

3: Toolkit Part 1: Introduction

During a disaster, decision makers, health care providers, responders, and the general public are confronted with novel and urgent situations. Efficient, effective, and rapid operational decision-making approaches are required to help the emergency response system take proactive steps and use resources effectively to provide patients with the best possible care given the circumstances. It is also essential to develop fair, just, and equitable processes for making decisions during catastrophic disasters in which there are not enough resources to provide all patients with the usual level of care. Decision-making approaches should be designed to address a rapidly evolving, dynamic, and often chaotic set of circumstances. Information is often incomplete and contradictory. Agencies and stakeholders need to understand what information is available to support operational decision making in this kind of situation, and what triggers may automatically activate particular responses or may require expert analysis prior to a decision. This toolkit is intended to help agencies and stakeholders have these discussions.

TOOLKIT OBJECTIVE

The objective of this toolkit is to facilitate a series of meetings at multiple tiers (individual agency and organization, coalition, jurisdiction, region, and state) about indicators and triggers that aid decision making about the provision of care in disasters and public health and medical emergencies. Specifically, the toolkit focuses on indicators and triggers that guide transitions along the continuum of care, from *conventional* standards of care to *contingency* surge response and standards of care to *crisis* surge response and standards of care, and back to *conventional* standards of care. The toolkit is intended as an instrument to drive planning and policy for disaster response, as well as to facilitate discussions among stakeholders that will help ensure coordination and resiliency during a response.

Box 3-1 presents descriptions of key terms and concepts. This toolkit (presented in Chapters 3-9 of the report) is designed to be able to stand alone, although interested readers will find additional background information and more nuanced discussion of key concepts related to indicators and triggers in Chapters 1 and 2.

This toolkit focuses on operational planning and the development of indicators and triggers for crisis standards of care. Public engagement is also a key element of crisis standards of care planning; a toolkit for

BOX 3-1

Key Terms and Concepts

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” (IOM, 2012, p. 6-14).

Continuum of Care: Conventional, Contingency, and Crisis

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.

Indicators and Triggers

Indicator: A measurement, event, or other data that is a predictor of change in demand for health care service delivery or availability of resources. This may warrant further monitoring, analysis, information sharing, and/or select implementation of emergency response system actions.

community conversations on crisis standards of care is available in the Institute of Medicine’s report *Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response* (IOM, 2012).

USING THE TOOLKIT

Toolkit Design

The discussion toolkit is structured around two scenarios (one slow-onset and one no-notice), a series of key questions for discussion, and a set of example tables. The example indicators and triggers encompass both clinical and administrative indicators and triggers. The toolkit is designed to facilitate discussion to drive the planning process.

This chapter provides part 1 of the toolkit, which covers material that is relevant to all components of

Trigger: A decision point that is based on changes in the availability of resources that requires adaptations to health care services delivery along the care continuum (contingency, crisis, and return toward conventional).

Crisis care trigger: The point at which the scarcity of resources requires a transition from contingency care to crisis care, implemented within and across the emergency response system. This marks the transition point at which resource allocation strategies focus on the community rather than the individual.

Steps for Developing Useful Indicators and Triggers

The following four steps should be considered at the threshold from conventional to contingency care, from contingency to crisis care, and in the return to conventional care. They should also be considered for both no-notice and slow-onset incidents.

1. **Identify key response strategies and actions** that the agency or facility would use to respond to an incident. (Examples include disaster declaration, establishment of an emergency operations center [EOC] and multiagency coordination, establishment of alternate care sites, and surge capacity expansion.)
2. **Identify and examine potential indicators** that inform the decision to initiate these actions. (Indicators may be comprised of a wide range of data sources, including, for example, bed availability, a 911 call, or witnessing a tornado.)
3. **Determine trigger points** for taking these actions.
4. **Determine tactics** that could be implemented at these trigger points.

Note: Specific numeric **“bright line”** thresholds for indicators and triggers are concrete and attractive because they are easily recognized. For certain situations they are relatively easy to develop (e.g., a single case of anthrax). However, for many situations the community/agency actions are not as clear-cut or may require significant data analysis to determine the point at which a reasonable threshold may be established (e.g., multiple cases of diarrheal illness in a community). In these situations, it is important to define who is notified, who analyzes the information, and who can make the decision about when and how to act on it.

the emergency response system, including the scenarios and a set of overarching questions. Part 2 of the toolkit is provided in Chapters 4-9, which are each aimed at a key component of the emergency response system: emergency management, public health, behavioral health, emergency medical services (EMS), hospitals and acute care facilities, and out-of-hospital and alternate care sites. These chapters provide additional questions intended to help participants drill down on the key issues for their own discipline. These chapters also contain a table that provides example indicators, triggers, and tactics across the continuum of care. This is followed by a blank table for participants to complete.¹ The scenarios, questions, and example table are intended to help facilitate discussion around filling in the blank table.

These scenarios are provided to facilitate discussion and encourage practical thinking, but participants

¹ The blank table for participants to complete can be downloaded from the project’s website: <http://iom.edu/Activities/Global/CrisisStandardsOfCareToolkit.aspx>.

should consider a range of different scenarios—based on their Hazard Vulnerability Analysis—when developing indicators and triggers for their organization, jurisdiction, and/or region. The toolkit provides examples, but does not provide specific indicators and triggers for adoption. This discussion sets a foundation for future policy work, planning, and exercises related to crisis standards of care (CSC) planning and disaster planning in general. The indicators and triggers developed for CSC planning purposes are subject to change over time as planned resources become more or less available or circumstances change. It will be important to regularly review and update CSC plans, including indicators and triggers.

Overarching Key Participants

This toolkit has been designed to be scalable for use at multiple levels. Discussions need to occur at the facility, organization, and agency levels to reflect the level of detail about organizational capabilities that is needed for operational decision making. Discussions also need to occur at higher levels of the emergency response system to ensure regional consistency and integration; it is important to understand the situation in other organizations and components of the emergency response system instead of moving unilaterally to a more limited level of care. Depending on the specific community, these discussions may be initiated at different tiers and may occur in a top-down or bottom-up fashion, but at some point must occur at all tiers reflected in the Medical Surge Capacity and Capability (MSCC) framework shown in Figure 3-1 (repeated here from Chapter 1). The development of indicators and triggers could be used by planners as an opportunity to benchmark their approaches, thus facilitating both intrastate and interstate coordination. This may be particularly valuable to entities operating in multistate locations.

This planning process is important regardless of the size of an agency; local preparedness is a key element of avoiding reaching CSC. Instead of using the MSCC framework and creating another response framework, some states may have existing regional and state infrastructures for inclusive trauma/EMS advisory councils/committees; the points made above about the importance of including all response partners and ensuring horizontal and vertical integration within and across tiers apply equally, regardless of the specific framework used.

The following participants should be considered for these discussions; additional participants may be brought in for the stakeholder-specific discussions and are listed in subsequent chapters:

- State and local public health agencies;
- State disaster medical advisory committee;
- State and local EMS agencies (public and private);
- State and local emergency management agencies;
- Health care coalitions (HCCs) and their representative health care organizations, and where appropriate, U.S. Department of Veterans Affairs Medical Centers and Military Treatment Facilities that are part of those HCCs;
- State associations, including hospital, long-term care, home health, palliative care/hospice, and those that would reach private practitioners;
- State and local law enforcement agencies;
- State and local elected officials;

- State and local behavioral health agencies;
- Legal representatives and ethicists; and
- Nongovernmental organizations that may be impacted by implementation of CSC (AABB, American Red Cross local chapter, etc.).

When Should These Discussions Take Place?

For communities that have already begun to develop CSC plans, this toolkit can be used to specifically develop the indicators and triggers component of the plan. For communities that are in the early phases of the CSC planning process, the use of this toolkit, and the exploration of community-, regional-, and state-derived indicators, triggers, and the process by which actions are then taken, would be an excellent place to start this important work. It provides much of the needed granularity about what it means to transition away from conventional response and toward the delivery of health care that occurs in the contingency arena, or in worst cases, under crisis conditions. For additional guidance on the development of CSC plans, including planning milestones and templates, see the IOM's 2012 report.

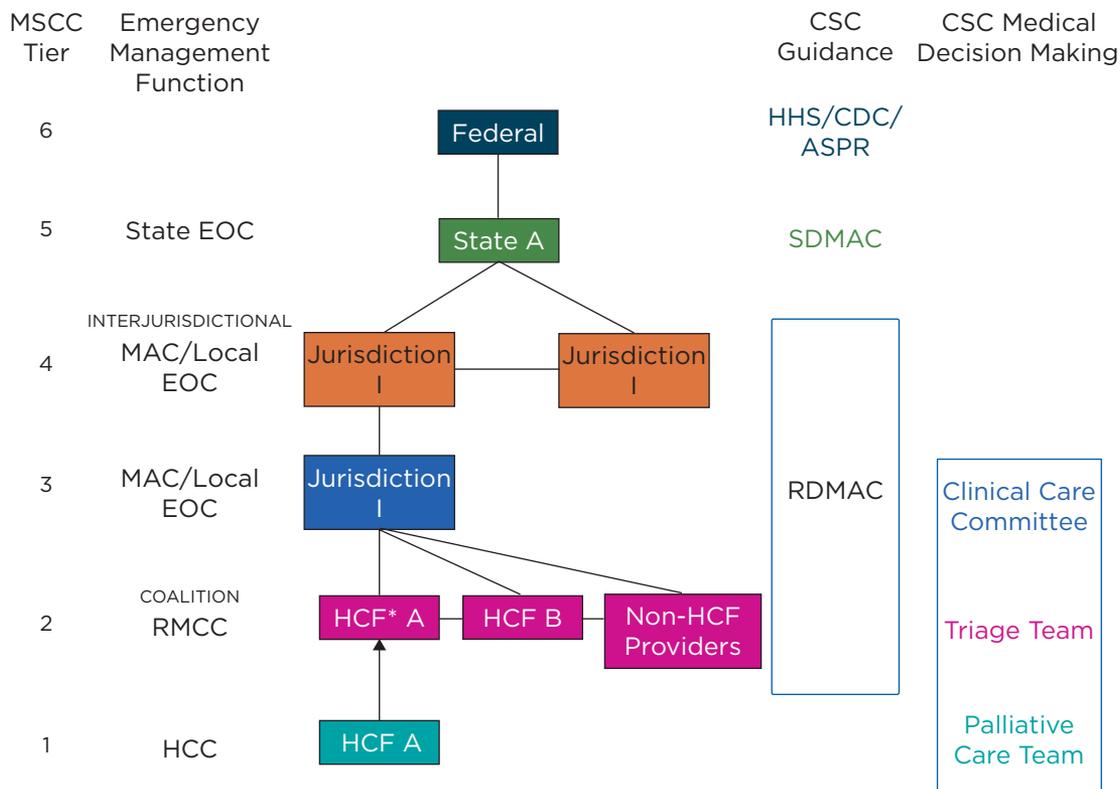


FIGURE 3-1 Integrating crisis standards of care planning into the Medical Surge Capacity and Capability framework.
 NOTES: See Table 2-2 in IOM (2012) for further detail and description of the functions of these entities. The clinical care committee, triage team, and palliative care team may be established at MSCC tiers 1, 2, or 3. The RDMAC may be established at MSCC tiers 2, 3, or 4, depending on local agreements. The RMCC is linked to the MAC/Local EOC and is intended to provide regional health and medical information in those communities; it functions at MSCC tiers 2-4. 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; MAC = Medical Advisory Committee; RDMAC = Regional Disaster Medical Advisory Committee; RMCC = Regional Medical Coordination Center; SDMAC = State Disaster Medical Advisory Committee.
 SOURCE: Adapted from IOM, 2012, p. 1-44.

