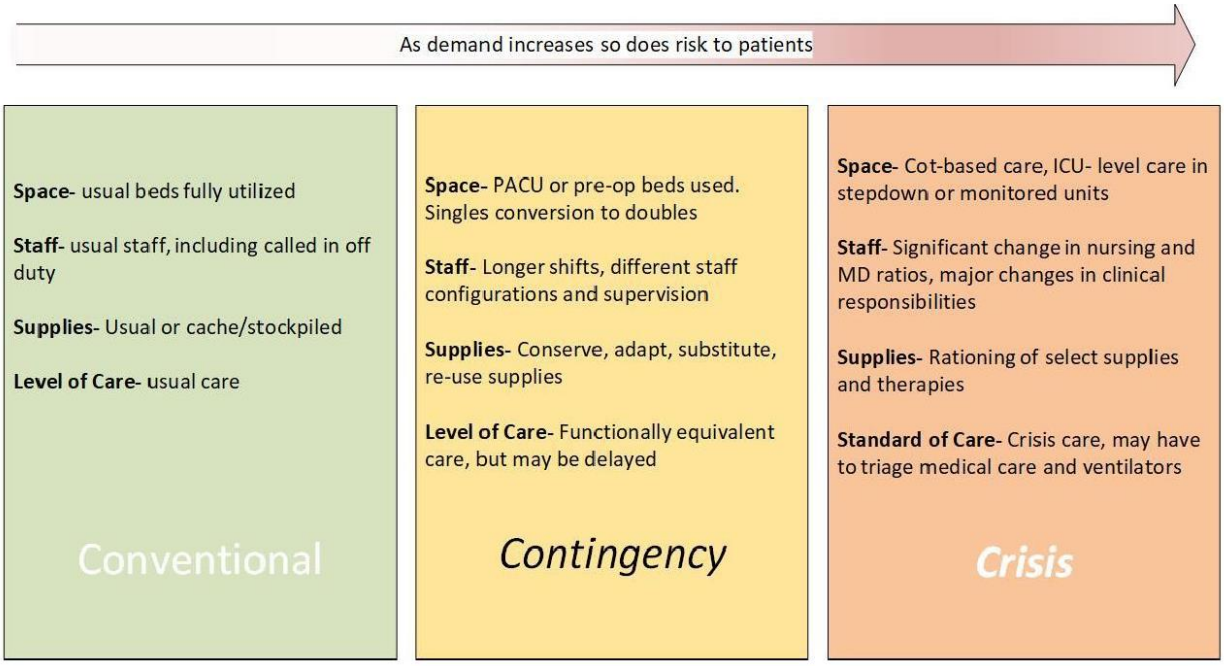
Allocation of Scarce Critical Care Resources During the COVID 19- Public Health Emergency

The California Department of Public Health (CDPH) published the SARS CoV-2 Pandemic California Crisis Care Continuum Guidelines to guide California hospitals and facilities in adopting strategies to increase the space, staff, and critical supplies available to care for an increased number of patients with COVID-19. These Guidelines address many topics, including a framework for hospitals on how to distribute important medical resources when there are not enough available to meet the needs of all patients who might benefit from treatment with these resources.

These Guidelines have been used by hospitals and health systems across the state, including Kaiser Permanente, to develop operational plans for "crisis standards of care" that aim to save the most lives possible during an emergency. Kaiser Permanente's operational plans use the process for resource allocation from the California Crisis Care Continuum Guidelines and follow the ethical obligations, the anti-discrimination requirements, and the appeals processes set forth in the California Crisis Care Continuum Guidelines. Kaiser Permanente is in close communication with public health officials, other state and local authorities, and other health care facilities in the community to coordinate sharing of available resources and provide care for the increased number of coronavirus patients in our communities.

Surge Preparation

Kaiser Permanente uses the following framework from CDPH for addressing surge preparation to care for the increased number of coronavirus patients at our hospitals. As the increase in patients stretches available resources, hospitals must take increasing steps to adapt the way they provide care as safely as possible to avoid having to initiate crisis standards of care and allocate scarce critical resources.



