

ICU Admission, Discharge and Triage Criteria

4/7/23

ICU admission

Patients should receive ICU treatment if their prognosis for recovery and quality of life is acceptable regardless of their length of ICU stay. However, factors such as age, comorbidities, prognosis, underlying diagnosis, and treatment modalities that can influence survival should be taken into account

To optimize resource use while improving outcomes, ICU admissions criteria will be guided on the basis of a combination of:

- Specific patient needs that can be only addressed in the ICU environment, such as life-supportive therapies
- Available clinical expertise
- Prioritization according to the patient's condition
- Diagnosis
- Bed availability
- Objective parameters at the time of referral, such as respiratory rate, Oxygen saturation, etc.
- Potential for the patient to benefit from interventions
- Prognosis

ICU Triage

Triage is the process of placing patients at their most appropriate level of care, based upon their need for medical treatment and the assessment that they will benefit from ICU care.

Triage decisions Will be made explicitly and without bias. Ethnic origin, race, sex, social status, sexual preference, or financial status should never be considered in triage decisions

Patients will be admitted or discharged strictly on their potential to benefit from ICU care

Transfer time of critically ill patients from the emergency department to the ICU should be minimized (< 6 hr in nontrauma patients)

The Intensivist in communication with the Charge nurse will be responsible for making ICU triage decisions during normal or emergency conditions (the hospitalist working at night will have that responsibility during night-time hours)

The decision to admit an elderly (> 80 yr) patient to ICU will be based on the patient's comorbidities, severity of illness, prehospital functional status, and patient preferences with regard to life-sustaining treatment, not only on their chronological age

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ICU access of cancer patients will be decided on the basis established for all critical care patients, with careful consideration of their long-term prognosis (with poor long-term prognosis, there should be a conversation about treating the patient in a non-ICU unit or of providing comfort care)

Brain dead or potentially brain-dead patients who are being aggressively managed while determining organ donation status may be admitted to ICU (if not an organ donor, and has severe irreparable/irreversible brain damage, the ED physician may offer comfort care and not ICU admission. Consultation with neurology or neurosurgery is advised)

ICU care of all critically ill patients, in particular, cancer patients with advanced disease, should be reassessed and discussed with the patient, next of kin, legal representative, or power of attorney at regular intervals, to assess the benefit of continued ICU care.

The SCCM guidelines suggest not using scoring systems alone to determine level of care or removal from higher levels of care, because these are not accurate in predicting individual mortality

Use the following tools below for bed allocation during the admission and triage processes, based on the ICU Admission, Discharge, and Triage Guidelines from the SCCM

1. Guide to Resource allocation based on level of Care and monitoring required
2. ICU admission prioritization framework

Guide to Resource allocation based on level of Care and monitoring required

Level 3 (very high): ICU

A. Type of patient:

- Critically ill patients who need hourly and/or invasive monitoring, and invasive treatment modalities

B. Nursing to patient ratio:

- 1:1 to \leq 1:2

C. Interventions:

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- Invasive interventions not provided anywhere else in the institution, such as continuous blood pressure monitoring via an arterial cannula, cerebrospinal fluid drainage for elevated intracranial pressure management, invasive mechanical ventilation, vasopressors, intra-aortic balloon pump, or continuous renal replacement therapy.
- See prioritization framework below

Level 2 (High-medium): Intermediate care unit (Stepdown)

A. Type of patient:

- Unstable patients who need nursing interventions, laboratory workup, and/or monitoring every 2–4 hr

B. Nursing to patient ratio:

- $\leq 1:3$

C. Interventions:

- Interventions such as noninvasive ventilation, IV infusions, or titration of vasodilators or antiarrhythmic substances
- See prioritization framework below

Level 1 (medium-low): Telemetry

A. Type of patient:

- Stable patients who need close electrocardiographic monitoring for nonmalignant arrhythmias or laboratory work every 2–4 hr. This type of unit or ward service is mainly for monitoring purposes.

B. Nursing to patient ratio:

- $\leq 1:4$

C. Interventions:

- IV infusions and titration of medications such as vasodilators or antiarrhythmics

Level 0 (Low): Ward (floor)

A. Type of patient:

- Stable patients who need testing and monitoring not more frequently than every 4-hr

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B. Nursing to patient ratio:

- $\leq 1:5$

C. Interventions:

- IV antibiotics, IV chemotherapy, laboratory and radiographic work, etc.