Suggested Process

As noted above, discussions should occur at multiple tiers of the system. A suggested process is provided in Figure 3-2 for discussions at the level of the health care organization, agency, or a small number of related agencies (e.g., EMS and dispatch).

For discussions at higher tiers of the system (e.g., among organizations, coalitions, and agencies from multiple sectors), additional work by participants in advance would be helpful so they arrive having already given thought to the indicators, triggers, and tactics that their own organization or agency would expect to use. Depending on whether this series of discussions is occurring top-down or bottom-up in a given community, this advance work could be done through convening sector-specific discussions first, as described above, or simply through asking each participant to start thinking about his or her own organization's or agency's likely actions beforehand.

In particular, it is important to highlight that the two government entities, emergency management and public health, should review the other sections and ensure that the activities they have outlined would support the activities described in the other sections. This would solidify the intent that local and state governmental agencies will need to support health care organizations and HCCs during CSC.

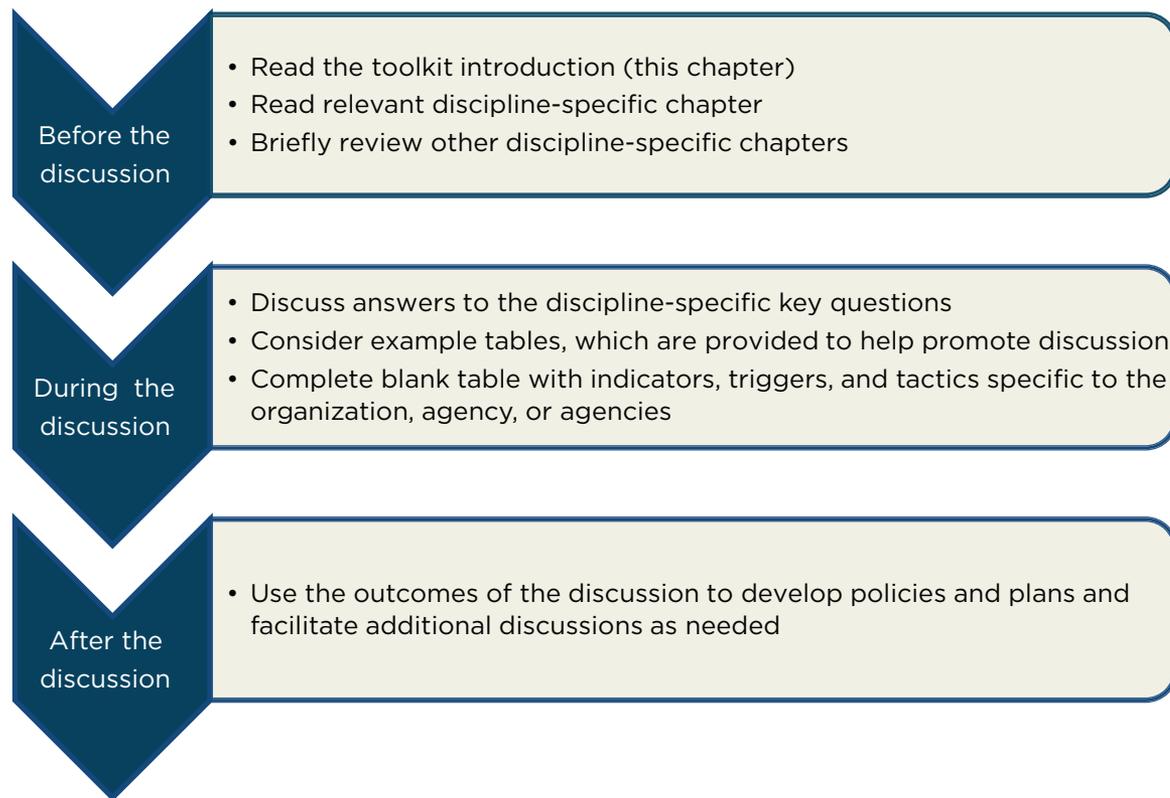


FIGURE 3-2

Suggested discussion process.

NOTES: The example tables are provided to help facilitate discussion and provide a sense of the level of detail and concreteness that will be valuable; they are not intended exhaustive or universally-applicable. It is important that participants complete the blank table with key indicators, triggers, and tactics that are specific to their organization, agency, or agencies. Depending on the size of the discussion group, it may be most useful for a subgroup of participants to develop the next steps.

To ensure that this aspect of CSC planning is not done in isolation, it would be helpful if the person(s) leading this initiative has more in-depth knowledge of the IOM's 2012 report, in addition to knowledge about the emergency preparedness program within their facility, agency, and/or jurisdiction.

Assumptions

This toolkit assumes that participants have an understanding of baseline resource availability and demand in their agency, jurisdiction, and/or region. The toolkit focuses on detecting movement away from that baseline, and associated decision making.

This toolkit presents common questions, ideas for discussion issues, and example indicators and triggers. Because the availability of resources varies across communities, it is clear that the answers will look very different. That is why this toolkit is a starting point for discussions and is not prescriptive.

Because communities across the nation are at different stages of planning, this toolkit could be used to fill a specific gap in an existing CSC plan, but it also could serve as a first entry point into a larger CSC planning effort.

SLOW-ONSET SCENARIO (PANDEMIC INFLUENZA)²

In early fall, a novel influenza virus was detected in the United States. The virus exhibited twice the usual expected influenza mortality rate. As the case numbers increased, a nationwide pandemic was declared. The Centers for Disease Control and Prevention (CDC) identified the at-risk populations as school-aged children, middle-aged asthmatics, all smokers, and individuals greater than age 62 with underlying pulmonary disease. Vaccine for the novel virus is months away.

Emergency Management

Emergency management has been in communication with public health as this outbreak has unfolded, maintaining situational awareness. They have initiated planning with all key stakeholders as soon as the pandemic was recognized. The county emergency operations center (EOC) was activated, first virtually, then partially, and then fully, as cases began to overwhelm the medical and public health systems. Emergency management has been responding to the logistical needs of public health, EMS, and the medical care system and is coordinating information through a Joint Information System. At the request of local EOCs and the State Health Emergency Coordination Center, the State Emergency Operation Center has been activated. The key areas of focus are coordinating volunteers, providing security, maintaining and augmenting communications, and facilitating coordination of efforts in support of the Emergency Support Function (ESF)-8 agencies. The emergency managers maintain the incident planning cycle and assist ESF-8 personnel in writing daily incident action plans and determining resource needs and sources. Private corporations have given significant support, lending personnel to staff points of dispensing sites, providing home meals to those isolated in their homes or on self-quarantine, and providing logistical support to hotlines and

² The two scenarios presented here have been adapted from the two scenarios in Appendix C of IOM (2009). They are provided to encourage discussion and practical thinking, but participants should not confine themselves to the specific details of the scenarios and should consider a range of scenarios based on their Hazard Vulnerability Analysis.

alternate care sites. Later on, when the pandemic winds down, the EOC will help coordinate transition of services toward conventional footing and identify the necessary resources to recovery planning and after-action activities.

Public Health

Local and state public health have been monitoring the status and planning for the pandemic since it was identified through epidemiological data. Multiple health alerts have been issued over the past weeks as conditions or predictions changed and recommendations for targeted use of antiviral medications have been communicated by the State Public Information Officer based on CDC recommendations. Public information campaigns begin, and emergency management and public health convene planning meetings involving key health and medical stakeholders in anticipation of a sustained response. As noted above, vaccine is months away and, when it arrives, may initially be available in only limited quantities. CDC is recommending use of N95 respirators for health care workers. There is an immediate shortfall of N95 respirators in supply chains nationwide and local shortages of antivirals are reported.

Enhanced influenza surveillance has become a standard across the United States and the world. Local health care organizations increased influenza testing and the state laboratory has confirmed the current strain of influenza virus is present in multiple counties statewide. Volume of laboratory testing has increased substantially in local, regional, and state-wide laboratories, which are now looking at current resources and possible modifications to testing protocols.

As the epidemic expands, local and state health EOCs are active 24/7 to support the response. The lead for this incident is the ESF-8, and communications between local and state EOCs in collaboration with the State Health Emergency Coordination Center have been augmented and standardized. Declarations of emergency have been released from the state, including public health emergencies or executive orders consistent with state authorities. Public health and state EMS offices are preparing specific regulatory, legal, and policy guidance in anticipation of the peak impact and subsequent waves. In addition to the activities associated with health, state, and local public health, offices are also addressing other functions, such as human services programs, water quality, food safety, and environmental impact.

EMS

Volumes of calls to 9-1-1 have escalated progressively over time, with high call volumes for individuals complaining of cough and fever. Many high-priority calls cannot be answered during peak hours due to volume. To divert non-emergency calls, hotlines have been established (where available) through which nurses and pharmacists can provide information and prescribe antiviral medications if necessary³; auto-answer systems have also been established to direct callers to Internet-based information.

