

POLICY/PROCEDURE: Emergency/Pandemic Protocol for Intensive Care Services (EPICS)	DEPARTMENT: Environment of Care
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I. PURPOSE:

To provide a triage protocol to allocate scarce health care resources (intensive care services, including ventilators) to those who are most likely to benefit medically during a pandemic respiratory crisis or other emergency situation that has the potential to overwhelm available intensive care resources.

II. PHILOSOPHY:

This triage protocol seeks to provide transparent objective clinical criteria and an ethical framework for medical decision-making in overwhelming emergency circumstances, such as during pandemic respiratory crisis when the demand for intensive care services may overwhelm the supply of services. It is important to stress that this policy is reliant first upon clinical indicators of survivability as a means of determining medically appropriate resource utilization with the purpose of benefiting each patient according to his/her medical condition. Each patient without regard to health insurance status, socioeconomic class, race, religion, sexual orientation or other social criteria deserves and will receive respect, care and compassion. However this does not mean that all patients should or will receive critical care services in the time of resource scarcity.

Baylor Health Care System’s healing professionals believe that the best medical decisions are based upon both clinical medical science and clinical medical ethics. The foundational ethical principles of beneficence and respect for persons remind us that clinical indicators of survivability and the potential to relieve suffering are key guides for medical treatment decisions, but perhaps no more so than in the setting of pandemic illness or other emergency circumstances in which the health care resources available are not adequate to meet all the needs of those who present for treatment.

There is no perfect clinical scoring system for survivability (prediction of mortality) in every clinical situation. Any such system is inherently probabilistic and will foster decisions based upon probabilities and not certainty. Some members of the public may find this concept troubling, however we believe the triage protocol within this policy is the best available at this time. It incorporates features of existing triage systems, information obtained from other health care pandemic flu plans, and lessons learned from previous outbreaks of severe acute respiratory syndrome reported in the literature. Central to this protocol is the Sequential Organ Failure Assessment (SOFA) score (see Appendix I), designed to help determine as quickly and as accurately as possible which patients will have the greatest probability of benefitting medically from potentially life sustaining interventions, particularly mechanical ventilators and other interventions typically available only in the ICU. The SOFA score is not disease specific but rather uses general physiologic parameters applicable to a wide variety of conditions. It has been validated on a wide range of patients who have had various reasons for being in an intensive care unit.

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Moving beyond the clinical medical science of the SOFA score, this policy is supported by an ethical framework based upon a duty to care for all patients, balancing an individual patient's rights and responsibilities with communal rights and responsibilities, especially in a time of resource scarcity such as during a pandemic illness. It seeks to maximize positive outcomes for the greatest number of patients within the larger community, to protect individual patients from inequalities, and to protect the integrity of the healing professionals who may be faced with seemingly intractable ethical challenges in times of resource scarcity and overwhelming demand.

III. POLICY

- A. This triage protocol applies to all patients who are being considered for admission to critical care areas during a pandemic respiratory illness or other circumstance in which the policy has been activated, since there is only a single pool of critical care resources that must be shared by both those with and without the illness that has triggered the activation of this policy.
- B. This policy should not be viewed as a first step toward any type of resource rationing under normal circumstances. It should be used only in genuinely extraordinary situations in which the demand for intensive care services overwhelms the available services, such as in pandemic respiratory crisis.
- C. Clinicians will evaluate all patients based upon the objective guidelines provided in this policy and will offer time-limited trials of ventilator support if clinically indicated based upon the triage protocol. We recognize that this policy addresses a situation of extraordinary medical and ethical challenge and that it may not adequately address every conceivable circumstance. Accordingly, if a physician responsible for the treatment and care of patients feels the guidance within this policy is inadequate for a particular case confronting them, they may act according to their medical/ethical judgment and then appeal to the Triage Committee for further guidance.
- D. The principles of palliative care will play a crucial role in providing comfort to patients, including those who are not eligible to receive mechanical ventilation.
- E. Patients and families will be informed as soon as feasible that in the circumstance of pandemic respiratory illness or other overwhelming emergency crisis, ventilator support and other critical care interventions may not be available at all and when available will be provided based upon a protocol equally applied to all patients. They will be further informed that the ventilator and other critical care type services represent a time-limited trial of therapy that may not improve the patient's condition sufficiently, in which case the ventilator will be removed and a transfer from the critical care area will occur.
- F. Patients using ventilators at Baylor Specialty Hospitals (including Our Children's House at Baylor) will not be subjected to the acute care triage protocol/guidelines of this policy/procedure. Utilizing ventilators at Baylor Specialty Hospitals for long term ventilator patients, who will have limited access to acute care facilities, offers a balance between the duty to care and the duty to allocate wisely. If, however, such patients require transfer to a Baylor Health Care System (BHCS) acute care facility, they would be assessed

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by the same criteria as acute care patients to determine whether they meet criteria for continued ventilator use.

