



Jersey City Medical Center

Department of Patient Care Services

POLICY: Critical Care Admission and Discharge Criteria		DEVELOPED BY: Critical Care Committee	
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Approvals:

Professional Practice	Y <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Nursing Education	Y <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Critical Care	12/14/11	N/A
Emergency Dept	Y <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Peri-Op	Y <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Trauma	Y <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Maternal Child Health	Y <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Behavioral Health	Y <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Cardiac Cath Lab	Y <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Interventional Radiology	Y <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Med Exec	Y <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Pharmacy/ P&T	Y <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Pathology/Blood Bank	Y <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Other:	Y <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Other:	Y <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>

PURPOSE: To accurately identify patients requiring critical care services.

POLICY:

CRITICAL CARE SERVICES

Admission and Discharge Criteria: The Accurate Identification of Patients Requiring Critical Care Services

Medical Intensive Care Unit-MICU
Surgical Intensive Care Unit-SICU
Cardiac Intensive Care Unit-CICU
Cardiothoracic Intensive Care Unit-CTICU
Critical Care Step-down Unit-CSD

Assessment of Patients for Critical Care Services

Admission Criteria:

Patients are admitted to an ICU...

1. For evaluation and treatment of illnesses that may lead to death or acute organ failure
2. For evaluation and treatment of illnesses that are amenable to treatment and that require intensive monitoring
3. For (evidence-based) concern of (pending) imminent physiological deterioration
4. When the patient requires frequent (re)evaluation (including laboratory tests)
5. When the patient requires continuous medication infusions, and/or intensive nursing care

Admission criteria should be considered in relation to the patient's anticipated clinical course. The ultimate decision for admission to an ICU should be based on the assessment of a physician who has defined critical care expertise and/or is substantiated with a clear clinical rationale. While the criteria listed below provide guidelines for decision-making, there are times when patients are not aligned with these clinical parameters, but nonetheless are appropriate candidates for admission to an ICU.

All admissions should be approved, under the service of a credentialed critical care physician. Admission to an ICU is contingent upon available resources (bed + trained personnel). Consistency (predictability) of ICU triage is paramount, but acknowledges that criteria may require flexibility when acute medicine resources

become constrained. A team with ICU privileges should consult on all patients occupying a bed in an ICU.

Cardiovascular System Assessment

- Acute myocardial infarction (with or without ST elevation)
- ACS without relief of ischemic pain
- Life-threatening arrhythmia
- Continuous infusion of anti-arrhythmic agent(s), recently initiated or requiring dosage adjustments more frequently than once every (8) hours
- Continuous infusion of vasoactive agent(s), recently initiated or requiring dosage adjustments more frequently than once every (8) hours related to a cardiac issue
- Intra-aortic balloon pump or other mechanical ventricular assist device
- Pulmonary artery catheter or central venous pressure monitoring related to a cardiac issue
- Pericardial effusion with tamponade
- Use of mixed (central) venous saturation monitoring
- Decompensated CHF requiring invasive monitoring
- Dissecting aortic aneurysm / traumatic aortic disruption
- Post-cardiac arrest
- Hypertensive emergencies
- Cardiogenic shock
- Hemodynamic instability

Respiratory System Assessment

- Respiratory rate > 24 or < 8 per minute, retractions/accessory muscle use, and/or unstable ventilatory pattern (e.g., Cheyne-Stokes respirations)
- $\text{PaO}_2 < 60$ torr or $\text{SaO}_2 < 92\%$
- $\text{FiO}_2 > 0.50$ or increasing FiO_2 requirement over 4-8 hours
- $\text{PaCO}_2 > 45$ torr and $\text{pH} < 7.32$
- Concern that endotracheal intubation may be required within 4-8 hours
- Requires (aggressive) pulmonary toilet every 2 hours or more often
- Ventilation or oxygenation dependent on mechanical ventilator
- Acute or incipient airway obstruction or acutely impaired airway protective reflexes
- Flail chest, severe pulmonary contusions, massive hemothorax

Gastrointestinal System Assessment

- Acute upper or lower GI tract hemorrhage causing orthostatic hypotension or suspected (or documented) > 2 units of acute PRBC blood loss.
- Hepatic dysfunction causing acute encephalopathy
- Acute intestinal obstruction due to inhibition of bowel motility
- Clinical evidence of peritonitis, ruptured viscera
- Severe pancreatitis
- Tense abdomen with concern that intra-abdominal hypertension is present
- Patients with open abdomen
- Non-operative management of solid organ injury
 - Liver laceration \geq Grade III
 - Spleen laceration \geq Grade III