The state EMS office has been contacted and necessary waivers are underway. The physician or physician board providing medical direction for the EMS agency and the EMS agency supervisor have implemented emergency medical dispatch call triage plans and have altered staffing and transport requirements to adjust to the demand. As public health clinics are overflowing with people demanding medical countermeasures (vaccines and antivirals), there have

³ See Koonin and Hanfling (2013).

been several reports of violence against health care providers, thefts of N95 respirators from ambulances, and threats against EMS personnel by patients who were informed they do not meet the transport criteria in the disaster protocol.

A recent media report about the sudden death of a 7-year-old child of respiratory failure from a febrile illness has caused significant community concern, sharply escalated the demand on emergency medical dispatch and EMS, and increased workforce attrition throughout the entire emergency response and health care systems.

Hospitals

Hospitals have activated their hospital incident command system and moved from conventional care to contingency care as the pandemic worsens. These modifications have been communicated through their regional health care coalition to their local EOC with anticipated support and possible waivers. As patient volumes escalate to nearly double the usual volume, elective surgeries are reduced, intensive care unit patients are boarded in step-down units, inpatients are boarded in procedure and postanesthesia care, and rapid screening and treatment areas are set up for those who are mildly ill in areas apart from the emergency department (ED). As demand increases, hospital incident commanders are convening their clinical care committees to work with the planning section to prioritize available hospital resources to meet demand, as well as anticipating those resources that may soon be in short supply, including ventilators. Hospitals are sharing ED and inpatient data with the health department. Requests for new epidemiologic and other data have been received. Schools have been dismissed and this, in addition to provider illness, is having a dramatic impact on hospital staffing, as staff who are caregivers are reluctant to use onsite childcare.

Out-of-Hospital

Home care agencies note a significant increase in the acuity and volume of their patient referrals as hospitals attempt “surge discharge” and triage sicker patients within their home. Many home care workers are calling in sick and the agencies are using prioritization systems to determine which clients will be visited on what days. Durable medical equipment across the state providers are starting to identify shortages of home oxygen supplies and devices. Ambulatory care clinics had to clear schedules to accommodate the volume of acute illness. Despite media messages to stay home unless severely ill, many patients are calling their clinics for appointments and information; this is tying up clinic phone lines much of the time. Clinics are struggling to keep infectious and non-infectious patients separated in their facilities. As the epidemic worsened, alternate care facilities are opening to augment care for hospital overflow patients. Hospice patients are being referred to acute care facilities because they can no longer be cared for at home and many do not have their advance directives with them. As the pandemic wanes, many patients who deferred their usual or chronic care during the pandemic now present to clinics and EDs, continuing to stress the outpatient care sector.

Behavioral Health

The pandemic has had a tremendous psychological impact. Nearly everyone is exposed to death and illness, either personally or via the media. Houses of worship and other gathering places where people typically get services and support are closed and people are feeling more isolated. Management of decedents is becoming problematic. Hospital and civil morgues and funeral directors are overwhelmed. Coffins and funeral home supplies are in short supply and there

is difficulty getting more. Families of the deceased are becoming increasingly agitated and assertive, demanding that hospitals, medical examiners/coroners, and health authorities take action. Demonstrations about vaccine delays are occurring at hospitals, clinics, and the local health department. Interstate commerce has been affected as restrictions on travel and transport become more pervasive. This is resulting in a noticeable decline in the availability of goods and services. Police are reporting instances of aggression, especially in grocery stores and at ATMs that have not been resupplied. The local and state Department of Social Services is reporting increased calls regarding substance abuse and domestic violence in homes where families have sheltered in place.

Those with preexisting behavioral health conditions are destabilized and require additional support, and many in the population exhibit features of new mental health problems, including anxiety and posttraumatic stress disorder. Existing psychiatric patients are also exhibiting increased symptoms as they are not able to obtain their medications. Police, health care workers, and community leaders are reporting substantially increased demand on detox services, and hospitals are discharging chemically dependent and psychiatric patients to make room for other types of patients, which is contributing to some of the problems.

Health care workers and public safety personnel are particularly hard hit by stress, especially those who are not prepared mentally for resource triage. Efforts are being made to “immunize” targeted populations with information on normal and abnormal stress responses, and additional screening and crisis support phone lines have been set up. Conventional outpatient crisis care and inpatient psychiatric care are overwhelmed, and faith-based, volunteer, and other support organizations have to take a much more active role supporting those in crisis in the community. That support is increasingly difficult as needs become more pervasive and severe, and face-to-face individual and group support becomes more difficult.

NO-NOTICE SCENARIO (EARTHQUAKE)

An earthquake, 7.2 in magnitude on the Richter scale, occurred at 10:45 a.m. in a metropolitan area. It also affected multiple surrounding counties that are heavily populated. Along with the initial shaking came liquefaction and devastating landslides. This major quake has shut down main highways and roads across the area to the south, disrupted cellular and landline phone service, and left most of the area without power. Several fires are burning out of control in the metropolitan area. As reports are being received, the estimate of injured people has risen to more 8,000. Deaths resulting from the earthquake are unknown at this time, but are estimated to be more than 1,000. Public safety agencies are conducting damage assessments and EMS agencies are mobilizing to address patient care needs. Hospitals and urgent/minor care facilities have been overwhelmed with injured victims. Two community hospitals and an assisted living center report extensive damage. Patients and residents are being relocated to alternate care centers; however, these options are unsuitable for those requiring a higher level of medical support due to lack of potable water and loss of electrical power at several facilities. Outpatient clinics and private medical practices are woefully understaffed or simply closed.

Emergency Management

State, county, and local EOC have been activated. The governor has provided the media with an initial briefing. As outlined in the National Response Framework, they are attempting to coordinate with EOCs in non-impacted

areas and neighboring states, as well as the federal government, in order to mobilize resources to send into affected areas.

Local EOCs in the impacted area are trying to gain situational awareness through damage assessments, communication with stakeholders about utility failures, road access, injuries, and structural damage. EMS and public health have representatives at the EOCs (public health represents the health care sector for the jurisdiction, including liaison to the health care coalition, by prior agreement). Widespread impacts on hospitals will require that those facilities be evacuated, but EMS is taxed by incident-related demands and difficult road access.

Public Health

The state ESF-8 agency has mobilized resources from unaffected areas and is working with the state emergency management agency/state EOC to request assistance via Emergency Management Assistance Compact (EMAC) for vehicles and personnel. The governors of the surrounding states have dispatched medical and search and rescue teams. Public health authorities are inundated with the flow of information and requests for public health and medical assistance coming in to the ESF-8 desk at the local level. The State Health Emergency Coordination Center is fully activated to support the health and public health sectors. Public health authorities are working to initiate “patient tracking” capabilities, and have been asked to support activation of family reunification centers. Health care facilities needing evacuation are calling asking for assistance, including the mobilization of additional personnel resources (e.g., Medical Reserve Corps). Coordinated health and safety messages are providing information pertaining to boil water orders, personal safety measures around gas leaks, downed power lines and active fires, and a description of what resources are being mobilized to respond to this catastrophic disaster event.

EMS and First Responders

Uncontrolled fires have erupted due to broken gas lines. The local fire agencies are unable to respond to all requests for assistance due to broken water lines, difficult access, and the number of fires and damaged structures that have been reported. Only priority structure fires (e.g., fires in or near buildings suspected of containing occupants or hazardous materials) are receiving assistance. Fire departments from counties experiencing less damage are sending whatever assistance they can; however, they are not expected to arrive before evening. Dispatch centers are initiating mutual aid from unaffected counties within the state on request of local and county incident command (IC) through their respective EOCs.

The 9-1-1 emergency lines are inoperable as telephone service has been interrupted by widespread power outages and downed cell towers. The 700 and 800 MHz radios are the most reliable communication because landline and cellular telephone service are inoperative. Many of the injured cannot reach local hospitals due to damaged roads, debris, broken water lines, and power outages that have slowed traffic to a near stand-still. EMS providers report a shortage of staff and vehicles. Air ambulances are temporarily grounded due to foggy and windy conditions, and commercial airports have been closed for an unknown period of time. Unified command has been established and casualty collection points are being identified.

The main freeway is closed due to several collapsed overpasses and road damage, the worst of which has occurred at the freeway interchange. The travel lanes on the overpasses have completely collapsed, trapping at least 12 cars and 2 tourist buses below. The Department of Transportation is assessing structural damage on all freeway overpasses.

The collapse of this segment of the freeway has obstructed or delayed the ability of ambulances and emergency response units to respond to 9-1-1 calls or transport to the local tertiary care facility.

The governor has requested assistance from the Federal Emergency Management Agency (FEMA), including a Presidential Declaration of Disaster. FEMA will initiate a Joint Field Office as a first step to coordinating federal support for this area. State emergency management has requested EMAC assistance for vehicles and personnel. Governors of surrounding states have dispatched medical and search and rescue teams.

Hospital Care

At one of the hospitals, a 300-bed Level 2 trauma center, is occupied at full census, but the administrator activates the Hospital Incident Command System, which opens the hospital command center and activates the disaster response plan. Other area hospitals are also impacted. A damage report reveals that this trauma center is on back-up power and the water supply is disrupted, but there is no major structural damage. Victims are already arriving in the parking lot on foot and by private vehicle as well as by EMS transport. The interhospital radio system is still active, with multiple hospitals reporting significant damage to their hospitals and surrounding routes of access. The administrator recognizes that despite their limitations, they will have to provide stabilizing care to arriving patients. There is no need to imminently evacuate the facility, though appeals for additional staff and a status report are made to the health care coalition coordinating hospitals via radio.

Additional surge care areas are established in the lobby area for ambulatory patients and in an ambulatory procedure area for non-ambulatory patients. Surgeons perform basic “bailout” procedures, but the sterile supply department will have difficulty resterilizing surgical trays with available potable water. The administrator works with established material management departments and hospital staff to take stock of materials that may be in shortage and recommend conservation strategies for oxygen, medications (including antibiotics and tetanus vaccine), and other supplies. Off-shift staff members are having trouble accessing the hospital, and many staff present are not able to reach family members—some have left to go find their families, some have stayed to work extra shifts. Blood supply is limited, with resources already being used for the first cases to arrive. There are limited capabilities to manage burn patients, which are usually transferred to the regional burn center. Health care coalitions in the affected area, as well as neighboring regions, are activated to support response.

