

# Regional Anesthesiology and Acute Pain Medicine Fellowship

## **Educational Goals, Objectives, Skills and Competencies: Inpatient Pain Service Rotation**

The Duke Regional Anesthesiology and Acute Pain Medicine (RAAPM) Fellowship is a one-year formal structured PGY-5 fellowship designed to prepare trainees for a role as leaders in academic regional anesthesiology and acute pain medicine. Trainees are expected to demonstrate progressive autonomy in the performance of these skills and competencies throughout the year. Where practical, the goals and objectives are stratified into basic and advanced levels, and trainees are expected to have demonstrated competency and completion of the basic set of these by the 6 month point in the fellowship. Advanced level skills and competencies may be achieved at any point, but should be mastered by the completion of the fellowship.

### ***Medical Knowledge***

*Upon completion of the program, the fellow will be able to:*

1. Perform a perioperative evaluation of the patient with acute pain; perform a detailed acute pain history and physical exam. **[BASIC]**
2. Describe the different etiologies of common acute pain syndromes and identify these in the inpatient hospital setting. **[BASIC]**
3. Differentiate between somatic, visceral, and neuropathic pain and treatment pathways **[BASIC]**
4. Describe various tools for the assessment of acute pain and evaluate the advantages and disadvantages of each. **[ADVANCED]**
5. Describe different routes for providing analgesia. **[BASIC]**
6. Explain the principles of patient-controlled analgesia, including patient evaluation, initiation, contraindications, troubleshooting and side-effects. **[BASIC]**

7. Outline an approach to caring for the patient with acute-on-chronic pain, including the use of pharmacologic and non-pharmacologic therapies **[ADVANCED]**
8. Understand and explain the pharmacokinetics, pharmacodynamics, indications, contraindications, side-effects, and interactions of the following medications or classes of medications:
  - i) Local anesthetics **[BASIC]**
  - ii) Gabapentinoids **[BASIC]**
  - iii) NMDA antagonists **[BASIC]**
  - iv) Non-steroidal anti-inflammatory drugs (NSAIDs) **[BASIC]**
  - v) COX-2 inhibitors **[BASIC]**
  - vi) Acetaminophen **[BASIC]**
  - vii) Alpha-2 agonists **[BASIC]**
9. Skillfully and efficiently describe and perform a wide variety of modern regional analgesic techniques including single-shot and continuous peripheral nerve block, spinal and combined spinal- epidural anesthesia, thoracic epidural, and nerve stimulator- and ultrasound-guided approaches **[ADVANCED]**
10. Describe the use of epidural anesthesia, including:
  - i) Understand and explain the physiology of epidural anesthesia. **[BASIC]**
  - ii) Describe the contents of the epidural space. **[BASIC]**
  - iii) Understand and explain the local anesthetics available for epidural use: agents, dosage, adjuncts, and duration of action. **[BASIC]**
  - iv) Differentiate between spinal and epidural anesthesia with regard to reliability, latency, duration, and segmental limitations. **[ADVANCED]**
  - v) Describe the indications and contraindications for epidural anesthesia. **[BASIC]**
  - vi) Understand and explain side effects, complications and management of inadequate anesthesia, hypotension, total spinal, accidental dural puncture, systemic toxicity, and the use of appropriate test dosing to minimize some of these complications. **[BASIC]**
  - vii) Describe the volume-segment relationship and the effect of patient age, pregnancy, position, and site of injection on resultant block. **[ADVANCED]**
  - viii) Understand and explain combined spinal-epidural anesthesia as distinguished from lumbar epidural anesthesia, including advantages/disadvantages, dose requirements, complications, indications and contraindications. **[ADVANCED]**
  - ix) Understand and explain caudal epidural and thoracic epidural anesthesia as distinguished from lumbar epidural anesthesia, including advantages/

disadvantages, dose requirements, complications, indications and contraindications. **[ADVANCED]**

