

Padma Gulur, M.D.

CURRICULUM VITAE

Date Prepared: November 3, 2020

**Name:** Padma Gulur, MD  
**Primary academic appointment:** Duke University School of Medicine  
**Primary academic department:** Anesthesiology  
**Present academic rank and title:** Professor of Anesthesiology  
Professor, Duke Department of Population Health Sciences  
Executive Vice Chair for Performance and Operations,  
Duke Anesthesiology  
Director, Pain Management Strategy and Opioid  
Surveillance, Duke Health

**Medical Licensure:** North Carolina License # 2016-01218  
Date of License: 10/25/2017  
California Full Medical License, 2014  
Massachusetts Full Medical License, 2004

**Specialty certifications;** Board Certified in Anesthesiology, 2006, 2016  
Board Certified in Pain Medicine, 2006, 2016

**Date of Birth:** 10/25/1972

**Citizen of:** United States

<b>Education:</b>	<b>Institution:</b>	<b>Date:</b>	<b>Degree:</b>
<b>School</b>	Bangalore Medical College, Karnataka University Bangalore, India	1998	MBBS

**Professional Training**

<u>Institution</u>	<u>Position/Title</u>	<u>Dates</u>
Berkshire Medical Center Tufts University	Internship, Internal Medicine	2001-2002
Boston Medical Center Boston University	Residency, Anesthesiology	2002-2005
Boston Medical Center Boston University	Chief Resident, Anesthesiology	2004-2005
Massachusetts General Hospital Harvard Medical School	Fellowship, Pain Medicine	2005-2006
<b>Academic Career:</b>		
Harvard Medical School Department of Anesthesia, Critical Care, & Pain Medicine	Instructor	2006-2011
Massachusetts General Hospital Department of Anesthesia, Critical Care & Pain Medicine	Director, Pain Services	2008-2014
Massachusetts General West Massachusetts General Hospital Department of Anesthesia, Critical Care & Pain Medicine	Director, Center for Pain Medicine	2009-2014
Massachusetts General Hospital Department of Anesthesia, Critical Care & Pain Medicine	Fellowship Director, Acute Pain and Regional Anesthesia	2012-2014
Harvard Medical School Department of Anesthesia, Critical Care, & Pain Medicine	Assistant Professor	2011-2014
University of California, Irvine Department of Anesthesiology & Perioperative Care	Professor of Anesthesiology Vice Chair, Pain Director, Medical Student Chronic Pain Rotation Fellowship Director, Pain Medicine	2014-2016
Duke University School of Medicine	Professor of Anesthesiology Vice Chair, Operations and Performance Executive Vice Chair Professor, Duke Department of Population Health Sciences	2016-present 2016-June 2018 2018-present Jul 2018-present



***Local and Regional***

Private Diagnostic Clinic - The physician practice of Duke Health

Department of Anesthesiology At-Large Member, PDC Board of Managers, July 1, 2019 - June 30, 2021

Duke University Health System

Member, Opioid Safety Committee, 2016 - present

Member, Anesthesiology IT Committee, 2016 - present

Member, Pain Oversight Committee, 2017 - present

Member, Anesthesiology Appointments, Promotions, and Tenure Committee, November 2017 - March 2019

Duke University School of Medicine

Admissions Committee, 2018 - present

California Health Care Foundation

Regional Opioid Safety Coalition; Lead, 2015 - 2016

University of California, Irvine

Chair, Pain Executive Committee, 2014 - 2016

Member, Curriculum Committee – Perioperative Medicine Certificate Program Review, 2014 - 2016

Member, Finance Committee, 2014 - 2016

Member, Ortho PSH Oversight Committee, 2014 - 2016

Member, Quest Ambulatory Governance Committee, 2014 - 2016

Member, Sedation Committee, 2014 - 2016

Massachusetts General Hospital

Pain Management Care Redesign Team; Chair, 2013 - 2014

Opiate Safety Initiative; Chair, 2009 - 2014

Long-term Credentialing Committee; Anesthesia, Critical Care & Pain Medicine, 2008 - 2011

Multidisciplinary Pain Safety Issues Committee; Chair, 2008 - 2014

Pain and Sedation Subcommittee, Medication Education Safety and Approval Committee (MESAC), Chair, 2008 - 2014

Resident Recruitment Committee; Anesthesia, Critical Care & Pain Medicine, 2008 - 2014

***External Support:***

**Present:**

PI

Opioid Sparing Potential of Light-Induced Analgesia

DHHS, PHS, NIH, NIDA

IR03DA046011-01A1

April 15, 2019 - March 31, 2021

Clinical Investigator

Integrated Health Services to Reduce Opioid Use While Managing Chronic Pain: The INSPIRE Trial

PCORI NCT03454555

July 16, 2020 – March, 2023

PI

Pain Management for Opioid Tolerant Patients: A Randomized Controlled Trial

NIA via NBER

2017

**Past:**

PI

Pain Management for Opioid Tolerant Patients: A Randomized Controlled Trial

JPAL

2016

PI

Determining Optimal Pain Medication Prescription for Postoperative Outpatient Surgical Pain Using An Innovative Oral Patient Controlled Analgesia (PCA) Device

UCI ICTS: NIH CTSA

2016

PI

Pain Management Options for Opioid Tolerant Patients: A randomized controlled trial

MIT-JPAL

2016

Co-PI

Effect of Ultra-low Dose Naloxone on Remifentanyl-induced Hyperalgesia

UCI ICTS: NIH CTSA

2016

PI

Determining Optimal Pain Medication Prescription for Postoperative Outpatient Surgical Pain Using An Innovative Oral Patient Controlled Analgesia (PCA) Device

UCI ICTS: NIH CTSA

2016

Lead

Orange County Collaborative on Prescription Drug Abuse

UCI

2016

Lead

Regional Opioid Safety Coalition Grant

California Healthcare Foundation

2015

Co-PI  
Effect of Ultra-low Dose Naloxone on Remifentanyl-induced Hyperalgesia  
UCI  
2014

Co-Investigator for multi-center study  
PI for Massachusetts General Hospital  
A Randomized, Double Blind, Placebo Controlled, Parallel Group Study of the Efficacy and Safety of Pregabalin (BID) in Subjects with Post-Traumatic Peripheral Neuropathic Pain  
Industry sponsored: Pfizer  
2013 - 2014

