

**Crisis Standards of Care during COVID-19 Pandemic:
Allocation of Limited Resources**

Table of Contents

I.	Introduction	Pages 3-4
II.	Phased Allocation of Limited Resources	Pages 4-7
III.	Mortality Risk Assessment and Periodic Reassessment Decision to Offer Critical Care, Intensive Care Unit (ICU) Admission And Mechanical Ventilation	Pages 7-9
IV.	Decision to only Offer Intensive Symptom Management, Psychosocial Support and Palliative Care	Page 9
V.	Decision Not to Accept Transfer from Outside Hospitals	Page 9
VI.	Inability to transfer for higher level of care (HLOC)	Page 10
VII.	Code Status	Page 10
VIII.	Triage Officer and Crisis Care Committee	Pages 10-13
IX.	Crisis Recognition/Point of Activation	Page 13-14
X.	Crisis Standard of Care Tables	Pages 15-30
XI.	References	Page 31-32

I. Introduction

This document provides guidance for allocation of adult patient care resources, such as intensive care beds and ventilators, in the event that during a public health emergency such as a viral pandemic or an acute disaster, demand for such services outstrips resources. These guidelines are in accordance with the 2020 California SARS-CoV-2 Pandemic: Health Care Surge Crisis Care Guidelines¹. The purpose of this document is to serve as a framework for supporting ethical and effective provision of medical care during a catastrophic public health disaster. This document should be viewed as a working document with the understanding that as new knowledge emerges, it will require modification.

These guidelines do not use categorical exclusion criteria; all individuals are considered worth saving. It proposes keeping all patients who would receive care during routine clinical circumstances eligible for crisis care. Limitations to care are determined by the availability of supplies, equipment, beds and staff. 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. Examples are cardiac arrest unresponsive to appropriate Advanced Cardiovascular Life Support (ACLS), massive intracranial bleeds, intractable shock. In the course of a public health emergency, clinicians should still make clinical judgments about the appropriateness of critical care using the same criteria they use during normal clinical practice.

There are several ethical principles that underlie our guidelines²⁻⁶.

1. The duty to care is the fundamental obligation of providers to care for patients.
2. The duty to steward resources is the need to responsibly manage resources during periods of scarcity.
3. The duty to plan is the responsibility to plan for a foreseeable crisis.
4. Distributive justice requires that an allocation system is applied broadly and consistently to be fair to all.
5. Transparency ensures that the process of developing clinical allocation protocols is open to feedback and revision, which helps promote public trust.

Based on these five principles, the following ethical considerations were used in developing the guidelines and recommendations outlined in this document:

1. Is the health outcome used to guide allocation (lives saved or years of life) ethically defensible?
2. Are limited resources allocated in a way that is fair, consistent and transparent?
3. Are limited resources allocated without favoring privileged groups?
4. Have the interests of vulnerable groups been considered?

5. Are there provisions for palliative care and support for those who do not receive scarce resources?
6. Are individuals who are creating the allocation algorithms free of professional and personal conflicts?
7. If algorithms favor providers of a key service, are those decisions being made in a transparent, consistent and reasonable manner?

The guidelines for allocation use clinical factors to give patients who are deemed most likely to survive and benefit from treatment with scarce resources an opportunity for treatment.

Goal: The primary goal of a triage plan is to save the most lives when resources are limited. Prioritizing individuals based on clinical factors is the most equitable method to maximize the number of survivors. This triage plan incorporates ethical decision-making processes so that the duty to steward resources and limitations placed on individual care are recognized as fair and acceptable under emergency circumstances.

II. Phased Allocation of Limited Resources

As a pandemic emerges within a community, there will be a predictable strain on the healthcare system that parallels the infection incidence curve. Allocation protocols apply to all patients regardless of COVID-19 status. Three phases of allocation of limited resources are described below. It is difficult to know exactly where a community is on the infection incidence curve during a surge, however clinical circumstances can offer insights as to how to best manage patients and resources.

To mitigate the risk of limiting resources too early or too late, one must recognize the phases of a crisis and the varying degrees of strain on the healthcare system. Each phase requires different allocation of limited resources. Phase identification is assessed continuously based on resource inventory by Hospital Incident Command (HIC).

During normal times, adherence to normal community standards of care is intended under standard operating procedures. Conventional care includes maximization of usual resources. As resources become constrained, conventional care shifts to contingency care. In contingency care, adherence to normal community standards of care is intended but not always achievable through normal operating procedures. This may require shifting to atypical operating procedures in order to optimize resources and provide community standard care to the fullest extent possible. Crisis care is reached when resources are scarce and the focus shifts from providing the best care to individual patients to delivering the best care to the patient population.

The three phases of care as follows:

Phase I Conventional care

In this phase, a public health emergency has been declared, but there are enough standard of care resources (beds/ventilators for example) for everyone who presents for medical care. Institutional capacity has not been reached.

Phase II Contingency Care

In this phase, standard care resources have been exhausted, but there are alternative means to deliver care (e.g., transport ventilators, CPAP, improvised treatment areas for example). Standard capacity has been exhausted, but alternative strategies allow for an increased volume of patient care while normal standards of care are being met. The following actions will be taken:

- Activation of the Triage Officer (TO) and Crisis Standards Committee (CSC) for triage and evaluation of scarce resources. All patients will be clinically categorized using the Sequential Organ Failure Assessment (SOFA) score⁷ for future triage should Phase III be reached.
- When Phase II is initiated, standard resources have reached capacity and critical care resources will be deemed non-beneficial for certain conditions outlined in Table 1.
- Blue category – (SOFA>11), despite lowest priority (lowest likelihood of survival) remain eligible for available limited resources

Phase III Crisis Care

In this phase, all alternative resources have been exhausted. Allocation of resources will be determined by priority as determined by the Triage Committee.

- Blue category – (SOFA>11), lowest priority (lowest likelihood of survival) will not receive limited resources but will receive medical care, palliative care, and hospice referral.

For Phases I, II and III the following steps will be followed:

1. In all phases, all patients are evaluated for treatment.
2. In Phase I, resources will be allocated based on need.

3. In Phase II, critical, scarce and limited resources will be identified and all efforts to conserve and/or acquire additional resources will be made.
4. In Phase III, critical, scarce and limited resource allocation will be determined by SOFA classification and Table 1 criteria.
 - a. The provider assesses the function of six key organ systems: lungs, liver, brain, kidneys, blood clotting and heart. The function of these six organ systems form the basis for the SOFA score (Table 2). *Originally, the use of SOFA scores was developed by the Ontario Health Plan for an Influenza Pandemic (OHPIP) plan in 2006⁷. Subsequently many jurisdictions in Canada and the USA have adapted this score⁸⁻¹⁰ (or alternative so called Modified Sequential Organ Failure Assessment (MSOFA)¹¹⁻¹² as the basis for ventilator allocation when demand exceeds capacity^a.*
 - b. Based on clinical information, the SOFA score is calculated. A perfect SOFA score, indicating normal function in all six categories, is zero; the worst possible score is 24 and indicates life threatening abnormalities in all six systems^b. The SOFA score will be used as a proxy for mortality risk.
 - c. The clinical allocation protocol applies to all patients in need of a critical, scarce or limited resource, regardless of COVID-19 status. For a patient sick with only COVID-19 and with no other comorbidities, organ failure is often limited to the lungs, resulting in a low SOFA score (i.e., highest priority). In comparison, a patient with multiple comorbidities resulting in organ failure, but without COVID-19 may have a high SOFA score (lower priority). Intubation alone is not considered lung failure and may not affect the SOFA score.
 - d. The Triage Officer examines the available scores and will allocate the next available critical, scarce or limited resource(s) according to a patient's SOFA score (Table 3a or Table 4a). While a SOFA score does provide discrete numbers, it is not appropriate to suggest that a score of 5 is indicative of a lower risk of mortality than a score of 6. Instead, both of these scores suggest that patients have near equal probabilities of survival. Thus, all patients in the same color category have the same likelihood of survival.
 - e. Each patient allocated a limited resource will have his/her SOFA score reassessed in 12- 48 hours. In the circumstance that there are no additional resources, the decision about whether a patient continues to receive the resource is based on his/her SOFA score and the magnitude of change in the SOFA score compared to