- G. Baylor Specialty Hospitals (including Our Children’s House at Baylor) will be expected to provide more intensive services on site as part of the general process of expanding care beyond standard locations. The limited ability to effect transfers to acute care hospitals is appropriate and likely during a phase in which the acute care hospitals are overwhelmed by a pandemic or emergency circumstance in which this policy has been activated.

IV. LIMITING THE NEED FOR TRIAGE PROTOCOL ACTIVATION

As a means of limiting and deferring the use of scarce resources, the following will occur:

- A. BHCS will purchase portable ventilators prior to the Effective Date of this protocol. (Refer to Appendix II for location of portable ventilators.)
- B. As the threat of the activation of the triage protocol increases, each BHCS Hospital will cancel outpatient procedures, including elective surgeries that require a back-up option of hospital admission and ventilator support if complications arise.

V. ACTIVATION OF THE TRIAGE PROTOCOL

The Texas Department of State Health Services (TDSHS) Emergency Support Center will take the lead during a pandemic alert period. Communication flow will occur between the TDSHS and the county or local health authorities. These authorities have different names depending on the location (e.g., County Health and Human Services Departments (CHHSD) – Dallas County, County Health Care Services – Collin County, and Tarrant County Public Health). Notifications from the county or local authorities will occur to each BHCS Hospitals’ infection control departments and emergency departments.

At any time that the BHCS Emergency/Pandemic Protocol for Intensive Care Services (EPICS) response plan has been implemented and the resources for critical care services/ventilator use exceeds capacity, the incident commander can activate the triage protocol at a specific BHCS Hospital. In collaboration with the BHCS Hospital incident commanders, the BHCS Hospital presidents, the BHCS Chief Medical Officer, the BHCS Chief Nursing Officer, the BHCS Medical Director of Emergency Management or the BHCS Vice President of Environment of Care and Emergency Management may request that the triage protocol be activated throughout BHCS.

VI. CLINICAL EVALUATION

EMERGENCY DEPARTMENT

- A. Implement disaster triage per disaster plan.
- B. After initial assessment and stabilization, implement critical care/ventilator triage.
- C. Emergency Department (ED) physician will reassess any intubated patient upon arrival to the ED and will triage to alternate Emergency Department site (identified in each

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- BHCS Hospital Emergency Management plan) to implement Withdrawal of Mechanical Ventilation orders (Appendix III) for those patients who do not meet criteria for ICU admission and ventilator use.
- D. Incoming patients who potentially will require an ICU will be assessed using the inclusion criteria (refer to Appendix IV Critical Care Triage Protocol for Targeted Respiratory Illness Emergency Department).
- a. The inclusion criteria identify those patients who may potentially benefit from admission to critical care. The inclusion criteria primarily focus on respiratory failure given that the ability to provide ventilatory support is fundamentally what differentiates the ICU from other acute settings.
- E. Incoming patients, who meet the inclusion criteria, will be assessed for exclusion criteria (see Appendix IV Critical Care Triage Protocol for Targeted Respiratory Illness Emergency Department)
- a. The exclusion criteria focus primarily on current organ function rather than on specific disease entities.
- b. The exclusion criteria consist of 3 categories:
- (1) People who currently have a very poor prognosis/chance of survival even when treated aggressively in an ICU. This category identifies patients who have a low probability of recovery or overall poor prognosis irrespective of the amount of resources dedicated to their care. Patients with a Sequential Organ Failure Assessment (SOFA) score of > 11 have a mortality rate of 90% even with full critical care during a non pandemic time.
 - (2) People who will need a level of resources that cannot be met during a pandemic situation. Some patients might benefit from ICU care during non triage times, but they would require intense use of resources and often prolonged care. During the time a triage protocol is required, such intensive consumption of resources will need to be limited.
 - (3) Those with underlying significant and advanced medical illnesses whose underlying illness has a poor prognosis with high short-term mortality even without their current concomitant critical illness. These patients have very high resource requirements and are likely to suffer significant complications from viral respiratory infections.
- F. Patients who meet the exclusion criteria will be designated Blue Priority and admitted to a non critical care setting.
- G. Patients for whom exclusion criteria are not present will be prioritized for potential admission to the ICU and mechanical ventilation using the SOFA tool.
- Blue Priority
- High probability of mortality; should not be cared for in a critical care setting. These patients are admitted to a non critical care unit.
 - Initial assessment exclusion criteria present or SOFA > 11
- Red Priority
- Highest priority for ICU admission and a ventilator if required. These patients are sick enough to require the resources and will do poorly if they don't receive the care, and they are likely to recover if they do receive the care. This category

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includes patients with a single organ failure, particularly those with respiratory failure due to influenza.

