COVID-19 Conversations

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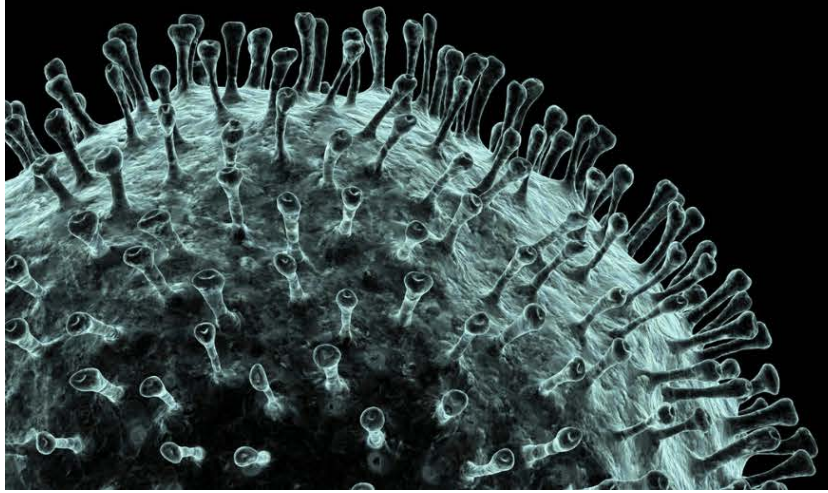

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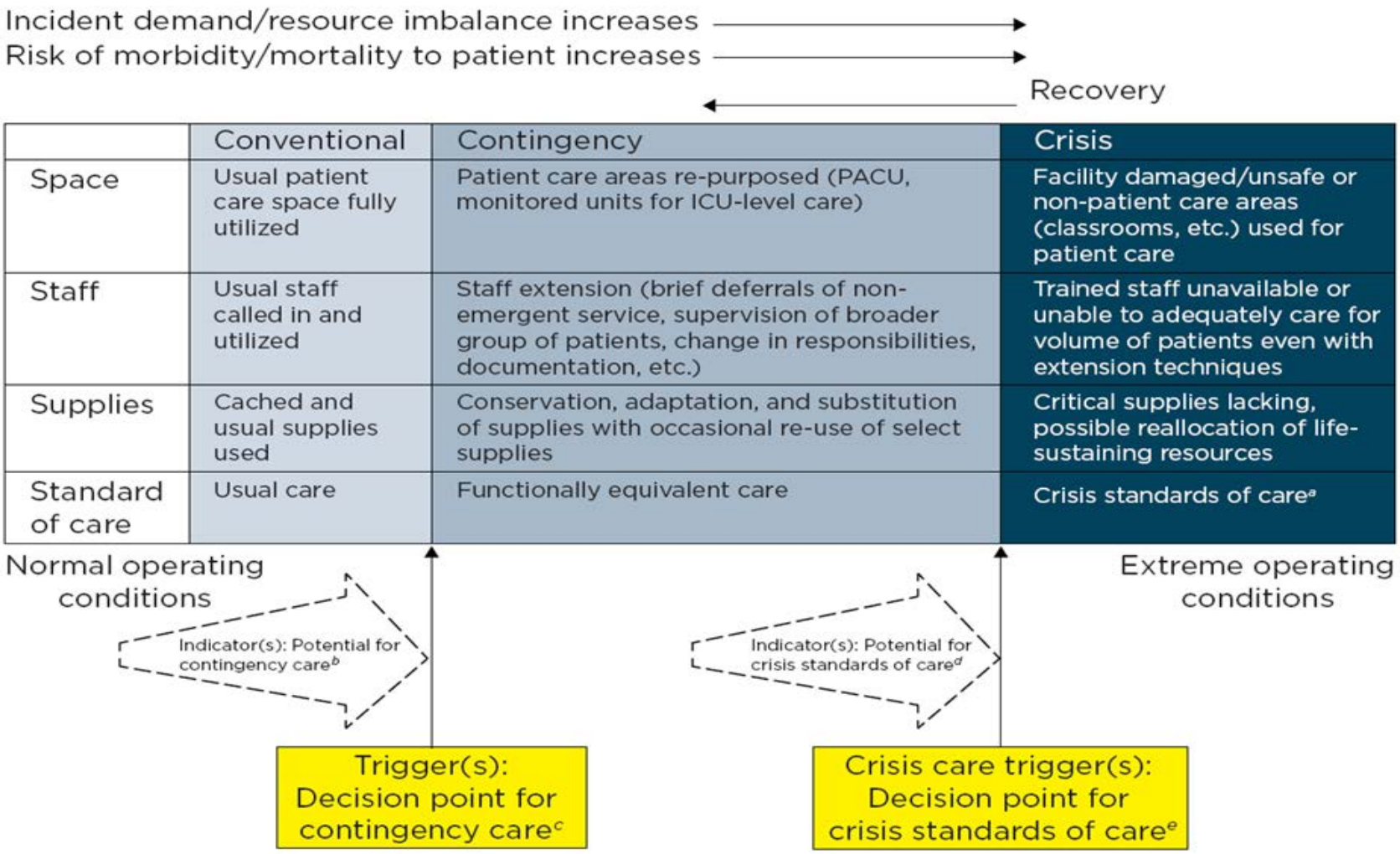
CRISIS STANDARDS OF CARE AND COVID-19

