Pediatric Anesthesia Rotation
Goals and Objectives

Department of Anesthesiology and Perioperative Medicine
AU Children’s Hospital of Georgia

Introduction

The core pediatric anesthesia rotation is offered as a 2-month block during the latter part of the CA-1 year or in the CA-2 year and then a 1-month block as CA-3 to build a stronger foundation and expand the resident’s knowledge. Anesthesiology residents will care for pediatric patients ranging from premature infants to young adults and will provide sedation and anesthesia for varied diagnostic and interventional procedures and surgeries. The initial 2 months of pediatric anesthesia and any additional month of pediatric anesthesia during the CA-1/CA-2 year are Core Pediatric Anesthesia Rotations. This rotation is designed to develop the appropriate knowledge, attitudes, and skills required to provide safe anesthesia to infants, children, and adolescents. This Core Pediatric Anesthesia rotation is designed to enhance your overall knowledge, understanding and application of pediatric anesthesia principles. The primary emphasis will be on developing the basic level of knowledge, decision making and clinical care of the pediatric patient. This differs from the advanced rotation in pediatric anesthesia which places a greater emphasis on the analysis, synthesis, and evaluation of patient care needs along with patient management during more complex surgical procedures and care of the medically complex patient. Residents will work directly with pediatric anesthesia attending. The primary goal of this rotation is to enable the resident to graduate a competent and caring provider of routine anesthesia to ASA I-III pediatric patients.

Patient Care (CA-1/CA-2)

Perform a focused history and physical with attention to the anesthetic implications of pediatric disease

Formulate and present a safe anesthetic plan to your attending and revise that plan together

Accomplish a safe induction

- Proficient bag-mask management of patients of all ages and sizes
- Safe inhalational induction in hemodynamically stable patients with normal airways
- Secure peripheral IV access in children
- Safe induction of the hemodynamically unstable patient
- Safe induction of the patient with neurologic pathology, especially increased ICP
- Recognize signs of a difficult pediatric airway
- Manage upper airway obstruction
- Manage laryngospasm
- Manage bronchospasm

Safely secure the airway

- Appropriately use mask ventilation, LMA or ETT for case
- Intubate patients using appropriate size of blades and tubes

Use adjuvant techniques for analgesia or anesthesia

Place single-shot caudal anesthesia

Safe maintenance of anesthesia in neonates including premature
• Use appropriate agents to maintain hemodynamic stability in this age group
• Provide appropriate analgesia to allow extubation when appropriate
• Demonstrate understanding of differences in MAC, drug volume of distribution, metabolism, and excretion in this age group

Understand acute perioperative pain management in children
• Use opioids appropriately
• Use non-opioid agents appropriately
• Minimize risk of apnea in difficult airway/prefmature/neonatal patients

Conduct safe emergence and extubation
• Demonstrate ability to judge when a nonverbal patient is appropriate for extubation
• Manage upper airway obstruction
• Manage laryngospasm
• Manage bronchospasm

Understand and manage fluid and blood product resuscitation in children

**Patient Care (CA-3)**

Create a safe anesthetic plan for complex and/or unstable (ASA IV and emergency) patients

Become competent at invasive monitoring
• Secure arterial access in children
• Secure central venous access in children using standard infection control measures

Understand advanced pediatric airway management
• Use the FOB scope to intubate spontaneously ventilating sedated/anesthetized patients
• Intubate using FOB scope
• Understand the use and limitations of advanced airway equipment in the pediatric sized patient

Accomplish lung isolation/one-lung ventilation in a manner appropriate to patient size and age

Use double lumen tube, bronchial blocker or main stem ETT as appropriate

Manage the unstable neonate or premature
• Understand when invasive access is needed
• Manage fluids and blood products appropriately
• Manage electrolytes appropriately

Use adjunctive techniques for analgesia, anesthesia (place epidural or perform regional anesthesia in the anesthetized child)

**Practice-based Learning**

Establish a pattern of self-study and review of progress
• Keep patient logs current
• Use self-study guidelines for focused review of medical knowledge
• Be proactive in request cases to advance skills and knowledge
• Self-study curriculum check-off list
• Document all duty hours
• Document all procedures
• Monitor self for fatigue

Learn from practice
• Debrief with attending incidents/procedures/cases that advance your knowledge
• Case management discussions with attending

Interpersonal and Communication Skills

Be an outstanding team member
• Introduce yourself to full team every day and at each time out
• Facilitate communication with surgical services

Pre-op each scheduled patient with your attending
• All inpatients must be seen and an electronic preop note written in the chart
• Call or page the day before, preferably before 8 pm

Understand age-specific and developmentally appropriate communication with patients
• Understand developmental and cognitive differences in patients of different ages
• Understand implications of autism, developmental delay and brain injury
• Practice techniques to decrease patient and family anxiety

