



PATIENT CARE

Strategies for Scarce Resource Situations



IDAHO DEPARTMENT OF
HEALTH & WELFARE

TABLE OF CONTENTS

Ethical Framework.....	Page ii
Summary Card	Page iii
Oxygen	Page 1
Personal Protective Equipment (PPE).....	Page 2
Mechanical Ventilation For Adults	Page 3
Staffing	Page 10
Medication Administration	Page 12
Renal Replacement Therapy.....	Page 15
ECMO (Extra-corporeal membrane oxygenation)	Page 19
Palliative Care	Page 20
Emergency Medical Services (EMS).....	Page 30
Pediatrics.....	Page 31
Mechanical Ventilation for Pediatric Patients.....	Page 36

This document provides guidance for preparing and responding to public health emergencies that may stress and potentially overwhelm the healthcare system. The goal of providing care quickly and efficiently must be guided by fairness, equality, and compassion. As such, the document is grounded in ethical obligations that include the duty to care, duty to steward resources, distributive and procedural justice, and transparency. Its guiding principle is that all lives have value and that no patients will be discriminated against on the basis of disability, race, color, national origin, age, sex, gender, or exercise of conscience and religion.

Although most of this document focuses on expanding capacity in response to a public health emergency, parts do provide guidance for scarce resource allocation in the event that demand for healthcare resources outstrips supply. Scarce resource allocation protocols should only be enacted if: 1) healthcare capacity is, or shortly will be, overwhelmed despite taking all appropriate steps to increase surge capacity; and 2) an emergency declaration that crisis standards of care are in effect has been issued by the appropriate state official. The scarce resource allocation protocols aim to maximize benefit for populations of patients. The focus is on saving the most lives and life years, within the context of ensuring meaningful access for all patients, ensuring individualized patient assessments, and diminishing the negative effects of social inequalities that lessen some patients' long-term life expectancy. Importantly, persons with disabilities should not be denied access to healthcare resources based on stereotypes, assessments of quality of life, or judgments about a person's relative "worth" based on the presence or absence of disabilities. When applying these scarce resource allocation protocols, decisions regarding candidacy for treatment should be based on individualized assessments using the best available objective medical evidence. In all phases of evaluation and treatment, communication assistance should be provided to all patients and families/designees who request such assistance.

The contents of this guide were adapted and/or modified by the Idaho Department of Health and Welfare (IDHW) and the State of Idaho's Disaster Medical Advisory Committee (SIDMAC) from the [Minnesota Department of Health's \(MDH\) Health Care Preparedness Program](#), the University of Pittsburgh School of Medicine's "[Allocation of Scarce Critical Care Resources During a Public Health Emergency](#)," and published crisis standards of care from [the state of New York](#) and [the Veterans Health Administration](#).

Summary Card

Potential trigger events:	<ul style="list-style-type: none"> • Mass Casualty Incident (MCI) • Infrastructure damage/loss • Pandemic/Epidemic 	<ul style="list-style-type: none"> • Supplier shortage • Recall/contamination of product • Isolation of facility due to access problems (flooding, etc.)
----------------------------------	---	---

<p>How to use this card set:</p> <ol style="list-style-type: none"> 1. Recognize or anticipate resource shortfalls. 2. Implement appropriate incident management system and plans; assign subject matter experts (technical specialists) to problem. 3. Determine degree of shortfall, expected demand, and duration; assess ability to obtain needed resources via local, regional, or national vendors or partners. 4. Find category of resource on index. 5. Refer to specific recommendations on card. 6. Decide which strategies to implement and/or develop additional strategies appropriate for the facility and situation. 7. Assure consistent regional approach by informing public health authorities and other facilities if crisis strategies will continue beyond 24h and no regional options exist for re-supply or patient transfer; activate regional scarce resource coordination plans as appropriate. 8. Review strategies every operational period or as availability (supply/demand) changes.

<p>Core strategies to be employed (generally in order of preference) during, or in anticipation of a scarce resource situation are:</p> <p>Prepare - pre-event actions taken to minimize resource scarcity (e.g., stockpiling of medications).</p> <p>Substitute - use an essentially equivalent device, drug, or personnel for one that would usually be available (e.g., morphine for fentanyl).</p> <p>Adapt - use a device, drug, or personnel that are not equivalent but that will provide sufficient care (e.g., anesthesia machine for mechanical ventilation).</p> <p>Conserve - use less of a resource by lowering dosage or changing utilization practices (e.g., minimizing use of oxygen driven nebulizers to conserve oxygen).</p> <p>Re-use - re-use (after appropriate disinfection/sterilization) items that would normally be single-use items.</p> <p>Re-allocate - restrict or prioritize use of resources to those patients with a better prognosis or greater need.</p>
--

Capacity Definitions

<p>Conventional capacity - The spaces, staff, and supplies used are <i>consistent with daily practices</i> 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).</p>
---	--	---

The content of this card set was developed by the Minnesota Department of Health (MDH) Science Advisory Team in conjunction with many subject matter experts, and adapted by Idaho's Department of Health & Welfare (IDHW) and the State of Idaho Disaster Medical Advisory Committee (SIDMAC). Facilities and personnel implementing these strategies in crisis situations should assure communication of this to their healthcare and public health partners to assure the invocation of appropriate legal and regulatory protections in accord with State and Federal laws. This guidance may be updated or changed during an incident by IDHW. The weblinks and resources listed are examples and may not be the best sources of information available. Their listing does not imply endorsement by IDHW. This guidance does not replace the judgement of the clinical staff and consideration of other relevant variables and options during an event.

This card set is designed to facilitate a structured approach to resource shortfalls at a healthcare facility. It is a decision support tool and assumes that incident management is implemented and that key personnel are familiar with ethical frameworks and processes that underlie these decisions (for more information see the Institute of Medicine's 2012 [Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response](#)). Each facility will have to determine the most appropriate steps to take to address specific shortages. Pre-event familiarization with the contents of this card set is recommended to aid with event preparedness and anticipation of specific resource shortfalls. The cards do not provide comprehensive guidance, addressing only basic common categories of medical care. Facility personnel may determine additional coping mechanisms for the specific situation in addition to those outlined on these cards.

OXYGEN

STRATEGIES FOR SCARCE RESOURCE SITUATIONS

CRISIS STANDARDS OF CARE

RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis												
Inhaled Medications <ul style="list-style-type: none"> Restrict the use of oxygen-driven nebulizers when inhalers or air-driven substitutes are available. Minimize frequency through medication substitution that results in fewer treatments (6h-12h instead of 4h-6h applications). 	Substitute & Conserve															
High-Flow Applications <ul style="list-style-type: none"> Restrict the use of high-flow cannula systems as these can demand flow rates in excess of 40 LPM. Limit the use of simple and partial rebreathing masks. 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. Consider use of early intubation to avoid high-flow oxygen rates. 	Conserve															
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. 	Conserve															
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 to provide low-flow cannula oxygen for patients and preserve the primary oxygen supply for more critical applications. 	Substitute & Conserve															
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" data-bbox="121 1003 877 1133"> <thead> <tr> <th>Starting Example</th> <th>Initiate O₂</th> <th>O₂ Target</th> </tr> </thead> <tbody> <tr> <td>Normal Lung Adults</td> <td>SpO₂ <90%</td> <td>SpO₂ 90%</td> </tr> <tr> <td>Infants & Peds</td> <td>SpO₂ <90%</td> <td>SpO₂ 90-95%</td> </tr> <tr> <td>Severe COPD History</td> <td>SpO₂ <88%</td> <td>SpO₂ 90%</td> </tr> </tbody> </table> <p>Note: Targets may be adjusted further downward depending on resources available, the patient's clinical presentation, or measured PaO₂ determination.</p>	Starting Example	Initiate O ₂	O ₂ Target	Normal Lung Adults	SpO ₂ <90%	SpO ₂ 90%	Infants & Peds	SpO ₂ <90%	SpO ₂ 90-95%	Severe COPD History	SpO ₂ <88%	SpO ₂ 90%	Conserve			
Starting Example	Initiate O ₂	O ₂ Target														
Normal Lung Adults	SpO ₂ <90%	SpO ₂ 90%														
Infants & Peds	SpO ₂ <90%	SpO ₂ 90-95%														
Severe COPD History	SpO ₂ <88%	SpO ₂ 90%														
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 chlorohydrin formation with polyvinyl chloride plastics. 	Re-Use															
Oxygen Re-Allocation <ul style="list-style-type: none"> Prioritize patients for oxygen administration during severe resource limitations. 	Re-Allocate															

Resource: [Considerations for Oxygen Therapy in Disasters](#). This ASPR TRACIE fact sheet provides information on the types of oxygen therapy and the types of oxygen supplies generally available, as well as various oxygen storage methods.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

STRATEGIES FOR SCARCE RESOURCE SITUATIONS

RECOMMENDATIONS

Guidance

- For the COVID-19 pandemic, please consult [CDC Strategies for Optimizing the Supply of PPE](#), which includes conventional, contingency, and crisis strategies specific to eye protection, isolation gowns, facemasks, and N95 respirators.

Additional General Principles

- Healthcare providers must be protected and should never be required to use equipment that is not considered PPE.
- Healthcare providers should be allowed, but not required, to bring to work PPE for their personal use in the event of shortages of conventional PPE.
- Healthcare providers should not be penalized for expressing their views to anyone about the status and use of PPE.
- All elective procedures and surgeries should cease as soon as shortages of PPE are anticipated.

