PAPDA Common Goals and Objectives

Pediatric Pain Rotation

The Goals and Learning Objectives of the Pediatric Pain Rotation for Pediatric Anesthesia Fellows have been developed based on the ACGME competency-based education guidelines, which focus on learner performance outcomes in reaching specific objectives. The ACGME has recognized six general competencies for resident and fellow education. These competencies are:

- Medical Knowledge (MK)
- Patient Care (PC)
- Interpersonal and Communication Skills (ICS)
- Professionalism (PROF)
- Practice Based Learning and Improvement (PBLI)
- Systems Based Practice (SBP)

Overall Goals:

- Provide compassionate, patient-centered, and developmentally appropriate care for neonates, infants, and children experiencing pain.
- Develop a comprehensive understanding of the assessment and management of pain in pediatric patients that can be applied to the perioperative care of patients.
- Develop a basic understanding of assessment and management of common chronic pediatric pain syndromes.
- Practice high-quality pediatric pain management and regional anesthesia within the context of the healthcare system.

Specific Objectives:

- Upon successful completion of the fellowship training year, the pediatric anesthesia fellow should be able to:

• Medical Knowledge (MK)

Pain Medicine

1. Differentiate the neurodevelopment of pain and pain pathways in neonates, infants and children and recognize age-dependent responses to stress.
2. Interpret the mechanisms of pain transmission, modulation, interpretation, and their pathophysiologic presentation.

3. Recognize the pathophysiology of various acute and chronic pain states, including but not limited to acute postoperative pain, headache, complex regional pain syndromes (CRPS), sickle cell disease-related pain, neuropathic pain, and cancer-related pain.
4. Demonstrate understanding of gender-related differences in pain.
5. Demonstrate understanding of the psychosocial aspects of postoperative pain, trauma-related pain, and chronic pain.
6. Demonstrate knowledge on objectives for pain management including the relief of suffering, the restoration of function, and the improvement in the quality of life.
7. State the common indications and contraindications of analgesic medications.
8. State the mechanism of action, pharmacokinetics, and common adverse effects for each class of analgesic medication, including: Opioids, NSAIDs, local anesthetics, alpha-2 agonists, cox-2 inhibitors, benzodiazepines, NMDA antagonists, anticonvulsants, tricyclic antidepressants, and SSRIs.
9. State the different modes and routes of administration of the pharmacologic agents including intravenous patient controlled analgesia (PCA), epidural, enteral, transdermal, nasal, and peripheral administration of pain medications.
10. Recognize the signs, symptoms and physiology of withdrawal in different pediatric age groups and discern the weaning regimens for both opioids and benzodiazepine withdrawal states.
11. Gain awareness and importance of various diagnostic tools and imaging studies including EMG, nerve conduction studies, MRI and CT scan to assess complications of analgesic management.
12. Recognize the role of various non-pharmacological alternative modalities available including but not limited to: TENS unit, physical therapy, biofeedback, cognitive behavioral therapy, and acupuncture.

Regional Anesthesia

1. Illustrate the anatomy of the neuro-axis for placement of central neuraxial blocks and surface anatomical landmarks related to the performance of peripheral nerve blocks in children of different age group.
2. Recognize the different regimens for postoperative epidural analgesia in children.
3. Examine the basic principles of surface ultrasound and nerve stimulation.
4. Demonstrate knowledge on the use of ultrasound technology for assessing anatomy of upper and lower extremity blocks, as well as advantages and limitations for ultrasound guidance of peripheral nerve blockade.
5. Recognize and categorize the contraindications to regional anesthesia.
6. Appreciate and become familiar with the adjunctive drugs in regional anesthesia blockade and know the treatment protocols for local anesthetic toxicity.
7. Examine the current ASRA guidelines for anticoagulation and regional anesthesia.

8. Demonstrate knowledge of the safety protocols to performing regional anesthesia techniques for pain control under General anesthesia and demonstrating understanding of the risks, benefits, and challenges involved.

- **Patient Care (PC)**

Pain Medicine

1. Perform and present a complete pain-oriented history and physical in an infant or child with focus on past and current therapies, family and social context of the patient's pain experience, pertinent lab and imaging evaluations, and the musculoskeletal exam.
2. Describe how non-pharmacological factors (culture, stress, anxiety, behaviors, parental involvement, depression, etc.) can affect the patient's subjective pain experience.
3. Assess and report pain intensity in infants and children using developmentally-appropriate and validated pain scales, in both verbal and non-verbal children.
4. Analyze the initial assessment of a child in pain to generate a differential diagnosis, recommend further testing, and formulate a holistic and multi-modal pain management plan.
5. Participate in pediatric pain rounds and provide organized and efficient patient care with emphasis on effectiveness of the treatment plan.
6. Collaborate and consult in a multidisciplinary approach with various surgical, medical and inter-professional services such as but not limited to child life, physical therapy, occupational therapy, behavioral psychology, child psychiatry.
7. Generate documentation which is timely and comprehensive.
8. Formulate and manage safe and effective patient-controlled analgesia (PCA) or nurse-controlled analgesia (NCA) regimens for infants and children, including patient monitoring and side-effect management.
9. Describe a step-wise approach to transitioning a patient from inpatient to outpatient analgesic therapy.

