

Pediatric Surgery

Office for Clinical Affairs
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General Description

Elective Rotation

This elective rotation in Pediatric Surgery is a four (4) week experience in the management of surgical diseases of infants and children. The student may be required to travel to the clinic, outpatient surgery center and/or hospital facility during his/her rotation time. Most students electing this rotation will be in their late third or fourth year of osteopathic medical school. A post-rotation examination is **not** required.

Recommended Textbooks

Lawrence, Peter F. **Essentials of Surgical Specialties**, 3rd Ed. Lippincott, Williams and Wilkins, 2007 (or newer edition).
- Chapter 2: pp 51-93.

Other Suggested Textbooks

Brunicaudi FC, et al. **Schwartz's Principles of Surgery**, 9th Ed. The McGraw-Hill Companies, 2010.
- Chapter 39: Pediatric Surgery. (Available electronically on *Access Surgery* through DMU Library portal.)

Doherty, Gerard M (ed.), **Current Diagnosis and Treatment: Surgery**, 13e. The McGraw-Hill Companies, 2010.
- Chapter 43: Pediatric Surgery. (Available electronically on *Access Surgery* through DMU Library portal.)

Mattox, K.L., **Trauma**, 7th e. The McGraw-Hill Companies, 2013.
- Chapter 46: Pediatric Trauma. (Available electronically on *Access Surgery* through DMU Library portal.)

Prerequisites

Basic knowledge of human embryology.

Basic knowledge of the physiologic differences between neonates, children, and adults.

Basic knowledge and sensitivity to the emotional needs of pediatric patients and is able to communicate effectively with the patients and their families.

Basic textbook knowledge and skills lab experience with basic suturing and aseptic techniques.

Completed and passed the required Clerkship General Surgery Rotation

Completed and passed the required Clerkship Pediatric Rotation

Student Responsibility

It is required that the student meet with their preceptor at the beginning of the rotation to discuss the learning objectives outlined in this document. Students should also seek and receive preceptor feedback midway through the rotation.

Because of the short duration of this rotation, students must be professionally assertive, attentive, and well prepared.

These characteristics are imperative for the student to get the most out of this rotation. **Student must never attempt skills on a patient without attending staff permission and supervision.**

Purpose

The overall goal of this rotation is to provide a broad exposure to the care of children and infants with surgical disorders. To provide the student with basic understanding of pre, peri, and postoperative evaluation of pediatric surgery cases, basic knowledge of surgical decision making, proper wound management and emotional needs of pediatric patients and their families.

Educational Goals:

- Use the framework of pediatric surgery to understand basic general surgery principles in the management of fluids and electrolyte, nutritional assessment and administration, preoperative, perioperative and postoperative care, assessment of complications, and follow-up care.
- Understand and be exposed to basic operative procedures.
- Participate in hands on experience in the OR, clinic, and teaching rounds.

Students are expected to assist in the management of preoperative, perioperative and postoperative patient care under supervision. The student should also develop fundamental psychosocial skills by observing physician-patient interactions during this rotation.

We recognize that four weeks is an insufficient amount of time to cover a comprehensive list of objectives in any area of practice. Clearly, subjects addressed in any clinical rotation are dependent on the numbers of patients and kinds of disease entities presenting to a particular service. Nevertheless, certain minimum content **must** be addressed, either by clinical exposure or by didactic materials so that students are prepared for Board examinations and other testing. Broad goals listed above are a minimum; objectives for rotations not specifically listed in these guidelines should include the affective objectives listed below. The College depends on the supervising physician to establish more specific objectives dealing with the scope of the particular specialty. Therefore, the following sections contain relatively broad, basic objectives for which students are responsible.

Competencies

Osteopathic Philosophy and Osteopathic Manipulative Medicine

OBJECTIVES: Osteopathic Philosophy and Osteopathic Manipulative Medicine

1. Demonstrate the ability to perform and record an osteopathic structural examination on a pediatric surgical patient and document such using acceptable osteopathic terminology.
2. Demonstrate the application of the osteopathic philosophy into the pre- and post-operative care of the surgical patient.
3. Demonstrate an understanding of palpatory findings, which are found in common conditions, encountered in a surgical practice.
4. Demonstrate ability to assess respiratory rib motion preoperatively that may affect peri-op and post-op care.
5. Demonstrate ability to assess unique congenital deformities in the head, neck, and spine that can affect pre- and postoperative care.

