ROTATION SUMMARY
PEDIATRIC PAIN MANAGEMENT

Rotation Contacts and Scheduling Details
Rotation Director: **Srinivas Naidu, M.D.**

Administrative Assistant: Kathryn De Rama

To set up elective: Contact Srinivas Naidu at least one month before the elective begins.

Positions Available: 2 residents may participate on service congruently (includes pain and palliative care residents).

Length of Rotation: This elective may be undertaken as a full-time elective in pain management for a period of 2-4 weeks. Alternative arrangements are considered, please discuss with the elective coordinator (contact info above). The rotation may be performed in combination with the palliative care elective.

Preferred Level of Training: All training levels are welcome. The elective may be repeated in subsequent years if the resident has additional specific goals.

Months Rotation Offered: All months.

INTRODUCTION
The pediatric pain management rotation is designed for residents interested in learning how to assess and treat pain in children. The rotation will primarily occur in the inpatient setting, but may also occur in the outpatient setting depending on the goals of the resident. In the inpatient setting, the focus will be on opioid management, weaning patients from opioids, PCA management, and evaluating new chronic pain patients. In the outpatient clinic you will be given the opportunity to participate in new patient evaluations and discuss treatment options for the patients as well as to see follow up appointments. The focus in the outpatient clinic will be in evaluating patients with common chronic pain problems that you are likely to encounter, such as headaches, abdominal pain, and musculoskeletal complaints who have already been evaluated by a PCP and likely a specialist prior to coming to see us. This can be further tailored to fit the goals of the resident.

Goals of the rotation include:

- to become more comfortable dosing and prescribing various pain medications (such as opioids, TCAs, anti-epileptics, NSAIDs, topical agents, etc)
- to enhance your differential diagnosis for pain
- to become more familiar with non-pharmacologic methods of pain treatment (acupuncture, biofeedback and other psychological techniques, etc)
- to learn some of the basic assessment methods we utilize, particularly in the non-verbal patient

If you desire, you can also spend time on the palliative care service (please contact Dr. Julie Good), in our acupuncture clinic, or you can observe various pain procedures. If you have a specific area of interest (such as abdominal pain for someone going into GI), then we will try to accommodate you to ensure your goals from the rotation are met. Ideally, this rotation would be for 4 weeks to maximize the learning opportunities, but a 2 week rotation may be possible to arrange if your goal is to be exposed to our services.

ORIENTATION
An informal orientation will take place on the first morning of the rotation by the attending and advanced practice nurse for the day. Please contact the rotation director at least one month prior to starting for this to be arranged.

Rounds or Clinic Overview (or both if appropriate)

Inpatient Rounds:

If the resident desires and inpatient experience, the resident will assume primary responsibility for 1 – 2 patients on the inpatient service daily. In most instances, the resident should expect to perform the initial consult, obtain the full H&P, make a complete assessment and propose the management plan. The attending may observe the resident performing inpatient H&P's for complex patients as these evaluations can be time intensive for the patient and their family. Straightforward consultations may initially be performed independently or by collective team assessment based upon patient care, educational and service needs. Thereafter, the resident will pre-round on the patient and write a consult note that includes

recommendations for modifications in the management plan. The consultation note should be filed in the patient chart during team rounds. The resident will communicate with the primary team. Please ask for support/guidance from the attending on service if you are uncertain of your role or responsibilities at any time.

The resident and attending should discuss reassignment of long-term inpatients to allow emphasis upon initial consultative evaluation skills as indicated.

Clinic:
The pain clinic comprises a multi-disciplinary approach to pain management of chronic conditions. The clinic takes a "see one, do one" approach. Initially the resident will observe a comprehensive pain evaluation by actively watching the assessment of the pain specialist +/- pain or anesthesia fellow, nurse practitioner, psychologist, and physical therapist. Following this introductory experience, the resident will be expected to take parts of or the full History and Physical. The multidisciplinary assessment is time intensive and thus may be fatiguing for patients and families. As such, the attending will be present during the resident's History and Physical to minimize repetition.

The resident will also participate in the care of patients following up in clinic. These visits are shorter and the resident will take the H&P in these situations without attending presence.

In situations where the resident takes the History and Physical, he/she will be responsible for writing the note. Please clarify with the team directly at the time of the visit who will do each note to avoid deficiencies.

Call Schedule
There are no call responsibilities associated with this rotation. Residents who have cross cover or jeopardy call should provide Dr. Naidu with a list of other call responsibilities and corresponding absences at the onset of the rotation. The resident is responsible for emailing Dr. Naidu if jeopardized to another rotation.

Resident Roles and Responsibilities
The elective can be highly customized and focused on an individual's educational goals.

