



Assessment & Resuscitation of an Unstable Patient

Description of the Activity	<p>The pediatric surgeon needs to develop the ability to manage unstable pediatric surgical patients, covering critical areas such as diagnosis; initial resuscitation; sepsis management; and preoperative, perioperative, and postoperative care.</p>
Functions	<ul style="list-style-type: none">❖ Initial assessment<ul style="list-style-type: none">➤ Perform a focused history and physical examination, including pertinent positives and negatives.➤ Identify the important points in the patient's history, physical examination, medical records, and existing diagnosis to assess the primary surgical problem and illness severity.➤ Identify if the patient is in shock, and determine the type of shock.➤ Interpret vital signs, and monitor devices accurately.➤ Recognize that an unstable patient could have secondary postoperative complications, such as infection, bleeding, and organ dysfunction.➤ Determine the goals of care with the family/caregiver(s) and the health care team.❖ Resuscitation<ul style="list-style-type: none">➤ Stabilize and resuscitate the patient using antibiotics, blood products, and cardiopulmonary support.➤ Assess and manage the airway, breathing, and circulation of a pediatric surgical patient in critical condition.➤ Execute pediatric-specific resuscitation protocols, including pediatric advanced life support (PALS) and advanced trauma life support (ATLS).➤ Remain skilled in administering vasopressor support, antibiotics, blood products, and fluids.➤ Prevent secondary organ injury using protective lung ventilation and avoiding nephrotoxic medications and early enteral feeding.➤ Provide sedation and analgesia.➤ Monitor and manage hyperglycemia.➤ Make quick, informed decisions under pressure to stabilize the patient.➤ Determine if a subspecialty or more experienced consultation is indicated.❖ Adjunctive procedures<ul style="list-style-type: none">➤ Ensure informed consent as indicated, including appropriate audiovisual support for comprehension and allotted time for questions and concerns.➤ Identify the indications for pediatric airway management, including intubation.➤ Recognize the indications for placement of arterial lines, central venous lines for resuscitation and continuous renal replacement therapy, and pigtail or chest tubes.➤ Perform high-quality cardiopulmonary resuscitation, and use defibrillation.➤ Perform thoracentesis, paracentesis, bronchoscopy, and endoscopy.



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	<ul style="list-style-type: none">➤ Identify the need for source control, and consider surgical interventions early as appropriate (eg, abscess drainage, laparotomy).➤ Consider adjunct therapies such as extracorporeal life support (ECLS) for refractory septic shock, diuresis, continuous renal replacement therapy, and, potentially, intravenous immunoglobulin in a neonate.❖ Post resuscitation<ul style="list-style-type: none">➤ Monitor endpoints of resuscitation, and reassess the patient to modify the treatment plan and optimize stabilization.➤ Recognize and manage common perioperative problems or complications, including:<ul style="list-style-type: none">▪ Fluid, electrolyte, or renal system abnormalities▪ Hematologic system abnormalities▪ Hemodynamic instability and its underlying causes▪ Infection or immune system dysfunction▪ Issues with the gastrointestinal/hepatobiliary systems▪ Metabolic, nutritional, or endocrine system abnormalities▪ Neurologic system abnormalities▪ Respiratory failure➤ Organize the handover of care to the most appropriate health care provider or health care setting.➤ Communicate patient-specific needs to the health care team.❖ Sepsis management<ul style="list-style-type: none">➤ Recognize, diagnose, and manage sepsis in pediatric surgical patients.➤ Implement pediatric sepsis guidelines effectively, including timely antibiotic administration and fluid resuscitation.➤ Identify the need for escalation of care, including appropriate inotropic support.
Scope	<ul style="list-style-type: none">❖ In scope<ul style="list-style-type: none">• Diagnoses<ul style="list-style-type: none">▪ Cardiogenic shock▪ Hemorrhagic shock▪ Neurogenic shock▪ Septic shock▪ Respiratory distress/insufficiency• Procedures<ul style="list-style-type: none">▪ Intubation, bronchoscopy, endoscopy, laparotomy, arterial catheter❖ Out of scope<ul style="list-style-type: none">• Diagnoses/procedures<ul style="list-style-type: none">▪ Trauma patients



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- ECLS cannulation (see specific ECLS EPA)
- Vascular access (e.g. central venous catheter, hemodialysis catheter) – see specific EPA
- Special populations
 - Preterm patients (younger than a gestational age of 36 weeks)



