

SUBJECT: ALLOCATION OF SCARCE CRITICAL CARE RESOURCES DURING A PUBLIC HEALTH EMERGENCY

CHAPTER: RIGHTS & RESPONSIBILITIES OF THE INDIVIDUAL

AUTHOR: ETHICS COMMITTEE

POLICY:

Ethics: This allocation framework is grounded in ethical obligations that include the duty to care, duty to steward resources to optimize population health, distributive and procedural justice, and transparency. It is consistent with existing recommendations of allocation of scarce critical care resources during a public health emergency, as well as, the [University of Pittsburgh Hospital's Model Policy](#). It has also been informed by extensive consultation with citizens, disaster medicine experts, and ethicists. Our San Mateo Medical Center (SMMC) workgroup tasked with the development of this guideline was comprised of legal, ethical, clinical experts, as well as patient volunteers.

Non-Discrimination: SMMC will provide emergency services and care without regard to an individual's race, ethnicity, national origin, citizenship, age, sex, sexual orientation, gender identification, preexisting medical condition, physical or mental disability, insurance status, economic status, ability to pay for medical services, or any other characteristic listed in the [Unruh Civil Rights Act](#), except to the extent that a circumstance such as age, sex, preexisting medical condition, or physical or mental disability is medically significant to the provision of appropriate medical care to the patient.

Enforcement: The Chief Executive Officers of SMMC shall ensure compliance with this policy. All staff members of SMMC must comply with this policy.

Implementation: Before implementation of the allocation/reallocation plan for scarce critical care resources, hospitals must have exhausted every resource to increase available ventilators, including but not limited to health system resources, healthcare coalition partners, and state resources through the Medical Health Operational Area Coordinator (MHOAC). Hence, this triage process will be implemented only if: 1) critical care capacity is, or will shortly be, overwhelmed despite taking all appropriate steps to increase the surge capacity to care for critically ill patients; and 2) a regional authority has declared a public health emergency. Pursuant to guidelines published by the State of California, any impending need to implement this directive regarding allocation of scarce critical care resources must include notification of San Mateo County Health system leadership and the California Department of Public Health (CDPH).

PURPOSE:

To prescribe the triage of critically ill patients, in the event that a public health emergency creates demand for scarce critical care resources (e.g., ventilators, critical care beds) that outstrips the supply.

I. ETHICAL CONSIDERATIONS:

A. Ethical Goals of the Allocation Framework:

Consistent with accepted standards during public health emergencies, a goal of the allocation framework is to achieve the most good for populations of patients. This is different from the traditional focus of medical ethics, which is centered on promoting the wellbeing of individual patients. This document is designed to protect and maintain the public's health through *minimizing morbidity and mortality*, to promote trust, transparency, and understanding among the public regarding allocation decisions, and to ensure fairness and equality in the allocation of scarce medical resources. The framework is designed to achieve the following:

1. To create meaningful access for all patients. All patients who are eligible for ICU services during ordinary circumstances remain eligible, and there are no exclusion criteria based on age, disabilities, or other factors.
2. To ensure that all patients receive individualized assessments by clinicians, based on the best available objective medical evidence.
3. To ensure that no one is denied care based on stereotypes, assessments of quality of life, or judgments about a person's "worth" based on the presence or absence of disabilities or other factors.
4. To diminish the impact of social inequalities that negatively impact patients' long-term life expectancy.

The allocation framework described in this document differs in two important ways from other, contemporary allocation frameworks.

First, it does not categorically exclude any patients who, in ordinary clinical circumstances, would be eligible for critical care resources. Instead, all patients who are ordinarily eligible are treated as eligible to receive critical care resources and are prioritized based on potential to benefit from those resources; the availability of critical care resources determines how many priority groups can receive critical care.

There are compelling reasons to not use exclusion criteria as a priority. Categorically excluding patients may reflect a judgment that some lives are “not worth saving,” leading to justified perceptions of discrimination. Addressing this perception, upfront, is particularly important for persons with disabilities and populations of color, who are often impacted by systemic prejudice and discrimination. Moreover, categorical exclusions are potentially too rigid to be used in a dynamic and long-lasting crisis, when shortages of critical care resources will likely surge and decline episodically. We believe that categorical exclusions are not necessary, especially because less restrictive approaches appear feasible.

Second, this allocation framework gives a higher weight to near-term survival, compared to long-term survival. A major advantage of near-term survivability is that it can be assessed independently from disability (e.g., Down’s Syndrome). There is precedent for using this criterion in allocation of scarce medical resources; U.S. rules to allocate lungs for transplantation incorporate patients’ expected duration of near-term survival after transplantation, not simply whether transplantation will avert impending death.⁵ Extensive consultation with citizens, ethicists, and disaster medicine experts informed the principles and processes adopted in this document.

The allocation framework does NOT incorporate long-term life expectancy into priority scores. The reason is that doing so would unfairly disadvantage patients with a decreased long-term life expectancy from disabilities or from diseases exacerbated by social inequalities and social determinants of health. An implication of this design choice is that the framework treats as equal all patients who are not in the terminal stages of a severe condition. This step was taken to affirmatively diminish the impact of disabilities and social inequalities that negatively impact patients’ life expectancy.

