MODEL APPROACH TO ALLOCATION OF SCARCE CRITICAL CARE RESOURCES

EXECUTIVE SUMMARY

On 21 March 2020, the public health officer of the local Public Health Authority convened a dialogue of members of the Community Ethics League (an affiliation group comprised of members with clinical ethics responsibilities at regional medical centers). The goal of this undertaking was to develop a "regional approach to the difficult decisions that lie ahead" and an *ad hoc* task force was convened with the addition of critical care subject matter experts. Co-chairs of the task force (cf. below) here identified via consensus and established the following framing:

> *Given that health care organizations in our community are moving forward utilizing the Oregon Crisis Care Guidance and Northwest Healthcare Response Network to formulate a triage response while also committing to act as one unified health system, there is a need to determine how this will be consistently operationalized across our health systems. A Crisis Care Community Ethics Task Force has been tasked with synthesizing triage principles and practice in these documents, and in reference to other seminal sources and institutional approaches that are in development as appropriate, for use across health systems in our community. With the caveat that the Task Force must operate for the most part within the parameters of these aforementioned documents (OR Crisis Care Guidance & NWHCR Scarce Resource Triage Guidelines) to ensure a shared ethical and community foundation, the Task Force will produce a streamlined, 1-2 page distillation aimed at summary adoption and use once triage stage has been determined.*

The deliverable shall:

i. **synthesize the best available clinical information and approaches** to the COVID-19 pandemic (i.e., prognostic information) by drawing upon existing ethical frameworks and other sources of ethical justification for resource allocation;

ii. **address a primary concern about existing triage documents, including those referenced above, that include elements which depend on the personal judgment of a treating provider**, including how prognosis is assessed and functional status is considered, that may introduce undue implicit bias and subjectivity into the process;

iii. **be specific to the communities and health care organizations in Oregon and SW Washington**, specifically the region of the tri-county area; and

iv. **offer simple and useful instructions for triage teams when operationalized** to inform rapid, real-time triage decision-making for the allocation of scarce critical care resources including both escalation and de-escalation of certain forms of treatment

The task force has consisted of representatives from major hospitals and health systems in the state including Adventist, Kaiser, Legacy, OHSU, PeaceHealth, Providence, Salem Health, and VA. Membership has been comprised largely of pulmonary critical care physicians and those with clinical ethics responsibilities and also those with experience in public health, diversity/equity/inclusion, social work, pediatrics, palliative care, and patient advocacy. The task force has been led by co-chairs Molly Osborne M.D., Ph.D. – pulmonary care physician by training and integrated ethics officer at the VA – and Kevin Dirksen M.Div., M.Sc., HEC-C – fellowship-trained and certified clinical ethicist at Providence.

In addition to 15 task force meetings held virtually since mid-March, task force members have also sent drafts of the deliverable (henceforth 'model') to local public health advisory committees, engaged directly with Disability Rights Oregon, Multnomah County's Public Health Advisory Board, an *ad hoc* group on health disparities, the Collegium of The Foundation for Medical Excellence, leadership of the OHSU Center for Ethics in Health Care, the OHA Health Equity Committee, and participated in an interview on an episode of OPB's Think Out Loud on April 20th. Drafts of the model have been shared to hospitals around the state, professional societies, agencies, and an elected representative (Sen. Sara Gelser). A period for comment was held from late June to mid-July with use of a temporary email address (crisiscareethicstaskforce@gmail.com) to collect responses for this specific purpose.

To date, the task force has closely tracked relevant published literature and seminal sources with the primary aim of identifying a shared approach among clinicians and health systems in the community for allocating scarce resources during a crisis care situation in the COVID-19 pandemic. Consistent with established norms in health care ethics, the model should be considered as a recommendation to hospitals: a suggested approach, but not mandated, since this would be outside the scope and authority of a grassroots ethics task force. Ideally, the work of the task force as represented in the model should be reviewed at a statewide crisis care summit to consider scarce resource allocation not only in critical care but regarding limited pharmaceuticals, vaccines, and other outstanding public health ethics questions that have emerged during the global pandemic.