Outpatient Care

Ambulatory care clinics, private medical practices, skilled nursing and assisted living facilities, dialysis centers, and home health care services are all significantly impacted by the earthquake. Victims of the earthquake and those patients unaffected directly by the disaster, but in need of ongoing support for their chronic medical care services, are all impacted. Patients requiring regularly scheduled dialysis are unable to receive care at their normal dialysis site. Patients dependent on home ventilators are concerned that their back-up power resources, if any, are not likely to last for more than a few hours. The regional health care coalition hospital coordination center works with public health in the local EOC to identify resources for these patients, including the identification of “shelter” options, but many simply head to the hospital as a safe haven. Health care practitioners and professionals are urgently recruited to assist in the establishment of alternate care sites and shelter environments, which are being set up around the perimeter of

the most severely affected areas. Access to medications at pharmacies is significantly impacted, sending more patients seeking assistance at already overtaxed hospitals. .

Behavioral Health

The behavioral health unit at the impacted hospital or social work department crisis response staff deploys a small team to respond to patient and staff mental health needs as a standard component of the hospital's emergency response plan. The hospital lobby is teeming with people who appear shocked and confused. The hospital sets up an emergency triage and assessment unit for persons with minor injuries and those survivors looking for family members, and initiates behavioral health assessment and psychological first aid, targeting those who appear to be disoriented or distraught.

At the hospital, uninjured citizens begin to arrive in large numbers trying to find their loved ones. The hospital has an incomplete and ever-changing list of those being treated and are challenged in the early hours to provide definitive answers to inquiries. Citizens are becoming more anxious and angry. Hospital personnel are attempting to physically sort and separate family members with loved ones being treated in the hospital, searching families, and families of those in the hospital morgue. The number of deceased patients in the hospital morgue is increasing from deaths related to the incident. In addition, community morgue resources are taxed.

Several people (including children) have experienced severe burns, local capacity has been exceeded, and burn patients have been evacuated to burn centers in neighboring jurisdictions. Searching family members are becoming increasingly agitated and demanding when they are unable to learn the whereabouts of their loved ones and/or be reunited with them. Communications about individuals' locations are being forwarded to governmental support systems such as local and state EOCs, Joint Information Centers, and non-governmental emergency response agencies.

Some hospital personnel are refusing to come to work until and unless they can be assured of their safety in the hospital as well as the proper care and safety of their children (who are no longer in school).

At the request of local EOCs, the state EOC activates six Medical Special Needs Shelters, which are staffed with behavioral health assessment and intervention teams, and activate behavioral health crisis response teams to assist first responders active in rescue and recovery, and evacuation activities. Rumors develop that registered sexual offenders or other "risky persons" are among those residing in shelters.

An inpatient forensic psychiatric unit has been damaged and deemed unsafe. Following hospital response plans, arrangements are attempted to move patients to a comparable facility in another county/state. Difficulties are encountered in arranging appropriate transport and the receiving hospital reports very limited bed availability.

The chaos associated with the incident has increased the public's anxiety that people will die from their injuries while awaiting emergency transport. Risk/crisis communication talking points are disseminated to local officials and the media as to where behavioral health assistance is available.

OVERARCHING KEY QUESTIONS

The following questions reflect overarching common themes that apply to all stakeholder discussions. The discipline-specific portions of the toolkit (Chapters 4-9) include questions that are customized for these disciplines; the overarching questions are included here to facilitate shared understanding of the common issues under discussion by each discipline.

- What information is accessible?
- How would this information drive actions?
- What additional information *could* be accessed during an emergency and how would this drive actions?
- What actions would be taken? What other options exist?
- What actions would be taken when X happens, where X is a threshold that would signal a transition point in care (e.g., can't transport all patients, run out of ventilators, can't visit all the sickest home care patients).
- Do the identified indicators, triggers, and actions follow appropriate ethical principles for crisis standards of care? What legal issues should be considered?⁴

WORKER FUNCTIONAL CAPACITY

It is important to highlight understanding and attending to the sometimes unique needs of those whose roles include administration of and response to an extreme incident. If their health (including behavioral health) is adversely impacted in ways that impact role function, the entire response can become compromised and, in extreme cases, fail. Preparedness activities should include detailed planning that anticipates and addresses behavioral health consequences for both decision makers and responders. Preparedness activities should address strategies for monitoring the responder population, identifying potential sources of psychological distress, and available interventions, including those geared toward stress reduction and management as well as resilience promotion among these responders. During a response, proactive monitoring is needed of the “temperature” of staff by supervisory personnel, with reports back to the IC, and aggressive measures to maintain morale, manage fatigue, and manage home-related issues for staff.

Table 3-1 below outlines indicators, triggers, and tactics related to worker functional capacity and workforce behavioral health protection. It has the same format as the tables included in the discipline-specific chapters that follow this one. These chapters provide tables with examples of discipline-specific indicators, triggers, and tactics; this is not an exhaustive list. The examples are provided here because this is a crosscutting issue that should be addressed by all sectors to improve the quality of decisions and quantity of available staff. The discipline-specific chapters also discuss strategies to address worker shortages.

Given the focus of this toolkit on decision making, the examples in the table are focused primarily on behavioral health and human factors. It is important to recognize that other areas of workforce protection, such as physical health and safety (including fatigue management), are also critical and should be considered during disaster planning processes. A comparable discussion should take place about other health and medical elements of force protection. In addition, the examples provided here are general approaches to worker functional capacity; for more details on individual topic areas, see the discipline-specific chapter and, in particular, the behavioral health chapter (Chapter 6).

⁴ Ethical considerations are a foundational component that should underlie all crisis standards of care planning and implementation. The Institute of Medicine's 2009 and 2012 reports provide extensive discussion of ethical principles and considerations. Considerations of legal authority and environment are also a foundational component to CSC planning and implementation. Certain indicators and triggers related to legal issues are included in this toolkit in Chapters 4-9; for additional discussion, see the 2009 and 2012 reports.

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TABLE 3-1
Example Worker Functional Capacity Indicators, Triggers, and Tactics for Transitions along the Continuum of Care

Indicator Category	Contingency	Crisis	Return Toward Conventional
Worker functional capacity	<p>Indicators:</p> <ul style="list-style-type: none"> • Employees routinely working more than 150% of usual shift duration • Patient/public complaints increase • Worker complaints about coworkers increase (attitude, decision making, etc.) • Workers begin to exhibit increased signs of stress (physiological, psychological, emotional, behavioral, social) (unit supervisors should be passing on reports to the command center) • Increased sick calls • Coworker perception of excessive fatigue or maladaptive behaviors (inability to make decisions, increased anger, etc.) • Increases in role conflict issues (relative priorities of home/family well-being and job function) reported by unit supervisors or implied by infrastructure damage, school closings, or communications systems failures • Workplace accidents increase • Workers express doubts/problems with their perceived safety or education/training for current tasks • Negative media coverage /public perception of facility/agency response <p>Triggers:</p> <ul style="list-style-type: none"> • Worker signs of stress or fatigue (physiological, psychological, emotional, behavioral, social) become commonplace • Productivity/function begins to decrease to the extent that supervisory personnel must intervene • X% increase in errors/incidents reported formally or informally to command center • Increases in role conflict (relative priorities of home/family well-being and job function) results in increased difficulty covering shifts/key roles 	<p>Indicators:</p> <ul style="list-style-type: none"> • Productivity declines further • Errors/incidents increase rate and severity (patients/public are harmed and/or die as a result of errors) • Facility policies and actions cause negative public/media attention or compromised function of operations/relationships • Role conflict (relative priorities of home/family well-being and job function) increasingly problematic • Workplace accidents continue to increase • Workers decline to assume responsibilities they deem to be high risk <p>Crisis triggers:</p> <ul style="list-style-type: none"> • Productivity/function problems due to personnel issues cause service disruption • Role conflict (relative priorities of home/family well-being and job function) results reach a point where units are unable to maintain staffing, patients are transferred to other facilities, personnel refuse to come to work • Unable to give workers time off between shifts, at least equal to shift length • Workers are noted to be falling asleep on the job or exhibiting other unsafe behaviors <p>Tactics:</p> <ul style="list-style-type: none"> • Intensify stress management/resilience promotion training and activities (e.g., psychological first aid) • Continue regular and accurate surveillance of stress-related issues • Continue integration of various stakeholders in strategy development and implementation (e.g., direct care leadership, administration, HR, general counsel, EAP, etc.) 	<p>Indicators:</p> <ul style="list-style-type: none"> • Workers begin to exhibit decreased signs of stress (physiological, psychological, emotional, behavioral, social) • Productivity/function begins to increase • Errors, incident reports, complaints decrease • Decreases in role conflict (relative priorities of home/family well-being and job function) • Workplace accidents decrease <p>Triggers:</p> <ul style="list-style-type: none"> • Productivity/function return to baseline • Errors/incident reports return to baseline • Shift schedules and responsibilities return toward baseline <p>Tactics:</p> <ul style="list-style-type: none"> • Stress management/resilience promotion training and activities (e.g., psychological first aid) become routine part of organizational practices • Evaluate, enhance, and continue regular and accurate surveillance of stress-related issues • Continue integration of various stakeholders in strategy development and implementation (e.g., direct care leadership, administration, HR, general counsel, EAP, etc.) with focus on rewarding staff, memorialization where appropriate, appreciation activities • Scale back or discontinue specialized consultation from content experts in workplace stress • Review, evaluate, and appropriately modify personnel policies and practices • Deactivate mutual aid and other supplemental human resources

Tactics:

- Implement stress management/resilience promotion training and activities (e.g., psychological first aid)
- Implement fatigue management policies
- Ensure adequate staffing ratios or provide additional personnel support for non-expert duties (lower levels of trained personnel, etc.)
- Ensure incident information flow to staff (situational awareness) is maintained, including operational briefings and opportunity for staff to provide input and comment
- Liaison/discussions with collective bargaining representatives to avoid conflicts arising from disaster-related staffing changes
- Provide support for the staff's family needs (access to phone lines to call home, providing basic shelter to family members, childcare, pet care, etc.)
- Provide appropriate nutrition support, including expanded hours of services
- Restrict non-essential duties (meetings, etc.)
- Ensure regular and accurate surveillance of stress and fatigue-related issues by management/supervisory staff
- Ensure integration of various stakeholders in strategy development and implementation (e.g., clinical care leadership, administration, human resources [HR], legal counsel, employee assistance programs [EAPs], etc.)
- Initiate staff appreciation activities
- Explore specialized consultation from content experts in workplace stress in extreme situations
- Review personnel policies and practices to explore ways in which stress on workers may be reduced, including rotations through other areas of the facility or variable responsibilities
- Review and update plans for mutual aid or other means of supplementing human resources
- Explore specialized consultation from content experts in workplace stress in extreme situations
- Implement changes in personnel policies and practices
- Activate plans for mutual aid or other means of supplementing human resources, including use of support personnel for all non-critical tasks



5: Toolkit Part 2: Public Health

INTRODUCTION

This chapter presents a discussion and decision-support tool to facilitate the development of indicators and triggers that help guide public health decision making during a disaster or public health or medical emergency. This tool focuses specifically on the role of public health in supporting the public health and medical sector across the spectrum, from prehospital care through end-of-life care. Because integrated planning across the emergency response system is critical for a coordinated response, it is important to first read the introduction to the toolkit and material relevant to the entire emergency response system in Chapter 3. Reviewing the toolkit chapters focused on other stakeholders would also be useful.