JOHN L. HICK, MD

HENNEPIN HEALTHCARE

WHAT IS IT?

- Crisis standards of care – systems response including formal government recognition of situation and regulatory / legal / emergency order support and relief
- Crisis care – situational – inadequate resources – must provide 'best care possible' given the situation despite some risks to the patient(s)


Incident demand/resource imbalance increases
Risk of morbidity/mortality to patient increases
Recovery
Conventional
Contingency
Crisis
Space
Usual patient care space fully utilized
Patient care areas re-purposed (PACU, monitored units for ICU-level care)
Facility damaged/unsafe or non-patient care areas (classrooms, etc.) used for patient care
Staff
Usual staff called in and utilized
Staff extension (brief deferrals of non-emergent service, supervision of broader group of patients, change in responsibilities, documentation, etc.)
Trained staff unavailable or unable to adequately care for volume of patients even with extension techniques
Supplies
Cached and usual supplies used
Conservation, adaptation, and substitution of supplies with occasional re-use of select supplies
Critical supplies lacking, possible reallocation of life-sustaining resources
Standard of care
Usual care
Functionally equivalent care
Crisis standards of care[a]
Normal operating conditions
Extreme operating conditions
Indicator(s): Potential for contingency care[b]
Indicator(s): Potential for crisis standards of care[d]
Trigger(s): Decision point for contingency care[c]
Crisis care trigger(s): Decision point for crisis standards of care[e]

HOW TO DO THE GREATEST GOOD…

- Implement incident management and surge capacity plans
- Anticipate resource shortfalls
- Solve the imbalance (look towards community/coalitions)
  - Bring in resources
  - Transfer patients
  - Triage resources
- Get help…

