Clinical Significance

Critical care patients boarding in the emergency department (ED) have significantly poorer outcomes. Patients waiting for critical care beds require a higher level of care and more nursing time. Staffing patterns and ED patient flow make it challenging for emergency nurses to provide the same level of care that would be provided in a critical care unit.

As supported by the Emergency Nurses Association’s Position Statement on Holding, Crowding, and Patient Flow, emergency departments and inpatient units must be proactive and work collaboratively to quickly move admitted patients to the appropriate care environment to ensure the best outcomes for this patient population. Providing evidence-based critical care interventions appropriate for boarded patients helps to reduce morbidity and mortality.

Population

Applies to the adult and geriatric populations. (There is insufficient evidence to make best-practice recommendations for the critical care pediatric population boarding in the ED.)

Note: The recommendations within this TIP are based on the American College of Emergency Physicians (ACEP) Policy Statement, Definition of a Boarded Patient: “…ACEP believes a 'boarded patient' is defined as a patient who remains in the emergency department after the patient has been admitted to the facility, but has not been transferred to an inpatient unit.” (January 2011). Retrieved from http://www.acep.org/Content.aspx?id=75791.

Translation Into Practice: Critical Care Patients Boarded in the ED

**Recommended Clinical Practice**

**Respiratory**

- **Oral hygiene** should be initiated within 1 hour of intubation and continued every 4 hours. Oral care/hygiene includes:
  - Brushing the teeth, gums, and tongue within 1 hour and then every 12 hours.
  - Rinsing with 0.12% chlorhexidine solution every 2-4 hours, as recommended.
  - Suctioning oral secretions as needed.
  - Lubricating oral mucous membranes after oral care.
- Oral hygiene as stated above should also be considered for patients on non-invasive mask ventilation.

**Level A Recommendation**

- Preventing ventilator-associated pneumonia (VAP) and barotrauma are priority issues for the critical care patient.

**Level C Recommendation**

- Elevate head of bed 30–45 degrees, unless medically contraindicated.
- Suction subglottic secretions above the endotracheal tube.
- Use closed endotracheal suctioning versus open endotracheal suctioning when possible.
- Follow lung protective strategies outlined in ARDSNet protocol.
  - Use low tidal volumes (6–8 mL/kg using patient’s predicted body weight).
  - Titrate FiO2 and PEEP to maintain O2 saturation between 88% and 94% and/or PaO2 between 55–80 mmHg; avoid hyperoxia.
  - Set PEEP to a minimum of 5 cm H2O.
  - Maintain plateau pressures at less than or equal to 30 cm H2O.

**Level A Recommendation**

**Circulatory**

Optimization of hemodynamics and use of current targeted temperature management in patients with return of spontaneous circulation (ROSC) are recommended.

- **Temperature** goal 33–36 degrees Celsius.
- **Mean Arterial Pressure** (MAP) greater than or equal to 65 mmHg for sepsis.
- Adequate **central venous pressure** — current target for septic patients is 8–12 mmHg.
- **Lactate** normalization as an endpoint provides evidence of improved tissue perfusion and is considered an element of the internationally accepted sepsis guidelines.
- When titrating fluids and vasopressors, consider that other variables such as right ventricular function, intrathoracic pressure, and venous compliance may influence central venous pressure readings; consider permissive hypotension (MAP less than 65 mmHg) if other tissue perfusion variables have been met.

**Level B Recommendation**

**Level C Recommendation**
### Best Practices by System

#### Neurological
- Use of a **sedation agitation scale** for critical care patients is indicated and is helpful in the titration of sedatives; the ED and ICU should use the same tool. [Level B Recommendation](#)

#### Gastrointestinal
- Implementation of **stress ulcer prophylaxis** should be considered. [Level A Recommendation](#)

#### Genitourinary
- If a critical care patient requires placement of an **indwelling catheter**, ensure that all Centers for Disease Control and Prevention (CDC) guidelines are adhered to in order to prevent catheter-associated urinary tract infections (CAUTI). Catheters should remain in place only as long as needed. [Level B Recommendation](#)
- Maintain **urine output** greater than or equal to 0.5 mL/kg/hr. [Level A Recommendation](#)

#### Endocrine
- If two consecutive **blood glucose** levels are greater than 180 mg/dL, a protocol should be initiated to manage blood glucose levels while avoiding hypoglycemia. [Level B Recommendation](#)

#### Skin
- Within two hours after a baseline skin assessment, a pressure reduction surface should be used for the non-mobile critical care patient. Alternatively, the patient should be repositioned every two hours; or both methods may be employed. [Level A Recommendation](#)

### Supporting Rationale

#### Respiratory
- Ventilator-associated pneumonia (VAP) caused by respiratory pathogens is a leading cause of death for patients with hospital-acquired infections. Respiratory pathogens are likely to thrive in the dental plaques that develop in mechanically ventilated patients. Formation of dental plaque and gingivitis are inhibited with oral hygiene that includes the use of chlorhexidine antiseptic.
- Use of VAP bundles reduces mortality, length of stay, and cost.
- Use of lung protective strategies during mechanical ventilation is recommended in patients with sepsis.

#### Circulatory
- Neurologic and functional outcomes are improved in patients who receive therapeutic hypothermia after cardiac arrest.
- There needs to be more evidence that permissive hypotension is an effective treatment strategy in the critical care patient before a recommendation can be made.
- Morbidity, mortality, length of stay, and cost are increased if a patient acquires a central-line-associated bloodstream infection (CLABSI).
- Immobility places patients at risk for venous thromboembolism (VTE) and pulmonary embolism. Upon assessment of risk, VTE prophylaxis is warranted using current guidelines.

#### Neurological
- Morbidity, mortality, and hospital days increase when critical care patients are oversedated.
- Early deep sedation is associated with longer ventilator duration and higher need for tracheostomy.
Gastrointestinal
- Consider stress ulcer prophylaxis to prevent VAP in critical care patients that are in the ED more than 24 hours.  

Genitourinary
- Catheter-associated urinary tract infections (CAUTI) are common and lead to increased hospital costs, as well as increased morbidity and mortality.  
- CAUTI treatment-related costs are no longer reimbursed by the Centers for Medicare and Medicaid Services.  

Endocrine
- Worse neurologic outcomes and increased mortality are associated with hyperglycemia; however, caution should be used when treating high blood sugar so as not to cause hypoglycemia, which can also negatively impact neurologic outcomes.  

Skin
- Immobile critical care patients are at high risk for hospital-acquired pressure ulcers (HAPU), which increase length of stay, morbidity, and mortality.  
- HAPU treatment-related costs are no longer reimbursed by the Centers for Medicare and Medicaid Services.  

References


**Key for Level of Evidence Recommendation**

- **Level A (High) Recommendation:** Based on consistent and good quality of evidence; has relevance and applicability to emergency nursing practice.
- **Level B (Moderate) Recommendation:** There are some minor inconsistencies in quality evidence; has relevance and applicability to emergency nursing practice.
- **Level C (Weak) Recommendation:** There is limited or low-quality patient-oriented evidence; has relevance and applicability to emergency nursing practice.
- **Not Recommended:** Based upon current evidence.
- **U/E:** Insufficient evidence upon which to make a recommendation.
- **N/E:** No evidence upon which to make a recommendation.

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