

Template - Hospital Crisis Standards of Care Resource Allocation Annex

Preface:

This template can help hospital emergency managers and medical directors develop an annex to their Emergency Operations Plans (EOPs) that complements existing surge capacity plans. It includes specific decision processes for allocation of resources and the triage of patients for the provision of critical care when shortages of equipment or therapeutics pose a significant risk to patient outcomes. This annex, in addition to the crisis strategies outlined in the EOP for space and staffing, may replace separate crisis standards of care (CSC)¹ plans that isolate these strategies from a continuum of decision-making. The hospital should expect to use this annex on a relatively frequent basis for pharmaceutical and other resource shortages requiring restrictions (resource triage) and far less frequently for patient triage due to lack of critical care resources. In both cases, systematic development of adaptive strategies and accountable adoption of the strategies by the hospital are important.

Facility surge capacity plans for staffing and space should encompass crisis conditions (e.g., the use of alternative spaces and alternative staffing options) as part of the spectrum of surge. This template is only one of many ways in which hospitals can document their policies of resource allocation and critical care patient triage during contingency and crisis conditions. The following considerations are based in part on lessons learned during the COVID-19 pandemic and other incidents that led to patient surge in hospitals across the country.

Planning for crisis care in the pre-COVID era tended to emphasize the use of formal triage teams and scoring systems (such as the Sequential Organ Failure Assessment Score [SOFA score]) for triage of equipment such as ventilators.² The use of the SOFA score, however, has been shown to be inappropriate as a primary means of allocating access to scarce resources due to poor predictive value and failure to differentiate pre-existing and acute renal injury (with detrimental impacts for disadvantaged groups).³ Further, implementation of formal triage teams faced numerous challenges during the worst pandemic surges including difficulty deciding on thresholds for triage team use and team composition not meeting the needs of the situation (e.g., should a triage team be consulted about dialysis triage strategies, or only when life-support equipment is removed?). This left many providers making allocation decisions without clinical or institutional support.

Planning for resource shortage conditions should be done on a regional basis as much as possible, utilizing Medical Operations Coordination Centers (MOCCs) for patient distribution and load-balancing as well as health care coalitions or similar information and policy coordination

¹ Access ASPR TRACIE's [Crisis Standards of Care Topic Collection](#) for related resources.

²<https://files.asprtracie.hhs.gov/documents/aspr-tracie-sofa-score-fact-sheet.pdf>

³https://journals.lww.com/ccmjournal/Fulltext/2022/07000/Preintubation_Sequential_Organ_Failure_Assessment.3.aspx

constructs to develop consistent regional best practice guidance for resource shortages. Avoiding CSC and mitigating shortages effectively through regional mechanisms can ensure a smoother and safer response during patient surge situations.

Regular bi-directional communication between hospital incident command and clinical providers is also critical to ensuring situational awareness of the resources available and the decisions being made. These conversations can inform both regional and facility strategies and promote best practice guidance for recurring allocation decisions and adapting to dynamic changes in available resources.

This template reflects recent research and concepts related to CSC, including lessons learned during the pandemic. It can help planners shift the focus to coordination and clinical guidance—with consultation when allocation decisions that are outside usual scope of care are necessary—and emphasizes individual patient assessment according to their diagnosis/condition.

Disclaimer

Hospital planners should have a clear understanding of their legal and regulatory environment when making resource allocation and critical care decisions. Protections vary from state to state. The hospital takes sole responsibility for the use of this template and ensuring it is customized to the facility and jurisdiction. Recommendations in this template are consistent with national best practices at the time of writing but are subject to change and do not constitute medical advice. This template does not represent official policy or contain guidance or direction from the U.S. Department of Health and Human Services or the Administration for Strategic Preparedness and Response.

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1. Purpose

This annex outlines the expectations of the hospital incident command system and providers during situations where shortages of treatment resources (i.e., supplies and equipment) place patients at substantial risk of harm and may affect the ability of the hospital to provide usual critical care and other services.