MECHANICAL VENTILATION FOR ADULTS

STRATEGIES FOR SCARCE RESOURCE SITUATIONS

CRISIS STANDARDS OF CARE

RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis
Increase Hospital Stocks of Ventilators and Ventilator Circuits, ECMO or Bypass Circuits	Prepare			
Access Alternative Sources for Ventilators/Specialized Equipment <ul style="list-style-type: none"> Obtain specialized equipment from vendors, health care partners, regional, state, or Federal stockpiles via usual emergency management processes and provide just-in-time training and quick reference materials for obtained equipment. 	Substitute			
Decrease Demand for Ventilators <ul style="list-style-type: none"> Increase threshold for intubation/ventilation. Decrease elective procedures that require post-operative intubation. Decrease elective procedures that utilize anesthesia machines. Use non-invasive ventilatory support when possible. Attempt earlier weaning from ventilator. 	Conserve			
Re-use Ventilator Circuits <ul style="list-style-type: none"> Appropriate cleaning must precede sterilization. If using gas (ethylene oxide) sterilization, allow full 12 hour aeration cycle to avoid accumulation of toxic byproducts on surfaces. Use irradiation or other techniques as appropriate. 	Re-use			
Use Alternative Respiratory Support Technologies <ul style="list-style-type: none"> Use transport ventilators with appropriate alarms - especially for stable patients without complex ventilation requirements. 	Adapt			
<ul style="list-style-type: none"> Use anesthesia machines for mechanical ventilation as appropriate/capable. Use bi-level (BiPAP) equipment to provide mechanical ventilation. Consider bag-valve ventilation as an emergent transitional measure while awaiting definitive solution/equipment (as appropriate to situation – extremely labor intensive and may consume large amounts of oxygen). 				

Ethical goal of the allocation framework

This document provides guidance for the triage of mechanical ventilation in the event that a public health emergency creates demand that outstrips supply. These triage recommendations should be enacted only if: 1) critical care capacity is, or shortly will be, overwhelmed despite taking all appropriate steps to increase the surge capacity to care for critically ill patients; and 2) an emergency declaration that crisis standards of care are in effect has been issued by the appropriate state official. The ventilator allocation framework is grounded in ethical obligations that include the duty to care, duty to steward resources, distributive and procedural justice, and transparency. Its guiding principle is that all lives have value and that no patients will be discriminated against on the basis of disability, race, color, national origin, age, sex, gender, or exercise of conscience and religion.

The primary goal of the ventilator allocation framework is to maximize benefit for populations of patients. The focus is on saving the most lives and life years, within the context of ensuring meaningful access for all patients, ensuring individualized patient assessments, and diminishing the negative effects of social inequalities that lessen some patients' long-term life expectancy. As such, this triage protocol includes the Sequential Organ Failure Assessment (SOFA) score, which helps predict survival to hospital discharge, and an individualized assessment of comorbidities, that can help predict short-term survival beyond the immediate hospitalization. We recognize that predicting survival can be clinically difficult and that each patient is unique; the allocation framework therefore includes no categorical exclusions for ventilator access. Importantly, persons with disabilities should not be denied ventilator access based on stereotypes, assessments of quality of life, or judgments about a person's relative "worth" based on the presence or absence of disabilities. Decisions regarding candidacy for treatment should be based on individualized assessments using the best available objective medical evidence.

The ventilator allocation framework needs to be followed step by step and in order. It starts with triaging to non-critical care patients who do not want critical care or who are unlikely to survive even with immediate and aggressive medical intervention. The next steps involve calculation of the SOFA score and determination of life-limiting comorbidities, in order to determine a patient's Priority Score and Priority Category for ventilator access. The framework includes guidance for resolving "ties," in the event that multiple patients in the same Priority Category need access to the same ventilator. It provides a timeline for reassessing patients and potentially reallocating ventilators, as patients improve or deteriorate. The framework requires the formation of a local Triage Team that is separate from the patient's treatment team, that will adjudicate ventilator access using this framework. Note that pediatric patients have their own ventilator allocation protocol for Steps 1-3 ([see page 36](#)) and then join this ventilator allocation framework at Step 4 ([page 8](#)).

The Idaho Department of Health and Welfare (IDHW) and the State of Idaho's Disaster Medical Advisory Committee (SIDMAC) adapted the University of Pittsburgh School of Medicine's 2020 guidance "[Allocation of Scarce Critical Care Resources During a Public Health Emergency](#)", to create this ventilator allocation guidance. IDHW and SIDMAC also used published crisis standards of care from [the state of New York](#) and from [the Veterans Health Administration](#) to inform the guidance.

MECHANICAL VENTILATION

STRATEGIES FOR SCARCE RESOURCE SITUATIONS

CRISIS STANDARDS OF CARE

RECOMMENDATIONS	Strategy	Crisis					
<p>STEP 1: Evaluate the patient’s clinical indication for scarce life-saving resources.*</p> <table border="1" data-bbox="197 367 1545 712"> <thead> <tr> <th data-bbox="197 367 1545 423">Triage to Non-Critical Care</th> </tr> </thead> <tbody> <tr> <td data-bbox="197 427 1545 477">Advance directive requesting non-critical care interventions only.</td> </tr> <tr> <td data-bbox="197 480 1545 547">Cardiac arrest for which survival is unlikely: unwitnessed arrest, recurrent arrest without hemodynamic stability, arrest unresponsive to standard interventions and measures.</td> </tr> <tr> <td data-bbox="197 550 1545 651">Severe trauma: traumatic brain injury with no motor response to painful stimulus (i.e. best motor response = 1 on Glasgow Coma Scale), trauma-related arrest, or severe burn where predicted survival ≤ 10% even with unlimited aggressive therapy.</td> </tr> <tr> <td data-bbox="197 654 1545 704">Any other conditions resulting in immediate or near-immediate mortality even with aggressive therapy.</td> </tr> </tbody> </table> <p>*For Step 1 for pediatric patients, see Mechanical Ventilation for Pediatric Patients on page 37.</p>	Triage to Non-Critical Care	Advance directive requesting non-critical care interventions only.	Cardiac arrest for which survival is unlikely: unwitnessed arrest, recurrent arrest without hemodynamic stability, arrest unresponsive to standard interventions and measures.	Severe trauma: traumatic brain injury with no motor response to painful stimulus (i.e. best motor response = 1 on Glasgow Coma Scale), trauma-related arrest, or severe burn where predicted survival ≤ 10% even with unlimited aggressive therapy.	Any other conditions resulting in immediate or near-immediate mortality even with aggressive therapy.	Re-Allocate	
Triage to Non-Critical Care							
Advance directive requesting non-critical care interventions only.							
Cardiac arrest for which survival is unlikely: unwitnessed arrest, recurrent arrest without hemodynamic stability, arrest unresponsive to standard interventions and measures.							
Severe trauma: traumatic brain injury with no motor response to painful stimulus (i.e. best motor response = 1 on Glasgow Coma Scale), trauma-related arrest, or severe burn where predicted survival ≤ 10% even with unlimited aggressive therapy.							
Any other conditions resulting in immediate or near-immediate mortality even with aggressive therapy.							

