EMERGENCY PROCEDURES

In Hospital Medicine, emergency procedures refer to advanced cardiac life support (ACLS), endotracheal intubation, and short-term mechanical ventilation. Hospitalists care for patients admitted to the hospital with critical illnesses, as well as patients who have become critically ill during their hospital stay. In providing care to patients who have become critically ill, many Hospitalists perform or supervise these emergency procedures. Hospitalists lead efforts to provide timely, standardized response to inpatient emergencies.

CARDIOPULMONARY RESUSCITATION

KNOWLEDGE

Hospitalists should be able to:

- Describe the normal anatomy of the oral cavity, airway, thorax, heart and lungs.
- Describe the clinical findings or disease processes that require implementation of cardiopulmonary resuscitation and advanced life support.
- Describe clinical or cardiac rhythm findings that may impact outcomes for patients with cardiopulmonary arrest.
- List the laboratory and other diagnostic tests indicated during cardiopulmonary distress or arrest and immediately following successful resuscitation.
- Explain basic life support (BLS) protocols.
- Explain and differentiate current ACLS protocols, including the indicated interventions, based on the clinical situation and cardiac rhythm.
- Select the necessary equipment to manage the airway, identify cardiac rhythms, and perform defibrillation.
- Explain which cardiac rhythms and clinical situations require immediate defibrillation.
- Explain the mechanisms of action and uses of medications employed during ACLS.
- Explain the indications for procedural interventions that may be employed during the course of resuscitation.
- Explain the role of hyperthermia as a neuro-protective measure in the post-resuscitation period.

SKILLS

Hospitalists should be able to:

- Promptly identify acute cardiopulmonary distress or arrest, and call for assistance.
- Assess the patient, rapidly review the situation, and develop a differential diagnosis of etiology.
- Elicit additional history from the patient's family, other healthcare providers, and the patient's chart when available.
- Clearly and rapidly identify the event leader, and delineate other staff roles at the beginning of the resuscitation event.
- Properly position the patient on a backboard to perform BLS and ACLS protocols.
- Continually reassess proper patient positioning during resuscitation.
- Perform BLS protocols to open the airway, use a bag-valve-mask ventilatory device, and perform external chest compressions.
- Attach a defibrillator/pacer pads to the patient, and explain the operation of manual and automated defibrillators and external pacing systems.
- Maintain clinician safety with appropriate protective wear.
- Interpret cardiac rhythms and other diagnostic indicators.
- Synthesize diagnostic information to deliver medications and/or defibrillation, and perform procedures required during resuscitation efforts.

ATTITUDES

Hospitalists should be able to:

- Assess and respect the wishes of patients and families who desire no or limited resuscitation measures during hospitalization.
- Communicate with families to explain the efforts performed as well as outcomes and next steps.
- Rapidly respond to emergencies without distraction.

- Facilitate interactions between healthcare professionals about the roles that each will perform during the resuscitation effort.
- Review the resuscitation documentation for accuracy immediately following the event.
- Recognize the indications for emergent specialty consultation when available, which may include ENT, surgery, or critical care medicine.
- Appreciate the value of spiritual support services during and following resuscitation efforts.
- Discontinue resuscitation efforts when interventions have been unsuccessful and continued efforts are medically futile.
- Arrange for appropriate care transitions following successful resuscitation.
- Address family wishes regarding organ donation and autopsy.

ENDOTRACHEAL INTUBATION

KNOWLEDGE

Hospitalists should be able to:

- Describe the anatomy of the oral cavity, posterior pharynx and larynx.
- Describe clinical findings or disease processes that may require securing an airway.
- Describe the indications and contraindications, benefits and risks of endotracheal intubation.
- Describe the necessary equipment and medications required for routine and difficult intubations.
- Describe the process of endotracheal intubation from laryngoscope assembly to assessment of tube placement.
- Describe and differentiate alternatives to endotracheal intubation.