Co-Investigator for multi-center study  
PI for Massachusetts General Hospital  
An Open-Label, Multicenter Study for the Safety, Pharmacokinetics, and Efficacy of Buprenorphine Transdermal System (BTDS) in Children from 7 to 16 Years of Age, Inclusive, Who Require Continuous Opioid Analgesia for Moderate to Severe Pain  
Industry Sponsored: Purdue  
2012 - 2014

Co-Investigator  
Optimal Method of Pain management in Patients with Multiple Rib Fracturs  
Industry Sponsored: On-Q  
2012 - 2014

PI  
Lidocaine Serum Levels in Healthy Adult Volunteers: a Pilot Evaluation of the J-Tip Delivery System  
Massachusetts General Hospital  
2012

Co-Investigator for multi-center study  
PI for Massachusetts General Hospital  
Computer Assessment of Children's Pain and Mood Phase II  
NIH SBIR 215587  
2009-2011

Co-Investigator for multispecialty study  
PI  
3-D Pain Mapping  
NIH SBIR  
2009

Co-Investigator  
A Phase 3, Multicenter, Randomized, Placebo-controlled, Double-blind Study to Evaluate the Efficacy and Safety of the Sterile Lidocaine Hydrochloride Monohydrate (LHM) Product in Adult Subjects  
Industry sponsored: Anesiva  
2006 - 2007

Co-Investigator for multi-center study  
 PI for Massachusetts General Hospital  
 Children's Computer Assessment of Pain and Mood Phase I  
 NIH SBIR  
 2006 – 2007

### Patents:

G.P.Li, Padma Gulur et al United States Patent 10675221 B2 (Systems and Methods for controlling and monitoring medication dispensation) June 2020

### Publications:

#### *Refereed Journals:*

1. **GulurP**, Nishimori M, Ballantyne JC. Regional anaesthesia versus general anaesthesia, morbidity and mortality. *Best Pract Res Clin Anaesthesiol.* 2006;20:249-263. PMID: 16850776
2. **GulurP**, Solding SM, Acquadro MA. Concepts in pain management. *Clin Podiatr Med Surg.* 2007;24:333-351. PMID: 17430773
3. **GulurP**, Rodi SW, Washington TA, Cravero JP, Fanciullo GJ, McHugo GJ, Baird JC. Computer face scale for measuring pediatric pain and mood. *J Pain.* 2009;10:173-9. PMID: 19010740
4. Brookman J, Sair H, Benkwitz C, **Gulur P**. Wandering epidural catheter. *Anesthesiology.* 2010; 113:1198. PMID: 20938338
5. Lehmann N, Joshi GP, Dirkmann D, Weiss M, **GulurP**, Peters J, Eikermann M. Development and longitudinal validation of the overall benefit of analgesia score: a simple multi-dimensional quality assessment instrument. *Br J Anaesth.* 2010;105:511-518. PMID: 20693179
6. Jamison B, Washington T, **GulurP**, Fanciullo G, Arscott JR, McHugo GJ, Baird JC. Reliability of a preliminary 3-D pain mapping program. *Pain Med.* 2011;12:344-351. PMID: 21276186
7. Bhatia G, Lau ME, Koury KM, **GulurP**. Intrathecal drug delivery (ITDD) systems for cancer pain. *F1000Research.* 2013;2:96. PMID: 24555051
8. **GulurP**, Buonanno FS. Intracranial hypotension caused by anterior cervical CSF alleviated by an epidural blood patch. *Headache.* 2013;53:838-841. PMID: 23405991
9. Kang S, Singh J, Vidal Melo M, **GulurP**. Spinal cord stimulation for intercostal neuralgia in a patient with implantable cardiac defibrillator and biventricular pacing. *Neuromodulation.* 2013;17:386-388. PMID: 23837496

10. Keel J, Lau ME, **GulurP**. Spinal cord stimulation for radicular pain following retained bullet in the spinal canal. *Pain Physician*. 2013;16:E103-E106. PMID: 23511684
11. Wang JP, Lau M, **Gulur P**. Delayed Spinal Epidural Hematoma after Epidural Catheter Removal with Reinitiation of Warfarin. *J Cardiothorac Vasc Anesth*. 2014; 28(6): 1566-569. PMID: 24075636
12. **GulurP**, El Saleeby C, Watt LD, Koury KM, Cohen AR. Elevated lidocaine serum levels following the use of a needle free device in healthy adult volunteers. *Pediatric Emergency Care*:2014;30:355-359. PMID: 24786988
13. **GulurP**, Williams L, Chaudhary S, Koury K, Jaff M. Opioid tolerance—A predictor of increased length of stay and higher readmission rates. *Pain Physician*. 2014;17:E503-E507. PMID: 25054400
14. Pace M, Koury KM, **GulurP**. Epidurals in patients on thromboprophylaxis with unfractionated heparin three times a day – Value of partial thromboplastin time testing. *Anesth Analg*. 2014;119:1215-1218. PMID: 25225890
15. Nizamuddin SL, Koury KM, Lau ME, Watt LD, **GulurP**. Use of targeted transversus abdominus plane blocks in pediatric patients with anterior cutaneous nerve entrapment syndrome. *Pain Medicine*. 2014;17:E634-E637. PMID: 25247912
16. **GulurP**, Cohen AR, Watt L, Lau ME, El Saleeby C. Elevated lidocaine serum concentration following subcutaneous lidocaine administration using a needle free device in pediatric patients. *Pediatric Emergency Care*. 2014;30: 829–831. PMID: 25198765
17. Bengali R, Huang M, **GulurP**. The use of an intrathecal pump to manage intractable cancer pain in a pediatric patient: A case report. *J Pediatr Hematol Oncol*. 2014;36:e162-e164. PMID: 23652866
18. **GulurP**, Tsui B, Pathak R, Koury KM, Lee H. Retrospective analysis of the incidence of epidural haematoma in patients with epidural catheters and abnormal coagulation parameters. *Br J Anaesth*. 2015;114:808–811. PMID: 25614136
19. Koury KM, Tsui B, **GulurP**. Incidence of serotonin syndrome in patients treated with fentanyl on serotonergic agents. *Pain Physician*. 2015;18:E27–E30. PMID: 25675067
20. **GulurP**, Koury K, Arnstein P, Lee H, McCarthy P, Coley C, Mort E. Morphine versus hydromorphone: Does choice of opioid influence outcomes? *Pain Res Treat*. 2015;2015:482081. PMID: 26609431
21. Shah S, Banh ET, Koury K, Bhatia G, Nandi R, **GulurP**. Pain management in pregnancy: Multimodal approaches. *Pain Res Treat*. 2015;2015:987483. PMID: 26448875
22. Brown R, Fortier MA, Zolghadr S, **GulurP**, Jenkins BN, Kain ZN. Postoperative pain management in children of Hispanic origin: A descriptive cohort study. *Anesth Analg*. 2016;122:497–502. PMID: 26505577



