

## Critical Care Planning - COVID-19 Quick Notes

### Concept

- Critical care should be provided in hospitals – not alternate care sites. For COVID-19, critical care is defined as needing mechanical ventilation or medications to maintain blood pressure and does not need to be confined to usual “ICU” spaces.
- Plan for critical care surge by creating spillover for critical care by first using conventional (usual), then contingency (functionally equivalent), and then crisis (some risk involved) spaces. This continuum increases the percentage of critical care in the hospital (Figure 1 below) by forcing lower acuity care out into alternate care spaces at the hospital (configuring non-patient care spaces to patient care) and into the community (community-based alternate care sites).

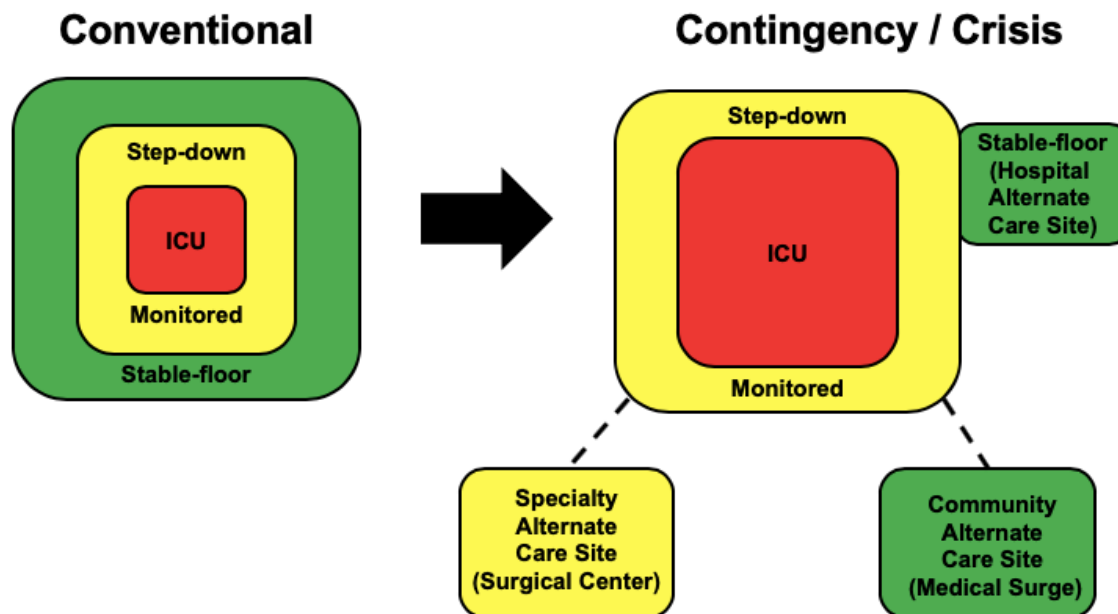


Figure – Critical Care Expansion Visual – (adapted from Einav S. Chest 2014). Hospitals that do not provide critical care will still increase acuity and accommodate overflow from other facilities.

### Operationalizing the Concept

#### Space:

- Define which ICU spaces will be used for COVID-19 care first, then second, third, etc. using all appropriate conventional spaces first and developing cohorting and personal protective equipment (PPE) plans so that staff wear PPE throughout their shift in these areas.
- Once conventional ICU spaces are exhausted, an overflow plan should be in place to sequentially use spaces that have the ability and staff to monitor intubated patients or those undergoing procedures where airway management may be needed such as:
  - Intermediate/step-down units, where staff may be familiar with BiPAP, IV drip medications, and other critical care interventions
  - Post-anesthesia care (PACU)
  - Pre-induction spaces
  - Same-day surgery suites
  - Interventional suites (making sure to maintain capacity for usual care)
  - GI, bronchoscopy, and other procedural areas
  - Surgical suites – using anesthesia monitoring – may need to swap carts

## Staff

- Determine how critical care, anesthesia, hospitalist, emergency medicine, surgery, and other staff with relevant critical care knowledge provide support for intake, assessment, and emergency airway interventions
- Determine how these staff, on an ongoing basis, supervise the care of multiple patients at a higher level
- Focus respiratory therapy duties and physician and physician extender duties on critical care and nothing else
- Ensure that a critical care RN can supervise RN with lesser training (e.g. same day surgery, PACU) in critical care to broaden their reach (e.g. they can supervise 10 patients under other nurses care, rather than 2 patients under their care)

## Supplies

- Plan to supplement full-featured ventilators – use BiPAP machines capable of functioning as a ventilator, transport ventilators, and anesthesia machines
- Consider placing new patients on full-featured vents to titrate management and more stable patients on other ventilatory strategies
- Consider how BiPAP and high-flow nasal cannula strategies will be used and how those patients will be closely supervised for deterioration, as it can be rapid (anecdotally, from stable to critical in a few hours). These strategies may generate more aerosols, therefore staff in these areas may need higher levels of PPE. An open pre-induction or other space may be helpful to observe several of these patients in a defined area.
- Be prepared to do high-level disinfection on ventilator circuits, oxygen delivery equipment, and other disposables
- Be prepared to run drips according to titration to effect or based on drops/minute
- Have adequate sedation and analgesia medications available

## Critical Care Provision

- Manage family and patient expectations – critical care including ventilators are a trial of therapy, not a permanent resource assignment
- Have specific precautions for intubation and airway procedures (e.g. rapid sequence intubation only, HEPA filters immediately applied to endotracheal tube connector, etc.).
- Ensure end-of-life wishes are defined, including for prolonged (weeks) use of mechanical ventilation and multi-organ failure if possible
- Ethical principles should be agreed upon and a decision-making process should be defined before decisions are needed
- Ensure that a process and criteria for triage at the facility are known, and that incident command is fully aware of the situation and is in charge of any process adjustments.
- Allocation decisions should ideally involve clinicians that are NOT the bedside provider.
- Define plan for interventions – define when CPR is futile based on organ failure/progression of disease (but early in course of illness should receive full resuscitation).

Additional resources:

<https://asprtracie.hhs.gov/technical-resources/113/covid-19-critical-care-surge-resources/99>

<https://asprtracie.hhs.gov/technical-resources/112/covid-19-crisis-standards-of-care-resources/99>