

Rotation Director (email)	Andrew Franklin, MD (andrew.franklin@vanderbilt.edu)
Rotation Name	Pediatric Pain Service

COURSE OVERVIEW

Course Overview (75 – 100 words describing the course)
Rotation on the Pediatric Pain Service will provide fellows in pediatric anesthesiology (4-week rotation) and other disciplines (1-2 week rotations) with the knowledge and skill set required to provide consultative-level care to infants, children, and adolescents with various types of acute and chronic pain in a wide variety of perioperative and general medical contexts. Time is spent primarily on the in-patient pediatric pain service, with time in the outpatient pediatric pain clinic as schedules and interests allow. Fellows will need to draw on excellent interpersonal and communications skills, exemplary level of professionalism, solid system-based practices and consistent practice-based learning and improvement to achieve the level of consultant.

LEARNING OBJECTIVES

Knowledge	Knowledge Recall	
	<i>Pain classification</i>	Discuss distinctions between acute and chronic pain
	<i>Pain classification</i>	Discuss distinctions between nociceptive, neuropathic, and functional pain
	<i>Pain neurobiology</i>	Describe the neurodevelopmental trajectory of pain perception
	<i>Pharmacologic analgesia</i>	List analgesics appropriate in the treatment of various types of pain
	<i>Non-pharmacologic analgesia</i>	List non-pharmacologic interventions appropriate in the treatment of various types of pain
	<i>Interventional analgesia</i>	List interventional techniques appropriate in the treatment of various types of pain
	<i>Interventional analgesia</i>	Describe contra-indications to interventional analgesia including systemic anti-coagulation
	<i>Controlled substances</i>	Describe current legal requirements pertaining to prescription of controlled substances
	Knowledge Analysis	
	<i>Patient assessment</i>	Assess presence and severity of acute versus chronic pain
	<i>Patient assessment</i>	Assess presence and severity of nociceptive versus neuropathic versus functional pain
	<i>Patient assessment</i>	Assess developmental considerations in patient subjective pain experience
	<i>Context</i>	Understand relative roles of pharmacologic, non-pharmacologic, and interventional analgesia in children in various clinical settings
	Knowledge Synthesis	
	<i>Pharmacologic analgesia</i>	Formulate an appropriate plan for pharmacologic analgesia for children in various clinical settings
	<i>Non-pharmacologic analgesia</i>	Formulate an appropriate plan for non-pharmacologic analgesia for children in various clinical settings
	<i>Interventional analgesia</i>	Formulate an appropriate plan for interventional analgesia for children in various clinical settings
	Knowledge Application	
	<i>Pharmacologic analgesia</i>	Implement an appropriate plan for pharmacologic analgesia for children in various clinical settings, including justification for agents selected and plans for alternative interventions
<i>Non-pharmacologic analgesia</i>	Implement an appropriate plan for non-pharmacologic analgesia for children in various clinical settings, including justification for interventions selected and practitioners involved	
<i>Interventional analgesia</i>	Implement an appropriate plan for interventional analgesia for children in various clinical settings, including justification for techniques selected and sedation/anesthesia required	
<i>Patient management</i>	Understand and fulfill requirements for ongoing follow-up of children receiving pharmacologic, non-pharmacologic, and interventional analgesia	
<i>Controlled substances</i>	Understand and fulfill requirements for prescription of chronic controlled substances, including ongoing control measures and indications for termination	
Skills	Enter appropriate orders for pharmacologic analgesia, including use of electronic order sets	

	Obtain appropriate consultations for non-pharmacologic analgesia
	Provide appropriate interventional analgesia using various single-injection and catheter techniques
	Demonstrate proficiency in ultrasound-guided interventional analgesia
	Demonstrate proficiency in fluoroscopically-guided interventional analgesia, including epidurography
	Appropriately prescribe controlled substances, including for chronic use
	Interact effectively with primary and other sub-specialty providers in providing holistic multi-modal care
Attitudes	Show consideration for patients and families comfort during assessment and treatment of various types of pain
	Show respect for all primary and other sub-specialty providers involved in care of patients with various types of pain
	Pay attention to and address patient and family concerns, expectations, and misgivings pertaining to analgesia
	Thoughtfully justify analgesic agents and interventions recommended, included those judged inappropriate
	Manage the difficult patient and/or family with equanimity and compassion

Patient Care: Fellows must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.

