

OXYGEN USE STRATEGIES FOR SCARCE RESOURCE SITUATIONS

MINNESOTA HEALTHCARE SYSTEM PREPAREDNESS PROGRAM

	POTENTIAL TRIGGER EVENTS	STRATEGY*	RECOMMENDATIONS													
Oxygen Administration	INTERNAL DISRUPTION OF HOSPITAL MEDICAL GAS SYSTEMS	SUBSTITUTE	1. Oxygen Conservation Devices <ul style="list-style-type: none"> Use Oxymizer™ type cannulas at 1/2 the flow setting of standard cannulas. Replace simple & partial rebreather mask use with Oxymizer™ cannulas at flowrates of 6-10 LPM. 													
	INTERNAL SURGE TO HOSPITAL CAPACITY	SUBSTITUTE & CONSERVE	2. Inhaled Medications <ul style="list-style-type: none"> Restrict the use of Small Volume Nebulizers when inhaler substitutes are available. Restrict continuous nebulization therapy. Minimize frequency through medication substitution that result in fewer treatments (6h-12h instead of 4h-6h applications). 													
Hemodynamic Support and IV	EXTERNAL NOTIFICATION BY GAS SUPPLIER OF DELAYS OR SHORTAGES	CONSERVE	3. Oxygen Concentrators if Electrical Power Is Present <ul style="list-style-type: none"> Use hospital-based or independent home medical equipment supplier oxygen concentrators if available; use to supplement low-flow cannula use, and preserve the primary oxygen supply for more critical applications. 													
	EXTERNAL NOTIFICATION BY THE MINNESOTA DEPARTMENT OF HEALTH	CONSERVE	4. Monitor Use and Revise Clinical Targets <ul style="list-style-type: none"> Employ oxygen titration protocols to optimize flow or % to match targets for SPO₂ or PaO₂. Minimize overall oxygen use by optimization of flow. Discontinue oxygen at earliest possible time. <table border="1"> <thead> <tr> <th>Starting Example</th> <th>Initiate O₂</th> <th>O₂ Target</th> <th>Note:</th> </tr> </thead> <tbody> <tr> <td>Normal Lung Adults</td> <td>SPO₂ <89%</td> <td>SPO₂ 90%</td> <td rowspan="3">Targets may be adjusted further downward depending on resources available, the patient's clinical presentation, or measured PaO₂ determination.</td> </tr> <tr> <td>Infants & Peds</td> <td>SPO₂ <90%</td> <td>SPO₂ 91-94%</td> </tr> <tr> <td>COPD History</td> <td>SPO₂ <88%</td> <td>SPO₂ 90%</td> </tr> </tbody> </table>	Starting Example	Initiate O ₂	O ₂ Target	Note:	Normal Lung Adults	SPO ₂ <89%	SPO ₂ 90%	Targets may be adjusted further downward depending on resources available, the patient's clinical presentation, or measured PaO ₂ determination.	Infants & Peds	SPO ₂ <90%	SPO ₂ 91-94%	COPD History	SPO ₂ <88%
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Mechanical Ventilation			5. High-Flow Applications <ul style="list-style-type: none"> Restrict the use of high-flow adult cannula systems (Vapotherm™ type) as these can demand 12 to 40 LPM flows. Restrict the use of simple and partial rebreathing masks to 10 LPM maximum. Restrict use of Gas Injection Nebulizers as they generally require oxygen flows between 10 LPM and 75 LPM. Eliminate the use of oxygen-powered venturi suction systems as they may consume 15 to 50 LPM. 													
			6. Air-Oxygen Blenders <ul style="list-style-type: none"> 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). Disconnect blenders when not in use. 													
Nutrition		RE-USE	7. Expendable Oxygen Appliances <ul style="list-style-type: none"> 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 is optimal, but requires a 12-hour aeration cycle to prevent ethylene chlorhydrin formation with polyvinyl chloride plastics. 													
		RE-ALLOCATE	8. Oxygen Re-Allocation Implementation <ul style="list-style-type: none"> Prioritize patients for oxygen administration during severe resource limitations. 													

Oxygen
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*See Patient Care Strategies for Scarce Resource Situations for strategy definitions.