

Pediatric Surgery

Note:

The goals and objectives described in detail below are not meant to be completed in a single one month block rotation but are meant to be cumulative, culminating in a thorough and complete Pediatric Surgery experience at the end of residency.

Primary Goals for this Rotation

GOAL: Normal Vs. Abnormal. Differentiate normal conditions from pathologic ones requiring surgical intervention.

Counsel parents regarding the natural history of uncomplicated umbilical hernia.

Distinguish inguinal hernia from hydrocele and describe when it is appropriate for the pediatrician to observe and follow, and when to refer for evaluation.

Distinguish acute abdominal pain related to transient events like constipation, musculoskeletal pain or gastroenteritis from pain that is likely to come from a serious surgical condition.

Interpret clinical and laboratory tests to identify conditions that require surgical intervention, including:

1. Blood studies (CBC, ESR, Electrolytes, BUN, Creatinine, LFTs, amylase, lipase)
2. Occult blood in gastric fluid and stool
3. Cultures (blood, stool, wound, urine, fluid from body cavities and abscesses)
4. Radiographic studies (KUB and upright abdominal films, barium enema, UGI and small bowel follow through)

GOAL: Undifferentiated Signs and Symptoms. Evaluate and appropriately treat or refer signs and symptoms that may require surgery.

Create a strategy to determine if the following presenting signs and symptoms are caused by a surgical condition, provide initial evaluation or treatment, and refer appropriately:

1. Acute abdominal pain
2. Acute scrotum
3. Vomiting, especially bilious or bloody
4. Inguinal swelling or mass
5. Abdominal mass
6. Bloody stools

GOAL: Common Conditions Not Referred. Diagnose and manage common conditions that generally do not require surgical referral.

Diagnose, manage, and counsel patients and parents about the following conditions that generally do not require surgical evaluation:

1. Umbilical hernia
2. Retractable testes

3. Resolving hydrocele
4. Transient lymphadenopathy
5. Minor lacerations

GOAL: Conditions Generally Referred. Diagnose, provide initial stabilization, and refer appropriately conditions that usually require surgical evaluation.

Recognize, stabilize and initiate management and surgical referral for the following conditions:

1. Intussusception
2. Tumor
3. Trauma (e.g., blunt abdominal trauma)
4. Burns
5. Failure to thrive or gastroesophageal reflux requiring gastrostomy tube or Nissen fundoplication
6. Central venous access
7. Atypical mycobacterial adenitis
8. Acute lymphadenitis
9. Prenatal diagnosis of surgical condition: Congenital diaphragmatic hernia, Hirschsprung's, Atresia or stenosis of gastrointestinal tract, CCAM (cystic adenomatoid malformation), abdominal wall defects (gastroschisis and omphalocele), lymphatic malformations (cystic hygroma) of the neck, esophageal anomalies, sacrococcygeal teratomas
10. Caustic strictures of esophagus
11. Pleural effusion or empyema
12. Hypertrophic pyloric stenosis
13. Meconium ileus
14. Meckel's diverticulum
15. Malrotation, volvulus
16. Ascites
17. Premature infant with short bowel syndrome following necrotizing enterocolitis
18. Neck masses (thyroglossal duct cyst, branchial cleft cyst, cystic hygromas)
19. Anorectal anomalies (imperforate anus)
20. Chest wall defects: pectus excavatum and carinatum
21. Intersex and ambiguous genitalia
22. Lymphangiomas
23. Dysphagia, achalasia
24. Abdominal mass: Wilms Tumor, Neuroblastoma
25. Ovarian mass: teratomas, etc.
26. GI bleeding
27. Intestinal obstruction
28. Undescended testis
29. Ganglion cysts
30. Inflammatory bowel disease
31. Polyposis syndromes
32. Appendicitis
33. Biliary atresia
34. Gall bladder disease
35. Portal hypertension
36. Pancreatitis
37. Vascular anomalies

Identify the role and general scope of practice of pediatric surgeons; recognize situations where children benefit from the skills of surgeons with specialized training in the care of infants and children; and work effectively with these professionals in the care of children's surgical conditions.

GOAL: Pre-operative and Post-operative Evaluation. Collaborate with surgeons in the pre-operative and post-operative evaluation and management of pediatric patients, differentiating between adult and pediatric surgeons.

Refer patients needing surgical intervention to the appropriate pediatric surgical subspecialist, if available in your locale.
Evaluate patients pre-operatively to provide medical clearance for surgery. <ol style="list-style-type: none">1. Obtain history of prior surgery and anesthesia.2. Identify bleeding tendencies.3. Assess oral cavity for loose teeth if endotracheal intubation is anticipated.4. Manage any chronic respiratory conditions (e.g., asthma) that may have an impact on surgery and recovery.
Participate in the post-operative follow-up of surgical patients. <ol style="list-style-type: none">1. Monitor fluid and electrolyte status.2. Observe for fever and recognize different causes of fever and their appropriate evaluation.3. Recognize and manage common post-operative complications (bleeding, stridor, infections, wound dehiscence).4. Manage post-operative pain.5. Assess discharge and follow-up plans.6. Recognize psychosocial stresses of surgery on families and anticipate potential barriers to adequate post-op care.
Function as a pediatric consultant to surgical colleagues in the diagnosis and management of pediatric patients.

GOAL: Trauma. Evaluate, stabilize, manage and refer as necessary patients presenting with trauma.

