Preamble

A rotation in Pediatric Surgery must give residents the opportunity to become familiar with the unique needs of infants and children as surgical patients. Some of the surgical diseases encountered in children are similar in their presentation, management and outcome with their adult counterparts; others are quite different. The fundamental principles of surgical care, however, are similar to those that govern practice in other age groups.

MEDICAL EXPERT

At the end of the rotation, the resident must be able to:

Knowledge: General Clinical

- Understand the unique natural history of surgical diseases in children and use the information in reaching a diagnosis
- Recognize the heat regulation problems in infants and the need for careful environmental control during evaluation and management
- Recognize the limited host resistance and high risk of nosocomial infections in newborns, and the need for aseptic protocols to minimize environmental hazards
- Be able to individualize drug dosage and fluid administration on the basis of weight, and be able to calculate expediently fluid and electrolyte requirements using standard formulas;
- To accommodate for the altered physiological systems (such as immature hepatic and renal function) that affect drug and anesthetic administration;
- To recognize differences between types of sutures and choose the appropriate type and size for various wounds;
- Predict the risk of apnea post anesthesia and post-narcotic administration in small infants;
- Appraise the place for non-operative management of solid viscous injuries;

Knowledge: Specific Clinical Problems

- Diagnose and apply principles of initial care during transport in the following neonatal conditions whose definitive management must only be undertaken in specialized pediatric facilities with qualified pediatric surgeons:

    - congenital diaphragmatic hernia
    - esophageal atresia / tracheoesophageal fistula
    - gastroschisis / omphalocoele
    - intestinal atresia
    - Hirschsprung's disease

- imperforate anus
- intestinal malrotation
- major pulmonary parenchymal disease (congenital lobar emphysema, CCAM...)

- Diagnose and refer the following problems that may be seen initially by a general surgeon but will almost always be best managed in a specialized pediatric facility:
  - congenital lesions of the lungs and mediastinum
  - gastroesophageal reflux (surgical management)
  - chest wall deformities (pectus excavatum and carinatum)
  - solid tumors of childhood (e.g. neuroblastoma, Wilm's tumor, hepatoblastoma)

- Diagnose and provide the initial management of several conditions which, while ideally managed in a special pediatric facility, may demand initial (and occasionally definitive) management locally because of urgency or distance:
  - incarcerated inguinal hernia in the neonate
  - aspirated and ingested foreign bodies
  - acute abdomen in the neonate or infant
  - acute gastrointestinal bleeding
  - blunt abdominal and thoracic trauma

- Diagnose, evaluate and treat the following conditions which can be managed by experienced general surgeons or referred to a pediatric general surgeon:

  a. Head and Neck
  - acute and chronic lymphadenitis
  - thyroglossal duct cyst
  - dermoid cyst
  - congenital torticollis
  - branchial cleft cyst and sinus
  - hemangioma / lymphangioma
  - tongue-tie

  b. Abdomen
  - appendicitis
  - inguinal hernia
  - intussusception
  - Meckel's diverticulum

- pyloric stenosis
- umbilical hernia
- umbilical granuloma

c. Scrotum

- communicating hydrocele
- undescended testicle
- torsion of testis and appendix testis
- epididymitis

- Formulate a clear plan for the evaluation of a child presenting with:
  - bilious vomiting
  - non-bilious vomiting
  - acute abdominal pain
  - chronic abdominal pain
  - constipation
  - rectal bleeding

- Predict common post-operative complications in children and initiate their treatment

Knowledge: Technical General

At the end of the rotation, the resident must be able to:

- Elicit key physical signs in children despite potential poor compliance
- Apply pediatric trauma principles in the initial resuscitation and management of traumatized children
- Demonstrate aseptic technique in performing operative and bed-side procedures
- Recognize the appearance of normal; and abnormal tissues in the operating room;
- Gain proficiency in a variety of psychomotor skills (e.g. reduction of incarcerated inguinal hernia, wound closure, knot-tying, etc.)

Knowledge: Technical Specific
Procedures that residents must be able to perform competently at the end of the rotation include:

Elective
- Hernia repair in infants over 6 months of age
- Lymph node biopsy
- Umbilical hernia repair
- Democd cyst excision
- Bowel resection
- Insertion of venous access devices
- Insertion of surgical feeding tubes

Non-Elective
- Incision and drainage of abscesses
- Laparoscopic and open appendectomy
- Scrotal explanation for acute testicular pain
- Reduction of intussusception
- Bowel Resection
- Pyloromyotomy
- Laparoscopy for trauma
- Laparoscopy for intestinal obstruction

COMMUNICATOR
Residents are expected to demonstrate communication skills in the following areas:

1. Demonstrate the unique communication skills necessary to obtain thorough and focused pediatric histories from children, parents or other caregivers
2. Convey pertinent information from the history and physical examination in different circumstances (over the phone, during ward rounds and conferences)
3. Demonstrate an ability to place young patients in the ER at ease

COLLABORATOR
Residents will be able to demonstrate their collaboration in the following areas.

1. Understand the importance of collaboration with family physicians, pediatricians, surgical colleagues, nurses and other hospital and community health care providers in achieving optimal comprehensive pediatric care
2. To learn how to be a team leader in Pediatric Trauma coordinating the care of the patient with other healthcare providers.

MANAGER
Upon completion of the resident will be able to:

1. Recognize that many surgical problems, although conceptually and technically within the realm of expertise of general surgeons, are more appropriately managed where there are special pediatric facilities (special pediatric expertise in anesthesia, intensive care, diagnostic imaging, nursing, and laboratory facilities)

HEALTH ADVOCATE
The resident will be able to:

1. Be aware of the life-long significance of surgical management decisions in children and their impact on quality of life
2. To learn how to advocate for child safety at school and at home
3. To understand the dynamics of teenage smoking and learn some approaches in dealing with this problem.

SCHOLAR
Residents will be able to demonstrate their scholarly approach to medical practice in the following way

1. Clinical
   - Prepare for teaching rounds, ward rounds, and operating room cases with adult learning principles and evidence based medicine
   - Recognize clinical dilemmas and pose relevant research questions around these
2. Research
   - Pose a research question either clinical/basic science and demonstrate the ability to solve it
3. Teaching
   - Be able to teach medical students/residents as demonstrated by appropriate feedback from these groups.

PROFESSIONAL

Residents will be able to demonstrate their professionalism in the following way

1. Appreciate the peculiar emotional and ethical issues surrounding the care of a sick child and the need to involve parents, children's advocates and other health care-givers in many difficult situations
2. Appreciate the sometimes-complicated issues surrounding informed consent and refusal of treatment in children, especially in situations where "quality of life" is a major issue
3. Appraise the ethics of research concerning children
4. Value the critical need of ongoing systems of peer review, maintenance of competence, and evaluation of outcomes in the surgical management of sick children.