MECHANICAL VENTILATION

STRATEGIES FOR SCARCE RESOURCE SITUATIONS

CRISIS STANDARDS OF CARE

RECOMMENDATIONS							Strategy	Crisis																																																															
<p>STEP 2: Use the Sequential Organ Failure Assessment (SOFA) score to determine the patient’s prognosis for hospital survival.*</p> <table border="1"> <thead> <tr> <th colspan="7">Sequential Organ Failure Assessment – SOFA Score</th> </tr> <tr> <th>ORGAN SYSTEM</th> <th>Score = 0</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>Score 0-4</th> </tr> </thead> <tbody> <tr> <td>RESPIRATORY PaO2 /FiO2</td> <td>> 400</td> <td>≤ 400</td> <td>≤ 300</td> <td>≤ 200</td> <td>≤ 100</td> <td></td> </tr> <tr> <td>HEMATOLOGIC Platelets</td> <td>> 150</td> <td>≤ 150</td> <td>≤ 100</td> <td>≤ 50</td> <td>≤ 20</td> <td></td> </tr> <tr> <td>HEPATIC Bilirubin (mg/dl)</td> <td>< 1.2</td> <td>1.2 – 1.9</td> <td>2.0 – 5.9</td> <td>6 – 11.9</td> <td>≥ 12</td> <td></td> </tr> <tr> <td>CARDIOVASCULAR Hypotension</td> <td>None</td> <td>Mean Arterial Pressure < 70 mmHg</td> <td>Dopamine ≤ 5 or any Dobutamine</td> <td>Dopamine > 5 or Epi ≤ 0.1 or Nor-Epi ≤ 0.1</td> <td>Dopamine > 15 or Epi > 0.1 or Nor-Epi > 0.1</td> <td></td> </tr> <tr> <td>CENTRAL NERVOUS SYSTEM Glasgow Coma Scale**</td> <td>15</td> <td>13 – 14</td> <td>10 – 12</td> <td>6 – 9</td> <td>< 6</td> <td></td> </tr> <tr> <td>RENAL Creatinine</td> <td>< 1.2</td> <td>1.2 – 1.9</td> <td>2.0 – 3.4</td> <td>3.5 – 4.9</td> <td>≥ 5.0</td> <td></td> </tr> <tr> <td colspan="6" style="text-align: right;">TOTAL SCORE 0-24</td> <td></td> </tr> </tbody> </table>							Sequential Organ Failure Assessment – SOFA Score							ORGAN SYSTEM	Score = 0	1	2	3	4	Score 0-4	RESPIRATORY PaO2 /FiO2	> 400	≤ 400	≤ 300	≤ 200	≤ 100		HEMATOLOGIC Platelets	> 150	≤ 150	≤ 100	≤ 50	≤ 20		HEPATIC Bilirubin (mg/dl)	< 1.2	1.2 – 1.9	2.0 – 5.9	6 – 11.9	≥ 12		CARDIOVASCULAR Hypotension	None	Mean Arterial Pressure < 70 mmHg	Dopamine ≤ 5 or any Dobutamine	Dopamine > 5 or Epi ≤ 0.1 or Nor-Epi ≤ 0.1	Dopamine > 15 or Epi > 0.1 or Nor-Epi > 0.1		CENTRAL NERVOUS SYSTEM Glasgow Coma Scale**	15	13 – 14	10 – 12	6 – 9	< 6		RENAL Creatinine	< 1.2	1.2 – 1.9	2.0 – 3.4	3.5 – 4.9	≥ 5.0		TOTAL SCORE 0-24							Re-Allocate	
Sequential Organ Failure Assessment – SOFA Score																																																																							
ORGAN SYSTEM	Score = 0	1	2	3	4	Score 0-4																																																																	
RESPIRATORY PaO2 /FiO2	> 400	≤ 400	≤ 300	≤ 200	≤ 100																																																																		
HEMATOLOGIC Platelets	> 150	≤ 150	≤ 100	≤ 50	≤ 20																																																																		
HEPATIC Bilirubin (mg/dl)	< 1.2	1.2 – 1.9	2.0 – 5.9	6 – 11.9	≥ 12																																																																		
CARDIOVASCULAR Hypotension	None	Mean Arterial Pressure < 70 mmHg	Dopamine ≤ 5 or any Dobutamine	Dopamine > 5 or Epi ≤ 0.1 or Nor-Epi ≤ 0.1	Dopamine > 15 or Epi > 0.1 or Nor-Epi > 0.1																																																																		
CENTRAL NERVOUS SYSTEM Glasgow Coma Scale**	15	13 – 14	10 – 12	6 – 9	< 6																																																																		
RENAL Creatinine	< 1.2	1.2 – 1.9	2.0 – 3.4	3.5 – 4.9	≥ 5.0																																																																		
TOTAL SCORE 0-24																																																																							
<p>*For Step 2 for pediatric patients, see Mechanical Ventilation for Pediatric Patients on page 37.</p> <p>**A modification of the SOFA may be a necessary accommodation for patients with disabilities. The SOFA requires calculation of the Glasgow Coma Scale (GCS) score, which is based on best eye, motor, and verbal responses. GCS scores may appear to be low for patients with chronic hearing/speech impairments, motor impairments, or cognitive deficits. However, the GCS applies to acute neurological changes only, and for patients with chronic disabilities, the GCS score should be calculated by assessing any change from baseline. For example, a patient with known quadriplegia should be given 6 out of 6 points for best motor response if they are at their baseline. It may be necessary to review medical history or contact a patient’s family, health care designee or support agency to determine their baseline prior to calculating the GCS or SOFA score. In all phases of evaluation and treatment, communication assistance should be provided by family, paid support or health care designees to all patients who present with pre-existing disabilities which might impact the GCS baseline or who request accommodation due to disability.</p>																																																																							

MECHANICAL VENTILATION

STRATEGIES FOR SCARCE RESOURCE SITUATIONS

CRISIS STANDARDS OF CARE

RECOMMENDATIONS						Strategy	Crisis																				
<p>STEP 3: Using the chart below, determine the patient's Priority Score based on their SOFA score (1 to 4 points, depending on severity) plus the presence or absence of comorbid conditions that may impact their near-term survival. Assign 2 points for major comorbidities with substantial impact on near-term survival. Assign 4 points for severe, life-limiting comorbidities for which death is expected in the near-term despite successful treatment of acute illness (e.g., the patient meets hospice criteria). Add the points from the first line of the table (Save the most lives) to the points from the second line of the table (Save life-years) to obtain a Priority Score. Lower scores indicate a higher likelihood of benefiting from critical care.*</p>						Re-Allocate																					
<table border="1"> <thead> <tr> <th rowspan="2">Principle</th> <th rowspan="2">Specification</th> <th colspan="4">POINT SYSTEM</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>Save the most lives</td> <td>Prognosis for survival to hospital discharge - SOFA Score**</td> <td>SOFA score < 6</td> <td>SOFA score 6-8</td> <td>SOFA score 9-11</td> <td>SOFA score ≥ 12</td> </tr> <tr> <td>Save life-years</td> <td>Prognosis for near-term survival (medical assessment of comorbidities)</td> <td>No points added</td> <td>Major comorbidities with substantial impact on near-term survival ADD 2 POINTS</td> <td>No points added</td> <td>Severe, life-limiting comorbidities for which death is expected in the near-term despite successful treatment of acute illness (e.g., meets hospice criteria) ADD 4 POINTS</td> </tr> </tbody> </table>								Principle	Specification	POINT SYSTEM				1	2	3	4	Save the most lives	Prognosis for survival to hospital discharge - SOFA Score**	SOFA score < 6	SOFA score 6-8	SOFA score 9-11	SOFA score ≥ 12	Save life-years	Prognosis for near-term survival (medical assessment of comorbidities)	No points added	Major comorbidities with substantial impact on near-term survival ADD 2 POINTS
Principle	Specification	POINT SYSTEM																									
		1	2	3	4																						
Save the most lives	Prognosis for survival to hospital discharge - SOFA Score**	SOFA score < 6	SOFA score 6-8	SOFA score 9-11	SOFA score ≥ 12																						
Save life-years	Prognosis for near-term survival (medical assessment of comorbidities)	No points added	Major comorbidities with substantial impact on near-term survival ADD 2 POINTS	No points added	Severe, life-limiting comorbidities for which death is expected in the near-term despite successful treatment of acute illness (e.g., meets hospice criteria) ADD 4 POINTS																						
<p>*For Step 3 for pediatric patients, see Mechanical Ventilation for Pediatric Patients on page 37.</p> <p>**A modification of the SOFA may be a necessary accommodation for patients with disabilities. The SOFA requires calculation of the Glasgow Coma Scale (GCS) score, which is based on best eye, motor, and verbal responses. GCS scores may appear to be low for patients with chronic hearing/speech impairments, motor impairments, or cognitive deficits. However, the GCS applies to acute neurological changes only, and for patients with chronic disabilities, the GCS score should be calculated by assessing any change from baseline. For example, a patient with known quadriplegia should be given 6 out of 6 points for best motor response if they are at their baseline. It may be necessary to review medical history or contact a patient's family, health care designee or support agency to determine their baseline prior to calculating the GCS or SOFA score. In all phases of evaluation and treatment, communication assistance should be provided by family, paid support or health care designees to all patients who present with pre-existing disabilities which might impact the GCS baseline or who request accommodation due to disability.</p>																											

MECHANICAL VENTILATION

STRATEGIES FOR SCARCE RESOURCE SITUATIONS

RECOMMENDATIONS	Strategy	Crisis										
<p>STEP 4: Assign the patient, whether adult or pediatric, to a Priority Category, based on their Priority Score. Prioritize patients in the “Red” category for ventilator access first, then patients in the “Orange” category, then patients in the “Yellow” category.</p> <table border="1" data-bbox="344 367 1419 808"> <thead> <tr> <th colspan="2">Use Raw Score from Step 3 to Assign Priority Category</th> </tr> <tr> <th>Level of Priority and Code Color</th> <th>Priority from Step 3 Scoring System</th> </tr> </thead> <tbody> <tr> <td style="background-color: #ff0000; color: white; text-align: center;"> RED Highest Priority </td> <td style="background-color: #ff0000; color: white; text-align: center;"> Priority Score 1-3 </td> </tr> <tr> <td style="background-color: #ffa500; color: black; text-align: center;"> ORANGE Intermediate Priority (reassess as needed) </td> <td style="background-color: #ffa500; color: black; text-align: center;"> Priority Score 4-5 </td> </tr> <tr> <td style="background-color: #ffff00; color: black; text-align: center;"> YELLOW Lowest Priority (reassess as needed) </td> <td style="background-color: #ffff00; color: black; text-align: center;"> Priority Score 6-8 </td> </tr> </tbody> </table> <p>Resolving “Ties” In the event that there are more patients in a Priority Category than there are critical care resources/ventilators, several “tiebreakers” should be used. (1) Priority should first be given to children ages 0-17. (2) Priority should next go to pregnant women with a viable pregnancy ≥ 28 weeks of gestation. (3) Priority should then go to patients based on lifecycle, prioritizing those patients who have lived through fewer lifecycles (lifecycle categories: age 18-40, age 41-60; age 61-75; older than age 75). (4) Priority should next go to individuals who perform tasks that are vital to the public health response of the crisis at hand, including, but not limited to, those whose work directly supports the provision of acute care to others. (5) Finally, if a “tie” still remains, a lottery (i.e. random allocation) should be used to determine priority for ventilator access.</p> <p>Triage Team Hospitals working under crisis standards of care should consider implementing a Triage Team to help treatment teams assess patients for ventilator access. It is recommended that the Triage Team determines Priority Scores and Priority Categories and that the Triage Team makes decisions about ventilator allocation. The Triage Team should collaborate with the treatment team in disclosing triage decisions to patients and families, especially in the event of ventilator reallocation. The Triage Team should be readily available and should be separate from the treatment team, to promote objectivity, avoid conflicts of commitments, and minimize moral distress. For more information about Triage Teams, please see the University of Pittsburgh School of Medicine’s 2020 guidance Allocation of Scarce Critical Care Resources During a Public Health Emergency. For pediatric patients, the pediatric triage team at the receiving children’s hospital should be involved in triage decisions wherever possible. If the pediatric triage team is not available, decisions should be made in consultation with a local or regional pediatric critical care specialist, pediatric hospitalist, or pediatrician.</p>	Use Raw Score from Step 3 to Assign Priority Category		Level of Priority and Code Color	Priority from Step 3 Scoring System	RED Highest Priority	Priority Score 1-3	ORANGE Intermediate Priority (reassess as needed)	Priority Score 4-5	YELLOW Lowest Priority (reassess as needed)	Priority Score 6-8	Re-Allocate	
Use Raw Score from Step 3 to Assign Priority Category												
Level of Priority and Code Color	Priority from Step 3 Scoring System											
RED Highest Priority	Priority Score 1-3											
ORANGE Intermediate Priority (reassess as needed)	Priority Score 4-5											
YELLOW Lowest Priority (reassess as needed)	Priority Score 6-8											

