boundaries. For example, it may be based on areas that are already established for activities conducted by public sector partners (e.g., federal, state, local, or tribal governments), such as existing regions defined by public health, emergency management, EMS, or law enforcement agencies, or for activities conducted by private sector partners, such as existing regions defined for delivering hospital and trauma care. The area may be within a state’s boundaries (i.e., an intrastate region), including spanning substate jurisdictional lines (e.g., county and city lines), may cross state boundaries (i.e., an interstate region), or may be a hybrid (e.g., adjacent counties in bordering states). These factors also may be used to help define the boundaries of health care coalitions.

Regional Disaster Medical Advisory Committee (RDMAC) A designated group of subject-matter experts that can homogenize state and local crisis care clinical guidance when the affected region encompasses areas across state lines. The RDMAC is necessary because state guidance alone may not address the specific needs of an area. While regional guidance can provide greater clarity on applying state guidance in local situations, it must not be inconsistent with it. The RDMAC can also serve as the coordinator of information and process improvement where appropriate. The state development and implementation templates, at the end of Chapter 5, describe planning and response roles for the RDMAC.

Resource sparing The process of maximizing the utility of supplies and material through conservation, substitution, reuse, adaptation, and reallocation.

Scope of practice The extent of a professional’s ability to provide health services pursuant to their competence and license, certification, privileges, or other lawful authority to practice.

SOFA score The Sequential Organ Failure Assessment (SOFA) score is a scoring system to determine the extent of a person’s organ function or rate of failure. The score is based on six different body systems: respiratory, cardiovascular, hepatic, hematopoietic, renal, and neurologic.

State Disaster Medical Advisory Committee (SDMAC) The dedicated body within a state that is responsible, in planning for or during an emergency, for providing clinical and other crisis standards of care (CSC) guidance when prolonged or widespread crisis care is necessary in order to maintain a consistent basis for life-sustaining resource allocation decisions. During a response, the SDMAC should draw on the expertise of its membership and that of other preidentified subject-matter experts to address ongoing issues as crisis care is implemented.

The SDMAC’s guidance should accompany other state declarations or invocations of emergency powers to empower and protect providers during their provision of crisis care. The state development and implementation templates, at the end of Chapter 5, describe planning and response roles for the SDMAC.

Triage The process of sorting patients and allocating aid on the basis of need for or likely benefit from medical treatment. Several types of triage are referenced in this report:

- Primary triage: The first triage of patients into the medical system (it may occur out of hospital), at which point patients are assigned an acuity level based on the severity of their illness/disease.
- Secondary triage: Reevaluation of the patient's condition after initial medical care. This may occur at the hospital following EMS interventions or after initial interventions in the emergency department. This often involves the decision to admit the patient to the hospital.
- Tertiary triage: Further reevaluation of the patients' response to treatment after further interventions; this is ongoing during their hospital stay. This is the least practiced and least well-defined type of triage.

Triage team Appointed by the clinical care committee, uses decision tools appropriate to the event and resource being triaged, making tertiary triage using scarce resource allocation decisions. This is similar in concept to triage teams established to evaluate incoming patients to the emergency department requiring primary or secondary triage, usually in a sudden-onset, no-notice disaster event (e.g., explosive detonation).

Trigger Evidence that austere conditions prevail so that crisis standard of care practices will be required. This may occur at an institutional, and often regional, level of response. It suggests the need for the immediate implementation of response pathways that are required to manage a crisis surge response emanating from the disaster situation.

Volume 7

B: Hospital Emergency Operations Plan Crisis Standard of Care Annex¹

Policy #:

Date of Adoption:

Activation:

A disaster has occurred that overwhelms the hospital. Resources are inadequate to provide a usual standard of care. Resources are not rapidly available and systematic adaptations must be made to provide the best care possible under the circumstances. Examples may include

- Capacity is overwhelmed and patient care is being provided on cots within the institution
- ICU capacity is overwhelmed due to a pandemic or other event which is *not* amenable to patient transfer or resource importation
- Burn unit capacity is overwhelmed due to a massive fire/blast event

Notifications:

- Hospital Incident Commander (IC) will notify Regional Hospital Coalition (RHC) and local public health (LPH) of situation and attempt to obtain needed resources—this may include needed supplies, staff, or assistance with patient movement or evacuation to re-balance the standard of care in the area:
 - RHC 24/7 phone
 - LPH 24/7 phone (or emergency management, depending on availability of LPH)

¹ This template is designed to provide an example of structure of a sample hospital annex to their Emergency Operations Plan which may be used as a discussion document with institutional stakeholders. The plan must be customized to the specifics of the facility and the process for interagency coordination including with local, regional, and state entities.

- If needs cannot be met in the region LPH will
 - Notify State Department of Health and/or State Emergency Management.
 - Work with RHC to notify other hospitals and healthcare facilities in the regional hospital coalition of a need to activate Crisis Standard of Care plans.
 - Notify jurisdictional emergency management and public health of the situation via their metropolitan area coordinators.
 - Establish a Multi-Agency Coordination Group including the above agencies and including participating in a Joint Public Information Center to communicate the situation to the public.

Actions:

1. Short-term strategies: Short-term strategies to increase healthcare facility capacity should have been implemented. Reference the Surge Capacity Template of the Surge Capacity Annex. Short-term measures usually do *not* require a systematic assessment of the standard of care being provided, particularly when they are designed to cope with resource shortages that will be quickly addressed (e.g., within hours to days).

Triage: In the early (reactive) phases of an event triage should be carried out by experienced clinicians (emergency medicine, surgery, etc.) according to the demands of the situation. The IC should be aware of these activities and gather information on what can be done to rebalance resources to needs. In an ongoing event, where the resources will not be available, more proactive (and structured) triage strategies may be needed that will require more of an institutional/regional approach. See long-term strategies below.

The IC, in consultation with appropriate technical specialists and the medical care branch director (critical care, nursing, respiratory care, other sources of specific information), may recommend strategies such as (many of these elaborated in the surge capacity annex to the emergency operations plan)

- Rapid discharge of emergency department and outpatients that can safely continue their care at home.
- Rapid assessment and early discharge of inpatients (surge discharge).
- Transfer of patients to alternate facilities (if they are available)—these may be permanent (long-term care facility) or temporary (alternate care site) locations, or usual health care facilities in an adjacent region/state.
- Cancellation of elective surgeries and procedures, with reassignment of surgical staff and space (e.g., postanesthesia care area, endoscopy suites).
- Reduction of usual use of imaging, laboratory testing, and other ancillary services.
- Expansion of critical care capacity by placing select ventilated patients on monitored/stepdown beds, using pulse oximetry (with high/low rate alarms) in lieu of cardiac monitors, or relying on ventilator alarms (which should alert for disconnect, high pressure, and apnea) for ventilated patients, with spot oximetry checks.
- Call-in of appropriate staff.

- Changes in staff scheduling—may elect to change duration of shifts or alter staffing ratios—however, longer shift duration during an infectious event may be detrimental to staff who may not adhere to protective equipment (e.g., N95 masks, barrier precautions) recommendations when fatigued, or changes in staff assignments (all nurse educators work clinical shifts, etc.).
 - Changes in documentation requirements and release from administrative, teaching, and other responsibilities.
 - Request for supplemental staff from partner hospitals, clinics (refer to Human Resources disaster credentialing policies and hospital coalition agreements).
 - Conversion of single rooms to double rooms or double rooms to triple rooms if possible.
 - Designation of wards or areas of the facility that can be converted to negative pressure/isolated from rest of ventilation system for cohorting contagious patients.
 - Use of cots and beds in flat-space areas (classrooms, gymnasiums, lobbies) within the hospital for noncritical patient care.
 - Communication with staff and public, educate staff about specifics of event and provide just-in-time training on specialty patient care (e.g., burns, highly contagious infections, toxic exposures).
 - Develop web-based modes of communication and education for staff.
 - Provision of behavioral health support for patients and family members.
 - Provision of staff support including feeding, behavioral health support, family/pet support and access to supplies (gas, groceries, etc.).
2. Long-term strategies: These are usually employed in a >24h incident which will continue to require a crisis standard of care due to pervasive region-wide demands on resources. Appropriate state declarations should occur to facilitate responses and protect responders. Planning cycles will be implemented by the incident commander. Strategies may include
- Staffing: in addition to usual staff sharing, medical reserve corps, local American Red Cross, public health, public works, schools, or other agencies and state/federal staff may be used as needed.
 - o Determine need for nonemployee assistance in the facility (provision of non-medical responsibilities, supervision by hospital staff “mentor,” etc.).
 - o Determine a preference list of providers (e.g., hospital staff first, followed by local hospital staff followed by clinic staff, out-of-state licensed staff, retired staff, medical reserve corps, trainees, non-health care organization staff, and patient family members (e.g., military, Community Emergency Response Team [CERT] members), lay volunteers) that might assist the facility during an event.
 - o Determine need to use family members to provide patient care/feeding duties.
 - Facilitation of home-based care for a larger proportion of patients in cooperation with public health and home care agencies.
 - Establish mobile or temporary evaluation and treatment facilities in the community to supplement usual clinic locations. These locations may also be used to screen those with mild symptoms when

medications (e.g., antivirals) are available and must be taken early in the course of illness to be effective.