Allocation of Scarce Resources

Kaiser Permanente's allocation process is modeled on the California Crisis Care Continuum Guidelines, including the ethical principles, anti-discrimination requirements, scoring model, and appeals processes. If the current public health emergency creates demand for critical care resources (e.g., ventilators, critical care beds) that outstrips available supply, a Kaiser Permanente hospital may need to implement these guidelines, and would do so in full cooperation with state and local health officials and in a manner that is consistent with the approaches suggested by CDPH in the state's Guidelines.

During crisis conditions, a Crisis Triage Team will use the same allocation framework developed by the state of California in its Guidelines to determine priority groups of all patients eligible to receive scarce critical care resources. For patients already being supported by a scarce resource, the evaluation will include periodic reassessment of clinical improvement or worsening. Below is a summary of the process Kaiser Permanente hospitals would follow to allocate scarce resources should that become necessary.

1. **Ethical Framework**:

Kaiser Permanente will follow the ethical framework in the California Crisis Care Continuum Guidelines. These Guidelines strive to use guiding ethical principles in decision-making, including these principles:

- Duty to implement distributive justice (socially just allocation of goods)
- Duty to care: treat people with dignity and respect, and make decisions based on an individualized assessment based on objective medical evidence
- Duty to plan: steward resources and promote instrumental value
- Duty to transparency (in planning and implementation)

2. **Creation of Crisis Triage Teams**

At Kaiser Permanente, the Hospital Administrator and Chief of Staff at each hospital would appoint the members of Crisis Triage Teams. Each team is led by a Crisis Triage Officer who would oversee allocation decisions during the crisis.

A Crisis Triage Team will usually consist of a physician, a nurse or respiratory therapist, and a member of the hospital ethics committee or designee. Additional members may also be included, such as a palliative care physician, a chaplain and a social medicine representative. Crisis Triage Team members receive advance training to prepare them for the role.

3. **Activation of Crisis Standards of Care**

Each hospital has a Command Center monitoring availability of resources needed to care for patients during the pandemic. These Command Centers track the steps being taken to manage resources and find additional resources inside and outside of Kaiser Permanente, including the steps in the CDPH Crisis Care Continuum Guidelines Pre-Implementation Checklist. If there are more patients needing a critical resource than the hospital has available, and the hospital is not able to provide the resource to all patients after exhausting options for additional resources through the state, local officials, or other hospitals, Command Center leadership may have no choice but to implement crisis standards of care and allocate scarce resources. Kaiser Permanente will notify state and local government and public health departments and collaborate with them as we try to restore these resources as quickly as possible.

4. **Allocation Process for Scarce Critical Care Resources**

Under crisis conditions only, Kaiser Permanente would follow its operational plans to implement the clinical assessment and decision-making process in the California Crisis Care Continuum Guidelines. The

framework would be applied to all patients with critical illness or injuries, not only those with COVID-19. This process involves several steps:

- Calculating each patient's Sequential Organ Failure Assessment (SOFA) or modified SOFA (mSOFA) score and assign a priority group.
- Determining each day how many priority groups will be able to receive critical care interventions.
- Reassessing patients already receiving the scarce resource to evaluate whether they should continue with the treatment.
- Resolving "ties" within priority groups as necessary.

Calculation of each patient's SOFA or mSOFA score and assignment to priority group

Each patient's SOFA or mSOFA score is calculated as described by the California Crisis Care Continuum Guidelines, and is based on the clinical factors in the table below. Patients who are more likely to survive with intensive care are prioritized over patients who are less likely to survive with intensive care. Lower scores indicate higher predicted benefit from critical care. The scoring system does not use as a factor age, race, disability (including weight-related disabilities and chronic medical conditions), gender, sexual orientation, gender identity, ethnicity (including national origin and language spoken), ability to pay, weight/size, socioeconomic status, insurance status, perceived self-worth, perceived quality of life, immigration status, incarceration status, homelessness, or past or future use of resources. Patients will be assessed at least once per day for any changes in their priority status.