Summary of key changes:

- significant nondiscrimination protections, reasonable accommodations, clearly prohibits consideration of "quality of life" in resource allocation decisions
- comorbidities table eliminated due to concerns of violating federal civil rights law (cf. US Dept. of HHS, Office of Civil Rights bulletin dated March 2020)
- on recommendation of Disability Rights Oregon in their letter to the task force dated 10 June 2020, near-term survival was revised to mean prognosis of 6 months or less
- increased weight to hospital survival as a more effective means of "saving the most lives" and focusing on survivability
- revised tiebreaker after discussion with community partners
- added language about underlying structural inequalities and justice given discussion with community partners
- strengthened language around triage team training in implicit bias and assigning bias monitoring and accountability
- added a pause amidst scoring process for *inter alia* identifying and reducing bias
- updated process for confirming patient preferences with dialogue from OHSU Center for Ethics in Health Care
- summarized the work of the task force since its establishment in mid-March 2020

A MODEL APPROACH TO ALLOCATION OF SCARCE RESOURCES IN CRISIS CARE

Adapted with Oregon Crisis Care Guidance, 2018 | 2020.08.28

OVERVIEW. This is a model approach to the allocation of scarce resources in the setting of the COVID-19 pandemic if and when a surge of patients overwhelms capacity. What follows articulates *crisis standards of care*, including *triage decision-making*, for use in the COVID-19 pandemic. It was developed through an iterative and collaborative effort by clinicians, ethicists, and public health leaders, and others based on the Oregon Crisis Care Guidance (including input from the Oregon Crisis Care Guidance Ethics Workgroup), Washington State Scarce Resource Management and Crisis Standards of Care, and National Academy of Medicine guidance. This model is intended to provide a consistent approach for local health care systems to use should critical care resource allocation be required.

Crisis capacity is defined as adaptive spaces, staff and supplies not consistent with usual standards of care but providing sufficiency of care. CONTINGENT and CRISIS capacity activation may constitute a significant adjustment to conventional standards of care. Relevant ethical principles including respect, fairness, duty to care, duty to steward resources, transparency, consistency, proportionality, and accountability are referenced in the foundational documents cited below.

GOAL OF RESOURCE ALLOCATION. The overarching goal of triage decision-making is *to maximize the number of lives saved*. That a person is less likely to survive may be the result of profound health inequities and systems that fail to provide the resources needed to those in greatest need; this implies a grave moral injustice. While it is impossible to erase the devastating health effects of pervasive structural inequalities in our society during triage decision-making, those who have historically suffered discrimination should not be discriminated against further, the marginalized should not be further marginalized, and the community should be accountable for holding to values of social solidarity, justice, and the common good.

CONTINGENT STAGE. Before moving from usual standards of care to crisis capacity activation, a contingent stage initiates measures to prepare for crisis capacity. Many systems, while not yet overwhelmed, may be operating at this inflection point marked by bed census at or near capacity and critical care resources approaching capacity with an imminent surge expected. Surge capacity measures in this stage may include expanding telehealth, discharging patients not requiring acute inpatient care, preparing staff to serve in alternate duties, and deferring non-urgent surgeries. Collaboration between hospitals is essential in order to ensure that patients are transferred to facilities with available resources rather than resorting to allocation of limited critical care resources if it is not necessary.

CRISIS STAGE. In the crisis stage, systems are overwhelmed despite surge capacity measures. Instead of facilities operating in isolation, a shared decision in collaboration with the CMOs of community hospitals, county and state public health, and the Governor's Office as to when the community will enter CRISIS stage as one unified health system is recommended. Then, *teams**** separate from the primary clinical care teams (to mitigate influences of implicit and explicit bias) would address scarce resource allocation (SRA) for critical care in collaboration with the incident command structure(s). Those operating within the SRA structure (i) should be guided by values of consistency, transparency, and compassion; (ii) engage with patients and loved ones in culturally-appropriate manners; and (iii) provide reasonable accommodations to individuals with disabilities.