2. Scope

Supply and equipment shortages are addressed in this annex, including the effects of these shortages requiring the triage of patients for receipt of critical care services. Crisis strategies for space and staffing issues are addressed in the facility [*Surge Plan*] which is attached to the Emergency Operations Plan.

3. Assumptions:

Prior to implementing the annex's processes, the following conditions and commitments should be met:

- The resource shortage will be recurrent or ongoing/is not limited to a single incidence.
- Hospital incident command has been activated if the shortage is in the context of an emergency or involves triage of therapeutic interventions that pose a high risk for death or permanent disability if not available.
- The decisions being made are outside the normal scope of practice for the providers involved (i.e., this annex would not apply to usual decisions about not offering or discontinuing treatments).
- Efforts to mitigate the shortage through procurement or patient transfer are unsuccessful.
- The [*Health Care Coalition*] has been notified, and other hospitals are facing the same shortage issues. Coordination with the [*Health Care Coalition*] will be ongoing to establish consistent regional strategies and a consistent level of impact on hospitals.
- The [*State Department of Health Office of Emergency Preparedness*] is aware of the shortage and the potential impact on patient care and outcomes.
- The hospital will continue to provide compassionate care including palliative care for all, even when it cannot offer all conventional care resources.
- Allocation of resources should honor patient and family preferences to the degree possible.
- Admitted patients and their families will be provided information verbally and in writing about the facility status, and advised as applicable that care offered is a trial of therapy and not an indefinite assignment of that resource to the patient.

- Resource situations are dynamic. Incident command or the designated lead will keep hospital staff updated on the current resources and restrictions in place and/or adjust the treatment restrictions as required to ensure they are proportional to the shortage.

The following considers situations in which the *resource* is triaged (e.g., pharmaceuticals or other supplies that are not life sustaining) and then situations in which the *patients* must be triaged due to a lack of general or specific critical care resources.

The general approach to resource shortages should involve a progression (i.e., step-wise approach from least to most risk of harm) of restrictions and strategies including:

- Conservation – conservation strategies may be more restrictive in relation to degree of shortage (e.g., restricting the use of certain drugs in shortage)
- Substitution – substitution of an equivalent or less-effective resource depending on availability (e.g., substituting one antibiotic for another that is in shortage)
- Adaptation – changes in the use of resources to adapt to the situation (e.g., using alternative ventilation strategies or thresholds when ventilators are in shortage)
- Re-use – reusing single use supplies after appropriate cleaning/disinfection/sterilization
- Re-allocation – reassigning resources from patients with poor prognosis to others with good prognoses

These strategies are generally in order of preference though some aggressive conservation strategies (e.g., for specific therapeutics in shortage) can have major impacts on outcomes.

4. Resource Triage - Pharmaceutical Shortages

When shortage of a pharmaceutical with no equivalent substitutes poses a significant threat to patient outcomes the [Chair of the Pharmacy and Therapeutics Committee] will work with the [Pharmacy Director] to determine the likely duration and impact of the shortage. When restrictions on dose or use of medications that are critical to diagnostics or patient outcomes are required the [Chair] will consult with providers in the affected specialty to determine a progressive approach to use restrictions that can be adjusted to the degree of scarcity. This ideally should be based on national, state, or regional expert recommendations adapted to the hospital. This should include deliberate considerations of whether equity is preserved in the allocation strategy (e.g., the strategies should not exacerbate existing access to care issues or further disadvantage populations that may lack access to certain services). Consideration of access issues is particularly important for chemotherapy medications that may be allocated regionally.

Rationing should be proportional to the severity of shortage; regional coordination calls with the [Health Care Coalition] can help monitor the situation and establish that all hospitals in the area are at the same point in the progression of restrictions. Planners should consider the following three basic strategies:

