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HARD CALL™
A substantial change in usual healthcare operations and the level of care it is possible to deliver, which is made necessary by a pervasive (e.g., pandemic influenza) or catastrophic (e.g., earthquake, hurricane) disaster.
“Standard of Care”

• Legal and ethical obligation is to perform to highest standard a reasonable practitioner can achieve under given circumstances

  • Disaster circumstances ≠ normal routine

• It can be impossible to attain usual levels of quality/operations when resources unavailable

  • Joint Commission: aim is “graceful degradation”

“Ethical norms in medical care do not change during disasters – health care professionals are always obligated to provide the best care they reasonably can under given circumstances”

- IOM CSC Report 2009
## Major Disasters Since 2009

<table>
<thead>
<tr>
<th>Event</th>
<th>Location</th>
<th>Date</th>
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<tbody>
<tr>
<td>H1N1</td>
<td></td>
<td>Fall 2009</td>
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<tr>
<td>Haiti Earthquake</td>
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<td>Jan 2010</td>
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<td>Joplin, MO Tornado</td>
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<td>May 2011</td>
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<td>NY/NJ Superstorm Sandy</td>
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<td>Sept 2012</td>
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<td>West Africa Ebola</td>
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<td>2014/15</td>
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<td>Houston, TX Hurricane Harvey</td>
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<td>August 2017</td>
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<td>Puerto Rico Hurricane Maria</td>
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<td>September 2017</td>
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<tr>
<td>California Wildfires</td>
<td></td>
<td>2018</td>
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Slide from Dan Hanfling, MD  
NASEM CSC Workshop, November 2019
Most estimates put the fatality rate below 3%, and the number of transmissions between 2 and 4.
COVID-19 Specific Triage Guidance

A Framework for Rationing Ventilators and Critical Care During the COVID-19 Pandemic

Perspective

Robert D. Truog, M.D., Christine Mitchell, R.N., and George Q. Daley, M.D.

THE COVID-19 PANDEMIC HAS LED TO CRITICAL SHORTAGES OF ESSENTIAL GOODS AND SERVICES, FROM HAND SANITIZER TO MEDICINE AND VENTILATORS. ALTHOUGH RATIONING AND THE ALLOCATION OF CRITICAL RESOURCES ARE OFTEN AMBIGUOUS, THEY ARE ESSENTIAL TO SAVING LIVES AND MMAXIMIZING THE BENEFITS OF THE MEDICAL SYSTEM. ONE OF THE MOST COMMON QUESTIONS IS HOW TO ALLOCATE LIMTED VENTILATORS.

Robert D. Truog, M.D.

Ezekiel J. Emanuel, M.D., Ph.D., Govind Persad, John L. Hick, MD, Hennepin Healthcare and University of Minnesota; Dan Hanfling, MD, In-Q-Tel; Matthew K. Wynia, MD, University of Colorado; and Andrew T. Pavia, MD, University of Utah

March 5, 2020

Disclaimer: The views expressed in this paper are those of the authors and not necessarily of the authors' organizations, the National Academy of Medicine (NAM), or the National Academies of Sciences, Engineering, and Medicine (the National Academies). This paper is intended to inform and stimulate discussion. It is not a product of the NAM or the National Academies.
IF YOU HAVE COVID-19 AND NEED A VENTILATOR, IT’S REALLY BAD.
Rules for rationing in crises

Yes, greatest good for the greatest number, but...

- Save the most lives
- Save the most *life-years*
- Save the most *productive/quality* life years
- Women and children first
- First come, first served
- Market-based
- Protect the most vulnerable
- Maintain social order
- Minimize economic impact

Aim is “to provide the best care for the most patients, and to do so in ways that sustain social cohesion, trust in our health care system, and our ability as a community to come together and heal in the wake of the crisis.”
The Duty to Plan

Figure 1: Demand for healthcare services and supply of resources as a function of time after disaster onset, taking into account care capacity as a function of time (Hanfling, Aleti Vogt, Viswanathan, & Gostin, 2012, pp. 42)
If you try to improvise a plan...

