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PURPOSE:

Purpose of this document is to provide guidance for the triage of critically ill patients in the event that a public health emergency creates overwhelming medical surge with demand for critical care resources (e.g., ventilators, critical care beds, therapeutics) that outstrips the supply. These triage recommendations will be enacted only if: 1) at the discretion of the Chief Executive Officer, 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, including but not limited to the San Joaquin County Public Health Officer or the California Department of Public Health State Health Officer has declared a public health emergency. 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 current guidelines by California Department of Public Health (CDPH) for SARS-CoV-2 Pandemic Crisis Care. This document describes 1) the creation of triage teams to ensure consistent decision making; 2) allocation criteria for initial allocation of critical care resources; and 3) reassessment criteria to determine whether ongoing provision of scarce critical care resources is justified for individual patients.

PROCEDURE:

Section 1. Creation of triage teams:

Triage Team
Purpose is to create a local triage team with expertise in the allocation framework based on public health ethics and avoid patients' treating physicians to make any triage decisions. Team decisions and supporting documentation should be reported to appropriate hospital leadership and command center.
A group of physicians to be nominated as triage officers by the chairs/directors of the clinical departments that provide care to critically ill patients. Team will also include an experienced pharmacist and a senior ICU nurse educator or ICU charge nurse. The Chief medical officer should approve all nominees.

Triage Mechanism
The triage team will review the comprehensive list of priority scores as outlined below in allocation framework 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. The triage officers should first inform the affected patient's attending physician about the triage decision. A collaborative determination will be made on best approach to inform the individual patient and family.

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Appeals process for individual triage decisions

It is possible that patients, families, or clinicians will challenge individual triage decisions. The Triage Review Committee should be made up of at least three individuals, recruited from the following offices: Chief Medical Officer or designee, Chief Nursing Officer or designee, Risk management, hospital Ethics Committee or Consult Service, and/or an off-duty triage officer. 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.

Section 2. Allocation process for ICU admission/ventilation, therapeutics

This process involves two steps, detailed below:

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) score is used to determine patients' prognoses for hospital survival. The presence of medical conditions in such an advanced state that they limit near-term duration of benefit (defined below) is used to characterize patients' prognosis for near-term survival.

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

Principle	Specification	Point System*			
		1	**2**	**3**	**4**
Save lives	Prognosis for hospital survival (SOFA score or other severity or illness score*)	SOFA score <6	SOFA score 6-8	SOFA score 9-11	SOFA score >12
Save Life-years	Prognosis for near-terminal survival (medical assessment of near-term prognosis)		Death expected within 5 years despite successful treatment of acute illness		Death expected within 1 year despite successful treatment of acute illness

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SOFA= Sequential Organ Failure Assessment; divided into 4 ranges. Scores range from 1-8, and persons with the lowest score would be given the highest priority to receive critical care beds and services.

Between one and four points are assigned according to the patient's prognosis for hospital survival using an acute severity of illness score (e.g., SOFA score).

As illustrated in Table 1, zero, two, or four points are assigned according to the patient's prognosis for near-term survival. Four points are assigned if the patient is expected to die from underlying medical conditions within one year, despite successful treatment of the acute illness. Two points are assigned if the patient is expected to die from underlying medical conditions within 5 years, despite successful treatment of the acute illness. Zero points are assigned if the patient is expected to live more than five years if patient survives the acute illness.

These points are then added together to produce a total priority score, which ranges from 1 to 8. Lower scores indicate higher predicted benefit from critical care, and priority will be given to those with lower scores.

SOFA SCORING

LUNG: RESPIRATION	Points	Coagulation: Platelets	Points	Liver: Bilirubin	Points
PaO2/FiO2 > 400	0	>150 x10^3/mm^3	0	<1.2 mg/dL	**0**
PaO_2/FiO_2 301 to 400	1	101 to 150 x10^3/mm^3	1	1.2 to 1.9 mg/dL	**1**
PaO_2/FiO_2 ≤300	2	51 to 100 x10^3/mm^3	2	2 to 5.9 mg/dL	**2**
PaO_2/FiO_2 101 to 200 with Ventilatory support	3	21 to 50 x10^3/mm^3	3	6 to 11.9 mg/dL	**3**
PaO_2/FiO_2 ≤100 with ventilatory support	4	≤20 x10^3/mm^3	**4**	>12 mg/dL	**4**

