

Hospital Operations Toolkit for COVID-19

Patient Care Policies/Processes:

Crisis Standards of Care

November 30, 2020

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As described by the 2012 National Academies of Sciences, Engineering, and Medicine (NASEM) [Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response](#), along with related publications, disaster medical response occurs across a spectrum of conventional care to crisis care:

- **Conventional Capacity:** The spaces, staff, and supplies used are consistent with daily practices within the institution. These spaces and practices are used during a major mass casualty incident that triggers activation of the facility emergency operations plan.
- **Contingency Capacity:** The spaces, staff, and supplies used are not consistent with daily practices but provide care that is functionally equivalent to usual patient care. These spaces or practices may be used temporarily during a major mass casualty incident or on a more sustained basis during a disaster (when the demands of the incident exceed community resources).
- **Crisis Capacity:** Adaptive spaces, staff, and supplies are not consistent with usual standards of care, but they 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.

COVID-19 has forced many healthcare systems to adopt crisis practices that would normally be considered a compromise to usual standards of care. These have occurred across all aspects of surge capacity including space, staff, and supplies.

From a definitional standpoint, crisis care is the immediate practices implemented to address a sudden increase in demand. An example of this would be hospital actions taken in the early aftermath of a disaster when a large surge of patients forces temporary changes to the standard of care.

Crisis Standards of Care (CSC) are policy, regulatory, and systems changes implemented when the duration of crisis care practices is prolonged. This is usually accompanied by “best practice” guidance from a state or federal agency (e.g., N95 reuse guidance from the Centers for Disease Control and Prevention [CDC]) and regulatory support for the non-traditional actions required to address the shortage (e.g., 1135 waivers from the Centers for Medicare & Medicaid Services [CMS]).

Many aspects of CSC have been necessary during COVID-19. As always, reducing the burden on the healthcare system by implementing population-based interventions (e.g., social distancing, use of masks, hand hygiene) is critical to avoid CSC situations. Coordination within healthcare systems, healthcare coalitions (HCCs), and with state and regional response agencies is also important to ensure the best use of resources and patient distribution possible, thus minimizing CSC impacts in a given area. The following sections address key aspects of crisis planning for surge capacity.

The [Response Coordination](#) section has information about working with these partners.

Complementary materials for surge planning may be found in the [Space](#), [Staffing](#), and [Supply Chain and Resource Management](#) sections.

Note that a formal declaration of “crisis standards of care” has been made in some states. A state declaration is *not* necessary to invoke necessary strategies to cope with overwhelming demand; however, the facility should do so consistently, with expert medical advice relevant to the shortage, and in concert with other area facilities.

All caregivers that may be put in a decision-making role should understand the resources available to them for consultation and any decision frameworks or clinical guidelines that are relevant as well as have a basic understanding of the ethics of resource allocation decision-making.

General CSC Resources

- American Public Health Association and National Academy of Medicine: [Crisis Standards of Care During COVID-19](#)
- ASPR TRACIE:
 - [COVID-19 Crisis Standards of Care Resources](#)
 - [COVID-19 Patient Surge and Scarce Resource Allocation](#)
 - [Crisis Standards of Care and COVID-19: What’s Working and What Isn’t](#)
 - [Crisis Standards of Care and Infectious Disease Planning](#)
 - [Crisis Standards of Care Topic Collection](#)
- Hick, J., Hanfling, D., Wynia, M., and Pavia, A.: [Duty to Plan: Health Care, Crisis Standards of Care, and Novel Coronavirus SARS-CoV-2](#)
- Minnesota Department of Health: [Health Care Considerations – Crisis Standards of Care](#)
- National Academies of Sciences, Engineering, and Medicine:
 - [Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response](#)
 - [Rapid Expert Consultation on Crisis Standards of Care for the COVID-19 Pandemic](#)
- NRCC Healthcare Resilience Task Force: [Crisis Standards of Care and Civil Rights Laws](#)

Space

Critical care expansion plans may involve cohorting COVID-19 patients; use of post-anesthesia care areas, procedure areas, step-down, or intermediate care areas; or the use of pediatric critical care areas

for adult care. A step-wise approach should be employed to ensure that these spaces are used in a priority order that maintains environments and practices that are as close to conventional as possible.

Alternate care sites may have to be established on the hospital campus as well as potentially at community sites. When possible, establishing these sites on the hospital premises is preferred to allow operations under the current facility license and maintain proximity to additional medical services.

Federal regulatory relief in the form of CMS 1135 waivers and other resources are available for alternate care areas; however, the facility should also ensure that any bed caps or state regulatory issues are addressed prior to operating these sites.