^a SOFA is simple to use, with few variables or lab parameters, and the calculation of the score (i.e., simple addition) is straightforward, which makes SOFA a good tool to provide a consistent, clinical approach to allocate ventilators. The score is calculated only from clinical factors based on available medical evidence, and not personal values or subjective judgments, such as quality of life. Despite the criticism that SOFA may not adequately determine prognosis for individual patients in all circumstances, SOFA will be used until a better clinical tool is developed. The decision to use the SOFA score is supported by the fact that SOFA score as a proxy for mortality risk is currently used by several other jurisdictions, including New York State, Minnesota, Maryland, Utah and Pittsburgh.

^b By design SOFA weights all six systems equally.

the results from the previous official clinical assessment (Table 3b and 3c or Table 4b and 4c). The primary difference between the 12 and 48-hour assessment is the extent of improvement in overall health prognosis and of the trajectory of a patient's health status required to continue to benefit from receiving the identified scarce resource.

Although additional clinical assessments may be performed, the official SOFA assessments only occur after 48 hours of critical care or initiation with treatment with limited resource(s). No formal triage decision or action may be taken until a patient's official assessment.

TRIAGE Overview:

The triage process allocates resources through a process of inclusion/exclusion and uses a triage officer and committee to score patients for access to scarce resources. The Triage Officer (TO) will be activated before the facility reaches a crisis level of care. Triage Officer activation and deactivation will depend on facility resources and needs. The Triage Officer has the responsibility and authority to make decisions on how scarce resources will be distributed based on ethical and guiding principles. The Triage Officer will work with the Crisis Standards Committee (CSC) to evaluate and monitor overall census, demand for resources, and supply of resources that are limited. The TO and CSC will devise strategies for maximizing limited resources.

The TO will engage with the CSC to start a dynamic decision making process. Allocation decisions will be based on patients' clinical status, significant medical history, and comorbid conditions that may indicate likely benefit from use of scarce resources.

All patients that are allocated scarce resources will be allowed a 12-24 hour initial therapeutic trial and reevaluated every 12-48 hours.

III. Mortality Risk Assessment and Periodic Reassessment. Decision to offer Critical Care, Intensive Care Unit (ICU) Admission, mechanical ventilation and other critical resources

An ethically sound framework for healthcare during a public health emergency must balance a patient-centered duty of care with public-focused duties to promote equality and equity in distribution of risks and benefits to society. To that end, the primary goal of the allocation framework during a public healthcare emergency is to maximize benefit for populations of patients, by maximizing survival to hospital discharge and beyond for as many patients as possible.

During a declared public health emergency, all patients who meet usual medical indications for admission to an ICU will be assigned a SOFA score. The SOFA score assists in determining a patient's likelihood of surviving from hospital admission to hospital discharge (lower scores indicate higher likelihood of benefit from critical care)⁵. The SOFA score corresponds to four color-coded priority groups (Tables 3A, 3B, and 3C) to facilitate streamlined implementation. All patients will be assessed and are eligible to receive critical care resources. These resources will be allocated according to resource availability and color-coded priority groups.

In the event that there are ties in priority scores between patients, a lottery strategy will be used as tie breaker.

All patients who are allocated critical care services will be allowed a therapeutic trial of 12-48 hours to determine the benefits of therapy. All patients receiving critical care/ventilation will be reassessed using the SOFA scoring system as well as appraisal of new clinical complications from the treating clinicians. 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 population outcomes 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.

Patients with clear clinical deterioration resulting in higher SOFA scores and change of color-coded category become candidates for discontinuation of identified resource, if patients with lower scores are waiting for the same resource.

Although patients will generally be given a full 12- 48 hour trial, if a patient experiences a precipitous decline (e.g., refractory shock and DIC) or a highly morbid complication (e.g., massive stroke) which portends a very poor prognosis, the direct treatment team may then consider that the patient is no longer eligible to receive the identified resource.

Patients who, as a result of the triage process, do not receive ICU beds or services will be offered medical care including intensive symptom management and psychosocial support. Where available, specialist palliative care teams will provide additional support and consultation.

IV. Decision to only Offer Intensive Symptom Management, Psychosocial Support and Palliative Care

It is critical to ensure that all patients receive the best care possible. If available resources prevent patients from receiving treatment in an Intensive Care Unit, patients need to know that the best

care possible will be provided within resource limitations. This care will include but not be limited to intensive symptom management and psychosocial support.

V. Decision Not to Accept Transfer from Outside Hospitals

When demand exceeds care supply resources, the usual ability to accept patients from other hospitals may be severely impacted. Table 5 highlights conditions that under extraordinary circumstances warrant a decision not to accept transfers.

Emergency Medical Treatment and Labor Act (EMTALA)

The Emergency Medical Treatment and Labor Act (EMTALA) states that a medical screening exam (MSE) must be provided to every individual who comes to the ED for examination of treatment for a medical condition to determine if they have an emergency medical condition (EMC). According to Centers for Medicare and Medicaid Services (CMS) Center for Clinical Standards and Quality/Quality, Safety and Oversight Group, EMTALA MSE and stabilization requirements can be waived in certain circumstances such as in the case of a public health emergency involving a pandemic infectious disease. In the case that a waiver is granted, CMS will provide notice to covered hospitals through regional offices and/or state agencies¹³.

On March 13, 2020, following the President's declaration of a national emergency, the Secretary of Health and Human Services (HHS) issued under his 1135 waiver authority, an EMTALA waiver of sanctions "for the direction or relocation of an individual to another location to receive medical screening pursuant to an appropriate state emergency preparedness plan or for the transfer of an individual who has not been stabilized if the transfer is necessitated by the circumstances of the declared Federal public health emergency for the COVID-19 pandemic"¹³. This waiver gives hospitals flexibility regarding the management of emergency department resources regarding COVID-19 screening and treatment. With this waiver, a hospital is permitted to redirect patients seeking COVID-19 screening to an alternative site, even off-campus, to conduct a medical screening examination (MSE) there, without conducting an MSE at the hospital.

VI. Inability to transfer for higher level of care (HLOC)

During contingency and crisis status, it may be difficult, perhaps impossible to transfer patients to other facilities for necessary procedures and services not available here. In this case, care will continue to be provided to the extent possible as outlined in this plan. However it should be noted that it will ultimately be insufficient to result in resolution of the medical condition for which transfer was being sought.

VII. Code Status

Based on current literature, COVID-19 positive patients who are intubated and receive vasopressors have a >90% mortality risk¹⁴. These patients will automatically receive a Do Not Resuscitate (DNR) status. The change to DNR status of such patients will be discussed with family members whenever possible.