- Initial assessment SOFA \leq 7 or single organ failure

Yellow Priority

- Immediate priority for ICU admission. This category includes patients who at baseline are very sick and may or may not benefit from critical care. They should receive care if the resources are available but not if doing so will deny care to someone in Red Priority who is more likely to recover.
- Initial assessment SOFA 8-11

Green Priority

- Low probability of mortality. Defer admission to critical care.

CRITICAL CARE

- A. When the triage protocol is activated, patients in the ICU will be assessed to determine whether they meet criteria for continued critical care.
- B. Patients who meet the exclusion criteria will be designated Blue Priority and transferred to a non critical care setting.
 - a. A critical care triage officer will prioritize the patient. The ICU triage officer role will be filled by appropriate physicians within the medical director structure of each BHCS Hospital (*e.g., ICU Medical Director Physicians, Ethics Committee Member Physicians, and Physicians in an Administration role are all suggestions of physicians who could be considered for this role*) (refer to Appendix V).

- C. Patients for whom exclusion criteria are not present will be initially prioritized using the SOFA tool (refer to Appendix V Critical Care Protocol for Targeted Respiratory Illness ICU Patients).

Blue Priority

- High probability of mortality; should not be cared for in a critical care setting. These patients are transferred to a non critical care unit.
- Initial assessment exclusion criteria present or SOFA > 11

Red Priority

- Highest priority for ICU care and a ventilator if required. These patients are sick enough to require the resources and will do poorly if they don't receive the care, and they are likely to recover if they do receive the care.
- Initial assessment SOFA \leq 7 or single organ failure

Yellow Priority

- Immediate priority for ICU care. This category includes patients who at baseline are very sick and may or may not benefit from critical care. They should receive care if the resources are available but not if doing so will deny care to someone in Red Priority who is more likely to recover.
- Initial assessment SOFA 8-11

Green Priority

- Low probability of mortality. Transfer patient to a non critical care setting.

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- D. Patients on continued use of the ventilator will be reviewed and reassessed at intervals of 48 hours and 120 hours (refer to Appendix VI Critical Care Triage Protocol for Targeted Respiratory Illness ICU Patients 48 hrs and 120 hrs).
- a. Time trials for ventilator use reflect the expected duration of beneficial treatment for acute respiratory distress syndrome. Too brief a trial, for instances only a few hours, might not provide any significant benefit to patients who might survive with a limited but longer trial. Excessively brief trials might permit use of ventilators by more patients, but without decreasing overall mortality.

Blue Priority

- › High probability of mortality; should not be cared for in a critical care setting. These patients are transferred to a non critical care unit.
- › Initial assessment--exclusion criteria present or SOFA > 11
- › 48 hour assessment – exclusion criteria or SOFA > 11 or SOFA 8-11 unchanged
- › 120 hour assessment – exclusion criteria or SOFA > 11 or SOFA < 8 unchanged

Red Priority

- › Highest priority for ICU care and a ventilator if required. These patients are sick enough to require the resources and will do poorly if they don't receive the care, and they are likely to recover if they do receive the care.
- › Initial assessment--SOFA \leq 7 or single organ failure
- › 48 hour assessment –SOFA < 11 and decreasing
- › 120 hour assessment –SOFA < 11 and decreasing progressively

Yellow Priority

- › Immediate priority for ICU care. This category includes patients who at baseline are very sick and may or may not benefit from critical care. They should receive care if the resources are available but not if doing so will deny care to someone in Red Priority who is more likely to recover.
- › Initial assessment-- SOFA 8-11
- › 48 hour assessment –SOFA < 8 unchanged
- › 120 hour assessment –SOFA < 8 with minimal decrease (<3 point decrease in 72 hours)

Green Priority

- › Low probability of mortality. Discharge from critical care.
- › Initial assessment – no significant organ failure
- › 48 hour assessment – no longer ventilator dependent
- › 120 hour assessment – no longer ventilator dependent

- E. If exclusion criteria or SOFA score > 11 occurs at any time from the initial assessment to the 48 hour assessment or 48 - 120 hour assessment, the triage priority will be changed to Blue Priority, and the patient will be extubated and moved from the ICU. The triage officer is responsible for re-prioritizing during these time intervals.

- a. This aspect of the triage protocol deals with the "Minimum Qualifications for Survival" (MQS). This term represents a ceiling on the amount of resources that can be expended on any one individual. The key component of the MQS is to attempt to identify early those patients who are not improving and are likely to have a poor outcome.

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VII. TRIAGE COMMITTEE

A multidisciplinary Triage Committee will serve as a resource to the clinicians at the bedside and will have oversight responsibility for supporting compliance with this policy when implemented. The chairperson or clinical ethics consultant of each BHCS Hospital ethics committee and the senior ICU Medical Director or their designee shall co-chair the Triage Committee and jointly determine the frequency of oversight rounds. Membership should include as available at least one representative from clinical ethics, critical care medicine, nursing, social work, and pastoral care. Note that one person may meet more than one of these criteria. Clinicians in the Emergency Department or ICU who feel that a particular case requires variation from this policy should consult with the Triage Committee for guidance.