MECHANICAL VENTILATION

STRATEGIES FOR SCARCE RESOURCE SITUATIONS

RECOMMENDATIONS	Strategy	Crisis
<p>Periodic Assessments for Continued Ventilator Use (Time Trials) All patients receiving mechanical ventilation should be given an initial 96-hour therapeutic trial. At 96 hours, the patient should be re-evaluated using the same algorithm as the initial assessment. The Triage Team will calculate a patient’s Priority Score and determine their Priority Category. If a patient’s Priority Score worsens and the patient’s Priority Category changes from “Red” to “Yellow,” for example, the patient may at 96 hours have their ventilator reallocated to a patient in the “Red” Priority Category, who is more likely to benefit. In the event that a patient’s ventilator is reallocated, they would still receive other medical interventions, including palliative care. After 96 hours, reassessments will occur every 48 hours, using the same algorithm as the initial and 96-hour assessments. If a patient experiences a precipitous decline or highly morbid complication prior to completion of the initial 96-hour time trial, the treatment team may triage the patient to non-critical care.</p> <p>Appeals Under crisis standards of care, appeals will only be reviewed if the treatment team believes the Triage Team has made a mistake in calculating a Priority Score or assigning a Priority Category. Appeals will need to be urgently reviewed by the Triage Team in order to allow timely ventilator allocation.</p> <p>Chronic Ventilator Use All efforts should be made to allow patients with their own private ventilators to continue to use their own ventilator in the hospital during crisis standards of care. If they need a new or hospital-grade ventilator, they would enter the triage algorithm like any other patient. Like other personal belongings, privately owned ventilators should be inventoried with patient belongings and should be returned to the patient upon discharge. Privately owned ventilators should not be reallocated to other patients.</p> <p>Universal DNR Order Adult patients hospitalized during a public health emergency, when crisis standards of care have been declared (and a hospital is using the mechanical ventilation allocation framework due to demand for ventilators exceeding supply), should receive aggressive interventions; however, they should receive NO attempts at resuscitation (compressions, shocks or intubation if not yet intubated) in the event of cardiac arrest. The likelihood of survival after a cardiac arrest is extremely low for adult patients. As well, resuscitation poses significant risk to healthcare workers due to aerosolization of body fluids and uses large quantities of scarce resources such as staff time, personal protective equipment, and lifesaving medications, with minimal opportunity for benefit. This universal DNR order does not apply to pediatric patients; however, pediatric patients requiring a ventilator after resuscitation would enter the ventilator triage protocol after resuscitation, just like other patients needing ventilator access.</p>	Re-Allocate	

STAFFING

STRATEGIES FOR SCARCE RESOURCE SITUATIONS

CRISIS STANDARDS OF CARE

RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis
<p>Staff and Supply Planning</p> <ul style="list-style-type: none"> Assure facility has process and supporting policies for disaster credentialing and privileging - including degree of supervision required, clinical scope of practice (e.g. allowing providers to work outside their typical scope of practice), mentoring and orientation, electronic medical record access, and verification of credentials. Encourage employee preparedness planning (www.ready.gov and other resources). Collaborate with the Board of Medicine to facilitate licensure of out-of-state providers or retirees. Cache adequate personal protective equipment (PPE) and support supplies. Educate staff on institutional disaster response. Educate staff on community, regional, and state disaster plans and resources. Develop facility plans addressing staff's family/pets or staff shelter needs. Provide psychological support for staff, including resources for recognizing and addressing staff burnout and psychological distress. 	Prepare			
<p>Focus Staff Time on Core Clinical Duties</p> <ul style="list-style-type: none"> Minimize meetings and relieve administrative responsibilities not related to event. Implement efficient medical documentation methods appropriate to the incident. Cohort patients to conserve PPE and reduce staff PPE donning/doffing time and frequency. 	Conserve			
<p>Use Supplemental Staff</p> <ul style="list-style-type: none"> Bring in equally trained staff (burn or critical care nurses, Disaster Medical Assistance Team [DMAT], other health system or Federal sources). Bring in equally trained staff from administrative positions (nurse managers). 	Substitute			
<ul style="list-style-type: none"> Adjust personnel work schedules (longer but less frequent shifts, etc.) if this will not result in skill/PPE compliance deterioration. Use family members/lay volunteers to provide basic patient hygiene and feeding – releasing staff for other duties. 	Adapt			
<p>Focus Staff Expertise on Core Clinical Needs</p> <ul style="list-style-type: none"> Personnel with specific critical skills (ventilator, burn management) should concentrate on those skills; specify job duties that can be safely performed by other medical professionals. Have specialty staff oversee larger numbers of less-specialized staff and patients (e.g., a critical care nurse oversees the intensive care issues of 9 patients while 3 medical/surgical nurses provide basic nursing care to 3 patients each). Limit use of laboratory, radiographic, and other studies, to allow staff reassignment and resource conservation. Limit availability/indications for non-critical laboratory, radiographic, and other studies. Reduce documentation requirements. 	Conserve			

STAFFING

STRATEGIES FOR SCARCE RESOURCE SITUATIONS

CRISIS STANDARDS OF CARE

RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis
<p>Use Alternative Personnel to Minimize Changes to Standard of Care</p> <ul style="list-style-type: none"> • Use less trained personnel with appropriate mentoring and just-in-time education (e.g., health care trainees or other health care workers, Idaho Medical Reserve Corps, retirees). • Use less trained personnel to take over portions of skilled staff workload for which they have been trained. Collaborate with the Board of Medicine to temporarily license these alternate providers. • Provide just-in-time training for specific skills. • Cancel most sub-specialty appointments, elective procedures, and elective surgeries, to divert staff to emergency duties including in-hospital or assisting public health at external clinics/screening/dispensing sites. 	Adapt			

MEDICATION ADMINISTRATION

STRATEGIES FOR SCARCE RESOURCE SITUATIONS

RECOMMENDATIONS		Strategy	Conventional	Contingency	Crisis												
<p>Cache/Increase Supply Levels*</p> <ul style="list-style-type: none"> • Patients should have at least a 30 day supply of home medications and obtain 90 day supply if pandemic, epidemic, or evacuation is imminent. • Increase supply levels or cache critical medications - particularly for low-cost items and analgesics. • Coordinate with other hospitals throughout the state and consider sharing medications as able. • Restrict elective procedures and surgeries if shortages of relevant medications are anticipated. • Examine formulary to determine commonly-used medications and classes that will be in immediate/high demand. This may involve coordination with insurance companies/pharmacies. Key examples include: <table border="1"> <tbody> <tr> <td>Analgesia</td> <td>• Opioid and non-opioid analgesics</td> </tr> <tr> <td>Sedation</td> <td>• Particularly benzodiazepine (lorazepam, midazolam, diazepam) injectables, ketamine, propofol, dexmetomidine, and anti-psychotic agents.</td> </tr> <tr> <td>Anti-infective</td> <td>• Narrow and broad spectrum antibiotics for pneumonia, skin infections, open fractures, sepsis (e.g., cephalosporins, quinolones, tetracyclines, macrolides, clindamycin, penam class and extended spectrum penicillins, etc.), select antivirals.</td> </tr> <tr> <td>Pulmonary</td> <td>• Metered dose inhalers (albuterol, inhaled steroids), oral steroids (dexamethasone, prednisone).</td> </tr> <tr> <td>Behavioral Health</td> <td>• Haloperidol, other injectable and oral anti-psychotics, common anti-depressants, anxiolytics.</td> </tr> <tr> <td>Other</td> <td>• Sodium bicarbonate, paralytics, induction agents (etomidate, propofol), proparacaine/tetracaine, atropine, pralidoxime, epinephrine, local anesthetics, antiemetics, insulin, common oral anti-hypertensives, diabetes medications, tetanus vaccine and tranexamic acid, anti-epileptics (IV and oral), hypertonic saline, and anti-diarrheals.</td> </tr> </tbody> </table>		Analgesia	• Opioid and non-opioid analgesics	Sedation	• Particularly benzodiazepine (lorazepam, midazolam, diazepam) injectables, ketamine, propofol, dexmetomidine, and anti-psychotic agents.	Anti-infective	• Narrow and broad spectrum antibiotics for pneumonia, skin infections, open fractures, sepsis (e.g., cephalosporins, quinolones, tetracyclines, macrolides, clindamycin, penam class and extended spectrum penicillins, etc.), select antivirals.	Pulmonary	• Metered dose inhalers (albuterol, inhaled steroids), oral steroids (dexamethasone, prednisone).	Behavioral Health	• Haloperidol, other injectable and oral anti-psychotics, common anti-depressants, anxiolytics.	Other	• Sodium bicarbonate, paralytics, induction agents (etomidate, propofol), proparacaine/tetracaine, atropine, pralidoxime, epinephrine, local anesthetics, antiemetics, insulin, common oral anti-hypertensives, diabetes medications, tetanus vaccine and tranexamic acid, anti-epileptics (IV and oral), hypertonic saline, and anti-diarrheals.	Prepare			
Analgesia	• Opioid and non-opioid analgesics																
Sedation	• Particularly benzodiazepine (lorazepam, midazolam, diazepam) injectables, ketamine, propofol, dexmetomidine, and anti-psychotic agents.																
Anti-infective	• Narrow and broad spectrum antibiotics for pneumonia, skin infections, open fractures, sepsis (e.g., cephalosporins, quinolones, tetracyclines, macrolides, clindamycin, penam class and extended spectrum penicillins, etc.), select antivirals.																
Pulmonary	• Metered dose inhalers (albuterol, inhaled steroids), oral steroids (dexamethasone, prednisone).																
Behavioral Health	• Haloperidol, other injectable and oral anti-psychotics, common anti-depressants, anxiolytics.																
Other	• Sodium bicarbonate, paralytics, induction agents (etomidate, propofol), proparacaine/tetracaine, atropine, pralidoxime, epinephrine, local anesthetics, antiemetics, insulin, common oral anti-hypertensives, diabetes medications, tetanus vaccine and tranexamic acid, anti-epileptics (IV and oral), hypertonic saline, and anti-diarrheals.																