Understand the risks of anesthetizing the pediatric patient and obtain informed consent from families
• Know relative risks of major morbidities and mortality related to surgeries
• Appropriately plan for NICU/PICU/IICU care post-operatively

Professionalism

• Be an outstanding team member
  o Introduce yourself to full team every day and at each time out
  o Facilitate communication with surgical services and OR staff

• Be a resource to families
  o Conduct preoperative interview with appropriate language for parent and patient understanding
  o Understand the implications of informed consent and assent for families and children of different ages
  o Simulate a preoperative discussing with attending
  o Direct observation of your preop interview with faculty feedback

• Demonstrate professional courtesy for your colleagues
  o Attend a.m. conferences and pediatric-based grand rounds
  o On-call resident preops inpatients for vacation residents

• Be a patient advocate
  o Champion patient safety in the perioperative setting
  o Accomplish patients care activities while patient is anesthetized, e.g., lab draws, dressing changes

System-based Practice

Use all available patient information to gather preoperative information
- Use Cerner and CompuRecord to review past medical history, consultations, and prior anesthesia records
- Work with pre anesthesia clinic team to obtain relevant outside records
- Understand when to admit patients, and level of care required (ICU, monitored bed, floor bed, short stay unit)

Medical Knowledge

A comprehensive curriculum for pediatric anesthesia knowledge is available at:
http://www.pedsanesthesia.org/corecurriculum.iphtml

In brief, following should be focused upon reading.

- Understanding the basic principles of pediatric anesthesiology
- Acquiring a solid fund of knowledge regarding the various types of pediatric medical and surgical conditions
- Appreciating the indications and contraindications and appropriate administration of preoperative pediatric medications
- Distinguishing the differences between pediatric and adult physiology and the impact of those differences upon the administration of pediatric anesthesia
- Understanding appropriate NPO guidelines for infants and children undergoing surgery
- Appreciating proper guidelines for pediatric fluid therapy: preoperative, intra-operative and postoperative
- Understanding the pharmacology of routine and non-routine medications used for pediatric anesthesia.
- Evaluating the child with an upper respiratory tract infection
- Understanding the pathophysiology and treatment of malignant hyperthermia in the pediatric population
- Appreciating the basic concepts of pediatric and neonatal resuscitation
- Ordering appropriate laboratory tests in a conscientious and cost-effective manner.
- Utilizing material resources within the operating room in a judicious fashion.

Evaluations

The Clinical Competency Committee (CCC) meets frequently to evaluate the progress of the trainees. Specifically addressed are the six basic competencies and the pediatric anesthesia specific competencies outlined above. Faculty will give daily verbal feedback/debriefing. At the end of month, faculty in One45 will fill out formal anonymous evaluation with feedback and suggestions. Informal discussions with the pediatric anesthesia residents address any deficiencies in patient care or knowledge base. Additionally, we try to know our trainees personally to better understand and/or address underlying stressors or personal issues that may interfere with learning and performance.

Residents are expected to take the in-training examination administered by the American Society of Anesthesiologists/American Board of Anesthesiology (ASA/ABA).

Every 6 months, the American Board of Anesthesiology requires that the CCC submit a Resident Training and Evaluation Report. In addition to the basic competencies, we evaluate our trainee’s progress in the following areas:

- Demonstrates ethical/moral behavior
- Is reliable, conscientious, responsible and honest
- Learns from experience; knows limits
- Reacts to stressful situations appropriately
- Has no documented abuse of alcohol or illegal use of drugs during this report period
• Has no cognitive, physical, sensory or motor impairment that precludes individual responsibility for any aspect of anesthetic management
• Demonstrates respect for the dignity of patients and colleagues
• Has no restriction, condition, limitation or revocation of license to practice medicine
• Understands anatomical, physiological, and pathophysiological concepts of organ disease that culminates in the need for solid organ transplant
• Collects and uses clinical data
• Recognizes the psychological factors modifying pain experience
• Communicates/works effectively with patients/colleagues
• Demonstrates appropriate concern for patients
• Demonstrates commitment to life long learning
• Adapts and is flexible
• Is careful and thorough
• Generates complete, legible, and accurate medical record
• Possesses business skills for effective practice management
• Uses information technology to optimize patient care
• Is an advocate for quality care
• Recognizes gaps in knowledge and expertise
• Demonstrates continuous practice improvement

Recommended Resources
Suggested reading assignments to expand knowledge and patient care for this rotation include but are not limited to the most recent editions of the following textbooks:

• Smith’s Anesthesia for Infants and Children (Motoyama and Davis)
• A Practice of Anesthesia for Infants and Children (Coté, Lerman and Todres)
• Anesthesia for Genetic, Metabolic, and Dysmorphic Syndromes of Childhood (Baum and O’Flaherty)