Renal System Assessment

- Newly diagnosed renal failure with severe azotemia (i.e., BUN > 100 mg/dl)
- Urine output < 0.5 ml/kg-hr for more than 3 hours (and especially when there is a concern regarding hemodynamic stability) not resolved by fluid challenges.
- Acute decrease in creatinine clearance < 30 ml/min
- Need for Continuous Renal Replacement Therapy (CRRT)

Endocrine System Assessment

- Serum glucose < 60 or > 300 mg/dl and “unstable”
- Serum sodium < 120 or >155 mEq/L and “unstable”
- Serum potassium < 2.0 mEq/L
- Serum potassium > 6.0 mEq/L associated with ECG changes
- Serum calcium < 5 or > 12 mg/dl
- Ketoacidosis with pH < 7.20 or serum bicarb < 15

Hematology System Assessment

- Thrombocytopenia (platelet count < 70-100,000) with evidence of active bleeding
- Coagulopathy (INR > 2.5 or activated Partial Thromboplastin Time [aPTT] > 40-50 seconds) with evidence of active bleeding
- Evidence of active hemolysis with decreasing hematocrit
- WBC count > 100,000/mcl, and especially with evidence of end-organ dysfunction

Central Nervous System Assessment

- Severe head injury
- Intracranial hemorrhage with potential for herniation
- New onset lethargy or a decrease of 2 or more in the GCS within the last 12 hours
- Unstable neurological exam: pupil changes, motor / sensory changes
- Uncontrolled or poorly controlled seizures
- Progressive muscle weakness involving respiratory muscles
- Acute severe delirium
- Acute meningitis with neurological abnormalities
- Acute cerebral infarct status post thrombolytic administration and/or mechanical thrombolysis or requiring frequent nursing neurologic assessments and with fairly high probability for needed decompressive hemicraniectomy
- Any patient with subarachnoid hemorrhage
- Acute spinal cord injury for frequent hemodynamic monitoring
- Unstable spine fractures
- Any condition that requires craniotomy or ventriculostomy with risk of vasospasm
- Post-procedural monitoring after carotid endarterectomy, carotid stent or aneurismal coiling
- Any condition associated with increased intracranial pressure associated with progressive neurological defects, or requiring management for increased intracranial pressure
- Patients with intracranial pressure monitoring devices.

Assessment for (Impending or Actual) Sepsis

- Evidence of Systemic Inflammatory Response Syndrome (SIRS) with systolic blood pressure < 90 mmHg
- Lactic acidosis (lactate > 4.0 mmol/L)
- Cryptic (unexplained) shock with or without hypotension

Assessment of "Other" Conditions

- Acute drug intoxications with decrease in GCS, compromised airway protective reflexes, hemodynamic instability, incipient cardiac arrhythmias, and/or requiring suicide precautions
- Acute drug intoxications requiring continuous infusion medications or frequent administration of intravenous medications
- Acute drug intoxications requiring dialysis

- Other metabolic conditions (e.g., severe rhabdomyolysis) requiring frequent monitoring or medical interventions
- Unstable / open book pelvic fractures requiring HD monitoring.
- Environmental injuries: lightning, near drowning, hypo / hyperthermia.
- Post-operative patients requiring HD monitoring / ventilatory support or extensive nursing care.

Exclusion Criteria for Admission to the ICU

Patients who do not meet “routine” admission criteria are:

- Patients who have confirmed clinical and laboratory evidence of irreversible brain injury and (pending) brain death (these patients might be admitted when they are potential organ donors)
- Selected patients admitted pre-operatively for optimization prior to surgery...this should not happen unless specific and measurable interventions will occur in the ICU *before* surgery (e.g., treatment of poorly compensated CHF, treatment of uncontrolled diabetes mellitus, treatment of active angina)

Discharge Criteria:

Patients are discharged from an ICU when...

1. their acute illness is treated
2. their medical condition has stabilized
3. they do not require frequent evaluation (including laboratory tests) and /or intensive nursing care
4. it has been determined by the patient/family and physician that aggressive treatment such as is provided in an ICU setting is no longer appropriate.

The individual ICU unit medical director OR designee, based on complete evaluation of the patient’s medical requirements, makes discharge decisions. The following physiologic criteria are guidelines for the organ function that may be appropriate for ICU discharge. The stability of organ function, availability and effectiveness of therapy, and evaluation of the individual course of disease must also be considered.

