



Beth Israel Lahey Health **Allocation of Scarce Critical Care Resources During COVID-19** **Summary Allocation Guide**

These allocation recommendations will be enacted 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 or BILH has otherwise consulted and coordinated with the appropriate regional authority. Clinicians treating patients will not make allocation decisions. Instead, an allocation team will apply the allocation framework described below.

Section 1. Creation of allocation teams

Allocation Officer and Team

The allocation officer will oversee the allocation process, assess all patients, assign a level of priority for each, communicate with treating physicians, and direct attention to the highest-priority patients. The allocation team will consist of the allocation officer, two additional clinicians (one of whom should be a nurse with acute care experience), and one administrative staff member. The allocation team has the responsibility and authority to make decisions about which patients will receive the highest priority for receiving critical care and is empowered to reallocate critical care resources that have previously been allocated to patients.

Communication of allocation decisions to patients and families

The allocation officer should first inform the attending physician about the allocation decision. Those two physicians should determine the best approach to inform the individual patient and family. If resources permit, palliative care clinicians or social workers should be present or available to provide ongoing emotional support to the patient and family. Conversation tools and a template EMR note are being developed to assist providers' communication efforts.

Appeals process for individual allocation decisions

Because an appeal of the initial allocation decision will need to be adjudicated in real time, the only permissible appeals are those based on a claim that an error was made by the allocation team in the calculation of the priority score. A more robust appeals process will be followed for decisions to withdraw a scarce resource, such as mechanical ventilation from a patient who is already receiving it. It is possible in some circumstances that an appeal may not be possible given time constraints dictated by patients' clinical situations.

Section 2. Allocation process for ICU admission/ventilation

Emergency medicine specialists, bedside clinicians, and first responders should perform the immediate stabilization of any patient in need of critical care, as they would under normal circumstances or their own crisis allocation criteria. If time permits, this allocation protocol should be followed prior to allocation of a critical care resource. Every effort should be made to complete the initial allocation assessment within 90 minutes of the recognition of the likely need for critical care resources.

The allocation team will apply the following steps:

STEP 1: Calculate each patient's priority score using the multi-principle allocation framework.

As summarized in **Table 1**, the Sequential Organ Failure Assessment (SOFA) is used to determine patients' prognoses for hospital (short-term) survival. In addition, the presence of life-limiting comorbid conditions is



used to characterize patients' longer-term prognosis. Points are assigned according to the patient's SOFA score (range from 1 to 4 points) plus the presence or absence of comorbid conditions (2 points for major life-limiting comorbidities, 4 points for life-limiting comorbidities likely to cause death within a year (Table 2)). These points are then added together to produce a total priority score, which ranges from 1 to 8. Lower scores indicate higher likelihood of benefiting from critical care, and priority will be given to those with lower scores.

Table 1. Multi-principle Strategy to Allocate Critical Care/Ventilators During a Public Health Emergency

Principle	Specification	Point System*			
		1	2	3	4
Save the most lives	Prognosis for short-term survival (SOFA score#)	SOFA score < 6	SOFA score 6-8	SOFA score 9-11	SOFA score ≥12
Save the most life-years	Prognosis for long-term survival (medical assessment of comorbid conditions)	...	Major comorbid conditions with substantial impact on long-term survival	...	Severely life-limiting conditions; death likely within 1 year

Table 2. Examples of Major Comorbidities and Severely Life Limiting Comorbidities*

Examples of Major comorbidities (associated with significantly decreased long-term survival)	Examples of Severely Life Limiting Comorbidities (commonly associated with survival < 1 year)
<ul style="list-style-type: none"> Moderate Alzheimer's disease or related dementia Malignancy with a < 10 year expected survival New York Heart Association Class III heart failure Moderately severe chronic lung disease (e.g., COPD, IPF) End-stage renal disease in patients < 75 Severe multi-vessel CAD Cirrhosis with history of decompensation 	<ul style="list-style-type: none"> Severe Alzheimer's disease or related dementia Cancer being treated with only palliative interventions (including palliative chemotherapy or radiation) New York Heart Association Class IV heart failure plus evidence of frailty Severe chronic lung disease plus evidence of frailty Cirrhosis with MELD score ≥20, ineligible for transplant End-stage renal disease in patients older than 75

Other scoring considerations:

Pregnancy: In the setting of pregnancy where a multidisciplinary clinical care team and the patient have decided on a plan for neonatal resuscitation (should delivery happen), then two points will be deducted from the patient's raw priority score.

Irrelevant Criteria

The allocation team must not consider the following information in any way in assigning priority scores, as it has no bearing on the likelihood or magnitude of benefit from receiving the scarce critical care resource: race, disability, perceived quality of life, gender, sexual orientation, gender identity, ethnicity, ability to pay, socioeconomic status, perceived social worth, immigration status, or past or future use of resources.

Distinguishing Within a Priority Group:

1. First, priority will go to the patients with the lower raw priority score.
2. Next, priority goes to younger patients, with ages broken out into the following bands: age 0-17; 18-49; age 50-65; age 66-80; age > 80.



3. Next, priority shall be given to front-line health care workers, others who care for ill patients, and those who keep critical health care infrastructure operating during a public health crisis (e.g., maintenance staff who keep hospital rooms clean).
4. A lottery (i.e., random allocation) should be used as the last differentiator.

STEP 2: Make daily determinations of how many priority groups can receive the scarce resource.

Hospital leaders and allocation officers should make determinations twice daily, or more frequently if needed, about what priority scores will result in access to critical care resources. If there is clear evidence of an imminent shortage, only patients with the highest priority should receive scarce critical care resources.

Once a patient’s priority score is calculated using the multi-principle scoring system described in Table 2, each patient should be assigned to a color-coded allocation priority group, which should be noted clearly on their chart/EHR (**Table 3**). Distinguishing between individuals in the same color-coded group should be resolved as noted above.

Table 3. Assigning Patients to Color-coded Priority Groups

Use Raw Score from Multi-principle Scoring System to Assign Priority Category	
Level of Priority and Code Color	Priority score from Multi-principle Scoring System
RED Highest priority	Priority score 1-3
ORANGE Intermediate priority (reassess as needed)	Priority score 4-5
YELLOW Lowest priority (reassess as needed)	Priority score 6-8

Section 3. Reassessment for ongoing provision of critical care/ventilation

All patients who are allocated critical care resources will be allowed a therapeutic trial. The allocation team will conduct periodic reassessments of patients receiving critical care/ventilation. If there are patients in the queue for critical care resources, then patients who upon reassessment show failure to improve despite maximal therapy during the therapeutic trial or showing clinical deterioration that portends a very low chance for survival will no longer receive the scarce critical care resources, 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 or a highly morbid complication which portends a very poor prognosis, the allocation team may make an earlier decision.



Medical Care Offered

Clinical teams should understand patients' goals of care and offer only those available interventions that are consistent with such goals. Time permitting, all care teams should discuss patient goals and wishes with the patient and/or family as soon as possible in the course of any illness and with a change in the patient's clinical status. It is imperative that clinicians have a frank conversation with patients (and their families) about the likelihood of success of CPR. It is essential that providers share with patients and families as accurate a prognosis as possible.

Patients who are not allocated a scarce critical care resource should receive medical care including intensive symptom management and psychosocial support, as well as a code status consistent with their clinical situation in light of non-allocation of the scarce resource. See the BILH CPR Policy. Where available, specialist palliative care teams, social workers, and/or chaplains will provide additional support and consultation. Where palliative care specialists are not available, the treating clinical teams should provide primary palliative care.