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Appendix I

Sequential Organ Failure Assessment (SOFA) Score

SOFA Scale

Variable	0	1	2	3	4
PaO ₂ /FiO ₂ mmHg	>400	≤400	≤300	≤200	≤100
Platelets, x10 ³ /μL (x 10 ⁶ /L)	>150 (>150)	<150 (≤150)	<100 (≤100)	<50 (≤50)	<20 (≤20)
Bilirubin, mg/dL (μmol/L)	<1.2 (<20)	1.2-1.9 (20 - 32)	2.0-5.9 (33 - 100)	6.0-11.9 (101 - 203)	>12 (>203)
Hypotension	None	MABP <70 mmHg	Dop ≤ 5	Dop > 5, Epi ≤0.1, Norepi ≤0.1	Dop > 15, Epi >0.1, Norepi >0.1
Glasgow Coma Score	15	13 - 14	10 - 12	6 - 9	<6
Creatinine, mg/dL (umol/L)	<1.2 (<106)	1.2-1.9 (106 - 168)	2.0-3.4 (169 - 300)	3.5-4.9 (301 - 433)	>5 (>434)

Dopamine (Dop), epinephrine (Epi), norepinephrine (Norepi) doses in ug/kg/min
SI units in brackets

Adapted from:

Ferreira FI, Bota DP, Bross A, Melot C, Vincent JL. Serial evaluation of the SOFA score to predict outcome in critically ill patients. JAMA 2001; 286(14): 1754-1758.

Explanation of variables:

PaO₂/FIO₂ indicates the level of oxygen in the patient's blood.

Platelets are a critical component of blood clotting.

Bilirubin is measured by a blood test and indicates liver function.

Hypotension indicates low blood pressure; scores of 2, 3, and 4 indicate that blood pressure must be maintained by the use of powerful medications that require ICU monitoring, including dopamine, epinephrine, and norepinephrine.

The Glasgow coma score is a standardized measure that indicates neurologic function; low score indicates poorer function.

Creatinine is measured by a blood test and indicates kidney function.

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Appendix II

Portable Ventilation Location throughout BHCS

Baylor University Medical Center, Dallas Campus, Baylor Heart and Vascular Hospital, Baylor Institute for Rehabilitation, Baylor Specialty Hospital, and Our Children's House at Baylor

Item Description	Unit (ea, box, pair, etc.)	Qty	Vendor	Location
Vortran mechanical ventilators, part #4011	case	20	Vortran	Basement of Sammons (BUMC) P1 Storage Area, 3500 Gaston Ave, DALLAS, TX 75243
Vortran mechanical ventilators, part #5011, pediatric	ea	2	Tri-anim	Basement of Sammons (BUMC) P1 Storage Area, 3500 Gaston Ave, DALLAS, TX 75244
Infant Ventilators		43		Dept of Respiratory Therapy, 3500 Gaston Avenue, Dallas, TX 75246.
Adult Vents		54		Dept of Respiratory Therapy, 3500 Gaston Avenue, Dallas, TX 75246.
Transport MRI Vents-Adult		2		Dept of Respiratory Therapy, 3500 Gaston Avenue, Dallas, TX 75246.
Specialty vent--High Frequency		11		Dept of Respiratory Therapy, 3500 Gaston Avenue, Dallas, TX 75246.
Bird Mark 7 vents		79		Dept of Respiratory Therapy, 3500 Gaston Avenue, Dallas, TX 75246.
BHVH PB840		2		
Volume Vent at BIR		1		BIR

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Baylor All Saints Medical Center (includes Baylor Medical Center at Southwest Ft. Worth)

Item Description	Unit (ea, box, pair, etc.)	Qty	Vendor	Location
Vortran mechanical ventilators	case	47	Vortran	BASMC Basement of Bldg C, 1800 Eighth Ave., Ft Worth, TX 76104
Vortran mechanical ventilators, pediatric, part#5011	cs of 10	4	Vortran	BASMC Basement of Bldg C, 1800 Eighth Ave., Ft Worth, TX 76104
Adult Vents (Drager, Servo)		15		Cardiopulmonary & Neurodiagnostic Svcs; 1800 Eighth Ave, Ft Worth, TX 76104
Neonate (Babylog dragers)		5		Cardiopulmonary & Neurodiagnostic Svcs; 1800 Eighth Ave, Ft Worth, TX 76105
Disposable adult		470		Cardiopulmonary & Neurodiagnostic Svcs; 1800 Eighth Ave, Ft Worth, TX 76106
Disposable peds		40		Cardiopulmonary & Neurodiagnostic Svcs; 1800 Eighth Ave, Ft Worth, TX 76107
High Freq vents (Brunell) neonate		1		Cardiopulmonary & Neurodiagnostic Svcs; 1800 Eighth Ave, Ft Worth, TX 76108
Oscillators (neonate)		3		Cardiopulmonary & Neurodiagnostic Svcs; 1800 Eighth Ave, Ft Worth, TX 76109
Bipaps (vision)		14		Cardiopulmonary & Neurodiagnostic Svcs; 1800 Eighth Ave, Ft Worth, TX 76110