23. Arnstein P, Koury K, Lee H, **Gulur P**. Morphine before hydromorphone – Results of a quality improvement initiative. *Glob Anesth Perioper Med*. 2016;2. DOI: 10.15761/GAPM.1000140.
24. Aronson S, Westover J, Guinn N, Setji T, Wischmeyer P, **Gulur P**, Hopkins T, Seyler TM, Lagoo-Deendayalan S, Heflin MT, Thompson A, Swaminathan M, Flanagan E. A perioperative medicine model for population health: An integrated approach for an evolving clinical science. *Anesth Analg*. 2018;126:682-690. PMID: 29200059
25. Edwards DA, Hedrick TL, Jayaram J, Argoff C, **Gulur P**, Holubar SD, Gan TJ, Mythen MG, Miller TE, Shaw AD, Thacker JKM, McEvoy MD; POQI-4 Working Group. American Society for Enhanced Recovery and Perioperative Quality Initiative Joint Consensus Statement on Perioperative management of patients on preoperative opioid therapy. *Anesth Analg*. 2019;129:553-566. PMID: 30768461
26. Wu CL, King AB, Geiger TM, Grant MC, Grocott MPW, Gupta R, Hah JM, Miller TE, Shaw AD, Gan TJ, Thacker JKM, Mythen MG, McEvoy MD on behalf of the Fourth Perioperative Quality Initiative Workgroup. American Society for Enhanced Recovery and Perioperative Quality Initiative Joint Consensus Statement on Perioperative opioid minimization in opioid-naïve patients. *Anesth Analg*. 2019;129:567-577. PMID: 31082966
27. **Gulur P**, Nelli A. Persistent postoperative pain: Mechanisms and modulators. *Curr Opin Anaesthesiol*. 2019;32:668-673. PMID: 31343465
28. Aronson S, Martin G, **Gulur P**, Lipkin ME, Lagoo-Deenadayalan SA, Mantyh CR, Attarian DE, Mathew JP, Kirk AD. Preoperative optimization: A continued call to action. *Anesth Analg*. 2020;130:808-810. PMID: 31633503
29. **Gulur P**, Nelli A. The opioid-tolerant patient: Opioid optimization. *J Arthroplasty*. 2020 Jan 10 [Epub Ahead of Print] PMID: 32014381.
30. Abdelgadir J, Ong EW, Abdalla SM, Hunting JC, Diab MM, Haglund MM, Goodwin CR, Nelli A, **Gulur P**. Demographic factors associated with patient-reported outcome measures in pain management. *Pain Physician*. 2020;23:17-24. PMID: 32013275
31. **Gulur P**, Nelli A. Preoperative optimization of chronic pain patients undergoing surgery. *Tech Orthop*. 2020;35:19-24.
32. Cobert J, Lantos P, Janko MM, Williams DGA, Raghunathan K, Krishnamoorthy V, JohnBull EA, Barbeito A, **Gulur P**. Geospatial variations and neighborhood deprivation in drug-related admissions and overdoses. *J Urban Health*. 2020 May 4 [Epub Ahead of Print] PMID: 32367203.
33. Kreiner DS, Matz P, Bono CM, Cho CH, Easa JE, Ghiselli G, Ghogawala Z, Reitman CA, Resnick DK, Walters WC 3<sup>rd</sup>, Annaswamy TM, Baisden J, Bartnyski WS, Bess S, Brewer RP, Cassidy RC, Cheng DS, Christie SD, Chutkan NB, Cohen BA, Dagenais S, Enix DE, Dougherty P, Golish SR, **Gulur P**, Hwang SW, Kilincer C, King JA, Lipson AC, Lisi AJ, Meagher RJ, O'Toole JE, Park P, Pekmezci M, Perry DR, Prasad R, Provenzano DA, Radcliff KE, Rahmathulla G, Reinsel TE, Rich RL Jr, Robbins DS, Rosoloski KA, Sembrano JN, Sharma AK, Stout AA, Taleghani CK, Tauzell RA, Trammell T, Vorobeychik Y, Yahiro A. Guideline

summary review: An evidence-based clinical guideline for the diagnosis and treatment of low back pain. *Spine J.* 2020;20:998-1024. [EPub Ahead of Print Apr 22] PMID: 32333996.

**Chapters in Books:**

1. **GulurP**, Weber D, Acquadro M. Section 4, Chapter 18: Anesthetics. In: Albert D, Miller J, Azar D & Blodi B, eds. *Albert and Jakobiec's Principles and Practice of Ophthalmology* 3rd Edition. Philadelphia, PA: Elsevier Saunders; 2008. 193-206.
2. **GulurP**, Stojanovic M. Chapter 33: Rheumatic and arthritic disorders. In: Mehta N, Moloney G, Bana D, and Scrivani S, eds. *Head, Face and Neck Pain. Science, Evaluation and Management.* Hoboken, NJ: John Wiley & Sons, Inc.; 2009. 576-588.
3. **GulurP**, Abdi S, Sharma A, Raghavan L. Chapter 49: Pain in Children. In: Smith H, ed. *Current Therapy in Pain.* Philadelphia, PA: Elsevier Saunders; 2009. 373-382.
4. Spektor B, **GulurP**, Rathmell JP. Diagnostic and Therapeutic Blocks. In: Lynch M, Craig K, Peng P, eds. *Clinical Pain Management: A practical guide.* Oxford: Wiley Blackwell; 2010. 151-160.
5. **Gulur P**, Wainger BJ, Ahn Y. Head and Facial Trigeminal Neuralgia. In: Lennard T, ed. *Pain Procedures in Clinical Practice: Expert consult, 3rd Ed.* Philadelphia, PA: Elsevier; 2011. 297-304.
6. **GulurP**, Kain ZN, Fortier MA. Psychological aspects of pediatric anesthesia. In: Smith H, ed. *Anesthesia for Infants and Children, 9e.* Philadelphia, PA: Elsevier; 2016, 266-278.
7. **Gulur P**. Chapter 38: Assessing and measuring pain in adults. In: Trikha A and Singh P, eds. *Monitoring in Anaesthesia and Critical Care.* JP Medical Ltd.; May 2018.
8. Warlick A, Bullock W, **Gulur P**. Chapter 1: Acute Pain Medicine Services: Structure and Procedures. In: Buckenmaier CC, Kent M, Brookman JC, Tighe PJ, Mariano ER, Edwards D, eds. *Acute Pain Medicine.* Oxford, UK: Oxford University Press; April 2019  
10.1093/med/9780190856649.003.0001.
9. Dagenais S, King JA, Park P, Perry DR, Sembrano JN, O'toole JE, **Gulur P**. Cost-Utility Section. In: *Evidence-Based Clinical Guidelines for Multidisciplinary Spine Care: Diagnosis & Treatment of Low Back Pain.* Burr Ridge, IL: North American Spine Society; January 2020

**Selected Abstracts:**

1. Fanciullo G, **GulurP**, Washington T, Mudge B, McHugo G, and Baird J. Children's computer assessment of pain and mood [abstract]. *J Pain* 2008; 9:S65.
2. Washington T, **GulurP**, Fanciullo G, Jamison R, McHugo G, and Baird J. Three-dimensional pain mapping [abstract]. *J Pain* 2008; 9:S66.
3. Keel J, **GulurP**. Spinal cord stimulation for radicular pain following retained bullet in the spinal canal [abstract]. Massachusetts Hospital Clinical Research Day. May 2008.
4. **GulurP**, Shin N, Baird J. Poster on children's computer assessment of pain and mood [abstract]. Massachusetts General Hospital Clinical Research Day. 2009.
5. Washington T, **GulurP**, Fanciullo G, Jamison R, McHugo G, and Baird J. Reliability of three-dimensional pain mapping [abstract]. Massachusetts General Hospital Clinical Research Day. 2010.
6. Newmark J, **GulurP**. Delayed spinal epidural hematoma after epidural catheter removal with reinitiation of Warfain: A case report [abstract]. Massachusetts General Hospital Clinical Research Day. October 2011.
7. **GulurP**, Palilla D, Cassidy E, Lau M. Urinary tract infections in patients with epidurals and urinary catheters compared to postoperative patients with urinary catheters alone [abstract]. Massachusetts General Hospital Clinical Research Day. October 2011.
8. **GulurP**, Watt L, Lozowski D, Gifford M, Israel E. Improving the management of needle insertion pain and distress in children: a MGHc 2011 quality improvement initiative [abstract]. Massachusetts General Hospital Clinical Research Day. October 2011.
9. **Gulur P**, Buonanno F. A complicated case of intracranial hypotension caused by anterior cervical cerebrospinal fluid leak alleviated by a thoracocervical epidural blood patch [abstract]. International Anesthesia Research Society. May 2012.
10. Watt L, Lau M, Latif S, **GulurP**. Anterior cutaneous nerve entrapment syndrome (ACNES) in children [abstract]. American Society of Interventional Pain Physicians Meeting. June 2012.
11. Keel J, Lau M, **GulurP**. Spinal cord stimulation for radicular pain following retained bullet in the spinal canal [abstract]. NYSSA Post Grad Assembly Meeting. August 2012.
12. **Gulur P**, King S. Spinal cord stimulation for intercostal neuralgia in a patient with Implantable Cardiac Defibrillator and Biventricular pacing [abstract]. American Society of Anesthesiologists, Annual Meeting. October 2012.
13. **Gulur P**, Newmark J, Wang J. Delayed spinal epidural hematoma after epidural catheter removal with re-initiation of Warfarin: A case report [abstract]. American Society of Anesthesiologists, Annual Meeting. October 2012.

14. **GulurP**, Buonanno F. A complicated case of intracranial hypotension caused by anterior cervical cerebrospinal fluid leak alleviated by a thoracocervical epidural blood patch [abstract]. Massachusetts General Clinical Research. October 2012.
15. Watt L, Lau M, **GulurP**. Summary of patient outcome data for a chronic pain clinic new pediatric [abstract]. Massachusetts General Hospital for Children Clinical Research Day. December 2012.
16. Latif S, Watt L, Lau M, **GulurP**. Anterior cutaneous nerve entrapment syndrome (ACNES) in children [abstract]. Massachusetts General Hospital for Children Clinical Research Day. December 2012.
17. **GulurP**, Saleeby C, Watt L, Koury K, Cohen A. Elevated lidocaine serum levels following the delivery of a needle free device [abstract]. Acute Pain Management Symposium. September 2013.
18. Bengali R, Huang M, **GulurP**. The use of an intrathecal pump to manage intractable cancer pain in a pediatric patient: A case report [abstract]. Massachusetts General Hospital for Children Clinical Research Day. October 2013.
19. **GulurP**, Saleeby C, Watt L, Koury K, Cohen A. Elevated lidocaine serum levels following the delivery of a needle free device [abstract]. Massachusetts General Clinical Research Day. October 2013.
20. **GulurP**, Saleeby C, Watt L, Koury K, Cohen A. Elevated lidocaine serum levels in healthy adult volunteers following the use of a needle free device [abstract]. 39<sup>th</sup> Annual Regional Anesthesiology and Acute Pain Medicine Meeting. April 2014.
21. Pace M, Koury K, **GulurP**. Epidurals in patients on thromboprophylaxis with unfractionated heparin three times a day – Value of partial thromboplastin time testing [abstract]. 39<sup>th</sup> Annual Regional Anesthesiology and Acute Pain Medicine Meeting. April 2014.
22. Kim DJ, Watt L, **Gulur P**, Edwards DA. Spinal cord stimulation for complex regional pain syndrome type II in a pediatric patient [abstract]. American Society of Anesthesiologists Annual Meeting. October 2014.
23. Chaichana KK, Watt L, Carinci A, Anderson TA, Scemama De Gialluly P, **Gulur P**, Leeman MR, Shank E, Wang JP, Edwards DA. Fentanyl at 750 mcg/hr: Pain management of a pediatric patient with Castleman’s disease and paraneoplastic pemphigus [abstract]. American Society of Anesthesiologists Annual Meeting. October 2014.
24. Crawford L, **GulurP**, Gilligan C, Rathmell J, Chen L, Edwards DA. A retrospective review of spinal cord stimulator and drug delivery device infections [abstract]. American Society of Regional Anesthesia and Pain Medicine Annual Meeting. November 2014.
25. **GulurP**, Banh E, Koury K, Pradeep A. Spine surgery in opioid tolerant patients – prevalence and patterns of opioid use in the year after surgery [abstract]. American Society of Interventional Pain Physicians 17<sup>th</sup> Annual Meeting. April 2015.