11. Discuss complications of regional anesthesiology and acute pain medicine including the diagnosis and management of:

- i) hemorrhagic complications **[BASIC]**
- ii) infectious complications **[BASIC]**
- iii) neurologic complications
  - a) This knowledge must include the interpretation of tests recommended following plexus/nerve injury, including electromyography, nerve conduction studies, somatosensory evoked potentials, and motor evoked potentials
- iv) complications due to medicines, including local anesthetic systemic toxicity and opioid- induced respiratory depression **[BASIC]**
- v) other complications including pneumothorax **[BASIC]**

12. Describe the use of neuraxial opioids, including:

- i) Understand and explain available drugs, effective dose, and duration of action. **[BASIC]**
- ii) Understand and explain the incidence of complications and side effects, monitoring, prevention, and therapy. **[BASIC]**
- iii) Describe the indications/contraindications for the use of neuraxial narcotics for acute pain management. **[BASIC]**
- iv) Describe the mechanism of action of neuraxial narcotics. **[BASIC]**
- v) Differentiate intrathecal vs. epidural administration relative to dose, effect and side effects and how hydrophilic and hydrophobic drug pharmacokinetics differ. **[ADVANCED]**

13. Describe the use of systemic opioids, including:

- i) Understand and explain the pharmacokinetics of opioid analgesics: bioavailability, absorption, distribution, metabolism, and excretion. **[BASIC]**
- ii) Understand and explain the site and mechanism of action of opioids **[BASIC]**
- iii) Understand and explain the differences of chemical structure of the various opioids. **[ADVANCED]**
- iv) Describe challenges of post-procedure analgesic management in the patient with chronic pain and/or opioid tolerance **[ADVANCED]**
- v) Describe the concept of multimodal analgesia and its impact on functional restoration after surgery. **[BASIC]**

## **Patient Care**

*Upon completion of the program, the fellow should be able to:*

1. Demonstrate management of patients at the level of a consultant whose diagnoses require consultation of the Acute Pain Management Service. **[ADVANCED]**
2. Demonstrate skill in the administration and coordination of multi-modal analgesic regimens to include such techniques as neuraxial and peripheral nerve catheters, local anesthetic and narcotic infusions, and non-narcotic analgesic adjuvants. **[BASIC]**
3. Conduct appropriate follow up on his/her patients in order to assess the effectiveness of the pain management strategy, and be able to appropriately respond to changes in the acute pain condition with rational selection of additional adjuvant therapies **[BASIC]**
4. Demonstrate rational selection of regional analgesia for specific clinical situations. **[BASIC]**
5. Demonstrate skill and knowledge related to the daily management of epidural and perineural catheters including dosing of medications, evaluation of proper dose and rate of infusion medications, and timing of catheter removal. **[ADVANCED]**
6. Recognize and intervene to manage inadequate regional analgesic techniques with supplemental blockade or alternate anesthetic approaches. **[ADVANCED]**
7. Properly prepare to manage rare but serious complications of regional analgesia including local anesthetic systemic toxicity and total spinal anesthesia. **[ADVANCED]**
8. Develop administrative skills as they related to managing a team of trainees, mid-level providers and advanced practice nurses. Fellows will be expected to make triage decisions and allocation of team members as appropriate for consultations, procedures, and follow-up visits. **[ADVANCED]**
9. Understand how the acute pain medicine service (IPS) addresses the provision of acute pain management to select non-surgical patients, such as those with sickle cell disease or other conditions known to cause acute pain **[ADVANCED]**