MEDICATION ADMINISTRATION

STRATEGIES FOR SCARCE RESOURCE SITUATIONS

CRISIS STANDARDS OF CARE

RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis
<p>Use Equivalent Medications</p> <ul style="list-style-type: none"> Obtain medications from alternate supply sources (pharmaceutical distributors, pharmacy caches). Explore options to compound or obtain from compounding pharmacies. Consider alternate forms of administration (e.g., metered dose inhalers instead of nebulized medications) or use other medications entirely (e.g., benzodiazepines instead of propofol for sedation for ventilated patients). 	Substitute			
<p>Reduce Use During High Demand</p> <ul style="list-style-type: none"> Restrict use of certain classes if limited stocks likely to run out (e.g., restrict use of prophylactic/empiric antibiotics after low risk wounds, etc.). Decrease dose: consider using smaller doses of medications in high demand/likely to run out (e.g., reduce doses of medications allowing blood pressure or glucose to run higher to ensure supply of medications adequate for anticipated duration of shortage). Allow use of personal medications (e.g., inhalers, oral medications) in hospital. 	Conserve			
<ul style="list-style-type: none"> Do without - consider impact if medications not taken during shortage (e.g., statins, etc.). http://www.astho.org/Programs/Preparedness/Coping-With-Drug-Shortages/Drug-Shortage-Report-2012/. 				

MEDICATION ADMINISTRATION

STRATEGIES FOR SCARCE RESOURCE SITUATIONS

CRISIS STANDARDS OF CARE

RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis
Modify Medication Administration <ul style="list-style-type: none"> Emphasize oral, nasogastric, subcutaneous routes of medication administration. Administer medications by gravity drip rather than IV pump if needed Rule of 6: pt wt (kg) x 6 = mg drug to add to 100mL fluid = 1mcg/kg/min for each 1 mL/hour. NOTE: For examples, see http://www.dosagehelp.com/iv_rate_drop.html. 	Adapt			
		<ul style="list-style-type: none"> Consider use of select medications beyond expiration date, especially tablets/capsules.** Consider use of veterinary medications when alternative treatments are not available.** 		
Restrict Allocation of Select Medications <ul style="list-style-type: none"> Allocate limited stocks of medications with consideration of regional/state guidance and available epidemiological information (e.g., anti-viral medications such as oseltamivir). 	Re-Allocate			
		<ul style="list-style-type: none"> Determine patient priority to receive medications in limited stock. 		

*Resources:

- [ASPR TRACIE Hospital Disaster Pharmacy Calculator](#). This tool estimates the number of patients that should be planned for based on the size of the emergency department and the role of the hospital.
- [ASPR TRACIE Factsheet: Drug Shortages and Disasters](#). This factsheet can help health care providers prepare for and respond to drug shortages that may arise during and after a disaster.

**Legal protection such as Food and Drug Administration approval or waiver required.

RENAL REPLACEMENT THERAPY

REGIONAL RESOURCE CARD

Resource cards are intended to provide incident-specific tactics and planning information to supplement the general strategy cards. They are organized according to the 'CO-S-TR' framework of incident response planning.

Category	RESOURCES AND RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis
<p>Command, Control, Communication, Coordination</p>	<p>General Preparedness Information Compared to other critical care interventions, hemodialysis offers equipment availability, expansion capacity, and care coordination that greatly reduces the risk of contingency and crisis care, at least in our geographic area. Disaster dialysis challenges generally result from:</p> <ol style="list-style-type: none"> 1. Lack of clean water sources (each hemodialysis requires about 160 liters ultra-clean water). 2. Relocation of dialysis-dependent patients to a new area (evacuation of nursing homes, flood zones, etc.). 3. Increase in patients requiring dialysis (crush syndrome, unusual infections). <p><u>Outpatient</u></p> <ul style="list-style-type: none"> • Primary providers are DaVita and Fresenius – both have extensive contingency plans to increase capacity and relocate patients (including toll-free numbers to access dialysis services). • Gem State Dialysis - University of Utah (Multi-state renal planning, quality, and emergency preparedness) has a database of all dialysis patients in the state/region and assists coordination of activities. <p><u>Inpatient</u></p> <ul style="list-style-type: none"> • Most facilities lease inpatient services via contract with above or other agencies; some have own nurses and program – plans should account for contingency use of alternate services/leasing services. <p><u>Patient preparedness</u></p> <ul style="list-style-type: none"> • Patients should have a disaster plan – including specific foods set aside for up to 72h. Note that shelters are unlikely to have foods conducive to renal dietary needs (low sodium, etc.). • Personal planning guidance from the National Kidney Foundation. • Patients need to have access to personal protective equipment and a plan for safe isolation, in the event of a pandemic. <p>Shortage of Renal Replacement Therapy (RRT) Resources</p> <ul style="list-style-type: none"> • Affected facility should contact involved/affected dialysis provider companies and organizations as expert consultants.¹ 	<p>Prepare</p>			

RENAL REPLACEMENT THERAPY

REGIONAL RESOURCE CARD

CRISIS STANDARDS OF CARE

Category	RESOURCES AND RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis
Space	Relocated Patients Requiring Outpatient Dialysis <ul style="list-style-type: none"> Contact usual outpatient provider network to schedule at new facility – refer patients to ‘hotlines’ as needed. 	Substitute			
	Excess Patients Requiring Dialysis <ul style="list-style-type: none"> Transfer patients to other facilities capable of providing dialysis. Consider moving patients to facilities with in-house water purification if water quality is an issue for multiple inpatients requiring dialysis. 				
	<ul style="list-style-type: none"> Consider moving other inpatient or outpatient dialysis staff and equipment to facilities requiring increased dialysis capacity. 	Adapt			
Supplies	Water Supply <ul style="list-style-type: none"> Quantify water-purifying machines available for bedside dialysis machines. Identify facilities providing high-volume services that purify their own water and pipe to specific rooms in the dialysis unit, intensive care, etc. Identify water-purifying and dialysis machines to be obtained through lease agreements. 	Prepare			
	Water Contamination <ul style="list-style-type: none"> Consider alternate sources of highly purified water. Consider transferring stable inpatients to outpatient dialysis centers for dialysis treatments and vice versa. Consider use of Idaho National Guard water reserves and purification equipment – but must assure adequate purity for dialysis (potable is NOT sufficiently clean). 	Prepare Substitute Adapt			
	Power Outage or Shortage <ul style="list-style-type: none"> Consider transferring stable inpatients to outpatient dialysis centers for dialysis treatments and vice versa. Consider transferring inpatients to other hospitals. Consider transfer of outpatients to other facilities for care until issue resolved. 	Substitute Adapt			
	Dialysis Catheters, Machines, Reverse Osmosis Machines, and/or Other Supply Shortages <i>Note:</i> Dialysis catheters and tubing are inexpensive, relatively interchangeable, and supplied by several manufacturers. <ul style="list-style-type: none"> Stock adequate dialysis tubing sets and venous access catheters (Quinton, etc.) for at least one month’s usual use. Identify provider network and other sources of supplies and machines, including provider networks in other states. Transfer machines/supplies between outpatient centers and hospitals, or between hospitals. 	Prepare Substitute			