26. **GulurP**, Banh E, Pradeep A, Lee H, Koury K, Chitilian H. Level of training and its effect on success rates of epidural catheters placed for postoperative pain [abstract]. American Society of Regional Anesthesia and Pain Medicine 40<sup>th</sup> Annual Meeting. May 2015.
27. Blickenstaff J, Banh E, Ahn J, **GulurP**. Limited access to outpatient specialty care in pain leads to increased utilization of acute hospital care resources [abstract]. American Society of Regional Anesthesia and Pain Medicine 40<sup>th</sup> Annual Meeting. May 2015.
28. **GulurP**, Banh E, Koury K, Arnstein P, Lee H, McCarthy P, Coley C, Mort E. Morphine versus hydromorphone: does choice of opioid influence outcomes? [abstract]. American Society of Regional Anesthesia and Pain Medicine 40<sup>th</sup> Annual Meeting. May 2015.
29. Arnstein P, Banh E, Koury K, Lee H, **GulurP**. Morphine before hydromorphone – Results of a quality improvement initiative [abstract].. American Society of Regional Anesthesia and Pain Medicine, 40<sup>th</sup> Annual Meeting. May 2015.
30. Field R, Ahn KS, Alem N, Schwid HA, Vadera S, Garson L, **GulurP**, Vakharia SB, Cannesson M, Kain ZN. Introduction of the perioperative surgical home concept to neurosurgical service lines [abstract]. American Society of Anesthesiologists Annual Meeting, A1284, October 2015.
31. Hemmad A, Banh E, Green J, Alem N, Vu TQ, Koury K, **GulurP**. A preliminary assessment of intrathecal sufentanil equianalgesic conversion ratios and efficacy [abstract]. American Society of Anesthesiologists Annual Meeting, A1084, October 2015.
32. **GulurP**, Pradeep A, Alem N, Banh E. A longitudinal outcomes evaluation of the effectiveness of celiac plexus blocks in patients experiencing chronic abdominal pain [abstract]. American Society of Regional Anesthesia and Pain Medicine 14th Annual Meeting. November 2015.
33. **GulurP**, Banh E, Dayal R, Pradeep A. Accidental prescription overdose deaths and marijuana: association or aberration? [abstract]. American Society of Regional Anesthesia and Pain Medicine 14th Annual Meeting. November 2015.
34. Desai V, Khemlani V, Lo T, Eshelman M, Banh E, **GulurP**. Patient satisfaction scores and their correlation to the dose of opioids administered in the perioperative [abstract]. American Society of Regional Aesthesia and Pain Medicine 41<sup>st</sup> Annual Meeting. March - April 2016.
35. Burns T, **Gulur P**, Banh E, Calderon MD. Fluoroscopy-guided pudendal nerve blocks in the treatment of chronic pelvic pain a single center outcomes evaluation [abstract]. American Society of Regional Aesthesia and Pain Medicine 41<sup>st</sup> Annual Meeting. March - April 2016.
36. Dang J, Desai V, Nguyen D, Banh E, **Gulu P**. Prevalence and characteristic of opioid use prior to admission based on gender, age, and ethnicity [abstract]. *Anesth Analg* 2016;122; S-203.
37. Record BC, Chavda AN, Ong E, Osann K, Dayal R, **GulurP**. Ongoing monitoring for aberrant opioid related behaviors: A five question patient assessment tool [abstract]. American Society of Anesthesiologists Annual Meeting, A1051, October 2016.

38. Ong EW, Banh E, Eshelman MA, Kandil A, Engwall SA, **GulurP**. Prevalence of opioid tolerance in future Medicare beneficiaries: Impact on healthcare utilization and federal spending [abstract]. American Society of Anesthesiologists Annual Meeting, A1293, October 2016.
39. Desai V, Dang J, Nguyen D, Ong E, Gimenez K, **GulurP**. Influence of ethnicity on HCAHPS survey results: is random sampling adequate? [abstract]. American Society of Anesthesiologists Annual Meeting, A1279, October 2016.
40. Ong EW, Burns TL, Lo T, Ahn J, **GulurP**. Paradoxical increases in opioid-tolerant hospital admissions amidst falling opioid prescribing [abstract]. American Society of Anesthesiologists Annual Meeting, A2124, October 2016.
41. Ong EW, Brentlinger G, Pirrello R, Merrill DG, **GulurP**. Non-pharmacological options for pain management in hospitals: Experience from a single center [abstract]. American Society of Anesthesiologists Annual Meeting, A2125, October 2016.
42. Banh E, Ong E, Hua C, Schultz V, Ahn K, **GulurP**. Patient education strategies: a comparison of pre-operative and post-operative patient-controlled epidural analgesia (PCEA) teaching [abstract]. American Society of Anesthesiologists Annual Meeting, A4113, October 2016.
43. Desai V, Ong E, Tyagi N, Vaughn D, Sun C, **GulurP**. Efficacy of gabapentin and celecoxib as preemptive analgesia strategies in spine fusion surgery [abstract]. American Society of Anesthesiologists Annual Meeting, A4161, October 2016.
44. Banh E, Ong E, Desai VN, Garson L, **GulurP**. Patient satisfaction with pain management and its effect on hospital readmission rates [abstract]. American Society of Anesthesiologists Annual Meeting, A4191, October 2016.
45. Pleticha J, Prakken S, Buchheit T, **GulurP**, Bearrows S, Westover J, Aronson S. Financial impact of intensive outpatient pain management of Duke Health System high utilizers [abstract]. *Anesth Analg* 2017; 124:786.
46. Ray N, Komaki K, Ong E, **GulurP**. Pain satisfaction scores (HCAHPS) in patients on opioid tolerant doses at the time of admission[abstract]. Presented at the Duke Anesthesiology Academic Evening, May 2017.
47. Ray N, Komaki K, Ong E, Aronson S, **GulurP**. High doses of opioids at discharge – Top surgical procedures [abstract]. Presented at the Duke Anesthesiology Academic Evening, May 2017.
48. **GulurP**, Prakken S, Ong E, Buchheit T. Effect of a state medical board guideline on safe opioid prescribing: Experience at a large regional academic medical center [abstract]. Presented at the Duke Anesthesiology Academic Evening, May 2017.
49. Ganesh A, Ray N, Komaki K, Ong E, Aronson S, **GulurP**. Poor outcomes in patients on high doses of opioids prior to surgery – Time for perioperative optimization for pain [abstract]. Presented at the Duke Anesthesiology Academic Evening, May 2017.