ICU admission prioritization framework

ICU

• PRIORITY 1

- Patients needing life-sustaining interventions who have a higher probability of recovery and would accept cardiopulmonary resuscitation should receive a higher priority for ICU admission than those with a significantly lower probability of recovery who choose not to receive cardiopulmonary resuscitation
- Critically ill patients who require life support for organ failure, intensive monitoring, and therapies only provided in the ICU environment. Life support includes invasive ventilation, continuous renal replacement therapies, invasive hemodynamic monitoring to direct aggressive hemodynamic interventions, extracorporeal membrane oxygenation, intra-aortic balloon pumps, and other situations requiring critical care (e.g., patients with severe hypoxemia or in shock)

• PRIORITY 2

- Patients as described above, with significantly lower probability of recovery and who would like to receive intensive care therapies, but not cardiopulmonary resuscitation in case of cardiac arrest (e.g., patients with metastatic cancer and respiratory failure secondary to pneumonia or in septic shock requiring vasopressors)

Intermediate medical unit (IMU), also called Stepdown unit

• PRIORITY 3

- Patients with organ dysfunction who require intensive monitoring and/or therapies (e.g., noninvasive ventilation), or who, in the clinical opinion of the triaging physician, could be managed at a lower level of care than the ICU (e.g., postoperative patients who require

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close monitoring for risk of deterioration or require intense postoperative care, patients with respiratory insufficiency tolerating intermittent noninvasive ventilation). These patients may need to be admitted to the ICU if early management fails to prevent deterioration or there is no IMU capability in the hospital.

- **PRIORITY 4**

- Patients, as described above but with lower probability of recovery/survival (e.g., patients with underlying metastatic disease) who do not want to be intubated or resuscitated. As above, if the hospital does not have IMU capability, these patients could be considered for ICU in special circumstances

Palliative care

- **PRIORITY 5**

- Terminal or moribund patients with no possibility of recovery; such patients are in general not appropriate for ICU admission (unless they are potential organ donors). In cases in which individuals have unequivocally declined intensive care therapies or have irreversible processes such as metastatic cancer with no additional chemotherapy or radiation therapy options, palliative care should be initially offered

Examples of diagnoses/conditions needing admission to the Intensive Care Unit include, but are not limited to:

For a more complete list look at the accompanying form called “Level of Care Admission Criteria: Critical Care & Step-Down (Progressive Care)”

- **Respiratory**

1. Acute respiratory failure requiring ventilatory support (until further notice noninvasive ventilation will be initiated in ICU)
2. Acute pulmonary embolism with hemodynamic instability
3. Massive hemoptysis
4. Upper airway obstruction
5. Specific criteria for BiPAP in ICU vs. SDU per pulmonology:
 - A. Patients who require bilevel positive airway pressure ventilation at the time of evaluation in the emergency room between 6:00 p.m.-7:00 am need to be admitted to the ICU for closer monitoring by the physician assistants available at night and to ensure stability by the pulmonologist who will evaluate the patient the next morning before transferring them to the step-down unit.

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- B. Patients who need bilevel positive airway pressure ventilation during the daytime in the emergency room between 7:00 a.m. and 6:00 p.m. can be admitted to the step-down unit if mean arterial pressure is between 65 and 90, heart rate is less than 140 and above 50, BiPAP needs do not exceed FiO₂ of 50% and EPAP of 10. Patient requiring EPAP more than 10 and FiO₂ more than 50%, heart rates more than 140, mean arterial pressure less than 65 or more than 90 meet ICU criteria.
- C. Patients with code status of DNR/DNI requiring bilevel positive airway pressure ventilation for hypercapnic respiratory failure should be admitted to the SDU.
- D. Patients who require bilevel positive pressure ventilation need a repeat blood gas 30-60 minutes after initiation of bilevel positive airway pressure ventilation. If the 2nd arterial blood gas is worse, admission to the ICU is recommended. In the emergency room, if the patient is waiting for their workup and has been on bilevel positive air pressure ventilation for 30 minutes, the ER physician should repeat a second arterial blood gas and if worse, ICU admission should be initiated rather than step-down.
- E. Physicians who admit a patient to the SDU that require bilevel positive airway pressure ventilation are encouraged to obtain a pulmonary consultation to help with inpatient care and arrange for appropriate outpatient follow up.

- **Cardiovascular**

- 1. Shock states with need for continuous invasive monitoring of cardiovascular system (arterial pressure, central venous pressure, cardiac output)
Life-threatening dysrhythmias
- 2. Dissecting aortic aneurysms
- 3. Hypertensive emergencies

- **Neurological**

- 4. Severe head trauma
- 5. Status epilepticus
- 6. Meningitis with altered mental status or respiratory compromise
- 7. Acutely altered sensorium with the potential for airway compromise
- 8. Progressive neuromuscular dysfunction requiring respiratory support and/or cardiovascular monitoring (myasthenia gravis, Guillain-Barre syndrome)
- 9. Brain dead or potentially brain dead patients who are being aggressively managed while determining organ donation status (if not an organ donor, and has severe irreparable brain damage, the ED physician should offer comfort care and not ICU admission.