VIII. Triage Officer and Crisis Care Committee

The decision regarding allocation of scarce resources will not be made by the attending of record caring for the patient but by the Triage Officer. The direct treatment team interacts with and conducts the clinical evaluation of a patient as well as provides clinical updates to the Triage Officer at predetermined intervals. The Triage Officer has no direct contact with the patient and will examine both the objective data and clinical course provided by the attending physician to determine a patient's priority level for ventilator access. Intentionally separating the roles of the direct treatment team and Triage Officer reduces conflicts, promotes objectivity and minimizes moral distress.

It is important to reiterate that the decisions of the Triage Officer are grounded in public health (community) ethics, not clinical ethics. As such, decisions of the Triage Officer is focused on achieving the greatest good for the greatest number of people.

Triage Officer

The Triage Officer will be appointed by the Chief Medical Officer (CMO) and Chief Executive Officer (CEO). Desirable qualities include: integrity, no evident conflict of interest, strong leadership skills, and effective communication and conflict resolution skills. The TO will preferably be a licensed physician. The TO will oversee the triage process and be the primary decision maker for scarce resource allocation during a crisis. The decision will be made in conjunction with and informed by hospital leadership, CSC, medical and nursing leadership, and department leadership along with spiritual care and social work. The TO will designate members of Crisis Standards Committee.

When activated, the TO will work with the CSC to monitor and evaluate the need for scarce resources. The TO will work to effectively optimize allocation of available resources. The Triage Officer has the responsibility and authority to apply the principles and processes of this document toward decisions regarding which patients will receive the highest priority for critical care resources. The Triage Officer is also empowered to make decisions regarding reallocation of critical care resources that have previously been allocated to patients, again relying upon the principles and processes outlined in this document. In making these decisions, the Triage Officer will not use principles or beliefs extraneous to this document.

The roster of TO and back-up support should be large enough to ensure the TO will be available at all times and that he or she will have sufficient rest periods between shifts. The Triage Officer on duty will oversee the triage process, assess the objective data (i.e., SOFA score) from all patients eligible for a resource allocation, assign a level of priority for each and communicate the level of priority to the appropriate treating physicians. The on-duty Triage Officer is expected to make decisions according to the allocation framework designed to benefit the greatest number of patients, and not necessarily the best outcome for individual patients. The level of priority score for each patient will be decided by majority determination by the CSC using Table 6A, 6B an.

Crisis Standard Committee

The CSC will consist of physicians, nursing, respiratory therapist, social workers and a spiritual care representative. The CSC will advise and update the TO about available resources and limitation. The CSC will also assist in the evaluation of patients and limited resources.

Hospital will appoint members of a Crisis Data Team to report to CSC. These team members can be nurses with acute care experience, other clinical figures or members of administration. For every patient under consideration for allocation of critical care resources, the members of this team will obtain the objective data required to calculate an accurate SOFA score. In collaboration with the patient's attending of record the following will be obtained:

- PaO₂/FiO₂ ratio
- Glasgow Coma Scale
- latest blood pressure and use of vasopressors
- latest laboratory values including bilirubin, platelet count and creatinine
- other significant clinical events

The role of the Crisis Data Team and CSC is to provide information to the Triage Officer to help facilitate and support the decision-making process. A representative from hospital administration should also be linked to the team, in order to help supervise maintenance of accurate records of triage scores and to serve as a liaison with hospital leadership.

The Triage Officer and the Crisis Data Team members should function in shifts lasting no longer than 1 hours, including 30 minutes for handoffs. Therefore, there should be two shifts per day to fully staff the triage function. Triage Officer's decisions and supporting documentation should be reported daily to the appropriate hospital leadership and to Hospital Incident Command.

Triaging

The Triage Officer on duty will use the described SOFA scoring system to determine color-coded priority rankings of all patients eligible to receive the scarce critical care resources. For patients already being supported by the scarce resource, the evaluation will include reassessment with recalculation of SOFA score to evaluate for clinical improvement or worsening at 48 hours and 120 hours of critical care.

The Triage Officer on duty may encounter a situation where there are several patients in the red color code (highest priority) who have an equal or near equal likelihood of survival and therefore are equally eligible for identified critical, scarce or limited resource. In this circumstance, a secondary allocation will be made using a lottery strategy. The Triage Officer will review the 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.

Communication of triage decisions to patients and families

The process of allocation will be fully disclosed to patients and family members. Potential for triage and resource allocation will be explained to patient and families at time of admission during crisis standard of care. Communication and disclosure of triage decision to patients and family members are necessary component of a fair and respect allocation process. The TO will inform the attending of record about allocation decisions. The TO and attending will collaborate to inform patients and family members about decision. The communication will include methods in which the allocation decisions were made, the role of TO and the extraordinary emergency circumstances which necessitate the public health decision. The TO is responsible for communication to facility leadership and the emergency command center. It may 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, etc.). If resources permit, palliative care clinicians or social workers should be present or available to provide ongoing support to the patient and family.

Appeals process for individual triage decisions and Triage Appeals Committee

Decisions to withdraw or withhold critical or scarce resource from a patient who is already receiving it may cause heightened moral concern. It is possible appellants (patients, families or clinicians) will challenge individual triage decisions. There should be a robust process for appealing decisions to withdraw or reallocate critical care beds or services.

Procedural fairness requires the availability of an appeals mechanism to resolve disputes.

The Triage Appeals Committee is made up of at least three individuals, recruited from the following groups: hospital administration, hospital legal counsel, medical leadership, nursing leadership, a hospital ethics committee or consult service and/or members of an institution's ethics faculty. Three committee members are needed for a quorum to render a decision using a simple majority vote. The process can happen by telephone or in person, and the outcome will be promptly communicated to whomever brought the appeal.

Elements of this appeals process should include:

- The appellants will explain to the attending of record the grounds for their appeal
- Appeals based on an objection to the overall allocation framework will not be granted
- The attending of record will notify the Triage Appeals Committee of the appeal
- The Triage Appeals Committee will review the appeal in real time
- The appeals process must occur quickly enough as to not harm patients who are in the queue for scarce critical care resources
- The Triage Appeals Committee will recalculate the SOFA score or the use/non-use of a tiebreaker
- The Triage Appeals Committee will convey the ruling to the attending of record and the appellant
- The ruling of the Triage Appeals Committee will be final

Periodically, the Triage Appeals Committee should retrospectively evaluate whether the review process is consistent with effective, fair and timely application of the allocation framework.

In the event reconsideration is still desired, the TO shall confer with the facility CEO or their designee, who is responsible for making the final decision. When circumstances permit, the CEO or their designee should be willing to speak to a family regarding the decision if requested.

IX. Crisis Recognition/Point of Activation

Activation of this protocol must be preceded by focused efforts to utilize existing resources and procure as many anticipated needed resources as possible. These actions should include but are not limited to: discontinuing elective surgeries, adhering to strict ICU admission criteria, increasing inventory of key equipment and medications, opening additional treatment areas, restructuring clinical work flow and assignments, recruitment of additional care providers and optimizing staffing levels through flexing of provider-to-patient ratios. In the setting of limited resources and strain to the healthcare delivery system, facilities are expected to actively work with their healthcare networks, local healthcare coalition, local public health, and their local Medical Health Operational Area Coordinator (MHOAC) for supply, equipment, and staffing support. It is only after all mentioned strategies and resources have been exhausted that initiation of crisis standards is acceptable.

