

Crisis Standard of Care Policy related to COVID-19 Pandemic & State of Emergency that is provisionally implemented

THE FOLLOWING IS AN INTERIM POLICY THAT IS EFFECTIVE IMMEDIATELY. THIS INTERIM POLICY IS A RESULT OF ACTIONS TAKEN IN ACCORDANCE WITH UCSDHP 801.3, UNIVERSITY OF CALIFORNIA SAN DIEGO HEALTH EMERGENCY OPERATIONS PLAN. THIS POLICY REMAINS IN EFFECT UNTIL FURTHER NOTICE. THE RELEVANT PROVISIONS WITHIN THIS GUIDELINE SUPERSEDE EXISTING ALLOCATION POLICIES.

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Interim addendum to P&P: <input type="checkbox"/> Existing UCSDHP <input type="checkbox"/> Existing Departmental	New: <input checked="" type="checkbox"/> Policy <input checked="" type="checkbox"/> Protocol <input type="checkbox"/> Procedure <input type="checkbox"/> Guideline
Name & Number if applicable:	Plan for tertiary triage and rationing of life sustaining therapies (LST)
Scope of the EON	UCSDH inpatient
Effective Date:	1/5/2021
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UCSD HEALTH: PLAN FOR TERTIARY TRIAGE AND RATIONING OF LIFE SUSTAINING THERAPIES (LST) INCLUDING STAFFED ICU BEDS, VENTILATORS, ECMO, AND CRRT IN THE SETTING OF THE COVID-19 PANDEMIC

Current practice

N/A

This interim practice is necessary due to:

Expected influx of patients due to COVID-19 pandemic

The operational timeframe for this practice:

Effective 01/05/2021 and valid through end of declared emergency

I. Introduction and Policy

In the event life sustaining resources become overwhelmed by need in the setting of the current COVID-19 pandemic, it is vital that decision making is guided by widely accepted and publicly endorsed ethical principles^{1,3,4} In the setting of a pandemic, providers need to balance the obligation to save the greatest possible number of lives against the obligation to care for each single patient. As the number of affected patients increase, accommodating these two goals requires increasingly difficult decisions. An allocation system incorporates ethical decision-making processes so that the duty to steward resources and the limitations it may place on individual care is recognized as fair and acceptable under emergency circumstances.⁴ Providers must not abandon, and patients should not fear abandonment in a just system of allocation.

During a severe pandemic, public health mandates may override patient autonomy. When a public health emergency is declared and crisis standard of care is implemented, treating providers may be constrained. Crisis Standard of Care (“CSC”) is used when health care systems are so overwhelmed by a pervasive or catastrophic public health event it is impossible to provide conventional standard of care. Applying a clinical Life Sustaining Therapies (“LSTs”) allocation protocol uniformly helps the public recognize and accept that the allocation procedures are fair and ensure that vulnerable groups are not disproportionately affected.⁴

Patients at UCSDH must be treated with dignity and compassion, regardless of the CSC.³ Guidelines are essential to uphold UCSDH’s commitment to patients, ethics, and professionalism during a time of crisis.^{1,4} In the event that the demand for life sustaining resources, including ICU level of care, exceeds resources despite maximal surge planning, UCSDH will transition from a conventional standard of care model focusing, on maximizing individual outcomes, to CSC and the prioritization of population health⁵.

If the need to transition to CSC occurs, UCSDH has developed the following plan for tertiary triage and allocation of scarce resources. This tertiary triage system will include all hospitalized patients. The process incorporated in this guideline is a fair and transparent process applied evenly across all patients, including to all protected classes covered under California law¹⁶. It is vital that there can be no perception of disparities including any discrimination based on 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, which would erode trust in the system. Patients who do not receive LSTs are still under their provider’s care and will obtain alternative forms of medical intervention and/or palliative care.⁴

II. Triage and Allocation Plan for Life Sustaining Treatments (LST) including but not limited to ICU beds, Ventilators, ECMO, and CRRT

In the event of a pandemic or mass casualty, there are three progressive standards of care:

Level 1: Conventional Standard of Care: Usual resources and level of care provided.

Level 2: Contingency Standard of Care: UCSDH will declare Contingency Standard of Care when resources are scarce enough that despite best efforts, UCSDH is now delivering functionally equivalent care that may incur a small risk to patients.

Level 3: Crisis Standard of Care: Disaster strategies used when demand forces choices that pose a significant risk to patients but is the best that can be offered under the circumstances.¹⁷ UCSDH will declare Crisis Standard of when the regional capabilities to deal with a surge of patients exhausts the availability of scarce resources in San Diego County¹³ and specifically within UCSDH.

A. Personnel and Duties:

1. Triage Officers: physicians (approved by the CMO and/or his/her designee) who are not currently caring for patients, and with the experience and authority to carry out the necessary functions. (This allows treating providers to continue to act in the best interest of their patients without having to face a conflict of interest in having to choose one patient’s interests over another.)

2. Triage Team (TT): consists of 2 Triage Officers and a Nurse or Nurse Practitioner with adult acute care experience (ICU or Emergency Medicine) (approved by the CMO and/or his/her designee). After Level 2 (Contingency Standard of Care) is declared, Triage Team will convene a minimum of once daily to review the triaged patient list. After Level 3 (Crisis Standard of Care) is declared, Triage Team will convene a minimum of once daily and be available 24/7.

3. Triage Review Committee (TRC) ^{8,12, 13, 3:} consists of representatives from each of the following: administration (as designated by the CMO/CEO and/or his/her designee), senior nursing, ethics, and legal counsel/risk management.