1. Substitution – Whenever possible, the most equivalent substitute medication should be used. Alternative routes and dosing may be considered. In some cases, shortages of administration supplies (e.g., pumps, tubing) may drive substitutions. Some substitutions may be more equivalent than others (e.g., substitutions in some chemotherapy regimens may be more effective than in others). When this is the case, substitution of a less efficacious/less researched regimen should be restricted to higher levels of progression/more significant shortage conditions.
2. Conservation – Restrictions on use of medications in shortage should take into account whether some uses of the medication can be curtailed with minimal harm. If so, these restrictions should be implemented earlier than other restrictions. For instance, restricting use of a drug for prophylactic or palliative purposes may be reasonable. Dose sparing strategies should also be implemented when possible. Additionally, the [Pharmacy Director] will explore creating multiple doses from single use vials, conserving residuals, prolonging the use of opened vials, and other strategies.
3. Adaptation – In the case of shortages in intravenous contrast or other diagnostic pharmaceuticals, the [Chairs of the affected departments] will determine prioritization for the imaging/procedures and offer alternative diagnostic strategies as appropriate.

The [Pharmacy Director] will develop and circulate the recommendations to affected clinicians as well as any necessary education about alternative diagnostic or treatment approaches. The [Pharmacy Director] will work with [Information Technology] to adjust ordering in the Electronic Health Record to reflect restrictions and advisories for medications in shortage. If necessary, diagnostic testing will be restricted by the same mechanism.

5. Resource Triage - Non-Critical Supplies

In some cases, shortages of specific hardware, surgical supplies, or other materials that are *not* lifesaving or sustaining may require restrictions on the use of or access to these materials (e.g., shortages of specific orthopedic hardware for joint replacement). In this case, the [Chair] of the affected department(s) or designees will meet with [Supply Chain] leadership to assess impact and duration. Following the previously listed strategies, the service lines affected will develop and circulate a progressive approach to restrictions on the affected supplies/services.

6. Patient Triage and Critical Care Resources

In some cases, the volume of patients requiring a specific lifesaving or sustaining treatment cannot be accommodated by available resources. This may occur early in the incident prior to a good understanding of the number of victims and resources available (*reactive* phase), when decisions will of necessity be dynamic and based on the information available, or later in the incident (*proactive* phase) when the impact and resources are known and a “systems approach”

can be taken, integrating facility and state/regional response.⁴ The goal of incident command is to move from reactive to a proactive phase as quickly as possible during an incident.

6a - Reactive Triage

Immediately following a mass casualty incident, many patients may arrive in rapid succession to the emergency department and/or the operating room. In these situations, the providers will have to make the best decisions they can based on the information available. This includes:

- Primary triage – assessing and prioritizing patients based on the immediacy of their life threat (e.g., airway, breathing, circulation, truncal penetrating injury) at the time of presentation to the hospital.
- Secondary triage – after initial stabilization and diagnostics, prioritizing patients for imaging and interventions (e.g., surgery/interventional radiology) relative to the known patients that need treatment. When many patients require procedures, the staff from surgery, anesthesia, and emergency medicine should prioritize procedures that can have the most impact on lifesaving, with the least amount of resources and time expended (e.g., prioritization of damage control laparotomies for isolated abdominal injury over complex vascular cases).
- Tertiary triage – during definitive intervention (e.g., surgery) conditions are identified that are not compatible with survival or require heroic interventions that cannot be justified based on competing priorities.

In cases of Secondary and Tertiary triage, it is optimal to obtain consultation with another similarly trained provider to concur with the decision/prioritization. Tertiary triage decisions should be documented in the medical record along with the name of the concurring physician.

In the reactive phase, the resource situation is very dynamic. Patients that may be assigned a lower priority based on initial assessment should be reassessed as resources allow and interventions provided based on availability.

6b - Proactive Resource Triage

Once the scope of the incident is understood or when the incident has reached a steady state (usually 1-2 hours after a mass casualty incident), proactive decisions can be made for current and subsequently arriving patients. Resource requests and patient transfers should mitigate crisis conditions to the maximal degree possible. At times, however, the resources available both within the hospital and within the region may be inadequate to provide necessary lifesaving/sustaining interventions to all. The Incident Commander should be aware of any decisions made to ration care that might result in death or permanent disability.

⁴ <https://aspr.hhs.gov/healthcarereadiness/guidance/mscc/pages/introduction.aspx>

Communication between incident command and bedside providers is critical to ensure providers understand the current and near-term resource situation and that incident command understands the bedside situation and the decisions that are being made or are anticipated. In particular, the Incident Commander and the [ICU Director] will maintain close communication about any resource shortfall issues and strategies. This will help shape the development of clinical guidance and ensure accurate information is both available and acted on.

Prior to any resource triage it is critical that the [Health Care Coalition] be notified and ensure that all efforts to move resources and patients to prevent resource triage have been undertaken and that a common approach is supported (refer to Assumptions section of this document).

When critical care demand exceeds resources, the [ICU Director or Critical Care Physician on-call] will work with the [Nursing Supervisor] to determine which patients can safely be moved to a unit providing a lower level of care with relatively low risk. The highest trained staff and most robust equipment should be used on the patients that require it most (e.g., place unstable patients in the ICU, move patients with stable critical care to other areas, use full-featured ventilators on patients with poor lung mechanics while using transport ventilators on those with stable lung mechanics).

The [ICU Director or Critical Care Physician on-call] will also identify patients that they feel are receiving non-beneficial treatment. Discussions with patient/loved ones should be held according to usual processes to restrict care in accord with patient prognosis and wishes. Non-beneficial care must be differentiated from inappropriate care. Implicit triage should be avoided (refer to text box).

Selected End-of-Life Definitions

- **Futile care** – Medical care that cannot benefit the patient (some legal and other processes may require this level of certainty).
- **Non-beneficial care** – Medical care that has no reasonable chance of benefiting the patient.
- **Inappropriate care** – Medical care that is not appropriate based on the known prognosis and resource situation.
- **Implicit triage** – Restrictions on medical care that would *normally* be provided by a provider who believes these interventions inappropriate for the situation but *without* communicating this distinction to the patient and family. Implicit triage decisions are often made without adequate prognostic information and are often subject to bias, particularly age-related (for example not intubating an elderly patient and communicating to the family that it “wouldn’t help” when the prognosis is not known).

When demand requires critical care resource allocation the following strategies should be implemented, generally in sequence though the chosen strategy should present the lowest risk achievable with the current situation:

- Conservation – Restrict the treatment (e.g., raise potassium threshold for dialysis, raise threshold for mechanical ventilation or accelerate weaning trials, reduce oxygen use to minimum necessary to maintain oxygen saturations).
- Substitution – If possible, substitute one therapy for another even if a temporary solution exists (e.g., bag patient in absence of ventilator until decision can be made, use BiPAP or other interventions to delay the need for intubation).
- Adaptation – Adapt care strategies to avoid additional demand on limited resources (e.g., potassium-lowering medications to delay dialysis, shorter runs to allow more patients to receive dialysis, attempt ventilator weaning earlier).
- Re-use – Clean or sterilize circuits, invasive lines, and other single-use materials for re-use if there is no substitute available.
- Re-allocate – As a last strategy, determine which patients are most/least benefited by the intervention and allocate accordingly (refer to 6c). Discontinue (or do not initiate) the treatment for those least likely to be *harmed* if they do not receive the resource (i.e., those receiving non-beneficial or inappropriate care depending on the gravity of the shortage).

6c – Proactive patient triage (life-sustaining/lifesaving resource triage)

Advisory Committee

During a prolonged event when it is clear that proactive patient triage is likely required, the Chief Medical Officer (CMO) may convene an Advisory Committee to determine strategies tailored to the situation. This will be in conjunction with any regional or state efforts to define optimal strategies. The Advisory Committee may include but is not limited to:

- CMO – Committee chair
- Clinical leaders in the relevant area(s) (e.g., critical care, infectious disease, nephrology)
- Administrative leaders in the relevant area(s) (e.g., respiratory therapy, pharmacy)
- Ethics committee representative
- Legal representative
- Equity officer (to ensure consideration of disadvantaged population impacts)
- Community representative (e.g., non-clinical community leader/representative)

The Advisory Committee will anticipate and determine specific strategies for the hospital and adapt communication materials for providers, patients, and other partners. The CMO will ensure that the Incident Commander and Chief Executive Officer (CEO) are aware of the situation and recommended strategies and that the hospital is accountable for supporting their clinicians.