The protocol contained within Crisis Standards of Care During COVID-19 is formally activated at the point where non-standard resources are required for a sustained period of time to meet the demand to care for patients, specifically when of the following circumstances exist:

1. All standard ventilators are in use; only alternative ventilators are available for additional patients or
2. Additional improvised bed/staffing strategies are required to manage increased patient volumes
3. Inadequate life-sustaining technology such as ventilators and dialysis capabilities for patients that require them
4. Inadequate supplies of medication or supplies that cannot be effectively conserved or substituted for without risk of disability or death without treatment
5. Damage to infrastructure affecting critical systems and presenting a safety issue to staff/patients
6. Inability to safely further increase staff to patient ratios or broaden supervisory responsibilities
 - a. Examples: increase in patient safety events or medical errors
7. Lack of qualified staff for specific care areas—especially those with high life safety impact
8. Epidemiology projections exceed surge capacity of facility for space or specific capability (e.g., critical care, equipment and treatment space)
 - a. triggers will be based on depletion of available resources
9. Sustained inability to transfer for Higher Level of Care for treatment necessary for life saving services not available at facility

Table 1	Phase II/III Criteria Determination for Ineligibility to Receive Limited Critical Care Resources	Page 16
Table 2	SOFA Scoring	Page 17
Table 3A	Phase I Assessment at Presentation (hour 0)	Page 18
Table 3B	Phase I Assessment at Hour 48	Page 19
Table 3C	Phase I Assessment at Hour 120	Page 20
Table 4A	Phase II/III Assessment at Presentation (hour 0)	Page 21
Table 4B	Phase II/III Assessment at Hour 48	Page 22
Table 4C	Phase II/III Assessment at Hour 120	Page 23
Table 5A	Phase I Algorithm Hospital and ICU/Ventilator Admission Triage	Page 24
Table 5B	Phase II/III Algorithm Hospital and ICU/Ventilator Admission Triage	Page 25
Table 6	Triage Screening Document for Triage Committee	Page 26
Table 7	Medicare Hospice Eligibility Criteria	Page 27-28
Table 8	Modified Rankin Scale	Page 29
Table 9	FAST and Hospice Eligibility Criteria for Dementia	Page 30

X. Crisis Standards of Care Tables

Table 1: Phase II/III Criteria Determination for Ineligibility to Receive Limited Critical Care Resources

- POLST (Provider Orders for Life-Sustaining Treatment)¹⁶ with a DNR and comfort focused treatment
- Current Hospice or Hospice eligible (Table 7)
- Cardiac Arrest:
 - Unwitnessed arrest
 - Recurrent arrest with hemodynamic instability
 - Arrest unresponsive to standard ACLS interventions after 20 minutes
- Irreversible hypotension unresponsive to fluid resuscitation and vasopressor therapy
- Persistent coma or vegetative state (Modified Rankin Score ≥ 5 ; Table 8)
- Known severe dementia who meets Hospice eligibility criteria (Table 9 Figure 1 and 2)
- Acute severe neurologic event such intracranial hemorrhage or acute stroke with minimal chance of recovery (neurosurgeon or neurology assessment)
- Incurable adult metastatic malignant disease
- Severe acute trauma (Appendix A)
- Severe burns with minimal chance of survival. Coordinate with the burn center (Appendix A)
- SOFA score >11

Table 2: SOFA Scoring

Respiratory system, PaO ₂ /FiO ₂ (mmHg)	SOFA score
> 400	0
< 400	1
< 300	2
< 200 with respiratory support	3
< 100 with respiratory support	4
Nervous system, Glasgow Coma Scale	
15	0
13–14	1
10–12	2
6–9	3
< 6	4
Cardiovascular system, Mean Arterial Pressure (MAP) OR administration of vasopressors required	
MAP > 70 mmHg	0
MAP < 70 mm/Hg	1
Dopamine ≤ 5 µg/kg/min or dobutamine (any dose)	2
Dopamine > 5 µg/kg/min OR epinephrine ≤ 0.1 µg/kg/min OR norepinephrine ≤ 0.1 µg/kg/min	3
Dopamine > 15 µg/kg/min OR epinephrine > 0.1 µg/kg/min OR norepinephrine > 0.1 µg/kg/min	4
Liver, Bilirubin (mg/dl) {µmol/L}	
< 1.2 {< 20}	0
1.2–1.9 {20–32}	1
2.0–5.9 {33–101}	2
6.0–11.9 {102–204}	3
> 12.0 {> 204}	4
Coagulation, Platelets ×10 ³ /ml	
> 150	0
< 150	1
< 100	2
< 50	3
< 20	4
Kidneys, Creatinine (mg/dl) {µmol/L}; urine output	
< 1.2 {< 110}	0
1.2–1.9 {110–170}	1
2.0–3.4 {171–299}	2
3.5–4.9 {300–440} (or urine output < 500 ml/day)	3

> 5.0 {> 440}; urine output < 200 ml/day

4

Table 3A: Phase I Assessment at presentation (hour 0)

Assessment of Mortality Risk/Organ Failure	Color Code and Level of Access
<p>No significant organ failure</p> <p>AND/OR</p> <p>No significant requirement for lifesaving resources</p>	<p>GREEN</p> <p>Use alternative forms of medical intervention or defer or discharge</p> <p>Reassess as needed</p>
<p>SOFA ≤ 7</p> <p>OR</p> <p>Single organ failure</p>	<p>RED</p> <p>Highest</p> <p>Admission to Intensive Care Unit</p> <p>Ventilator Allocation</p>
<p>SOFA 8-11</p>	<p>YELLOW</p> <p>Intermediate</p> <p>Admission to Intensive Care Unit</p> <p>Ventilator Allocation</p>
<p>SOFA >11 and/or Table 1 criteria</p>	<p>BLUE</p> <p>Admission to Intensive Care Unit</p> <p>Ventilator allocation</p>

Table 3B: Phase 1 Assessment at hour 48

Assessment of Mortality Risk/Organ Failure	Color Code and Level of Access
<p>No significant organ failure AND/OR No significant requirement for lifesaving resources</p>	<p>GREEN Use alternative forms of medical intervention or defer or discharge Reassess as needed</p>
<p>SOFA ≤ 7 OR Single organ failure</p>	<p>RED Highest Admission to Intensive Care Unit Ventilator Allocation</p>
<p>SOFA 8-11</p>	<p>YELLOW Intermediate Admission to Intensive Care Unit Ventilator Allocation</p>
<p>SOFA >11 and/or Table 1 criteria</p>	<p>BLUE Admission to Intensive Care Unit Ventilator allocation</p>

Table 3C: Phase 1 Assessment at hour 120

Assessment of Mortality Risk/Organ Failure	Color Code and Level of Access
<p>No significant organ failure</p> <p>AND/OR</p> <p>No significant requirement for lifesaving resources</p>	<p>GREEN</p> <p>Use alternative forms of medical intervention or defer or discharge</p> <p>Reassess as needed</p>
<p>SOFA ≤ 7</p> <p>OR</p> <p>Single organ failure</p>	<p>RED</p> <p>Highest</p> <p>Admission to Intensive Care Unit</p> <p>Ventilator Allocation</p>
<p>SOFA 8-11</p>	<p>YELLOW</p> <p>Intermediate</p> <p>Admission to Intensive Care Unit</p> <p>Ventilator Allocation</p>
<p>SOFA >11 and/or Table 1 criteria</p>	<p>BLUE</p> <p>Admission to Intensive Care Unit</p> <p>Ventilator allocation</p>

Table 4A: Phase II/III Assessment at hour (0)

Assessment of Mortality Risk/Organ Failure	Color Code and Level of Access
<p>No significant organ failure AND/OR No significant requirement for lifesaving resources</p>	<p>GREEN Use alternative forms of medical intervention or defer or discharge Reassess as needed</p>
<p>SOFA ≤ 7 OR Single organ failure</p>	<p>RED Highest Priority ICU/use ventilators available</p>
<p>SOFA 8-11</p>	<p>YELLOW Intermediate Priority ICU/use ventilators as available</p>
<p>SOFA >11 and/or Table 1 Criteria</p>	<p>BLUE Phase II ICU/ventilators as available Phase III NO VENTILATOR PROVIDED Use alternative forms of medical intervention, palliative care, Hospice referral</p>