The Triage Review Committee will convene as necessary to review issues that arise and perform the following:

1. Review of all reallocation decisions
2. Adjudication of all appeals of reallocation decisions.
3. Ongoing oversight and review of triage processes, crisis conditions, and need for any modifications in the process.

After Level 3 (Crisis Standard of Care) is declared, TRC will be available 24/7.

4. Incident Command Operations Chief in conjunction with the CEO and CMO and/or his/her designee will coordinate with other healthcare facilities in San Diego County to determine whether the other facilities have viable resources that could be used to treat UCSDH patients, and/or whether UCSDH resources or patients will be transferred to other institutions to utilize available resources. In addition, they will track how many regional hospitals are on bypass, and how many patients from other hospitals are awaiting transfer to UCSDH for specialized care.

B. LST Triage and Reallocation Process^{4,5:} prioritizes resources for patients with the greatest likelihood of survival by using a ranking process which will assign a patient's Mortality Risk Color Code (MRCC)

1. **Once Contingency Standard of Care (Level 2) is declared:** Triage is implemented for all inpatients (not just COVID-19 patients). Reallocation of resources is **not** initiated yet.
 - a. Goals of Care (GOC) discussions should be conducted and documented in the Advanced Care Planning tab of the electronic medical record for all patients by their attendings upon hospital admission, change in patient status, or transfer to higher level of care to ensure patients' preferences are honored, when possible, regarding code status and intensity of LST.
 - b. If attending determines that, for any patient, continued LST is non-beneficial per the UCSDH Non-Beneficial Treatment Conflict Resolution policy (UCSDHP 531.1), she or he may proceed with unilaterally limiting LST per the process outlined in that policy, as during Conventional Standard of Care.
 - c. Upon each hospital admission, and for any patient already admitted to an inpatient space (including patients in the Observation or Outpatient in a bed status) the patient's attending provider will be asked if he/she believes the patient is at risk for needing ICU admission within the next 48 hours. If attending responds "yes", he/she will be asked to answer additional questions about the patient's condition (SOFA, comorbidities, anticipated duration of ICU care, pregnancy, periop and transplant status, Critical Worker status). This list of triaged patients (Triage List) and data will be maintained in Epic. The list will not identify the name of the patient. It will be continuously maintained and available to the Triage Team and Triage Review Committee at all times.
 - d. **Catastrophically ill patients not expected to survive: Certain acute medical conditions may be so catastrophic or profound that the patient is at a very high (~90+%) risk of death. In non-crisis circumstances, some of these patients might survive with aggressive intervention, although it is not possible to predict which specific patient will do so. During crisis circumstances, however, these conditions confer such a high probability of immediate death, that if the attending confirms one of the following conditions listed in Table 1, the patient will immediately be triaged to the BLUE MRCC (lowest priority for resources)¹⁵ These patients will be reassessed periodically according to reassessment plan outlined below.**

Table 1: Catastrophic medical conditions

Refractory cardiac arrest	Any unwitnessed out of hospital cardiac arrest without ROSC prior to arrival who remain unresponsive Any witnessed cardiac arrest with inability to obtain ROSC after 60 minutes from onset without a shockable rhythm present who remain unresponsive Recurrent arrest without hemodynamic stability who remain unresponsive Arrest unresponsive to resuscitative efforts
Hypoxic-ischemic brain injury after cardiac arrest	Coma (inability to respond to verbal commands) after ROSC from cardiac arrest with nonshockable rhythm without confounding drugs, toxins, or metabolic derangements
Severe burns	American Burn Association expected mortality $\geq 90\%$ (Table 17 in Appendix 8)
Severe trauma	Trauma Injury Severity Score predicting $\geq 90\%$ mortality (Table 15 in Appendix 8)
Severe neurological injury (rule out confounders to clinical assessment such as sedation, transient seizure, or treatable hydrocephalus)	Acute catastrophic non-survivable brain injury
Other	Patient is actively dying despite maximal medical therapy

Note: Existing illness or injury severity scoring systems were not specifically designed for triage situations that would involve prioritizing patients for care; however, during Crisis Standards of Care it is reasonable to employ them to prioritize allocation of dramatically limited LST resources because they are better suited than alternative methods for an emergency clinical triage protocol. Such clinical scoring systems allow for real time decision making that avoids allocating scarce resources to those extremely unlikely to benefit. They are objective, reproducible, and provide transparency regarding severity evaluation by providing a validated assessment of those least likely to survive in the short term, even with aggressive treatment¹⁵.

- e. All patients who are anticipated to require ICU level of care within the next 48 hours will have their initial Mortality Risk Assessment (MRAS) assigned by the Triage Team based on the LST information entered by the attending into Epic.
- f. Patients who have a catastrophic condition but who are intubated prior to initial evaluation (for example, prehospital intubation, or emergent intubation in the emergency department or inpatient) will be re-evaluated and LST triage information entered by 90 minutes after arrival at UCSDH in order to determine priority for LST.