* Scarce Resource Allocation (SRA) team (facility-specific) – considers a cross-institutional framework, guides transition into and implements

CRISIS triage protocol, oversees operations and tertiary triage, considers appeals, mitigates moral distress
>
> *Membership could include team leader, logistics/operations, critical care, nursing, emergency department, ethics, diversity/equity/ inclusion representative, infectious disease, palliative care, social work, and/or chaplain.*
>
> *Some institutions may situate this team within existing command center structures.*

* Triage team (person-specific) – functions under a SRA team to implement triage protocol by gathering clinical data, completing scoring, making triage decisions with priority scoring, directing clinical teams
>
> *Membership could include team leader, critical care, nursing, logistics/operations, and others.*
>
> [* The size and resources of a given facility will inform team staffing decisions on these teams including practical considerations such as ensuring continuity across shift changes. Triage teams should be trained in implicit bias and be reflective of the community being served. A member should be specifically tasked with monitoring and holding team members accountable for bias. Use of a pause for clinical consistency and bias is recommended as an attempt to decrease the likelihood of undue subjectivity, discrimination, or clinical incoherence from compromising allocation decisions.]

Each institution is to develop its own *triage team protocol* using objective measures to assess likelihood of survivability. Survivability should be determined based upon survival to hospital discharge. If two or more patients have an equal likelihood of surviving the hospitalization, then six month survival (or hospice eligibility) should be considered. If two or more patients have an equal likelihood of surviving the hospitalization and the next six months, then application of a tie-breaker (life-cycle principle / randomization).

Importantly, to protect against discrimination, the triage team protocol would NOT be based on morally or scientifically irrelevant considerations such as socio-economic status, race/ethnicity, gender identity, sexual orientation, national origin, immigration status, faith orientation, parental status, ability to pay, insurance coverage, disability, or age. Instead, the best available medical information will be used to assess the potential to benefit from scarce resources in terms of likelihood of survival. Quality of life judgments have no place in triage decisions. Rather, these decisions should be based on objective medical evidence of overall physiological profile (i.e., not diagnosis alone). Triage teams should not reallocate ventilators for patients dependent on mechanical ventilation at baseline due to an underlying health state.

The model for conducting these assessments is detailed further in the COVID-19 Pandemic: Model Crisis Triage Tool (next page), which is intended to assist triage teams (as an example) in using clinical data to inform an allocation decision on the basis of survivability. (An example flowsheet to aid decision-making is also included.) An objective assessment that a given patient has a very low likelihood of survival even with critical care may result in admission to a more appropriate care setting, ensuring the patient has access to the best palliative care available. For other patients who have a better chance of survival, that may receive critical care where resources permit.

ALIGNMENT WITH PATIENT PREFERENCES. Goals of care conversations should start immediately, carefully outlining likely ICU scenarios with all patients with significant comorbidities such as diabetes, heart disease, and chronic kidney disease discussing likely long-term ventilator requirements and prognosis.

REFERENCES
1. NAM/IOM. 2012. Crisis standards of care: A systems framework for catastrophic disaster response.
2. Oregon Crisis Care Guidance. 2018. www.theoma.org/crisiscare.
3. WA State Dept of Health / NW Healthcare Response Network. 2020. Scarce Resource Mgmt & Crisis Standards of Care.
4. VITALtalk. 2020. COVID-Ready Communication Skills, www.vitaltalk.org/guides/covid-19-communication-skills/.
5. While the primary source documents for this approach are the Oregon Crisis Care Guidance and the NW Health Care Response Network / Washington State Dept. of Health materials, additional insight was found in D. White and B. Lo, "A Framework for Rationing Ventilators and Critical Care Beds During the COVID-19 Pandemic," JAMA, March 27, 2020. See the updated model policy by the authors here.

COVID-19 Pandemic: Model Crisis Triage Tool
Adapted with Oregon Crisis Care Guidance, 2018 | 2020.08.28

For use by local teams only during a surge when crisis standards of care apply. Intended to inform community crisis standards of care for triage decision-making. This tool is not meant to replace clinical judgment but rather to promote individualized assessments of prognosis based on overall physiological profile given best available, objective medical evidence.

STEP 1: Screen all patients with same criteria

All patients are eligible to receive critical care based on likelihood of survival and a priority assignment based on potential to benefit from critical care. No one will be categorically excluded due to any underlying condition or demographics. The right to refuse unwanted medical treatment will be respected even in a time of a pandemic and resource scarcity.

Attending provider and the treating team assess decision-making capacity, confirm patient preferences, review advance care planning materials, engage a surrogate decision-maker when necessary, and communicate a patient's status to the triage team.