RENAL REPLACEMENT THERAPY

REGIONAL RESOURCE CARD

CRISIS STANDARDS OF CARE

Category	RESOURCES AND RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis
Staff	Dialysis Staff Shortages² <ul style="list-style-type: none"> Non-dialysis nursing staff to take on “routine” elements of dialysis nursing (e.g., taking VS, monitoring respiratory and hemodynamic status, etc.). 	Substitute			
	<ul style="list-style-type: none"> Dialysis nursing staff to supervise non-dialysis nursing staff providing some dialysis functions. Outpatient dialysis techs may be used to supervise dialysis runs if provider deficit is critical issue. The majority of the state’s nephrologists are in the Treasure Valley (Boise Kidney & Hypertension Institute 208-846-8335; Idaho Nephrology Associates 208-501-8955) or in Idaho Falls (Idaho Kidney Center 800-881-5101); health systems experiencing nephrology shortages should reach out to these nephrology groups for assistance. 	Adapt			
Special	Community Planning <ul style="list-style-type: none"> Medical needs of re-located renal failure patients are substantial; planning on the community level should incorporate their medication and dietary needs during evacuation and sheltering activities. 	Prepare			
Triage	Insufficient Resources Available For All Patients Requiring Dialysis <ul style="list-style-type: none"> Change dialysis from ‘scheduled’ to ‘as needed’ based on clinical and laboratory findings (particularly hyperkalemia and impairment of respiration) – parameters may change based on demand for resources. 	Conserve			
	<ul style="list-style-type: none"> Consider hemodialysis or peritoneal dialysis if insufficient access to continuous renal replacement therapy (CRRT). 	Substitute			
	<ul style="list-style-type: none"> Conceivable (but extraordinary, given outpatient dialysis machine resources) situations may occur where resources are insufficient to the point that some patients may not be able to receive dialysis (for example, pandemic when demand nationwide exceeds available resources). In these situations, access to dialysis should be considered as part of critical care intervention prioritization (see Mechanical Ventilation for Adults, pages 3-9). 	Re-Allocate			

RENAL REPLACEMENT THERAPY

REGIONAL RESOURCE CARD

CRISIS STANDARDS OF CARE

Category	RESOURCES AND RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis
Treatment	Crush Syndrome <ul style="list-style-type: none"> Initiate IV hydration and acidosis prevention protocols “in the field” for crush injuries to prevent/treat rhabdomyolysis in hospital settings. 	Conserve			
	Mode of Dialysis <ul style="list-style-type: none"> Restrict to hemodialysis only for inpatient care (avoid continuous renal replacement therapy (CRRT) and peritoneal dialysis (PD) due to duration of machine use (CRRT) and supply issues (PD)). Consider PD if dialysis supplies sufficient, but HD or CRRT machines limited. 	Substitute			
	Increased Demand on Resources <ul style="list-style-type: none"> Shorten duration of dialysis for patients that are more likely to tolerate it safely. Patients could utilize their home “kits” of medication (Kayexalate) and follow dietary plans to help increase time between treatments, if necessary. 	Conserve			
Transportation	Transportation Interruptions <ul style="list-style-type: none"> Dialysis patients may require alternate transportation to assure ongoing access to dialysis treatment. Chronic patients should coordinate with their service providers/dialysis clinics first for transportation and other assistance during service/transportation interruptions. Emergency management and/or the health and medical sector may have to supplement contingency transportation to dialysis during ice storms or other interruptions to transportation. 	Prepare Adapt			

1. The major national dialysis corporations have extensive experience contending with disasters; their input during any anticipated or actual incident is imperative to optimize the best patient care in Idaho.
2. See Staffing, [pages 10-11](#).

ECMO (Extra-corporeal membrane oxygenation)

STRATEGIES FOR SCARCE RESOURCE SITUATIONS

CRISIS STANDARDS OF CARE

Category	RESOURCES AND RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis
Triage	<p>General Information</p> <ul style="list-style-type: none"> Extra-corporeal membrane oxygenation (ECMO) is already a severely limited resource in Idaho. ECMO has very high staffing and supply needs; hospitals should use their discretion whether or not they are able to provide ECMO during crisis standards of care. 	Re-Allocate			

ORIENTATION TO SPECIALTY AND GOALS

NOTE

This card provides a focused description of palliative care management principles in disaster situations. These principles are relevant to all patients, as well as those who may receive palliative care as their only intervention due to demand on the health care system relative to their prognosis.

Specialty Description

Palliative care has a goal of providing the best possible quality of life for people facing the pain and stress of a serious, but not necessarily terminal, medical condition. It can be appropriate for patients of any age and at any stage of an illness - from diagnosis on - and can be provided along with treatments for the medical condition.

Index

Orientation to Specialty and Goals	Page 20-21	Space	Page 24-25	Special	Page 28
Planning Resources	Page 22	Supplies	Page 26	Triage	Page 29
Communications and Coordination	Page 22-24	Staff	Page 27		

Principles of Palliative Care

- Palliative care should be provided to ALL patients.
- Focuses on human contact and comfort in addition to medical care.
- Increases the physical and mental well-being of the patient.
- Is not abandonment or euthanasia, and does not aim to hasten death (though in some cases, the doses required to relieve severe symptoms may indirectly contribute to the dying process; however, this meets the ethical criteria for the double-effect principle where indirect harm is permissible in the service of a greater good).
- Relieves symptoms and provides physical comfort measures such as control of pain, nausea, dyspnea, temperature regulation, and positioning.
- Assures respectful care, reassurance, and emotional and social support as possible.
- Cultural diversity may have impact on acceptance of palliative care offerings.
- During a public health emergency, palliative care may be the only care that is able to be provided due to a patient’s prognosis and available resources. On these resource cards, we refer to this type of palliative care as comfort care.

ORIENTATION TO SPECIALTY AND GOALS

Disaster Considerations

- Symptom support should be maintained in hospital and non-hospital environments. This will involve planning by outpatient entities such as hospice care, pharmacies, medical equipment providers as well as inpatient entities such as palliative care hospital-based programs.
- For existing hospice patients, the spectrum of care should be defined.
- For those designated to receive comfort care, key considerations are:
 - ◊ Expected survival - hours, days, or weeks – this helps to guide needs, referrals, and resources.
 - ◊ Required interventions - this helps guide location of care and support planning.
 - ◊ Basis for designation - if the decision for comfort care is based on the lack of a single resource, there must be a plan for re-assessment if the patient's condition improves or more resources become available (i.e., would they qualify to receive additional treatment if more resources become available and how are they contacted/monitored) - see triage tree on [page 29](#).
- Home health and other agencies will need to prioritize services relative to hospice patients during a disaster (as this can have significant impact on patient/family/agency planning).
- Supportive measures should be offered that maintain comfort, but do not prolong the dying process :
 - ◊ If death is inevitable, there may be no benefit in providing intravenous fluids or nutritional support.
 - ◊ **If death is not certain, other forms of support may be very reasonable as other resources become available.**

PALLIATIVE CARE

SCARCE RESOURCE STRATEGIES

CRISIS STANDARDS OF CARE

Category	RESOURCES AND RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis
Planning Resources	<p>Planning Resources</p> <p><i>General palliative care resources and fact sheets:</i></p> <ul style="list-style-type: none"> • Palliative Care Network of Wisconsin (PCNOW). • PCNOW Fast Facts and Concepts. <p><i>ICU care:</i></p> <ul style="list-style-type: none"> • Improving Palliative Care in the ICU (IPAL-ICU project). <p><i>General resources in palliative care and non-pharmacologic intervention:</i></p> <ul style="list-style-type: none"> • American Academy of Hospice and Palliative Medicine. • Center to Advance Palliative Care. • World Health Organization Essential Medicines in Palliative Care. • UpToDate—What’s new in Palliative Care. • Cambia Palliative Care Center of Excellence. • VITALtalk. 	Prepare			
Communications and Coordination	<p>Key Idaho Organizations</p> <ul style="list-style-type: none"> • Local home care agencies • Inpatient palliative care programs: Palliative care MD on 24 hour pager for most facilities/systems. • Hospice programs: Majority of State has hospice program coverage and most programs usually have hospice MD on 24 hour pager. Check with hospital health systems for main contact/referral phone line. 	Prepare			

Category	RESOURCES AND RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis
Communications and Coordination	<p>Communications and Coordination</p> <ul style="list-style-type: none"> • Close coordination between hospitals, home care agencies, and public health is required prior to and during disasters in which increased home care and at-home palliative and hospice services are expected. • Communications, including printed materials and a mechanism for ongoing situational awareness, are required during contingency and crisis events. This coordination may involve conference calls or other means of keeping stakeholder agencies informed and up-to-date. • In major disasters requiring proactive triage to comfort care only, DHW may provide additional guidance and incident-specific resources. Additional resources for families providing home care would also need to be made available by local and state public health and major health care systems. <p>Communications with Families and Patients</p> <ul style="list-style-type: none"> • Review advance care planning in the context of the current situation – proxy designations, advance directives, Physician Orders for Scope of Treatment (POST) forms. • Ensure that patients, patients’ families/durable power of attorney for healthcare (DPOAH), and patients’ residential facility (if applicable) have copies of and ready access to advance care planning documents. • Interventions able to be offered may not fulfill all of the preferences expressed in those directives. • Make sure long-term care facilities have a contact person at nearby hospitals so that they can help make sure advance directives and living wills are identified and followed. • Describe palliative support as a quality of life and aggressive symptom management framework that is not related to hastening death or euthanasia. • Incorporate relevant cultural variables into palliative care plans. 	Prepare Adapt			

Category	RESOURCES AND RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis
Communications and Coordination	<p>Communications with Families and Patients</p> <ul style="list-style-type: none"> Proactively provide families and patients with up-to-date information on the resources in shortage and any relevant triage criteria/processes being used, as well as any necessary infection prevention measures. Explain the basis of triage decisions and any re-assessment or potential options. Re-frame goals of care with patient and family. Maintain hope despite changes in treatment/goals - factors that often decrease hope include feeling devalued, abandoned or isolated (“there is nothing more that can be done”), lack of direction and goals, and unrelieved pain and discomfort. If visitation is limited due to the nature of the disaster (e.g., pandemic), actively pursue other means of communication between patients and loved ones, such as video calls. 	Prepare Adapt			
Space	<p>Inpatient Space</p> <p>In crisis situations there may be a large number of patients that are receiving comfort care only. Cohorted spaces may be an option for these patients. These areas should be:</p> <ul style="list-style-type: none"> Comfortable – the maximal physical comfort should be provided to patients and families and the environment and equipment should be as comfortable as possible given the resources available. Private – as much privacy as possible should be planned for the patients and families. Accessible - families and loved ones should be able to visit and spend time with the patient. If visitation is limited due to the nature of the disaster (e.g., pandemic), actively pursue other means of communication between patients and loved ones, such as video calls. 	Adapt			

