

MECHANICAL VENTILATION/EXTERNAL OXYGENATION

STRATEGIES FOR SCARCE RESOURCE SITUATIONS

<p>Conventional Capacity – The spaces, staff, and supplies used are consistent with daily practices within the institution. These spaces and practices are used during a major mass casualty incident that triggers activation of the facility emergency operations plan.</p>	<p>Contingency Capacity – The spaces, staff, and supplies used are not consistent with daily practices, but provide care to a standard that is functionally equivalent to usual patient care practices. These spaces or practices may be used temporarily during a major mass casualty incident or on a more sustained basis during a disaster (when the demands of the incident exceed community resources)</p>	<p>Crisis Capacity – Adaptive spaces, staff, and supplies are not consistent with usual standards of care, but provide sufficiency of care in the setting of a catastrophic disaster (i.e., provide the best possible care to patients given the circumstances and resources available). Crisis capacity activation constitutes a significant and adjustment to standards of care (Hick et al, 2009).</p>			
RECOMMENDATIONS		Strategy	Conventional	Contingency	Crisis
Increase Hospital Stocks of Ventilators and Ventilator Circuits, ECMO or bypass circuits		<i>Prepare</i>			
Access Alternative Sources for ventilators / specialized equipment		<i>Substitute</i>			
<p>1. Obtain specialized equipment from vendors, healthcare partners, regional, state, or Federal stockpiles via usual emergency management processes and provide just-in-time training and quick reference materials for obtained equipment.</p>					
Decrease Demand for Ventilators		<i>Conserve</i>			
<p>2. Increase threshold for intubation / ventilation. 3. Decrease elective procedures that require post-operative intubation. 4. Decrease elective procedures that utilize anesthesia machines. 5. Maximize non-invasive ventilatory support when possible.</p>					
Re-use Ventilator Circuits		<i>Re-use</i>			
<p>6. Appropriate cleaning must precede sterilization. 7. If using gas (ethylene oxide) sterilization, allow full 12-hour aeration cycle to avoid accumulation of toxic byproducts on surface. 8. Use irradiation or other techniques as appropriate.</p>					
Use Alternative Respiratory Support Technologies		<i>Adapt</i>			
<p>9. Use transport ventilators with appropriate alarms – especially for stable patients without complex ventilation requirements. 10. Contact local home care companies to see if they have acute care ventilators they can give/rent to the hospital. 11. Use anesthesia machines for mechanical ventilation as appropriate / capable.</p>					
<p>12. Use bi-level (BiPAP) equipment to provide mechanical ventilation. 13. Consider bag-valve ventilation as temporary measure while awaiting definitive solution / equipment (as appropriate to situation extremely labor intensive and may consume large amounts of oxygen).</p>		<i>Adapt</i>			
Assign Limited Ventilators to Patients Most Likely to Benefit if No Other Options are Available:		<i>Re-allocate</i>			
See Pediatric and/or Adult Critical Care Algorithm					

Adapted From the Minnesota Department of Health, Office of Emergency Preparedness

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