Table 4B: Phase II/III Assessment at hour 48

Assessment of Mortality Risk/Organ Failure	Color Code and Level of Access
<p>No significant organ failure AND/OR No significant requirement for lifesaving resources</p>	<p>GREEN Use alternative forms of medical intervention or defer or discharge Reassess as needed</p>
<p>SOFA ≤ 7 OR Single organ failure</p>	<p>RED Highest Priority ICU/use ventilators available</p>
<p>SOFA ≤ 7 AND worsening or no improvement from 48 hours SOFA 8-11 AND no improvement from 48 hours</p>	<p>YELLOW Intermediate Priority ICU/use ventilators as available</p>
<p>SOFA >11 and/or Table 1 Criteria</p>	<p>BLUE Phase II ICU/ventilators as available Phase III NO VENTILATOR PROVIDED Use alternative forms of medical intervention, palliative care, Hospice referral</p>

Table 4C: Phase II/III Assessment at hour 120

Assessment of Mortality Risk/Organ Failure	Color Code and Level of Access
<p>No significant organ failure AND/OR No significant requirement for lifesaving resources</p>	<p>GREEN Use alternative forms of medical intervention or defer or discharge Reassess as needed</p>
<p>SOFA ≤ 7 OR Single organ failure</p>	<p>RED Highest Priority ICU/use ventilators available</p>
<p>SOFA ≤ 7 AND worsening or no improvement from 48 hours SOFA 8-11 AND no improvement from 48 hours</p>	<p>YELLOW Intermediate Priority ICU/use ventilators as available</p>
<p>SOFA >11 and/or Table 1 Criteria</p>	<p>BLUE Phase II ICU/ventilators as available Phase III NO VENTILATOR PROVIDED</p>

**Use alternative forms of medical intervention, palliative care,
Hospice referral**

Table 5A: Phase I Hospital and ICU/Ventilator Admission Triage Algorithm

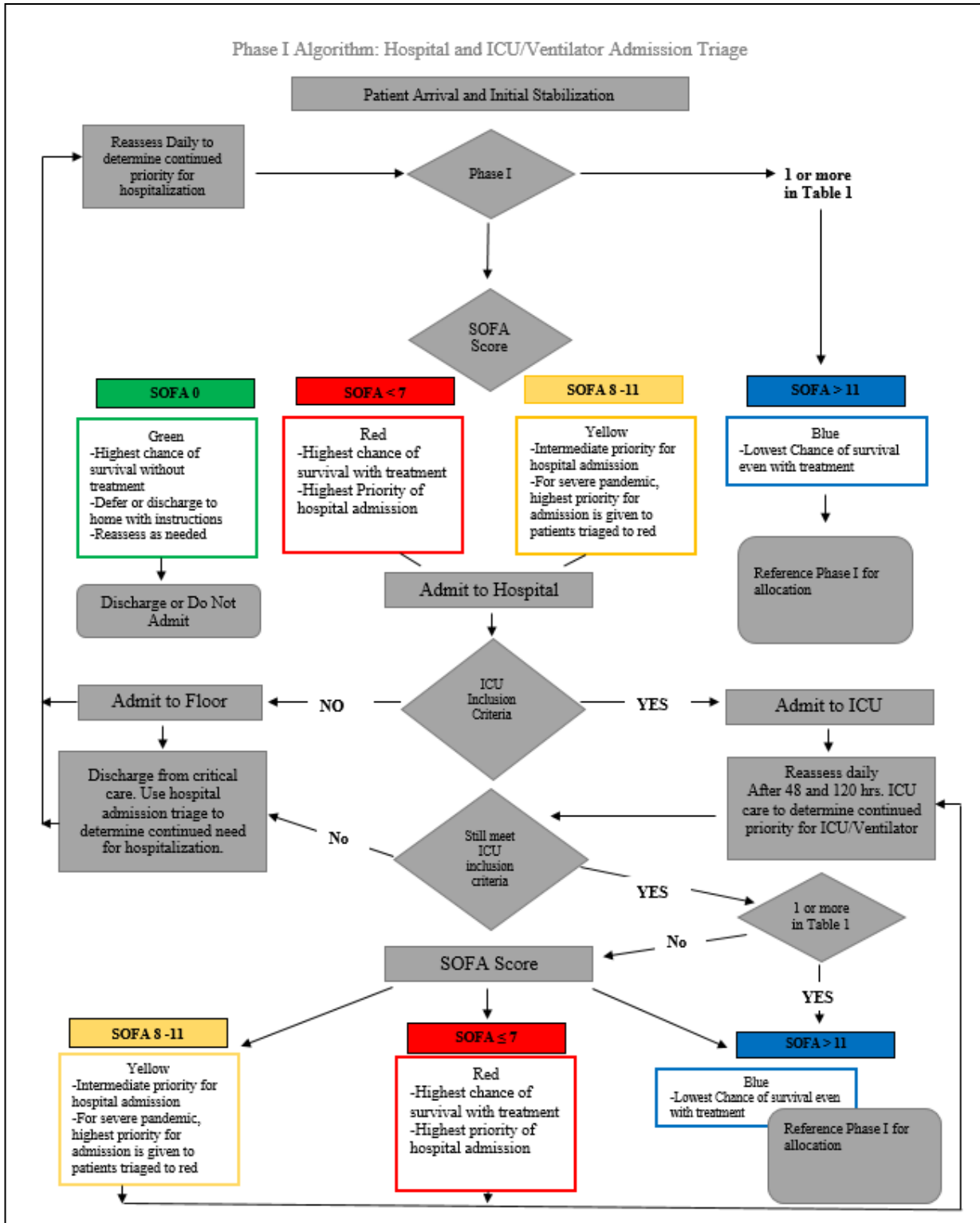
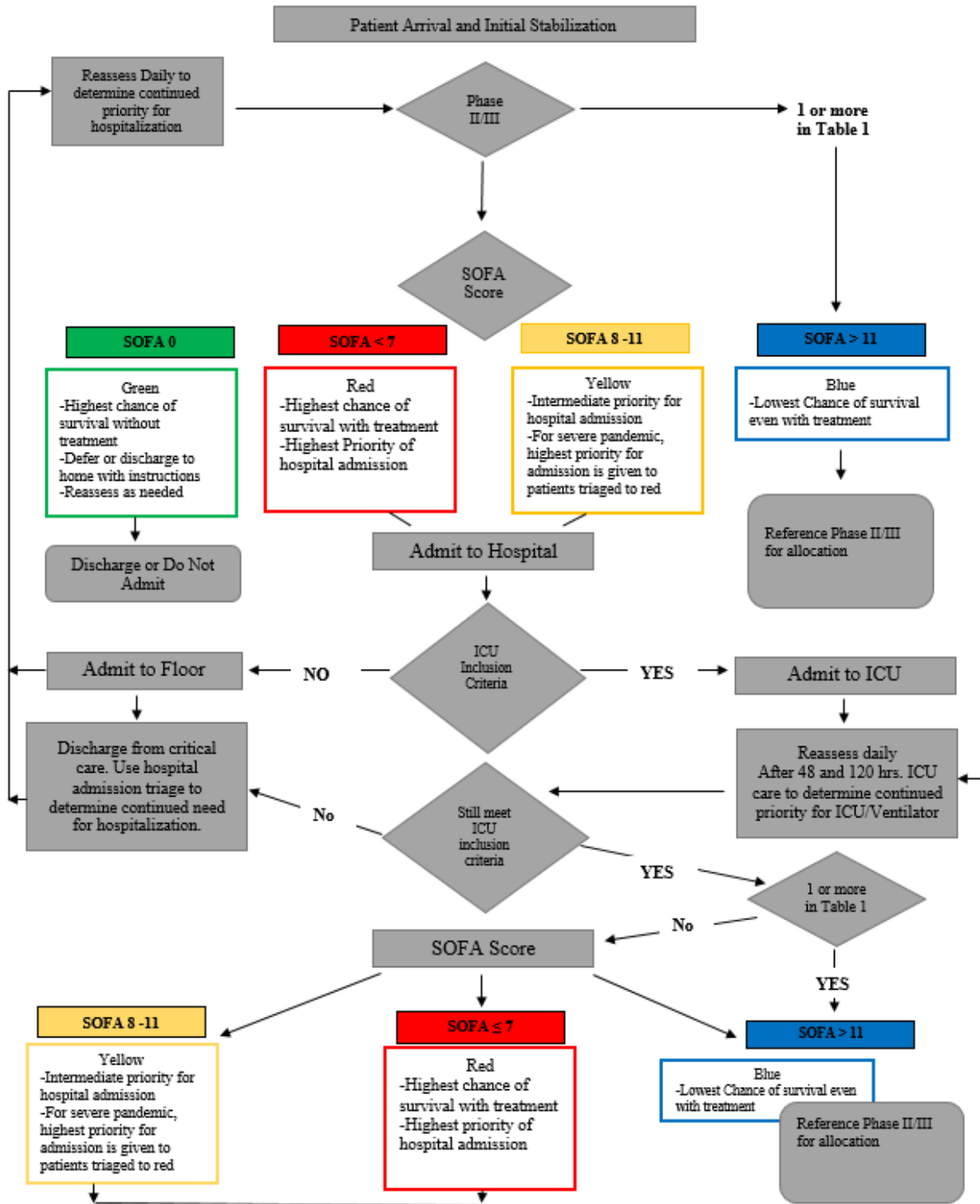