B. Ethical Principles These Guidelines are Built Upon:

Duty to Care: An ethically sound rationing system must sustain the fundamental obligation of providers to care for patients. Physicians must not abandon, and patients should not fear abandonment. Patients who are not eligible to receive critical care resources, such as mechanical ventilation, will receive available forms of curative and/or palliative treatment.

Patient preference is not and cannot be the primary factor in devising a rationing system for critical care resources because more patients will want these resources than can be accommodated. A public health disaster, by virtue of severe resource scarcity, will impose harsh limits on decision-making autonomy for both patients and providers.

Duty to Steward Resources: The next element in the ethical framework is the obligation of government and health care providers to steward resources during a period of true scarcity. Balancing an obligation to the community of patients against the primary duty to care for each patient generates ethical tension in devising a rationing system. Clinicians need to save the greatest possible number of lives while continuing to care for each individual patient. As the number of affected patients multiplies, accommodating these two goals will require making increasingly difficult decisions.

Duty to Plan: A failure to produce acceptable guidelines for a foreseeable crisis amounts to a failure of responsibility toward both patients and providers. Although planning is obligatory, any guidelines devised will be imperfect, both ethically and medically. Ethically, access to health care is unequal, and no rationing system for a crisis can resolve inequities in preexisting health status that result from unequal access. However, our responses to disaster must not exacerbate such disparities. Medically, the clinical parameters of a pandemic are uncertain, increasing the difficulty of predicting benefit or survival. Despite the difficulties inherent in planning, public health entities must accept this responsibility.

Duty to Implement Distributive Justice: To be fair, an allocation system must be applied broadly and consistently to everyone. The use of a reproducible scoring system is an attempt to eliminate any implicit or explicit bias in the criteria we apply. Applying this allocation system, uniformly helps the public recognize and accept that the allocation procedures are fair and ensures that vulnerable groups are not affected inequitably.

Duty to Provide Transparency: A just system of allocating scarce resources requires transparency. Taking our ethical framework into account, we have devised guidelines for an allocation system for scarce critical resources, such as ventilators. This guideline proposes both withholding and withdrawing ventilators from patients with the highest probability of near-term mortality in order to benefit patients with a higher likelihood of survival. Ethicists argue that guidelines for decision making under duress are more likely to be followed when they seek to reduce the number of times that one confronts the most difficult decision. These guidelines permit patient extubation, but aim to limit the times that clinicians face this most ethically and emotionally challenging situations. To limit bias, triage allocation decisions are made, as much as possible based on objective data, and evidence-based research on predicting clinical outcomes.

II. TRIAGE DECISION MAKING OUTLINE:

Below we describe 1) the creation of triage teams to ensure consistent decision making; 2) allocation guidelines for initial allocation of critical care resources; and 3) reassessment timeline to determine whether ongoing provision of scarce critical care resources is justified or whether reallocation should take place for individual patients.

A. Section 1: Creation of Triage Teams and Communication Channels:

Patient treating clinicians will not make triage decisions. Instead, SMMC Chief Medical Officer (CMO) will designate an acute care physician Triage Officer, supported by an acute care nurse and administrator (collectively, the “triage team”), who will apply the allocation framework described in this document. The separation of the triage role from the clinical role is intended to promote objectivity, avoid conflicts of commitments, and minimize moral distress. The Triage Officer will also be involved in patient or family appeals of triage decisions, and in collaborating with the attending physician to disclose triage decisions to patients and families.

B. Section 2: Allocation Criteria for ICU Admission/Ventilation:

This allocation framework is based primarily on two considerations: 1) saving lives; and 2) near-term survival, enacted within the context of ensuring meaningful access for all patients, ensuring individualized patient assessments, and diminishing the negative effect of social inequalities that lessen some patients’ long-term life expectancy. All patients who meet usual medical indications for intensive care unit (ICU) beds and services will be assigned a priority score using a 0-44 scale (lower scores indicate higher predicted benefit from critical care), derived from patients’ likelihood of surviving the acute illness to hospital discharge, assessed with Modified Sequential Organ Failure Assessment (MSOFA) score (*see Table 1, attached*), an objective and validated measure of acute physiology; and 2) prognosis for near-term survival after hospital discharge (*see Table 3, attached*). This raw priority score will be converted to three priority groups (e.g., high, intermediate, and low priority) to facilitate streamlined implementation. All patients will be eligible to receive critical care beds and services regardless of their priority score; available critical care resources will be allocated according to priority score, such that the availability of these services will determine how many patients will receive critical care.

Patients who are triaged to not receive ICU beds or services will be offered other appropriate medical care, including intensive symptom management, palliative care, and psychosocial support.

- C. Section 3: Reassessment for Ongoing Provision of Critical Care resources:
The triage team will periodically reassess all patients receiving critical care services (at 120 hours, and every 96 subsequently) during times when these critical care resource allocation procedures are in effect (i.e., not merely those initially triaged under the crisis standards). The timing of reassessments will be based on evolving understanding of typical disease trajectories and of the severity of the crisis. A multidimensional, individualized reassessment should be used to quantify changes in patients' conditions, such as recalculation of severity of illness scores, appraisal of new complications, and treating clinicians' input. Patients showing improvement will continue to receive critical care services until the next assessment. Patients showing substantial clinical deterioration that portends a very low chance for survival may have ventilator support discontinued. These patients who have such care discontinued will continue to receive other appropriate medical care, including intensive symptom management and psychosocial support. Where available, specialist palliative care teams will provide additional support and consultation.