Roles and Responsibilities

Public health is a complex system focused on the health of the population residing within their jurisdiction. Activities focus on protecting people from unsafe or harmful conditions while providing methods to promote optimum health and prevent disease. Public health can be established as a local government function, sometimes called “home ruled,” in which the jurisdiction has the authority to set up their own governance and local ordinances. These cannot be counter to overall state authority. State public health has responsibility to the health of the population within the entire state, and may consist of locally run satellite state public health agencies. In either model, state public health has powers under the authority of the governor outlined in state statute, which can be enacted in a public health, natural disaster, or catastrophic medical incident when usual mechanisms and powers are insufficient to meet the regulatory or response requirements of an incident.

Threats to human health are always present, whether caused by nature or humans. Without thorough preparation and coordinated planning between government and private-sector partners, communities and individuals will be unable to prevent, protect against, respond to, and mitigate incidents, and rapidly recover when an incident occurs. Public health and medical preparedness can only be achieved when component partners at the local, regional, and state/tribal level work in synergy through all-hazards preparedness. This becomes critical when resources are scarce. Local and state public health should lead the planning for crisis

standards of care (CSC) and ensure both an implementation plan and incorporation into the culture of the health spectrum.

Additional discussion about public health roles and responsibilities in planning for and implementing crisis standards of care is available in the IOM's 2012 report, *Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response*. This report also includes planning and implementation templates that outline core functions and tasks.

DISCUSSION AND DECISION-SUPPORT TOOL

Suggested participants for a discussion focused on public health are listed below. Building on the scenarios and overarching key questions presented in Chapter 3, this tool contains additional questions to help participants drill down on the key issues and details for public health. It also contains two charts (one for slow-onset and one for no-notice) that provide example public health indicators, triggers, and tactics, and a blank chart for participants to complete. The scenarios, questions, and example chart are intended to provoke discussion that will help participants fill in the blank chart for their own situation.¹ Participants may choose to complete a single, general blank chart, or one each for various scenarios from their Hazard Vulnerability Analysis.

The questions below and associated table of sample indicators and triggers are broken out by the two scenarios because the role of public health will vary significantly based on the incident. Nearly all incidents or planned events will need public health and medical assistance and possible response. The first scenario demonstrates a slow-onset incident in which local and state public health would monitor the activity of influenza worldwide. This would provide an opportunity for planning and anticipating response activities. The second scenario demonstrates the issues associated with a no-notice event and describes potential points of consideration to respond and support response activities. In this scenario, there will be an immediate role of medical response, supported by public health, and intermediate- and long-term responsibilities for local and state public health offices.

Discussion Participants

From a public health perspective, any agency or organization that will be impacted in their service delivery by public health decisions should be discussion participants at some point in the deliberation process.²

Public health impacts all sectors and thus the need for integrated planning and long-term follow-up should be a key component in planning for and implementing crisis standards of care and will have a critical supporting role throughout an incident.

Local public health discussions should include their agency emergency management/preparedness coordinator, health officer, and medical director at a minimum. Agency subject matter experts (SMEs) should be engaged based on incident type, with consideration of potential clinical services impacted: communi-

¹ The blank table for participants to complete can be downloaded from the project's website: <http://iom.edu/Activities/Global/CrisisStandardsOfCareToolkit.aspx>.

² As discussed above, the structure and organization of public health and health varies across states and localities. The discussion participants listed here are provided as a suggestion; discussion organizers should develop a participant list that would be appropriate for the structures and organization of the particular jurisdiction.

cable disease, epidemiology, environmental health, legal, and any departments that serve vulnerable populations potentially impacted. Other governmental entities, such as emergency management, behavioral health, county commissioners, coroner or medical examiner, and other key stakeholders should also be included.

Local external discussion participants would include executive leadership of the impacted medical organizations such as hospital chief executive officers (or chief medical officer and/or emergency department medical director or nurse manager), medical director or executive of emergency medical services (EMS) agency(s), Federally Qualified Health Centers, long-term care facilities, community mental health, dialysis center(s), home care, impacted primary care providers, funeral directors, etc., for SME input as the incident expands.

State public health entities involved may be chief medical executive, state health officer, state epidemiologist, director of public health preparedness, EMS and trauma system medical director or executive, behavioral/mental health executive, health emergency management coordinator (EMC)³ and Emergency Support Function- (ESF-) 8 leads/state health operation center chiefs, and legal advisor, including Attorney General, if appropriate.

State external discussion participants would be the state disaster medical advisory committee (SDMAC) or designee, impacted local health agencies, regional health care coalition leadership or similar group (e.g., state EMS/trauma advisory committees), executive leadership of impacted medical health organizations (e.g., hospital association, state medical society, behavioral/mental health, state pediatric association) and other stakeholders or SMEs based on incident or event.

Key Questions: Slow-Onset Scenario

The questions below are focused on the slow-onset influenza pandemic scenario presented in Chapter 3:⁴

1. What routine medical and public health surveillance systems are in place? Who or what agency submits the data, and who routinely monitors? Are these systems integrated to ensure multiple data feeds such as electronic communicable disease and laboratory results, influenza-like illness, sentinel physician reports, and pharmacy and over-the-counter medication sales, etc.? In reviewing these systems, are there thresholds already established that trigger actions or the need for further public health review?
2. Is an emergency department syndromic surveillance system in place? What are the components, thresholds, triggers, etc.? Is a protocol in place for further investigation once a threshold is identified? How would trending data indicate or contribute to the local/state potential impact on delivery of services and standards of care?

³ A state health emergency management coordinator (EMC) serves as the liaison from state health to the state emergency operations center (EOC). In this role, the state health EMC or similar role would identify collaboration or resources needed through other state agencies. Depending on the state, the entity coordinating on public health and health may be referred to in different ways, including, for example, state (public) health emergency coordination center, department of (public) health operation center, or state (public) health operation center.

⁴ These questions are provided to help start discussion; additional important questions may arise during the course of discussion. The questions are aimed at raising issues related to indicators and triggers, and are not comprehensive of all important questions related to disaster preparedness and response.

3. What information would be communicated to the local or state emergency management that would trigger an EOC activation for a public health/medical event? How do incidents that have ESF-8 as lead agency impact operations in the EOC?
4. Has the local or state health department identified triggers to impact or restrict public gatherings to minimize exposures and thus decrease demand for medical resources?
5. Because this is a slow-onset incident, is there a local trigger for request of Strategic National Stockpile (SNS) medical materiel through the state-identified process?
6. What is needed to initiate Points of Dispensing (PODs)? How does the health department identify the sequence of POD placement and staff resources? Are the hospitals closed PODs and are there any anticipated variations in planning and response during CSC activities? Will there be separate POD(s) for first responders and their families, and will this include off-duty as well as on-duty workers?
7. How does the risk communication/public information officer modify messaging to address evolving conditions and coordinate messages with other agencies? When and by what mechanism does the state or an interjurisdictional information system become necessary?
8. What is the status of the public health workforce? Does the individual agency have plans in place to identify and meet essential public health functions while supporting medical care delivery during CSC? How does the agency Continuity of Operations Planning impact delivery of services, especially if clinical services are offered within the public health agency?
9. How is the impacted workforce and a need to solicit and use volunteer health care providers addressed? For example, volunteers may be accessed through the Emergency System for the Advanced Registration for Volunteer Health Professionals (ESAR-VHP), Medical Reserve Corps (MRC), etc.
10. What data or information are/is needed by public health executive leadership to consider a declaration or regulatory relief to facilitate contingency or crisis care within the medical health community? What lead time is needed to educate and communicate with senior policy leaders?
11. What activity would follow a declaration of emergency by the governor (health or general depending on legal environment of jurisdiction) or executive orders by the local or state public health authority? Does the local depend on the state to generate? What is needed for my agency?
12. State public health – what is the threshold for activation of the SDMAC or engagement of other SMEs? What communications need to occur internally with state government?
13. A slow-onset incident with high mortality rate will impact ESF-8 activities specific to fatality management. What resources are needed to assist the local coroner/medical examiner? Are there local or state plans for surge of decedents that may include surge storage, temporary interment, etc.?

Key Questions: No-Notice Scenario

The questions below are focused on the no-notice earthquake scenario presented in Chapter 3:

1. What is the status of infrastructure within the impacted area and has public health identified what is needed to support response? This will vary dramatically with available health care resources at the local level and the degree to which they are impacted.
2. Do any governmental regulations or rules need modification to facilitate incident response? If so, what information is needed and which agency serves as the lead to modify (e.g., state versus federal regulations)? An example would be an “1135 waiver”⁵ (state request approved federally), modifications to regulations on spacing between patient beds, cribs, dialysis chairs (state), staffing ratios, etc.
3. What are the applicable public health authorities and if actions are needed how and when are these initiated and by whom? These are often outlined in a state public health code, licensing regulations, or applicable legislation.
4. What unique information should be collected by local and state public health and provided to local and state EOCs to support the spectrum of health care response? What is the most efficient method to collect the information, which may include the health care coalition medical coordination center? This could include bed availability, patient tracking strategies, and anticipated short-falls of equipment or supplies, etc.
5. What support is needed for impacted person tracking and/or family reunification?
6. What critical health-related services to the community have been impacted? Are resources available outside the immediately impacted area?
7. Can any of the impacted services be assisted by local or state public health agencies, such as public health laboratories?
8. Is there a secondary environmental impact to the health of the public in the impacted area (presence of nuclear power plant and hazardous materials production or storage sites, including “SARA Title III” sites⁶) for which local and state public health should initiate assessment and mitigation strategies?
9. How quickly and by what means can the risk communication and public information officer implement communication strategies in circumstances when usual means of communication are compromised? What additional resources may be needed to facilitate messaging in these situations?
10. What is the status of the public health workforce? What essential functions should be maintained and what resources should be mobilized to support medical care during CSC? How is the impacted workforce identified and paid, or volunteer health care workforce solicited and used (ESAR-VHP, MRC, etc.)?
11. What other governmental agency resources are needed to support response (priority contract access, transportation, vulnerable children/population services, vaccines, laboratory, etc.)?

