

ASPR TRACIE Technical Assistance Request

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Response Date: March 17, 2020; Updated January 27, 2021

Type of TA Request: Complex

Request:

ASPR TRACIE received a request for resources on Crisis Standards of Care (CSC) for COVID-19 planning.

Response:

The ASPR TRACIE Team reviewed material available on CSC and conferred with our CSC Subject Matter Experts (SMEs). Relevant resources and SME comments are provided in this document.

Please refer to CDC's [Coronavirus Disease 2019 webpage](#) for the most up-to-date clinical guidance on COVID-19 outbreak management.

Resources

- [ASPR TRACIE Novel Coronavirus Resources Page](#)
- [ASPR TRACIE COVID-19 Crisis Standards of Care Resources Collection](#)
- [ASPR TRACIE Healthcare Coalition Influenza Pandemic Checklist](#)
- [ASPR TRACIE Infectious Disease Page](#)
- [ASPR TRACIE Healthcare Coalitions Page](#)
- [ASPR TRACIE Crisis Standards of Care Topic Collection](#)
- [Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response](#) (Institute of Medicine [IOM], 2012)
- [Crisis Standards of Care: A Toolkit for Indicators and Triggers](#) (IOM, 2013)
- [Duty to Plan: Health Care, Crisis Standards of Care, and Novel Coronavirus SARS-CoV-2](#)
- [Minnesota Crisis Standards of Care Framework](#) (2020)
- [Nine National Organizations Call for Action to Implement Crisis Standards of Care During COVID-19 Surge](#) (National Academy of Medicine and Others) (2020)
- [Patient Care Strategies for Scarce Resource Situations](#) (Minnesota Department of Health, May 2020)
- [Potential Solutions to the COVID-19 Oxygen Crisis in the United States](#) (Toner, E., January 2021)
- [Strategies to Optimize the Supply of PPE and Equipment](#) (CDC, May 2020)

American College of Chest Physicians Resources:

- [Triage: Care of the Critically Ill and Injured During Pandemics and Disasters: CHEST Consensus Statement](#) (2014)
- [Resource-Poor Settings: Response, Recovery, and Research: Care of the Critically Ill and Injured During Pandemics and Disasters: CHEST Consensus Statement](#) (2014)
- [Surge Capacity Logistics: Care of the Critically Ill and Injured During Pandemics and Disasters: CHEST Consensus Statement](#) (2014)

Subject Matter Expert Comments

Background and Key Points

- CSC was originally developed for catastrophic disaster situations. However, the concepts and processes can be applied to more routine shortages of medications, personal protective equipment (PPE), and/or staffing shortages.
- *Crisis care* refers to the immediate healthcare-related decisions made when the health system is overwhelmed; whereas *crisis standards of care* refers to the organizational support that healthcare institutions and government agencies implement systematically as a part of an emergency response plan. Consistency and fairness across the affected population is critical. Institutions should have systems in place to provide (or acquire) and organize “stuff, staff, space, and systems” with enough specialized expertise on-hand to adapt clinical practice and workflow to the nuances of the situation. For frontline clinicians, crisis care is often a *forced decision*.
 - **Crisis care** situations occur whenever a hospital must balance a risk to patient or providers against the need to do the “greatest good for the greatest number.” These decisions need to be made as proactively as possible at the facility level with approval of the incident commander.
 - **CSC** techniques used in the healthcare system are supported by regulatory, legal, and other government entity direction and a proactive approach is taken to ensure consistency across the healthcare delivery system. These decisions are made at the state and regional levels by public officials and often involve government declarations of emergency and other official actions.
- The threshold between contingency and crisis is *not* usually a “black and white” distinction – the aim should be “graceful degradation” of services across a spectrum of care provided and the hospital should plan to implement the surge techniques that place the patient and providers at least risk first, with proportional increases in risk and complexity with advancing demands of the event.
- Having a decision-making process in place about how best to allocate or use scarce resources is much more important than defining criteria for specific items. The same process can be used for any resource issue and requires always engaging incident

management, bringing in technical experts to inform the best strategies given the situation, developing a plan across a range of contingencies, and implementing what is necessary for that operational period.