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Baylor Medical Center At Waxahachie

Item Description	Unit (ea, box, pair, etc.)	Qty	Vendor	Location
Ventilators	ea	2	Grainger	1405 West Jefferson, Waxahachie, TX 75165
Portable Vent	ea	3	Tri-anim	1405 West Jefferson, Waxahachie, TX 75165.
Infant Star 500		1		1406 West Jefferson, Waxahachie, TX 75165.
Infant Draeger 8000		1		1407 West Jefferson, Waxahachie, TX 75165.
Draeger Transport Vents		2		1408 West Jefferson, Waxahachie, TX 75165.
Anesthesia Vents (surgery)		6		1409 West Jefferson, Waxahachie, TX 75165.
Disposable vent devices (RT dept)		8		1410 West Jefferson, Waxahachie, TX 75165.
Additional adult vent		1		1411 West Jefferson, Waxahachie, TX 75165.

Baylor Regional Medical Center at Plano

Item Description	Unit (ea, box, pair, etc.)	Qty	Vendor	Location
Ventilator-VAR RCM	case	5	Tri-anim	4700 Alliance Blvd, Plano, TX 75093
Ventilator-VAR Plus	case	1	Tri-anim	4700 Alliance Blvd, Plano, TX 75093

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Baylor Medical Center at Garland

Item Description	Unit (ea, box, pair, etc.)	Qty	Vendor	Location
Ventilators RCM 4011	cs of 10	2	Vortran	Respiratory Dept., 2300 Marie Curie, Garland, TX 75042
Ventilators RCM 5011, Pediatric	ea	1	Tri-anim	Respiratory Dept., 2300 Marie Curie, Garland, TX 75042
Puritan Bennett vents 840-Adult		6		Respiratory Dept., 2300 Marie Curie, Garland, TX 75043
Draeger Evita4 Adult or infant		2		Respiratory Dept., 2300 Marie Curie, Garland, TX 75044
Draeger Babylogs		3		Respiratory Dept., 2300 Marie Curie, Garland, TX 75045
Adult Vortran disposable pneumatic resuscitator bags		130		Respiratory Dept., 2300 Marie Curie, Garland, TX 75046

Baylor Medical Center at Irving

Item Description	Unit (ea, box, pair, etc.)	Qty	Vendor	Location
VORTRAN PORTABLE VENTILATOR	CASE	8	TRIANIM	Respiratory Therapy Dept. 1901N MacArthur Blvd, Irving, TX 75061

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Baylor Regional Medical Center at Grapevine

Item Description	Unit (ea, box, pair, etc.)	Qty	Vendor	Location
Vortran VAR RCM 4011 Disposable Ventilators	case of 10	20	Trianim	Dept of Respiratory Therapy, Grapevine.
Adult vents (Drager, Viasys, Puritan-Bennett)		11		Dept of Respiratory Therapy, Grapevine.
Infant vents (Drager Babylog)		6		Dept of Respiratory Therapy, Grapevine.
Transport vents (Adult--eagle transport vent, Bird Mark 7, MRI compatible)		3		Dept of Respiratory Therapy, Grapevine.
Disposable vents (Vortran-Adult)		200		Dept of Respiratory Therapy, Grapevine.
Vision Bipaps		5		Dept of Respiratory Therapy, Grapevine.
3100A Sensormatics high frequency vent		1 + 1 leased.		Dept of Respiratory Therapy, Grapevine.