III. PROCEDURES:

- A. Section 1: Creation of Triage Teams, Communicating Decisions, Appeals Process:
Patient treating physicians should not make triage decisions. Triage decisions are grounded in public health ethics, rather than clinical ethics, and therefore a triage team with expertise in the allocation framework should make allocation decisions. The separation of the triage role from the clinical role is intended to enhance objectivity, avoid conflicts of commitments, and minimize moral distress.
1. Triage Officer: Triage Officers shall be appointed by CMO. Triage Officers at SMMC shall be physicians with established expertise in the management of critically ill patients (generally, critical care and emergency medicine physicians), strong leadership ability, and effective communication and conflict resolution skills.

Triage Officers will serve on triage teams and shall oversee the triage process, assess all patients, assign a level of priority for each, communicate with treating physicians, and direct attention to the highest-priority patients. Triage Officers will make decisions according to the allocation framework described below in this policy, which is designed to benefit the greatest number of patients, even though these decisions may not necessarily equally benefit individual patients.

To optimize effective functioning in a crisis, the Triage Officer should ideally be well prepared and trained in advance by means of disaster drills or exercises and SMMC will endeavor to provide such training

opportunities for Triage Officers. Triage Officers have the responsibility and authority to apply the principles and processes of this document to make decisions about which patients will receive the highest priority for receiving critical care. They are also empowered to make decisions regarding reallocation of critical care resources that have previously been allocated to patients, again using the principles and processes in this document. In making these decisions, the Triage Officer shall apply the standards prescribed by this document.

So that the burden is fairly distributed, Triage Officers will be nominated by the chairs/directors of the clinical departments that provide care to critically ill patients. The SMMC Chief Medical Officer and the individual responsible for emergency management should approve all nominees. A roster of approved Triage Officers shall be maintained by SMMC Administration that is large enough to ensure that Triage Officers will be stationed in person in the ED at all times during a public health emergency crisis, and will be available on short notice to 2AB, ICU, or other patient care areas. Administration must also ensure that Triage Officers will have sufficient rest periods between shifts. The triage lead/team should ONLY be provided clinically relevant data required by the allocation protocol.

2. Triage Team

In addition to the Triage Officer, the triage team shall also consist:

- a. Nurse with acute care (e.g., critical care or emergency medicine) experience (even if no longer clinically active),
- b. Another clinician with expertise relevant to the particular scarce resource (e.g respiratory therapist);
- c. Ethics committee member appointed by the ethics committee chair to ensure that ethical values are an integral part of the decision-making process;
- d. Operations representative from SMMC administration with real-time knowledge of logistics related to availability, acquisitions, and distribution of critical supplies responsible to provide information regarding available supplies and assistance liaising with the SMMC Command Center/Administration;
- e. And one administrative staff member who will conduct data-gathering activities, documentation and record keeping (including maintenance of accurate triage scores, both MSOFA, Raw and Priority Scores).

The triage team must be provided with appropriate computer and IT support to maintain updated databases of patient priority levels and scarce resource usage (total numbers, location, and type). The role of

triage team members is to provide information to the Triage Officer and to help facilitate and support the Triage Officer's decision-making process.

3. Triage team members should receive advanced training to prepare them for the role, including training in the following:
 - a. Applying the allocation framework;
 - b. Communicating with clinicians and families about triage including the need to call on professional interpreters to facilitate communication in the preferred spoken language of patients and/or their families;
 - c. Recognizing and avoiding implicit bias;
 - d. Respecting disability rights; and
 - e. Diminishing the impact of social inequalities on health outcomes.

The triage teams should work in shifts lasting no longer than 13 hours ((i.e., twelve hour shifts with 30 minutes of overlap and handoffs on each end of the shifts). Therefore, there should be at least two shifts per day to fully staff the triage function. Team decisions and supporting documentation should be reported daily to appropriate SMMC leadership and incident command.

The triage team will use the provided allocation guidelines for making allocation decisions.

4. Triage Mechanism:

Triage teams will use the allocation framework, detailed in Section 2, to determine priority scores of all patients eligible to receive scarce critical care resource. For patients already being supported by such scarce resources, the triage team will also conduct periodic reassessment to evaluate for clinical improvement or worsening at pre-specified intervals, as detailed in Section 3. The Triage Officer will review the comprehensive list of priority scores for all patients and will communicate with the clinical teams immediately after a decision is made regarding allocation or reallocation of a critical care resource.
5. Communication of Triage Decisions to Patients and Families:

Although the *authority* for triage decisions rests with the Triage Officer, there are several potential strategies to *disclose* triage decisions to patients and families. Communicating triage decisions to patients and/or their next of kin is a required component of a fair triage process that manifests respect for persons.