• **Cognitive stress** reduces problem-solving ability by up to 80%
  • Task lock – default to familiar rather than adaptive strategies
  • Panic – jumping to extreme triage when not warranted
  • Paralysis – delay reporting or making decisions, particularly if authority unclear

• **Delays** in mobilizing resources vs. rapid mutual aid

• **Liability** – there is a *duty to plan* for recognized hazards

Slide adapted from John Hick, MD
“Triggers” - Drawing Lines in a Granular World

- **Capacity (operational quality)**
  - **Supplies**
    - Conservation/use of alt. meds
    - Emergency stockpiles accessed
    - Reuse of critical supplies authorized
    - Triage protocols activated
  - **Space**
    - All usual beds full/Elective discharges
    - All in-place/reserve beds activated and filled
    - All facility areas (hallways, etc) in use and filled
    - Generally unsafe to be on site
  - **Staffing**
    - Reserve staff needed
    - External staff needed
    - Staff must perform atypical tasks
    - Lay volunteers must perform key aspects of care
  - **Resources**
    - No supplies available
    - Infrastructure destroyed
    - No staff available

- **Usual Ops** - Usual Quality
  - Minimal/transient degraded quality

- **“Contingency Ops”**
  - Modest/brief degraded quality

- **“Crisis Ops”**
  - Significant/ongoing degraded quality

- **Catastrophic failure**
  - No care possible
The Principle of Proportionality

People charged with performing triage should not restrict access to care for any given individual more than is absolutely required by the situation.

Individuals needs and available supply of resources are constantly evolving – which means that **doing triage ethically requires:**
- repeated assessments
- excellent situational awareness
Hurricane Katrina
Colorado Crisis Standards of Care Triage Framework for Scarce Resources

Tier 1: Physiology Score (likelihood of benefit)

If tied...

Tier 2: Children / HCW / First responders

If tied...

Tier 3: Pregnancy / Single caregiver / Years of life saved

If tied...

Tier 4: Random allocation

Critical Care Resource
How people often talk about it

- 36M, 1 organ failure, type 1 DM
- 78F, hypoxic and AKI, metastatic breast CA
- 48F, RN, hypoxic, AKI, low BP, no comorbidities
- 26F, single mother, hypoxic, morbid obesity, uncontrolled DM

Slide courtesy of Anuj Mehta, MD
Operationally, what really happens...

- **26F, single mother, hypoxic, morbid obesity, uncontrolled DM,***
- **78F, hypoxic and AKI, metastatic breast CA***
- **48F, RN, hypoxic, AKI, low BP, no comorbidities***
- **36M, 1 organ failure, type 1 DM***

**Triage Score Cutoff Set**

Slide courtesy of Anuj Mehta, MD
Why Triage Teams?

• Bedside teams have ethical and legal obligation to serve as advocates for their patients

• Bedside teams will not have the necessary broad and deep situational awareness

• Need to avoid unintentionally biasing information in the decision – blinded review by an independent team

• Bottom line: triage teams ensure integrity in the decision process
Scoring System Issues

• SOFA widely-used, but also wide agreement it is imperfect
  • E.g., “non-testable” GCS, use of dobutamine and nor-epi, not great performance with 2009 pandemic flu...
  • Still probably better, on average, than individual judgment

• Charlson Comorbidity Index also imperfect

• Palliative Performance Score also imperfect

• None include D-dimer, LDH other known risks for death

• Need a score with better predictive accuracy, tailored to disease processes, including COVID-19
People with Disabilities, Minorities, Elderly...

• A *perfectly accurate* predictive score could disproportionately remove some groups from ventilators because they are less likely to survive...
  • E.g., due to higher frequency and severity of comorbidities
  • When these are a result of underlying and historic, economic, education, housing and other deficits and stressors... this is a *structural* disparity

• What can we do?
  • Transparency and inclusion in process
  • Clear statements about our values:
    • Every life is of equal worth,
    • No person on chronic stable vent support will have it removed
    • No categorical (e.g., age or disease-based) exclusions
  • Avoid implicit bias through **blinded review**
  • Track outcomes and be ready to adjust methods
Re-allocation Issues

• What comprises a “fair therapeutic trial”?  
  • Should a person with COVID-19 be given the same time prior to re-assessment as someone with acute pulmonary edema?  
  • Risk of ‘churning’ vents, leading to more deaths because no one gets to keep it long enough to make a difference...  
  • Trial duration attuned to diagnosis  

• Ensuring NO patient ever loses access to a resource that then goes to someone with a lower possibility of benefit.  
  • Always set triage cut-point at a score worse than that of the person on a vent with the highest predicted mortality.
Key Points

- CSC is part of surge plans, for *extreme* surge/scarcity
- Don’t improvise! – ethical, practical and liability issues
- Dynamic situation – flux between contingency/crisis
- Proportionality – commensurate with need/benefit/harms
- Operational issues (teams, scores, re-allocation, accountability)
- All lives worthy: elderly, disabled, minorities *must* not be left behind
- Crisis care will happen regardless of official action/inaction

Slide adapted from John Hick, MD