

UNIVERSITY OF MICHIGAN HEALTH SYSTEM · DEPARTMENT OF EMERGENCY MEDICINE  
**PEDIATRIC EMERGENCY MEDICINE FELLOWSHIP PROGRAM**

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**Rotation:** Pediatric Anesthesia  
**Institution:** University of Michigan Health System  
**Duration:** One (1) Month  
**Fellow Training Year:** EM and or PD trainee (Year 1)

**Supervising Faculty:** Paul Reynolds, MD

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**EDUCATIONAL GOALS:**

1. Learn to assess and identify existing and potential pediatric airway management problems through detailed history and physical examination. *Competencies: MK, PC*
2. Learn to apply basic and advanced pediatric airway management skills through understanding of nuances of pediatric airway anatomy, indications for airway intervention, equipment/skills required for various acute pediatric airway intervention and complications of various airway interventions. *Competencies: MK, PC*
3. Develop familiarity with pharmacologic agents used in sedation & anesthesia. *Competencies: MK, PC*
4. Develop skill with and know correct pediatric sizing for technology supporting airway intervention including BVM devices, endo/nasotracheal tubes, monitors, CO2 detectors, and ventilators. *Competencies: MK, PC*

**EDUCATIONAL OBJECTIVES:**

1. Demonstrate correct use of the bag-valve-mask device, oral and nasal airways. *Competencies: MK, PC*
2. Demonstrate ability to effectively perform airway maneuvers (jaw thrust, chin lift). *Competencies: MK, PC*
3. State the dosages, indications, contraindications and adverse effects of inhalation anesthetic agents, intravenous analgesic and anesthetic agents, and neuromuscular blocking agents. *Competencies: MK, PC*
4. Learn standard monitoring techniques and their limitations. *Competencies: MK, PC*
5. Learn relevant pre-operative historical and physical exam considerations in the pediatric patient. *Competencies: MK, PC*
6. Learn to evaluate/anticipate the difficult pediatric airway (including use of ASA, Mallampati scoring systems). *Competencies: MK, PC*
7. Learn principles of pain management. *Competencies: MK, PC*
8. Demonstrate familiarity with different types of ventilators and learn to manage a patient on a ventilator (including decision making for initial/ongoing ventilator settings). *Competencies: MK, PC*
9. Demonstrate knowledge of the anatomy of the upper airway. *Competencies: MK, PC*
10. Learn the differences between the adult and pediatric airway. *Competencies: MK, PC*
11. Demonstrate basic familiarity with nasotracheal and endotracheal intubation (cuffed and uncuffed tubes) as well as the indications and complications. *Competencies: MK, PC*
12. Demonstrate knowledge of the principles of regional anesthesia, including caudal, spinal, and ileo-inguinal blocks. *Competencies: MK, PC*
13. Demonstrate ability to administer local anesthetics and be familiar with agents, dosing, contraindications and side effects, and techniques to monitor pain. *Competencies: MK, PC*
14. Recognize and manage an obstructed airway. *Competencies: MK, PC*
15. Demonstrate skill in the use of anesthetics and neuromuscular blocking agents during rapid

Accreditation Council for Graduate Medical Education (ACGME) Core Competency Key:

PC = Patient Care; MK = Medical Knowledge; PBLI = Practice-Based Learning and Improvement; IC = Interpersonal and Communication Skills; P = Professionalism; SBP = Systems-Based Practice