- CSC situations are *dynamic* and in an epidemic situation will require tuning of the strategies to the situation on a frequent basis. Anticipating “next steps” both as shortages worsen but also as they resolve is an important part of CSC efforts.

Framework

CSC planning involves the same core disciplines involved in healthcare coalitions (HCC), public health, emergency management, hospitals/healthcare, and emergency medical services (EMS) systems. The role of emergency management is to support the alternative provision of care dictated by the event, even though many of these situations never involve a formal declaration of public health emergency or disaster. Public health must support healthcare through coordination of risk communication messaging, public information, epidemiology, medical countermeasures (e.g., vaccine [which may require CSC planning for at-risk groups since vaccine may be in short supply]), and social distancing. Healthcare and EMS bear the majority of the direct clinical responsibilities and must plan for a range of options across the surge spectrum. In the process of planning, the following key principles must be followed (IOM 2009, 2012):

- **Fairness:** are the decisions fair and based on as much science as possible?
- **Duty to Care:** the duty that healthcare systems and clinicians have to plan for and address resource shortfalls.
- **Duty to Steward Resources** and allocate them for the greatest benefit to the community.
- **Transparency** with providers and the public.
- **Consistency** within the facility/agency and within the coalition/region.
- **Proportionality:** only make the changes necessary to adjust to the demand. Adjust these based on the resources available. This may require multiple calibrations during a prolonged

Related CSC Terms

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 (IOM, 2012)

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.

Trigger: A decision point 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. NAM 2013).

and dynamic event such as an epidemic.

- **Accountability:** those making the decisions need to document the reasons and be accountable to best practices for allocation decisions.

CSC planning spans a spectrum from conventional to crisis care; essentially, crisis care planning should be embedded in the surge capacity planning of the facility.

Indicators and Triggers

The facility should look at available data and resources to determine if there are indicators they can follow and any specific trigger points that should be considered.

In particular, triggers should be put in place to allow line personnel to take action (e.g., if emergency department wait times exceed X, then do Y). [Appendix A](#) includes Table 8-1 from the 2013 IOM [Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response: Volume 1: Introduction and CSC Framework](#) report, which can help planners understand specific indicators, triggers, strategies, and tactics relative to an epidemic/pandemic that stresses hospital capacity.

Some additional triggers to consider (i.e., when would the following happen?):

- Activation of the hospital incident command system
- Activation of the HCC
- Conservation of PPE (ideally a regional trigger)
- Implementation of specific cohorting strategies
- Change in shifts/ staffing ratios (note that many staffing and supply adaptations are incremental and dynamic and require daily re-evaluation by the incident command team)
- Resource triage strategies for extracorporeal membrane oxygenation (ECMO) and other resources (and regional coordination – as these should be consistently applied)
- Implementation of alternate care sites (ACS)/ systems

These triggers are often associated with specific needs for support from the state or regulatory authorities that should be documented and discussed prior to an event. For example:

- Ongoing use of non-traditional patient care areas may prompt request for relief of regulatory requirements for the environment of care or relief of usual requirements for reimbursement (e.g., state hospital standards or Center for Medicare & Medicaid Services [CMS] 1135 waiver, relief from state-level nursing staffing standards)
- Use of non-traditional staff (relief of licensure requirements by state boards or granting of state responder status to members of Medical Reserve Corps [MRC], etc.)
- Triage of critical care resources (request for federal assistance, release of state guidance, enactment of provider legal protections)
- Initiation of alternate care sites (request for regulatory relief, release from state fire marshal requirements for residential facilities, liability relief for providers working in ACSs, assistance with obtaining supplies – financial and logistic)
- Conservation strategies for provider PPE due to shortage (federal and state occupational

health agency and other appropriate agency concurrence with strategies)

Strategies

The following strategies may be used to address a deficit (adapted from [IOM 2012](#)):

- **Prepare:** anticipate challenges, develop plans, stockpile materials
- **Conserve:** implement conservation strategies for supplies in shortage or anticipated shortages to ensure the minimum impact/ compromise possible (e.g., determine “at-risk” groups with priority for therapies in shortage and overall strategies to conserve use of oxygen delivery devices or PPE)
- **Substitute:** provide an equivalent or near equivalent medication or delivery device
- **Adapt:** use equipment for alternative purposes (e.g., anesthesia machine as a ventilator)
- **Re-use:** plan to re-use a variety of materials after appropriate disinfection or sterilization (e.g., oxygen delivery devices)
- **Re-allocate:** if no alternatives, remove a resource from one area/ patient and allocate to another with a higher likelihood of benefit (e.g., triage of scarce resources such as ECMO and ventilators)

Hospital Processes

- All CSC activities rely on the incident command system being activated and utilized effectively both in the facility and at the HCC level. Without information sharing, knowledge of impact and resources, and accountability, equitable decisions cannot be made.
- Decision-making for how to use and allocate resources (whether clinic spaces, N95 masks, or medications) should be done in a structured discussion through the planning section or the command team via “technical experts” – that is, clinician or other expert staff (e.g., infection prevention) that are asked to provide best practices and ideas on resource use and management. These recommendations are then operationalized by the rest of the incident command team.
- A process should also exist for making medical triage decisions, particularly if the facility provides a resource likely to be in shortage such as ECMO or critical care. Processes for such decisions are outlined in several documents listed in the [Resources](#) section.

In particular, hospitals should have a plan that spans the conventional, contingency, and crisis spectrum for:

- **Staffing** during a pandemic – patient surge coupled with staff absenteeism may present significant challenges
- **Space** – particularly expansion of critical care space (with a goal of 200% expansion consistent with [American College of Chest Physicians 2014 recommendations](#)) and isolation space (airborne infection isolation rooms [AIIR] rooms, cohorting by unit, etc.)
- **Supplies** – including N95 masks and other PPE and the potential for medication shortages

Coalition/Regional Processes

- The processes and structure differ depending on the role of the HCC and the resources in the region.
- At minimum, the HCC should promote information sharing and consistency of policies (e.g., visitor management, transfer, alternate care sites).
- If the referral/transfer process is not handled at the HCC level during a major incident, a process should be established so that referring hospitals are not calling multiple receiving hospitals that are all “full.”
- Telehealth support for referring facilities may be important if they are holding patients more severely ill than they would usually care for due to a shortage of critical care beds at their partner facilities. The HCC may have a key role in facilitating this support.
- HCCs should determine how they will facilitate and coordinate clinician discussions that will help ensure information sharing and a consistent standard of care among the HCC members.
- A regional disaster medical advisory committee structure may be helpful. Membership and roles may vary depending on the HCC and the goals of the committee. Note that other physicians will need education on these issues and the process and will need input in other domains (e.g., emergency medicine, anesthesia/surgery, infectious disease).
- HCCs should determine their interface with state and regional processes during major incidents.

Having a plan for distribution of any state or federal assets that may be available is important. This could involve ventilators, N95 masks, and other materials. Pro-rata allocation, allocation based on need, and other approaches can be taken. An ad hoc approach will be detrimental, as it will not effectively match the resources to the needs and may be considered unfair by some facilities based on their immediate situation.

Appendix A: Table 8-1 from IOM/NAM Indicators and Triggers for Crisis Standards of Care