## **Practice-based learning/scholarship/teaching**

*Upon completion of the program, the fellow should be able to:*

1. Explain the value of the ASA Guidelines for Acute Pain Management **[BASIC]**

2. Evaluate and apply evidence from scientific studies, expert guidelines, and practice pathways. **[BASIC]**
3. Use information technology to obtain and record patient information, access institutional and national policies and guidelines, and participate in self education. **[BASIC]**
4. Evaluate own practice with respect to patient outcomes (esp. success and complications from regional block) and compare to available literature. **[ADVANCED]**
5. Identify strengths, deficiencies, and limits in knowledge and expertise **[ADVANCED]**
6. Set learning and practice improvement goals **[BASIC]**
7. Identify and perform appropriate learning activities, including didactic lectures and hands-on demonstrations that promulgate safety **[BASIC]**
8. Incorporate formative evaluation feedback into daily practice **[ADVANCED]**
9. Participate actively in clinical research as a major activity of the year-long fellowship. This includes completing the appropriate Deduce training, Redcap training, eIRB training. **[ADVANCED]**
10. Develop teaching techniques by instructing residents and nurse practitioners at the bedside under the supervision of faculty. **[ADVANCED]**

### **Interpersonal and Communication Skills**

*Upon completion of the program, the fellow should be able to:*

1. Provide information to the patient and family with respect to the options, alternatives, risks and benefits of the acute pain management plan in a manner that is clear, understandable, ethical, and appropriate. **[BASIC]**
2. Employ effective listening skills and answer questions appropriately in the process of obtaining informed consent. **[BASIC]**
3. Work effectively in a team environment, communicating and cooperating with surgeons, nurses, pharmacists, physical therapists, and other members of the perioperative team. This requires the fellow to:
  - i) Appreciate the roles of other members of the team **[BASIC]**
  - ii) Communicate clearly in a collegial manner that facilitates the achievement of care goals. **[BASIC]**
  - iii) Help other members of the team to enhance the sharing of information. **[BASIC]**
  - iv) Formulate care plans that utilize multidisciplinary team skills such as a plan for facilitated recovery (i.e., ERAS, etc.) **[ADVANCED]**

## **Professionalism**

*Upon completion of the program, the fellow should be able to:*

1. Respond to pages promptly and professionally; be punctual and reliable; adhere to departmental and university policies and procedures; exhibit integrity in record keeping and medical records **[BASIC]**
2. Demonstrate respect, compassion, and responsiveness to patients' needs and concerns **[BASIC]**
3. Demonstrate independence and initiative befitting a consultant subspecialty physician **[ADVANCED]**
4. Continuously conduct the practice of medicine with integrity, honesty, and accountability. **[BASIC]**
5. Demonstrate a commitment to life-long learning and excellence in clinical practice. **[BASIC]**
6. Demonstrate a commitment to the fellowship by striving for excellence in clinical and scholarly endeavors **[BASIC]**
7. Demonstrate consistent subjugation of self-interest to the good of the patient and the health care needs of society. **[BASIC]**
8. Demonstrate a commitment to ethical principles in providing care, obtaining informed consent, and maintaining patient confidentiality. **[BASIC]**

## **Systems-Based Practice**

*Upon completion of the program, the fellow should be able to:*

1. Work effectively in a consultant physician role within the framework of the interprofessional clinical team, including surgeons, nurses, nurse practitioners, physical therapists and other anesthesiology trainees to enhance patient safety and improve quality **[BASIC]**
2. Participate in identifying system errors and implementing potential systems solutions **[ADVANCED]**
3. Understand the interaction of the Acute Pain Management Service (IPS) with other elements of the health care system including primary surgical and medical teams, other consultant services, nursing, pharmacy, and physical therapy. **[ADVANCED]**

4. Demonstrate awareness of health care costs and resource allocation, and the impact of their choices on those costs and resources. **[ADVANCED]**
5. Advocate for the patient and their family within the health care system, and assist them in understanding and negotiating complexities in that system. **[BASIC]**

***I have reviewed all of the goals and objectives.***

***Fellow signature*** \_\_\_\_\_

***Date*** \_\_\_\_\_

***Name (printed)*** \_\_\_\_\_

***Program Director signature*** \_\_\_\_\_

***Date*** \_\_\_\_\_