Table 2: Mortality Risk Assessment (MRAS)

Points:	1	2	3
Short Term Prognosis	Low probability of death (SOFA score < 6)	Intermediate probability of death (SOFA score 6-11)	High probability of death (SOFA score > 12)
Underlying Comorbidities	No Major Comorbid Illnesses	Major Comorbid Illness(es)	Severe Life Limiting comorbidities (expected survival <6 months)
Anticipated Duration Of LST Need (As Determined By Attending)	< 7 days	7-14 days	> 14 days

Examples of Major Comorbid illnesses that are associated with significantly increased risk of **short-term** mortality from critical illness:

1. Pre-existing neurological condition (dementia, stroke, other neurodegenerative disease) with baseline modified Rankin Score ≥ 4
2. ACC/AHA Stage C heart failure, NYHA Class II-IV
3. Severe, inoperable multi-vessel coronary artery disease or valvular disease
4. WHO Class 3 pulmonary hypertension (symptomatic with minimal exertion, asymptomatic only at rest)
5. Moderately severe chronic lung disease (e.g., COPD, IPF) but not requiring chronic oxygen or ventilation
6. End stage renal disease on dialysis
7. Cirrhosis with MELD <20 and history of prior decompensation
8. Minimally conscious/unresponsive wakeful state from prior neurologic injury (GCS < 4)
9. Clinical Frailty Scale Score ≥ 8

Examples of Severe Life Limiting Comorbidities with expected survival of < 6 months:

1. Severe dementia with FAST score of 7
2. Advanced malignancy with anticipated prognosis of < 6 months
3. Heart failure: NYHA Class IV, oxygen dependent
4. Severe chronic lung disease, oxygen dependent
5. Cirrhosis with MELD score ≥ 30
6. Advanced AIDS with CD4 count < 200, not on HAART, and/or high viral load.

Note: These conditions appear on these lists only because they help predict short-term survival in critical illness. The fact that someone will, for example, have less than 5 year expected survival is not alone a reason to add triage points unless that fact correlates with short-term mortality. Moreover, among the conditions that correlate with reduced short-term survival, more priority points are assigned to those severely life-limiting comorbidities than

to major comorbidities, since the former have a greater influence on short-term mortality than the latter, such that even in absence of critical illness they shorten survival.¹⁵

- f. **Special Considerations:** There are certain ethical justifications for prioritizing various patient populations. UCSDH has identified the following patient populations which will receive special consideration when making triage allocations. **The MRAS and Triage Team will take into account the following:**¹⁵
- i. Critical Workers: Critical Workers are individuals whose job is vital for managing the pandemic. There are three ethical justifications for prioritization of critical workers:
1. *Reciprocity:* Because Critical Workers take more risks for the sake of public good, Critical Workers are owed some level of priority in triage in return.
 2. *Multiplier effect:* Because Critical Workers are involved in saving lives for others, if you save that individual, you potentially save others as well.
 3. *Incentivizing the work force:* In the setting of a pandemic, it is conceivable that an increasing number of Critical Workers will refuse to work due to personal risk, compounded by de-moralization. One way to mitigate this is to give some level of priority to Critical Workers. This can also be characterized as a multiplier effect.

UCSDH has identified the following as Critical Workers pursuant to this policy:

- EMT's and paramedics
- Active duty Police officers
- Active duty Firefighters
- Any health care worker who has disproportionately been exposed to COVID-19 through the workplace.

Critical Workers will be exempt from triage for the first 72 hours after admission. After 72 hours, they will undergo initial triage, but will have 4 points deducted from their MRAS for the next 48 hours. Subsequently, they will continue to have 2 points deducted from MRAS until discharged from UCSDH.

ii. Organ Transplant Patients¹²:

- Patients listed for transplant will not be afforded additional prioritization unless there is an active organ offer. In the event of an active offer, those patients will be temporarily exempt from triage until it is determined whether or not the patient will be transplanted. If the offer is declined by the transplant team, the patient will re-enter the triage pool.
- For patients immediately post-transplant, their critical care needs largely arise from the need for supportive care to achieve successful engraftment of the donated organ. Because of their potential for excellent prognosis post-transplant, to the extent necessary to assist in their recovery, these patients will be deemed exempt from triage for maximum of 2 weeks post-transplant, and for the remainder of their inpatient stay when their MRAS is calculated, all data related to the transplant (*i.e.* bilirubin, renal failure, platelets, etc.) used in the MRAS will be input as "normal" to exclude normal recovery from transplant in the MRAS.
- For patients within one year post transplant who are experiencing delayed graft dysfunction or graft failure, all data related to the graft dysfunction/failure (*i.e.* bilirubin, renal failure, platelets, etc.) used in the MRAS will be input as "normal" to exclude normal recovery from transplant in the MRAS.

iii. Immediate Post-Operative Care Of Complex Surgical Patients: Patients who undergo complex surgical procedures may have postoperative critical care needs which are largely due to the nature of the procedure and portend an otherwise excellent recovery prospect (such as cardiac surgery, staged abdominal surgery where the abdomen is left open). To the extent necessary to assist in their recovery, these patients will also be exempt from triage for a maximum of 5 days post-op.

iv. Pregnant Patients¹²: Pregnant patients will be provided special consideration based on the concept of a multiplier effect. Giving priority to women before week 24 of pregnancy is unlikely to produce a multiplier effect, since any patient at that stage of pregnancy who need the kind of scarce resources discussed in this document is extremely unlikely to carry a fetus to age of viability. Based on that, priority will be granted to pregnant patients at week 24 and after. In addition, because the rationale for giving priority to pregnant patients is due to the multiplier effect, no priority will be given to postpartum patients once they have delivered.

v. Patients participating in clinical research studies¹²: A fundamental principle of clinical research is the position of therapeutic equipoise. As such, it is impossible to determine whether a study protocol will benefit an individual participant. Thus, an investigational study participant will not be prioritized over any other patient.

vi. If a patient is in 2 categories for special consideration (*e.g.* pregnant critical worker), triage should be conducted according to the category that is most favorable for that patient.

