Cases Studies in Triage
adapted from the Oregon Critical Care Guideline

Recommend triage team members gathered in person or remotely during the same time interval, review case histories and independently record their resource allocation decisions for each patient presented. Triage Teams then compare their conclusions and discuss the basis for their decisions. The purpose of this exercise is to practice using the recommended Adult and Pediatric Critical Care Triage Algorithms and:

1. Explore how the team might work together on future referrals to their Triage Team during Crisis Standards of Care allocate scarce resources, and
2. Explore how the Triage Algorithms can be used, and to outline which specific aspects of the Triage Model led to each triage decision.

The scenario presented is merely an example to get started using the algorithms, it may not directly align with the Crisis your team is facing.

It is essential that members of the Triage Team have only one role (ex: Clinician or Ethicist, not both) and that none of the Triage Team members are providing direct care for the patients presented during the time frame making decisions on the Triage Team.

Scenario

Over the course of a five week period a viral respiratory pandemic has infected 20% of the population in your area. Predictive modeling estimates that the number of cases will double over the course of the next two weeks. 5% of patients are developing respiratory failure requiring Critical Care, and despite best efforts to create contingency capacity, your hospital is currently at 95% of contingency capacity for ICU beds, ventilators, and over capacity for staff.

The Governor declares a disaster and after consultation with area hospital COO and CMOs, the Public Health Director activates Crisis Care Guidelines. Critical care capacity is overwhelmed by the number of critically ill patients presenting for care, and it is not possible to transfer to unaffected facilities.

Patients to Be Triaged: Group 1

You are serving as Triage Officer. There are currently two ICU beds available. You are evaluating the following patients:

Patient A is a 54 yo female with hypercholesterolemia marginally controlled on simvastatin, a 35 pack-year smoking history, and hypertension controlled on lisinopril. She was carrying out her usual duties as charge nurse in your hospital when she developed new onset, sub-ternal chest pain radiating to her jaw, and mild dyspnea. EKG shows sinus tachycardia with ST elevations in the anterior leads. SBP is 160. She has no history of trauma.

Patient B is a 42 yo female undergoing chemotherapy for breast cancer with multiple distant metastases. She presents with severe respiratory distress with hypoxia and
fever. Breath sounds are audible on the left but not on the right. O₂ sat by pulse oximetry on non-rebreather mask is 82%.

Patient C is a 19 yo male with mild developmental delay secondary to trisomy 21. He has no known manifestations of chronic disease, but presents with closed head trauma during a motor vehicle accident. He is lethargic, opens his eyes and withdraws in response to pain, but is non-verbal. Temperature is 97.8, BP is 80/50, pulse 120 and faint. Capillary refill is >4 seconds. PRBC supplies are low (2 compatible units available, platelets are currently unavailable.

Patient D is the 22 yo sister of pt. C. She has an unremarkable past medical history, and was in the same motor vehicle accident as her brother. She also has sustained head trauma with skull fracture. She is unconscious and unresponsive to pain stimulus, with a skull fracture through which brain tissue is extruding. There is no neurosurgeon currently available due to respiratory illness and fever affecting the entire department.

How would you triage these patients? Which would you refer for ICU admission? What is the basis for your triage decision in each patient?

Patients to Be Triaged: Group 2
Five days later, you are on Triage duty again. After a three-day lull, there is an upsurge in the number of people presenting for care. You do not currently have access to blood chemistry analysis because the lab is down. Critical care beds and available hospital beds are all full and area hospitals are also full despite expanding additional critical care capacity into ORs and converting floors to ICUs. The health department is setting up a field hospital and has requested ventilators from the Strategic National Stockpile and staff from the Military Medical Reserve Corps, but neither equipment or staff have arrived.