Table 5B: Phase II/III Hospital and ICU/Ventilator Admission Triage Algorithm

Phase II/III Algorithm: Hospital and ICU/Ventilator Admission Triage



**Table 6: Triage Screening Document for
Triage Committee**

**Phase II/III Criteria Determination for
Ineligibility to Receive Limited Critical Care
Resources**

- ☐ POLST¹⁶ with a DNR and comfort focused treatment
- ☐ Current Hospice or Hospice eligible (Table 7)
- ☐ Cardiac Arrest:
 - Unwitnessed arrest
 - Recurrent arrest with hemodynamic instability
 - Arrest unresponsive to standard ACLS interventions after 20 minutes
- ☐ Irreversible hypotension unresponsive to fluid resuscitation and vasopressor therapy
- ☐ Persistent coma or vegetative state (Modified Rankin Score ≥ 5 ; Table 8)
- ☐ Known severe Dementia who meets Hospice eligibility criteria (Table 9 Figure 1 and 2)
- ☐ Acute severe neurologic event such intracranial hemorrhage or acute stroke with minimal chance of recovery (neurosurgeon or neurology assessment)
- ☐ Incurable adult metastatic malignant disease
- ☐ Severe acute trauma (Appendix A)
- ☐ Severe burns with minimal chance of survival. Coordinate with the burn center (Appendix B)
- ☐ SOFA score >11

Sequential Organ Failure Assessment:

SOFA score	0	1	2	3	4
Respirations PaO ₂ /FIO ₂ (mm Hg) SaO ₂ /FIO ₂	>400	<400 221–301	<300 142–220	<200 67–141	<100 <67
Coagulation Platelets 10 ³ /mm ³	>150	<150	<100	<50	<20
Liver Bilirubin (mg/dL)	<1.2	1.2–1.9	2.0–5.9	6.0–11.9	>12.0
Cardiovascular^b Hypotension	No hypotension	MAP <70	Dopamine ≤ 5 or dobutamine (any)	Dopamine >5 or norepinephrine ≤ 0.1	Dopamine >15 or norepinephrine >0.1
CNS Glasgow Coma Score	15	13–14	10–12	6–9	<6
Renal Creatinine (mg/dL) or urine output (mL/d)	<1.2	1.2–1.9	2.0–3.4	3.5–4.9 or <500	>5.0 or <200

Triage Committee Assessment:

Date:

Time:

Assessment Hour: T₀ / T₄₈ / T₁₂₀

SOFA Score (+/- Vasopressors):

Triage Outcome: **Green** **Red** **Yellow** **Blue**

Table 7: Medicare Hospice Eligibility Criteria (page 1 of 2)

Functional Assessment Scale (FAST)

1	No difficulty either subjectively or objectively.
2	Complains of forgetting location of objects. Subjective work difficulties.
3	Decreased job functioning evident to co-workers. Difficulty in traveling to new locations. Decreased organizational capacity. *
4	Decreased ability to perform complex task, (e.g., planning dinner for guests, handling personal finances, such as forgetting to pay bills, etc.)
5	Requires assistance in choosing proper clothing to wear for the day, season or occasion, (e.g. pt may wear the same clothing repeatedly, unless supervised.)*
6	Occasionally or more frequently over the past weeks. * for the following A) Improperly putting on clothes without assistance or cueing . B) Unable to bathe properly (not able to choose proper water temp) C) Inability to handle mechanics of toileting (e.g., forget to flush the toilet, does not wipe properly or properly dispose of toilet tissue) D) Urinary incontinence E) Fecal incontinence
7	A) Ability to speak limited to approximately ≤ 6 intelligible different words in the course of an average day or in the course of an intensive interview. B) Speech ability is limited to the use of a single intelligible word in an average day or in the course of an intensive interview C) Ambulatory ability is lost (cannot walk without personal assistance.) D) Cannot sit up without assistance (e.g., the individual will fall over if there are not lateral rests [arms] on the chair.) E) Loss of ability to smile. F) Loss of ability to hold up head independently.

*Scored primarily on information obtained from a knowledgeable informant. Psychopharmacology Bulletin, 1988 24:653-659.

Hospice Card

A hospice is a program designed to care for the dying and their special needs. Among these services all hospice programs should include:

- Control of pain and other symptoms** through medication, environmental adjustment and education.
- Psychosocial support** for both the patient and family, including all phases from diagnosis through bereavement.
- Medical services** commensurate with the needs of the patient.
- Interdisciplinary "team"** approach to patient care, patient/ and family support, and education.
- Integration into existing facilities where possible.
- Specially trained personnel with expertise in care of the dying and their families.

Hospice Eligibility Criteria

GENERAL (NON-SPECIFIC) TERMINAL ILLNESS

- Terminal condition cannot be attributed to a single specific illness. And
- Rapid decline over past 3-6 months Evidenced by:
 Progression of disease evidenced by sx, signs & test results
 Decline in PPS to ≤ 50%
 Involuntary weight loss >10% and/or Albumin <2.5 (helpful)

ADULT FAILURE TO THRIVE

Patient meets ALL of the following:

- Palliative performance Scale ≤ 40%
- BMI <22
- Pt refusing enteral or parenteral nutrition support or has not responded to such nutritional support, despite adequate caloric intake

CANCER

Patient meets ALL of the following:

- Clinical findings of malignancy with widespread, aggressive or progressive disease as evidenced by increasing sx, worsening lab values and/or evidence of metastatic disease
- Palliative performance Scale (PPS) ≤ 70%
- Refuses further life-prolonging therapy OR continues to decline in spite of definitive therapy

Supporting documentation includes:

- Hypercalcemia > 12
- Cachexia or weight loss of 5% in past 3 months
- Recurrent disease after surgery/radiation/chemotherapy
- Signs and sx of advanced disease (e.g. nausea, requirement for transfusions, malignant ascites or pleural effusion, etc.)