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- sequence induction. *Competencies: MK, PC*
16. Demonstrate skill in rapid sequence induction (procedure). *Competencies: MK, PC*
  17. Understand the indications/contraindications for a surgical airway. *Competencies: MK, PC*
  18. Become familiar with the use of both the Miller and MacIntosh laryngoscopes as well as their advantages/disadvantages. *Competencies: MK, PC*
  19. Demonstrate knowledge regarding the appropriate choice of endotracheal/ nasotracheal tube size. *Competencies: MK, PC*
  20. Demonstrate knowledge of Oxygen saturation monitors and CO2 detectors, their indications and limitations. *Competencies: MK, PC*
  21. Demonstrate skill in the discussion of pharmacology and airway management of pediatric patients with families. *Competencies: PC, SBP, IC, P*
  22. Demonstrate knowledge of patient safety measures as they pertain to pediatric anesthesia and reporting of errors. *Competencies: PC, SBP, IC, P, PBLI*
  23. Demonstrate knowledge of alternative airway techniques- including the use of fiberoptic laryngoscopy, the bougie and the laryngeal mask. *Competencies: MK, PC*

**DESCRIPTION OF CLINICAL EXPERIENCE:**

Fellows rotate on the Anesthesia service at UMHS for one month during the first year of the program. Fellows work under close supervision of Anesthesia faculty providing pre-, intra- and post-operative care to patients. Much of the clinical time is spent in the operating room. Fellows receive considerable experience with administration of anesthetic agents, airway assessment and management (BVM, LMA, and endotracheal intubation), physiologic monitoring, and ventilator management under the direct supervision of Pediatric Anesthesia faculty and staff. Fellows are expected to be present in the OR daily, reporting to the Anesthesiologist in charge and work as assigned by Anesthesia Faculty/staff. PEM fellows' clinical experiences on this rotation will emphasize (but not restricted to) work in "rapid turnover" areas (Ex. MRI anesthesia) so as to allow maximum exposure to cases. Contact personnel during your rotation include Dr. Paul Reynolds, Chief, Pediatrics Anesthesiology and Colleen Rauch, Anesthesia manager 936-0125. Fellows are supervised in compliance with UMHS/GME/Fellowship Program Supervision policies while on this rotation. Fellows are required to be in compliance with UMHS/GME/Fellowship Program Duty Hour Reporting policies while on this rotation.

**DESCRIPTION OF DIDACTIC EXPERIENCE:**

Fellows are required to attend formal didactic conferences provided by the Anesthesia Department (M, T, W, F 6:30am-7:00am). A required reading list provided by the Anesthesia Dept. is completed during the rotation. Fellows are expected to attend anesthesia resident/fellow tutorials (every other Monday 11-12p and every Friday 11-12 pm). Fellows are released to attend Pediatric Emergency Medicine conferences on Wednesday (and/or Tuesday/Thursday to attend track programs as determined by schedule timing/track assignment). Fellows are expected to review their month's expected conference/track absences with the Anesthesia faculty on the first day of the rotation.

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**EVALUATION PROCESS:**

Fellows are evaluated using tools based on the six core competencies completed in writing by pediatric anesthesia faculty after rotation via the UMHS MedHub online evaluation system. Fellows likewise evaluate their experiences after each rotation as well. Evaluations are forwarded to the Program Director and made available in aggregate to individual fellows via the MedHub system at all times. Formal review of fellow's evaluations occurs at quarterly PD/Fellow meetings.

**FEEDBACK MECHANISMS:**

Specific problems or notations of excellence identified through verbal or written communication to the Program Director regarding the fellow are immediately brought to the attention of the involved fellow. Fellows receiving an overall poor performance grade (less than satisfactory evaluation for rotation) are notified immediately and meet with the PD. Fellows who receive notation for improvement in some areas (but pass the overall rotation) are given a work plan for educational intervention with specific timeline for completion and reevaluation. Fellows who do not pass an overall rotation will meet with the PD for remediation work plan, including timetable for reevaluation, UMHS notifications as required by GME and repeat the rotation. Monthly evaluations are placed in the fellow's file and are available for review at any time by the fellow, but are also reviewed during quarterly meetings with the PD. Fellows are encouraged to review their evaluations on MedHub regularly and at least monthly.

Reviewed		11/2006	06/2008		06/30/2009	3/19/2010	4/2011	
Revised	06/2005		07/2008	11/2008		3/19/10	4/2011	07/05/2011
Initial(s)	MN	MN	MN	MN	MN	MN	MN	sb