50. Ganesh A, Komaki K, Ong E, **Gulur** . Geographic distribution of high resource utilizers suffering from low back and neck pain: Experience from a regional academic medical center [abstract]. Presented at the Duke Anesthesiology Academic Evening, May 2017.
51. Chavda AN, Record BC, Alem N, **GulurP**. Safe opioid prescribing: Role of validated monitoring tools to identify aberrant behaviors [abstract]. American Society of Anesthesiologists Annual Meeting, A1122, October 2017.
52. **GulurP**, Ganesh A, Komaki K, Ong EW. Geographic distribution of high resource utilizers suffering from low back and neck pain: Experience from a regional academic medical center [abstract]. American Society of Anesthesiologists Annual Meeting, A2226, October 2017.
53. Ray N, Komaki K, Ong EW, Aronson S, **GulurP**. High doses of opioids at discharge: Top surgical procedures [abstract]. American Society of Anesthesiologists Annual Meeting, A2219, October 2017.
54. Ray N, Komaki K, Ong EW, **GulurP**. Pain satisfaction scores (HCAHPS) in patients on opioid tolerant doses at the time of admission [abstract]. American Society of Anesthesiologists Annual Meeting, A1004, October 2017.
55. **GulurP**, Prakken S, Ong EW, Buchheit T. Effect of a state medical board guideline on safe opioid prescribing: Experience at a large regional academic medical center [abstract]. American Society of Anesthesiologists Annual Meeting, A3077, October 2017.
56. Ganesh A, Ray N, Komaki K, Ong E, Aronson S, **Gulur P**. Poor outcomes in patients on high doses of opioids prior to surgery: Time for perioperative optimization of pain [abstract]. American Society of Anesthesiologists Annual Meeting, A2235, October 2017.
57. Anderson J, Komaki K, Prakken S, Roy L, Buchheit T, Hunting J, **Gulur P**. Role of pain specialists in reducing healthcare costs for patients with chronic pain [abstract]. Association of University Anesthesiologists Annual Meeting, April 2018.
58. Anderson J, Komaki K, Prakken S, Roy L, Buchheit T, Hunting J, **Gulur P**. Role of pain specialists in reducing healthcare costs for patients with chronic pain [abstract]. International Anesthesia Research Society Annual Meeting, 1235, April 2018.
59. Brown A, Ferrandino M, Ong E, Hopkins TJ, Kent M, **Gulur P**. Utilization, storage, and disposal of prescription opioids following urologic surgery - A case for procedure-specific opioid prescriptions and patient education [abstract]. International Anesthesia Research Society Annual Meeting, 1460, April 2018.
60. Koepke E, Williams D, Ganesh A, Komaki K, Hunting J, Aronson S, **Gulur P**. Poor outcomes in patients on high doses of opioids prior to surgery - Time for perioperative optimization for pain [abstract]. International Anesthesia Research Society Annual Meeting, 1085, April 2018.
61. Anderson J, Komaki K, Prakken S, Roy L, Buchheit T, Hunting J, **Gulur P**. Role of pain specialists in reducing healthcare costs for patients with chronic pain [abstract]. Society of Critical Care Anesthesiologists Annual Meeting, April 2018.

62. Horres C, Kent M, Komaki K, Ong E, Hunting J, **Gulur P**. Relationship of biopsychosocial measures and perioperative opioid use in an academic perioperative pain clinic [abstract]. Department of Anesthesiology Academic Evening, May 2018.
63. Brown A, **Gulur P**. Utilization, storage, and disposal of prescription opioids following urologic surgery: A case for procedure-specific opioid prescriptions and patient education [abstract]. Duke Anesthesiology Academic Evening, May 2018.
64. Anderson J, **Gulur P**. Role of pain specialists in reducing healthcare costs for patients with chronic pain [abstract]. Duke Anesthesiology Academic Evening, May 2018.
65. Koepke E, Williams D, Ganesh A, Komaki K, Hunting J, Aronson S, **Gulur P**. Poor outcomes in patients on high doses of opioids prior to surgery [abstract]. Duke Anesthesiology Academic Evening, May 2018.
66. Kent M, Horres CR, Komaki K, Hunting J, Ong E, **Gulur P**. Relationship of biopsychosocial measures and perioperative opioid use in the setting of an academic perioperative pain clinic [abstract]. American Society of Anesthesiologists Annual Meeting, A1135, October 2018.
67. **Gulur P**, Komaki K, Ong E, Ganesh A, Ray N, Aronson S. Perioperative Pain Care Clinic - Successfully reducing 90 day postoperative opioid use in chronic opioid users [abstract]. American Society of Anesthesiologists Annual Meeting, A1009, October 2018.
68. **Gulur P**, Komaki K, Ong E. Impact of outpatient comprehensive pain management on the healthcare costs in patients on opioid therapy [abstract]. American Society of Anesthesiologists Annual Meeting, A3118, October 2018.
69. **Gulur P**, Komaki K, Ong E. O-NET: Opioid dose based predictive model for risk of readmissions [abstract]. American Society of Anesthesiologists Annual Meeting, A4275, October 2018.
70. Der T, Nelli A, Murray S, **Gulur P**. Ketamine infusions for pain control in acute care: Prevalence of side effects [abstract]. Presented at Duke Anesthesiology Academic Evening, May 2019.
71. Nelli A, **Gulur P**. Impact of Strengthen Opioid Misuse Prevention (STOP) Act of North Carolina on patients of Duke University Health System [abstract]. Presented at Duke Anesthesiology Academic Evening, May 2019.
72. Cobert J, Lantos P, Williams D, Raghunathan K, Krishnamoorthy V, Barbeito A, JohnBull E, **Gulur P**. Geospatial analysis of drug-related admissions identifies unique geographical clusters of at risk patients: An analysis of an academic medical center in Durham County [abstract]. Presented at Duke Anesthesiology Academic Evening, May 2019.
73. Nelli A, **Gulur P**. Perioperative pain optimization: Preoperative treatment for patients on high dose opioids [abstract]. Presented at 2019 Vizient Connections Education Summit, Las Vegas, NV, September 2019.