Ensuring that use of space is regionally consistent is ethically and practically important. This may include the use of Medical Operations Coordination Cells (MOCC) that can help load-balance between hospitals in the HCC/region and beyond those boundaries as required.

The [Response Coordination](#) section includes details about load-balancing.

This ensures that CSC practices are kept proportional in a region and do not disproportionately fall on one or a few hospitals. Load-balancing strategies have been used in several states to help stay in conventional or contingency status and avoid disproportionate crisis actions at an overwhelmed facility.

Resources Related to CSC Space Considerations

- ASPR TRACIE:
 - [Alternate Care Sites \(including shelter medical care\) Topic Collection](#)
 - [COVID-19 Alternate Care Site Resources](#)
- Centers for Medicare & Medicaid Services: [CMS Programs and Payment for Care in Hospital Alternate Care Sites](#)
- Einav, S., Hick, J., Hanfling, D., et al: [Surge Capacity Logistics: Care of the Critically Ill and Injured During Pandemics and Disasters: CHEST Consensus Statement](#)
- Healthcare Resilience Task Force: [Alternate Care Site \(ACS\) Toolkit: Third Edition](#)
- University of Nebraska Medical Center, Global Center for Health Security: [Cohorting COVID-19 and non-COVID-19 Patients in a Comfort-Only Care Unit](#)

Staff

- The availability of staff, particularly emergency department, critical care nursing, and respiratory therapy, has been a key challenge to hospitals during COVID-19 surges.
- The ability to rapidly credential, privilege, and on-board contract and voluntary staff is critical to supplementing staff during a surge.
- In many cases, staff may have to take on non-traditional responsibilities to provide the best care possible under the circumstances (e.g., post-anesthesia care unit nursing staff working in intensive care unit environments). These adjustments should keep the risk to the patient as minimal as possible.

The [Staffing](#) section includes details on surge staffing strategies.

- Staffing ratios or the model of staffing (e.g., moving to a tiered system of supervision) may have to change to accommodate demand.
- The line between “contingency” and “crisis” use of staff is gray. The minimal adaptations of staff to patient ratios and use of non-traditional staff helps ensure the best care possible under the specific circumstances. Patients should *not* be triaged “in to” or “out of” critical care on the basis of staffing. Staffing should be stretched to provide coverage as required.
- As with space, coordination with other facilities in the region is important to ensure that the adaptations are as consistent as possible – and that facilities that are having to adopt more severe staffing adaptations receive priority for available supplementary staff. This coordination should include evaluating at what point exposed or even asymptomatic COVID-19 positive staff continue or return to work, including in what roles (e.g., caring for COVID-19 positive patients only).
- The thresholds for use of outpatient, student, and volunteer external (e.g., Medical Reserve Corps) staff should also be determined so clear triggers exist for their involvement.
- NASEM, at the request of the Assistant Secretary for Preparedness and Response, developed a CSC white paper on staffing during COVID-19 that provides additional detail and strategy information.

Resources Related to CSC Staffing Considerations

- ASPR TRACIE:
 - [Crisis Standards of Care Topic Collection](#)
 - [COVID-19 Crisis Standards of Care Resources](#)
- Centers for Disease Control and Prevention: [Strategies to Mitigate Healthcare Personnel Staffing Shortages](#)
- The National Academy of Medicine: [Rapid Expert Consultation on Staffing Considerations for Crisis Standards of Care for the COVID-19 Pandemic](#)

Supplies

The CDC has published personal protective equipment (PPE) conservation recommendations that use the conventional, contingency, and crisis framework. As supply chains improve, facilities and healthcare systems should be deliberate about moving step-wise toward conventional practices. Counterfeit supplies and fraudulent claims are possible. Checking lot numbers and vetting suppliers are important components of ensuring product safety. For PPE, the CDC maintains a list of vetted products that may be helpful.

Temporary supply and pharmaceutical shortages should be anticipated and a planning process and team members specified that will create an action plan to conserve, substitute, adapt, reuse, or reallocate supplies as required to meet the needs of the incident in conjunction with regional coordination activities and published best practices.

Additional details on managing supply shortages are available in the [Supply Chain and Resource Management](#) section.

Ventilators are at far lower risk of shortage due to state and federal purchases. However, other respiratory technologies such as high-flow nasal cannulas, extracorporeal membrane oxygenation (ECMO) circuits, and other disposable oxygen supplies may be in shortage and require re-use guidelines or allocation guidelines.

Shortages of intravenous infusion supplies may be caused by new therapies. For example, a shortage of 0.2u filters is possible related to monoclonal antibody treatments. If necessary, these filters can be re-used and the membranes cleared with sterile saline back flush when flow resistance rises.