SKILLS

Hospitalists should be able to:

- Identify patients for whom endotracheal intubation may be required.
- Utilize bag-valve-mask ventilation with oral or nasal airway as a bridge to intubation.
- Select the appropriate laryngoscope blade for the individual patient.
- Position the patient and the bed for optimal procedure success and operator comfort.
- Assemble the laryngoscope and intubate the patient after visualizing the vocal cords.
- Prepare the oropharynx for intubation using necessary steps that may include removal of oral hardware, suctioning, and application of cricoid pressure.
- Request cricoid pressure and other maneuvers when indicated.
- Place the endotracheal tube at an appropriate depth in the airway.
- Confirm endotracheal tube placement by gastric and breath sounds, carbon dioxide monitor, and radiography; adjust tube position when indicated.

ATTITUDES

Hospitalists should be able to:

- Communicate with patients and families regarding procedure indications and next steps in management.
- Maintain high oxygen saturation prior to intubation whenever possible.
- Minimize patient trauma risk during intubations.
- Appreciate that bag-valve-mask can provide adequate oxygenation for extended periods when difficult intubations are delayed.
- Maintain clinician safety with appropriate protective wear.
- Use an alternative airway control device (e.g. laryngeal mask airway) for patients with difficult or unsuccessful intubations.
- Request appropriate specialist consultation for difficult or unsuccessful intubations or when clinician experience level precludes intubation trial.

MECHANICAL VENTILATION

KNOWLEDGE

Hospitalists should be able to:

- Describe the normal anatomy of the chest wall, thorax, and lung.
- Describe disease processes that lead to respiratory failure and expected clinical findings.
- Describe the indications, benefits and risks of mechanical ventilation.
- Describe indications and contraindications for non-invasive ventilation in selected patients.
- Explain the role of arterial blood gas (ABG) analysis in the management of ventilated patients.
- Describe available modes of ventilation, and how to select initial and subsequent ventilator settings.
- Describe methods of and indications for sedation, comfort management, and/or paralysis in ventilated patients.
- Describe various ventilator settings and explain the use of individual settings based on the patient's disease process and clinical condition.

SKILLS

Hospitalists should be able to:

- Utilize nursing and respiratory therapy reports, physical examination, and ventilator data to identify complications due to mechanical ventilation.
- Select and adjust the ventilator mode and settings based on underlying disease process, other patient factors, ventilator data, and ABG analysis.
- Employ indicated interventions when complications of mechanical ventilation are identified.
- Identify the components of the ventilator, assess proper functioning, and identify equipment malfunction and/or patient-ventilator dysynchrony.
- Order and interpret laboratory and imaging studies based on changes in patient's clinical status.
- Order adequate sedation and other indicated interventions to treat underlying conditions leading to respiratory failure and to prevent the complications of mechanical ventilation.

ATTITUDES

Hospitalists should be able to:

- Communicate with patients and/or families to explain the risks, benefits, and alternatives to invasive ventilation.
- Obtain informed consent prior to non-emergent intubations.
- Conduct regular family meetings to provide clinical updates and facilitate shared decision-making.
- Implement interventions shown to reduce risk of ventilator-associated complications, which may include hospital acquired pneumonia, stress ulceration and bleeding, and venous thromboembolism.
- Provide adequate sedation, comfort management, and paralysis when indicated for patients requiring mechanical ventilation.
- Recognize the indications for specialty consultation, which may include critical care medicine.

SYSTEM ORGANIZATION AND IMPROVEMENT FOR EMERGENCY PROCEDURES

To improve efficiency and quality within their organizations, Hospitalists should:

- Collaborate with critical care physicians, respiratory therapists, and critical care nurses to develop evidence based protocols or guidelines for optimal ventilator management and weaning.
- Lead, coordinate or participate in evaluation of resuscitation and mechanical ventilation outcomes and identify and implement improvement initiatives.
- Lead, coordinate or participate in multidisciplinary teams, which may include critical care nurses, respiratory therapists, and critical care and emergency physicians, to establish ongoing training to ensure high quality performance of emergency procedures.
- Lead, coordinate or participate in multidisciplinary efforts to review antecedent events to identify changes in clinical status which, if promptly identified and acted upon, may have prevented the emergency intervention.
- Facilitate appropriate organization and consolidation of equipment in multiple identifiable and accessible locations in the hospital for performance of emergency procedures.