

## ICU Triage, Admission, and Discharge Criteria during the COVID 19 pandemic V2

### 1. Introduction:

Coronavirus disease 2019 (COVID-19) is a novel strain of the coronavirus family since the first appearance of the disease in China in December 2019. The virus has proven to be highly infectious, affecting more than 3 million cases worldwide.

The rapid increase in cases, along with the increased need for hospital care, puts a significant burden on the healthcare systems resources and requires a shift in our practice to overcome the high flow of patients and assure the smooth continuity of services.

**1.1 Aim & scope:** To optimize resource use and to improve outcomes, we suggest Intensive Critical Care Unite (ICU) admissions and discharge guidelines based on a combination of patient needs and critical care interventions that can only be addressed in the ICU environment.

#### 1.2 Targeted population:

Adult patients who are in ICU or might need the ICU services soon.

**1.3 Targeted end-users:** ICU staff, internal medicine, emergency physicians. and or any physician covering the ICU during the pandemic.

**1.4 Targeted setups:** Critical Care Units, ED, General wards.

**1.5 Conflict of Interest:** None.

**1.6 Funding:** none

**1.7 Methodology:** These recommendations are based on the limited quality of evidence along with expert opinions maintaining the best practices guidelines and taking into consideration the local resources, cultural variation, and the previous local practices and expertise in managing the covered population a consensus of more than 50% of the committee to adopt the recommendation.

**1.8 Updating:** this guideline is very liable to be updated several times with the emergence of higher quality evidence or in response to a need for improvement.

## 2. General ICU Rules in Pandemic:

- 2.1. Critically ill patients in the emergency department or on the general ward shall be transferred to ICU, in an expeditious manner.
- 2.2. ICU Admission Checklist Form (table 1) should be filled (annex1)
- 2.3. Patient care in ICU should be led by an intensivist in day-to-day management.
- 2.4. In Pandemic, we do not recommend a 24-hr, 7-day a week intensivist model.
- 2.5. We suggest optimizing ICU nursing resources with nursing patient ratios 1:1 for ventilated or multiple organ failure and 1:2 to 1:3 in severe shortage for other ICU patients according to the local surge capacity plan.
- 2.6. Patients admitted to ICU if the prognosis for recovery and quality of life is acceptable, taken into account factors such as age, comorbidities, prognosis, underlying diagnosis, and treatment modalities that can influence survival.

## 3. ICU Triage Recommendations:

- 3.1. ICU triage decisions are made according to patient conditions and the need for critical care monitoring and or intervention.
- 3.2. Patients to be admitted or discharged strictly on their potential to benefit from ICU care.
- 3.3. Some over triage is more acceptable and preferable to under triage.
- 3.4. Transfer time of critically ill patients from the emergency department or ward bed to the ICU in less than or equal to 1 hour from the time of consultation if a bed is available.
- 3.5. If the ICU bed is unavailable, ICU physicians continue to deliver care for critical care patients in the emergency department or the ward with the help of the primary team.
- 3.6. The most senior ICU covering physician is responsible for making ICU triage decisions during routine or emergency conditions.
- 3.7. Scoring systems should not be used alone to determine the level of care or removal from higher levels of care.

- 3.8. Documentation of patients' wishes for the right of decision making and signing consents on their behalves when they are not able to do so should be done before admitting to ICU whenever possible.
- 3.9. Do Not Resuscitate (DNR) status should be determined before and during ICU stay to determine the need for critical care.

#### 4. Criteria for COVID 19 ICU Admission: Admission Form (Annex9.1) should be filled

- 4.1. Patient requiring Invasive Mechanical Ventilation.
- 4.2. Patient requiring more than 2 hours on Non-Invasive Ventilation (NIV) or High Flow Nasal Cannula (HFNC).
- 4.3. Respiratory Distress
  - Need O<sub>2</sub> > 6 LPM to maintain SpO<sub>2</sub> > 92 or PaO<sub>2</sub> > 65.
  - Rapid escalation of oxygen requirement.
  - Significant work of breathing i.e. Tachypnea.
- 4.4. Patient with hemodynamic instability despite initial conservative fluid resuscitation.
- 4.5. Patient require vasopressor support.
- 4.6. Patient with a decreased level of consciousness.
- 4.7. Acidosis
  - ABG with pH < 7.3 or PCO<sub>2</sub> > 50 or above patient's baseline. □ Lactate > 2.
- 4.8. Patient with more than one organ failure.
- 4.9. Patient requires continuous renal replacement therapy CRRT and cannot tolerate hemodialysis.
- 4.10. Patient with unstable vital signs not yet on vasopressors.
- 4.11. Patent with new ECG findings, including ischemia, arrhythmias, heart block (preferred to be in CCU if available).