The Triage Officer should first inform the affected patient's attending physician about the triage decision. Those two physicians should

collaboratively determine the best approach to inform the individual patient and family. The best approach will depend on a variety of case-specific factors, including the dynamics of the individual doctor-patient-family relationship and the preferences of the attending physician. If the attending physician is comfortable with undertaking the disclosure, this approach is useful because the communication regarding triage will bridge naturally to a conveyance of prognosis, which is a responsibility of bedside physicians, and because it may limit the number of clinicians exposed to a circulating pathogen. A more collaborative approach may also be useful because it may lessen moral distress for individual clinicians and may augment trust in the process, but these benefits must be balanced against the risk of greater clinician exposure. Under this approach, the attending physician would first explain the severity of the patient's condition in an emotionally supportive way, and then the Triage Officer would explain the implications of those facts in terms of the triage decision. The Triage Officer would also emphasize that the triage decision was not made by the attending physician but is instead one that arose from the extraordinary emergency circumstances and reflects a public health decision. Regardless of who communicates the decision, it may be useful to explain the medical factors that informed the decision, as well as the factors that were not relevant (e.g., race, ethnicity, gender, insurance status, perceptions of social worth, immigration status, among others). If resources permit, palliative care clinicians, social workers, or chaplain should be present or available to provide ongoing emotional support to the patient and family. All approaches to inform the individual patient and family should take into consideration the family's spoken language needs and involve professional interpreters as necessary.

6. Appeals Process for Individual Triage Decisions:

Patients, families, or clinicians will challenge individual triage decisions. Procedural fairness requires the availability of an appeals mechanism to resolve such disputes. On practical grounds, different appeals mechanisms are needed for the initial decision to allocate a scarce resource among individuals, none of whom are currently using the resource, and the decision whether to withdraw a scarce resource from a patient who is not clearly benefiting from that resource. This is because initial triage decisions for patients awaiting the critical care resource will likely be made in highly time-pressured circumstances. Therefore, an appeal will need to be adjudicated in real time to be operationally feasible. For the initial triage decision, the only permissible appeals are those based on a claim that an error was made by the triage team in the calculation of the priority score or use/non-use of a tiebreaker (*as detailed in Section 2, on Page 11*). The process of evaluating the appeal should include the triage team verifying the accuracy of the priority score

calculation by recalculating it. The treating clinician or Triage Officer should be prepared to explain the calculation to the patient or family on request.

Decisions to withdraw a scarce resource such as mechanical ventilation from a patient who is already receiving it may cause heightened moral concern. Furthermore, such decisions depend on more clinical judgment than initial allocation decisions. Therefore, there should be a more robust process for appealing decisions to withdraw or reallocate critical care beds or services. Elements of this appeals process includes:

- a. The individuals appealing the triage decision should explain to the Triage Officer the grounds for their appeal. Appeals based in an objection to the overall allocation framework should not be granted.
 - b. The triage team should explain the grounds for the triage decision that was made.
 - c. Appeals based in considerations other than disagreement with the allocation framework should immediately be brought to a Triage Review Committee that is independent of the Triage Officer/team and of the patient's care team (see below for recommended composition of this body).
 - d. The appeals process must occur within two hours or sooner, so that the appeals process does not harm patients who are in the queue for scarce critical care resources currently being used by the patient who is the subject of the appeal.
 - e. The decision of the Triage Review Committee will be final.
 - f. Periodically, the Triage Review Committee should retrospectively evaluate whether the review process is consistent with effective, fair, and timely application of the allocation framework.
7. The Triage Review Committee:

The committee should be made up of at least three individuals, recruited from the following groups or offices: Chief Medical Officer or designee, Chief Nursing Officer or designee, Legal Counsel, SMMC's Ethics Committee, and/or an off-duty Triage Officer. The Triage Committee shall consist of at least three members and at least three members are needed to constitute a quorum. The Committee shall render a decision using a simple majority vote. The Triage Review Committee may meet in person or remotely using appropriate technology, and the outcome will be promptly communicated to the party bringing the appeal. Regardless of how the outcome is communicated (e.g., in writing, telephonically, in person, etc.), the Committee will prepare and keep a written record of its deliberations and decisions.

In addition, the Triage Review Committee shall provide oversight of triage teams. This oversight shall consist of periodic reviews of triage teams' processes and documentation, with a particular focus on discovering implicit bias or inappropriate use of assessment/reassessment tools.

In the situation in which a scarce resource is withdrawn, the patient and family will not be abandoned, as described in our ethical principle of ***Duty to Care***, but will be offered other appropriate medical care, including intensive symptom management, palliative care, and psychosocial support.

B. Section 2: Allocation Process for ICU Admission/Ventilation:

This section describes the allocation framework that should be used to make initial triage decisions. The scoring system applies to all patients presenting with critical illness, not only those with the disease or disorders that have caused the public health emergency. For example, in the setting of a severe pandemic, those patients with respiratory failure from illnesses not caused by the pandemic illness will also be subject to the allocation framework. This process involves two steps, detailed below:

- Calculating each patient's priority score based on the allocation framework;
- Determining each day how many priority groups will receive access to critical care interventions;
- Documenting the score and decision making, as well as any appeals in the chart (*see Appendix 1 and 2*).

This allocation framework is based primarily on two considerations: 1) saving lives; and 2) overall prognosis of near-term survival, both within the context of ensuring meaningful access for all patients, conducting individualized patient assessments based on objective medical knowledge, and diminishing the negative effect of social inequalities that lessen some patients' long-term life expectancy. Patients who are more likely to survive with intensive care are prioritized over patients who are less likely to survive with intensive care. Patients who do not have a severely limited near-term prognosis are given priority over those who are likely to die in the near-term from conditions in advanced stages, even if they survive the acute critical illness.

The MSOFA score is used to determine patients' prognoses for hospital survival. The Near-Term Survival Prognosis score indicates the presence of medical condition(s) in such an advanced state that they limit near-term duration of benefit. We have intentionally only included conditions with a less than 6-month life expectancy, using hospice diagnosis criteria.

In addition, it is important to note that there are some conditions that lead to immediate or near-immediate death despite aggressive therapy such that during routine clinical circumstances clinicians do not provide critical care services (e.g., cardiac arrest unresponsive to appropriate ACLS, massive intracranial bleeds not amenable to surgical intervention, intractable shock despite all appropriate treatment). During a public health emergency, clinicians should still continue to make judgments about the medical appropriateness of critical care using the same criteria they use during normal clinical practice.

1. Stepwise Guideline

a. STEP 1: Immediate Stabilization

First responders and bedside clinicians will perform the immediate stabilization of any patient in need for critical care, as they would under normal circumstances. Along with stabilization, temporary ventilation support (not necessarily intubation) may be offered to allow the Triage Officer to assess the patient for scarce critical resource allocation. To assure a swift repose time, a Triage Officer will be stationed in the ED, and he/she is expected to make a determination of the Priority Score within 30 minutes of patient's arrival.

b. STEP 2: Mortality Risk Assessment Using Modified Sequential Organ Failure Assessment (MSOFA) Score and Near-Term Survival Score

- 1.) Patients are assessed using MSOFA by the attending physician, which is used to estimate mortality risk (*see Table 1 and 2, attached*).
- 2.) The attending physician shall take into consideration other clinically relevant factors (*see Table 3, attached*), to estimate overall prognosis for near-term survival. Priority should be given to patients who have a higher likelihood of near-term survival with ventilator therapy.
- 3.) The Triage Officer/team is to evaluate the patient within 30 min of being informed of the need for an assessment. The Triage Officer/team, shall review the clinical data from Step 1 and 2. The Triage Officer shall add the MSOFA score and the Near-Term Survival Prognosis Score together to produce a total Priority Score (*see Table 4, attached*). Lower scores indicate higher likelihood of benefitting from critical care, and priority will be given to those with lower scores.
- 4.) This decision-making process takes place each time a ventilator becomes available. Patients waiting for ventilator therapy wait in an eligible patient pool and receive alternative forms of medical intervention and/or

symptom management (e.g., palliative care, comfort care) until a ventilator becomes available.

c. STEP 3: Make Daily Determinations of How Many Priority Groups Can Receive the Scarce Resource

Hospital leaders and Triage Officers shall make determinations at least twice daily, or more frequently if needed, about what priority scores will result in access to critical care services. These determinations should be based on real-time knowledge of the degree of scarcity of the critical care resources, as well as information about the predicted volume of new cases that will be presenting for care over the near-term (several days). For example, if there is clear evidence that there is imminent shortage of critical care resources (i.e., few ventilators available and large numbers of new patients daily), only patients with the highest priority (lowest scores) should receive scarce critical care resources. As scarcity subsides, patients with progressively lower priority (higher scores) should have access to critical care interventions.

d. STEP 4: Resolving “ties” in priority scores/categories between patients

Although the decision to make a ventilator available to one patient over another is not the desired outcome, there may be instances in which the official scoring document and triage conditions may create a tie between two patients. To keep the tie breaker process as fair as possible we place no value on age, social worth, or life cycle. In the event of a tie, we will use a scoring system that weights life limiting chronic diseases (*see Table 5, attached*). Diseases that we know influence the course of the Covid infection. Using these tie breaking criteria, the patient with the lowest score is allocated the ventilator. In the event that there remains a tie then a randomization process (e.g. lottery) will be used to break the tie.

A non-clinical system used at this triage step only is employed after a Triage Officer/committee determines that all available clinical measures are (nearly) equivalent for the eligible patients, which implies that all of these individuals have equal (or near equal) likelihoods of survival (i.e., in the same priority category), and all patients are adults. Whenever possible, the treating team shall revisit with the patient and their family the patient's end of life wishes to support individual self-determination and to prevent feelings of helplessness. There may be some

who choose to forego further treatment.

It is important to reiterate that all patients will be *eligible* to receive critical care beds and services regardless of their priority score. The availability of critical care resources shall determine how many eligible patients will receive critical care.

e. STEP 5: Appropriate Clinical Care of patients who cannot receive critical care

Patients who are not triaged to receive critical care/ventilation shall receive medical care that includes intensive symptom management and psychosocial support. They should be reassessed daily to determine if changes in resource availability or their clinical status warrant provision of critical care services. Where available, specialist palliative care teams will be available for consultation. Where palliative care specialists are not available, the treating clinical teams should provide primary palliative care.

C. Section 3: Reassessment for Ongoing Provision of Critical care/Ventilation

This section describes the process the triage team should use to conduct reassessments on patients who are receiving critical care services, in order to determine whether s/he continues with the treatment.

1. Ethical Goal of Reassessments of Patients Who Are Receiving Critical Care Services:

The ethical justification for such reassessment is that, in a public health emergency when there are not enough critical care resources for all, the goal of maximizing the benefit for communities of patients would be jeopardized if patients who were determined to be unlikely to survive were allowed indefinite use of scarce critical care services. In addition, periodic reassessments lessen the chance that arbitrary considerations, such as when an individual develops critical illness, unduly affect patients' access to treatment.

D. Approach to Reassessment:

All patients who are allocated critical care services will be allowed a therapeutic trial of a duration to be determined by the clinical characteristics of the pandemic disease. Patients who present for acute care and are already using a ventilator chronically for pre-existing respiratory conditions (e.g., home ventilation or ventilation at a skilled nursing facility) shall NOT be separated from their chronic ventilator to reallocate it to other patients.

Periodic clinical assessments at 120 hours and then every subsequent 96 hours (time trials) using MSOFA are conducted on a patient who has begun ventilator therapy to evaluate the patient's risk of organ failure/mortality.

1. **STEP 1:** A patient's attending physician performs the clinical assessments using MSOFA (*see Table 3, attached*) for the 120-hour assessment and the subsequent assessments every 96-hours.
2. **STEP 2:** The results of the assessment are provided to the triage lead/team who assigns to the patient a new Priority Score. The Priority Score assigned is dependent on the MSOFA score itself and the magnitude of change between the MSOFA score at the current assessment and the MSOFA score from the previous assessment. Minimal decrease is defined as <3 point decrease. The decision whether to continue ventilator therapy for a patient is dependent on the trend of the MSOFA score data and the overall clinical picture. The near-term survival score is also taken into consideration, if the number increases (e.g patient develops a condition which increases the near-term survival score) at any time after the 120-hour assessment.

A patient with worsening/no change in mortality risk (i.e., increase or minimal/no change in MSOFA score), is less likely to continue with ventilator therapy. The less severe a patient's acute health condition (i.e., low MSOFA score) and demonstration of improvement with ventilator therapy (i.e., significant decrease in the MSOFA score and in mortality risk), the higher the likelihood the patient continues on ventilator treatment.

At 120 hours, a patient must exhibit a pattern of significant improvement to be placed in the highest Priority Category. At each subsequent 96-hour assessment, a patient must demonstrate a pattern of further improvement in health, as related to acute disease, to be placed in the highest Priority Category. The triage lead/team determines whether a patient continues with ventilator therapy.

3. **STEP 3:** If there are patients in the queue for critical care services, then patients who upon reassessment show substantial clinical deterioration as evidenced by worsening severity of illness scores or overall clinical judgment should have critical care withdrawn, including discontinuation of mechanical ventilation, after this decision is disclosed to the patient and/or family. Although patients should generally be given the full duration of a trial, if patients experience a precipitous decline (e.g., refractory shock and DIC) or a highly morbid complication (e.g., massive stroke) which portends a poor prognosis for near-term survival, the triage team or the physician actively directing the patient's care (if the triage team is not available) may make a decision before the completion of the specified trial length that the patient is no longer eligible for critical care treatment (*see "Life-Sustaining Treatment, Code Status Decisions-Making and Futile care Guidelines"*).

E. Decision Making Process for Removing Patient from a Ventilator:

In the scenario that there is an incoming high priority score patient eligible for ventilator treatment, the Triage Officer/team must decide to remove a ventilator from a patient who has developed a condition which portends a very poor prognosis for near-term survival or whose acute health condition is not improving at the 120-hour or subsequent 96-hour time trial assessments. For the high Priority Score patient to receive ventilator treatment, the Triage Officer/team should follow these steps to determine which patient should be removed from a ventilator:

1. Lowest priority score patients are the first patients eligible for ventilator removal.
2. If there are several patients with the same Priority Score, the following process should be followed:
 - a. First, take into account other clinically relevant factors for prognostication of near-term survival, as well as tie breakers, as described above under Resolving Ties (*see Table 5, attached*). Factors not clinically relevant to the patient's acute illness should not be used to compare patients within the same category.
 - b. Second, if there are still multiple patients in the same category, a randomization process (e.g., lottery) is used.
3. A patient may only be removed from a ventilator after an official clinical assessment has occurred or when the patient has developed a medical condition that increase the near-term survival score.
4. If all ventilated patients at the 120-hour and subsequent 96-hour time trial assessments receive a high priority score, then none of these patients discontinue ventilator therapy. The incoming high priority score patient(s) remains in an eligible patient pool and receives alternative forms of medical intervention and/or symptom management (e.g., palliative care, comfort care) until a ventilator becomes available. The Triage Officer/team shall keep a record of the eligible pool, patient scores, reassessment scores, etc. All this information will be entered in the medical record.

F. Appropriate Clinical Care of Patients Who Cannot Receive Critical Care:

Patients who are no longer eligible for critical care treatment should receive medical care including intensive symptom management and psychosocial support. Where available, specialist palliative care teams will be available for consultation. Where palliative care specialists are not available, the treating clinical teams should provide primary palliative care.

REFERENCES:

Note: This guideline is based on guidelines and work done at the University of Pittsburg and published at: White DB, Lo B. A framework for rationing ventilators and critical care beds during the COVID-19 pandemic. JAMA. doi:10.1001/jama.2020.5046. eAppendix. Allocation of Scarce Critical Care Resources During a Public Health Emergency and is recommended in California SARS-CoV-2 Crisis Care Guidelines-Final 4-15-20.

1. Childress JF, Faden RR, Gaare RD, et al. Public health ethics: mapping the terrain. *J Law Med Ethics* 2002;30:170-8.
2. Gostin L. Public health strategies for pandemic influenza: ethics and the law. *Jama* 2006;295:1700-4.
3. Beauchamp TL, Childress JF. *Principles of Biomedical Ethics*. 6th ed. ed. New York, NY: Oxford University Press; 2009.
4. White DB, Katz MH, Luce JM, Lo B. Who should receive life support during a public health emergency? Using ethical principles to improve allocation decisions. *Ann Intern Med* 2009;150:132-8.
5. Egan TM, Murray S, Bustami RT, et al. Development of the new lung allocation system in the United States. *American journal of transplantation : official journal of the American Society of Transplantation and the American Society of Transplant Surgeons* 2006;6:1212-27.
6. Daugherty Biddison EL, Gwon H, Schoch-Spana M, et al. The community speaks: understanding ethical values in allocation of scarce lifesaving resources during disasters. *Annals of the American Thoracic Society* 2014;11:777-83.
7. Young MJ, Brown SE, Truog RD, Halpern SD. Rationing in the intensive care unit: to disclose or disguise? *Crit Care Med* 2012;40:261-6.
8. Emanuel EJ, Wertheimer A. Public health. Who should get influenza vaccine when not all can? *Science* 2006;312:854-5.
9. Neuberger J, Adams D, MacMaster P, Maidment A, Speed M. Assessing priorities for allocation of donor liver grafts: survey of public and clinicians. *Bmj* 1998;317:172-5.
10. Harris J. *The Value of Life*. London: Routledge and Kegan Paul; 1985.

ATTACHMENTS:

1. Table 1: Modified Sequential Organ Failure Assessment (MSOFA) Score
2. Table 2: Glasgow Coma Scale Score Criteria
3. Table 3: Point System for Near Term Survival Prognosis
4. Table 4: Priority Score – Assignment Using MSOFA and Near-Term Survival Score
5. Table 5: Comorbid Conditions to Use as Tie Breakers
6. Appendix 1: Sample Triage Officer/Team Initial Triaging Note
7. Appendix 2: Sample Petition for Review of Discontinuation of Ventilator
8. Appendix 3: Algorithm: Hospital and ICU/Ventilator Admission Triage

| SMMC Policy Review & Approval Grid | |
|------------------------------------|-----------------------|
| Origination Date: 2020-06 | Last Review Date: New |
| Reviewed and approved by: | Date: |
| Chapter Chair | 06/20 |
| Ethics Committee | 06/20 |
| Critical Care Committee | 06/20 |
| Department of Medicine | 06/20 |
| Emergency Medicine | 06/20 |
| Medical Executive Committee | 07/20, FINAL |
| Date & Submission By: 2020-06 | |
| NOTE(s): | |

Table 1: Modified Sequential Organ Failure Assessment (MSOFA) Score

| Table 1: Modified Sequential Organ Failure Assessment (MSOFA) Score | | | | | | |
|--|--------------------------------|---------------|-----------------------------------|---|--|---------------------------|
| Variable | 0 | 1 | 2 | 3 | 4 | Score for each row |
| Respiratory SpO ₂ /FiO ₂ | >400 | ≤400 | ≤315 | ≤235 | ≤150 | |
| Liver | No scleral icterus or jaundice | | | Scleral icterus or jaundice | | |
| Cardiovascular, hypotension (mcg/kg/min) | No hypotension | MAP <70 mm Hg | dopamine≤5 or dobutamine any dose | dopamine>5 or epinephrine≤0.1 or norepinephrine≤0.1 | dopamine>15 or epinephrine>0.1 or norepinephrine>0.1 | |
| CNS, Glasgow Coma Score | 15 | 13-14 | 10-12 | 6-9 | <6 | |
| Renal, Creatinine mg/dL | <1.2 | 1.2-1.9 | 2.0-3.4 | 3.5-4.9 | >5.0 | |
| MSOFA Score = total score from all rows | | | | | | |

Table 2: Glasgow Coma Scale (GCS) Score Criteria

| Table 2: Glasgow Coma Scale Score Criteria* | | | |
|---|---------------------------------|--------------|-----------------------|
| Criteria | Adults | Score | Criteria Score |
| Eye opening response | No response | 1 | |
| | To painful stimulus only | 2 | |
| | To verbal command | 3 | |
| | Spontaneous | 4 | |
| Verbal response | No response | 1 | |
| | Incomprehensible sounds | 2 | |
| | Inappropriate words | 3 | |
| | Confused, but answers questions | 4 | |
| | Oriented | 5 | |
| Motor response | No response | 1 | |
| | Extension to painful stimulus | 2 | |
| | Flexion to painful stimulus | 3 | |
| | Withdraws from pain | 4 | |
| | Purposeful movement to pain | 5 | |
| | Obeys command for movement | 6 | |
| Total Score | | | |
| *IF patient's GCS cannot be calculated (e.g. patient is sedated), the patient's baseline GCS (prior to illness) should be used. | | | |

Table 3: Point System for Near Term Survival Prognosis

| Table 3. Point System for Near-Term Survival Prognosis | |
|--|---------------------------------|
| Death expected within 6 months despite successful treatment of acute illness: | Assign 4 points for each |
| <ul style="list-style-type: none"> • Known severe dementia medically treated and requiring assistance with activities of daily living. (Functional Assessment Staging (FAST) grade 6e and above: doubly incontinent and speaks only a few words, unable to walk, loss of intelligible speech, unable to smile, unable to hold their head up). | _____ |
| <ul style="list-style-type: none"> • Advanced untreatable neuromuscular disease (such as ALS or end-stage MS) requiring assistance with activities of daily living or requiring chronic ventilatory support. | _____ |
| <ul style="list-style-type: none"> • Incurable metastatic malignant disease | _____ |
| <ul style="list-style-type: none"> • End-stage organ failure meeting the following criteria: <ul style="list-style-type: none"> ○ Heart: New York Heart Association (NYHA) Functional Classification System Class IV (Unable to carry out physical activity without discomfort. Symptoms of cardiac insufficiency at rest. If any physical activity is undertaken, discomfort is increased.) ○ Lung: (any of the following): <ul style="list-style-type: none"> ▪ (COPD) with Forced Expiratory Volume in one second (FEV1) < 15% predicted baseline, PaO2 <55 mm Hg, or severe secondary pulmonary hypertension. ▪ Pulmonary fibrosis with VC or TLC < 50 % predicted, baseline PaO2 <55 mm Hg, or severe secondary pulmonary hypertension. ▪ Primary pulmonary hypertension with NYHA class IV heart failure. ○ Liver: Meld score indicative of <50% chance of 6-month survival. | _____ _____ _____ |
| Total Score | |
| *Scores range from 0-24, and persons with the lowest score would be given the highest priority to receive critical care beds and services. | |

Table 4: Priority Score – Assignment Using MSOFA and Near-Term Survival Score

| Table 4: Priority Score -Assignment Using MSOFA and Near-Term Survival Score | | |
|---|-----------------------|---|
| Total Priority Score = 0 | Low priority | <ul style="list-style-type: none"> • Highest chance of survival without ventilator • Use alternate forms of medical interventions or defer or discharge • Reassess as needed |
| Total Priority Score =1-7 | Highest priority | <ul style="list-style-type: none"> • Highest priority for ventilator • Highest priority for admission • Use ventilators as available |
| Total Priority Score = 8-11 | Intermediate priority | <ul style="list-style-type: none"> • Intermediate priority for ventilators • Use ventilator as available |
| Total Priority Score >11 | Low priority | <ul style="list-style-type: none"> • Lowest priority for ventilator • Use alternate forms of medical interventions and/or symptom management • Provide palliative care as needed • Reassess if ventilators become available |

Table 5: Comorbid Conditions to Use as Tie Breakers

(Note: none of these conditions are to be used if they are already used in Table 3 to calculate in the Total Priority Score)

| Table 5: Comorbid Conditions to Use as Tie Breakers | | |
|--|--------------|-------|
| | Point system | Score |
| Dementia | 1 | |
| Hypertension | 1 | |
| Diabetes | 1 | |
| Morbid obesity (BMI>35 based on admission weight) | 1 | |
| Heart disease (NYH stage 3-4) | 2 | |
| Active malignancy (stage 4, not hospice) | 3 | |
| Severe Lung disease* | 3 | |
| Known decompensated cirrhosis | 3 | |
| Total Score | | |

* Severe emphysema with FEV1 between 30 and 50 percent of normal.

Appendix 1: Sample Triage Officer/Team Initial Triaging Note

Patient Diagnosis:

Scoring: MSOFA score=
 Near-Term Survival score=
 Total Priority Score=

Priority group: Low, Intermediate, High

Decision: (ie ICU care, Ventilator)

Critical care capacity is, or will shortly be, overwhelmed despite taking all appropriate steps
to increase the surge capacity Yes No

Regional authority has declared a public health emergency Yes No

Appendix 2: Sample Petition for Review of Discontinuation of Ventilator

Patient's name:

Name and phone number of person(s) contesting decision:

Relationship to patient:

Reasons for contesting decision:

Triage score sheet results at time of contested decision:

Ancillary Clinical data at time of decision:

Ethics/ triage review of decision:

Signature of reviewers

Appendix 3: Algorithm: Hospital and ICU/Ventilator Admission Triage

Algorithm: Hospital and ICU/Ventilator Admission Triage