Do expressed preferences align with critical care?

YES ⟶ Assess need for critical care, move to Step 2

NO ⟶ Voluntarily declines critical care; further goals of care discussion may be needed to determine appropriate medical care

STEP 2: Candidacy for Critical Care in Crisis

Care team assesses patients with the same clinical ICU admission criteria

A. Patients must meet at least ONE of the following inclusion criteria:
  1. **Need for ventilatory support** (invasive or non-invasive)
     i. Clinical evidence of impending respiratory failure
        - Refractory hypoxemia (Sp02 < 90% on FiO2 > 0.85)
        - Respiratory acidosis (pH < 7.2)
     ii. Inability to protect or maintain airway
  2. **Hypotension** (SBP <90) secondary to either an acute medical or trauma condition, with **clinical evidence of shock** refractory to volume resuscitation that cannot be managed outside of a critical care setting
  3. **High risk of preventable death** from other causes: patient expected to benefit substantially from timely critical care services. E.g.: hemodynamically unstable, reversible arrhythmia; diabetic ketoacidosis; status epilepticus; life-threatening illness from toxins or sepsis; hypoglycemia; or illness of similar severity

B. Will the patient benefit from critical care? Calculate triage score:
  1. **Prognosis for hospital survival**: degree of organ dysfunction ideally as measured or informed by, for example, the mSOFA, SOFA, MGAP for trauma patients, or age-appropriate prognostic tool (e.g., PELOD-2 for children; SNAPPE-II for full term neonates; and NICHD-OT for preterm neonates); also consider:
     i. Clinical signs indicating patient is imminently dying
     ii. Cardiac arrest if recurrent, due to blunt trauma, initial asystole, or no ROSC after initial interventions
     iii. Severe acute trauma (e.g., non-survivable head injury, severe burns)
  2. **Prognosis for near-term survival**: consideration to current epidemiology, underlying ilness(es) / comorbidities, overall physiological profile, and their effect on life-expectancy should guide an individualized assessment of six-month prognosis (e.g., a patient that has a prognosis of 6 months or less has a poor prognosis for near-term survival).
  3. **Response to current treatment**

C. PAUSE: Review scoring for biases and clinical consistency; encourage participation of the multidisciplinary team, ethics consultants, and others as possible:
  1. **Identify biases**: Slow down, take perspective, speak-up, individuate findings.
  2. **Assess scoring**: Does the score correlate with the clinical presentation of the patient? Adjust score as needed.

D. Confirm and communicate triage score (to be considered for prioritization in Step 3). See table to right.

TRIAGE FOR CRITICAL CARE SCORING GUIDE (EXAMPLE)

Notes

Points assigned according to patient's prognosis for hospital survival (score 1 to 5 points) and whether a patient has a prognosis of 6 months or less.

Triage scoring decisions are not permanent; re-evaluation may change score.

If two or more patients have the same triage score for prognosis for hospital survival, prognosis for near-term survival should be considered. A patient that is predicted to survive more than six months has a higher likelihood to benefit from critical care.

Prognosis for Hospital Survival*	
> 80% predicted survival *or* mSOFA < 6	1 pt
60 - 80% predicted surivival *or* mSOFA 6-9	2 pts
40-60% predicted survival *or* mSOFA 10-12	3 pts
20-40% predicted survival *or* mSOFA >12	4 pts
< 20% or actively dying	5 pts

* When a scoring system is utilized to assess prognosis for hospital survival, scores should be calculated in a clinically appropriate manner with due attention to and correction for notable limitations. Clinicians using Glasgow Coma Scale should be aware of and correct for a particular score may be inaccurate witgohut considering a patient's communication abilities at baseline and consider racial differences in glomerular filtration rate in interpreting renal function scores.

PAUSE: Review Scoring for Biases & Clinical Consistency

Identify biases
Mindfully slow down, take perspective(s), speak-up, individuate findings

Assess scoring
Does the score correlate with the clinical presentation of the patient? Adjust score as needed.

Is the patient a candidate for critical care?

YES ⟶ Move to Step 3; supply *score* and *Yes* or *No* re: ≤6mon. prognosis

NO ⟶ Admit to floor ·····▶ Inform decision-maker critical care is not needed at this time

STEP 3: Capacity & Allocation of Critical Care Resources

A. Are critical care resources available for the patient(s)? Triage team reviews existing resource availability from the command center.

