OXYGEN CARD

STRATEGIES FOR SCARCE RESOURCE SITUATIONS

Washington State Department of Health

NORTHWEST HEALTHCARE Response Network.

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.	**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)	**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).

RECOMMENDATIONS	***Strategy***	***Conventional***	***Contingency***	***Crisis***
Inhaled Medications 1. Use compressed or room air for administration of nebulized medications when clinically appropriate. 2. Restrict the use of Small Volume Nebulizers when inhaler substitutes are available. 3. Restrict continuous nebulization therapy. 4. Minimize frequency through medication substitution that results in fewer treatments (6h-12h instead of 4h-6h applications). 5. Change children from albuterol continuous nebulizers to Albuterol 8 puffs MDI Q2 hrs when they are ready to stop continuous treatments. Only use albuterol nebulizers in continuous form for truly acute status asthmaticus.	*Substitute & Conserve*			
High-Flow Applications 6. Assure all resuscitation oxygen bags have shut off valves and are shut off when not in use.	*Conserve*			
7. Restrict the use of high-flow adult cannula systems as these can demand 12 to 40 LPM flows. 8. Restrict the use of simple and partial rebreathing masks to 10 LPM maximum. 9. Consider intubation or non-invasive ventilation with a well-sealed mask over the use of high flow oxygen delivery systems for both adult and pediatric patients during critical shortages.	*Conserve*			
Air-Oxygen Blenders 10. Eliminate the low-flow reference bleed occurring with any low-flow metered oxygen blender use. This can amount to an additional 12 LPM. Reserve air-oxygen blender use for mechanical ventilators using high-flow non-metered outlets. (These do not utilize reference bleeds). 11. Disconnect blenders when not in use.	*Conserve*			
Oxygen Conservation Devices 12. Use reservoir cannulas if available at 1/2 the flow setting of standard cannulas. 13. Replace simple and partial rebreather mask use with reservoir cannulas or venti-masks at flow rates of 6-10 LPM 14. Use High Efficiency nebulizers and use air flow instead of oxygen when clinically possible.	*Substitute & Adapt*			
Augment Oxygen Supply 15. Use hospital-based or independent home medical equipment supplier oxygen concentrators if available to provide low-flow cannula oxygen for patients and preserve the primary oxygen supply for more critical applications. 16. Consider other source of oxygen such as dental or veterinary offices. 17. Obtain oxygen supply from industrial sources, such as supplied by welding companies and underwater diving operations.	*Substitute & Conserve*			
18. Reduce hospital wide PSI from 50-40.	*Conserve*			
Monitor Use and Revise Clinical Targets 19. Employ oxygen titration protocols to optimize flow or % to match targets for SPO2 or PaO2. 20. Discontinue oxygen at earliest possible time. 21. Consider variable parameters for initiating and continuing oxygen therapy:	*Conserve*			

Starting Example	**Initiate O2**	**O2 Target**	**Note**: These target ranges need to be continually re-evaluated depending on resources available, the patient's clinical presentation, or measured PaO2 determination. If no pulse oximetry is available initiate oxygen therapy based on clinical assessment (e.g. cyanosis, increased work of breathing, valid respiratory scores etc.)
Normal Lung Adults	SPO2 <88-90%	SPO2 90%	
Pediatrics	SPO2 <88-90%	SPO2 90%	
Severe COPD History	SPO2 <85%	SPO2 88-90%	

Expendable Oxygen Appliances 22. All non-standard disinfection and sterilization procedures should be tested and assessed prior to widespread use. Possible options during crisis include: Use terminal sterilization or high-level disinfection procedures for oxygen appliances, small & large-bore tubing, and ventilator circuits. Bleach concentrations of 1:10, high-level chemical disinfection, or irradiation may be suitable. Ethylene oxide gas sterilization (if available) is optimal but requires a 12-hour aeration cycle to prevent ethylene chlorohydrin formation with polyvinyl chloride plastics.	*Re-use*			
Oxygen Re-Allocation Implementation 23. For patient prioritization for oxygen administration or re-allocation during severe resource limitations please see Adult and Pediatric Critical Care Algorithms.	*Re-Allocate*			

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