- Establish guidelines and public messaging directing potential patients how to evaluate symptoms and care for themselves at home, indications for seeking medical evaluation and treatment, whether evaluation and treatment for some conditions can safely be delayed, and locations of available care.
- Close coordination with the Regional Hospital Coalition, Local Public Health, EMS, and emergency management is critical to assure that consistent care is provided within the area.

At this point, the Incident Commander (IC) must incorporate a structured assessment of hospital services and resources for each operational period as part of the Incident Action Plan. The IC should examine the administrative and clinical adaptations needed based on the demands of the event. Administrative, rather than clinical adaptations should be emphasized until no longer possible (e.g., the risk to the patient should be kept to the minimum required given the challenges/demand) (Figure B-1).

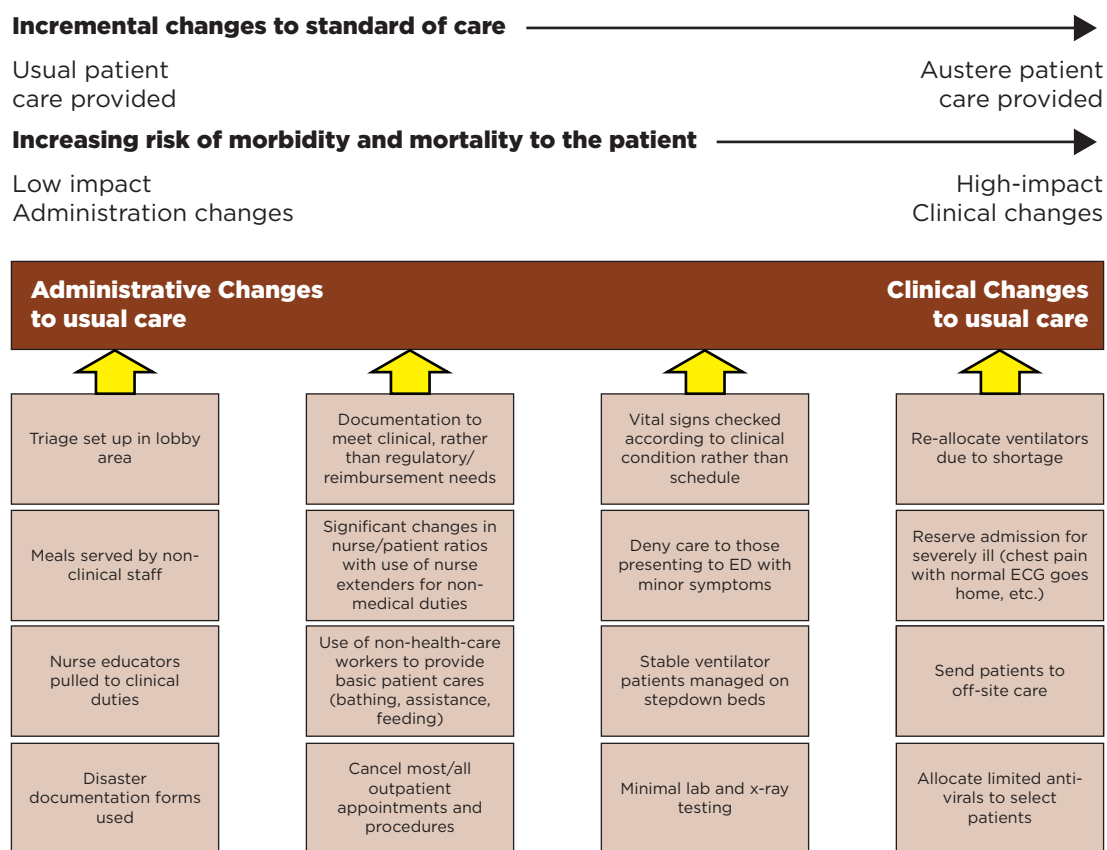


FIGURE B-1 Changes to usual care in relation to demand/severity of effect (from AHRQ—providing mass medical care with scarce resources 2006).

Process for adopting proactive (structured) Crisis Standard of Care:

1. Incident commander (IC) recognizes that systematic clinical changes will be required over days to allocate scarce resources to those most likely to benefit.
2. Planning chief gathers any guidelines, epidemiologic information, resource information, and regional hospital information and schedules meeting or conference call with IC, Medical Care Branch Director, and designees to clinical care committee.
3. Clinical care committee is convened by IC—membership may vary depending on event (full committee may not be required in some situations—technical specialists may be the only members necessary to resolve specific issues *or* may be added to the committee per IC discretion):
 - a. Hospital administrator
 - b. Medical director (Medical Care Branch Director)
 - c. Hospital attorney (if possible)
 - d. Critical care
 - e. Emergency medicine
 - f. Pediatrics
 - g. Nursing supervisor
 - h. Respiratory care supervisor
 - i. Chair of hospital ethics committee
 - j. Community representative (if possible—similar to Institutional Review Board role)
 - k. Ambulatory care (clinics) representative
 - l. Other—may include lab, radiology, bioelectronics, pharmacy, technical expertise specific to event (infection control, infectious diseases, maternal health/OB, toxicology, radiation safety, pediatrics, burn surgery, etc.)
4. Clinical care committee reviews situation, outside guidance, and regional/state hospital efforts and determines
 - a. Methods to meet patient care needs (for example, use of noninvasive ventilation techniques, changes in med administration techniques, use of oral medications and fluids instead of intravenous, etc.). These will generally be of limited value in correcting large demand/resource deficits, however. Use pre-event scarce resource guidance (see Minnesota Department of Health scarce resources recommendations) and adapt for the specifics of the event.
 - b. Additional changes in staff responsibilities to allow specialized staff to redistribute workload (for example, floor nurses provide basic ICU patient care while critical care nurses supervises these nurses and their patients) or would incorporate other health care providers, lay providers, or family members.
 - c. Mechanism for reassessment of local and regional hospital efforts and strategies (e.g., assignment of liaison officer and establishment of regular communications loop with state/regional multiagency coordination [MAC] groups).

- d. Mechanism to summarize recommendations and changes and circulate to all staff and patients/families (concrete guidelines are important to provide clarity and reduce decision making based upon emotional or subjective factors).
5. Assure that appropriate state declarations have been made, state department of health is aware of situation requiring proactive triage, and any appropriate provider protections have been invoked by the state.
6. Committee reviews options for
 - a. Location of care (triage of patients to critical care, floor care, off-site care, home based on disease severity).
 - b. Assignment of resources (which patients will receive resources in limited supply—ventilators, antitoxin, etc., or which will not be offered such interventions when there are competing demands).
7. Committee summarizes recommendations for care for next operational period and determines meeting and review cycles for subsequent periods (e.g., daily meeting, twice daily conference call, etc.) assuring that regional efforts at the MAC level or RHC level are integrated into facility process/timelines.
8. Incident commander approves recommendations and integration into Incident Action Plan. Section chiefs and Command Staff briefed and PIO assures communications to all staff.
9. Information is disseminated to inpatient services, outpatient services, RHC.