Interpersonal and Communication Skills

OBJECTIVES: Interpersonal and Communication Skills

1. Communicates effectively with attending, resident, team members and other health care professionals.
2. Documentation in medical records is legible.
3. Communicates appropriately, effectively, and professionally to pediatric patients and family members.
4. Demonstrates ability to develop and execute patient care plans appropriate for level of training and follows the SOAP/problem oriented format.

Professionalism

OBJECTIVES: Professionalism

1. Demonstrates a commitment to continuity of patient care.
2. Displays a sense of responsibility and respect to patients, families, staff and peers.
3. Demonstrates cultural sensitivity.
4. Demonstrate sensitivity to the emotional needs of pediatric patients.
5. Maintains a professional appearance, well groomed, and appropriately dressed.
6. Punctual in attendance, prompt and available when called upon.
7. Motivated to learn, shows appropriate assertiveness, flexibility, adaptability toward education.
8. Demonstrates appropriate attitude, cooperative, receptive to feedback.
9. Introduce self to those who you are working with, the patient, attending, resident, other physicians, nurses, staff members, etc.

Practice-Based Learning

OBJECTIVES: Practice-Based Learning

1. Demonstrates motivation and a desire to learn.
2. Demonstrates the ability to learn from practice.
3. Critiques personal practice outcomes appropriate to level of training.
4. Demonstrates recognition of the importance of lifelong learning in medical/surgical practice.
5. Seeks and responds to feedback.

Systems-Based Practice

OBJECTIVES: Systems-Based Practice

1. Know where to go for help—personal and professional.
2. Attends all required orientations presented by the facility and completes needed paperwork for rotation.
3. Follows policy and procedures set forth by the health care facility and departments within that facility.
4. Follows the policies for a medical student at the surgery rotation facility.
5. Report to appropriate institutional authority when absent following Clinical Affairs guidelines.
6. The student will learn to differentiate between system and individual errors.

Patient Care

1. Communicates effectively with attending, resident, team members and other health care professionals.
2. Demonstrate the ability to obtain and report a basic pediatric patient history for common surgical diseases of infants and children.
3. Demonstrate the ability to perform and report a basic pediatric physical examination.
4. Documentation in medical records is legible.
5. Communicates appropriately and professionally to patient and family members with the attending's knowledge of the discussion.
6. Demonstrates ability to develop and execute patient care plans appropriate for level of training and follows the SOAP/problem oriented format.
7. Describe different suture materials and how selection for use is based.
8. Describe alternative methods of wound closures dependent on anatomical location.
9. Demonstrate aseptic technique in the OR, ER, clinic, or at bedside.
10. Demonstrate patient safety concerns regarding body alignment, padding bony prominence, and environmental safety, maintaining core body temperature preoperative, perioperative and postoperative.
11. Demonstrate proper pain control, drain care, surgical site assessment postoperatively.

Medical Knowledge

Preoperative Management of the Pediatric Surgical Patient

OBJECTIVES:

1. Discuss the appropriate steps in the perioperative management of the pediatric surgical patient.
2. Discuss the important components of their operating room environment, postoperative care and pain management.
3. Discuss the emotional needs of children undergoing operations.

Fluids, Electrolytes, Blood and Nutrition

OBJECTIVES: Fluids and electrolytes

1. Discuss the intracellular and extracellular fluid compartments in children.
2. Discuss how to calculate the daily fluid and electrolyte requirements, preexisting deficits, and abnormal ongoing losses in children.

OBJECTIVES: Blood Loss

1. Discuss blood volume in a newborn vs an infant.
2. Discuss defects in the coagulation mechanism in newborns and how to treat.
3. Discuss calculating blood loss during surgery and blood replacement management.

OBJECTIVES: Nutrition

1. Discuss the indications for enteral and parenteral nutrition in pediatric surgical patients.
2. Discuss how each type of nutritional support is provided.