Regional Anesthesia

1. Design an anesthetic plan involving appropriate regional anesthetic techniques following the evaluation of pediatric patients to provide comprehensive intraoperative and postoperative pain control.
2. Discuss with patients and families the risks and benefits of regional anesthesia in a concise manner, using language appropriate to their educational and developmental level.

3. Identify appropriate monitoring for sedated and/or anesthetized pediatric patients undergoing regional anesthesia procedures.
4. Reliably and safely perform neuraxial techniques, including single-shot and catheters, in ages ranging from neonates to adolescents.
5. Reliably and safely perform peripheral nerve block techniques of the upper and lower extremity using landmarks, ultrasound and/or nerve stimulator guidance and successfully identify and optimize imaging of anatomical structures with ultrasound in pediatric patients.
6. Select an appropriate local anesthetic medication and volume to be used, based on the surgical procedure and regional technique.
7. Calculate the weight-based maximum allowable dose of local anesthetic and describe both the signs and symptoms of local anesthetic toxicity and the treatment in pediatric patients.
8. Provide appropriate follow-up care for patients who have had regional anesthetics, identify side-effects or complications, and formulate a management plan for adverse events related to regional anesthesia.

- **<u>Interpersonal and Communication Skills</u> (ICS)**

1. Communicate effectively with pediatric patients and their families across a broad range of socioeconomic and cultural backgrounds in order to alleviate pain and anxiety.
2. Participate in effective communication with patients and their families to alleviate parental anxiety to facilitate their comprehension and collaboration in their treatment.
3. Communicate effectively with the pediatric pain team, the pediatric regional team, other physicians and health professionals, and health-related agencies.
4. Participate in the seamless handoff of care of pain patients.
5. Develop a problem-oriented approach to the formal presentation of patient data in which pertinent exam findings, laboratory results, etc. are communicated in an organized fashion and are linked to the specific diagnoses / problems of each patient.
6. Work effectively with others as member or leader of a health care team or other professional group and recognize the value of a team approach to the delivery of pediatric health care.
7. Act in a consultative role to other physicians and health care professionals.

- **<u>Professionalism</u> (PROF)**

1. Demonstrate respect and timely responsiveness to the needs of patients and their families, including the demonstration of personal accountability for each patient's medical care.
2. Demonstrate compassion, integrity, honesty, empathy, and respect for not only patients, but for all those for which one interacts with professionally on a daily basis.
3. Maintain patient confidentiality, sensitivity to culture, age, race, gender, and disability and adherence to mandates of ethics when dealing with families, healthcare teams, or pediatric pain patients.
4. Adhere to departmental policies and procedures and exhibit integrity in record keeping and medical records, including disclosure of errors or complications.
5. Demonstrate respect for patient autonomy.
6. Maintain comprehensive, timely and legally-appropriate medical records.

- **Practice Based Learning and Improvement (PBLI)**

1. Analyze the role of critical literature review, guideline development and evidence-based medicine in the practice of pediatric pain management.
2. Demonstrate the use of a systematic approach to improve the clinical pain practice for children.
3. Incorporate feedback and be reflective about self-improvement in care of the pediatric pain patient.
4. Compare and examine the pediatric patients to ascertain the success and satisfaction of the treatment modalities and to determine if any changes need to be made.
5. Demonstrate the ability to identify gaps in critical knowledge and seek additional information and apply to their own practice.
6. Facilitate the education of medical trainees and other health care professionals on challenges of treating pain in children.
7. Synthesize pain medicine educational materials and attend scheduled didactic conferences.
8. Deliver a formal presentation on a pain-related subject to the multidisciplinary team during the rotation.
9. Follow-up and evaluate effectiveness of pain management plan on all in-patients on the pediatric acute pain service and outpatients receiving regional anesthesia.

- **Systems Based Practice (SBP)**

1. Select among the different combination of medical service providers, institutional settings, and health care benefit resources to achieve optimal pediatric patient analgesia and regional anesthesia.
2. Incorporate evidence-based medicine and outcome data into pediatric pain management and regional anesthesia practices.
3. Perform judicious resource utilization to diagnose and treat pediatric pain patients and administer regional anesthetics.
4. Design pediatric pain management plans integrating and balancing cost, efficacy and long-term outcomes.
5. Perform regional blocks effectively and efficiently.
6. Utilize information technology to optimize the care of pediatric pain and regional anesthesia patients.
7. Recognize the needs of patients and their families in the complex healthcare system complexities and advocate for support during and after hospitalization.
8. Transition analgesic care effectively to others within the interdisciplinary team.
9. Participate in systems safeguards such including but not limited to pre-procedure time-outs, independent double checks and medication reconciliation.
10. Identify and address barriers and errors within the system that compromise pain management and regional anesthesia practices.
11. Recognize the need for Anesthesiology and Pain Medicine to interface with other interprofessional healthcare team members and with the parent organization in order to improve healthcare and system performance.
12. Participate in the quality improvement process to develop systems that minimize risk to patients.

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