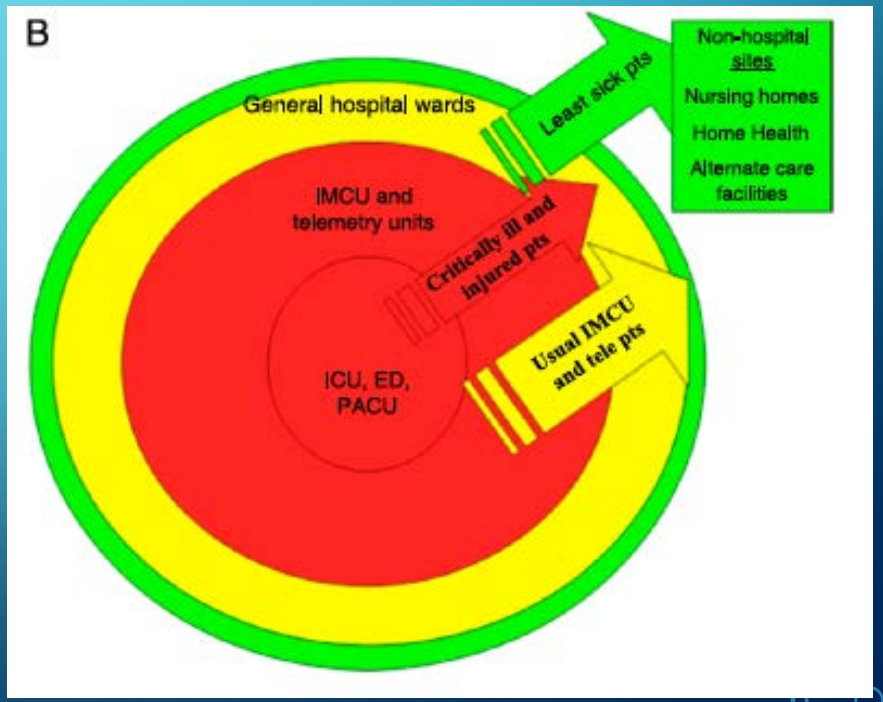
CORE STRATEGIES

- Conserve
- Substitute
- Adapt
- Re-use
- Re-allocate

HOSPITAL CHALLENGES – COVID-19

- Space
  - Intensive Care
- Staff
  - Shift lengths, staffing ratios, responsibilities
  - 'Step up, Step over'
- Stuff
  - Medications, PPE, ventilators, airway
- Special
  - Cohorting spaces, isolation practices


A
General hospital wards
IMCU and telemetry units
ICU, ED, PACU
Least sick pts
Critically ill and injured
Usual IMCU and tele pts
Non-hospital sites
Nursing homes
Home Health
Alternate care facilities
Abbreviations
ICU Intensive care unit
ED Emergency department
PACU Post-anesthesia care unit
IMCU Intermediate care unit
Tele Telemetry


B
General hospital wards
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Usual IMCU and tele pts
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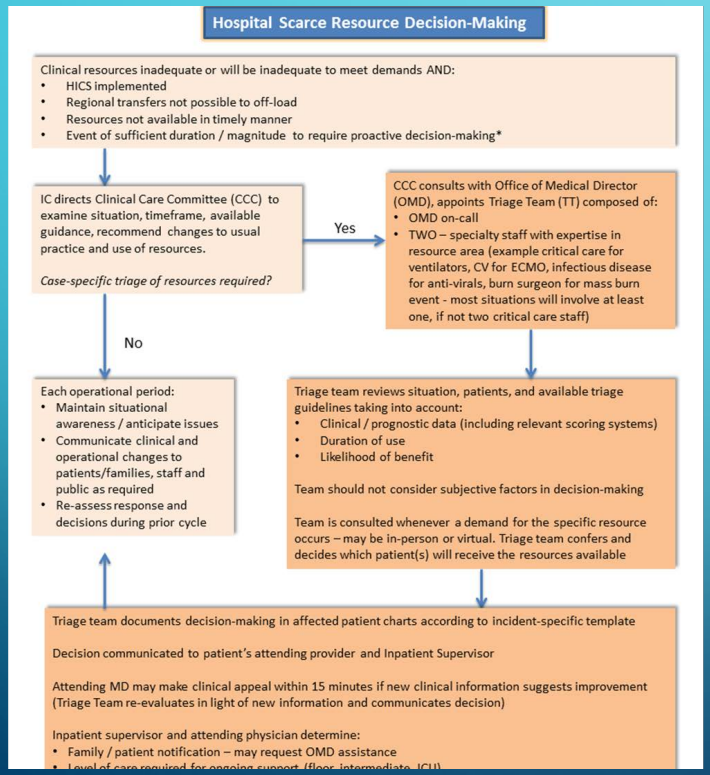
Alternate care facilities

ALTERNATE CARE SITES AND SYSTEMS

HOSPITAL CSC

- Concept of operations
- Criteria
- Coordination

HOSPITAL CSC CONCEPT OF OPERATIONS



- Trigger(s)
- Notifications
- ICS
- Participants
- Process
  - Triage team
- Communication
- Quality / appeals

MECHANICAL VENTILATION/EXTERNAL OXYGENATION

STRATEGIES FOR SCARCE RESOURCE SITUATIONS (cont.)