Clinical Decisions

A clinician faced with an acute resource allocation decision that is *not* addressed by existing guidance circulated within the hospital will contact the [ICU Director] and the CMO on-call to jointly determine the best strategy. If the decision does NOT involve withdrawal of life-sustaining treatments this consultation is sufficient. The [ICU Director] and CMO on-call will be responsible for contacting the Incident Commander to advise them of the situation and the actions taken. Best practice guidance for this treatment (if not already available, for example, strategies to shorten dialysis or delay the need for it) will be developed and circulated to clinicians. The CMO and Incident Commander are responsible for ensuring that the strategies are consistent with regional recommendations while they continue to seek additional resources. Decisions should be proportional to the degree of resource shortage.

Triage Team

If the decision involves proactive withdrawal of life-sustaining treatments that would normally continue to be offered the CMO will appoint a triage team to make clinical decisions. Team members may rotate to allow 24/7 coverage. Members of the Advisory Committee may be members of the Triage Team or not, depending on the incident needs and CMO discretion, and should at minimum include:

- CMO (or designee)
- Two critical care clinicians (not involved in the patient's care)
- Clinical ethicist

Note that the Triage Team will be much smaller than the Advisory Committee and should be able to assemble virtually at any time a decision is required. The CMO will be responsible for initiating Triage Team activities in conjunction with state actions to enable such decision-making and legally protect the hospital, providers, and decisions.

The Triage Team will consider situations in which the bedside provider feels the treatment is inappropriate or situations in which there is competition between multiple patients (two or more) for a lifesaving/sustaining resource that cannot be otherwise rationed. Based on the clinical information, the Triage Team will determine the appropriate course of action as illustrated in Figure 1 under "High Consequence Strategies."

The decision to discontinue mechanical ventilation to allow that ventilator to be used by another patient is expected to be extremely rare. If this situation arises, the hospital will coordinate strategies with the state and ensure that actions by providers are legally protected. Bedside providers should *not* make decisions to remove patients from ventilators or other resources for which the withdrawal would be life-ending or likely life-ending if the patient would normally continue to receive the intervention. Any decision to remove a beneficial life-maintaining critical care intervention should be made by the Triage Team.

When considering prognosis, the Triage Team shall conduct an individual assessment based on the patient’s specific disease state and comorbid conditions. Consistent with expectations from the U.S. Department of Health and Human Services Office of Civil Rights the Triage Team should *not* consider age, gender, race, disability, quality of life, life expectancy (beyond short-term), and role in the community in their decision. Age may be included in assessing prognosis only as it relates to the illness/injury as an independent variable (e.g., burns, trauma, COVID-19).^{5, 6}