Re-allocation of ventilators or critical care resources:

In select situations (pandemic, for example) triage decisions about access to specific, life-critical resources may have to be made when there are not enough devices to accommodate demand. Consideration should be given to whether there is any ability to temporize (bag-valve manual ventilation, for example) until the excess demand passes. Should ongoing triage be necessary, continue with steps below:

1. Current inpatients, patients presenting to the hospital, and their family members are given verbal and printed information (ED patients by the triage nurse in the ED with reinforcement by medical staff, inpatients by their primary nurse or physician) explaining the situation and that resources may have to be reallocated, even once assigned, in order to provide the care to those that will most benefit. A contact point (phone extension) for responding to patient/family questions and concerns should also be included, as should spiritual support contact information.
2. Access controls should be implemented. Consider single entrance to hospital with metal detectors and community law enforcement support.
3. Assure behavioral health branch director planning for staff and patient needs and appoint palliative care unit leader if needed.
4. Clinical care committee should review available guidance and modify according to current knowledge of the specific disease state to provide decision tool for triage team. Triage team membership

should be agreed upon by team. Data collection and decision process should be reviewed and any necessary templates developed.

5. Triage plan for each operational period:
 - a. Emergency department/Outpatient screening of patients (and denial of service to patients either too sick or too well to be benefited by evaluation / admission) based on current regional resources and regional/state health guidance as well as hospital resources.
 - b. Patient data—ICU and other affected units will supply data to the triage team as requested not less than daily (for example, laboratory values, vital signs, medication drip information) using template supplied by clinical care committee.
 - c. Tertiary triage team—Two critical care physicians or one critical care and one infectious disease consider ventilator and other resource allocation decisions acting on data supplied by units/teams in concordance with decision tool.
 - i. When two patients have essentially equal levels of illness/prognosis, a “first-come, first-served” policy should be used.
 - ii. When, according to guidelines or the triage team’s clinical experience, the prognosis is clearly *not* equal, the patient with a substantially more favorable prognosis shall receive the resource.
 - iii. The triage team should ask for and receive whatever patient information is necessary to make a decision but should NOT consider subjective assessments of the quality of the patient’s life or value to society and in fact, should ideally be blinded to such information when possible. The treating physician should assure that the patient/family wishes to use the resources if they are available prior to asking the triage team for an opinion.
 - iv. Triage team should make recommendations to the inpatient division supervisor and document decision making on worksheets and in the patient’s medical record accounting for the decision.
 - v. Prior to any removal of resources, the bedside caregivers shall assure that no major improvement in clinical condition has occurred since the triage team received their data and notify the team if this has occurred.

6. The inpatient division supervisor should monitor and make final decisions on bed assignments. This individual should have access to
 - a. ED and other outpatients waiting for beds (both floor and critical care units).
 - b. Inpatient bed status including pending transfers into/out of critical care areas.
 - c. Clinical status of patients by unit (improving—able or anticipated to move to floor status or discharge, worsening—may require critical care or may not be eligible for continued treatment). (This requires ongoing contact between the division supervisor and the clinical units to assure that information is up to date and accurate so that good decisions can be made. The inpatient division supervisor will work closely with the Triage Team to determine the best use of beds available.)

7. The process and rationale for resource assignment should be provided to the treating physician and family:
 - a. Grounds for the decision.
 - b. An appeals process that allows a period of time (appropriate to the intervention being allocated—for ventilators 15 minutes) for treating physician or family to request reconsideration of the decision if there is objective information available that that patient’s prognosis is more favorable than determined by the triage team based on improving data since the data was last supplied to the triage team.
 - c. The resource allocation protocol and decisions should be reviewed by the clinical care committee and additional oversight physicians at set periods (e.g., every 24–48 hours) and as needed to assure the best evidence available is being used and that the decisions and the system are operating justly.
8. Palliative care—specific plans for continuation of symptomatic care should be included in guidance to the units, and the inpatient division supervisor will monitor and provide assistance as required.
9. A regional triage team may be utilized according to plans of the RHC in which case the clinical care committee will work with the RHC and any regional medical advisory team (RMAT) to assure continuity with hospital operational plans.

See also: MDH guidance for providing clinical care in resource-scarce situations including ventilator triage criteria (<http://www.health.state.mn.us/oep/healthcare/standards.pdf>), the Institute of Medicine report *Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations: A Letter Report 2009*, and AHRQ’s *Providing Mass Medical Care with Scarce Resources 2006*.

Volume 7

C: Potentially Scarce Medical Resources by Category

Category	Specific Resources	Notes
Ventilators and components	Staff, circuits, machines	Including adaptive methods such as some anesthesia machines, BiPAP, etc.
Extracorporeal membrane oxygenation (ECMO)	Equipment and access catheters, staff	Knowledge of regional capacity for ECMO may be helpful.
Oxygen and oxygen delivery devices	Cannulas, masks, bag-valve devices (including pediatric sizes)	Knowledge of hospital system capacity and maximum flow deliveries is helpful in planning.
Vascular access devices	Peripheral and central, including pediatric sizes	
Intensive care unit	Beds, monitors, pumps, etc.	May use oxygen saturation monitors with high/low rate alarms as surrogate monitoring for tachy/brady dysrhythmias.
Health care providers	Particularly emergency medicine, critical care, burn, and surgical/anesthesia staff (nurses and physicians) and respiratory therapists ^a	Hospital staff, coalition, regional/state/federal teams. ^{b,c,d,e} Must include credentialing/privileging ^f and orientation/mentoring as well as accommodations and the management of “volunteer” medical providers that present to the facility. ^g
Hospitals	Due to infrastructure damage or compromise from access problems (flooding, etc.) or failure of critical systems or utilities (oxygen, power, potable water)	Regional coalitions are critical. Temporary field hospitals can provide support, especially in areas with limited healthcare infrastructure.
Specialty medications or intravenous fluids	Sedatives/analgesics, sodium bicarbonate, specific antibiotics, antivirals, inotropes, standard intravenous fluids, chemical antidotes (e.g., atropine), ^h etc.	Intravenous fluid needs can be substantial (e.g., 70 kg patient with 50% burn patient requires 14 liters of fluid in first 24h, thus 10 patients require 140 liters).
Blood products	Packed red cells, platelets, fresh frozen plasma	Unusual to have regional shortages during disasters, though locally may be limited after a disaster due to access problems. ⁱ

Continued

Renal replacement therapy	Dialysis catheters, water purifiers, dialysis machines	Partnership with hospital and community dialysis providers is encouraged as dialysis networks have robust disaster plans.
Surgical equipment	Procedure trays, orthopedic equipment, chest tube and suture trays	May need very large numbers of suture trays, including at alternate care sites.
Wound/burn care supplies	Tourniquets, splinting materials, dressings, including burn dressings and wound dressings	Inexpensive, and a priority for MCI preparedness.
Medical transportation	Advanced and basic life support ambulances, rotor-wing, fixed wing, wheelchair and ambulatory patient (bus, etc.) transport	Coordination with local EMS and emergency management is critical to establish available resources and coordinate during an incident

NOTE: BiPAP = bilevel positive airway pressure ventilator; EMS = emergency medical services; MCI = mass casualty incident.

^a IOM (Institute of Medicine). 2009. *Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations: Letter Report*. Washington, DC: The National Academies Press.

^b National Disaster Medical System. 2012. *Department of Health and Human Services website*. <http://ndms.dhhs.gov> (accessed May 22, 2006).

^c HHS (Department of Health and Human Services). 2012. *Medical Reserve Corps website*. <http://www.medicalreservecorps.gov> (accessed January 16, 2004).

^d Schultz, C. H., and S. J. Stratton. 2007. Improving hospital surge capacity: A new concept for emergency credentialing of volunteers. *Annals of Emergency Medicine* 49:602-609.

^e HHS (Department of Health and Human Services). 2001. *The emergency system for advance registration of volunteer health professionals*. Washington, DC: HHS, <http://www.phe.gov/esarvhp/pages/default.aspx> (accessed February 13, 2012).

^f Comprehensive Accreditation Manual for Hospitals. 2003. *Medical Staff Section MS.5.14.4.1*. Disaster Privileging Standard. Oakbrook Terrace, IL: Joint Commission on Accreditation of Healthcare Organizations.

^g Cone, D. C., S. D. Weir, and S. Bogucki. 2003. Convergent volunteerism. *Annals of Emergency Medicine* 41:457-462.

^h Kozak, R. J., S. Siegel, and J. Kuzma. 2003. Rapid atropine synthesis for the treatment of massive nerve agent exposure. *Annals of Emergency Medicine* 41(5):685-688.