⁵ Waiver or modification of requirements under section 1135 of the Social Security Act. See http://www.ssa.gov/OP_Home/ssact/title11/1135.htm (accessed May 31, 2013).

⁶ The Superfund Amendments and Reauthorization Act (SARA) of 1986 created the Emergency Planning and Community Right-to-Know Act (known as “SARA Title III” or EPCRA), which is aimed at enhancing emergency planning and “community right-to-know” regarding hazardous and toxic chemicals. For additional information, see <http://www.epa.gov/agriculture/lcra.html> (accessed May 31, 2013).

Decision-Support Tool: Example Tables

The indicators, triggers, and tactics shown in Tables 5-1 and 5-2 are examples to help promote discussion and provide a sense of the level of detail and concreteness that is needed to develop useful indicators and triggers for a specific organization/agency/jurisdiction; they are not intended exhaustive or universally-applicable. Prompted by discussion of the key questions above, discussion participants should fill out a blank table (or a table per scenario), focusing on key system indicators and triggers that will drive actions in their own organizations, agencies, and jurisdiction. As a reminder, *indicators* are measures or predictors of changes in demand and/or resource availability; *triggers* are decision points (refer back to the toolkit introduction [Chapter 3] for key definitions and concepts).

The example triggers shown in the tables mainly are ones in which a “bright line” distinguishes functionally different levels of care (conventional, contingency, crisis). Because of their nature, this type of trigger can be described more concretely and included in a bulleted list. It is important to recognize, however, that expert analysis of one or more indicators may also trigger implementation of key response plans, actions, and tactics. This may be particularly true in a slow-onset scenario. In all cases, but particularly in the absence of “bright lines,” decisions may need to be made to *anticipate* upcoming problems and the implementation of tactics, and to *lean forward* by implementing certain tactics in advance of reaching the bright line or when no such line exists. These decision points vary according to the situation and are based on analysis of multiple inputs, recommendations, and, in certain circumstances, previous experience. Discussions about these tables should cover *how* such decisions would be made, even if the specifics cannot be included in a bulleted list in advance.

TABLE 5-1 Example Public Health Indicators, Triggers, and Tactics for Transitions Along the Continuum of Care in a Slow-Onset Scenario

Indicator Category	Contingency	Crisis	Return Toward Conventional
Surveillance data	<p>Indicators:</p> <ul style="list-style-type: none"> Epidemiologic data identify significantly increased or novel activity Epidemiologic data identify unusual population affected Trends over time indicate escalation and/or significant impact <p>Triggers:</p> <ul style="list-style-type: none"> Health care organizations unable to submit data due to impact of medical surge volumes <p>Tactics:</p> <ul style="list-style-type: none"> Investigate indicators further with additional data, case finding, etc., to attain improved situational awareness Work closely with health care coalition and medical health partners to target data collection to key elements only Develop additional data elements based on incident and potential workload impact Consider what is already collected electronically and modify to minimize health care organization stressors 	<p>Indicators:</p> <ul style="list-style-type: none"> Epidemiologic data indicate benchmarks and thresholds for critical resources and maximum critical care capacity will be exceeded (Fatality) Communications from local medical examiner or coroner that morgue/storage capacity has been exceeded <p>Crisis Triggers:</p> <ul style="list-style-type: none"> Epidemic curves continue to rise with unclear peak of cases Surveillance has to be modified to highest priority or impact-only with minimal set of identifiers for future follow-up <p>Tactics:</p> <ul style="list-style-type: none"> Event-specific data collection to provide common operating picture and potential treatment/outcome information Surveillance data collection narrowed to only automated data streams related to incident Governmental entities waive communicable disease reporting rules to only that which is directly related to the incident and key health issues 	<p>Indicators:</p> <ul style="list-style-type: none"> Epidemiologic data indicate sustained decrease in “new” incident-related reports Electronic reporting mechanisms indicate return to normal reporting processes by health care organizations <p>Triggers:</p> <ul style="list-style-type: none"> Event-specific data collection is no longer required <p>Tactics:</p> <ul style="list-style-type: none"> Public health initiates “catch-up” work to capture health data from the prolonged incident; this is a critical role for public health for future incident response and demand forecasting
Community and communications infrastructure	<p>Indicators:</p> <ul style="list-style-type: none"> Communications systems (Health Alert Network [HAN], telephone, etc.) disrupted within and external to jurisdiction <p>Triggers:</p> <ul style="list-style-type: none"> Multiple requests for assistance from multiple agencies or jurisdictions Interruption or contamination of water supply or utilities Identified need to establish communication hotlines Requests for specialized services and needs for broad public communications 	<p>Indicators:</p> <ul style="list-style-type: none"> Continued need to communicate with public about high risk, evolving situation Water supply contamination <p>Crisis Triggers:</p> <ul style="list-style-type: none"> Reports of disturbances at health care organizations or public shelters, etc. Prolonged and widespread utilities (power, natural gas) outages <p>Tactics:</p> <ul style="list-style-type: none"> Use all established resources to coordinate and communicate health messages 	<p>Indicators:</p> <ul style="list-style-type: none"> Decreased requests for messaging Decreased activity on established hotlines <p>Triggers:</p> <ul style="list-style-type: none"> Media and health care requests returning to “normal” <p>Tactics:</p> <ul style="list-style-type: none"> Continue to provide appropriate levels of communication to the media, community, and impacted health care organizations

continued

TABLE 5-1
Continued

Indicator Category	Contingency	Crisis	Return Toward Conventional
Community and communications infrastructure (continued)	<p>Tactics:</p> <ul style="list-style-type: none"> Work with established media and professional organizations to ensure consistent messaging Implement statewide hotlines through established mechanisms such as poison control center, 211, etc. Coordinate risk communication strategies with governmental public information officials 	<ul style="list-style-type: none"> Increase availability of coordinated communications for gaps identified Focused review of communications strategies to identify gaps in targeted populations vulnerable or causing disturbances 	
Staff <i>(Refer also to the worker functional capacity table in Toolkit Part 1 [Table 3-1])</i>	<p>Indicators:</p> <ul style="list-style-type: none"> Increasing absenteeism among public health staff; increased demand for staffing for community-based interventions, etc. <p>Triggers:</p> <ul style="list-style-type: none"> Community-based interventions required (e.g., vaccine, countermeasure distribution, “flu centers”) <p>Tactics:</p> <ul style="list-style-type: none"> Eliminate routine or non-life safety laboratory testing, surveillance of community organizations, etc. Initiate Continuity of Operations Planning to ensure that essential functions for local and state public health are implemented to support health care organization response Identify services to put on “pause” as personnel resources continue to decline Activate mutual aid/support plans from other agencies, disciplines, predesignated volunteer sources as required Off-load tasks onto technology as possible (e.g., hotlines rather than face-to-face assessments) Change staffing patterns and hours 	<p>Indicators:</p> <ul style="list-style-type: none"> Increasing absenteeism and inability to fulfill critical missions to community Increased demand for resources <p>Crisis Triggers:</p> <ul style="list-style-type: none"> Unable to fulfill critical missions (e.g., support alternate care sites) with appropriate staff <p>Tactics:</p> <ul style="list-style-type: none"> Eliminate all non-essential functions to support local and state response to the incident Reallocate any health professionals whose training allows them a more active role to support health care organizations Assist if needed in coordination of health volunteers to support public health and medical functions identified Triage personnel resources to services of most benefit (community vaccination, etc.) Use just-in-time recruiting and training as required to fulfill missions Obtain regulatory relief as required to facilitate facility crisis responses (e.g., who may administer vaccinations) 	<p>Indicators:</p> <ul style="list-style-type: none"> Impact of incident decreasing Personnel absenteeism is decreasing Personnel communicating need to initiate activities to “return to normal operations” <p>Triggers:</p> <ul style="list-style-type: none"> Missions able to be completed with adequate staffing <p>Tactics:</p> <ul style="list-style-type: none"> Review and prioritize key services for reimplementation at the local and state levels Initiate data analysis of impact of CSC implementation on personnel Revert to normal staffing patterns/hours/duties