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<p style="text-align: center;">1</p> <p>Framework:</p> <p>The learner demonstrates understanding of information and has basic skills</p> <p>What a new pediatric surgery fellow should know</p> <p>Entrustment:</p> <p>The attending will show and tell or the learner acts as first assistant.</p>	<ul style="list-style-type: none"> With active guidance, obtains a detailed H&P, reviews diagnostic reports, and formulates a differential that includes both medical and surgical problems With active guidance, makes patient-specific decisions regarding approach, admission, and disposition in a time-sensitive manner in a routine situation With direct supervision, identifies the need for resuscitation of a critically ill neonate (eg, NEC), considers ventilatory management (e.g. CDH), and recognizes the signs and symptoms of sepsis Demonstrates basic knowledge of the common pediatric and neonatal pathophysiology of critical illness With active assistance, applies evidence-based guidelines in pediatric critical care Establishes a professional rapport with a patient, family, and the health care team in a clear and understanding manner; with active assistance, discusses goals for shared decision-making 	<ul style="list-style-type: none"> With direct supervision, ensures informed consent for a common pediatric procedure in the ICU, including appropriate audiovisual support for comprehension and allotted time for questions and concerns Demonstrates knowledge of the indications for pediatric airway management, including intubation Demonstrates knowledge of the indications for placement of arterial lines, central venous lines (for resuscitation and CRRT), and pigtail or chest tubes in a critically ill pediatric patient With direct supervision, identifies the need for and the appropriate timing of source control or surgical intervention 	<ul style="list-style-type: none"> With direct supervision, monitors endpoints of resuscitation and reassesses the patient to modify the treatment plan and optimize stabilization Demonstrates basic knowledge of reporting patient safety events in the pediatric critical care setting Demonstrates basic knowledge of the health needs and disparities of critically ill pediatric surgical patients With direct supervision, makes a plan with a patient and their family, considering personal biases and patient and family values, goals, and preferences in treatment options in an uncomplicated clinical scenario With active assistance, delivers the handover of care of a straightforward patient to the most appropriate physician or health care setting, communicating patient-specific needs to the health care team
<p style="text-align: center;">2</p> <p>Framework:</p> <p>The learner demonstrates understanding of the steps</p>	<ul style="list-style-type: none"> With direct supervision, obtains a detailed H&P, reviews diagnostic reports, and formulates a differential that includes both medical and surgical problems 	<ul style="list-style-type: none"> With indirect supervision, ensures informed consent for a common pediatric procedure in the ICU, including appropriate audiovisual support for 	<ul style="list-style-type: none"> With indirect supervision, monitors endpoints of resuscitation and reassesses the patient to modify the



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<p>of the operation but requires direction through principles and does not know the nuances of a basic case</p> <p><u>Entrustment:</u></p> <p>The learner can use the tools but may not know exactly what, where, or how to do it.</p> <p>The attending gives active help throughout the case to maintain forward progression or may need to take over the case at a certain point</p>	<ul style="list-style-type: none"> ● With direct supervision, makes patient-specific decisions regarding approach, admission, and disposition in a time-sensitive manner in a routine situation ● With indirect supervision, identifies the need for resuscitation of a critically ill neonate (eg, NEC), considers appropriate initial management and ventilatory management (CDH), and identifies the need for further modification of the management plan based on the patient's response to treatment ● Demonstrates understanding of and describes the common pediatric and neonatal pathophysiology of critical illness ● With passive assistance, applies evidence-based guidelines in pediatric critical care ● With passive assistance, participates in a multidisciplinary approach to shared decision-making, including family meetings, to align values, goals, and preferences with treatment options to make a personalized care plan 	<p>comprehension and allotted time for questions and concerns</p> <ul style="list-style-type: none"> ● Under direct supervision, performs common pediatric airway management procedures, including intubation ● Under direct supervision, places arterial lines, central venous lines (for resuscitation and CRRT), and pigtail or chest tubes in a critically ill pediatric patient ● With indirect supervision, identifies the need for and the appropriate timing of source control or surgical intervention 	<p>treatment plan and optimize stabilization</p> <ul style="list-style-type: none"> ● Demonstrates understanding of and describes important aspects of reporting patient safety events in the pediatric critical care setting ● Demonstrates understanding of and describes the health needs and disparities of critically ill pediatric surgical patients ● With indirect supervision, makes a plan with a patient and their family, considering personal biases and patient and family values, goals, and preferences in treatment options in an uncomplicated clinical scenario ● With passive assistance, delivers the handover of care of a straightforward patient to the most appropriate physician or health care setting, communicating patient-specific needs to the health care team
<p style="text-align: center;">3</p> <p><u>Framework:</u></p> <p>The learner has a good understanding of surgical options and techniques but does not recognize abnormalities and does not</p>	<ul style="list-style-type: none"> ● With indirect supervision, obtains a detailed H&P, reviews diagnostic reports, and integrates information to design a management plan for medical and surgical diagnosis ● With indirect supervision, makes patient-specific decisions regarding approach, 	<ul style="list-style-type: none"> ● With indirect supervision, ensures informed consent for a complex pediatric procedure in the ICU, including appropriate audiovisual support for comprehension and allotted time for questions and concerns 	<ul style="list-style-type: none"> ● With indirect supervision, monitors endpoints of resuscitation and reassesses the patient to modify the treatment plan and optimize stabilization, adapting the plan of care when the patient does not respond