## 5. ICU Discharge General /Recommendations:

- 5.1. Patient should be discharged from the ICU to a lower acuity area when a patient's physiologic status has stabilized, and they are no longer a need for ICU monitoring and treatment.
- 5.2. Discharge parameters are based on ICU admission criteria, the admitting criteria for the next lower level of care, institutional availability of these resources, patient prognosis, physiologic stability, and ongoing active interventions.
- 5.3. Discharge from the ICU is appropriate despite a deteriorated patient's physiological status if active interventions are no longer planned.
- 5.4. Transferring patients to lower acuity care areas should not be based solely on severityof-illness scores.
- 5.5. Avoiding discharge from ICU after working hours unless there is a high need for bed and with transfer approval from the consultant.
- 5.6. Standardized process for discharge from the ICU be followed in written format.

## 6. Criteria for ICU COVID-19 Discharge

- 6.1. Stable vital signs and other hemodynamic parameters without intravenous inotropic/ vasopressor support.
  - Patients on low dose inotropic support (less than 5 mcg/kg/minute of Dopamine) may be discharged earlier if ICU bed is required during the crisis.
- 6.2. Normal or baseline level of consciousness.
- 6.3. Stable respiratory status, normal airway patency, and normal work of breathing.
- 6.4. At least 24 hours post-extubation if the patient was on mechanical ventilation.
- 6.5. No or controlled cardiac dysrhythmias.
- 6.6. No frequent suctioning requirement for a patient on chronic mechanical ventilation.
- 6.7. No frequent suctioning requirement for a patient with tracheostomy.

6.8. Patients with no escalation decision and (DNR).

## 7. Outreach ICU general recommendations:

- 7.1. Outreach ICU, Rapid response team to be utilized for early review of acutely ill non-ICU patients, this will aid in early identification of ICU eligible patients and prevent unnecessary ICU admission; also, it promotes early intervention that prevents patient health deterioration.
- 7.2. ICU consultant on-call teams facilitate transfer to ICU and reduce rates of readmission to critical care
- 7.3. No ICU Admission for a patient with a low probability of recovery who choose not to receive cardiopulmonary resuscitation.
- 7.4. ICU Outreach can initiate and encourage DNR policy in the ward.
- 7.5. Follow up discharged patients from ICU for 24-48 hours to reduce the rate of readmission.

## 8. References

- 8.1. Nates, Joseph L. MD, MBA, FCCM (Chair)<sup>1</sup>; Nunnally, Mark MD, FCCM<sup>2</sup>; Kleinpell, Ruth Ph.D., RN, FAAN, FCCM<sup>3</sup>; Blosser, Sandralee MD, FCCP, FCCM<sup>4</sup>; Goldner, Jonathan DO, FCCP, FCCM<sup>5</sup>; Birriel, Barbara MSN, CRNP, ACNP-BC, FCCM<sup>6</sup>; Fowler, Clara S. MS<sup>7</sup>; Byrum, Diane RN, MSN, CCRN, CCNS, FCCM<sup>8</sup>; Miles, William Scherer MD, FACS, FCCM<sup>9</sup>; Bailey, Heatherlee MD, FAAEM, FCCM<sup>10</sup>; Sprung, Charles L. MD, JD, MCCM<sup>11</sup> ICU Admission, Discharge, and Triage Guidelines: A Framework to Enhance Clinical Operations, Development of Institutional Policies, and Further Research, Critical Care Medicine: August 2016 - Volume 44 - Issue 8 - p15531602 DOI: 10.1097/CCM.0000000000001856
- 8.2. Grasselli G, Pesenti A, Cecconi M. Critical care utilization for the COVID-19 outbreak in Lombardy, Italy: early experience and forecast during an emergency response. JAMA.  
Published online March 13, 2020. DOI:10.1001/jama.2020.4031
- 8.3. [Jee Y](#). WHO International Health Regulations Emergency Committee for the COVID-19 outbreak. [Epidemiol Health](#). 2020;42:e2020013. DOI: 10.4178/epih.e2020013. Epub 2020 March 19

9. Annex:

9.1 admission criteria check list form:

Checklist of ICU Admission Criteria

City:

Hospital:

Date:

Source of admission	<input type="checkbox"/> ED	<input type="checkbox"/> In hospital	<input type="checkbox"/> Referral	Admitting Consultant
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Patient Name MRN: Diagnosis:	Date of birth:		Code Status	
	<input type="checkbox"/> Male	<input type="checkbox"/> Female	<input type="checkbox"/> Full Code	<input type="checkbox"/> DNR
	Expected length of ICU Stay			

Check the appropriate indication for admission to ICU:

- Need Invasive Mechanical Ventilation.
- Requiring more than 2 hours on Non-Invasive Ventilation.
- Patient requiring more than 2 hours on High Flow Nasal Cannula.
- Oxygen saturation <90% on  $\geq$ 50% oxygen.
- Significant work of breathing i.e.Tachypnea.
- Patient with hemodynamic instability despite initial conservative fluid resuscitation.
- Patient require vasopressor support.
- Patient with a decreased level of consciousness.
- ABG with pH < 7.3 or PCO<sub>2</sub> > 50 mmhg or above patient's baseline.
- Lactate>2mmol/L
- Patient with more than one acute organ failure.
- Requires continuous renal preplacement therapy and cannot tolerate hemodialysis.
- Patent with new ECG findings, including ischemia, arrhythmias, heart block.
- Other, Please Specify:-----

Admitting Physician:

Signature:

Date: