

Core Pediatric Anesthesia Rotation Curriculum

GOALS:

This rotation is designed as a 2-month rotation in caring for pediatric patients at Doernbecher Children's Hospital. The months may not be contiguous. The pediatric population at DCH ranges from premature newborns to young adults who require sedation, regional, or general anesthesia for diagnostic, therapeutic, and surgical interventions. Residents will work under the direct supervision of a pediatric anesthesia attending, frequently in a 1 on 1 manner.

The goals of this rotation are threefold. First, this rotation aims to provide an opportunity for the resident to gain experience in the safe anesthetic management of neonates, children, and adolescents, and young adults. Second, the resident will begin to gain comfort in caring for pediatric patients and young adults with congenital, developmental or acquired pediatric illnesses, including trauma. Third, the resident will work toward the ACGME pediatric anesthesia case number and age range requirements in accordance with graduation requirements from this residency training program.

Medical Knowledge

1. Develop an understanding of the basic normal anatomical and physiologic differences between neonates, toddlers, adolescents, and young adults and their impact on anesthetic plans.
2. Develop a basic understanding of and the ability to recognize abnormal pediatric development, disease processes, and syndromes and their impact on anesthetic plans.

Patient Care

1. Develop the ability to research and plan the safe administration of anesthesia to pediatric patients, typically ASA I, II, and III.
2. Develop the technical skills necessary to provide anesthesia for pediatric patients.

Practice Based Learning

1. Develop the ability to tailor an anesthetic plan to the needs of each patient and their parents.
2. Actively pursue current evidence to apply to the management of pediatric patients.

Professionalism

1. Demonstrate compassionate care for the pediatric patient population with responsiveness to parent/family fears and concerns regarding anesthesia.

Interpersonal and Communication Skills

1. Develop an ability to effectively educate parents and patients on anesthetic plans, benefits, risks, and alternatives in an age-appropriate and culturally sensitive manner.
2. Develop the ability to communicate anesthetic plans and concerns with surgeons and nursing staff.

Systems-Based Practice

1. Understand the direct and indirect costs associated with pediatric anesthesia and practice appropriate resource allocation.

2. Understand how decisions about pediatric anesthesia management affect surgical and hospital care (e.g. pain management and admission).
3. Understand how anesthetic practice affects costs in both the operating room and recovery room.

OBJECTIVES:

Medical Knowledge

Upon completion of the junior pediatric rotations, the resident should be able to:

1. Explain the basic normal anatomic, physiologic, and laboratory data differences between neonates, infants, toddlers, adolescents, and young adults.
2. Identify and demonstrate an understanding of the anesthetic implications of common abnormal pediatric development, disease processes, and syndromes.
3. Explain the benefits, risks, and methods of preoperative anxiolysis.
4. Explain the risks associated with administration of anesthesia to pediatric patients.
5. Identify the indications for preoperative IV placement and intravenous induction, including rapid sequence inductions.
6. Explain the indications and contraindications to the various techniques for managing and/or securing pediatric airways intraoperatively including:
 - a. Mask airway
 - b. LMA
 - c. Direct Laryngoscopy
 - d. Light wand
 - e. Asleep fiberoptic intubation
7. Identify indications and candidates for invasive hemodynamic monitors.
8. Plan their patient's intraoperative intravenous volume administration.
9. Identify candidates for and become familiar with various regional anesthesia techniques.

Patient Care

Upon completion of the junior pediatric rotations, the resident should be able to:

1. Perform a thorough preoperative anesthetic evaluation including the ability to:
 - a. Identify abnormal development and disease states.
 - b. Recognize potential difficult airways and IV access.
 - c. Assess psychosocial development and interaction with family.
 - d. Interpret perioperative consultation from pediatric specialists.
2. Assess the need for and administer age and developmentally appropriate preoperative anxiolysis. .
3. Plan and perform an inhalational induction with contingency plans.
4. Manage pediatric airways utilizing
 - a. Age appropriate face masks and oral airways
 - b. Age/weight appropriate Laryngeal Mask Airways (LMA's)
 - c. Direct laryngoscopy and correct size/depth endotracheal tube placement with Miller, Wis-Hipple, and Macintosh laryngoscope blades
 - d. Size appropriate fiberoptic bronchoscopes
5. Identify and treat pediatric airway management complications including
 - a. Laryngospasm
 - b. Bronchospasm
 - c. Post-intubation croup
6. Place peripheral intravenous catheters in infants and children.
7. Place invasive hemodynamic monitoring lines in children and young adults.
8. Plan and administer an age and developmentally appropriate intraoperative anesthetic maintenance including:

- a. Intraoperative crystalloid administration and volume management.
 - b. Blood product administration.
 - c. Opiate selection and administration.
 - d. Selection and administration of potent inhaled anesthetics.
8. Appropriately assess patient readiness for extubation.
 9. Assess postoperative pain via nonverbal patient communication.
 10. Plan and prescribe a postoperative pain control regimen.

Practice Based Learning

1. Actively pursue current evidence to guide the anesthetic management of pediatric patients.
2. Develop the skill to tailor a patient's pre-op, intra-op, and post-op anesthetic management according to their age and psychosocial development.

Interpersonal and Communication Skills and Professionalism

During junior pediatric anesthesia clinical rotations, the resident should be able to:

1. Demonstrate the ability to clearly and effectively communicate the anesthetic plan, risks, alternatives, and postoperative care with the patient, family, surgical team, and nursing staff.
2. Demonstrate the ability to reassure the patient and parent via clear and age appropriate communication.
3. Demonstrate care and compassion toward patients and parents in response to varied levels of anxiety and education.
4. Inform and educate patients and families, while respecting their beliefs, values and preferences, via clear and age appropriate communication.
5. Practice strict HIPAA compliance at all times.

Systems Based Practice

1. Demonstrate an understanding and judicious use of anesthesia supplies, equipment and agents to maximize patient care while minimizing cost.
2. Demonstrate an understanding of the need for a specialized approach to the care of pediatric patients.

Instructional Methods

Education in Pediatric Anesthesia methods and techniques will be achieved by:

1. Assignment of residents to cases which require specialized attention to and management of pediatric anatomy, physiology, disease processes and syndromes.
2. Preoperative discussion with a faculty member to develop anesthetic plans.
3. Intraoperative case-specific teaching.
4. Weekly resident education seminar series.
5. Daily verbal feedback including constructive criticism, when appropriate.

References

1. A Practice of Pediatric Anesthesia for Infants and Children. Cote et al.
2. Clinical Anesthesia. Barash et al.
3. Anesthesia for Genetic, Metabolic, and Dysmorphic Syndromes of Childhood. Baum and O'Flaherty.
4. A compiled handout of recent relevant articles related to pediatric anesthesia available at J:\ANES\Pediatric Anesthesia Articles.

Assessment and Evaluation

Each resident will be evaluated and assessed by:

1. Daily evaluations completed by their supervising faculty member.
2. A multiple choice, training level appropriate, exit exam.
3. Review of daily case and procedure logs kept by the residents.
4. A written summary evaluation at the end of each block which will be submitted to the Residency Director and the Chair of the Residency Evaluation Committee.

Residents should complete an evaluation of the rotation. Suggestions for improvement of the rotation are always encouraged and welcomed.

Revised 3/5/2008 by Daniel J. Woodward, M.D.