74. **Gulur P**, Nelli A, Jacobsen M, Doyle J. Care on admission through transition (coastt) model of pain management for opioid tolerant patients: Preliminary results of a randomized controlled trial [abstract]. Presented at ASA 2019 Annual Meeting, Orlando, FL, October 2019.
75. **Gulur P**, Nelli A. Direct impact of opioid legislation on opioid prescribing patterns at a major health system [abstract]. Presented at ASA 2019 Annual Meeting, Orlando, FL, October 2019.
76. **Gulur P**, Nelli A, Thompson A, Gupta DK. Physician consultants and the companies who retain them: Is there equal opportunity for all [abstract]. Presented at ASA 2019 Annual Meeting, Orlando, FL, October 2019.
77. **Gulur P**, Nelli A. Does preoperative optimization of opioid tolerant patients undergoing surgery result in sustained change? [abstract]. Presented at ASA 2019 Annual Meeting, Orlando, FL, October 2019.
78. **Gulur P**, Der T, Nelli A, Murray S. Ketamine infusions for pain control in acute care: Prevalence of side effects [abstract]. Presented at ASA 2019 Annual Meeting, Orlando, FL, October 2019.
79. Der T, Nelli A, Young A, **Gulur P**. Ketamine and Lidocaine infusions for pain control in acute care: Prevalence of side effects [abstract]. Presented at Duke Anesthesiology Academic Evening, Durham, NC, May 2020.
80. Stafford-Smith M, Grantham A, Mamoum N, Eck J, Andrew BY, Kuhn C, Kharasch E, Mathew J, **Gulur P**. Exposure of anesthesiology trainees to potential financial conflicts of interest among educators [abstract]. Presented to the ASA Annual Meeting (virtual), October 2020.
81. **Gulur P**, Stafford-Smith M, Nelli A Pradeep A. Conflict of interest in medical education: Could payments from industry to residency program directors have an influence? [abstract]. Presented at the ASA Annual Meeting (virtual) October 2020.
82. **Gulur P**, Nelli A Cooter M. Opioid sparing potential of of light-induced analgesia: A pilot trial of a non-pharmacological treatment for pain [abstract]. Presented at the ASA Annual Meeting (virtual) October 2020.

### ***Non-refereed Publications:***

#### ***Print***

1. Rivera R, **GulurP**, Rathmell J. Book Review, Interventional pain management: image guided procedures, 2nd Ed. *Anesth Analg*. 2009;108:389-390.
2. Woodbury A, Williams K, **GulurP**. Patients and their pain experience in the hospital: The HCAHPS imperative with payments at risk in value-based purchasing environment. *ASA Newsletter*. 2014;78:28-29.
3. **Gulur P**, Ahn J, Alem N. Spinal cord stimulation and implanted cardiac devices - contraindication versus risk optimization. *NANS Newsletter*. Summer 2015.
4. Cyriac J, Alem N, Ahn K, **GulurP**, Kain Z. Implementation of the perioperative surgical home

at UC Irvine. *ASRA Newsletter*. November 30, 2015.

5. **Gulur P**, Ahn K, Cyriac J. Inpatient pain management – A patient-centric, value-based care delivery mode. *ASRA Newsletter*. December 21, 2015.
6. **Gulur P**. Women may experience more pain than men, but receive less treatment for it. *KevinMD.com*. March 12, 2016.
7. **Gulur P**. Cybersecurity: Providers and patients beware. *NeuroNews*. June 17, 2019.
8. **Gulur P**, Nelli A. Does marijuana really relieve pain? Here’s what anesthesiologists say. *KevinMD.com*. September 13, 2019.
9. Nelli A, **Gulur P**. Managing chronic pain in dialysis patients. *Kidney Citizen*, June 1, 2020;22-23.
10. **Gulur P**. Green light exposure may provide pain relief and reduce need for opioids. *PainRelief.com* [interview]. August 16, 2020.
11. **Gulur P**. Pain management and opioid use disorder: Unique considerations in the COVID era. (accepted *ASA Monitor* December 2020).

### **Digital**

1. **Gulur P**, Ahn Y. Faculty 1000, www.f1000.com, medical research peer review of: Gottschalk A, Ford J, Association between epidural analgesia and cancer recurrence after colorectal cancer surgery, *Anesthesiology*. 2010;113:27-34.
2. **Gulur P**, Mehta P. Faculty 1000, www.f1000.com, medical research peer review of: The efficacy and safety of fentanyl buccal tablet compared with immediate-release oxycodone for the management of breakthrough pain in opioid-tolerant patients with chronic pain. Ashburn MA, Slevin KA, Messina J, Xie F. *Anesth Analg*. 2011;112:693-702.
3. **Gulur P**, Latif S. Faculty 1000, www.f1000.com, medical research peer review of: A comparison of epidural analgesia and traditional pain management effects on survival and cancer recurrence after colectomy: a population-based study. KC Cummings III, F Xu, LC Cummings and GS Cooper. *Anesthesiology*. 2012;116:797-806.
4. **Gulur P**, Latif S. Faculty 1000, www.f1000.com, medical research peer review of: Characteristics of Distribution of Morphine and Metabolites in Cerebrospinal Fluid and Plasma with Chronic Intrathecal Morphine Infusion in Humans. M Wallace and TL Yaksh. *Anesth Analg*. 2012;115:797-804. Epub 2012 Jul 19.
5. **Gulur P**, Latif S. Faculty 1000, www.f1000.com, medical research peer review of: Pacemaker or defibrillator surgery without interruption of anticoagulation. Birnie DH, Healy JS, Wells GA, Verma A, Tang AS, Krahn AD, Simpson CS, Ayala-Paredes F, Coutu B, Leiria TL, Essebag V. *N Engl J Med*. 2013; 368:2084-2093.

6. **GulurP.** Acute pain management in the "substance user." *Harvard Online CME, Pain Management and End of Life Care Module.* 2013.
7. **GulurP.** Acute pain management of the opioid tolerant patient. *Regional Anesthesia ToolBox Lecture.* 2014.