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Consultation with neurology or neurosurgery is advised)

2.

- **Renal**

1. Requirement for acute renal replacement therapies in an unstable patient
2. Acute rhabdomyolysis with renal insufficiency

- **Endocrine**

3. Diabetic ketoacidosis complicated by hemodynamic instability, altered mental status
4. Severe metabolic acidotic states
5. Thyroid storm or myxedema coma with hemodynamic instability
6. Hyperosmolar state with coma and/or hemodynamic instability
7. Adrenal crises with hemodynamic instability

- Other severe electrolyte abnormalities, such as:

- Hypo or hyperkalemia with dysrhythmias or muscular weakness
- Severe hypo or hypernatremia with seizures, altered mental status
- Severe hypercalcemia with altered mental status, requiring haemodynamic monitoring

- **Gastrointestinal**

1. Life threatening gastrointestinal bleeding
2. Acute hepatic failure leading to coma, hemodynamic instability
3. Severe acute pancreatitis

- **Haematology**

1. Severe coagulopathy and/or bleeding diathesis
2. Severe anemia resulting in hemodynamic and/or respiratory compromise
3. Severe complications of sickle cell crisis
4. Hematological malignancies with multi-organ failure

- **Obstetric**

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1. Medical conditions complicating pregnancy
 2. Severe pregnancy induced hypertension/eclampsia
 3. Obstetric hemorrhage
 4. Amniotic fluid embolism
- **Multi-system**
 1. Severe sepsis or septic shock
 2. Multi-organ dysfunction syndrome
 3. Polytrauma
 4. Dengue hemorrhagic fever/dengue shock syndrome
 5. Drug overdose with potential acute decompensation of major organ systems
 6. Environmental injuries (lightning, near drowning, hypo/hyperthermia)
 7. Severe burns
 - **Surgical**
 1. High risk patients in the peri-operative period
 2. Post-operative patients requiring continuous hemodynamic monitoring/ ventilatory support

Patients who are generally not appropriate for ICU admission:

3. Irreversible brain damage
4. Brain dead that are non-organ donors
5. Metastatic cancer unresponsive to chemotherapy and/or radiotherapy
6. End stage cardiac, respiratory and liver disease with no options for transplant

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ICU Discharge

It is appropriate to discharge a patient from the ICU to a lower acuity area when a patient's physiologic status has stabilized and there no longer is a need for ICU monitoring and treatment

Discharge parameters should be 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

To improve resource utilization, discharge from the ICU is appropriate despite a deteriorated patient's physiological status if active interventions are no longer planned (i.e. no more need for invasive ventilation, vasopressor, or other form of respiratory and/or cardiovascular support or neurological invasive monitoring, etc.)

SCCM guidelines suggest refraining from transferring patients to lower acuity care areas based solely on severity-of-illness scores. General and specific severity-of-illness scoring systems can identify patient populations at higher risk of clinical deterioration after ICU discharge. However, their value for assessing the readiness for transfer of individual patients to lower acuity care has not been evaluated

Discharge from ICU "after hours" ("night shift", after 7 pm in institutions with 12-hr shifts) should be avoided, if possible. However, this can be done, if there is an urgent need for an ICU bed for a patient requiring admission.

Patients at high risk for mortality and readmission (high severity of illness, multiple comorbidities, physiologic instability, ongoing organ support) should be discharged from ICU to a step-down unit or long-term acute care hospital as opposed to the regular ward

DISCHARGE CRITERIA:

- O₂ requirements less than 6L/NC or on home requirements for ward, and <15L/min of IMU (stepdown)
- Frequency of airway clearance interventions \geq 4 hours
- Absence of respiratory distress
- SBP \geq 90 mmHg and \leq 220 mmHg, or returned to baseline
- No need for inotropes or vasopressors (for 12 hours or less or per MD)
- Heart Rate between 50-110 bpm or return to baseline
- No evidence of hypoperfusion: confusion; cool, cyanotic extremities; poor capillary refill; metabolic acidosis; poor urine output

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- No need for medication infusions that can't continue outside of ICU (i.e. Atrial Fibrillation medications can be continued outside of ICU/IMU)
- Stable GCS and seizures are controlled
- No need for invasive neurological monitoring
- Neurological checks ordered less frequent than every 2 hours
- Severity Assessment Score less than 5 and not requiring IV medications for score
- No evidence of new, untreated infection (i.e. new onset SIRS)
- Medically stable suicide risk
- End of life care orders in place
- Pancreatitis: 1. When the patient has decreasing signs of inflammation (SIRS - decreasing WBC, fever, tachycardia, tachypnea), which are expected to continue to normalize 2. Signs of organ dysfunction are normalizing. 3. pain and nausea are controlled