Resources Related to CSC Supply Considerations

- Centers for Disease Control and Prevention: [Optimizing Personal Protective Equipment \(PPE\) Supplies](#)
- Federal Emergency Management Agency: [Coronavirus \(COVID-19\) Pandemic: Personal Protective Equipment Preservation Best Practices](#)

Triage and Treatment

Vaccines were initially in short supply. The NASEM and the Advisory Committee on Immunization Practices prioritized healthcare workers and those with at-risk medical conditions. Communities of color and at-risk communities may require significant additional effort to ensure that their priority members receive vaccine.

Treatments identified or developed for COVID-19 have been in shortage and may require allocation decision frameworks. These should be tiered whenever possible based on the anticipated benefit to the patient (inclusion and exclusion criteria).

When the benefit to the patient is equal, depending on the nature of the therapy, a lottery, randomization by number generation, “first-come, first-served,” or another random strategy may be used.

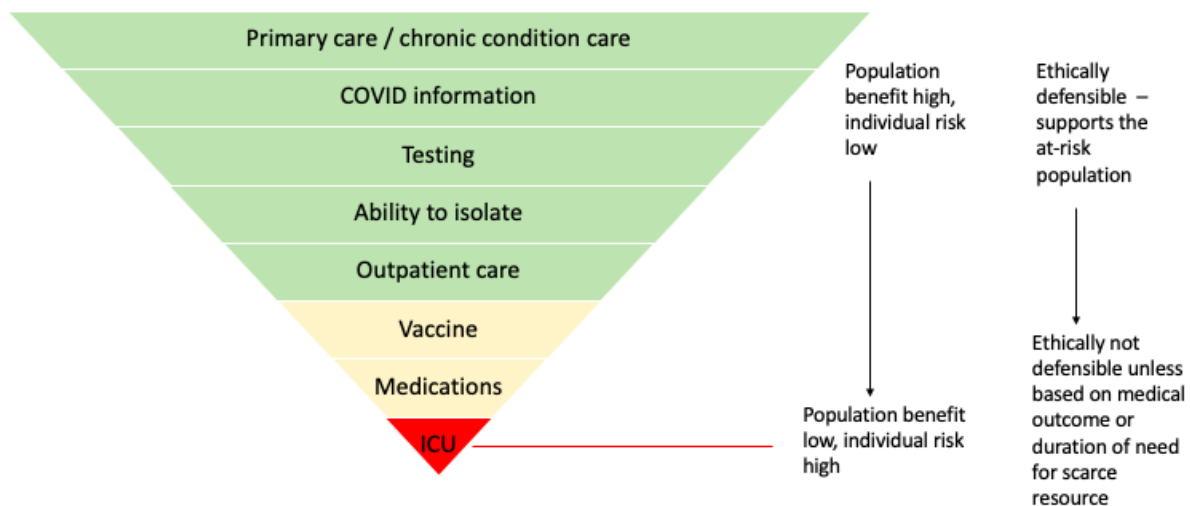
In considering prioritization for vaccines, treatments, and other potentially scarce resources, ongoing consultation with experts in medical ethics within the hospital or HCC will help develop a framework for decision-making that is informed by law, principles of medical ethics, and community values. Some states have included healthcare workers and occasionally essential workers in their prioritization framework, using status as a secondary or “tie-breaker” factor. Though reciprocity for healthcare workers is commonly recognized in vaccine prioritization, prioritization for more definitive therapies, including critical care, must be carefully considered to ensure that when the consequences of prioritization are high there is precision about the reciprocity (e.g., that the healthcare worker clearly contracted the disease at work, and not at a restaurant).

The use of socio-economic variables in consideration of those communities at increased risk for poor outcomes from COVID-19 has been proposed and used in at least one jurisdiction as a factor in determining priority for therapies including remdesivir. As described previously, when the consequences of withholding the allocated intervention are small, or benefit the community, determining precision at the individual level is not necessary. If therapies such as ventilators or other life-saving treatments are rationed, precision will be critical if these variables are to be considered (e.g., that the person being

treated suffers from the limitations that the weighting factor seeks to address, which must be specified and assessed to prevent an individual from benefiting unfairly due to mis-categorization). At present, these variables are not being used to help assign life-saving therapies. Figure 1 helps illustrate that use of these variables is encouraged for access to care, testing, isolation, and other modalities that benefit the community. As benefit becomes more focused on the individual and more consequential to the outcomes of those that do not have access to it the more focused the examination of qualification for the specific benefit should be. Further, this is a community, not a provider decision. Community engagement must be sufficient to ensure broad-based assent that the variables chosen should be considered and justify differential allocation of resources.

Figure 1. Figure courtesy of John Hick/Minnesota COVID Ethics Collaborative.

Access to resources across the COVID-19 response spectrum: Use of social factors is justifiable 'upstream' in the illness spectrum but progressively more problematic 'downstream'



The use of age as a non-prognostic factor in resource triage has been challenged as counter to age-discrimination laws at the state and federal level. Generally, triage plans should not include age unless it is a risk factor for the specific injury (e.g., burns) or illness (e.g., advanced age as an independent variable clearly affects critical illness and mortality for COVID-19 and could be considered to the degree that evidence supports it as a discrete variable). Though society generally endorses prioritizing younger patients to allow them their “fair innings” in life, it is difficult to generate specific recommendations to implement this in a legally defensible way. Further, offering priority to the young is a cultural preference not shared by groups that would prioritize their elders as more important to their societal function.

Groups that represent at-risk populations have challenged several proposed state triage criteria on the grounds that “pre-existing” conditions and consideration of duration of benefit (beyond very near term 6-12 month survival) constitutes discrimination. These complaints have been upheld in court and have

resulted in the modification of many state crisis triage plans to ensure that disabilities and pre-illness/injury function are not considered when determining priority for resources.

Sequential Organ Failure Assessment (SOFA) scores are known to perform poorly in respiratory diseases such as COVID-19 and should not be used to categorize patients based on a “point value.” SOFA may be useful when comparing patients in need of the same resource when the difference in score is large. Single or minimal point differences in SOFA scores are likely of meaningless predictive value; this lack of precision means that patients should not be assigned a level of care based on a specific SOFA score.

Fortunately, the likelihood of having to make ventilator triage decisions is extremely low. However, ECMO and other therapies may require triage. Hospital and regional systems of coordination should be in place to provide support for decision-making about the potential uses and limits of therapies in shortage.

Increased mortality rates associated with age, elevated troponin/cardiac dysfunction, elevated d-dimer, and other variables are of promising assistance with decision-making, but outcome information is rapidly changing.

Should triage of resources be likely, a local expert critical care group may be needed to assess the current literature and make recommendations. In no case should an individual provider be left without guidance to make allocation decisions for lifesaving treatment. Triage “teams” that are not involved in the patient’s immediate care should ideally make critical care triage decisions. A regional process for this may be advisable to have available if needed.

Though the majority of CSC documents have focused on true “receive/will not receive” triage of binary resources like ventilators, the vast majority of decisions faced so far during the pandemic revolve around “softer” decisions including how to ration dialysis (e.g., twice rather than three times per week), whether a cardiac arrest is futile to attempt resuscitation, or how to stretch staffing while still providing critical care, for example. More important than a “triage team” may be access to a critical care consultant who can help the provider think through a situation and, when needed, engage other specialty consultants.

Use of a consultant system in this way does four things:

- Raises the issue to a facility/system level to identify common issues and the need for clinical guidance development or need for a regional approach.
- Reduces provider moral distress that can accompany making difficult decisions alone.
- Reduces “freelancing” allocation decisions that may be made by providers with more limited experience or less awareness of resources available or options.
- Lowers the threshold for consultations to include a broader range of issues.

Many critical care providers are used to making decisions about resource allocation on a frequent basis due to busier than average census. Where crisis care begins is important to define at the hospital level. This is where the clinical consultation can assist, but some indicators that a facility is making crisis care decisions about patient care are:

- Resources have to be spread across multiple patients in a way that is unusual for the hospital.
- A provider is considering withholding care they would normally provide which could have significant adverse impact on the patient.
- Resources are in shortage and require titration or rationing.
- Decisions about resource allocation will be ongoing and require a systems response.

In many cases, critical care triage can be avoided by transferring patients or by further adapting the staffing and space utilization. Maximizing these plans is key to avoiding unnecessary restrictions or severe compromises to critical care.

Resources Related to CSC Triage and Treatment

- Emory Healthcare: [Renal Replacement Therapy Surge Plan](#)
- Fischkoff, K., Marshall, M., Okhuysen-Cawley, R., et al.: [Society of Critical Care Medicine Crisis Standard of Care Recommendations for Triage of Critical Resources During the COVID-19 Pandemic](#)
- Maves, R., Downar, J., Dichter, J., et al.: [Triage of Scarce Critical Care Resources in COVID-19: An Implementation Guide for Regional Allocation](#)
- Minnesota Department of Health: [Patient Care Strategies for Scarce Resource Situations](#)
- Prachand, V., Millner, R., Angelos, P., et al.: [Medically Necessary, Time-Sensitive Procedures: Scoring System to Ethically and Efficiently Manage Resource Scarcity and Provider Risk During the COVID-19 Pandemic](#)
- Various Authors: [Model Hospital Policy for Fair Allocation of Scarce Medications to Treat COVID-19](#)

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