	After successful completion of this rotation the fellow will be able to:	Methods of Evaluating Competency
Objective 1.	<p>Perform a comprehensive analgesic evaluation and develop an appropriate analgesic plan for children with various types of pain. Specifically, the fellow will be able to:</p> <ol style="list-style-type: none"> 1. Obtain a current and past medical history pertinent to providing appropriate analgesia. Specifically ascertain location, nature, and chronicity of patient pain. Important data that should be emphasized include <ol style="list-style-type: none"> a. current medications and allergies b. effective agents and interventions c. ineffective agents and interventions d. unexplored agents and interventions e. family and social context affecting patient subjective pain experience f. laboratory data pertinent to providing appropriate analgesia, particularly coagulation status in the context of interventional analgesia g. radiology pertinent to providing appropriate analgesia, particularly imaging in the context of interventional analgesia 2. Perform a focused physical examination <ol style="list-style-type: none"> a. note height, weight, vital signs, subjective and objective pain scores (do they differ and why?) b. detailed evaluation of painful area(s) <ol style="list-style-type: none"> i. apparent etiology of pain (nociceptive, neuropathic, functional) ii. exacerbating and ameliorating interventions iii. patient and family/caregiver behaviors iv. degree of functional compromise c. factors influencing pharmacologic analgesia (respiratory, hepatic, renal disease) d. factors influencing non-pharmacologic analgesia (behaviors, psychiatric state) e. factors influencing interventional analgesia (need for sedation/analgesia) 3. Integrate the history, physical examination, and additional data in developing recommendations for holistic multi-modal analgesia appropriate to various patients and types of pain. 4. Present and justify recommendations to the pediatric pain service attending, and to the primary and other sub-specialty providers involved in the care of each patient. 5. Present and explain recommendations to the patients and families, including obtaining informed assent and consent for interventional analgesia as appropriate. 6. Enter appropriate orders and obtain appropriate consultations for analgesic agents and interventions recommended. 7. Participate in all pediatric pain service rounds, including interactions with various medical and surgical services. 	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment
Objective 2.	<p>Provide appropriate interventional analgesia to children with various type of pain. Specifically, the fellow will be able to:</p> <ol style="list-style-type: none"> 1. Obtain appropriate permissions for interventional analgesia <ol style="list-style-type: none"> a. from surgical service and attending in perioperative patients b. from primary and/or sub-specialty service and attending in medical patients c. informed assent from patient as appropriate d. informed consent from patient or guardian as appropriate in all cases 2. Assess need for and provide procedural sedation or obtain procedural anesthesia as appropriate <ol style="list-style-type: none"> a. direct procedural sedation in developmentally appropriate patients b. request procedural anesthesia as appropriate, informing anesthesia provider of pertinent requests and considerations (positioning, avoidance of analgesics) 3. Appropriately prepare for safe and effective provision of interventional analgesia <ol style="list-style-type: none"> a. obtain and verify appropriate equipment and medications 	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment

	<ul style="list-style-type: none">b. request and verify availability of desired imaging modalities (ultrasound, fluoroscopy) <p>4. Safely and effectively perform interventional analgesia</p> <ul style="list-style-type: none">a. appropriate patient positioningb. rigorous sterile technique throughoutc. effective and appropriate use of desired imaging modalitiesd. efforts to minimize complications and side effects, with prompt recognition and appropriate management of any encounterede. confirmation of analgesic efficacy of technique performedf. post-procedural monitoring and ongoing care as appropriate <p>5. Provide appropriate care following interventional analgesia</p> <ul style="list-style-type: none">a. in-patient follow-up of patients on pediatric pain serviceb. out-patient follow-up of patients in pediatric pain clinicc. effective return of care to primary or other sub-specialty service once pediatric pain service/clinic follow-up no longer indicated	
--	--	--

Medical Knowledge: Fellows must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care.

	After successful completion of this rotation the fellow will be able to:	Methods of Evaluating Competency
Objective 1.	Describe the neurobiological trajectory of pain perception	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment
Objective 2.	Discuss definitions and associated physiology of acute and chronic pain, including current models of transition from acute to chronic pain	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment
Objective 3.	Discuss definitions and associated physiology of nociceptive, neuropathic, and functional pain, including mixed pain states	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment
Objective 4.	Discuss pharmacologic, non-pharmacologic, and interventional analgesia appropriate to various types of pain	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment
Objective 5.	Explain contraindications to interventional analgesia, including guidelines regarding systemic anti-coagulation	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment
Objective 6.	Understand current legal requirements for prescription of controlled substances, including ongoing control measures for chronic therapy and indications for termination	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment

Practice-based Learning and Improvement: Fellows must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning. Fellows are expected to develop skills and habits to be able to meet the following goals:

- identify strengths, deficiencies, and limits in one’s knowledge and expertise;
- set learning and improvement goals;
- identify and perform appropriate learning activities;
- systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement;
- incorporate formative evaluation feedback into daily practice;
- locate, appraise, and assimilate evidence from scientific studies related to their patients’ health problems;
- use information technology to optimize learning; and,
- participate in the education of patients, families, students, residents and other health professionals.

	After successful completion of this rotation the fellow will be able to:	Methods of Evaluating Competency
Objective 1.	Identify areas for improvement in developmentally appropriate assessment of the child in pain	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment
Objective 2.	Identify areas for improvement in technical skills pertaining to interventional analgesia, particularly perioperative epidural analgesia	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment
Objective 3.	Establish goals to address areas for improvement	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment
Objective 4.	Incorporate formative evaluation feedback into daily practice	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment

Interpersonal and Communication Skills: Fellows must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals. Fellows are expected to:

- communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds;
- communicate effectively with physicians, other health professionals, and health related agencies;
- work effectively as a member or leader of a health care team or other professional group;
- act in a consultative role to other physicians and health professionals; and,
- maintain comprehensive, timely, and legible medical records, if applicable.