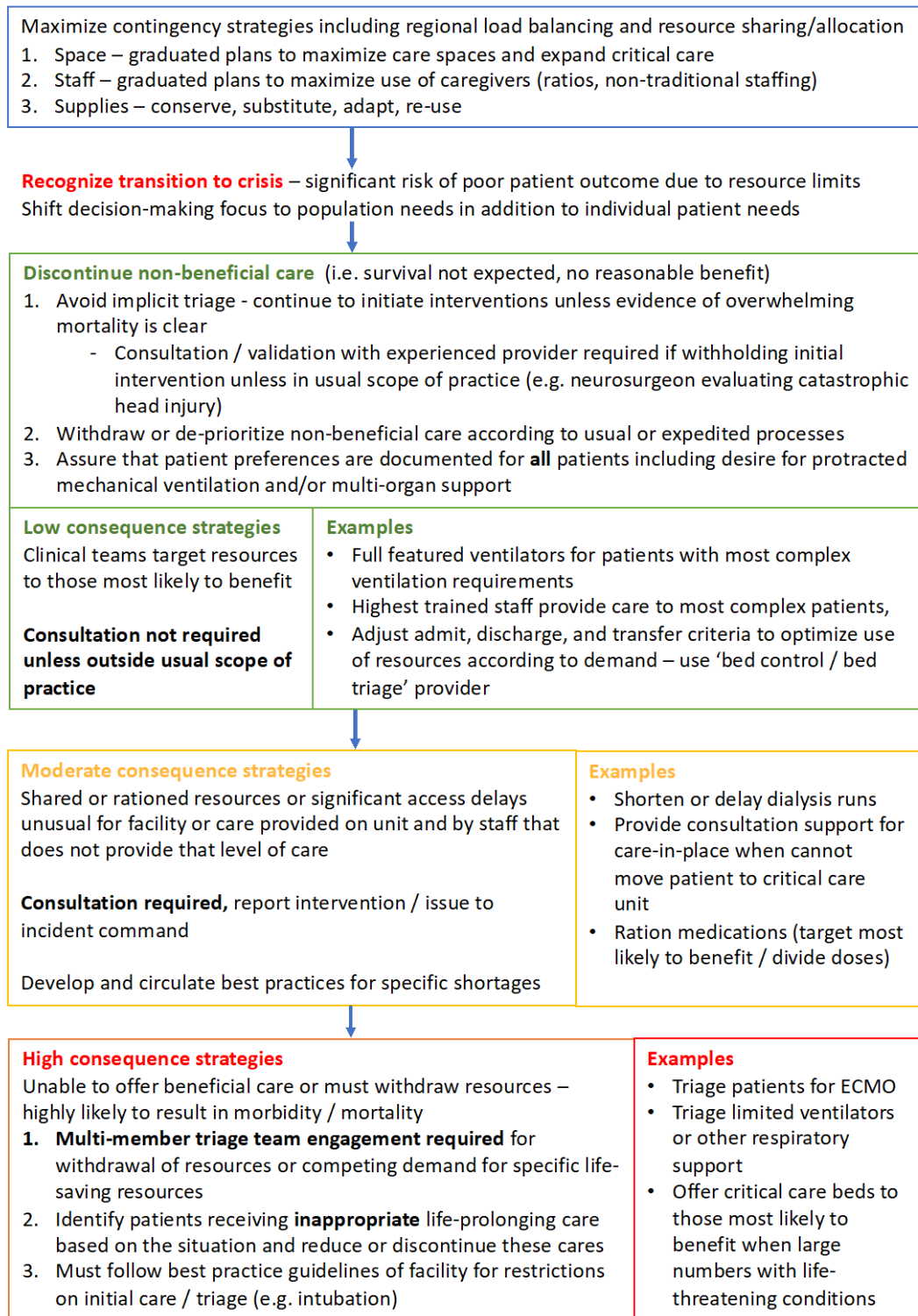
Standardized scores such as SOFA (Sequential Organ Failure Assessment) may be used to monitor the degree of illness of the patients in the ICU and compare acuity between units or trend scores over time but should not be used as a primary data point for individual treatment decisions.

The decision to discontinue support should focus on whether the care is inappropriate relative to the prognosis and the resources available (and resources may be dynamic), including anticipated duration of use of the resource. Duration of benefit should only be considered in the context of short-term survival prognosis (e.g., within the next six months). All relevant clinical information should be considered. The Team should not consider non-clinical, non-prognostic factors as outlined previously. Withdrawal of care should ideally be voluntary in cooperation with the patient’s loved ones.

⁵ <https://www.hhs.gov/civil-rights/for-providers/civil-rights-covid19/disability-faqs/index.html>

⁶ <https://files.asprtracie.hhs.gov/documents/aspr-tracie-sofa-score-fact-sheet.pdf>

Figure 1 – Crisis Care Clinical Progression - relationship of consequences of resource triage and expectations of process followed⁷



*This is a capsule summary of progression – facility should include specific plans for consultation, triage team, etc.

⁷ Modified from The Joint Commission Journal of Quality and Patient Safety. Hick J.L., Hanfling D, and Wynia M. Hospital Planning for Contingency and Crisis Conditions: Crisis Standards of Care Lessons from COVID-19. 2022 Jun-Jul;48(6-7):354-361. doi: 10.1016/j.jcjq.2022.02.003. Used with permission.