Space/infrastructure	Indicators:	Indicators:	Indicators:	Indicators:
<ul style="list-style-type: none"> Health care organizations are unable to meet demands with traditional bed capacity with all surge strategies implemented Local and state public health initiated strategies to authorize alternate care site initiation; this includes assurances related to governmental waivers 	<ul style="list-style-type: none"> Space expansion is required for community-based interventions (vaccination campaign, etc.) Recognition of the need to open alternate care sites for screening clinics/early treatment 	<ul style="list-style-type: none"> Health care organizations have narrowed admission criteria to maximize available resources <p>Crisis Triggers:</p> <ul style="list-style-type: none"> Health care organizations have implemented all medical surge strategies and should seek alternate care site locations for inpatient care overflow 	<ul style="list-style-type: none"> Surveillance indicates declining new infections Health care organizations are able to broaden admission based on available resources 	
<p>Triggers:</p> <ul style="list-style-type: none"> Requests are made for waivers to authorize alternate care sites for care delivery Local public health departments work with their local health care organizations and regional health care coalitions to ensure that inpatient sites, including skilled nursing facilities, are prioritized for support Public health provides risk communication and coordination assistance for medical care system – when to seek care, etc. Local health departments work with their primary care providers to identify mechanisms to expand services and protect personnel Emergency Support Function-8 lead to keep each local emergency operations center aware of impact and contingency care implemented State health implement statewide plans for nurse triage lines, 211, poison control support for callers related to event State public health works with all health care coalitions to support implementation of statewide medical surge strategies State health emergency coordination center to keep each local health department aware of impact and contingency care implemented 	<p>Tactics:</p> <ul style="list-style-type: none"> Supply or support mobilization of deployment of volunteer health professionals Implementation of governmental waivers to establish alternate care sites State emergency operation centers and health emergency coordination centers work with state and federal agencies to establish declarations and emergency order rules specific to the necessary tactics to respond to the incident State public health to communicate with state disaster medical advisory committee to review status of CSC guidelines and distribute to impacted health care organizations 	<p>Triggers:</p> <ul style="list-style-type: none"> Decreasing census in alternate care sites within jurisdiction State observes multiple health care coalitions readying for demobilization of alternate care sites <p>Tactics:</p> <ul style="list-style-type: none"> Support health care alternate care site demobilization strategies Patient records, resources, and supplies should be accounted for and returned as required; local and state public health departments mobilize resources to assist as available State public health works with local partners and non-governmental organizations to communicate plans to return to conventional care 	<p>Triggers:</p> <ul style="list-style-type: none"> Decreasing census in alternate care sites within jurisdiction State observes multiple health care coalitions readying for demobilization of alternate care sites <p>Tactics:</p> <ul style="list-style-type: none"> Support health care alternate care site demobilization strategies Patient records, resources, and supplies should be accounted for and returned as required; local and state public health departments mobilize resources to assist as available State public health works with local partners and non-governmental organizations to communicate plans to return to conventional care 	

continued

TABLE 5-1
Continued

Indicator Category	Contingency	Crisis	Return Toward Conventional
Space/infrastructure (continued)	<ul style="list-style-type: none"> State health to initiate process for implementing executive orders for public health emergency; may or may not implement at this time Local and state public health begin planning strategies for crisis standards of care (CSC) if anticipated event expansion 		
Supplies	<p>Indicators:</p> <ul style="list-style-type: none"> Local and state monitoring of supplies and inventory data indicate shortage/potential shortage Benchmark supply availability to disease reporting and mortality data Anticipate challenges with medical supply chain based on expanding incident; review communications from each health care coalition for the impact to their health care organizations <p>Triggers:</p> <ul style="list-style-type: none"> Decreased availability of critical medical resources anticipated Requests to health care coalition medical coordination center for allocation of regional cache supplies <p>Tactics:</p> <ul style="list-style-type: none"> Prioritize resource allocation by urgency of need and risk Determine time frame and availability from other vendors/sources Review and update risk communication strategies specific to users of critical resources and community State health emergency coordination center work with each health care coalition to allocate regional cache contents and other resources State health emergency coordination center initiates internal mechanisms to move anticipated Strategic National Stockpile (SNS) materiel requests to the state emergency operations center 	<p>Indicators:</p> <ul style="list-style-type: none"> Demand forecasting/projections exceed available critical resources No national source of specific supplies available <p>Crisis Triggers:</p> <ul style="list-style-type: none"> Shortages of critical equipment, drugs, or vaccine present significant risk to persons who cannot receive them National guidance on rationing distributed <p>Tactics:</p> <ul style="list-style-type: none"> Focus allocation of scarce resources to maintaining critical social/public safety function (civil order maintenance) Coordinated risk communication strategies are critical Use government purchasing powers to support critical medical supplies Maintain communications with federal SNS program State and regional disaster medical advisory committees review triage guidance available and propose recommendations State public health circulates guidelines on allocation of resources Legal, regulatory, and emergency powers invoked as required to facilitate fair, planned allocation process 	<p>Indicators:</p> <ul style="list-style-type: none"> Vaccine manufacturers have increased supply chain so targeted groups for vaccination is expanded based on disease trends and ethical guidelines Additional resources are obtained Demand for resources (e.g., ventilators) is declining as event wanes <p>Triggers:</p> <ul style="list-style-type: none"> Critical medical supplies are sufficient to meet the needs of the patients requiring them <p>Tactics:</p> <ul style="list-style-type: none"> Continued, coordinated risk communication. Assessment if transition is temporary or likely to be permanent Local public health should augment Points of Dispensing plans to meet demands when vaccination is expanded as vaccine is available Demobilization of SNS State public health to review CSC guidelines for possible revision based on resource availability

Fatality management**Indicators:**

- Rising death toll
- Rate of deaths projected to exceed local capabilities

Triggers:

- Health care organizations are reporting an inability to manage the number of decedents within facilities
- Local medical examiners/coroners are unable to meet the demands of their jurisdiction with usual processing

Tactics:

- Local public health works with medical examiners/coroners to determine if the bottleneck is processing (medical examiner caseload) or body management
- Local public health contacts funeral home, mortuaries, morgues, or crematoriums to assess current impact on capacity and expansion capacity.
- Local governmental agencies should identify potential cultural barriers to modifications in death processes and prepare strategies to address these
- Initiate strategies to expedite the completion of death certificates/investigations
- State public health investigates modifications to laws, regulations, etc., for dealing with decedents
- Governmental authorities initiate planning for possible alternate storage strategies
- Consider federal or state disaster mortuary team resources
- Consider temporary storage facilities implementation plan

Indicators:

- Funeral homes communicating limited resources to conduct funeral services
- Rate of deaths projected to exceed regional/surge capabilities

Crisis Triggers:

- With disaster plans implemented, fatality processing demand exceeds available resources and threat of civil unrest or decomposition is real

Tactics:

- Risk communication strategies coordinated at local and state levels
- Activation of all available mortuary resources, including response teams and expanded cremation and processing operations
- Governor declaration for expedited burials and/or temporary interment upon state public health recommendation. NOTE: Requires extensive planning with multiple state agencies to identify a location, tracking, and personnel support to implement such a response to manage mass fatality incident.
- Consider transfer of decedents to other locations for processing if required

Indicators:

- Number of deaths from influenza are stabilizing or sustained decline

Triggers:

- Decedent processing is able to be accommodated within surge or conventional systems

Tactics:

- Risk communication on decedent management
- Local and state public health, in conjunction with medical examiners/coroners, resume normal processes, which include funerals and traditional burials
- Alterations that had occurred should be addressed to return to “normal state,” recognizing the complexity associated with variation in cultural and societal death routines

TABLE 5-1
Continued

Indicator Category	Contingency	Crisis	Return Toward Conventional
Congregate gatherings	<p>Indicators:</p> <ul style="list-style-type: none"> Epidemiologic models indicate person-to-person spread is prevalent Multiple jurisdictions reporting that large gatherings implicated in outbreak investigations Outbreaks linked to funeral services <p>Triggers:</p> <ul style="list-style-type: none"> Epidemiologic data indicate increasing outbreaks directly related to known congregate gatherings in more than one jurisdiction <p>Tactics:</p> <ul style="list-style-type: none"> Local and state review immediate and future large-scale venues for anticipated cancellation Local and state recommendations on school closures State public health readies quarantine guidelines working with governor's office 	<p>Indicators:</p> <ul style="list-style-type: none"> Statewide indication of high transmission in gathering settings <p>Crisis Triggers:</p> <ul style="list-style-type: none"> Forced quarantine is required to prevent spread of dangerous pathogen Public gatherings prohibited <p>Tactics:</p> <ul style="list-style-type: none"> Executive order or governor's declaration to eliminate congregate gatherings Quarantine orders implemented as indicated Governmental agencies collaborate to enforce congregate-gathering bans 	<p>Indicators:</p> <ul style="list-style-type: none"> Decrease in evidence for person-to-person trends Criteria for identifying "superspreaders" as individuals allows targeted interventions <p>Triggers:</p> <ul style="list-style-type: none"> Sustained decrease in disease transmission trends <p>Tactics:</p> <ul style="list-style-type: none"> Governor rescinds gathering orders Initiate public gatherings Local and state continue close monitoring of epidemiologic data to ensure continued decline and are prepared to reinstate bans if cases increase

TABLE 5-2 Example Public Health Indicators, Triggers, and Tactics for Transitions Along the Continuum of Care in a No-Notice (Earthquake) Scenario

Indicator Category	Contingency	Crisis	Return Toward Conventional
Surveillance data	<p>Indicators:</p> <ul style="list-style-type: none"> • Collection of Essential Elements of Information indicates disruption of services that impact local public health and health care organizations within jurisdiction • Local health department identifies specific population health surveillance data impacted by incident • Impacted persons are being taken to multiple health care organizations through traditional and non-traditional methods • Forecast temperature extremes <p>Triggers:</p> <ul style="list-style-type: none"> • Communications from health care organizations to their health care coalitions that many facilities have infrastructure damage • Communications from local emergency operations centers (EOCs) to state EOC (SEOC) that medical and public health have significant impact to service delivery • Incident disrupts medical supply chain; anticipate shortages • Unable to locate or track all patients impacted by incident. <p>Tactics:</p> <ul style="list-style-type: none"> • Data collection to local EOC • State health emergency coordination center queries all health care coalitions to identify statewide impact to service delivery and plan response strategies (patient and resource movement) • Local health department implements focused assessments and modification specific to impact of incident for jurisdictional population • Implement patient tracking system statewide 	<p>Indicators:</p> <ul style="list-style-type: none"> • Scope of incident: indicates need to focus surveillance on key elements to support medical and public health operations • Communications indicate emergency management and/or American Red Cross or other nongovernmental organization establishing multiple sheltering operations • Incident-related injuries necessitate modification of surveillance strategies • Shelters established, need for augmented surveillance to protect shelter population <p>Crisis Triggers:</p> <ul style="list-style-type: none"> • Health care organization capacity is overwhelmed based on casualty counts and impact on health care infrastructure <p>Tactics:</p> <ul style="list-style-type: none"> • Collection of key information only to maximize/distribute resources or reunite families • Continue established patient tracking system and allow access by non-governmental and other organizations as required to facilitate reunification 	<p>Indicators:</p> <ul style="list-style-type: none"> • Focused surveillance indicates diminishing impact of incident <p>Triggers:</p> <ul style="list-style-type: none"> • No additional victims being entered into system • Decreasing numbers in shelters and consolidation of sheltering services <p>Tactics:</p> <ul style="list-style-type: none"> • Return to routine surveillance activities • Extensive review of incident-specific surveillance data to determine long-term follow-up or further focused surveillance • Archiving of patient tracking from event