Table 3- Special considerations for triage allocation: exemptions and point adjustments¹²

Group	Initial Triage	First reevaluation	Second 48 hour reevaluation	Reevaluations thereafter
Critical Worker	Exempt for 72 hours, then initial triage at that time as usual, start triage clock at time 0 and deduct 4 points	Deduct 4 allocation points	Deduct 2 allocation points	Deduct 2 allocation points
Pregnant women (If EGA \geq24 weeks; if intrauterine fetal demise or delivery, then triage as usual)	Triage as usual, deduct 4 points	Triage as usual, deduct 4 points	Triage as usual, deduct 4 points	Triage as usual, deduct 4 points
Pre-transplant, active organ offer	Exempt only during time offer being evaluated,	Triage as usual	Triage as usual	Triage as usual

	start triage clock at time of pause			
Post-operative, complex non-transplant surgery	Exempt for up to 120 hours (5 days), then initial triage at that time as usual, start triage clock at time 0	Triage as usual	Triage as usual	Triage as usual
Post-operative, transplant surgery	Exempt for up to 2 weeks, then initial triage at that time as usual, start triage clock at time 0	All data related to the graft dysfunction/failure (<i>i.e.</i> bilirubin, renal failure, platelets, etc.) used in the MRAS will be input as “normal” for 1 year post transplant	All data related to the graft dysfunction/failure (<i>i.e.</i> bilirubin, renal failure, platelets, etc.) used in the MRAS will be input as “normal”	All data related to the graft dysfunction/failure (<i>i.e.</i> bilirubin, renal failure, platelets, etc.) used in the MRAS will be input as “normal”

- g. **Mortality Risk Color Code (MRCC): Triage Team will verify data, reaching out to attendings as needed for more information, and assign MRCC based on MRAS and Special Considerations.**

Table 4:

Color Code and Level of Access (Initial ICU Assessment)	Assessment of Mortality Risk/Organ Failure
Violet Temporary exemption from triage allocation scoring (e.g. Post-transplant or other emergent major surgery such as CABG, Critical Workers as set forth in Table 2)	Temporarily Exempt from Triage
Red Highest priority for LST Resources	Mortality Risk Assessment Score of 3-5
Orange Intermediate - use LST as available	Mortality Risk Assessment Score of 6-7
Yellow Lower priority; higher risk of death	Mortality Risk Assessment Score of 8-9
Blue Lowest priority for LST due to extremely high probability of death	Acute catastrophic conditions (Table 1)
Green LST not required for patient	Patients assessed as not expected to need ICU care within the next 48 hours

g. **Periodic Reassessments for ICU Patients:** will be conducted after 72 hours, then a minimum of every 48 hours thereafter. The patient’s attending(s) will clinically assess the patient and update data in Epic. The reassessment will include the patient’s response to LSTs. Triage Team will then assign each patient an updated MRAS and stratify the patient to the corresponding MRCC as below.

Table 5: Mortality Risk Re-Assessment (MRAS)⁷:

Points:	1	2	3
Short Term Prognosis	Low probability of death (SOFA score < 6)	Intermediate probability of death (SOFA score 6-11)	High probability of death (SOFA score ≥ 12)
Underlying Comorbidities	No major comorbid illnesses	Major comorbid illness(es)	Severe life limiting comorbidities
Re-Assessment Of Anticipated Duration Of LST Need	< 7 days	7-14 days	> 14 days
Response To LST support	Improved	Stable	Deteriorated

Table 6: Re-assessment Mortality Risk Color Code (MRCC):

Color Code and Level of Access (ICU Reassessment)	Assessment of Mortality Risk/Organ Failure
Red Highest priority for LST Resources	Mortality Risk Assessment Score of 4-6
Orange Intermediate - use LST as available	Mortality Risk Assessment Score of 7-9
Yellow Lower priority; higher risk of death	Mortality Risk Assessment Score of 10-12
Blue Lowest priority for LST due to extremely high probability of death	Acute catastrophic conditions (Table 1)
Green LST not required for patient	Patients assessed as not expected to need ICU care within the next 48 hours

2. **Once Crisis Standard of Care (Level 3) is declared:** LST reallocation is initiated as necessary to prioritize resources going to patients with the highest likelihood of survival.

a. **Administrative Unilateral Do Not Resuscitate Orders**

UCSDH recognizes that triage allocation decisions may conflict with the previously stated goals and wishes of patients and/or their health care surrogates who have expressed preferences for full, aggressive treatment measures including intensive care and cardiopulmonary resuscitation in the event of cardiac or respiratory arrest. For purposes of this Policy, UCSDH defines an arrest as loss of spontaneous circulation that requires chest compressions, defibrillation, or electrical pacing and/or respiratory failure requiring intubation and mechanical ventilation in order to achieve the prolongation of life.

Under Level 3 (Crisis Standard of Care), it would be medically inappropriate to provide resuscitative efforts to those who are not currently eligible to receive critical care resources following a cardiac or respiratory arrest. Performance of resuscitative efforts relies on the ability to provide supportive critical care after the patient is stabilized from the arrest. If there are no critical care resources available to provide to a patient after a successful resuscitation, then performing resuscitation attempts are indeed non-beneficial, as they will not achieve the desired outcome of prolonging life. As such, for any patient whose triage priority level is lower than the threshold for critical care resources at any given time (for example, if all BLUE patients have been deallocated resources and YELLOW patients are now being deallocated resources), then all patients newly triaged BLUE should not be offered resuscitative efforts. Or, if any patient has been deallocated resources via the process outlined below, they should not be offered resuscitative efforts.