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Appendix III

Physician Orders

Date	Hour	Nurse Initial	Authorization is granted to supply drugs by non-proprietary name unless the words "this brand only" are written after the drug name by the physician.
			WITHDRAWL OF MECHANICAL VENTILATION
<i>This protocol will be followed by nursing and respiratory therapy staff to withdraw mechanical ventilation. The physician assigned to the Alternate Emergency Department site will sign the physician orders. Place signed orders in patient's medical chart. The purpose of this protocol is to provide guidance on the proper technique for withdrawal of mechanical ventilation so as to maximize patient comfort when the goal of treatment has shifted from curative care to allowing death to come naturally and peacefully.</i>			
			***** SELECT FROM THE FOLLOWING*****
			1. ___MSO4 drip 100mg in 100ccD5W (1mg/cc) to achieve & maintain Ramsay sedation score of 5*, or
			2. ___MSO4 0.1 - 0.25 mg/kg IVP q5 min to achieve & maintain Ramsay sedation score of 5*
			***** FOR PATIENTS ALLERGIC TO MORPHINE*****
			3. ___Fentanyl 0.5 - 2 mcg/kg IVP q2-4h to achieve & maintain Ramsay sedation score of 5*, or
			4. ___Fentanyl drip at 1mcg/kg/hr may increase at 30 min intervals up to 3 mcg/kg/hr as needed to achieve & maintain Ramsay sedation score of 5*.
			***** AND IF NEEDED FOR ADDITIONAL SEDATION*****
			5. ___Propofol infusion 20-70 mcg/kg/min to achieve and maintain Ramsay sedation score of 5*
			6. ___Lorazepam 1-2 mg IVP q30 min to achieve & maintain Ramsay sedation score of 5*
			7. ___✓___ D/C PEEP and lower FiO2 to 21% (room air) and assess for comfort.
			8. ___✓___ Increase sedation if needed for patient comfort to Ramsay sedation score of 6*
			9. ___✓___ Extubate patient.

*Ramsay Scale – Scoring system for sedation: 1) Anxious, agitated or restless, 2) Cooperative, oriented, tranquil (“awake”), 3) Responds to commands only (“awake” will be resting, usually with eyes closed but will respond to a verbal command), 4) Asleep, but brisk response to glabellar tap or loud auditory stimulus (“asleep” but wakes up when named called loudly), 5) Asleep, sluggish response to glabellar tap or loud auditory stimulus (“asleep” and difficult to wake up or elicit response with loud verbal stimulus) & 6) No response

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Appendix IV

**CRITICAL CARE TRIAGE PROTOCOL FOR TARGETED RESPIRATORY ILLNESS
EMERGENCY DEPARTMENT**

All incoming patients to the ED who potentially will require admission to an ICU will undergo the following steps in the assessment process:

STEP 1

1. Does the patient meet any one of the inclusion criteria below if so, the patient must also have 1 of the criteria A or B:

- A. Requirement for invasive ventilatory support:
 - a. Refractory Hypoxemia (SpO₂ < 90% on non-rebreather mask/FIO₂ > 0.85)
 - b. Respiratory Acidosis with pH < 7.2
 - c. Clinical evidence of impending respiratory failure
 - d. Inability to protect or maintain airway
- B. Hypotension:
 - a. Hypotension (SBP < 90 or relative hypotension) with clinical evidence of shock (altered level of consciousness, decreased urine output, or other end organ failure) refractory to volume resuscitation requiring vasopressor/inotropic support that cannot be managed on a telemetry floor.
- C. Emergency Surgery:
 - a. Need operation that will require short ventilation time in ICU.

If the patient does not meet any inclusion criteria, reassess the patient as appropriate for deterioration of clinical status.

If the patient meets inclusion criteria proceed to step 2. If patient does not meet inclusion criteria, designate the patient Green Priority and reassess as appropriate until the patient is transferred to non-critical care area.

STEP 2

1. Does the patient meet any one of the exclusion criteria below:

- A. Cardiac arrest: unwitnessed arrest, recurrent arrest, arrest unresponsive to electrical therapy (defibrillation, cardioversion or pacing), trauma-related arrest
- B. Traumatic injury: Severe traumatic brain injury, hemodynamically unstable traumatic injuries requiring more than 10 units of blood transfusion, or more than one pressor, ARDS requiring high peep >15 or HFOV
- C. Metastatic malignancy with poor prognosis
- D. Severe burn – body: body surface area > 40%, severe inhalation injury
- E. End-stage organ failure:
 - a. Cardiac: NY Heart Association class III or IV
 - b. Pulmonary: severe chronic lung disease with FEV₁ < 25%, baseline PaO₂ < 55 mmHg, or secondary pulmonary hypertension

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- c. Hepatic: MELD** score > 20
- d. Neurologic: severe, irreversible neurologic event/condition with high expected mortality

*Forced Expiratory Volume in 1 second, a measure of lung function

**Model of End-stage liver disease

If one or more exclusion criterion is present, designate the patient Blue Priority and transfer the patient to a non critical care nursing unit.

If no exclusion criteria are present proceed to step 3.