ⁱ Schmidt, P. J. 2002. Blood and disaster-supply and demand. *New England Journal of Medicine* 346(8):617-620.

SOURCE: Koenig, K. L., et al. 2011. Crisis standard of care: Refocusing health care goals during catastrophic disasters and emergencies. *Journal of Experimental and Clinical Medicine* 3(4):159-165. Hick, J. L., D. Hanfling, and S. V. Cantrill. 2011. Allocating scarce resources in disasters: emergency department principles. *Annals of Emergency Medicine* published online August 22; IOM (Institute of Medicine). 2009. *Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations: Letter Report*. Washington, DC: The National Academies Press. For more detailed information, see Minnesota Healthcare System Preparedness Program. 2011. Patient Care Strategies for Scarce Resource Situations. St. Paul, MN: Minnesota Department of Health, <http://www.health.state.mn.us/oep/healthcare/standards.pdf> (accessed February 13, 2012).



Volume 7

D: Resource Challenges by Disaster Type

	Specific Challenges	Space/Staff/Supply Considerations	Triage Issues
Chemical	<ul style="list-style-type: none"> • Mass airway management and ventilatory therapy • Antidotal treatment (atropine, pralidoxime particularly) • Mass decontamination^a 	<ul style="list-style-type: none"> • Intubation equipment • Antidotes (onsite and community/SNS) (SNS weblink) • Critical care equipment • “Dry decontamination” kits (redressing kits) • Chemical PPE and HAZMAT training for staff^b 	<ul style="list-style-type: none"> • Temporizing (bag-valve, other) therapies reasonable while awaiting outside resources • May still have good outcomes in cardiac arrest in organophosphate poisoning, but in mass casualty situation may have to prioritize care to those prior to respiratory arrest^c
Pandemic	<ul style="list-style-type: none"> • PPE use and type required • Vaccine, antiviral, antibiotic supply and use • Critical care capacity • Outpatient care capacity • Alternate care site establishment (early treatment—flu centers, also hospital overflow) • Mechanical ventilation capacity • ECMO criteria and capacity 	<ul style="list-style-type: none"> • PPE supplies, particularly N95 masks if required • Medications including antivirals, antibiotics, analgesics, paralytics • Outpatient care and inpatient care spaces may be insufficient and require alternate care sites • Ventilators, ECMO supplies, and equipment and staffing plans • Staff illness, family obligations, or reluctance to report may contribute to difficulty with adequate staffing^{d,e} 	<ul style="list-style-type: none"> • Contingency plans for PPE and medication shortages • Outpatient referral/triage plans (hotlines, phone prescribing, etc.) • Triage criteria and process for life-saving interventions • Triage criteria for emergency care (vs. referral to “flu center” or similar location)
Pediatric mass casualty	<ul style="list-style-type: none"> • Age-specific sizes of equipment, airway, intravenous access, catheters, operative equipment^{f,g} • Educational background often lacking for pediatric-specific resuscitation and management 	<ul style="list-style-type: none"> • All facilities should be prepared to stabilize and initially treat pediatric patients • Community plan should concentrate critical patients and those 5 yrs or less at pediatric facilities^h • Just-in-time education for staff, initial treatment resources • Consider pediatric technical expert availability (telemedicine or telephone consult—preferably to experts outside affected area) to facilities that have to manage patients out of their usual range of expertise • Facility should plan for managing unaccompanied children (including once medically cleared) and their needs for support 	<ul style="list-style-type: none"> • Trauma care—see below • Assessment may be difficult due to verbal skills and fear • Physiologic compensation may mask “usual” signs of shock until advanced • EMS triage procedures should emphasize keeping families together when possible (e.g., critically injured child to pediatric center along with parents with minor injuries)

Trauma	<ul style="list-style-type: none"> • Triage^d bottlenecks • Airway and initial interventions • CT and imaging bottlenecks^d • Operative bottlenecks • Surgical and trauma supplies 	<ul style="list-style-type: none"> • All hospitals should be prepared to manage trauma patients and stock adequate supplies according to their role in the community • Consider caching operative supplies (especially major procedure, chest tube, orthopedic trays) • Selective use of CT and other imaging—plan and exercise 	<ul style="list-style-type: none"> • Basic trauma triage, including knowledge of impact of GCS, age, and multisystem trauma on prognosis • Provide palliative care to those who cannot be offered definitive interventions • The larger the event, the higher the concentration on targeted, brief interventions with high impact (hemorrhage control, pneumothorax decompression, airway management)^k • Limit definitive imaging and procedures (e.g., for example, limit CT to cranial for decreased level of consciousness, perform bailout surgical procedures with temporary closures) • Ultrasound may contribute to rapid assessments of casualties^{m,n}
Burn	<ul style="list-style-type: none"> • Lack of burn beds and burn centers • Educational background often lacking for burn resuscitation and management • Intravenous fluids, dressings, and analgesics limited • Limited number of burn surgeons and nurses^o 	<ul style="list-style-type: none"> • Burn centers should stock supplies for large-scale burn incidents, including adequate analgesia • All facilities should be prepared to stabilize and initially treat burn patients • Community plan should concentrate critical burns at burn centers (may involve redistributing other patient groups) • Just-in-time education for staff • Consider burn technical expert availability (telemedicine or telephone consult—consider experts from another unaffected area) to facilities that have to manage patients out of their usual range of expertise 	<ul style="list-style-type: none"> • Use knowledge of contributing injuries, inhalational injury, age, and extent of burns when triaging burn patients^o • Provide palliative care to those who cannot be offered definitive interventions • Provide temporizing measures such as escharotomy and airway management while deferring formal burn dressings initially in favor of sterile sheets and towels
Blast/crush	<ul style="list-style-type: none"> • Triage—education on blast/crush injuries may be lacking^q • Intravenous fluids and medications may be limited • Surgical bottlenecks • Dialysis capacity may be challenged, especially if infrastructure damaged in community 	<ul style="list-style-type: none"> • Cache common medications (sodium bicarbonate, narcotic analgesia, antibiotics) needed for blast/crush injuries • Cache equipment such as tourniquets, major procedure trays, external fixators and ortho trays, additional suture trays, ocular trays, ENT trays • Just-in-time education on crush injury and other specific syndromes^r • Activate necessary community (and national, if needed) dialysis capacity for event 	<ul style="list-style-type: none"> • Triage based on knowledge of injuries, contributing underlying disease and age—for blast injuries multiple extremity injuries and low GCS are correlated with poor outcomes^{s,t,u} • Assess carefully for subtle penetrating injury and compartment syndrome • Provide temporizing treatments such as hemorrhage control (including tourniquets when tissue destruction is significant) and analgesia initially

Continued

Specific Challenges

- Nuclear*
 - Overwhelming acute trauma for hospitals near incident
 - Overwhelming numbers of acute radiation syndrome (ARS) casualties in subsequent days/weeks^y
 - Identification/ categorization of ARS casualties^w—difficulty accessing lab testing or results
 - Shortages of cytokines and blood products (especially platelets during bone marrow failure phase)
 - Large number of expectant patients from initial trauma, radiation, or combined injury^x

Space/Staff/Supply Considerations

- Plan with community according to hazard vulnerability for overall response, including evacuation of patients in latent phase of ARS to other jurisdictions with intact infrastructure^y
- Identify areas for alternate ambulatory triage sites
- Identify equipment for triage areas (tourniquets, bandages early, later antiemetics and antidiarrheals)
- Identify sources of radiation illness information,^{z,aa} cytokines, other supplies

Triage Issues

- Triage for injured is according to usual trauma priorities^{bb}
- Vomiting in early hours is non-specific and can be due to many causes^{cc}
- Use of Absolute Lymphocyte Count (ALC) is optimal for assessment of ARS, but may not be easily available^{dd}
- Victim information (proximity, particulate debris) and symptoms can allow rough classification within a few days after the event^{ee}
- All forms of triage likely to be needed with more proactive processes and guidance the farther out from the event both temporally and geographically

*Note that this section does NOT apply to a radiological dispersal device (RDD) or “dirty bomb,” which should not result in significant radiation illness/injury—see blast section above. Also does not apply to a nuclear plant mishap, which should not tax hospital resources. Both of these situations may require community screening centers and potentially a mass screening and/or decontamination response on the part of the hospital, but this would mainly be to prevent low-level contamination and reassure patients. REMM (Radiation Emergency Medical Management). 2012. *Guidance on diagnosis & treatment for health care providers: download REMM to your computer*. Washington, DC: HHS (Department of Health and Human Services). <http://www.remm.nlm.gov/download.htm> (accessed March 6, 2012); Christodouleas, J. P., R. D. Forrest, C. G. Ainsley, Z. Tochner, S. M. Hahn, and E. Glatstein. 2011. Short-term and long-term health risks of nuclear-power-plant accidents. *New England Journal of Medicine* 364:2334-2341.