continued

TABLE 5-2
Continued

Indicator Category	Contingency	Crisis	Return Toward Conventional
Community and communications infrastructure	<p>Indicators:</p> <ul style="list-style-type: none"> Initial and subsequent damage reports indicate substantial loss of 911 or other communications Initial and subsequent damage reports indicate substantial loss of health care or residential infrastructure Numbers of persons are missing and the pressure families are putting on 911 and other systems to find them Disruption of roads impact ability to meet the needs of patient movement <p>Triggers:</p> <ul style="list-style-type: none"> Requests from multiple health care organizations and health care coalitions for governmental assistance due to infrastructure damage Significant reports of safety issues that could impact community, thus indicating a need for coordinated risk communication strategies Local EOCs getting queries from health care organizations about utility restoration <p>Tactics:</p> <ul style="list-style-type: none"> Support requests from health care organizations through health care coalition Prioritize key public health activities to support critical jurisdictional needs and health care organization service delivery Local public information officials work with media on health-related risk communication strategies State public information officials working with other state agency and local public information officials for coordinated risk communications Local EOCs establishing mechanisms to implement family reunification systems 	<p>Indicators:</p> <ul style="list-style-type: none"> Local EOCs and state emergency operation center are fully activated statewide to respond to catastrophic incident Widespread loss of utilities Widespread loss of critical communications (cellular, Internet, public safety radio, etc.) <p>Crisis triggers:</p> <ul style="list-style-type: none"> Incident unfolding with health care coalitions communicating more than X% of facilities with significant infrastructure damage (the level of care provided by health care organizations and their roles in the community will impact the number of damaged facilities that cause a transition to crisis response) Inability for multiple hospitals to remain in their current building without significant support Multiple health care facilities require evacuation and inadequate transport resources to accomplish this Local emergency management indicates a need to establish multiple shelters, including functional needs <p>Tactics:</p> <ul style="list-style-type: none"> Continued need for risk communications to community Identify needs of health care organizations in collaboration with health care coalitions Local health departments should identify staff, including volunteers, to assist with public health issues in shelters, including those targeted to functional needs State public information officials working with other state agency and local public information officials for coordinated risk communications State working with locals to ensure that family reunification systems can meet demands 	<p>Indicators:</p> <ul style="list-style-type: none"> Public safety communications back online Repairs to health care organizations provide the ability to repopulate or resume previous level of service <p>Triggers:</p> <ul style="list-style-type: none"> Emergency communications systems reestablished <p>Tactics:</p> <ul style="list-style-type: none"> Communicate deescalation of incident to community through established methods and using risk communication strategies Local and state public health assist with assessments or surveys to clear impacted health care organizations for repopulation or resume suspended services

Staff

Indicators:

- Personnel availability impacted by access, family obligations, injury/direct effects

Triggers:

- Request for additional medical or public health personnel to support operations

Tactics:

- Identify cross-trained personnel to support services linked to incident
- Modifications to services will be based on staff available
- Plan to support response with volunteer health professionals (Emergency System for Advance Registration of Volunteer Health Professionals [ESAR-VHP], Medical Reserve Corps [MRC], coalition, etc.)

Indicators:

- Personnel availability impacted widely by access, family obligations, injury/direct effects
- Local infrastructure damage will prevent mutual aid in a timely manner
- Alternate care sites and shelters initiated

Crisis triggers:

- Multiple organizations requesting medical staff support and inadequate availability of staff via usual programs (ESAR-VHP, etc.)
- Specialty consultation unavailable to hospitals boarding burn, pediatric, or other patients due to demands or communication issues at referral centers

Tactics:

- Use available staff and provide support for non-specialized tasks to maximize response
- Limit services to those related to life/safety issues only
- Facilitate out-of-area specialty consultation as applicable
- Use volunteer health professional if available
- State to seek additional personnel resources through federal programs (Department of Health and Human Services, Department of Defense, etc.)

Indicators:

- Decreasing use of alternate care sites
- Decreasing requests for staff support

Triggers:

- Health care organizations releasing volunteer and other supplemental staff

Tactics:

- Initiate processes to return staff to routine positions
- Implement demobilizations strategies if volunteers were used

TABLE 5-2
Continued

Indicator Category	Contingency	Crisis	Return Toward Conventional
Space/infrastructure	<p>Indicators:</p> <ul style="list-style-type: none"> Emergency management has initiated shelters Emergency medical services (EMS) reporting evacuations of long term care (LTC) and similar facilities Hospital data indicate capacity exceeded at multiple facilities despite surge capacity plan activation <p>Triggers:</p> <ul style="list-style-type: none"> Local requests for assistance with patient movement Inadequate EMS resources to accommodate demands <p>Tactics:</p> <ul style="list-style-type: none"> Need anticipated to modify EMS transport protocols statewide and suspend specific staffing and other response requirements Local EOCs work with regional health care coalitions to identify and prioritize transport resources State health emergency coordination center to work on statewide available resources through health care coalition structure State public health and SEOC identify additional resources through Mutual Aid Agreements or Emergency Management Assistance Compact (EMAC) 	<p>Indicators:</p> <ul style="list-style-type: none"> Communications indicate demand exceeds patient transport supply Hospitals have inadequate space for victims <p>Crisis triggers:</p> <ul style="list-style-type: none"> Requests to modify EMS transport protocols Requests for alternate care sites for inpatient overflow <p>Tactics:</p> <ul style="list-style-type: none"> State ESF-8 works to implement protocol waivers to support modified transport plans State public information official communicates efforts to all medical health entities State coordination of field hospital and patient transportation assets from state, EMAC, and federal sources 	<p>Indicators:</p> <ul style="list-style-type: none"> EMS indicates return to normal dispatch and transport protocols Alternate care sites no longer required/use diminishing <p>Triggers:</p> <ul style="list-style-type: none"> System data indicate returning to baseline transport status <p>Tactics:</p> <ul style="list-style-type: none"> Support efforts to return EMS to normal operations and regulations Support demobilization of alternate care sites and shelter medical support Local and state public health staff gather all after-action reports, meet with key stakeholders to identify challenges, and plan to support future operations

Supplies

Indicators:

- Interruption in supply chain impacts resource availability
- Local use of resources exceeds supply (e.g., blood products, surgical supplies)

Triggers:

- Resource shortages reported, including medical material and pharmaceuticals
- Local request for Strategic National Stockpile (SNS) or cache materiel

Tactics:

- Local health care organizations work with their health care coalition to distribute regional resources, including obtaining resources from health care coalitions that are not impacted by the incident
- State Emergency Support Function- (ESF-) 8 should identify possible waivers, including the reuse of equipment and supplies within health care organizations
- Initiate process to request SNS or other materiel through state EOC

Indicators:

- Critical medical supplies are unavailable

Crisis triggers:

- Unable to locate additional medical supplies to support medical care, presenting a life/safety risk

Tactics:

- Local and state public health should continue to identify resources to support organizational response; this would include implementing MAA and EMAC requests for services and supplies needed to deliver care
- Executive orders or public health/emergency declaration if needed to support altering the use of equipment, supplies, or human resources
- Public health guidance on allocation of specific scarce resources may be required, with input from state disaster medical advisory committee

Indicators:

- Mobilization of equipment, supplies, and resources to meet demand

Triggers:

- Decreasing requests for additional supplies to support response

Tactics:

- Data collection and financial accountability to assess impact of incident and plan for remediation of gaps
- Continue situational monitoring —is this a temporary or sustained improvement?

Decision-Support Tool: Blank Table to Be Completed

Prompted by discussion of the key questions above, participants should fill out this blank table (or multiple tables for different scenarios) with key system indicators and triggers that will drive actions in their own organizations, agencies, and jurisdiction.

Reminders:

- *Indicators* are measures or predictors of changes in demand and/or resource availability; *triggers* are decision points.
- The key questions were designed to facilitate discussion—customized for public health—about the following four steps to consider when developing indicators and triggers for a specific organization/agency/jurisdiction: (1) Identify key response strategies and actions, (2) Identify and examine potential indicators, (3) Determine trigger points, (4) Determine tactics.
- Discussions about triggers should include (a) triggers for which a “bright line” can be described, and (b) *how* expert decisions to implement tactics would be made using one or more indicators for which no bright line exists. Discussions should consider the benefits of *anticipating* the implementation of tactics, and of *leaning forward* to implement certain tactics in advance of a bright line or when no such line exists.
- The example table may be consulted to promote discussion and to provide a sense of the level of detail and concreteness that is needed to develop useful indicators and triggers for a specific organization/agency/jurisdiction.
- This table is intended to frame discussions and create awareness of information, policy sources, and issues at the agency level to share with other stakeholders. Areas of uncertainty should be noted and clarified with partners.
- Refer back to the toolkit introduction (Chapter 3) for key definitions and concepts.

Scope and Event Type: _____	
Indicator Category	Contingency
Surveillance data	<p>Crisis</p> <p>Indicators:</p> <p>Triggers:</p> <p>Tactics:</p>
	<p>Indicators:</p> <p>Crisis triggers:</p> <p>Tactics:</p>
Communications and community infrastructure	<p>Indicators:</p> <p>Triggers:</p> <p>Tactics:</p>
	<p>Indicators:</p> <p>Crisis triggers:</p> <p>Tactics:</p>
Staff	<p>Indicators:</p> <p>Triggers:</p> <p>Tactics:</p>
	<p>Indicators:</p> <p>Crisis triggers:</p> <p>Tactics:</p>
Space/infrastructure	<p>Indicators:</p> <p>Triggers:</p> <p>Tactics:</p>
	<p>Indicators:</p> <p>Crisis triggers:</p> <p>Tactics:</p>
Supplies	<p>Indicators:</p> <p>Triggers:</p> <p>Tactics:</p>
	<p>Indicators:</p> <p>Crisis triggers:</p> <p>Tactics:</p>
Other categories	<p>Indicators:</p> <p>Triggers:</p> <p>Tactics:</p>
	<p>Indicators:</p> <p>Crisis triggers:</p> <p>Tactics:</p>

REFERENCE

IOM (Institute of Medicine). 2012. *Crisis standards of care: A systems framework for catastrophic disaster response*. Washington, DC: The National Academies Press. http://www.nap.edu/openbook.php?record_id=13351 (accessed April 3, 2013).