TABLE 8-1
Continued

Indicator Category	Contingency	Crisis	Return Toward Conventional
Surveillance data (continued)	<p>Triggers:</p> <ul style="list-style-type: none"> • Receipt of health alert triggers group notification by receiving infection prevention personnel • Disaster plan activated when >X seriously injured victims expected at facility—Hospital Command Center opens • “Full capacity” plan initiated when ED wait times exceed X hours <p>Tactics:</p> <ul style="list-style-type: none"> • Change or increase monitoring parameters, additional situational awareness activities • Partial or full activation of incident command system/hospital command center • Communication/coordination with stakeholders/coalition partners • Change hours, staffing, internal processes in accord with facility plans • Assess predicted impact on institution 		
<p>Staff</p> <p><i>[Refer also to the workforce protection example table in part one of the toolkit]</i></p>	<p>Indicators:</p> <ul style="list-style-type: none"> • Increasing staff absenteeism • Specialized staff needed (pediatrics, burn, geriatrics) for incident patients • School closures • Staff work action anticipated (e.g., strike) • High patient census • Staffing hours adjustment required to maintain coverage • Staffing supervision model changes required to maintain coverage <p>Triggers:</p> <ul style="list-style-type: none"> • X% staff ill call rate prompts notification of emergency management group • School closures across area trigger opening of staff day care • Normal staff to patient ratios exceeded • Specific staff expertise demands exceeded (e.g., mass burn event - depletion of burn nurses) 	<p>Indicators:</p> <ul style="list-style-type: none"> • Increasing staff requirements in face of increasing demand • Contingency spaces maximized • Contingency staffing maximized <p>Crisis Triggers:</p> <ul style="list-style-type: none"> • Unable to safely increase staff to patient ratios or broaden supervisory responsibilities • Lack of qualified staff for specific cares—especially those with high life-safety impact <p>Tactics:</p> <ul style="list-style-type: none"> • Tailor responsibilities to expertise, diverting non-technical or non-essential care to others • Recruit and credential staff from volunteer (Medical Reserve Corps [MRC], Emergency System for Advance Registration of Volunteer Health Professionals [ESAR-VHP]) or federal sources (Disaster Medical Assistance Team [DMAT], other National Disaster Medical System [NDMS] source, etc.) 	<p>Indicators:</p> <ul style="list-style-type: none"> • Staff impact is reduced, schools back in session, damage to community mitigated • Staff absenteeism reduced • Specialty staff obtained or demand decreased <p>Trigger:</p> <ul style="list-style-type: none"> • Staff to patient ratios of 1:X achieved on medical floor <p>Tactics:</p> <ul style="list-style-type: none"> • Shorten shift lengths • Adjust staff to patient ratios toward normal • Transition toward usual staff - releasing less qualified staff first • Resume care routines • Resume administrative duties

Tactics:

- Assess likely impact on facility
- Hold staff
- Change hours, staffing patterns
- Change staff to patient ratios
- Specialty staff provide only specialty/technical care, while other staff provide more general care
- Callback, obtain equivalent staff from coalition, hiring, administrative staff
- Change charting responsibilities
- Curtail non-essential staffing (cancel elective cases, specialty clinic visits, etc.)
- Provide support for staff (and their families as required) to help them continue to work and provide quality care (e.g., stress "immunization," rest periods, housing support)
- Establish remote consultation of specialized services such as telemedicine, phone triage, etc., if possible
- Evacuate patients to other facilities with appropriate staff available

**Space/
Infrastructure****Indicators:**

- Increased ED volumes
- Increased clinic/outpatient volumes
- Increased inpatient census
- Increased pending admits/ED boarding

Triggers:

- Inpatient census exceeds conventional beds
- Damage to infrastructure
- Clinics unable to accommodate demand for acute care
- >X hours ED boarding time
- Electronic health record downtime
- Telephone or internet systems failures

Tactics:

- Expand hours of outpatient care
- Open additional outpatient care space by adjusting specialty clinic space/times
- Provide "inpatient" care on preinduction, postanesthesia care, other equivalent areas
- Divert patients to clinics/other facilities
- Transfer patients to other facilities
- "Reverse triage" appropriate patients home (with appropriate homecare)
- Implement downtime procedures for IT systems

Indicators:

- Inpatient/outpatient contingency spaces maximized or near-maximized
- Escalating or sustained demand on ED/outpatient despite implementing contingency strategies
- Damage to infrastructure affecting critical systems

Crisis Triggers:

- Contingency inpatient beds maximized (may include subset of ICU, burn, pediatrics, etc.)
- Contingency outpatient adaptations inadequate to meet demand using equivalent spaces or strategies
- Damage to infrastructure affecting critical systems *and* presenting a safety issue to staff/patients

Tactics:

- Establish non-traditional alternate care locations (e.g., auditorium, tents, conference rooms), recognizing governmental role in authorizing waivers
- "Reverse triage" stable patients to these areas, move stable ICU patients to monitored bed areas (i.e., step-down units deliver ICU-level care)

Indicators:

- Favorable epidemiologic curves
- Restoration of critical system function
- ED/outpatient volumes decreasing

Trigger:

- Patients able to be matched to appropriate areas for care

Tactics:

- Transitional movement of sickest patients back into ICU environment
- Broaden admission criteria
- Reduce/eliminate care in non-traditional spaces (stop providing assessment/care in non-patient care areas/cot-based)
- Shift toward normal hours

TABLE 8-1
Continued

Indicator Category	Contingency	Crisis	Return Toward Conventional
Space/ Infrastructure (continued)		<ul style="list-style-type: none"> Consider other methods of outpatient care, including telephone treatment and prescribing Change admission criteria – manage as outpatients with support/early follow-up Evacuate patients to other facilities in the region/state/nation that have appropriate capabilities and capacity 	
Supplies	<p>Indicators:</p> <ul style="list-style-type: none"> Vendor supply or delivery disruption Supply consumption/use rates Epidemiology of event predicts supply impact <p>Triggers:</p> <ul style="list-style-type: none"> Event epidemiology predicts ventilator or other specific resource shortages (e.g., pediatric equipment) Medication/vaccine supply limited Consumption rates of personal protective equipment (PPE) unsustainable Vendor shortages impact ability to provide normal resources <p>Tactics:</p> <ul style="list-style-type: none"> Use non-traditional vendors Obtain from coalition facilities/stockpiles (including potential state/federal sources) Conserve, substitute, or adapt functionally equivalent resources; reuse if appropriate 	<p>Indicators:</p> <ul style="list-style-type: none"> Coalition lack of available ventilators Anesthesia machines and other adaptive ventilation strategies in use Coalition/vendor lack of available critical supplies/medications <p>Crisis Triggers:</p> <ul style="list-style-type: none"> Inadequate ventilators (or other life-sustaining technology) for all patients that require them Inadequate supplies of medications or supplies that cannot be effectively conserved or substituted for without risk of disability or death without treatment <p>Tactics:</p> <ul style="list-style-type: none"> Implement triage team/clinical care committee process Determine bridging therapies (bag-valve ventilation, etc.) Coordinate care /triage policies with coalition facilities (in no-notice event, this may not be possible) Triage access to life-saving resources (ventilators, blood products, specific medications) and reallocate as required to meet demand according to state/regional consensus recommendations. Restrict medications to select indications Restrict PPE to high-risk exposures (and/or permit PPE reuse) Reuse or reallocate resources when possible (benefit should outweigh risks of reuse; reallocate only when no alternatives – see criteria in IOM, 2012) 	<p>Indicators:</p> <ul style="list-style-type: none"> Reduced use of PPE or other supplies Reduced caseload or demand for care and services Improved delivery of supplies Reduced need for ventilator or other triage <p>Triggers:</p> <ul style="list-style-type: none"> Able to provide contingency ventilation and critical care strategies to all that require them <p>Tactics:</p> <ul style="list-style-type: none"> Retriage patients as resources become available Broaden indications for interventions as conditions improve Transition back from reallocation and reuse to safer adaptive and conservation strategies Loosen restrictions on use of supplies

Appendix B: Selected Planning Questions

Selected questions for healthcare planners from the IOM Crisis Standards of Care: A Toolkit for Indicators and Triggers report (IOM, 2013):

1. What potential indicator data are available at the community or state level and who coordinates or has access to these (systems data, epidemiologic data, alerts)?
2. Who monitors and interprets these data? How are they communicated or used in decision making?
3. What additional information could be accessed during an incident or event that would be helpful to guide facility/agency actions?
4. Do any defined actions or notifications occur once an indicator is noted or a threshold exceeded?
5. Is the facility an active participant in their regional healthcare coalition and, if so, what resources are available, what is the trigger for requesting them, and how are they requested (medical coordination center)?
6. What are the crisis care triggers for the institution that would signify a need to implement crisis standards of care? Are these similar to other hospitals within the health care coalition?
7. At what threshold (indicator or trigger) does interfacility communication and/or coordination begin (including EMS, EM, PH, and coalition/community health care organizations)?
8. How do the facility and coalition share information (including impact, resource availability, case and clinical information) with state and local public health agencies to optimize situational awareness and resource management?
9. What triggers exist at the state level to provide declarations of emergency (and/or regulatory and liability protections) from public health or emergency management? If there are not predesignated triggers, how are requests handled on these actions?
10. How does the institution internally and externally (with local public health) recognize the need for and support alternate care sites?