STEP 3

1. Using the initial assessment tool below, prioritize patients for admission to the ICU:

Critical Care Triage Tool (Initial Assessment)		
Triage Code	Criteria	Priority/ Action
Blue	<ul style="list-style-type: none"> › Exclusion Criteria or › SOFA > 11* 	Medical Mgmt +/- Palliate & d/c
Red	<ul style="list-style-type: none"> › SOFA ≤ 7 or › Single Organ Failure 	Highest
Yellow	<ul style="list-style-type: none"> › SOFA 8 - 11 	Intermediate
Green	<ul style="list-style-type: none"> › No significant organ failure 	Defer or d/c, reassess as needed

- If exclusion criteria of SOFA>11 occurs at any time during the ED stay, change triage code to Blue Priority and palliate.
- d/c = discharge

***Sequential Organ Failure Assessment (SOFA) Score**

SOFA Scale

Variable	0	1	2	3	4
PaO ₂ /FiO ₂ mmHg	>400	≤400	≤300	≤200	≤100
Platelets, x10 ³ /μL (x 10 ⁶ /L)	>150 (>150)	<150 (≤150)	<100 (≤100)	<50 (≤50)	<20 (≤20)
Bilirubin, mg/ dL (μmol/L)	<1.2 (<20)	1.2-1.9 (20 - 32)	2.0-5.9 (33 - 100)	6.0-11.9 (101 - 203)	>12 (>203)
Hypotension	None	MABP <70 mmHg	Dop ≤ 5	Dop > 5, Epi ≤0.1, Norepi	Dop > 15, Epi >0.1, Norepi >0.1

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				≤0.1	
Glasgow Coma Score	15	13 - 14	10 - 12	6 - 9	<6
Creatinine, mg/dL (umol/L)	<1.2 (<106)	1.2-1.9 (106 - 168)	2.0-3.4 (169 - 300)	3.5-4.9 (301 - 433)	>5 (>434)

Dopamine (Dop), epinephrine (Epi), norepinephrine (Norepi) doses in ug/kg/min
SI units in brackets

Adapted from:

Ferreira FI, Bota DP, Bross A, Melot C, Vincent JL. Serial evaluation of the SOFA score to predict outcome in critically ill patients. JAMA 2001; 286(14): 1754-1758.

Explanation of variables:

PaO₂/FIO₂ indicates the level of oxygen in the patient’s blood.

Platelets are a critical component of blood clotting.

Bilirubin is measured by a blood test and indicates liver function.

Hypotension indicates low blood pressure; scores of 2, 3, and 4 indicate that blood pressure must be maintained by the use of powerful medications that require ICU monitoring, including dopamine, epinephrine, and norepinephrine.

The Glasgow coma score is a standardized measure that indicates neurologic function; low score indicates poorer function.

Creatinine is measured by a blood test and indicates kidney function.

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Appendix V

**CRITICAL CARE TRIAGE PROTOCOL FOR TARGETED RESPIRATORY ILLNESS
ICU PATIENTS**

All ICU patients are assessed at the time the triage protocol is implemented and will undergo the following steps in the assessment process:

STEP 1 – INITIAL ASSESSMENT

1. Determine if the ICU patient meets any one of the exclusion criteria below:
 - A. Cardiac arrest: unwitnessed arrest, recurrent arrest, arrest unresponsive to electrical therapy (defibrillation, cardioversion or pacing), trauma-related arrest
 - B. Traumatic injury: Severe traumatic brain injury, hemodynamically unstable traumatic injuries requiring more than 10 units of blood transfusion, or more than one pressor, ARDS requiring high peep >15 or HFOV
 - C. Metastatic malignancy with poor prognosis
 - D. Severe burn – body: body surface area > 40%, severe inhalation injury
 - E. End-stage organ failure:
 - a. Cardiac: NY Heart Association class III or IV
 - b. Pulmonary: severe chronic lung disease with FEV 1* < 25%, baseline PaO2 < 55 mmHg, or secondary pulmonary hypertension
 - c. Hepatic: MELD** score > 20
 - d. Neurologic: severe, irreversible neurologic event/condition with high expected mortality

*Forced Expiratory Volume in 1 second, a measure of lung function

**Model of End-stage liver disease

If one or more exclusion criteria are present, designate the patient Blue Priority and transfer the patient to a non critical care nursing unit.

If no exclusion criteria are present proceed to step 2.

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STEP 2

1. Using the initial assessment tool below, prioritize patients for continued care in the ICU:

Critical Care Triage Tool (Initial Assessment)		
Triage Code	Criteria	Priority/ Action
Blue	<ul style="list-style-type: none"> › Exclusion Criteria or › SOFA > 11* 	Medical Mgmt +/- Palliate & d/c
Red	<ul style="list-style-type: none"> › SOFA ≤ 7 or › Single Organ Failure 	Highest
Yellow	<ul style="list-style-type: none"> › SOFA 8 - 11 	Intermediate
Green	<ul style="list-style-type: none"> › No significant organ failure 	Defer or d/c, reassess as needed

- If exclusion criteria of SOFA>11 occurs at any time from the initial assessment to 48 hours, change triage code to Blue Priority and palliate.
- d/c = discharge