	After successful completion of this rotation the fellow will be able to:	Methods of Evaluating Competency
Objective 1.	Communicate effectively with patients, families, and the public, as appropriate, across a broad range of patient age as well as family socioeconomic and cultural backgrounds	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment
Objective 2.	Communicate effectively with physicians and other health professionals	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment
Objective 3.	Work effectively as a member or leader of the pediatric pain service and pediatric pain clinic	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment
Objective 4.	Act in a consultative role to other physicians and health professionals	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment
Objective 5	Maintain a comprehensive and timely electronic medical record.	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment

Professionalism

Fellows must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Fellows are expected to demonstrate:

- compassion, integrity, and respect for others;
- responsiveness to patient needs that supersedes self-interest;
- respect for patient privacy and autonomy;
- accountability to patients, society and the profession; and,
- sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation.

	After successful completion of this rotation the fellow will be able to:	Methods of Evaluating Competency
Objective 1.	Demonstrate responsiveness to patient needs that supersedes self-interest	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment
Objective 2.	Demonstrate compassion, integrity, and respect for others.	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment
Objective 3.	Demonstrate respect for patient and family privacy and autonomy.	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment
Objective 4.	Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in body habitus, gender, age, culture, race, religion, disabilities, and sexual orientation.	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment

Systems-based Practice

Fellows must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.

Fellows are expected to:

- work effectively in various health care delivery settings and systems relevant to their clinical specialty;
- coordinate patient care within the health care system relevant to their clinical specialty;
- incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate;
- advocate for quality patient care and optimal patient care systems;
- work in inter-professional teams to enhance patient safety and improve patient care quality; and
- participate in identifying system errors and implementing potential systems solutions.

	After successful completion of this rotation the fellow will be able to:	Methods of Evaluating Competency
Objective 1.	Work in inter-professional teams to enhance patient safety and improve patient care quality.	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment
Objective 2.	Participate in identifying system errors and implementing potential systems solutions.	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment
Objective 3.	Coordinate patient care within the health care system relevant to anesthesiology, with particular attention to specific needs and requirements pertinent to pain management.	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment
Objective 4.	Incorporate considerations of cost awareness and risk-benefit analysis in patient-based care.	<input type="radio"/> Direct observation <input type="radio"/> Faculty feedback <input type="radio"/> Self-assessment

TEACHING METHODOLOGIES

Fellows on this rotation will be expected to learn and achieve the learning objectives through the following methodologies and activities:

<input type="radio"/> Various lectures <input type="radio"/> Daily direct one-on-one teaching on pediatric pain service and in pediatric pain clinic, including encounters with patients of various ages <input type="radio"/> Independent Study – Please see attached “Recommended Course of Study”	<input type="radio"/> Oral quiz at end of rotation <input type="radio"/> Self assessment and rotation evaluation at end of rotation
--	--

PATIENT ENCOUNTERS

Fellows on this rotation will be expected to manage the minimum number of patients/cases with the specified conditions as listed below: (over span of 1 month on service)

Number	Patient Condition / Case
12	Perioperative interventional analgesia (single-injection techniques: primarily caudal block; occasional plexus or peripheral nerve block)
8	Perioperative epidural analgesia (catheter placement)
16	Perioperative epidural analgesia (days of in-patient follow-up)
4	In-patient medical pain management (in-patient non-perioperative consultations)
4	Out-patient medical pain management (out-patient pediatric pain clinic encounters)

FEEDBACK

Please identify when and how the fellow will receive feedback on his/her performance.

Daily <input type="radio"/> Verbal	Mid-month <input type="radio"/> Verbal	End of month <input type="radio"/> Verbal <input type="radio"/> Written
---------------------------------------	---	---

SUBMITTED BY _____

Today's date _____

Recommended Course of Study

***Smith's Anesthesia for Infants and Children*, Eighth Edition. PJ Davis, FP Cladis, EK Motoyama, Eds. Mosby/Elsevier: Philadelphia, PA; 2011.**

Chapter 15: Pain Management; 418-51.

Chapter 16: Regional Anesthesia; 452-510.

Full text available online via Eskind Biomedical Library:

<http://www.mc.vanderbilt.edu/diglib/>

***Pain in Infants, Children, & Adolescents*, Second Edition. NL Schechter, CB Berde, M Yaster, Eds. Lippincott-Williams & Wilson: Philadelphia, PA; 2003.**

Full text available online via Eskind Biomedical Library:

<http://www.mc.vanderbilt.edu/diglib/>

Pediatric Pain Service Online Drop-Box

Currently under development, effort coordinated by Dr. Franklin

Content Outline:

From: American Board of Anesthesiology; Pediatric Anesthesiology Examination Content Outline
(October 2, 2012)

C. Painful Disease States

1. Pathophysiology

a) Procedural, postoperative, and posttraumatic pain

b) Pain in the neonate

c) Chronic pain states

2. Treatment

a) Regional analgesia

b) Pharmacologic and non-pharmacologic techniques of pain management

c) Complementary and alternative pain management