For these patients, UCSDH will place an administrative order indicating that a patient is not allocated to receive critical care resources at the present time, and that no resuscitative efforts should be made if the patient experiences cardiac or respiratory arrest. The code status will be designated as “TRIAGE-DNAR.” In these cases, the Non-beneficial Treatment Conflict resolution policy process is suspended. If the patient/surrogate agrees with the decision and does not request that the patient be reevaluated for triage if critical care resources become available, the patient will be designated DNAR/Comfort Care and be taken off the triage list.

This order would not preclude the use of elective or emergent electric cardioversion for patients who are not pulseless with unstable arrhythmias, who should still be assessed to receive defibrillation as deemed appropriate by the treating physician(s). This order shall remain in place unless sufficient resources become available for the patient to receive critical care. If and when resources become available for such a patient, Goals of Care shall be addressed with patient and/or their health care surrogate prior to reversion of code status to Full Code and transfer to the ICU to ensure that such a transfer is still aligned with patient’s wishes.

Patients who are not eligible for critical care resources may be offered all other supportive medical care that is appropriate (*i.e.*, they may be otherwise “full care”) including other forms of therapy. Palliative Medicine and Spiritual Care referrals should also be offered. Additionally, patients who are ineligible for critical care resources pursuant to this policy may opt to remain on the triage list. If critical care resources become available, the patient will be reevaluated.

b. Reallocation of LST: In the event that an MRCC RED (highest priority) or PURPLE (exempt from triage) patient requires an LST but no LST is available, the Triage Team will follow these steps:

- i. Select a patient from the MRCC BLUE category via random selection process for resource reallocation. If there are no more patients in the BLUE category, Triage Team will proceed to the YELLOW category. If there are no more patients in the YELLOW category, Triage Team will proceed to the ORANGE category.
- ii. Triage Review Committee will confirm the patient for reallocation.
- iii. The Triage Officer will promptly notify the attending physician of the reallocation decision and of the required next steps, including changing code status to TRIAGE-DNAR, extubation, and transfer patient out of ICU. The patient may receive any available other treatments that are not limited resources (may remain full care), and may remain on the triage list in the event LST becomes available, if they wish. The attending physician may request that a Triage Officer or member of the Triage Review Committee participate in patient/surrogate notification.
- iv. The attending will notify the patient/surrogate of the triage decision. The decision should be explained verbally including supporting information in the patient or surrogate’s native language with use of medical interpreters as needed, including:
 - o An explanation of how the triage decision was made and the limited appeals process
 - o An explanation of the medical facts supporting the decision in plain language
 - o An explanation of what could happen to the patient without the LST
 - o An explanation of other treatments that still can be rendered, including other forms of therapy
 - o An explanation that if requested, they may remain on the triage list in the event an LST becomes available.
 - o Options for palliative care
 - o An offer of referral for psychospiritual support including social work and/or spiritual care

A written, plain language, explanation of the triage decision will be provided.

v. Attending will place TRIAGE-DNAR order. This will be a designated code order within Epic. They will then extubate and transfer patient out of ICU.

vi. Clinically indicated and appropriate care, including other modalities of oxygen therapy, and/or comfort-focused care should be provided to patients whose LST is reallocated.

vii. If LST becomes available, and the patient qualifies, code status will revert to Full Code.

viii. Documentation: to ensure transparency, the TO and/or his/her designee should clearly document their rationale and decision making regarding LST reallocation decisions, under the advance care planning tab in Epic. An After-Action Report (AAR) should be written immediately upon return to normal operations. All involved personnel should be prepared to participate in the AAR process and in any subsequent investigations.

c. Appeals Process for LST Reallocation Decisions: Procedural justice requires the availability of an appeals mechanism to resolve any disputes. Appeals should be based on the concern that deviation from the approved process occurred, or for reevaluation in light of novel or updated clinical information. Appeals contesting the allocation framework itself will not be considered.

- i. The attending or a nurse involved in the care of the patient, at any point can file an appeal themselves or on behalf of the patient/surrogate. The attending or nurse should contact the Triage Officer and/or his/her designee in conjunction with the Triage Review Committee (TRC) immediately to submit an appeal providing any novel or updated clinical information. The appeals process must occur quickly enough that the appeals process does not harm patients who are on the list for scarce critical care resources currently being used by the patient who is the subject of the appeal.
- ii. Appeals should be based solely on correction of information used to make the decision, not an appeal of the process itself.
- iii. The Triage Officer and/or his/her designee and TRC will re-assess the patient's priority status in light of new or updated information submitted by the treating team member.
- iv. If the TRC upholds the original decision, the attending will be notified that the LST will be reallocated.
- v. If the TRC overturns the original decision, the patient will retain their LST and another person on the list will be identified to have an LST re-allocated.
- vi. The decision of the TRC will be final. The attending physician and/or the TRC will then convey the decision to the patient/surrogate in accordance with the process set forth in Section b.iv.

C. CRRT Allocation plan

Action Plan

Each of the following categories represents a mode of operation the Division of Nephrology may be required to work within during the COVID-19 pandemic. Each tier offers guidance to nephrology consulting physicians and nephrology Triage Officers to optimize inpatient renal replacement therapies while the Resource Supply Leads continue to seek resolution to the resource deficit to restore usual standard of care. CRRT machine availability will be tracked and updated in UCSD Health COVID-19 Daily Readiness Dashboard.