***Sequential Organ Failure Assessment (SOFA) Score**

SOFA Scale

Variable	0	1	2	3	4
PaO ₂ /FiO ₂ mmHg	>400	≤400	≤300	≤200	≤100
Platelets, x10 ³ /μL (x 10 ⁶ /L)	>150 (>150)	<150 (≤150)	<100 (≤100)	<50 (≤50)	<20 (≤20)
Bilirubin, mg/ dL (μmol/L)	<1.2 (<20)	1.2-1.9 (20 - 32)	2.0-5.9 (33 - 100)	6.0-11.9 (101 - 203)	>12 (>203)
Hypotension	None	MABP <70 mmHg	Dop ≤ 5	Dop > 5, Epi ≤0.1, Norepi ≤0.1	Dop > 15, Epi >0.1, Norepi >0.1
Glasgow Coma Score	15	13 - 14	10 - 12	6 - 9	<6
Creatinine, mg/ dL (umol/L)	<1.2 (<106)	1.2-1.9 (106 - 168)	2.0-3.4 (169 - 300)	3.5-4.9 (301 - 433)	>5 (>434)

Dopamine (Dop), epinephrine (Epi), norepinephrine (Norepi) doses in ug/kg/min
SI units in brackets

Adapted from:

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Ferreira FI, Bota DP, Bross A, Melot C, Vincent JL. Serial evaluation of the SOFA score to predict outcome in critically ill patients. JAMA 2001; 286(14): 1754-1758.

Explanation of variables:

PaO₂/FIO₂ indicates the level of oxygen in the patient’s blood.

Platelets are a critical component of blood clotting.

Bilirubin is measured by a blood test and indicates liver function.

Hypotension indicates low blood pressure; scores of 2, 3, and 4 indicate that blood pressure must be maintained by the use of powerful medications that require ICU monitoring, including dopamine, epinephrine, and norepinephrine.

The Glasgow coma score is a standardized measure that indicates neurologic function; low score indicates poorer function.

Creatinine is measured by a blood test and indicates kidney function.

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Appendix VI

**CRITICAL CARE TRIAGE PROTOCOL FOR TARGETED RESPIRATORY ILLNESS
ICU PATIENTS
48 Hours and 120 Hours**

Critical Care Triage Tool (48-Hour Assessment)		
Triage Code	Criteria	Priority/ Action
Blue	<ul style="list-style-type: none"> › Exclusion Criteria or › SOFA > 11 Or SOFA 8 - 11 no Δ 	Palliate & d/c from CC
Red	<ul style="list-style-type: none"> › SOFA < 11 and › Decreasing 	Highest
Yellow	<ul style="list-style-type: none"> › SOFA <8 no Δ 	Intermediate
Green	<ul style="list-style-type: none"> › No longer ventilator dependant 	d/c from CC

Critical Care Triage Tool (120 Hour Assessment)		
Triage Code	Criteria	Priority/ Action
Blue	<ul style="list-style-type: none"> › Exclusion Criteria or › SOFA > 11* 	Medical Mgmt +/- Palliate & d/c
Red	<ul style="list-style-type: none"> › SOFA ≤ 7 or › Single Organ Failure 	Highest
Yellow	<ul style="list-style-type: none"> › SOFA 8 - 11 	Intermediate
Green	<ul style="list-style-type: none"> › No significant organ failure 	Defer or d/c, reassess as needed

*If exclusion criteria of SOFA>11 occurs at any time from 48 - 120 hours, change triage code to Blue Priority and palliate.

CC = critical care

Δ = change

d/c = discharge

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***Sequential Organ Failure Assessment (SOFA) Score**
SOFA Scale

Variable	0	1	2	3	4
PaO ₂ /FiO ₂ mmHg	>400	≤400	≤300	≤200	≤100
Platelets, x10 ³ /μL (x 10 ⁶ /L)	>150 (>150)	<150 (≤150)	<100 (≤100)	<50 (≤50)	<20 (≤20)
Bilirubin, mg/dL (μmol/L)	<1.2 (<20)	1.2-1.9 (20 - 32)	2.0-5.9 (33 - 100)	6.0-11.9 (101 - 203)	>12 (>203)
Hypotension	None	MABP <70 mmHg	Dop ≤ 5	Dop > 5, Epi ≤0.1, Norepi ≤0.1	Dop > 15, Epi >0.1, Norepi >0.1
Glasgow Coma Score	15	13 - 14	10 - 12	6 - 9	<6
Creatinine, mg/dL (umol/L)	<1.2 (<106)	1.2-1.9 (106 - 168)	2.0-3.4 (169 - 300)	3.5-4.9 (301 - 433)	>5 (>434)

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SI units in brackets

Adapted from:

Ferreira FI, Bota DP, Bross A, Melot C, Vincent JL. Serial evaluation of the SOFA score to predict outcome in critically ill patients. JAMA 2001; 286(14): 1754-1758.

Explanation of variables:

PaO₂/FIO₂ indicates the level of oxygen in the patient's blood.

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Creatinine is measured by a blood test and indicates kidney function.

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