[†] Macintyre, A. G., G. W. Christopher, E. Eitzen, et al. 2000. Weapons of mass destruction events with contaminated casualties: Effective planning for healthcare facilities. *Journal of the American Medical Association* 283:2611-2619.

[‡] OSHA (Occupational Safety and Health Administration). 2005. *OSHA best practices for hospital-based first receivers of victims from mass casualty incidents involving the release of hazardous substances*. http://www.osha.gov/dts/bestpractices/firstreceivers_hospital.pdf (accessed September 21, 2007).

[§] Okumura, T., K. Suzuki, A. Fukada et al. 1998. The Tokyo subway sarin attack: Disaster management, part 2. Healthcare facility response. *Academic Emergency Medicine* 5:618-624.

^{||} Chaffee, M. 2009. Willingness of health care personnel to work in a disaster: An integrative review of the literature. *Disaster Medicine and Public Health Preparedness* 3(1):42-56.

[¶] Lanzilotti, S. S., D. Galanis, N. Leoni, and B. Craig. 2002. Hawaii medical professionals assessment. *Hawaii Medical Journal* 61(8):162-173.

^{||} Committee on Pediatric Emergency Medicine. 2007. Preparation for emergencies in the offices of pediatricians and pediatric primary care providers. *Pediatrics* 120(1):200-212. <http://pediatrics.aappublications.org/cgi/reprint/120/1/200> (accessed February 25, 2011).

[¶] Gausche-Hill, M., C. Schmitz, and R. J. Lewis. 2007. Pediatric preparedness of U.S. emergency departments: A 2003 survey. *Pediatrics* 120:1229-1237.

^{||} Kanter, R. K. 2007. Strategies to improve pediatric disaster surge response: Potential mortality reduction and tradeoffs. *Critical Care Medicine* 35(12):2837-2842.

[¶] Frykberg, E. K. 2005. Triage, principles and practice. *Scandinavian Journal of Surgery* 94:272-278.

^{||} Einav, S., L. Aharonson-Daniel, C. Weissman et al. 2006. In-hospital resource utilization during multiple casualty incidents. *Annals of Surgery* 243:533-540.

[¶] U.S. Army Institute of Surgical Research. 2009. *Tactical combat casualty care guidelines*. Houston, TX: U.S. Army Institute of Surgical Research. <http://www.usaisr.army.mil/tccc/TCCC%20Guidelines%20091104.pdf> (accessed February 25, 2011).

^{||} Lee, B. C., E. L. Ormsby, J. P. McGahan, G. M. Melendres, and J. R. Richards. 2007. The utility of sonography for the triage of blunt abdominal trauma patients to exploratory laparotomy. *American Journal of Roentgenology* 188(2):415-421.

[¶] Ma, O. J., and J. R. Mateer. 1997. Trauma ultrasound examination versus chest radiography in the detection of hemothorax. *Annals of Emergency Medicine* 29(3):312-315; discussion 5-6.

^{||} Ma, O. J., J. G. Norvell, and S. Subramanian. 2007. Ultrasound applications in mass casualties and extreme environments. *Critical Care Medicine* 35(5 Suppl):S275-S279.

[¶] Posner, Z., H. Admi, and N. Menashe. 2003. Ten-fold expansion of a burn unit in mass casualty: How to recruit the nursing staff. *Disaster Management & Response* 1(4):100-104.

^{||} Saffie, J. R., N. Gibran, and M. Jordan. 2005. Defining the ratio of outcomes to resources for triage of burn patients in mass casualties. *Journal of Burn Care Rehabilitation* 26(6):478-482.

[¶] Kluger, Y., K. Peleg, L. Daniel-Aharonson, and A. Mayo. 2004. The special injury pattern in terrorist bombings. *Journal of the American College of Surgeons* 199:875-879.

^{||} Sever, M. S., R. Vanholder, and N. Lameire. 2006. Management of crush-related injuries after disasters. *New England Journal of Medicine* 354(10):1052-1063.

[¶] Frykberg, E. R. 2002. Medical management of disasters and mass casualties from terrorist bombings: How can we cope? *Journal of Trauma and Acute Care Surgery* 53:201-212.

^{||} Peleg, K., L. Aharonson-Daniel, M. Stein et al. 2004. Gunshot and explosion injuries: Characteristics, outcomes, and implications for care of terror-related injuries in Israel. *Annals of Surgery* 239:311-318.

[¶] Borden Institute, Walter Reed Army Medical Center. 2004. *Triage*. In *Emergency war surgery*, 3rd ed. Washington, DC: U.S. Department of Defense. Pp. 31-317.

^{||} Hick, J. L., D. M. Weinstein, C. N. Coleman, D. Hanfling, S. Cantrell, J. Redlener, J. L. Bader, P. Murrain-Hill, and A. R. Knebel. 2011. Health care system planning for and response to a nuclear detonation. *Disaster Medicine and Public Health Preparedness* 5(Suppl 1):S52-S88.

[¶] DiCarlo, A. L., C. Maher, J. L. Hick, D. Hanfling, N. Dainiak, N. Chao, J. L. Bader, C. N. Coleman, and D. M. Weinstein. 2011. Radiation injury after a nuclear detonation: Medical consequences and the need for scarce resources allocation. *Disaster Medicine and Public Health Preparedness* 5(Suppl 1):S52-S84.

^{||} Hirsch, E. F. 1990. The status of combined injuries. In *Treatment of Radiation Injuries*, edited by D. Browne. New York: Plenum Press.

- ^y DHS (Department of Homeland Security). 2009. *Planning guidance for response to a nuclear detonation*. <http://www.afri.usuhs.mil/outreach/pdf/planning-guidance.pdf> (accessed September 9, 2009).
- ^z Waselenko, J. K., T. J. MacVittie, W. F. Blakely, N. Pesik, A. L. Wiley, W. E. Dickerson, H. Tsu, D. L. Confer, C. N. Coleman, T. Seed, P. Lowry, J. O. Armitage, and N. Dainiak. 2004. Medical management of the acute radiation syndrome: Recommendations of the Strategic National Stockpile Radiation Working Group. *Annals of Internal Medicine* 140(12):1037-1051.
- ^{aa} National Library of Medicine. 2011. *Radiation emergency medical management (REMM) Web site*. <http://www.remm.nlm.gov/> (accessed February 25, 2011).
- ^{ab} Hick, J. L., D. M. Weinstock, C. N. Coleman, D. Hanfling, S. Cantrill, I. Redlener, J. L. Bader, P. Murrain-Hill, and A. R. Knebel. 2011. Health care system planning for and response to a nuclear detonation. *Disaster Medicine and Public Health Preparedness* 5:S73-S88.
- ^{ac} Demidenko, E., B. B. Williams, and H. M. Swartz. 2009. Radiation dose prediction using data on time to emesis in the case of nuclear terrorism. *Radiation Research* 171:310-319.
- ^{ad} DiCarlo, A. L., C. Maher, J. L. Hick, D. Hanfling, N. Dainiak, N. Chao, J. L. Bader, C. N. Coleman, and D. M. Weinstock. 2011. Radiation injury after a nuclear detonation: Medical consequences and the need for scarce resources allocation. *Disaster Medicine and Public Health Preparedness* 5(Suppl 1):S32-S44.
- ^{ae} Coleman, C. N., R. Casagrande, J. L. Hick et al. 2011. Triage and treatment tools for use in a scarce resources-crisis standards of care setting following a nuclear detonation. *Disaster Medicine and Public Health Preparedness* 5(Suppl 1):S111-S121.