Category	RESOURCES AND RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis
Supplies	<p>Supplies There is no substitute for pre-event stockpiling of medications to treat key symptoms. Every disaster will require significant quantities of analgesics. The availability of adequate pain and symptom relief should be a key area of disaster planning.</p> <p>Inpatient and Outpatient Anticipate the need for additional stocks of medications to provide analgesia and symptom relief for all patients. Inexpensive but critical medications to stockpile include:</p> <ul style="list-style-type: none"> • Oral non-opioid analgesics (also valuable as anti-pyretics) • Anti-emetics • Opioid analgesics • Steroids • Benzodiazepines • Diuretics • Anti-psychotics • Bowel regimen medications <p>Outpatient pharmacies should anticipate the need for increased supplies of these agents and support palliative care dosing of these agents that may be in excess of usual recommendations.</p> <ul style="list-style-type: none"> • Avoid stockpiling or hoarding in the setting of increased demand. • Personal protective equipment (PPE) needs should be anticipated. As applicable to the situation, appropriate PPE should be provided to all persons engaged in direct patient care. 	Prepare			

PALLIATIVE CARE

SCARCE RESOURCE STRATEGIES

CRISIS STANDARDS OF CARE

Category	RESOURCES AND RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis
Staff	<p>Staff</p> <ul style="list-style-type: none"> Physician and nursing staff expected to provide disaster palliative care should receive pre-incident palliative care training. Staff that do not regularly provide palliative care, but could be called upon in a disaster, should receive pre-incident training and orientation to facility resources. This may include providers in other fields or nurses not trained in palliative care. The facility should identify subject matter experts within their facility/area and obtain their input into palliative care planning. During a response, these experts can provide input on strategies and tactics, as well as provide overall clinical guidance and expertise. 	Prepare			
	<ul style="list-style-type: none"> Faith-based and other community resources for non-clinical support may be critical assets for those receiving care at home. Spiritual resources should be made available to both patient and family if desired and feasible. Just-in-time training should be provided to nursing and physician staff as required to acquaint them with palliative care priorities, medication dosing, and other issues. 	Conserve Adapt Substitute			
	<ul style="list-style-type: none"> Hospice agencies should have plans in place to adjust staff roles and triage services provided in response to increased demand. In case palliative care areas are activated, support these areas with staff that are comfortable with medication administration that can be supervised by staff with more experience. Precise recommendations on staffing are difficult as the needs of the patients can vary greatly, but every attempt should be made to provide adequate personnel to meet the comfort needs of patients. This strategy may involve tiered use of professional and non-professional staff. Additional staff may have to be drawn from other institutions or fields, or from the Medical Reserve Corps (e.g., to provide broader support to homecare). These staff will also require just-in-time training. Regionally, palliative care teams that can support a facility in crisis or support additional outpatient care may be advantageous. 	Conserve Adapt Substitute			

PALLIATIVE CARE

SCARCE RESOURCE STRATEGIES

CRISIS STANDARDS OF CARE

Category	RESOURCES AND RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis
Special	<p>Special When patients are receiving comfort care only after being triaged to non-critical care based on triage protocols, management of expectations and transitions is critical to the physical and mental well-being of the patient, family, and providers. Consider the availability of resources for:</p> <ul style="list-style-type: none"> • Social work/family resources. • Spiritual support. • Support for persons with disabilities. • Psychological support for patients and their families. • Discharge and/or death support and planning. • Family/caregiver accommodations. 	Prepare			
	In all emergency situations, it is crucial to provide psychological support for staff, including resources for recognizing and addressing staff burnout and psychological distress.	Prepare			

RECOMMENDATIONS

Guidance

- Decisions regarding conventional, contingency, and crisis standards will be developed and approved by the Idaho EMS Physician Commission and adopted as appropriate by local agency medical directors.

PEDIATRICS

REGIONAL RESOURCE CARD

Resource cards are intended to provide incident-specific tactics and planning information to supplement the general strategy cards. They are organized according to the [‘CO-S-TR’ framework of incident response planning](#).

Category	RESOURCES AND RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis										
<p>Command, Control, Communication, Coordination</p>	<p>Planning and response considerations Tertiary centers with inpatient pediatric, trauma and PICU capability can provide consultation and transfer support based on patient needs. The following centers can provide real-time consultation in support of pediatric critical care when transfer is difficult or not possible or when highly specialized services (e.g. ECMO) are anticipated to be needed.</p> <ul style="list-style-type: none"> Pediatric hospital resources in Idaho: <table border="1" data-bbox="506 545 1182 878"> <thead> <tr> <th>Trauma Level</th> <th>Hospital Name</th> </tr> </thead> <tbody> <tr> <td>Level I</td> <td>N/A</td> </tr> <tr> <td>Level II</td> <td>St. Luke’s Children’s Hospital</td> </tr> <tr> <td>Level III</td> <td>Eastern Idaho Regional Medical Center</td> </tr> <tr> <td>Level IV</td> <td>N/A</td> </tr> </tbody> </table> Pediatric patients will have to be stabilized (and in some cases treated, for 24 to 48 hours) at initial receiving hospital in major incident – all facilities must be prepared for pediatric cases. Facility procedures for patient tracking, unaccompanied minors, and release of minors to family/caregivers. Smaller incidents – facility-to-facility coordination. Statewide incident impact: <ul style="list-style-type: none"> IDHW will support facilities, healthcare coalitions, and public health districts to facilitate patient and resource distribution. Statewide consultation/referral hotline may be initiated as needed. 	Trauma Level	Hospital Name	Level I	N/A	Level II	St. Luke’s Children’s Hospital	Level III	Eastern Idaho Regional Medical Center	Level IV	N/A	<p>Prepare</p>			
Trauma Level	Hospital Name														
Level I	N/A														
Level II	St. Luke’s Children’s Hospital														
Level III	Eastern Idaho Regional Medical Center														
Level IV	N/A														

PEDIATRICS

REGIONAL RESOURCE CARD

CRISIS STANDARDS OF CARE

Category	RESOURCES AND RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis																														
Space	Space <ul style="list-style-type: none"> Use maximal beds on pediatric unit and at pediatric centers noted above. Prioritize transfer of children < 8 years of age to pediatric specialty centers. Surge to non-pediatric, age-appropriate units within hospital. 	Adapt Conserve Substitute																																	
	<ul style="list-style-type: none"> Distribute non-critical and older pediatric patients from overwhelmed pediatric centers to other accepting facilities. Expand acute outpatient care for the minimally injured/ill. 																																		
	<ul style="list-style-type: none"> Forward movement to regional pediatric centers in adjoining states as required to assure appropriate ongoing care - in coordination with IDHW and FEMA Region X (AK, ID, OR, WA) and/or National Disaster Medical System (NDMS) patient movement for catastrophic incident (unlikely to only affect pediatric portion of population). 																																		
Supplies	Outpatient Supply Planning <ul style="list-style-type: none"> Consider expansion of outpatient pediatric-specific supplies (e.g., crutches, pediatric-specific forms of analgesics) at facility to support discharged patients. 	Prepare																																	
	Inpatient Supply Planning <ul style="list-style-type: none"> Institutions should prepare based on role in community. As a minimum, recommend each facility be prepared to care for the number of victims listed in the table below, based on their designated trauma level. 																																		
	<table border="1"> <thead> <tr> <th></th> <th colspan="2">Critically Injured¹</th> <th colspan="2">Non-Critical Age <18</th> </tr> <tr> <th>Trauma Level</th> <th><8 years old</th> <th><1 year</th> <th>Yellow patients</th> <th>Green patients</th> </tr> </thead> <tbody> <tr> <td>Level IV</td> <td>2</td> <td>1</td> <td>5</td> <td>10</td> </tr> <tr> <td>Level III</td> <td>4</td> <td>2</td> <td>10</td> <td>15</td> </tr> <tr> <td>Level II</td> <td>6</td> <td>3</td> <td>15</td> <td>20</td> </tr> <tr> <td>Level I</td> <td>8</td> <td>4</td> <td>20</td> <td>30</td> </tr> </tbody> </table>						Critically Injured ¹		Non-Critical Age <18		Trauma Level	<8 years old	<1 year	Yellow patients	Green patients	Level IV	2	1	5	10	Level III	4	2	10	15	Level II	6	3	15	20	Level I	8	4	20	30
						Critically Injured ¹		Non-Critical Age <18																											
	Trauma Level					<8 years old	<1 year	Yellow patients	Green patients																										
	Level IV					2	1	5	10																										
	Level III					4	2	10	15																										
Level II	6	3	15	20																															
Level I	8	4	20	30																															