Conventional Kidney Support Therapies

No scarce resource concerns

Usual standard of care

Contingency Kidney Support Therapies – Nursing Staff

Nursing staff ratio unable to support treatment needs

- 1) Attempt to arrange outpatient dialysis at home unit to avoid dialyzing on day of discharge
- 2) Ensure ER dialysis request is urgent/emergent
- 3) Utilize Hillcrest Outpatient Dialysis unit for:
 - Clinically stable NON-COVID ER dialysis consults
 - HC NON-COVID inpatient UCSD chronic dialysis patients
 - HC NON-COVID inpatient non-UCSD chronic dialysis patients
- 4) In Hillcrest talk with primary teams to see if NON-COVID patients can be downgraded to Med/Surg to allow use of room 932
- 5) Shorten IHD treatment sessions for stable inpatient chronic hemodialysis patients:
 - 4 hours or above will be changed to 3.5 hours
 - 3.5 hours or below will be change to 3 hour max
- 6) Postpone UF sessions for stable NON-COVID Med/Surg patients
- 7) Cancel mid-day exchange in PD patients
- 8) Transition ICU patients to CRRT if a patient uses a catheter for their treatment
- 9) Change comprehensive dialysis nursing CRRT check to once a day

Contingency Kidney Support Therapies – Machines and Fluids

Number of CRRT machines or CRRT solution supply are unable to support needs

- 1) Decrease prescribed dialysis dose in stable non-catabolic CRRT patients and consider initiating at reduced dose in smaller patients
 - a. 10 hour PIRRT
 - i. Increase total effluent 3000ml
 - ii. Change post filter fluid volumes 500ml/hour
 - iii. Increase Qb 150ml/hour
 - b. Decrease total effluent 2200ml on 24 hour continuous therapies
 - i. Change dialysate flow rate 500ml/hour
 - c. Nephrologist will calculate delivered dose every 24hours and adjust prescription if below KDIGO standards
- 2) Dialysate
 - a. Avoid additives to base solutions
- 3) Electrolyte Replacement
 - a. Schedule PO replacement in patients with OG/NGT in place and working gut
 - i. KCL
 - ii. PhosKNaC
- 4) Replacement Fluids
 - a. Use LR as a substitute for PrismaSol in non-liver failure patients
 - b. Use PrismaSol preferentially as replacement bicarbonate fluid
 - c. Avoid use of 0.45%NS and 75meQ bicarbonate fluid
 - d. Use bimodal scale with larger ranges
- 5) Transition stable NON-COVID patients without abdominal pathology to acute or urgent CCPD
- 6) Transition patients with evidence of renal recovery and non-augmented UOP>500ml/day off CRRT
 - a. Timed urine collection for mixed CreCl and UreaCl preferred (even 4-6hours)

Crisis Kidney Support Therapies

Kidney support needs exceed all available therapies (CRRT, IHD, and PD)

- 1) Chief and Clinical Service Chief updated to change in status
- 2) Director of Nephrology Services and Senior Director of Operations, Medical Specialties updated to change of status and discuss Crisis Kidney Support Designation with Emergency and Disaster Plan Director at UC San Diego Health who will facilitate communication with the county
- 3) Dialysis Bypass discussed at county level
 - a. Per San Diego County Crisis Care Nephrology Workgroup, it is preferable to transfer patients for dialytic needs over other resources (*i.e.*, machines, RNs)
- 4) Nephrology Triage Officer Activated
 - a. Follow UCSDH scarce resource allocation criteria
 - i. Allocation Plan
 1. Will substitute “CRRT” for “LST” in the UCSDH scarce resource allocation criteria
 - b. Reassess patient status while on CRRT every 48hours
 - i. Periodic clinical assessments will be conducted on a patient who has begun CRRT therapy and the nephrology triage officer will determine whether a patient continues with CRRT therapy
 - ii. Inclusion Criteria for continuation of CRRT:
 1. Persistent hemodynamic instability, unable to tolerate IHD
 2. Ongoing acid/base or electrolyte abnormalities that require continuous therapy
 3. High obligate intake, will be unable to keep desired fluid balance with daily therapy

- iii. However, at any point during the time trial, even before an official assessment occurs, if a patient develops a condition on the exclusion criteria list and there is an eligible patient waiting, then the CRRT is reallocated.

Utilization of Chronic Hemodialysis Unit at Hillcrest

In the event of activating the Contingency Renal Replacement Therapies Staff action plan; stable, asymptomatic, chronic dialysis patients who are presenting or admitted to UCSD Health may be accommodated for their routine dialysis in the UCSD outpatient dialysis unit. The following outlines this procedure:

- 1) General Criteria
 - a. All patients being considered as a “visitor” in the chronic unit must be approved by Nephrology Medical Director and/or his/her designee.
 - b. The inpatient HC nephrology team should discuss with UCSD outpatient hemodialysis Charge RN each day as to available “visitor” chairs for the following day (time slots will differ day to day)
 - c. Consider SUNDAY use of the UCSD outpatient hemodialysis unit to cohort a larger volume of inpatient “visitors”
 - d. A patient’s hepatitis B status must be known within the last 30 days
 - e. All ER and Non-UCSD chronic dialysis patients must have a CXR not concerning for active tuberculosis and be asymptomatic of respiratory symptoms
 - f. Negative Quantiferon in the last 30days OK if no CXR
 - g. Must be agreeable and able to wear a MASK during treatment
- 2) Inpatient Criteria
 - a. Only stable Med/Surg level of care
 - b. No patients requiring 1:1 sitter
 - c. No COVID positive patients or with COVID test pending result
- 3) Emergency Room Criteria
 - a. Only stable, non-telemetry patients
 - b. No patients requiring 1:1 sitter
 - c. No COVID positive patients or with COVID test pending result
 - d. No patients being ruled out for ACS
 - e. No hyperkalemia with K > 6.2
 - f. Patient will be transported from ER to chronic dialysis unit and back
 - g. Patient will be discharged from ER

UCSD Allocation Plan for CRRT based on revised criteria for LSTs

Table 7: Mortality Risk Assessment (MRAS) score for patients meeting inclusion criteria for CRRT:

Points:	1	2	3
Short Term Prognosis	Low probability of death (SOFA score < 6)	Intermediate probability of death (SOFA score 6-11)	High probability of death (SOFA score ≥ 12)
Comorbidities	No major comorbid illnesses	Major comorbid illness(es)	Severe life limiting comorbidities

MRAS Scoring range will be 2-6

Table 8:

Color Code and Level of Access (Initial CRRT Assessment)	Assessment of Mortality Risk/Organ Failure
Violet Temporary exemption from triage allocation scoring (e.g. Post-transplant or other emergent major surgery such as CABG, Critical Workers as set forth in Table 2)	Temporarily Exempt from Triage
Red Highest priority for LST Resources	CRRT Mortality Risk Assessment Score of 2-3
Orange Intermediate - use LST as available	CRRT Mortality Risk Assessment Score of 4-5
Yellow Lower priority; higher risk of death	CRRT Mortality Risk Assessment Score of 6
Blue Lowest priority for LST due to extremely high probability of death	Acute catastrophic conditions (Table 1)
Green LST not required for patient	Patients assessed as not expected to need CRRT within the next 48 hours

4. Re-allocation process for CRRT re-allocation will be the same process outlined for LST re-allocation

Table 9:

Color Code and Level of Access (CRRT Reassessment)	Assessment of Mortality Risk/Organ Failure
Red Highest priority for LST Resources	CRRT Mortality Risk Assessment Score of 2-3
Orange Intermediate - use LST as available	CRRT Mortality Risk Assessment Score of 4-5
Yellow Lower priority; higher risk of death	CRRT Mortality Risk Assessment Score of 6
Blue Lowest priority for LST due to extremely high probability of death	Acute catastrophic conditions (Table 1)
Green LST not required for patient	Patients assessed as not expected to need CRRT within the next 48 hours

D. ECMO Triage/Allocation Plan:

- If critical care capacity is overwhelmed, ECMO should not be utilized until resources stabilize.
- eCPR will not be utilized for COVID or high suspicion Rule-Out COVID patients.

Phases of ECMO Care

- **Level 1: Conventional ECMO Care:** Each hospital system has inclusion/exclusion criteria specific to their institution and will assess appropriateness of ECMO utilization based on internal processes.
- **Level 2: Contingency ECMO Care:** During COVID each potential ECMO candidate must be reviewed and ratified internally by a minimum of two ECMO team physicians.
- **Level 3: Crisis ECMO Care:** Threshold is 80% ECMO patient capacity in the county (COVID and Non-COVID ECMO)

Two-step process:

1. Each potential ECMO candidate must be reviewed and ratified internally by a minimum of two ECMO team physicians.
2. San Diego ECMO Consortium program coordinators will collaborate to review resource availability.

ECMO Exclusion Criteria for patients with COVID or high suspicion Rule-Out COVID

Table 10: Contingency Phase ECMO Exclusion Criteria

Absolute Contraindications	Relative Contraindications
-DNR -Contraindication to anticoagulation -Cirrhosis -Known pre-existing Heart Failure (EF <35%) -End-Stage Renal Disease on outpatient hemodialysis (AKI/ARF is not an exclusion criteria) ->2 Multiple Acute Organ Failure, excluding AKI/ARF	-Age > 65 -Known terminal disease/cancer, life expectancy <5 years (MRAS long term prognosis score of 2 or 3) (Table 3: <i>Mortality Risk Assessment</i>). -Known poor pre-hospital functional status/frailty -Devastating/major debilitating neurologic injury or significant dementia (FAST score stage 4 or >) (Table 6) -Known underlying lung disease that would compromise recovery or on home O2 -Shock requiring high vasopressor requirement, plus significant hypoxia -Ventilator dependence >10 days (because prognosis is worse with time on mechanical ventilation) -Expected poor prognosis following CPR -BMI > 35

Table 11: Crisis Phase ECMO Exclusion Criteria

- **No VA ECMO during this phase**

Absolute Contraindications	Relative Contraindications
-DNR -Known terminal disease/cancer, life expectancy <5 years (MRAS score of 2 or 3) -Contraindication to anticoagulation -Cirrhosis -Known pre-existing Heart Failure (EF <35%) -End-Stage Renal Disease on outpatient hemodialysis (AKI/ARF is not an exclusion criteria) -Ventilator dependence >10 days (because prognosis is worse with time on mechanical ventilation) ->1 Acute Organ Failure, excluding AKI/ARF -BMI > 30 -Known poor pre-hospital functional status/frailty	-Age > 60

-Devastating/major debilitating neurologic injury or significant dementia (FAST score stage 4 or >) -Known underlying lung disease that would compromise recover or on home O2 -Expected poor prognosis following CPR	
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ECMO Transfers from Outside Facilities:

- Conventional Phase
 - Usual internal standard of care.
- Contingency Phase:
 - Usual standard of care in collaboration with other ECMO centers to ensure adequacy of resources.
- Crisis Phase:
 - No transfers from outside facilities for ECMO
 - Exception for transfers within San Diego ECMO Consortium centers of appropriate ECMO candidates to centers with availability if referring site has reached capacity.