E: Statement of Task

In response to a request from the HHS Office of the Assistant Secretary for Preparedness and Response, the Institute of Medicine will convene an ad hoc committee to conduct a phase-two activity on standards of care for use in disaster situations. The committee will focus attention on developing guidance to establish standards of care that should apply to disaster situations—both naturally occurring and man-made—where there are scarce resources. Ethical principles will be incorporated into the standards.

PHASE 2

In September 2009 the Institute of Medicine released *Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations: A Letter Report*. Building on this letter report the committee will reconvene to conduct a study and issue a report, which will serve as the second phase of this project. The committee is expected to come forward with conclusions and recommendations it determines are necessary and justified based on its analysis. Specifically the committee will

- Identify metrics to assess the development of crisis standards of care protocols by state and local governments, that include elements such as dissemination, development, and implementation.
- Review the impact of its 2009 letter report including progress made by state and local governments and health care organizations in establishing crisis standards of care guidance.
- Develop templates for states, emergency medical services (EMS) systems, hospitals, and individual clinicians to guide decision making when implementing crisis standards of care that can be easily read, understood and executed during an incident. These templates will
 - Address the inclusion of all critical components of the emergency response and health care system necessary to plan for and respond to crisis standards of care situations.
 - Examine the specific process of declaring a shift to crisis standards of care, focusing on roles and responsibilities of decision makers from the local to the national level, including

- The roles and responsibilities of public and private health care systems (e.g., the responsibility of a local VA Medical Center Director vs. regional Veterans Integrated Service Network [VISN] Director), authority and the role of military treatment facilities (MTFs), local, regional and national healthcare system clinical and administrative leadership in private health care systems;
 - The role of state EMS authorities in providing medical oversight and coordination of a shift to crisis response for a state's EMS system, including 911 dispatch and prehospital emergency medical care.
- o Identify clinical and administrative indicators that govern the transition from conventional surge response and conventional standards of care to crisis surge response and crisis standards of care, and the return to conventional standards of care. Reference and highlight existing clinical protocols and related governance structures that need to be in place to facilitate decision making under crisis standards. These indicators, clinical protocols, and governance structures should be applicable to specific scenarios of both gradual onset as well as no notice incidents, and should pertain to the prehospital, community, and hospital settings.
 - o Define terms and provide consistent language (e.g., definitions, situational markers) for communicating across jurisdictions and levels of government the status of health care systems related to crisis standards of care.

In addition the committee will develop templates that can be used by state and local governments to guide community engagement. These would be based on a series of focus groups utilizing scenario-based engagement strategies to identify what shifts are tolerable from the community point of view, including the physician, active duty military, and veteran's communities. In order to accomplish this, the IOM may establish a subcontract with an independent firm (e.g., Keystone Symposia, AmericaSpeaks, Harris Interactive) to assist in the design, organization, and execution of the meetings. The committee will provide the scientific and subject-matter expertise to the contractor to ensure the appropriate objectives are identified and met, e.g., the right questions are asked and the right populations are engaged in the process.

F: Committee Biographies

Lawrence O. Gostin, J.D., LL.D. (Hon.) (*Chair*), is an internationally acclaimed scholar in law and public health. He is associate dean (Research and Academic Programs) and the Linda D. and Timothy J. O’Neill Professor of Global Health Law at the Georgetown University Law Center, where he directs the O’Neill Institute for National and Global Health Law. Dean Gostin is also a professor of Public Health at the Johns Hopkins University and director of the Center for Law & the Public’s Health at Johns Hopkins and Georgetown Universities—a Collaborating Center of the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC). He is the health law and ethics editor, a contributing writer, and a columnist for the *Journal of the American Medical Association*. In 2007, the WHO Director General appointed Dean Gostin to the International Health Regulations Roster of Experts and the Expert Advisory Panel on Mental Health. Dean Gostin is a member of the Institute of Medicine (IOM)/National Academy of Sciences, and serves on the Board on Health Sciences Policy and the Committee on Science, Technology, and Law. He has previously chaired committees on health information privacy, genomics, and prisoner research. In the United Kingdom, he was the legal director of the National Association for Mental Health, director of the National Council of Civil Liberties (the U.K. equivalent of the American Civil Liberties Union), and a Fellow at Oxford University. He helped draft the current *Mental Health Act* (England and Wales) and brought several landmark cases before the European Commission and Court of Human Rights. Dean Gostin has led major U.S. law reform initiatives, including the drafting of the *Model Emergency Health Powers Act* to combat bioterrorism and the *Turning Point Model State Public Health Act*. He is also leading a drafting team on developing a Model Public Health Law for WHO.

Dan Hanfling, M.D. (*Vice Chair*), is special advisor to the Inova Health System in Falls Church, VA, on matters related to emergency preparedness and disaster response. He is a board-certified emergency physician practicing at Inova Fairfax Hospital, Northern Virginia’s Level I trauma center. He serves as an operational medical director for PHI Air Medical Group—Virginia, and has responsibilities as a medical team manager for Virginia Task Force One, an international urban search and rescue team sanctioned by FEMA and USAID. He has been involved in the response to numerous international and domestic disaster events. Dr. Hanfling was integrally involved in the management of the response to the anthrax bioterror mailings, when two cases of inhalational anthrax were successfully diagnosed at Inova Fairfax Hospital. He is clinical professor of Emergency Medicine at George Washington University, contributing scholar at the UPMC

Center for Biosecurity, and adjunct faculty of the George Mason University School of Public Policy, Office of International Medical Policy. Dr. Hanfling received an A.B. in Political Science from Duke University and an M.D. from Brown University. He completed an internship in Internal Medicine at the Miriam Hospital in Providence, RI, and an Emergency Medicine Residency at George Washington/Georgetown University Hospitals.

Damon T. Arnold, M.D., M.P.H., currently serves as the director for Graduate Studies in Public Health at Chicago State University in Illinois. He was the 16th director of the Illinois Department of Public Health from 2007 to 2011. Prior to his current position, Dr. Arnold was the medical director for bioterrorism and preparedness for the Chicago Department of Public Health. During his professional career, he also was medical director for St. Francis Hospital, Blue Island, IL; LTV Steel Company in Indiana; and Mercy Hospital and Medical Center, Chicago. He served in the Army National Guard for 25 years, holds the rank of colonel, and was the guard's commander of the Joint Task Force Medical Command in Springfield and the Illinois State Surgeon. He had a distinguished military career and received many military awards, including the Legion of Merit, three Army Commendations, and two National Defense Service and Humanitarian Service medals. He has served missions to Iraq, Kuwait, Central America, South America, Africa, and Europe, and participated in relief efforts for Hurricanes Katrina and Rita. He was the American Red Cross Military Hero of the Year for 2007. Dr. Arnold is the former chair of the Association of State and Territorial Health Officials (ASTHO) Preparedness Policy Committee, served as a board member for the American Red Cross of Greater Chicago, and served as the ASTHO Liaison Representative for the CDC Board of Scientific Counselors, Coordinating Office for Terrorism Preparedness and Emergency Response. Dr. Arnold also holds associate professorships at the University of Illinois School of Public Health, the University of Illinois Medical School, and the Southern Illinois Medical School. Dr. Arnold received his M.D. and M.P.H. from the University of Illinois, and has completed several law courses at DePaul University College of Law.

Stephen V. Cantrill, M.D., FACEP, is an emergency physician from Denver who recently retired from serving as the associate director of Emergency Medicine at Denver Health Medical Center for 18 years. He was also the director of the Colorado BNICE Weapons of Mass Destruction (WMD) Training Program at Denver Health for more than 5 years. Dr. Cantrill has lectured nationally and internationally on many topics, including weapons of mass destruction, disasters, and disaster management, and has been involved in disaster management education for more than two decades. He served as the regional medical coordinator for Denver's participation in Operation TopOff 2000. He has also been involved in weapons of mass destruction training for Colorado and has participated in the planning for multiple mass-gathering events, including the Denver Papal visit and the Denver Summit of Eight world economic conference. He has testified at U.S. Senate Committee hearings on bioterrorism preparedness and was a member of the U.S. Department of Health and Human Services (HHS) National Biodefense Science Board for 4 years. He has recently served as the Principal Investigator on an Agency for Healthcare Research and Quality (AHRQ) regional surge capacity grant and the AHRQ HAvBED national bed availability project. He also served as Principal Investigator on the AHRQ disaster alternate care facility task order. Dr. Cantrill has authored more than 90 publications and has received multiple teaching and clinical excellence awards.