1. If time is spent on the inpatient service, daily evaluation of patients with acute and chronic pain, writing daily analgesic orders in consultation with attending of the day, and following analgesic progress during the day
2. If time is spent on the outpatient service, see new outpatients with the pain management team, perform a detailed history, system review, and physical examination with the pain management attending physician, document findings and recommendations for outpatient multidisciplinary program for pain management. Assess response in follow up patients.
3. Review the literature on a pediatric pain management topic of interest, and present a 30 min conference on that topic at either the pain meeting or at a resident education conference (MR, noon conf. etc)

Evaluation and Feedback
Residents will receive direct feedback on performance through Medhub evaluation system from the following attendings: Krane, Golianu, Naidu, Good, D'Souza, and Brooks. Residents will be asked to evaluate the rotation and the faculty via Medhub.

References and links (PDFs attached)
1. American Academy of Pediatrics Committee on Psychosocial Aspects of Child and Family Health & American Pain Society Task Force on Pain in Infants, Children, and Adolescents. (2001) "The Assessment and Management of Acute Pain in Infants, Children, and Adolescents." *Pediatrics* 108: 793-797.
2. Cohen LL et al. (2008). "Evidence-Based Assessment of Pediatric Pain." *Journal of Pediatric Psychology* 33(9): 939–955.
3. https://intranet.lpch.org/formsPoliciesReferences/policies/hospitalWide/patientCare/painManagement.html
4. Kraemer FW, Rose JB. (2009). "Pharmacologic Management of Acute Pediatric Pain." *Anesth Clin* 27:241-268.
5. http://endoflife.stanford.edu/M11_pain_control/equivalency_table.html
6. Krane EJ. (2008). "Patient-Controlled Analgesia: Proxy-Controlled Analgesia?" *Anes Analg* 107:15-17.
7. Voepel-Lewis T et al. (2008). "The prevalence of and risk factors for adverse events in children receiving patient-controlled analgesia by proxy or patient controlled analgesia after surgery." *Anesth Analg* 107:70–5
8. Nelson KL et al. (2010). "A National Survey of American Pediatric Anesthesiologists: Patient-Controlled Analgesia and Other Intravenous Opioid Therapies in Pediatric Acute Pain Management" *Anesth Analg* 110(3): 754-760.

9. Golianu B, et al. (2007). “Non-pharmacologic techniques for pain management in neonates.” *Semin Perinatology* 31(5): 318-322.
10. Hershey A (2010). “Current approaches to the diagnosis and management of paediatric migraine” *Lancet Neurology* 9:190-204.
11. Anthony K, Schanberg L (2007). “Assessment and management of pain syndromes and arthritis pain in children and adolescents” *Rheum Dis Clin No Am* 33:625-660.
12. Wilder R (2006). “Management of pediatric patients with complex regional pain syndrome” *Clin J Pain* 22:443-448.
13a, b. AAP Subcommittee on Chronic Abdominal Pain (2005). “Chronic Abdominal Pain in Children” Technical and Clinical Reports. *Pediatrics* 2005;115;e370-e381; and 812-815.
14. Wicksell RK et al (2009). “Evaluating the effectiveness of exposure and acceptance strategies to improve functioning and quality of life in longstanding pediatric pain – A randomized controlled trial” *PAIN* 141:248–257
15. Eccleston C et al (2009). “Psychological therapies for the management of chronic and recurrent pain in children and adolescents” *Cochrane Database of Systematic Reviews*, Issue 2. Art. No.: CD003968.
16. Williams et al (2002). “Pharmacogenetics of codeine metabolism in an urban population of children and its implications for analgesic reliability” *British Journal of Anaesthesia* 89 (6): 839-45.
17. Anand, S et al (2010). “Tolerance and withdrawal from prolonged opioid use in critically ill children” *Pediatrics* 125:e1208-1225.
18. Franck LS et al (2008). The Withdrawal Assessment Tool – Version 1 (WAT-1): an assessment instrument for monitoring opioid and benzodiazepine withdrawal symptoms in pediatric patients. *Pediatr Crit Care Med*. 2008 November ; 9(6): 573–580.

Other references, of additional interest:
Golianu B, et al. (2000). "Pediatric acute pain management." *Pediatr Clin North Am* 47(3): 559-87.
Golianu B et al (in press). “Pediatric Complex Regional Pain Syndrome: Retrospective Case Study, Review, and Proposed Treatment Algorithm” *Regional Anesthesia and Pain Medicine*
Zempsky W (2008). “Optimizing the management of peripheral venous access pain in children: Evidence, impact, and implementation” *Pediatrics*;122;S121-S124**.**
Kozlowska K et al (2008). “PERSPECTIVES: A Conceptual Model and Practice Framework for Managing Chronic Pain in Children and Adolescents” *HARV REV PSYCHIATRY* 16:136–150.
Claar RL et al (2008). “Parental response to children’s pain: The moderating impact of children’s emotional distress on symptoms and disability” *Pain* 138:172–179.
Tobias JD (2000). “Tolerance, withdrawal, and physical dependency after long-term sedation and analgesia of children in the pediatric intensive care unit” *Crit Care Med* 28:2122–2132.
AAP Committee on Drugs (1998). “Neonatal Drug Withdrawal” *PEDIATRICS* 101(6):1079-1088.