Hernias

Suggested Video: Access Surgery (see DMU Library Portal)

Male Infant Inguinal Hernia Repair
Pediatric Inguinal Herniorrhaphy

OBJECTIVES:

1. Discuss the presentation and management of inguinal hernias in children.
2. Discuss the anatomic differences between an inguinal hernia, a communicating hydrocele, a noncommunicating hydrocele and the rationale for the treatment of each.
3. Discuss the undescended testicle, including the optimal age and reasons for orchidopexy.
4. Discuss the pathophysiology, clinical presentation, and appropriate management of congenital diaphragmatic hernia in a neonate.

Esophagus, Stomach, Duodenum and Small Bowel

Suggested Video: Access Surgery (see DMU Library Portal)

Laparoscopic Pyloromyotomy
Thoracoscopic Repair of Esophageal Atresia with Tracheoesophageal Fistula (*for anatomy review*)
Pyloromyotomy-Intussusception

OBJECTIVES:

1. Discuss how gastro-esophageal reflux may present in an infant or child, and describe its appropriate medical surgical management. Discuss indications for surgical management.
2. Discuss the appropriate evaluation and management of malrotation with volvulus in infants and children.
3. Discuss embryological basis for gastrointestinal malrotation.
4. Discuss the presentation, evaluation, and management of pyloric stenosis in infants. Discuss the fluid and electrolyte disturbances usually seen with pyloric stenosis and describe why they occur.
5. Discuss the different anatomic configurations of esophageal atresia and tracheoesophageal fistula, and explain how they are diagnosed and treated. Discuss associated anomalies, VACTERL association.
6. Discuss the clinical presentation and causes at each level of congenital small bowel obstruction.
7. Discuss short bowel syndrome and outline its pathophysiology and treatment.
8. Discuss the pathophysiology, clinical presentation and treatment of necrotizing enterocolitis.

Appendix, Colon, Rectum and Anus

OBJECTIVES:

1. Discuss the clinical presentation and causes at each level of a congenital colon obstruction.
2. Discuss the presentation and management of intussusceptions in children.
3. Discuss the presentation and management of Hirschsprung's disease.
4. Discuss the differential diagnosis of acute right lower quadrant abdominal pain in children, and discuss unique aspects of appendicitis in children compared to adults.
5. Discuss the various types of anorectal malformation, and relate their anatomy to treatment and prognosis.

Abdominal Wall Defects

Suggested Video: Access Surgery (see DMU Library Portal)

Gastroschisis
Omphalocele

OBJECTIVES:

1. Discuss the embryology, clinical presentation, associated anomalies, and treatment of omphalocele and gastroschisis.
2. Discuss the presentation and management of umbilical hernias in children.
3. Discuss the proper timing for repair of umbilical hernias.

Implementation

Course objectives are to be accomplished in a College affiliated hospital or clinical facility, under supervision. Basic objectives **must** be covered during the rotation to assure adequate student preparation for Board examinations and other evaluations such as post-rotation examinations. The use of diverse methods appropriate to the individual and the clinical site are encouraged, but patient-centered teaching is optimal.

Didactic methods to achieve required objectives include:

- reading assignments
- lectures
- computer-assisted programs (if available)
- student attendance at/participation in formal clinical presentations by medical faculty

Clinically oriented teaching methods may include:

- assignment of limited co-management responsibilities under supervision
- participation in clinic visits, daily patient rounds and conferences
- supervised and critiqued clinical work-ups of patients admitted to the service
- assigned, case-oriented reading case presentations

Three levels of achievement are identified:

- familiarity with a variety of medical procedures through observation and assisting
- proficiency in clinical procedures through actual supervised performance
- awareness of the availability of various medical procedures and their use

Evaluations of student must be completed within one week from completion of the rotation.

On the last day of service, the supervising physician should review the student's performance with the student. If a student signs the evaluation the signature simply indicates that the student has received a grade directly from the attending; it does not indicate agreement with the grade.

Assignments

The rotation director or preceptor may direct specific and general reading assignments from texts and current literature. Supplemental readings from current periodical literature are recommended.