Counsel families regarding strategies to prevent traumatic injuries in childhood.
Evaluate patients presenting with simple or multiple trauma by performing a primary and secondary survey.
Manage mild trauma (e.g., mild closed head trauma or extremity soft tissue injury).
Stabilize and refer patients with multiple trauma. <ol style="list-style-type: none">1. Obtain venous access when possible.2. Be prepared to intubate in managing the airway.3. Splint suspected fractures.4. Stabilize the cervical spine.5. Fluid resuscitate when indicated, utilizing the appropriate product (colloid vs. blood products).6. Order appropriate laboratory testing (e.g., type and cross match).7. Monitor condition carefully until surgical evaluation can be performed.
Describe the main differences between a level 1, 2 and 3 trauma center, including specialists available at the site and type of pediatric patients served.

GOAL: Appendicitis. Recognize, diagnose, manage and refer patients with appendicitis.

Recognize common and unusual presenting signs and symptoms indicating appendicitis,

and diagnose by eliciting the appropriate history and physical examination findings.
When the diagnosis is not certain, recognize situations warranting inpatient admission for medical observation and repeated surgical consultation during course of illness.
Use imaging studies appropriately in the diagnosis of appendicitis.
Obtain laboratory tests suitable for evaluation of appendicitis and also in anticipation of surgical intervention.
Discuss potential surgical intervention with patients and families.
GOAL: Therapeutic and Technical Procedures. Acquire recommended proficiency in the use and performance of common surgical procedures.
Order or perform, collect proper specimens, and interpret results or response to the following clinical studies and procedures used in surgery: <ol style="list-style-type: none"> 1. Incision and drainage of simple abscess, including paronychia 2. Management of first and second degree burns 3. Gastric suction and lavage 4. Placement of gastric tube (orogastric or nasogastric) 5. Gastrostomy tube replacement 6. Reduction of simple hernia 7. Central line use and care 8. Drainage of subungual hematoma 9. Suture of simple lacerations 10. Needle thoracentesis 11. Simple wound care 12. Acute stabilization of a patient with a major burn 13. Neonatal paracentesis
GOAL: Pediatric Competencies in Brief. Demonstrate high standards of professional competence while working with patients under the care of a subspecialist.
Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.
1. Use a logical and appropriate clinical approach to the care of patients presenting for surgical evaluation, applying principles of evidence-based decision-making and problem-solving.
2. Describe general indications for surgical procedures and interpret results for families.
Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.
1. Acquire, interpret and apply the knowledge appropriate for the generalist regarding the core content of pediatric surgery.
2. Critically evaluate current medical information and scientific evidence related to pediatric surgery and modify your knowledge base accordingly.
Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients,

<p>their families and professional associates.</p>
<p>1. Provide effective patient education, including reassurance, for a condition(s) common to pediatric surgery.</p>
<p>2. Communicate effectively with primary care and other physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.</p>
<p>3. Maintain accurate, legible, timely and legally appropriate medical records, including referral forms and letters, for pediatric surgery patients in the outpatient and inpatient setting.</p>
<p>Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.</p>
<p>1. Identify standardized guidelines for diagnosis and treatment of conditions common to pediatric surgery adapt them to the individual needs of specific patients.</p>
<p>2. Identify personal learning needs related to pediatric surgery; systematically organize relevant information resources for future reference; and plan for continuing acquisition of knowledge and skills.</p>
<p>Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.</p>
<p>1. Demonstrate personal accountability to the well-being of patients (e.g., following up on lab results, writing comprehensive notes, and seeking answers to patient care questions).</p>
<p>2. Demonstrate a commitment to carrying out professional responsibilities.</p>
<p>3. Adhere to ethical and legal principles, and be sensitive to diversity.</p>
<p>Competency 6: Systems-based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.</p>
<p>1. Identify key aspects of health care systems as they apply to pediatric surgery, including the referral process, and differentiate between consultation and referral.</p>
<p>2. Demonstrate sensitivity to the costs of clinical care in the pediatric surgery setting, and take steps to minimize costs without compromising quality</p>
<p>3. Recognize and advocate for families who need assistance to deal with systems complexities, such as the referral process, lack of insurance, multiple medication refills, multiple appointments with long transport times, or inconvenient hours of service.</p>
<p>4. Recognize one's limits and those of the system; take steps to avoid medical errors.</p>

Rotation Specific Competencies

Patient Care:

1. Understands and weighs alternatives for diagnosis and treatment
2. Elicits subtle findings on physical examination
3. Obtains a precise, logical, and efficient history
4. Develops and carries out management plans
5. Competently understands/performs/interprets procedures:
 - _____ Radiology Studies: Indications and Interpretation
 - _____ Inguinal Hernia: Simple Reduction, Indications for Repair
 - _____ Wound Care: Suturing and Management
 - _____ Burn Care: Management

Medical Knowledge:

1. Is aware of indications, contraindications, and risks of commonly used medications and procedures
2. Applies the basic science, clinical, epidemiologic, and social-behavioral knowledge to the care of the patient

Interpersonal Skills and Communication:

1. Creates and sustains therapeutic and ethically sound relationships with patients and families
2. Provides education and counseling to patients, families, and colleagues
3. Works effectively as a member of the health care team

Practice-based Learning and Improvement:

1. Undertakes self-evaluation with insight and initiative
2. Facilitates the learning of students and other health care professionals

Professionalism:

1. Is honest, reliable, cooperative, and accepts responsibility
2. Shows regard for opinions and skills of colleagues
3. Is responsive to needs of patients and society, which supersedes self-interest

Systems Based Practice:

1. Applies knowledge of how to partner with health care providers to assess, coordinate and improve patient care
2. Advocates for high quality patient care and assists patients in dealing with system complexity

Suggested Reading Material:

The Essentials of Pediatric Surgery by Rowe et al is available in the surgery library

The Journal of Pediatric Surgery is available in the surgery library

References:

1. American Board of Pediatrics, Content Specification, 2007
2. Ambulatory Pediatric Association
3. Association of Pediatric Program Directors
4. Pediatric RRC, January 2006