Cardiovascular: Blood pressure	Points	Brain: Glasgow coma score	Points	Kidney/ Renal Function	Points
Hypotension absent	0	15	**0**	Creat <1.2 mg/dL	**0**
Mean arterial pressure <70 mmHg	1	13-14	**1**	Creat 1.2-1.9 mg/dl	**1**
On dopamine ≤5 mcg/kg/min or any dobutamine	2	10-12	**2**	Creat 2-3.4 mg/dl	**2**
On dopamine >5 mcg/kg/min, epinephrine ≤0.1 mcg/kg/min, or norepinephrine ≤0.1 mcg/kg/min	3	6-9	**3**	Creat 3.5-4.9 mg/dl	**3**
On dopamine >15 mcg/kg/min, epinephrine >0.1 mcg/kg/min, or norepinephrine >0.1 mcg/kg/min	4	<6	**4**	Creat > 5 mg/dl	**4**

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Other scoring considerations:

Giving heightened priority to those who are central to the public health response. This category should be broadly construed to include those individuals who play a critical role in the chain of treating patients and maintaining societal order.

Giving heightened priority to those who have had the least chance to live through life's stages: We suggest that life-cycle considerations should be used as a tiebreaker if there are not enough resources to provide to all patients within a priority group, with priority going to younger patients. We recommend the following categories: age 12-40, age 41-60; age 61-75; older than age 75.

Absence of categorical exclusion criteria: A central feature of this allocation framework is that it does not use categorical exclusion criteria to bar individuals from access to critical care services during a public health emergency.

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

Hospital leaders and triage officers should make determinations twice daily, or more frequently if needed, about what priority scores will result in access to critical care services. 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, e.g., 1-3) should receive scarce critical care resources. As scarcity subsides, patients with progressively lower priority (higher scores) should have access to critical care interventions.

Instructions on how to assign patients to color-coded priority groups. This section provides instructions on how to create broader priority groups. Once a patient's priority score is calculated using the multi-principle scoring system described in Table 1, each patient should be assigned to a color-coded triage priority group, which should be noted clearly on their chart/EHR (Table 2). This color-coded assignment of priority groups is designed to allow triage officers to create operationally clear priority groups to receive critical care resources, according to their score on the multi-principle allocation framework.

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Table 2. 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**

Resolving "ties" in priority scores/categories between patients. In the event that there are 'ties' in priority scores/categories between patients and not enough critical care resources for all patients with the lowest scores, life-cycle considerations should be used as the first tiebreaker, with priority going to younger patients. We recommend the following categories: age 12-40, age 41-60; age 61-75; older than age 75. We also recommend that individuals who are vital to the acute care response be given priority, which could be operationalized in the form of a tiebreaker.

If there are still ties after applying tiebreakers based on life-cycle considerations and consideration of healthcare workers, and if the hospital used the 3 -priority category approach described above (e.g., high, intermediate, and low priority), the raw score on the patient prioritization score should be used as a tiebreaker, with priority going to the patient with the lower raw score.

If there are still ties after these tiebreakers are applied, a lottery (i.e., random allocation) should be used to break the tie.

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 will determine how many eligible patients will receive critical care.

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Section 2a.
Allocation process for use of scare therapeutics with potential benefit Allocation will follow the same principles as outlined; use of Multi-principle Strategy to Allocate **Therapeutics During a Public Health Emergency and Assigning Patients to Color-coded Priority Groups (Tables 1 and 2)**

Remdesivir Follow SJC policy/memorandum No. 2020-27 (REVISED)

Exclusion Criteria
Patients meeting any of the following criteria are not eligible to receive Remdesivir in SJC.
1. Patient history of metastatic cancer, terminal cancer, and or neurocognitive disorders (organic brain syndrome) such as dementia or Alzheimer's.
2. Onset of patient symptoms greater than ten (10) days (2) see references.
3. Patients requiring mechanical ventilation with intubation occurring more than twenty-four (24) hours prior to administration of Remdesivir. Remdesivir may be considered for patients who have recently been intubated after review by ICU attending physician.

Criteria for Use of Remdesivir:
This criteria is adopted with the acknowledgement that Remdesivir is a scarce resource with unknown downstream availability.
1. Treatment for laboratory confirmed COVID-19 hospitalized patients with severe disease.
2. SpO2 ≤ 94% on room air or requiring supplemental oxygen or mechanical ventilation of less than twenty-four (24) hours with the ability to administer Remdesivir in this timeframe.
3. Renal: GFR ≥30.
4. Hepatic: unknown effects – should not be initiated in patients with ALT ≥ 5 times upper limit of normal.
     a. Hepatic testing on all patients before starting Remdesivir.
     b. Should be discontinued in patients who develop:
          i. ALT >5 times the upper limit of normal during treatment with remdesiver.
          May be restarted when ALT is <5 times the upper limit of normal.
          -OR-
          ii. ALT elevation accompanied by signs or symptoms of liver inflammation
          or increasing conjugated bilirubin, alkaline phosphate or INR.
5. Patients with known hypersensitivity to any ingredient of Remdesivir must not receive Remdesivir.
6. Patient must be admitted to hospital and remain hospitalized during the course of treatment.
7. Patient less than 81 years of age (3). See references
8. Health care provider must communicate to your patient or parent/caregiver information consistent with the "Fact Sheet for Patients and Parents/Caregivers."