¹ Assume will require airway management, IV access at minimum

Category	RESOURCES AND RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis
Supplies	<p>The American Academy of Pediatrics/American College of Emergency Physicians/Emergency Nurses Association recommended equipment list is the basis for planning, with emphasis on:</p> <ul style="list-style-type: none"> • Airway equipment sufficient for number and age of victims. • Vascular access equipment, including adequate quantity of intravenous cannulas and intraosseous needles. • References, charts, or other systems for size/weight-based equipment and drug dosing (reference book, wall charts, Broselow tape, or similar). • External warming devices. 	Prepare			
Staff	<p>Staff</p> <ul style="list-style-type: none"> • Pre-incident pediatric medical/trauma critical care training should be conducted for physician and nursing staff expected to provide emergency care. Consider courses such as Advanced Pediatric Life Support, Pediatric Advanced Life Support. 	Prepare			
	<ul style="list-style-type: none"> • Staff that do not regularly provide pediatric emergency care but could be called upon in a disaster should receive pre-incident training and orientation to facility equipment. Scenario-based or other training (simulation and other brief, frequent training) is highly recommended. • Just-in-time training may be required in certain situations for non-pediatric nursing and physician staff reinforcing key points of pediatric or incident-specific patient care (including pediatric assessment triage, importance of fluid management, urine output parameters, principles of analgesia, etc.). 	Adapt			
	<ul style="list-style-type: none"> • In a major incident, adjust pediatric physician and nurse staffing patterns as needed to provide supervision of key aspects of pediatric care. See Staffing Strategies for Scarce Resource Situations for further consideration; for example, have critical care staff supervise care at a higher level, delegating many bedside duties to other providers. • IDHW may work with in-state and adjacent state experts to set up 'hotline' to provide consultation to non-pediatric centers caring for pediatric patients (for example during pandemic). • NDMS and/or other supplemental staff may be required to work in facilities (see Staffing Strategies for Scarce Resource Situations). 	Conserve Adapt Substitute			

PEDIATRICS

REGIONAL RESOURCE CARD

CRISIS STANDARDS OF CARE

Category	RESOURCES AND RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis
Special	<p>Consider availability of resources for:</p> <ul style="list-style-type: none"> Social work/ family support. Psychological support for children, their families and staff (do not underestimate the increased stress and psychological impact of a pediatric incident, particularly a mass casualty incident, on health care providers). <ul style="list-style-type: none"> Idaho Care Line 2-1-1 Idaho Crisis Centers Youth Empowerment Services Idaho Mental Health Services Disaster Behavioral Health Information Series (DBHIS): Children and Youth SAMHSA Disaster Technical Assistance Center Discharge support and planning, particularly for rehabilitation and other specialty follow-up. Patient tracking and patient safety, particularly for unaccompanied minors (e.g. banding system to identify children and guardians). Family/caregiver accommodations. 	Prepare			
Triage	<p>Consider early transfer to a facility providing pediatric intensive care services for:</p> <ul style="list-style-type: none"> Progressing respiratory symptoms/hypoxia. Shock, or need for ongoing resuscitation. Critical trauma, including neurotrauma according to usual trauma triage criteria. Patients with concomitant burns should be transferred to a region burn center. Patients with complex underlying medical conditions may require consultation or special triage considerations. 	Conserve			
Treatment	<p>Provide stabilizing care (airway, fluid management, analgesia, etc.) – for initial priorities.</p> <p>Special Considerations</p> <ul style="list-style-type: none"> Airway/Breathing and Circulation (ABCs) are still critical – do not deviate from usual trauma/critical care priorities due to size/age/behavior concerns. Pediatric airways are small; there is little room between partial and complete obstruction. Age and height-based estimations are NOT always accurate – always be prepared with a range of equipment sizes, especially for airway interventions. Assess skin color, capillary refill and heart rate for signs of poor perfusion. Hypotension is a late sign of shock in pediatric patients. 	Prepare			

Category	RESOURCES AND RECOMMENDATIONS	Strategy	Conventional	Contingency	Crisis
Treatment	<ul style="list-style-type: none"> Typically, pediatric patients respond to treatments more quickly than adults. Reassess frequently and alter treatments to fit the response. Monitor for signs of pain and treat pediatric patients with analgesics via weight-based guidelines, then titrate to effect. Pediatric pain is often inadequately treated. Hypoglycemia and hypothermia are very common –anticipate, prevent, and correct as necessary. Monitor IV fluids carefully to control volume delivered in smaller patients (e.g., IV pumps or buretrols). Double-check medication doses with team members, especially with medication drips as significant errors are common. DO NOT exceed maximum adult dose. Assessment may be difficult due to age-related and communication-related issues – history from the family/ caregivers may be critical. Do not separate the child from family/guardian if at all possible. Medical alert bracelets and care plans should be sought for all children. 	Prepare			
Transportation	<p>After stabilizing care, assess need for transfer</p> <ul style="list-style-type: none"> Plan for oxygen, fluids, and analgesia requirements in transport. Consider need for airway intervention prior to transport. Consider plans for caregivers/family transportation. 	Prepare Adapt			
	<ul style="list-style-type: none"> A mass casualty incident may affect more than one facility requiring coordination with regional health care coalitions to prioritize transportation and manage logistics via Multi-Agency Coordination. Regional transfer coordination may be required in major disasters – Bureau of Emergency Medical Services will assist regional health care coalitions and involve appropriate state and federal (NDMS) resources; in certain situations (such as pandemic, major mass casualty incident) patients may have to receive care in non-pediatric centers. Ensure that targeted medical record information (including name, allergies, medications given, current medications, age and family contact information) is always with patient. Arrange transport via air medical transport as appropriate – if multiple institutions affected coordinate with regional health care coalition and/or multi-agency coordination system. 				

Ethical goal of the allocation framework

This document provides guidance for the triage of mechanical ventilation for pediatric patients in the event that a public health emergency creates demand that outstrips supply. These triage recommendations should be enacted only if: 1) critical care capacity is, or shortly will be, overwhelmed despite taking all appropriate steps to increase the surge capacity to care for critically ill patients; and 2) an emergency declaration that crisis standards of care are in effect has been issued by the appropriate state official. The ventilator allocation framework is grounded in ethical obligations that include the duty to care, duty to steward resources, distributive and procedural justice, and transparency. Its guiding principle is that all lives have value and that no patients will be discriminated against on the basis of disability, race, color, national origin, age, sex, gender, or exercise of conscience and religion.

The primary goal of the ventilator allocation framework is to maximize benefit for populations of patients. The focus is on saving the most lives and life years, within the context of ensuring meaningful access for all patients, ensuring individualized patient assessments, and diminishing the negative effects of social inequalities that lessen some patients' long-term life expectancy. For pediatric patients, a validated protocol that can help predict survival to hospital discharge does not exist. As such, this triage protocol requires an individualized assessment by the clinical team in consultation with a regional pediatric critical care specialist and/or a children's hospital crisis standards of care triage team. We recognize that predicting survival can be clinically difficult and that each patient is unique; the allocation framework therefore includes no categorical exclusions for ventilator access. Importantly, children with disabilities should not be denied ventilator access based on stereotypes, assessments of quality of life, or judgments about a person's relative "worth" based on the presence or absence of disabilities. Decisions regarding candidacy for treatment should be based on individualized assessments using the best available objective medical evidence.

The ventilator allocation framework needs to be followed step by step and in order. It starts with consultation with a local/regional pediatric critical care expert for assistance with an individualized assessment. The next step involves contacting the state children's hospital to determine regional availability of pediatric hospital and critical care beds and the possibility of immediate transfer. If an immediate transfer is not possible, and the treating hospital has insufficient ventilators to meet demand, pediatric patients need to be triaged for ventilator access just like adult patients based on pre-existing comorbidities and their likelihood to survive the hospitalization. The framework includes guidance for resolving "ties," in the event that multiple patients in the same Priority Category need access to the same ventilator. It provides a timeline for reassessing patients and potentially reallocating ventilators, as patients improve or deteriorate. Steps 1 to 3 of the protocol are unique to pediatric patients. Beginning with Step 4, the general mechanical ventilation protocol on [page 8](#) should be utilized.

STEP 1: Contact local/regional pediatric critical care expert for assistance with individualized assessment and need for critical care.

STEP 2: Contact St. Luke’s Children’s Hospital, or other regional tertiary pediatric facility, to determine availability of pediatric inpatient and critical care beds. Transfer child to nearest/most appropriate children’s hospital based on individualized assessment and bed availability.

STEP 3: If no pediatric beds are available at regional children’s hospitals and local critical care access is insufficient to meet demand, pediatric patients need to be triaged for critical care access just like adult patients. First, determine the prognosis for survival to hospital discharge by performing an individualized assessment in consultation with a local/regional pediatric critical care expert as in Step 1. Then, together with this expert, use the chart below to determine the patient’s Priority Score based on their acute presentation plus the presence or absence of comorbid conditions that may impact their survival. Assign 2 points for major comorbidities with substantial impact on near-term survival. Assign 4 points for severe, life-limiting comorbidities for which death is expected in the near-term despite successful treatment of acute illness (e.g., the patient meets hospice criteria). Add the points from the first line of the table (Save the most lives) to the points from the second line of the table (Save life-years) to obtain a Priority Score. Lower scores indicate a higher likelihood of benefiting from critical care.

Principle	Specification	POINT SYSTEM			
		1	2	3	4
Save the most lives	Prognosis for survival to hospital discharge	Very likely to survive	Likely to survive	Less likely to survive	Not likely to survive
Save life-years	Prognosis for near-term survival (medical assessment of comorbidities)	No points added	Major comorbidities with substantial impact on near-term survival ADD 2 POINTS	No points added	Severe, life-limiting comorbidities for which death is expected in the near-term despite successful treatment of acute illness (e.g., meets hospice criteria) ADD 4 POINTS

STEP 4: Please go to Step 4 in the “Mechanical Ventilation” section on [page 8](#).