Brooke Courtney, J.D., M.P.H., is regulatory counsel in the Food and Drug Administration's (FDA's) Office of Counterterrorism and Emerging Threats. Ms. Courtney was previously director of the Office of Public Health Preparedness and Response at the Baltimore City Health Department, where she oversaw all emergency operations for the agency, coordinated the city's healthcare coalition, and oversaw medical countermeasure (MCM) stockpiling and dispensing. She was an associate at the Center for Biosecurity, where she researched and published on hospital, public health, and legal preparedness issues and was associate editor of the peer-reviewed journal, *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*. Ms. Courtney has also worked at Pfizer, at the Maryland Health Care Commission, and on international disaster response at the American Red Cross. She is a term member of the Council on Foreign Relations, the 2010 recipient of the Public Health Law Association's Emerging Leader in Public Health Law award, and lead author of the MCM chapter in *Food and Drug Law and Regulation*. She received her J.D. and Health Law Certificate from the University of Maryland Carey School of Law and was admitted to practice in the District of Columbia and Maryland. Her M.P.H. is from Yale University.

Asha Devereaux, M.D., M.P.H., is a pulmonary/critical care physician in private practice in Coronado, CA. Dr. Devereaux has 11 years of training and service with the U.S. Navy and formerly served as the Intensive Care Unit (ICU) director on the Isolation Unit of the USNS Mercy Hospital ship. She is currently a Steering Committee Member for the American College of Chest Physicians Disaster Response Network. Dr. Devereaux has spearheaded a national conference on disaster preparedness, has published on the topic, and now serves on the board of the American Lung Association in California and on the Board of Directors of the San Diego American Lung Association. Dr. Devereaux is president of the California Thoracic Society and lead physician advisor of the San Diego Medical Reserve Corps. Dr. Devereaux received her undergraduate education at the University of California, San Diego, followed by an M.D./M.P.H. from Tulane University.

Edward J. Gabriel, M.P.A., AEMT-P,¹ is director, Global Crisis Management, for The Walt Disney Company, and is responsible for the development and implementation of global policy, planning, training, and exercises to manage crisis for The Walt Disney Company. He is also responsible for East and West Coast Medical and Emergency Medical Operations and the Walt Disney Studio's Fire Department. He supports and collaborates with global business units in development and testing of resumption planning, and develops policies and strategies to manage crisis. Mr. Gabriel has been an emergency medical technician (EMT) since 1973 and is a 27-year paramedic veteran of New York City (NYC) Fire Department's Emergency Medical Service (EMS). He rose through the ranks from EMT to paramedic through lieutenant and retired at the level of assistant chief/division commander. As deputy commissioner for Planning and Preparedness at the New York City Office of Emergency Management, he served as commissioner for all preparedness and planning-related projects and initiatives. During his role with NYC, he was a member of the Federal Bureau of Investigation/NYC Joint Terrorism Task Force, and still sits on the International Advisory Board of the *Journal of Emergency Care, Rescue and Transportation*. He has worked with the Joint Commission, sitting on the Emergency Preparedness Roundtable as well as the Community Linkages in Bioterrorism Preparedness

¹ Resigned from the committee October 2011.

Expert Panel. He served as a member of the HHS Federal Contingency Medical Facility Working Group and the AHRQ Expert Panel on Mass Casualty Medical Care. Most recently he has worked with the HHS AHRQ expert panel as Principal Author of the prehospital chapter of *Providing Mass Medical Care with Scarce Resource: Community Planning Guide*. He also worked with the U.S. Department of Defense, General George C. Marshall School of International Studies Program on Terrorism and Security Studies, located in Garmisch-Partenkirchen, Germany, presenting on methodologies for planning and preparedness for international leaders. He is credentialed through the International Association of Emergency Managers as a Certified Emergency Manager and the Disaster Recovery Institute International as a Certified Business Continuity Professional. Mr. Gabriel continues to lecture nationally and internationally on crisis management, business continuity, emergency management, planning and preparedness, WMD, terrorism, and emergency medical topics. Mr. Gabriel holds a B.A. from the College of New Rochelle and an M.P.A. from Rutgers University.

John L. Hick, M.D., is a faculty emergency physician at Hennepin County Medical Center (HCMC) and an associate professor of Emergency Medicine at the University of Minnesota. He serves as the associate medical director for Hennepin County Emergency Medical Services and medical director for Emergency Preparedness at HCMC. He is medical advisor to the Minneapolis/St. Paul Metropolitan Medical Response System. He also serves the Minnesota Department of Health as the medical director for the Office of Emergency Preparedness and medical director for Hospital Bioterrorism Preparedness. He is the founder and past chair of the Minneapolis/St. Paul Metropolitan Hospital Compact, a 29-hospital mutual aid and planning group active since 2002. He is involved at many levels of planning for surge capacity and adjusted standards of care. He traveled to Greece to assist in health care system preparations for the 2004 Summer Olympics as part of a 15-member CDC/HHS team. He is a national speaker on hospital preparedness issues and has published numerous papers dealing with hospital preparedness for contaminated casualties, personal protective equipment, and surge capacity.

James G. Hodge, Jr., J.D., LL.M., is the Lincoln Professor of Health Law and Ethics at the Sandra Day O'Connor College of Law; director, Public Health Law and Policy Program; and Fellow, Center for the Study of Law, Science, and Technology, at Arizona State University (ASU). He is also a senior scholar at the Centers for Law and the Public's Health: A Collaborative at Johns Hopkins and Georgetown Universities, and the director of the Western Region Office of the Network for Public Health Law and current president of the Public Health Law Association. Prior to joining ASU, he was a professor at the Johns Hopkins Bloomberg School of Public Health; adjunct professor of Law at Georgetown University Law Center; executive director of the Centers for Law and the Public's Health; and a Core Faculty member of the Johns Hopkins Berman Institute of Bioethics. Through his scholarly and applied work, Professor Hodge delves into multiple areas of public health law, global health law, ethics, and human rights. The recipient of the 2006 Henrik L. Blum Award for Excellence in Health Policy from the American Public Health Association (APHA), he has drafted (with others) several public health law reform initiatives, including the *Model State Public Health Information Privacy Act*, the *Model State Emergency Health Powers Act*, the *Turning Point Model State Public Health Act* (Turning Point Act), and the *Uniform Emergency Volunteer Health Practitioners Act*. His diverse, funded projects include work on (1) the legal framework underlying the use of volunteer health

professionals during emergencies; (2) the compilation, study, and analysis of state genetics laws and policies as part of a multiyear project funded by the National Institutes of Health; (3) historical and legal bases underlying school vaccination programs; (4) international tobacco policy for WHO's Tobacco Free Initiative; (5) legal and ethical distinctions between public health practice and research; (6) legal underpinnings of partner notification and expedited partner therapies; and (7) public health law case studies in multiple states. He is a national expert on public health information privacy law and ethics, having consulted with HHS, CDC, FDA, CMS, OHRP, APHA, CSTE, APHL, and others on these privacy issues.

Donna E. Levin, J.D., M.A., is general counsel for the Massachusetts Department of Public Health. Prior to her 1988 appointment, She served as a deputy general counsel and concentrated on several areas of health law, including determination of need, long-term care and hospital regulation, and environmental health. In her current role, she manages the Office of General Counsel and advises the Commissioner of Public Health and senior staff on all legal aspects concerning the implementation of Department responsibilities pursuant to statutory and regulatory authority; major policy initiatives of the Department; and legislation affecting the Department's interests. Most recently, Ms. Levin has focused on the expansion of newborn screening services in the Commonwealth; the review and analysis of the Massachusetts Law on Genetics and Privacy; implementation of the *Health Insurance Consumer Protections Law* and the *Pharmaceutical and Medical Device Manufacturer Conduct Law*; issues of public health authority and response relating to emergency preparedness; and legal oversight of nine Boards of Registration for health professionals. Ms. Levin is a member of the Health Law Section Steering Committee of the Boston Bar Association and an adjunct professor at Suffolk University Law School. She holds a B.A. from the State University of New York at Stony Brook and a J.D. from Northeastern University School of Law.