Table 1. SOFA score SOFA Scale**

Variable	0	1	2	3	4
PaO2/FiO2 mmHg	>400	≤ 400	≤ 300	≤ 200	≤ 100
Platelets, x 103/µL (x 106/L)	> 150 (>150)	≤ 150 (≤ 150)	≤ 100 (≤ 100)	≤50 (≤50)	≤ 20 (≤ 20)
Bilirubin, mg/dL (µmol/L)	<1.2 (<20)	1.2-1.9 (20 – 32)	2.0-5.9 (33 – 100)	6.0-11.9 (101 – 203)	>12 (> 203)
Hypotension	None	MABP < 70 mmHg	Dop ≤ 5	Dop > 5, Epi ≤ 0.1, Norepi ≤ 0.1	Dop > 15, Epi > 0.1, Norepi >0.1
Glasgow Coma Score (GCS) *	15	13 – 14	10 - 12	6 - 9	<6
Creatinine, mg/dL (µmol/L)	< 1.2 (<106)	1.2-1.9 (106 – 168)	2.0-3.4 (169 - 300)	3.5–4.9 (301 – 433)	>5 (> 434)

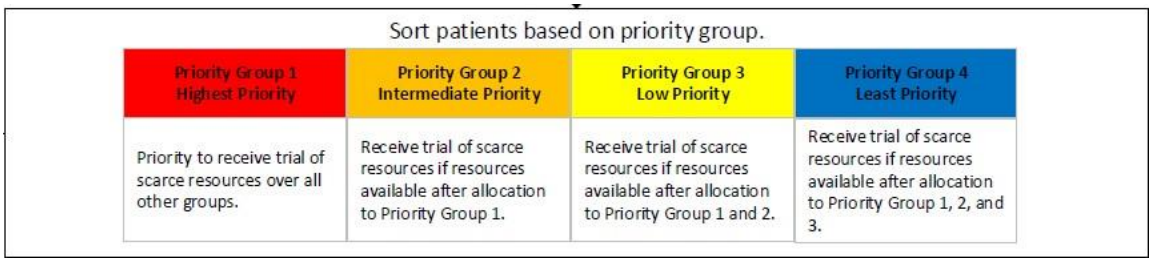
Sequential Organ Failure Assessment (SOFA) score SOFA Scale
Dopamine [Dop], epinephrine [Epi], norepinephrine [Norepi] doses in ug/kg/min SI units in brackets
Adapted from: Ferreira FI, Bota DP, Bross A, Melot C, Vincent JL. Serial evaluation of the SOFA score to predict outcome in critically ill patients. JAMA 2001; 286(14): 1754-1758.
**GCS should not add points to the SOFA score when a patient cannot articulate intelligible words, even if this condition is due to a pre-existing speech disability or chronic ventilation. Clinicians should use clinical judgment to adjust SOFA scores downward where appropriate to account for chronic baseline levels of physiological functional impairment not caused by COVID-19, including for any temporary elevation of a score or score element caused by any patient inability to access a regularly used stabilizing device or treatment (such as a CPAP or BiPAP unit, dialysis, or specific medications).*
***Modified SOFA or other objective, validated, nondiscriminatory survival scoring matrix may be used, including a COVID specific validated scoring system if one becomes available provided that the system does not use as a factor age, disability, or other characteristics listed in Key Points.*

As shown in Table 2 below from in the California Crisis Care Continuum Guidelines, priority groups are assigned according to the patient's SOFA or mSOFA score, with group 1 being given the highest priority and group 4 given the lowest priority to receive the scarce critical resource.