B. Allocation & reallocation of critical care: Pathway depends on whether 2 (or more) patients are candidates for critical care at presentation or re-evaluation. The triage team
  1. Evaluates all patients from Step 2. Prioritze according to the following:
     i. **Prognosis for Hospital Survival**: Patients with a lower score will get priority.
     ii. **Six-Month Prognosis**: Patients who do not have a prognosis of 6 months or less get priority among those who have equal prognoses for hospital survival.
  2. Considers the **scope and magnitude of resources needed** (excluding cost) to care for the patient compared to the scarcity of those resources.
  3. In case of a priority tie (equipoise), options include:
     i. **Life-Cycle Principle**: prioritize patients who are in an earlier life stage (e.g., childhood, adolescence, young adulthood, middle adulthood, older adulthood);**
     ii. **Randomization**: if necessary, randomize patients with a valid, blinded tool.
  ** Use of this principle is not meant to distinguish between subtle differences (e.g., 55 and 58 years of age), which would instead require randomization to break the tie.

A. Are critical care resources available for the patient?
B. Determine which pathway is appropriate for which patient?

For purposes of this triage tool, there are 2 general pathways: I. immediate ICU pathway and II. pending ICU pathway.

I. **Immediate ICU Pathway**: If there are available critical care resources, **transfer to ICU** as soon as possible for trial of intensive care. *If no critical care resources are avaialble, then determine whether there is a compelling reason to reallocate critical care resources based on re-evaluation of other patients (Step 4 #1 below). Do not reallocate ventilators for patients dependent on mechanical ventilation due to an underlying health conditions.*

II. **Pending ICU Pathway**: If there is NOT a compelling reason to reallocate, or if one patient has higher priority than another but both are candidates for critical care, **admit the lower priority patient to the floor and initiate temporizing measures**, place patient on ICU waitlist.

STEP 4: Continuous Monitoring & Re-evaluation

Triage decision-making occurs only during a surge when need outstrips capacity and there is no option for transfer. The following steps should be taken by a Triage Team on a predetermined schedule and in coordination with local public health officials.
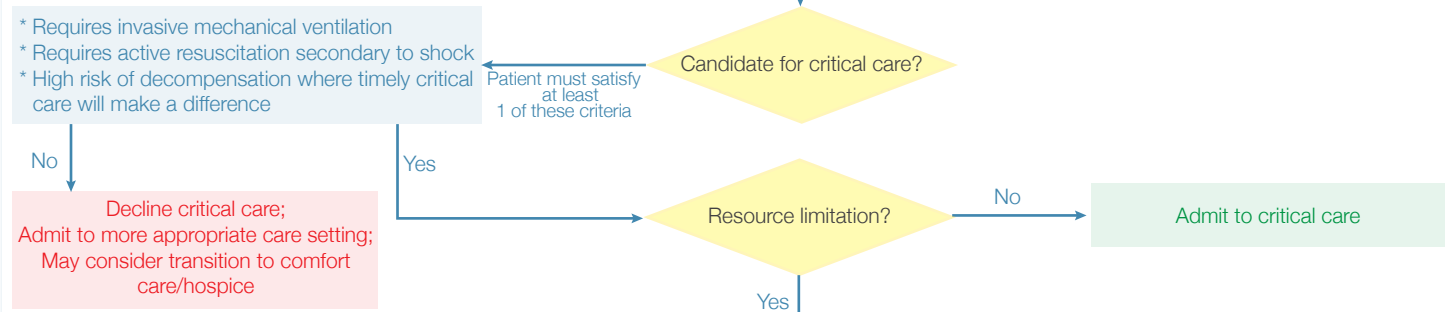
1. Monitor patients in ICU and on ICU waitlist(s) (e.g., daily) for relevant changes (e.g., improving, unchanged, or worsening). Based on re-evaluation, adjust treatment pathways as needed commensurate with needs of the community. *If there is a compelling reason, transfer to ICU and de-escalate treatment for the other patient who was in ICU. De-escalation may mean: (1) admit to the floor and initiate temporizing measures, place patient on ICU waitlist; or (2) admit to the floor and consider transition to comfort care / hospice if clinically appropriate.*
2. Assess any new epidemiological and prognostic data for COVID-19.
3. Escalate process issues to the command center or appropriate body.
4. Facilitate an appeals process for cases when a triage decision is in dispute.
5. Track triage decision-making for continuous quality improvement efforts.