Cardiovascular System Assessment

- Absence of life-threatening arrhythmia for 24 hours or at the discretion of the Cardiologist.

- No newly started continuous infusion of vasoactive agent(s) and no continuous infusion of vasoactive agent(s) requiring dosage adjustments more frequently than every 8 hours
- No newly started continuous anti-arrhythmic infusion and no continuous anti-arrhythmic infusion requiring dosage adjustments more frequently than every 8 hours
- No intra-aortic balloon pump
- No pulmonary artery catheter
- Pericardial tamponade resolved of >24 hours or at the discretion of the Cardiologist.

Respiratory System Assessment

- Respiratory rate 8–24 breaths/minute
- No retractions or accessory muscle use
- PaO₂ > 60 torr with FiO₂ < 0.50
- PaCO₂ < 45 torr and pH > 7.32
- Not dependent on mechanical ventilation, or stable settings with plan for chronic weaning
- Stable non-invasive positive pressure ventilation settings (no changes required for > 8-12 hours)
- Requires pulmonary toilet less often than every two hours
- Extubated for at least 12 hours, if intubated for respiratory distress or failure

Gastrointestinal System Assessment

- No orthostatic hypotension, less than 2 units of packed RBC transfused, and hematocrit stable for previous 24 hours
- Stable or improving hepatic encephalopathy, if present during current ICU admission
- Acute intestinal obstruction due to inhibition of bowel motility resolved or stable
- Clinical evidence of peritonitis resolved (treated)
- Intra-abdominal hypertension resolved or treated

Renal System Assessment

- Urine output > 0.5 mg/kg/hr, or dialysis program established for patients with chronic renal failure
- Off dialysis or conversion to intermittent hemodialysis

Endocrine System Assessment

- Serum glucose > 60 and < 250 mg/dl and stable
- Serum sodium 120 to 155 mEq/L and stable/improving
- Serum potassium 2.0 to 6.0 mEq/L and stable/improving
- Serum calcium 5 to 11.0 mg/dl and stable/improving

Central Nervous System Assessment

- Glasgow coma score > 10 and stable and improving by requiring frequent monitoring
- Seizures controlled on stable medical regimen for >24 hours
- Stable or improving respiratory muscle strength with Maximum Negative Inspiratory Force > 30 cm H₂O
- Delirium improved or stable
- Patients with stable TIA symptoms

Assessment for (Impending or Actual) Sepsis

- Systolic blood pressure > 90 mmHg with resolving Systemic Inflammatory Response Syndrome
- Lactic acidosis (lactate > 4.0 mmol/L) resolved
- Cryptic (unexplained) shock with or without hypotension resolved

Assessment of "Other" Conditions

- Stable or improving consciousness and airway protection with resolving acute poisoning, without need for further monitoring

STEPDOWN ADMISSION CRITERIA:

The purpose of these criteria is to:

1. Identify patients appropriate for admission to the Critical Care Step-down Unit (CSD) environment
2. Identify patients that require transfer to an intensive care unit (ICU)
3. Identify patients appropriate for discharge to general care

CSD status-for patients who are eligible for CSD admission include those who pass exclusion criteria and require the following level of care:

- Blood pressure monitoring/art line pressures documented every 2-4 hours
- I & O every 2-4 hours
- Continuous EKG monitoring is provided by the nursing staff

Note: If assessments are needed more often than every 2 hours, the patient requires ICU status

Patients may be considered for CSD admission with the following conditions:

- Positive cardiac history or low-probability rule-out myocardial infarction
- Hemodynamically stable with a myocardial infarction
- Possible intra-operative events (i.e. ST changes, arrhythmias, etc.) which are asymptomatic and hemodynamically stable
- Arrhythmias that are hemodynamically stable (IE. atrial fibrillation/flutter, supra ventricular tachycardia)
- Angina pectoris, that is hemodynamically stable but requires intravenous nitroglycerin for prophylaxis of the angina
- Mild to moderate congestive heart failure without signs/symptoms of shock
- Hypertensive urgency without evidence of end-organ damage
- Drug drips appropriate for CSD management as defined by the institutional critical care committee.
- Patients requiring initiation of and maintenance intravenous infusions of anti-arrhythmics, and vasoactive inotropic medications within the parameters of the CSD medication guidelines.
- Patients with a tracheostomy tube requiring aggressive pulmonary toileting or requiring arterial blood gases than once per eight hours. Suctioning is provided every 4 hours or less.
- Hemodynamically stable patients with evidence of compromised gas exchanges and underlying disease with the potential for worsening respiratory insufficiency who require frequent observation and/or continuous positive airway pressure
- Post-op patients after being fully recovered in PACU and meeting all other CSD criteria
- Patients requiring monitoring for seizure activity (should be controlled with anticonvulsant medication)
- Patients with thrombolytic infusions not requiring limb checks or vital signs more than every two hours (hourly with VS) routinely
- Patient requiring vital signs, lab tests, neuro checks, peripheral pulse checks, I & O no more often than every two hours routinely. Exceptions:
a) patient' s receiving blood products and B) certain IV infusions, and C) Dilantin loading doses may have more frequent vital signs
- Patient requiring monitoring for obstructive sleep apnea

Exclusion Criteria for CSD/Indications for Transfer to the ICU

Patients who are excluded from admission to CSD or require transfer to ICU meet these criteria:

- Patients requiring intubation or ventilatory support who are not hemodynamically stable, or with significant pulmonary edema
- Patients requiring pulmonary artery catheters
- Patients requiring active titration of cardiovascular medication infusions for more than 8-12 hours
- Patients with unstable angina pectoris, acute myocardial infarction, significant ventricular dysrhythmias or EKG changes
- Patients who are hemodynamically unstable on continuous intravenous vasoactive medication
- Patients requiring 1:1 nursing care for more than one hour to monitor hemodynamic respiratory or cardiac status
- Complicated acute myocardial infarction with temporary pacemaker/angina (patients with admission diagnosis of unstable angina)
- Patients with acute respiratory distress at imminent risk of requiring intubation
- Unstable hemodynamically ventilator patients
- Patients requiring Continuous Renal Replacement Therapy (CRRT)
- Patients with intracranial pressure (ICP) monitoring
- Patients who are less than 17 years of age

Discontinuance of CSD Status

A written order is required to discontinue CSD monitoring. The following criteria are used as guidelines in collaboration with physicians to determine the appropriateness of discontinuing CSD monitoring:

- Patients who are in normal sinus rhythm or in a stable rhythm (i.e., chronic atrial fibrillation, etc.)
- Patient no longer requires cardiac monitoring.
- Patients who are not on intravenous continuous infusion of anti-arrhythmic or vasoactive Inotropic medications.
- Patients who have had no new episodes of arrhythmias.
- The patient is breathing spontaneously through a stable airway and demonstrates adequacy of oxygenation ($FiO_2 < 50\%$), $SaO_2 > 92\%$ ventilation $pH > 7.30$, and respirations are without signs of muscle fatigue; i.e., accessory muscle use or paradoxical breathing.
- Patients who have completed the rule out MI process.
- Patient no longer requires vasoactive drugs or antihypertensive drugs (Inotropic) for a minimum of three hours and:

- a. Requires less than 150 ml/hour of intravenous fluid infusion
 - b. Maintains MAP > 65 mmHg or within 10 mmHg of the patient's baseline before admission to the ICU
 - c. Has a urine output > 0.5 ml/kg/hour in the absence of acute or chronic renal insufficiency
 - d. Does not require continuous hemodynamic evaluation or monitoring
- Suctioning every four hours or less frequently

Discharge to a general floor requires:

- The frequency of the above assessment to be every four hours or less frequently.
- Patient no longer requires intensive monitoring (i.e. vital signs, neuro checks, and /or lab tests greater than or equal to every four hours)

Admission Criteria for General Care Patients for transfer to Critical Care

A patient should be considered for transfer from a general care area to Critical Care when the following criteria are met. The goal is to transfer patients and intervene *before* they require an RRT call or actually “crash.”

Respiratory (met 2 out of 3 criteria)

- Acute and unexplained change in RR < 10 or > than 24 for > than 1 hour
[Unexplained tachypnea (duration and severity) directly correlates with risk of patient decompensation]
- Acute and unexplained decrease in oxygen saturations below 90% for > than 1 hour or FiO2 requirements increase by 25% over 4 hours
- Patient requires pulmonary assessment and intervention every 1 hour or more often

Cardiac (met 1 out of 2 criteria)

- Acute and unexplained change in Systolic BP < 90 mm Hg for > than 1 hour
- Acute and unexplained change in HR: < 50 or > 130 bpm for > 1 hour

Neuro (met 1 out of 2 criteria)

- Acute and unexplained change in conscious state, including agitated delirium for > than 1 hour
- Acute changes in mental status from baseline or fluctuating mental status in a 24 hour period