Table 2. Priority group based on SOFA score

Principle	Specification	Priority Group*			
		1	2	3	4
Current Overall Clinical Status	Prognosis for acute survival (SOFA score, mSOFA, or other severity of illness score#)	SOFA score < 6 Or mSOFA<6	SOFA score 6-8 Or mSOFA 6-8	SOFA score 9-11 Or mSOFA 9-11	SOFA score ≥12 Or mSOFA ≥12

#SOFA= Sequential Organ Failure Assessment; note that a different, nondiscriminatory measure of acute physiology that predicts in-hospital mortality could be used in place of SOFA, provided that the system does not use as a factor age, disability, or other characteristics listed in Key Points, but should similarly be divided into 4 ranges.
*Scores range from 1-4, and persons with the lowest score would be given the highest priority to receive critical care beds and services.



Determinations of how many priority groups can receive the scarce resource.

Following the approach in the California Crisis Care Continuum Guidelines, Kaiser Permanente Hospital leaders and triage officers would make determinations at least twice daily about which priority groups will be able to receive scarce critical resources, starting with the highest priority group. To make these decisions, our hospitals would evaluate availability of scarce critical resources and projected numbers of patients needing those resources. As conditions improve, patients with lower priority would receive critical care interventions.

Resolving "ties" within priority groups between patients.

Kaiser Permanente follows the process in the California Crisis Care Continuum Guidelines to resolve 'ties' between patients within priority groups when there are not enough critical care resources for all patients in that group. In that case, consideration would be given to any severe underlying medical conditions and advanced chronic conditions that limit short-term benefit of treatment and survival. Patients who have a better chance of short-term survival are given priority over those who are not likely to survive in the near-term, even if they survive the acute critical illness. Factors such as age, disability, or any of the other characteristics from the California Crisis Care Continuum Guidelines that are not factors in scoring are also NOT weighed to define individuals likely to die in the near-term.

As described in the California Crisis Care Continuum Guidelines, if after consideration of severe comorbidities there are still ties within a priority group, a lottery (i.e., random allocation) would be used to break the tie.

Communicating Allocation Decisions

The Crisis Triage Team will first inform the patient's attending physician about the allocation decision, and then the individual patient and family/representative(s) will be informed.

5. Appeals Process for Allocation Decisions

Kaiser Permanente follows the same appeals process in the **California Crisis Care Continuum Guidelines** in the event a patient, patient's family or authorized representative, or a healthcare professional, disagrees with an individual allocation decision. Different appeals mechanisms would be used for the initial decision to allocate or not allocate a scarce resource among individuals, and the decision to withdraw a scarce resource from a patient who is already receiving it. For the initial allocation decision, appeals are allowed to challenge the calculation of the scoring or use/non-use of a tiebreaker by the Crisis Triage Team. In that case, the Crisis Triage Team will verify the priority group assignment by recalculating the SOFA or mSOFA score, and, in the case of a disagreement related to use of a tiebreaker, review whether a tiebreaker should or should not have been used based solely on the allocation methodology.

Decisions to withdraw a scarce critical resource from a patient who is already receiving it are more complex than initial allocation decisions and a more detailed appeal process is available. If a patient or family member/representative wishes to appeal a decision to withdraw a scarce resource:

- The appeal would be immediately brought to a Crisis Triage Review Committee (CTRC) independent of the Crisis Triage Team. The individuals who are appealing the allocation decision would explain their disagreement with the decision. An appeal may not be based solely on an objection to the overall allocation framework.
- Any triage decision based on inappropriate factors under the **California Crisis Care Continuum Guidelines** (such as age or disability) should be reversed and redetermined using only the relevant, individualized clinical assessment.
- The Crisis Triage Team would explain the grounds for the allocation decision that was made.
- The appeals process must occur quickly enough that the appeals process does not harm patients who are waiting for the scarce resource.
- Where a reallocation decision is proposed for a patient without medical decision-making capacity and the hospital has not been able to reach a surrogate decision maker for the patient, the review committee will review the decision prior to withdrawal of the resource.
- The decision of the review committee for a given hospital will be final.