Determinants of Continued ECMO

- Conventional Phase
 - Usual internal standard of care.
- Contingency Phase:
 - All patients on ECMO will be reassessed every 24 hours for stability, signs of improvement, and survival probability.
 - Beyond 21 days of ECMO therapy, clear improvements must be evident in order to continue ECMO.
 - If the ECMO team determines that improvements are not evident, the patient's family must be notified that ECMO therapy is not medically effective and will be withdrawn.
 - If family is not in agreement to withdraw ECMO support, attending physician will obtain consult from the Triage Review Committee. The Triage Officer's role is to ensure ECMO guidelines for determining continued ECMO care were followed. Appeals contesting the allocation framework itself should not be considered.
- Crisis Phase:
 - All patients on ECMO will be reassessed every 24 hours for stability, signs of improvement, and survival probability.
 - Once placed on ECMO, a minimum of 10 days will be allotted to therapy if patient remains stable or is showing signs of improvement.
 - If current ECMO patient is assessed at 10 days and it is determined by ECMO team that patient is not improving or their chance of survival is low, and if there is another patient who is awaiting ECMO:
 1. An ad-hoc San Diego ECMO Consortium meeting will be called to discuss patient status and community resources.
 2. The Triage Review Committee, including risk and ethics, will be notified.
 - If after these two steps it is decided that ECMO will be withdrawn, the family will be notified.
 - If family is not in agreement to withdraw ECMO support, attending physician will obtain consult from the Triage Review Committee. The Triage Officer's role is to ensure ECMO guidelines for determining continued ECMO care were followed. Appeals contesting the allocation framework itself should not be considered.

DEFINITIONS:

N/A

ATTACHMENTS:

N/A

RELATED FORMS:

Guidelines and Policies Related/Referenced:

UCSDHP 801.3: University of California San Diego Health Emergency Operations Plan

RESOURCES/REFERENCES:

N/A

Table 12: The Sequential Organ Failure Assessment (SOFA) Score:

Table 1. The Sequential Organ Failure Assessment (SOFA) Score*

Variables	SOFA Score				
	0	1	2	3	4
Respiratory Pao ₂ /Fio ₂ , mm Hg	>400	≤400	≤300	≤200†	≤100†
Coagulation Platelets ×10 ³ /μL‡	>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 Hypotension	No hypotension	Mean arterial pressure <70 mm Hg	Dop ≤5 or dob (any dose)§	Dop >5, epi ≤0.1, or norepi ≤0.1§	Dop >15, epi >0.1, or norepi >0.1§
Central nervous system Glasgow Coma Score Scale	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

*Norepi indicates norepinephrine; Dob, dobutamine; Dop, dopamine; Epi, epinephrine; and Fio₂, fraction of inspired oxygen.

†Values are with respiratory support.

‡To convert bilirubin from mg/dL to μmol/L, multiply by 17.1.

§Adrenergic agents administered for at least 1 hour (doses given are in μg/kg per minute).

||To convert creatinine from mg/dL to μmol/L, multiply by 88.4.

Ferreira et al. Serial Evaluation of the SOFA Score to Predict Outcome in Critically Ill Patients. JAMA. 2001;286:1754-1758.

Table 13: FAST score – Stages of Dementia¹⁴:

Stages:	Clinical Function:	General Terms:
1	No difficulties	Normal
2	Subjective forgetfulness	Mild dementia
3	Decreased job functioning and Organizational capacity	Moderate dementia
4	Difficulty with complex tasks and Instrumental ADL's	Moderate dementia
5	Requires supervision of ADL's	Moderate – severe
6	Impaired ADL's with incontinence	Severe
7	Speech < 6 words, non-ambulatory, Unable to sit up without assistance	Severe - terminal

Table 14: Clinical Frailty Scale

Score	Description:
1 – Very Fit	People who are robust, active, energetic, and motivated. These people commonly exercise regularly. They are among the fittest for their age.
2 – Well	People who have no active disease symptoms but are less fit than category 1. Often, they exercise, or are very active occasionally
3 – Managing well	Medical problems are well controlled, but not regularly active beyond routine walking
4 – Vulnerable	Not dependent on others for daily help, but symptoms limit activities. Common complaints include being slowed up and/or tired during the day
5 – Mildly frail	More evident slowing; need help in high-order IADLs. Impairs shopping and walking outside the home, meal preparation, and housework.
6 – Moderately frail	Need help with all outside activities and keeping house. Often have problems with stairs, need help with bathing, may need minimal assistance with dressing.
7 – Severely frail	Completely dependent for personal care, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying within 6 months.
8 – Very severely frail	Completely dependent for personal care, approaching end of life. Typically, they could not recover even from a minor illness
9 – Terminally Ill	Approaching the end of life. This applies also to those with a life expectancy of < 6 months who are not otherwise evidently frail.

(McDowell, Xi, Lindsay, & Tuokko, 2004; Rockwood et al.,2005)

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