DEMENTIA

The patient has both 1 and 2:

- Stage 7C or beyond according to the FAST Scale
- AND
- One or more of the following conditions in the 12 months:
 Aspiration pneumonia
 Pyelonephritis
 Septicemia
 Multiple pressure ulcers (stage 3-4)
 Recurrent Fever

Other significant condition that suggests a limited prognosis
 Inability to maintain sufficient fluid and caloric intake in the past 6 months (10% weight loss or albumin < 2.5 gm/dl)

Palliative Performance Scale (PPS)

%	Ambulation	Activity and Evidence of Disease	Self-Care	Intake	Level of Consciousness
100	Full	Normal activity, no evidence of disease	Full	Normal	Full
90	Full	Normal activity, some evidence of disease	Full	Normal	Full
80	Full	Normal activity with effort, some evidence of disease	Full	Normal or reduced	Full
70	Reduced	Unable to do normal work, some evidence of disease	Full	Normal or reduced	Full
60	Reduced	Unable to do hobby or some household, significant disease	Occasional assist necessary	Normal or reduced	Full or confusion
50	Mainly stifle	Unable to do any work, extensive disease	Considerable assistance required	Normal or reduced	Full or confusion
40	Mainly in bed	Unable to do any work, extensive disease	Mainly assistance	Normal or reduced	Full, drowsy, or confusion
30	Totally bed bound	Unable to do any work, extensive disease	Total care	Reduced	Full, drowsy, or confusion
20	Totally bed bound	Unable to do any work, extensive disease	Total care	Minimal sips	Full, drowsy, or confusion
10	Totally bed bound	Unable to do any work, extensive disease	Total care	Mouth care only	Drowsy or coma
0	Death				

Hospice Card

A hospice is a program designed to care for the dying and their special needs. Among these services all hospice programs should include:

- (a) **Control of pain and other symptoms** through medication, environmental adjustment and education.
- (b) **Psychosocial support** for both the patient and family, including all phases from diagnosis through bereavement.
- (c) **Medical services** commensurate with the needs of the patient.
- (d) **Interdisciplinary "team"** approach to patient care, patient/ and family support, and education.
- (e) Integration into existing facilities where possible.
- (f) Specially trained personnel with expertise in care of the dying and their families.

Hospice Eligibility Criteria

GENERAL (NON-SPECIFIC) TERMINAL ILLNESS

1. Terminal condition cannot be attributed to a single specific illness. And
2. Rapid decline over past 3-6months Evidenced by:
 Progression of disease evidenced by sx, signs & test results
 Decline in PPS to ≤ 50%
 Involuntary weight loss >10% and/or Albumin <2.5 (helpful)

ADULT FAILURE TO THRIVE

Patient meets **ALL** of the following:

- Palliative performance Scale ≤ 40%
- BMI <22
- Pt refusing enteral or parenteral nutrition support or has not responded to such nutritional support, despite adequate caloric intake

CANCER

Patient meets **ALL** of the following:

1. Clinical findings of malignancy with widespread, aggressive or progressive disease as evidenced by increasing sx, worsening lab values and/or evidence of metastatic disease
2. Palliative performance Scale (PPS) ≤ 70%
3. Refuses further life-prolonging therapy OR continues to decline in spite of definitive therapy

Supporting documentation includes:

Hypercalcemia > 12
 Cachexia or weight loss of 5% in past 3 months
 Recurrent disease after surgery/radiation/chemotherapy
 Signs and sx of advanced disease (e.g. nausea, requirement for transfusions, malignant ascites or pleural effusion, etc.)

DEMENTIA

The patient has both 1 and 2:

1. Stage 7C or beyond according to the FAST Scale

AND

2. One or more of the following conditions in the 12 months:
 Aspiration pneumonia
 Pyelonephritis
 Septicemia
 Multiple pressure ulcers (stage 3-4)
 Recurrent Fever

Other significant condition that suggests a limited prognosis
 Inability to maintain sufficient fluid and calorie intake in the past 6months (10% weight loss or albumin < 2.5 gm/dl)

Table 7: Medicare Hospice Eligibility Criteria¹⁷ (page 2 of 2)




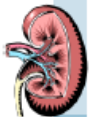

<p>HEART DISEASE The patient has 1 and either 2 or 3. 1. CHF with NYHA Class IV* sx and both : Significant sx at rest Inability to carry out even minimal physical activity without dyspnea or angina 2. Patient is optimally treated (ie diuretics, vasodilators, ACEI, or hydralazine and nitrates) 3. The patient has angina pectoris at rest, resistant to standard nitrate therapy, and is either not a candidate for/or has declined invasive procedures. Supporting documentation includes: EF ≤ 20%, Treatment resistant symptomatic dysrhythmias h/o cardiac related syncope, CVA 2/2 cardiac embolism H/o cardiac resuscitation, concomitant HIV disease</p>  <p>HIV/AIDS The patient has either 1A or 1B and 2 and 3. 1A. CD4+ < 25 cells/mcL OR 1B. Viral load > 100,000 AND 2. At least one (1) : CNS lymphoma, untreated or refractory wasting (loss of > 33% lean body mass), (MAC) bacteremia, Progressive multifocal leukoencephalopathy Systemic lymphoma, visceral KS, Renal failure no HD, Cryptosporidium infection, Refractory toxoplasmosis AND 3. PPS* of < 50%</p> <p>LIVER DISEASE The patient has both 1 and 2. 1. End stage liver disease as demonstrated by A or B, & C: A. PT> 5 sec OR B. INR > 1.5 AND C. Serum albumin <2.5 gm / dl AND 2. One or more of the following conditions: Refractory Ascites, h/o spontaneous bacterial peritonitis, Hepatorenal syndrome, refractory hepatic encephalopathy, h/o recurrent variceal bleeding Supporting Documents includes: Progressive malnutrition, Muscle wasting with dec. strength. Ongoing alcoholism (> 80 gm ethanol/day), Hepatocellular CA HBsAg positive, Hep. C refractory to treatment</p>  <p>PULMONARY DISEASE Severe chronic lung disease as documented by 1, 2, and 3. 1. The patient has all of the following: Disabling dyspnea at rest Little or no response to bronchodilators Decreased functional capacity (e.g. bed to chair existence, fatigue and cough) AND 2. Progression of disease as evidenced by a recent h/o increasing office, home, or ED visits and/or hospitalizations for pulmonary infection and/or respiratory failure. AND 3. Documentation within the past 3 months ≥1: Hypoxemia at rest on room air (pO2 < 55 mmHg by ABG) or oxygen saturation < 88% Hypercapnia evidenced by pCO2 > 50 mmHg Supporting documentation includes: Cor pulmonale and right heart failure Unintentional progressive weight loss</p> 	<p>NEUROLOGIC DISEASE (chronic degenerative conditions such as ALS, Parkinson's, Muscular Dystrophy, Myasthenia Gravis or Multiple Sclerosis) The patient must meet at least one of the following criteria (1 or 2A or 2B): 1. <u>Critically impaired breathing capacity</u>, with all: Dyspnea at rest, Vital capacity < 30%, Need O₂ at rest, patient refuses artificial ventilation OR 2. <u>Rapid disease progression</u> with either A or B below: Progression from : independent ambulation to wheelchair or bed-bound status normal to barely intelligible or unintelligible speech normal to pureed diet independence in most ADLs to needing major assistance in all ADLs AND A. <u>Critical nutritional impairment</u> demonstrated by all of the following in the preceding 12 months: Oral intake of nutrients and fluids insufficient to sustain life Continuing weight loss Dehydration or hypovolemia Absence of artificial feeding methods OR B. <u>Life-threatening complications</u> in the past 12 months as demonstrated by ≥1: Recurrent aspiration pneumonia, Pyelonephritis, Sepsis, Recurrent fever, Stage 3 or 4 pressure ulcer(s)</p>  <p>RENAL FAILURE The patient has 1, 2, and 3. 1. The pat is not seeking dialysis or renal transplant AND 2. Creatinine clearance* is < 10 cc/min (<15 for diabetics) AND 3. Serum creatinine > 8.0 mg/dl (> 6.0 mg/dl for diabetics) Supporting documentation for chronic renal failure includes: Uremia, Oliguria (urine output < 400 cc in 24 hours), Intractable hyperkalemia (> 7.0), Uremic pericarditis, Hepatorenal syndrome, Intractable fluid overload. Supporting documentation for acute renal failure includes: Mechanical ventilation, Malignancy (other organ system) Chronic lung disease, Advanced cardiac disease, Advanced liver disease</p>  <p>STROKE OR COMA The patient has both 1 and 2. 1. Poor functional status PPS* ≤ 40% AND 2. Poor nutritional status with inability to maintain sufficient fluid and calorie intake with ≥1 of the following: ≥ 10% weight loss in past 6 months ≥7.5% weight loss in past 3 months Serum albumin <2.5 gm/dl Current history of pulmonary aspiration without effective response to speech therapy interventions to improve dysphagia and decrease aspiration events Supporting documentation includes: Coma (any etiology) with 3 of the following on the third (3rd) day of coma: Abnormal brain stem response Absent verbal responses Absent withdrawal response to pain Serum creatinine > 1.5 gm/dl</p>
---	--