COVID-19 Pandemic: Model Crisis Triage Algorithm

STEP 1: Screen all patients with same criteria: *Attending Provider & Treating Team*

Review POLST, Advance Directive, and confirm treatment preferences → **Critical care fit preferences?**

No → Decline critical care; consider transition to comfort care/hospice

Yes ↓

STEP 2: Candidacy for critical care: *Attending Provider & Treating Team*

* Requires invasive mechanical ventilation
* Requires active resuscitation secondary to shock
* High risk of decompensation where timely critical care will make a difference

Candidate for critical care? — Patient must satisfy at least 1 of these criteria

No → Decline critical care; Admit to more appropriate care setting; May consider transition to comfort care/hospice

Yes ↓

Resource limitation?

No → Admit to critical care

Yes ↓

Evaluate prognosis for hospital- and near-term survival

Prognosis for Hospital Survival

> 80% predicted survival *or* mSOFA < 6	1 pt
60-80% predicted survival *or* mSOFA 6-9	2 pts
40-60% predicted survival *or* mSOFA 10-12	3 pts
20-40% predicted survival *or* mSOFA >12	4 pts
< 20% predicted survival / actively dying	5 pts

PAUSE

Identify biases

Mindfully slow down...

Take perspective(s), including patient's...

All care providers should be free to speak-up...

Individuate clinical findings...

Assess Scoring

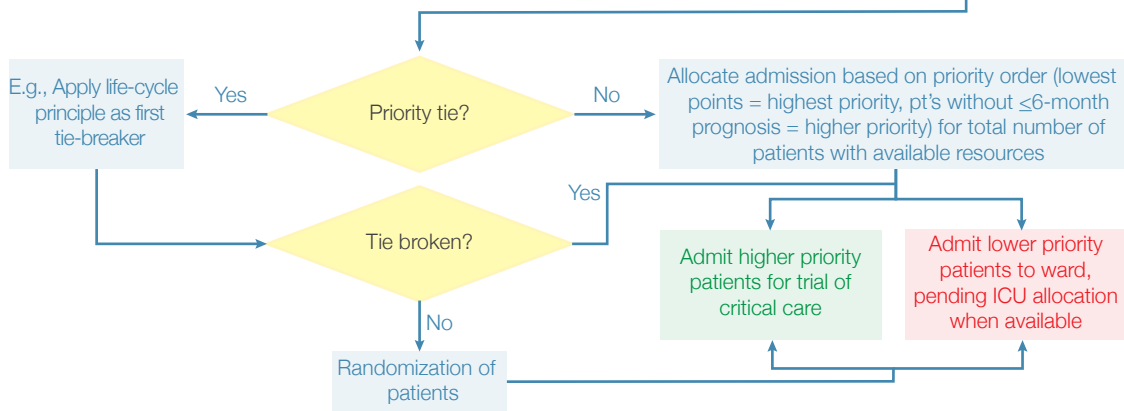Does the score fit the clinical presentation of the patient?
If there is a discrepancy between prognostic quintile (left) and clinical presentation, obtain a second medical opinion. Second opinion can be done remotely (chart review) or bedside, depending on urgency and resources available.
Adjust patient's prognostic quintile accordingly.

TOTAL SCORE:

_____

Overall near-term survival ≤6 mon.? Y/N

Deliver information to Triage Team

STEP 3: Capacity & Allocation of Critical Care Resources: *Triage Team*

Priority tie?

No → Allocate admission based on priority order (lowest points = highest priority, pt's without ≤6-month prognosis = higher priority) for total number of patients with available resources

Yes → E.g., Apply life-cycle principle as first tie-breaker

Tie broken?

Yes → Admit higher priority patients for trial of critical care / Admit lower priority patients to ward, pending ICU allocation when available

No → Randomization of patients

STEP 4: Continuous Monitoring & Re-evaluation: *Triage Team*

Re-evaluate or as resources become available

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