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<p>understand the nuances of a complicated case</p> <p><u>Entrustment:</u></p> <p>The learner can perform the operation/task independently in the uncomplicated patient</p> <p style="text-align: center;">or</p> <p>The attending provides passive/indirect supervision/suggestions in the complicated patient but still allows the learner to perform the operation/task themselves</p>	<p>admission, and disposition in a time-sensitive manner in a complex or stressful situation</p> <ul style="list-style-type: none"> ● With indirect supervision, identifies and initiates medical management and resuscitation of a critically ill neonate (eg, NEC); initiates ventilatory management (CDH); recognizes the signs and symptoms of sepsis and establishes appropriate initial management, modifying the management plan based on the patient's response to treatment ● Demonstrates basic knowledge of the complex pediatric and neonatal pathophysiology of critical illness ● With passive assistance, applies evidence-based guidelines in pediatric critical care and recognizes the current limitations of uncertain or conflicting evidence ● Establishes a culturally sensitive and therapeutic relationship with a medically complex patient or a socially complex family and compassionately communicates the disease-specific risks and benefits of a planned procedure and prognosis 	<ul style="list-style-type: none"> ● With indirect supervision, performs common pediatric airway management procedures, including intubation ● With indirect supervision, places arterial lines, central venous lines (for resuscitation and CRRT), and pigtail or chest tubes in a critically ill pediatric patient ● With indirect supervision, develops a plan for source control and considers the appropriate timing for surgical intervention 	<ul style="list-style-type: none"> ● With indirect supervision in the ICU setting, helps create, implement, and assess quality improvement initiatives at the institutional level ● With indirect supervision, coordinates changes and adaptations to critically ill patient care to provide for the needs of specific pediatric surgical populations ● With indirect supervision, makes a plan with a patient and their family, considering personal biases and patient and family values, goals, and preferences in treatment options in a complex clinical scenario ● With passive assistance, organizes the handover of care of a critically ill patient in a crisis situation to the most appropriate physician or health care setting, clearly communicating patient-specific needs to the health care team
<p style="text-align: center;">4</p> <p><u>Framework:</u></p> <p>The learner has a strong and in-depth understanding of</p>	<ul style="list-style-type: none"> ● Independently integrates information with patient-specific factors to design a succinct diagnostic workup and management plan for a critically ill neonatal or pediatric surgical patient 	<ul style="list-style-type: none"> ● Independently ensures informed consent for a complex pediatric procedure, including appropriate audiovisual support for comprehension and allotted time for questions and concerns 	<ul style="list-style-type: none"> ● Independently monitors endpoints of resuscitation and reassesses the patient to modify the treatment plan and optimize stabilization, adapting the plan of care when the patient does not respond



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<p>surgical options and techniques</p> <p><u>Entrustment:</u></p> <p>Can perform the operation/task independently in complicated cases</p> <p>or</p> <p>The attending may need to provide indirect supervision or suggestions in the context of extremely rare or severely complicated cases</p>	<ul style="list-style-type: none">Independently makes patient-specific decisions regarding approach, admission, and disposition in a time-sensitive manner, recognizing the limitations of the health care systemIndependently individualizes ongoing critical care management and assesses the response to therapy, including the need for advanced ventilatory management, monitoring the endpoints of resuscitation and adapting management as indicatedDemonstrates comprehensive understanding of the components of pediatric and neonatal pathophysiology of critical illnessCritically appraises and applies evidence to guide care, even in the face of uncertain or conflicting evidence, tailoring it to the patient and familyLeads a multidisciplinary approach and uses shared decision-making, including family meetings, to align values, goals, and preferences with treatment options to make a personalized care plan	<ul style="list-style-type: none">Independently manages pediatric airways, including intubation, ventilatory settings, and modesIndependently identifies the need for and performs necessary adjunct procedures in a critically ill pediatric patient (eg, arterial lines, central lines, cutdowns, chest tubes, drains)Independently performs source control and plans the appropriate timing for surgical intervention	<ul style="list-style-type: none">In an ICU setting, leads quality improvement initiatives at the institutional levelIndependently anticipates, formulates, and coordinates changes and adaptations of critically ill patient care to provide for the needs of specific pediatric surgical populationsIndependently makes a plan with a patient and their family, considering personal biases and patient and family values, goals, and preferences in treatment options in a complex clinical scenarioIndependently organizes the handover of care of a critically ill patient in a crisis situation to the most appropriate physician or health care setting, clearly communicating patient-specific needs to the health care team