Table 8: Modified Rankin Scale

Modified Rankin Scale	
Score	Description
0	No symptoms at all
1	No significant disability despite symptoms; able to carry out all usual duties and activities
2	Slight disability; unable to carry out all previous activities, but able to look after own affairs without assistance
3	Moderate disability; requiring some help, but able to walk without assistance
4	Moderately severe disability; unable to walk without assistance and unable to attend to own bodily needs without assistance
5	Severe disability; bedridden, incontinent, and requiring constant nursing care and attention
6	Dead

Table 9: FAST (Figure 1) and Hospice Eligibility Criteria (Figure 2)

Functional Assessment Scale (FAST)	
1	No difficulty either subjectively or objectively.
2	Complains of forgetting location of objects. Subjective work difficulties.
3	Decreased job functioning evident to co-workers. Difficulty in traveling to new locations. Decreased organizational capacity. *
4	Decreased ability to perform complex task, (e.g., planning dinner for guests, handling personal finances, such as forgetting to pay bills, etc.)
5	Requires assistance in choosing proper clothing to wear for the day, season or occasion, (e.g. pt may wear the same clothing repeatedly, unless supervised.*
6	Occasionally or more frequently over the past weeks. * for the following A) Improperly putting on clothes without assistance or cueing . B) Unable to bathe properly (not able to choose proper water temp) C) Inability to handle mechanics of toileting (e.g., forget to flush the toilet, does not wipe properly or properly dispose of toilet tissue) D) Urinary incontinence E) Fecal incontinence
7	A) Ability to speak limited to approximately ≤ 6 intelligible different words in the course of an average day or in the course of an intensive interview. B) Speech ability is limited to the use of a single intelligible word in an average day or in the course of an intensive interview C) Ambulatory ability is lost (cannot walk without personal assistance.) D) Cannot sit up without assistance (e.g., the individual will fall over if there are not lateral rests [arms] on the chair.) E) Loss of ability to smile. F) Loss of ability to hold up head independently.
*Scored primarily on information obtained from a knowledgeable informant. Psychopharmacology Bulletin, 1988 24:653-659.	

DEMENTIA

The patient has both 1 and 2:

1. Stage 7C or beyond according to the FAST Scale

AND

2. One or more of the following conditions in the 12 months

Aspiration pneumonia

Pyelonephritis

Septicemia

Multiple pressure ulcers (stage 3-4)

Recurrent Fever

Other significant condition that suggests a limited prognosis

Inability to maintain sufficient fluid and calorie intake in the past 6months (10% weight loss or albumin < 2.5 gm/dl)

X. References

1. California SARS-CoV-2 Pandemic: Health Care Surge Crisis Care Guidelines; Concept of Operations, April 2020.
2. Principles of the ethical practice of public health: Public Health Leadership Society version 2.2, 2002
3. Ethical considerations in developing a public health response to pandemic influenza: World Health Organization; 2007.
4. Berlinger N, Wynia M, Powell T, et al. Ethical Framework for Health Care Institutions Responding to Novel Coronavirus SARS-CoV-2 (COVID-19). Guidelines for Institutional Ethics Services Responding to COVID-19. Managing Uncertainty, Safeguarding Communities, Guiding Practice. The Hastings Center, 2020.
5. Emanuel EJ, Persad G, Upshur R, et al. Fair Allocation of Scarce Medical Resources in the Time of Covid-19. N Engl J Med 2020.
6. 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. Annals of Internal Medicine 150:132-8, 2009.
7. Critical care during pandemic. Final report of the Ontario health plan for influenza pandemic (OHPIP) working group on adult care critical care admission, discharge and triage criteria, April 2006.
8. Allocation of Scarce Critical Care Resources During a Public Health Emergency: University of Pittsburgh Department of Critical Care Medicine; 2020.
9. Ventilator Allocation Guidelines: New York State Task Force on Life and the Law New York State Department of Health; November 2015.
10. Patient care. Strategies for scarce resources situations: Minnesota Department of Health; April 2019.
11. Utah Crisis Standards of Care Guidelines Version 4b January 2010 [reprint]. Appendix C: Pandemic influenza hospital triage guidelines: Utah Hospital Association and Utah Department of Health.
12. Scarce Resource Management & Crisis Standards of Care: Northwest Healthcare Resource Response Network.
13. Emergency Medical Treatment and Labor Act (EMTALA) Requirements and Implications Related to Coronavirus Disease 2019 (COVID-19) (Revised): Department of Health & Human Services Centers for Medicare & Medicaid Services: Center for Clinical Standards and Quality/Quality, Safety and Oversight Group; March 30, 2020.
14. Zhou F, Yu T, Du R, et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. Lancet 395:1054-62, 2020.
15. Sisolak S. Declaration of Emergency Directive 011, 2020.
16. National Polst: completing POLST forms in crisis standards of care, accessed April 24th 2020 at <https://polst.org/wp-content/uploads/2020/04/2020.04.01-National-POLST-Crisis-Standards-of-Care.pdf>

17. Local Coverage Determination (LCD): Hospice - Determining Terminal Status (L33393). Centers for medicare & Medical Services. (Accessed April 24, 2020, at
18. Welt FGP, Shah PB, Aronow HD, et al. Catheterization Laboratory Considerations During the Coronavirus (COVID-19) Pandemic: From ACC's Interventional Council and SCAI. J Am Coll Cardiol 2020.