RECOMMENDATIONS				***Strategy***	***Crisis***
***STEP TWO*:** Compared to other patient(s) requiring and awaiting external ventilation/oxygenation, does this patient have significant differences in prognosis or resource utilization in one or more categories below that would justify re-allocation of the ventilator/unit? Factors listed in relative order of importance/weight. Injury/epidemiologic factors may have the highest predictive value in some cases and may also affect the predictive ability of the SOFA score.				*Re-allocate*	
Criteria	Patient keeps resource		Resource re-allocated		
1.Organ system function[a]	Low potential for death (SOFA score ≤ 7)	Intermediate potential for death (SOFA score 8-11)	High potential for death (SOFA score ≥12)		
2.Duration of benefit / prognosis	Good prognosis based upon epidemiology of specific disease/ injury. No severe underlying disease.[b]	Indeterminate/intermediate prognosis based upon epidemiology of specific disease/injury Severe underlying disease with poor long-term prognosis and/or ongoing resource demand (e.g., home oxygen dependent, dialysis dependent) and unlikely to survive more than 1-2 years.	Poor prognosis based upon epidemiology of specific disease/injury (e.g., pandemic influenza) Severe underlying disease with poor short-term (e.g., <1 year) prognosis		
3.Duration of need	Short duration – flash pulmonary edema, chest trauma, other conditions anticipating < 3 days on ventilator	Moderate duration – e.g., pneumonia in healthy patient (estimate 3-7 days on ventilator)	Long duration – e.g., ARDS, particularly in setting of preexisting lung disease (estimate > 7 days on ventilator)		
4.Response to mechanical ventilation	Improving ventilatory parameters over time[c]	Stable ventilatory parameters over time	Worsening ventilatory parameters over time		

[a] The Sequential Organ Failure Assessment (SOFA) score is the currently preferred assessment tool but other predictive models may be used depending on the situation/epidemiology. Note: mortality prediction for SOFA scores in respiratory failure cases is poor. Specific SOFA scores should never be used to deny a ventilator to a patient but should be used in combination with other factors to compare patients needing the resource.

[b] Examples of underlying diseases that predict poor short-term survival include (but are not limited to):

1. Congestive heart failure with ejection fraction < 25% (or persistent ischemia unresponsive to therapy or non-reversible ischemia with pulmonary edema).
2. Severe chronic lung disease including pulmonary fibrosis, cystic fibrosis, obstructive or restrictive diseases requiring continuous home oxygen use prior to onset of acute illness. Central nervous system, solid organ, or hematopoietic malignancy with poor prognosis for recovery.
3. Cirrhosis with ascites, history of variceal bleeding, fixed coagulopathy or encephalopathy.
4. Acute hepatic failure with hyperammonemia.

[c] Changes in Oxygenation Index over time may provide comparative data, though of uncertain prognostic significance.
OI = MAWP x FiO_2/PaO_2 where: OI = oxygenation index, MAWP= Mean Airway Pressure, FiO_2 = inspired oxygen concentration, PaO_2 = arterial oxygen pressure (May be estimated from oxygen dissociation curve if blood gas unavailable.)

***STEP THREE*:** Re-allocate ventilator/resource only if patient presenting with respiratory failure has significantly better chance of survival/benefit as compared to patient currently receiving ventilation. Follow additional regional and state/federal guidance and institutional processes for scarce resource situations.

CRITERIA

- MUST include COVID-19 specific prognostic factors
  - Age, elevated troponin, ddimer, severity of comorbid conditions, new renal failure
- MUST have a clinical care committee or similar to keep up on literature
- MUST be specific enough to avoid ‘ad hoc’ decision-making
- MUST be congruent with specialty society and state guidelines
  - ‘reasonable provider’ standard

COORDINATION

- Regional planning
  - Healthcare coalitions
  - Communications methods
  - Coordination methods
    - Multi-agency coordination (MAC)
    - Transfer center
  - State – guidelines, advisory committees, transfers

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