You are evaluating the following patients:

Patient E is a 78 yo male with R knee osteoarthritis and a functioning pacemaker secondary to history of 3rd degree heart block. His past medical history is otherwise unremarkable. He has been active and well prior to this illness. He presents with productive cough and fever of 102, rigors, and decreased level of consciousness with confusion, onset 12 hours ago. He is anicteric, opens his eyes only with painful stimuli, utters recognizable but inappropriate words, and has purposeful movement in response to pain. His family reports that he has not voided in the past 15 hours. MSOFA score is 10

Patient F is an 18 month old female with a progressive congenital neurologic disorder which causes seizures. She is stable at home and seizures are otherwise well controlled with 3 antiepileptics and she is Gtube dependent. She now presents with respiratory distress and fever. Her parents report that, until this morning, she has been interacting at her usual happy baseline. She is now alert but irritable, Blood pressure is 126/80 (>99th percentile for age), temperature is 102 and respiratory rate is 60, she is not currently hypoxic.

Patient G is a 62 yo male with diabetes marginally controlled on metformin and glipizide. He presents with 1 ½ hrs. of dyspnea and nausea. He denies chest pain, but is mildly bradycardic at 56 bpm, with ST depression in lead I and apparent ST elevation in leads II, III, and AVF. He is normotensive; O₂ sat. is 94% on 2 L/min. by mask. MSOFA is 1.
Patient H is a 45 yo female in cardiac arrest. She was brought to the hospital with CPR in progress by EMTs who were called by her boyfriend. She has asthma and history of IVDU and her boyfriend reports finding her in their apartment kitchen surrounded by empty bottles of opiates. She transiently regained a perfusing rhythm but is currently in asystole. MSOFA is 12.

Currently, the following patients are in the ICU, and you re-evaluate them:

Patient I is a 55 yo male admitted with hypoxia, hematemesis and hypotension. Past medical history notable for diabetes, cirrhosis and a prior episode of hematemesis from varices related to his hemochromatosis. He also has chronic angina, which is reasonably controlled on a beta blocker and p.r.n. nitroglycerin. Over the past two days, his urine output has decreased (now ~150cc/24 hrs.) A urine dipstick shows no protein, and urine sediment is unremarkable. He is unconscious but responds to painful stimuli by withdrawal. MSOFA score has increased from 8 at admission to 12.

Patient J is a 15 yo female, admitted two days ago with respiratory viral-like illness, fever to 104, obtundation, and respiratory failure. She remains on a ventilator with settings of CMV 30/15, RR 25, FiO₂ 70% (weaned from 100% in the last 24h). Her O₂ sat is 90%. Vasopressors for circulatory support were initiated at admission, but were weaned off this morning. Team plans to wean sedation today; sedation holidays reveal intact neurological exam. Tracheal tube secretions are increased, but remain clear. Patient is well-perfused; urine output is 2ml/kg/hr.

Patient K is a 53 yo male with diabetes, he was admitted with sepsis 9 days ago secondary to septic shock and polymicrobial osteomyelitis involving several metatarsal bones in the R foot. After debridement and partial amputation of the foot, he developed necrotizing fasciitis, now with extension to the psoas. He underwent aggressive debridement two days ago, and continues on appropriate antibiotic therapy, but has not regained consciousness. He is intubated and on maximal levels of a single pressor. His MSOFA has risen from 8 to 11 in the past 24 hrs.

Patient L is a 61 yo male with COPD admitted two days before the earthquake with respiratory failure secondary to pneumococcal pneumonia. His baseline PaO₂ is 50 mm Hg on room air and FEV₁ is 20% of predicted, and he has had multiple hospitalizations in the past year with COPD exacerbation, each requiring intubation. WBC on admission was 4,500/uL. Two attempts to wean off the ventilator have been unsuccessful. Current settings are CMV Vt 8ml/kg, RR 18, FIO₂ 0.7, PEEP 8. He has been very restless and is sedated and paralyzed. Urine output is within normal limits and he is not requiring pressors and is not jaundiced. MSOFA cannot be calculated due to induced paralysis.

- Which newly presenting patients meet inclusion and exclusion criteria?
- How would you triage them?
- Should any of the patients you re-assessed be referred to a less aggressive level of care outside the ICU?
- Which parts of the Triage Model are the basis for your triage decisions?