Competency-based Goals and Objectives

Goal 1: To learn the clinically relevant techniques for pain measurement and evaluation in infants, children, and adolescents.			
Resident Objectives:	Instructional Strategies	Evaluation	ACGME Competency Goals
Describe signs and symptoms of pain in newborns, infants and children	Read AAP/APS Article on Assessment and Mgmt of Pain (reference 1) Inpatient and outpatient care	• Attending feedback	
Name the standardized tools used in hospitals to assess pain AND employ them to obtain a pain score from several patients	Read Cohen et al article (ref 2) Review LPCH Patient Care Policy: Pain Management, Appendix A on Intranet (ref 3) Patient care, handout	• Attending feedback	
Identify key elements of pain history and elicit this information from consults and clinic patients.	Observe pain specialist history taking Assess pain by severity, location, quality, radiation, temporal nature, provocative and palliative factors	• Attending feedback	
Goal 2: Know methods for treatment of acute pain in children.			
Resident Objectives:	Instructional Strategies	Evaluation	ACGME Competency Goals
Define the uses of, combinations and dosages for nonsteroidal anti-inflammatory drugs in acute pain, post-operative and other.	Read Kraemer & Rose (ref 4) Patient care	• Attending feedback	
Prescribe common oral opiate analgesics and titrate appropriately.	Review opioid equivalency table in housestaff manual, and palliative care online resource (ref 5)	• Attending feedback	
Discuss safety and efficacy issues in use of PCA in pediatrics.	Read Krane (ref 6), be familiar with findings of Voepel-Lewis, Nelson (ref 7, 8)	• Attending feedback	

Initiate and titrate PCA.	Review LPCH order set Obtain PCA use data from LINKS Patient care	• Patient responses	
Provide 3 examples of adjuvants, describe their indications, dosing, and side effects.	Patient care, ref 1,4 above LPCH formulary	• Attending feedback	
Know several non-pharmacologic strategies to manage pain, and how to access these for patients	Read Golianu (ref 9) and ref 1, 3 above Patient care	• Attending feedback	
Goal 3: Understand the pathophysiology and treatment of common chronic pain conditions in children			
Resident Objectives:	Instructional Strategies	Evaluation	ACGME Competency Goals
Differentiate migraine from chronic daily HA. Describe the signs, symptoms and management for each.	Read Hershey (ref 10) Outpatient clinic – patient care Pain history	• Attending feedback	
Define fibromyalgia. List three differential diagnoses for patients presenting with generalized musculoskeletal pain.	Read Anthony (ref 11) Outpatient clinic – patient care	• Attending feedback	
Identify and initiate management for Complex Regional Pain Syndrome	Read Wilder (ref 12) and review findings of LPCH manuscript in press Outpatient clinic – patient care		
Understand evaluation and management of chronic abdominal pain in children	Read AAP technical and clinical reports(ref 13a and b)	• Attending feedback	
Recognize that the goals of pain management extend beyond improving	Review Wicksell (ref 14) and Eccleston (ref 15)	• Attending feedback	

the pain score to restoring function and achieving quality of life goals. Identify patient populations and conditions that benefit from biofeedback, self-hypnosis, relaxation, cognitive-behavioral therapy; refer appropriately.	Observe follow-up patient visits with pain psychologist with this focus in mind		
Goal 4: Be able to select appropriate medications and dosages considering a patient's underlying condition.			
Resident Objectives:	Instructional Strategies	Evaluation	ACGME Competency Goals
Select appropriate analgesics for patients with underlying hepatic disease, renal dysfunction/failure, dialysis.	Review the metabolism of common analgesics Patient care	• Attending feedback	
Explain the rationale for NOT using Codeine and Demerol, and relevant exceptions to this.	Read Williams (ref 16) Discuss side effects of meperidine (Demerol), metabolites with team.	• Attending feedback	
Goal 5: Understand how to assess and manage the side effects of analgesic therapy in children (nausea, vomiting, itching, respiratory depression, constipation).			
Resident Objectives:	Instructional Strategies	Evaluation	ACGME Competency Goals
List the most common side effects of the common analgesics.	Patient care	• Attending feedback	
Propose therapies to address the common side effects of analgesics.	Review management options for each of the side effects. Patient care	• Attending feedback	
Goal 6: Understand iatrogenic drug dependence, the physiologic signs thereof and appropriate management.			
Resident Objectives:	Instructional Strategies	Evaluation	ACGME Competency Goals

Recognize iatrogenic dependence and withdrawal in children Understand drug withdrawal assessment and management Optional: learn about maternal dependence producing neonatal drug withdrawal, signs and symptoms, assessment and management	Read Anand (ref 17) Patient care, Tobias article Optional: Read AAP article on neonatal drug withdrawal (see extra references), review modified Finnegan scale with pain team, patient care	• Attending feedback
Initiate a taper for a patient receiving long-term opiates and/or benzodiazepines. Perform a WAT-1 assessment	Read Franck (ref 18)	• Attending feedback