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Dexamethasone (Decadron)

Dexamethasone is recommended for hospitalized patients with severe COVID-19 (requiring supplementary oxygen). Systemic steroids should be avoided for patients with mild or moderate disease (no oxygen support) unless there is another indication

A preliminary report from the RECOVERY RCT in the UK indicates survival benefit of low dose dexamethasone for patients with severe or critical COVID-19, but no benefit in those not requiring oxygen support. Specifically, the mortality benefit was greater in a pre-specified subgroup of patients receiving mechanical ventilation (RR 0.65, $p < 0.001$) than in those on supplemental oxygen (RR 0.80, $p = 0.002$), with a non-statistically significant trend towards harm in those not on oxygen (RR 1.22, $p = 0.14$).

Criteria exclusion and inclusion based on Recovery trial

Dexamethasone is currently in stock but short supply at SJGH. The drug is restricted for COVID 19 patients who meet criteria. Automatic substitution for other conditions requiring decadron will be instituted
Do not start dexamethasone unless the patient progresses to oxygen requirement (severe disease) or has an alternate indication for corticosteroids A trend towards harm was seen in the sub-group of patients with the RECOVERY trial who were not on oxygen
Dexamethasone at a dose of 6 mg PO / IV for up to 10 days is recommended for patients with an oxygen requirement and/or requiring mechanical ventilation. Greater benefit was observed for patients requiring mechanical ventilation compared to those receiving oxygen. Refer to critical care guidelines for patients in ICU.

Alternatives to dexamethasone include:
- Hydrocortisone IV 50mg q8hrs (or q6h for refractory shock co-indication)
- Methylprednisolone IV 30mg daily
- Betamethasone IM (if used by OB) 6mg
  - No data are available for the combination of dexamethasone and remdesivir at this time
  - Dexamethasone is a moderate CYP3A4 inducer; review of potential drug-drug interactions
  - is recommended before initiation. Coadministration with remdesivir is allowable.
  - Contraindications to dexamethasone use include previous hypersensitivity and uncontrolled
  - fungal infection.

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- Close monitoring for hyperglycemia is recommended, particularly in a person with diabetes mellitus.

Steroid administration is associated with reactivation of latent infections. Please check section for further guidance regarding HBV, Strongyloides, and tuberculosis. Routine prophylaxis for herpesviruses and Pneumocystis is not recommended at this time

Discontinue dexamethasone upon discharge regardless of duration, unless previously used as maintenance medications for another indication or continuation required as part of a clinical protocol/trial.

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

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. The decision about trial duration will ideally be made as early in the public health emergency as possible, when data becomes available about the natural history of the disease. Trial duration will also need to be tailored for other non-pandemic diseases and patient contexts, given the concern that patients with certain disabilities may need longer trials to determine benefit. The triage team will conduct periodic reassessments of patients receiving critical care/ventilation. 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 the patient and/or family.

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. A palliative care consultation should be considered, if available.

References:	1. https://www.ccm.pitt.edu/?q=content/model-hospital-policy-allocating-scarce-critical-care-resourcesavailable-online-now. 2. https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/COVID19/California%20SARS-CoV-2%20Crisis%20Care%20Guidelines%20-June%208%202020.pdf

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	3. White, Douglas B., and Bernard Lo. "A framework for rationing ventilators and critical care beds during the COVID-19 pandemic." Jama 323.18 (2020): 1773-1774. 4. Maves, Ryan C., et al. "Triage of scarce critical care resources in COVID-19: an implementation guide for regional allocation An expert panel report of the Task Force for Mass Critical Care and the American College of Chest Physicians." Chest (2020). 5. **REMDESIVIR** 2 Per CDPH Guidance for Counties Regarding Allocation of Remdesivir for COVID-19, https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/COVID-19/Guidance-for-Counties-RegardgingAllocation-of-Remdesivir-for-COVID-19.aspx 3 Per EUA: pharmacokinetics have not been evaluated in patients >65 years of age. In general, appropriate caution should be exercised in the administration of Remdesivir and monitoring of elderly patients, reflecting the greater frequency of decreased hepatic, renal or cardiac function and concomitant disease or other drug therapy. 6. **DEXAMETHASONE** Massachusetts General Hospital (MGH) COVID-19 Treatment Guidance; Version 6.0 6/24/2020 3:00PM 7. https://www.covid19treatmentguidelines.nih.gov/therapeutic-management/
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