Marianne Matzo, Ph.D., APRN, BC, FPCN, FAAN, is professor and Ziegler Endowed Chair in Palliative Care Nursing at the College of Nursing and adjunct professor, Department of Geriatric Medicine, at the University of Oklahoma Health Sciences Center. Dr. Matzo is director of the Sooner Palliative Care Institute, through which research is conducted to ensure the delivery of high-quality care and to educate health professionals. She has received research funding from the American Cancer Society and the Oncology Nursing Society to conduct research related to sexual health issues in the palliative care population. She was a 2008 Recipient of the Project on Death in America Nursing Leadership Award in Palliative Care sponsored by the Hospice and Palliative Nurses Foundation. Dr. Matzo is a nationally and internationally recognized palliative care educator having developed and taught educational programs in Japan, Russia, and Serbia. In addition, Dr. Matzo is a three-time winner of the *American Journal of Nursing* Book of the Year award. Dr. Matzo had published in numerous peer-reviewed publications and is involved in ongoing work in disaster planning for situations in which there are scarce resources.

Cheryl A. Peterson, M.S.N., R.N., is the director of Nursing Practice and Policy at the American Nurses Association (ANA). Prior to that, she was a senior policy fellow for the ANA, responsible for researching and developing association policy related to preparing for and responding to a disaster, whether man-made or natural. Since 1998, Ms. Peterson has been actively involved in disaster planning at the federal level. In addition, she coordinated ANA's response to the Tsunami disaster in Southeast Asia and to hurricanes dur-

ing the 2005 U.S. hurricane season. Ms. Peterson spent 13 years in the Reserve Army Nurse Corps and in 1990, was deployed during Desert Storm. She also spent 7 years as an active volunteer in the Kensington Volunteer Fire Department (Montgomery County, Maryland). Ms. Peterson received her B.S.N. from the University of Cincinnati and her M.S.N. from Georgetown University.

Tia Powell, M.D., is director of the Montefiore-Einstein Center for Bioethics and of the Einstein-Cardozo Master of Science in Bioethics, and professor of Clinical Epidemiology and Clinical Psychiatry at Albert Einstein College of Medicine. Previously she served as executive director of the New York State (NYS) Task Force on Life and the Law. She was the founding director of Clinical Ethics at Columbia-Presbyterian Hospital in New York City, where she launched the bioethics consultation service. She is a graduate of Radcliffe College of Harvard University, and Yale Medical School. She did her psychiatric internship, residency, and a Fellowship in Consultation-Liaison Psychiatry all at Columbia University, College of P&S, and the NYS Psychiatric Institute. In 2007, she chaired a workgroup that developed NYS guidelines to allocate ventilators during a flu pandemic. She has served as an advisor on the ethics of disasters for a number of committees sponsored by IOM, CDC, and others.

Merritt Schreiber, Ph.D., is the director of Psychological Programs at the Center for Disaster Medical Sciences, and an associate clinical professor of Emergency Medicine at the University of California, Irvine School of Medicine. Previously, Dr. Schreiber was an associate research psychologist in the Department of Community Health Sciences in the University of California, Los Angeles (UCLA) School of Public Health. He was appointed to the HHS Secretary's Emergency Public Information and Communications Advisory Board, where he helped draft several policy recommendations on the risk communications for our nation and particularly the needs of children and families. Dr. Schreiber was the program manager of the Terrorism/Disaster Branch of the UCLA/National Center for Child Traumatic Stress at the David Geffen School of Medicine at UCLA. He coordinated the NCCTS/TDB Rapid Response Support Team of National Child Traumatic Stress Network for disasters, terrorism, and mass casualty events impacting children and families. He also served as cochair of the Pediatric Emergency Mental Health Taskforce as the American Psychological Association to the HHS/Emergency Medical Services for Children Program. He received a presidential citation from the American Psychological Association for his work with victims' families after 9/11 and received the Outstanding Humanitarian Contribution Award from the California Psychological Association in 2004. Dr. Schreiber was a first responder to Hurricane Katrina as a reserved commissioned officer with the U.S. Public Health Service and as mental health team lead with California Disaster Medical Assistance Team CA-1 of the U.S. Department of Homeland Security's National Disaster Medical System. Dr. Schreiber also developed the first known disaster behavioral health rapid triage and incident management system, called PsySTART.

Umair A. Shah, M.D., M.P.H., has served as deputy director and director of Disease Control & Clinical Prevention at Harris County, TX Public Health & Environmental Services (HCPHES)—the county health department serving the third most populous county in the United States—since 2004. Prior to HCPHES, Dr. Shah was an emergency department physician at Houston's Michael E. DeBakey VA Medical Center

(MEDVAMC), then chief medical officer at the Galveston County Health District. Dr. Shah's interests include global and refugee health issues; health equity work; health care management; emergency response activities for events such as Tropical Storm Allison and Hurricanes Katrina, Rita, and Ike; novel H1N1; and the devastating earthquakes in Kashmir and Haiti. His global experience also includes previous work at WHO in Geneva. He is involved in numerous national initiatives, including the APHA Injury Control & Emergency Health Services; the National Association of County and City Health Officials' (NACCHO's) National Coalition for Health Equity; UCLA's Preparedness and Emergency Response Research Center Advisory Board; the National Consensus Panel on Emergency Preparedness and Cultural Diversity (sponsored by the HHS); and various activities related to the CDC. Dr. Shah is immediate past chair of the South Asian Public Health Association, currently chairs NACCHO's Global Health Workgroup, and was recently selected to the prestigious National Public Health Leadership Institute. In addition to national recognition, Dr. Shah is also involved in the local community, serving in leadership roles with Developments in Literacy, the South Asian Chamber of Commerce, and the Harris County Medical Society. He is an adjunct faculty member at The University of Texas School of Public Health and remains on emergency department staff at the MEDVAMC. He is board certified in Internal Medicine, remains active in clinical patient care, and serves as one of the local health authorities for Harris County. Dr. Shah received a B.A. in Philosophy from Vanderbilt University and an M.D. from The University of Toledo Health Science Center, before completing a residency in Internal Medicine, Fellowship in Primary Care/General Medicine, and an M.P.H. (management) at The University of Texas Health Science Center at Houston.

Jolene R. Whitney, M.P.A., is currently the deputy director for the Utah Bureau of Emergency Medical Services and Preparedness, and also serves as the state trauma system program manager. She directs several programs and staff performing various functions related to Trauma System Development (including Stroke and STEMI Chemical Stockpile Emergency Preparedness, Surge Capacity and MCI Planning, ED, Trauma and Prehospital databases, EMS Licensing and Operations, certification and testing processes, Critical Incident Stress Management, National Disaster Medical System, EMS medical disaster resources, and the EMS for Children program. She has worked with the Bureau for more than 30 years. Ms. Whitney earned her M.P.A. from Brigham Young University and her B.S. in Health Sciences, with an emphasis in Community Health Education, from the University of Utah. Ms. Whitney is coauthor of five publications pertaining to domestic violence, preventable trauma mortality in Utah, Western states rural care challenges, and state and hospital surge capacity planning. Ms. Whitney has served on several national committees and teams, which include state EMS system assessments for the National Highway Traffic and Safety Administration (NHTSA) (Michigan, Delaware, Oklahoma, Ohio and Missouri), American College of Surgeons trauma system assessments (Alaska, Arkansas, Colorado, Louisiana, Minnesota, and Texas); Health Resources and Services Administration (HRSA) rural trauma grant reviewer; and contributor to the development of the HRSA model trauma system plan, the National Association of State Emergency Medical Services Officials trauma system planning guide, National Trauma Data Standards, and the NHTSA curriculum for an EMT refresher course. She is the previous past chair for the National Council of State Trauma System Managers/ NASEMSO and served as vice chair for the previous 3 years. She is a member of the American Trauma Society and Utah Emergency Managers Association, and a previous member of the National Association of

State EMS Training Coordinators and the Utah Public Health Association. Ms. Whitney spent 250 hours in the Olympic Command Center, serving as the hospital liaison for the 2002 Winter Olympics in Salt Lake City. Ms. Whitney is currently assisting with the development of UT DMAT-1, has recently been hired as a federal intermittent employee for the team, and serves as the acting Planning Section Chief. She was certified as an EMT in 1979 and became certified as an intermediate EMT in 1983.