

Subspecialty Rotation: Anesthesia

Faculty:

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GOAL: Maintenance of Airway Patency and Oxygenation. Recognize and manage upper airway obstruction and desaturation.

Recognize and manage upper airway obstruction.

1. Identify conditions that result in upper airway obstruction.
2. Know indication for and demonstrate use of oropharyngeal airway vs. nasal trumpet.
3. Discuss routine care of a tracheostomy and know how to recognize tracheostomy obstruction; demonstrate proficiency in replacement of a tracheostomy tube.

Recognize desaturation that requires intervention and know the indications for use of appropriate oxygen delivery devices (e.g., simple nasal cannula, simple O2 mask, Venturi mask, partial rebreather and non-rebreather masks).

GOAL: Anesthesia. Participate in the care and management of pediatric patients requiring general and local anesthesia.

Assist the anesthesiologist or surgeon in addressing issues related to pre-anesthesia evaluation, risk assessment and preparation.

Complete pre-op evaluation, including history, physical examination, laboratory testing, and pediatric assessment of anesthesia risk, and communicate concerns to anesthesiologist or surgeon.

Participate in deciding whether a child is appropriate for day surgery or inpatient surgery.

Assist in airway assessment as it relates to the anticipated anesthetic.

Participate in the pre-anesthesia management of children with the following conditions: recent upper respiratory infection, reactive airway disease, upper airway obstruction (croup, epiglottitis, airway foreign body), congenital heart disease, neonatal apnea, obstructive sleep apnea, diabetes, seizure disorder.

Recognize special anesthetic considerations for children with the following conditions: genetic disorders, musculoskeletal disorders and conditions requiring emergency surgery.

Manage issues related to the continuation of chronically administered medications.

Recognize the importance of and describe in general terms the principles of pre-anesthesia sedation.

Participate in educating families regarding principles related to NPO status and PO intake prior to induction of anesthesia.

Assist in the psychosocial preparation of the child and parents for anesthesia.

Recognize the importance of and describe in general terms the complication of malignant hyperthermia.

Demonstrate understanding of the following principles of intraoperative anesthetic management:

1. IV access and fluid management during anesthesia
2. Non-invasive monitoring of blood pressure, heart rate, oximetry and capnography
3. Temperature control in the peri-anesthetic period
4. Anesthetic equipment
5. Bag mask ventilation devices (self-inflating bag, anesthesia bag)
6. Airway devices (oral/nasal airways, endotracheal tubes, laryngeal mask airways)
7. Laryngoscopes
8. Use of physical examination and monitoring methods for early detection of airway obstruction
9. Airway suction devices
10. Oxygen supplementation devices
11. Anesthetic induction and reversal techniques, including basic pharmacology of inhalation anesthetic agents, intravenous anesthetic agents, muscle relaxants, local anesthetics, narcotic analgesics, and agents to reverse muscle relaxation

Understand the basic pharmacology of commonly used agents for local anesthesia and their side effects.

Demonstrate understanding of the following principles of post-anesthesia management:

1. Management of post-anesthesia nausea and vomiting
2. Post-surgical pain management (in-hospital, day surgery, home)
3. Re-establishment of PO intake after anesthesia
4. Discharge criteria
5. Adequate follow-up

Identify psychosocial barriers to obtaining adequate post-operative care (e.g., parental anxiety, cost, distance, school attendance)

Describe the role and general scope of practice of pediatric anesthesiologists; recognize situations where children should be cared for by anesthesiologists trained in the care of children; work effectively with these specialists in the care of children.

GOAL: Sedation. Understand the principles of pediatric sedation and apply them in the appropriate setting.

Participate in managing children in the outpatient setting who require sedation for diagnostic and/or therapeutic procedures performed outside of the operating room.

Discuss patient/procedural factors that increase risk of morbidity from sedation, scenarios requiring anesthesia consultation regarding sedation safety, and issues that drive a need for general anesthesia rather than sedation.

Understand the basic pharmacology of commonly used agents for sedation and their side effects.

Identify safe procedures for administering and monitoring sedatives and analgesics when general anesthesia is not used, e.g., for the following procedures commonly ordered by general pediatricians:

1. Magnetic resonance imaging
2. Computed tomography
3. Lumbar puncture
4. Wound management

Demonstrate familiarity with safe procedures for administering and monitoring sedatives and analgesics when general anesthesia is not used, e.g., for the following procedures ordered or performed by subspecialists:

1. Radiological procedures other than MRI, CT
2. Gastrointestinal endoscopy
3. Pulmonary endoscopy

4. Radiation therapy
5. Bone marrow aspiration
6. EEG

Explain current terminology for various levels of sedation, including terms used by hospital accreditation bodies and credentialing committees (e.g., "conscious sedation") and demonstrate that you understand your hospital's standards for safety for each type of sedation.

GOAL: Pain Management. Recognize and manage pain occurring with common pediatric conditions.

Skillfully use tools to assess pain in infants and children.

Understand general principles of pharmacologic pain management.

1. Choice of analgesic agent (nonsteroidal anti-inflammatory, opioid)
2. Choice of administrative route
3. Dose escalation and weaning
4. Shifting between analgesics
5. Monitoring efficacy
6. Side effects

Recognize the utility of regional nerve blocks for post-surgical pain relief.

Recognize and explain the principles of:

1. Patient controlled analgesia (PCA)
2. Epidural infusion of analgesic medications
3. Patient-controlled epidural analgesia

Address issues surrounding the management of chronic pain.

1. Recognize the common scenarios associated with chronic pain.
2. Describe general principles about treatment for chronic pain syndromes, including approaches using pharmacology, behavioral/psychosocial, complementary or alternative therapies.
3. Recognize non-pharmacological treatment alternatives for chronic pain syndromes, including complementary and alternative methods.
4. Use behavioral and supportive care for pain management in acute situations.
5. Use psychosocial adjuncts for treatment of chronic pain syndromes in a variety of situations, such as neonatal intensive care treatments,

sickle cell anemia, headache.

6. Consider special issues in the treatment of pain occurring in association with burns, terminal illness and emergency procedures.

Procedures

GOAL: Technical and therapeutic procedures. Describe the following procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.

Anesthesia/analgesia: conscious sedation

Anesthesia/analgesia: digital blocks

Anesthesia/analgesia: local/topical

Anesthesia/analgesia: pain management

Arterial puncture

Central line: use/care

Endotracheal intubation

Endotracheal intubation: rapid sequence intubation

Intravenous line placement

Medication delivery: inhaled

Pulse oximeter: placement

Seldinger technique

Suctioning: nares

Suctioning: oral pharynx

Suctioning: tracheostomy

Ventilation: bag-valve-mask

Ventilation support: initiation

GOAL: Diagnostic and screening procedures. Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.

ECG: emergency interpretation

Monitoring interpretation: cardiac

Monitoring interpretation: pulse oximetry

Monitoring interpretation: respiratory

Monitoring interpretation: Capnometry/end-tidal CO₂

Radiologic interpretation: chest X-ray

Source

Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: www.ambpeds.org/egweb. [Accessed 03/02/2005]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005.