**Other:*****Policies and Guidelines****Pain Management; University of California, Irvine*

- 2016 Safe Opioid Prescribing Guidelines
- 2016 Chronic Opioid Therapy Patient-Provider Agreement
- 2016 Chronic Opioid Therapy Consent
- 2016 Cancer Pain Guidelines
- 2016 Acute Pain Guidelines
- 2016 Managing Pain During Hospitalization – Pain Expectation
- 2016 Lidocaine Policy
- 2016 Non-Pharmacological Treatment for Pain

*Acute Pain; University of California, Irvine*

- 2016 Epidural Management Guidelines
- 2016 Inpatient Pain Service Policies & Procedures
- 2016 Peripheral Nerve Catheter Management Policy
- 2016 Regional Pain Services Policies & Procedures
- 2016 Time-Out Policy
- 2015 Buprenorphine (Suboxone, Subutex, Zubsolv, Bunavail) Guideline
- 2014 Intralipid Protocol

*Chronic Pain; University of California, Irvine*

- 2016 Anticoagulation Guidelines
- 2016 Discharge Criteria
- 2016 Intrathecal Guidelines
- 2016 NPO Guidelines
- 2015 Moonlighting Policy

*Pain Medicine; Department of Anesthesiology & Perioperative Care, University of California, Irvine*

- 2016 Safe Opioid Prescribing Guidelines
- 2016 Headache Management Guidelines
- 2016 Non-Operative Low Back Pain Management Guidelines
- 2016 Peripheral Nerve Catheters Guidelines
- 2016 Regional Complications (Outpatient) Management Guidelines
- 2015 Absentee Policy
- 2015 Academic Policies for Advancement
- 2015 Dress Code Policy
- 2015 Duty Hours Policy
- 2015 iPad Policy
- 2015 Minimum Performance Criteria, Academic Probation and Remediation Policies
- 2015 Fellow On-Call & Beeper Policy

- 2015 Supervision and Handoff Policy
- 2015 Vacation & Education Leave Policy
- 2015 Interventional Protocol for Fellows-UCI Pain

*Massachusetts General Hospital*

- 2010 Epidural Analgesia and PCEA (Patient Controlled Epidural Analgesia)
- 2010 Epidural drug policy and guidelines
- 2010 Lidocaine J-Tip Delivery Device for Venipuncture and IV Cannulation in Infants and Children
- 2010 Patient Controlled Analgesia (PCA) Intravenous
- 2010 Opioid safety and prescribing guidelines
- 2009 Epidural analgesia and management guide
- 2009 Nubain drug policy
- 2009 Patient controlled epidural analgesia guidelines
- 2008 Pediatric pain management dose card
- 2008 Intrathecal Analgesia Care and Monitoring

***Patient Educational Material***

*Pain Management; Duke University*

- 2017 Patient Education Materials, Perioperative Pain Clinic
- 2018 DUMC Medical Protocol Orders for Inpatient Pain Service Registered Nurse
- 2018 DUMC Medical Protocol Orders for Supplemental Medications Administered via Regional Catheters for Inpatient Pain Service Registered Nurse
- 2018 DUMC Medical Protocol Orders for Supplemental Medications Administered via Epidural for Inpatient Pain Service Registered Nurse
- 2018 DUMC Medical Protocol Orders Anticoagulation Therapy with Epidural or Regional Catheters
- 2018 DUMC Medical Protocol Orders for Ketamine Administration and Titration for pain Continuous Intravenous Infusions for Inpatient Pain Service Registered Nurse
- 2018 DUMC Medical Protocol Orders for Lidocaine Administration and Titration for Pain Continuous Intravenous Infusions for Inpatient Pain Service Registered Nurse
- 2018 DUMC Medical Protocol Orders for Overnight New Consults for Inpatient Pain Service Registered Nurse
- 2019 Diet and Inflammation
- 2019 Pre-habilitation before Surgery
- 2019 Music for Surgery Preparation and Recovery
- 2019 Acupressure for Nausea and Vomiting”

*Pain Management; University of California, Irvine*

- 2016 Chronic Opioid Therapy Patient-Provider Agreement
- 2016 Chronic Opioid Therapy Consent

*Massachusetts General Hospital*

- 2014 Post Procedural Instructions
- 2014 Pre-Procedure Regional
- 2011 Nerve block catheters for pain relief after surgery
- 2011 Epidural & PCEA during childbirth

- 2011 Pain relief after your surgery  
 2011 How to use a PCA pump to track your pain

### **Scholarly and Professional Societies**

2016	International Neuromodulation Society	Member
2015-	California Society of Anesthesiologists	Member
2014-	North American Neuromodulation Society	Member
2005-	American Society of Interventional Pain Physicians	Lifetime Member
2004-	Spine Intervention Society (International)	Member
2002-	Massachusetts Medical Society	Member
2002-	American Medical Association	Member
2002-	American Society of Anesthesiologists	Member
2002-2014	Massachusetts Society of Anesthesiologists	Member

### ***Professional Awards and Special Recognitions:***

- 2002 Resident of the Year  
 Critical Care Anesthesia Department  
 Boston University
- 2002 Jennifer Saballa Award  
 Excellence in Compassionate Care  
 Boston University
- 2009 Citizenship Award  
 New Program Development (Acute Pain Service)  
 MGH DACCPM
- 2009 Partners in Excellence  
 Outstanding Performance and Commitment to Excellence for the Acute Pain Service  
 Partners Health Care System, Inc.
- 2009 Citizenship Award  
 New Program Development (Acute Pain Service)  
 MGH DACCPM
- 2009 Partners in Excellence  
 Outstanding Performance and Commitment to Excellence for the Acute Pain Service  
 Partners Health Care System, Inc.
- 2009 Partners in Excellence  
 Outstanding Performance and Commitment to Excellence for Patient Safety  
 Partners Health Care System, Inc.
- 2009 Partners in Excellence  
 Outstanding Performance and Commitment to Excellence for Patient Safety  
 Partners Health Care System, Inc.

- 2010    Citizenship Award  
Teaching, Clinical Expertise, Research  
MGH DACCPM
- 2012    Partners in Excellence  
Acute Pain Service: Operational Efficiency Partners Health Care System, Inc.
- 2012    The One Hundred Significant Contributions to the Fight Against Cancer  
MGH Cancer Center
- 2013    Patient Safety Star  
Quality Treatment & Service Excellence in Patient Quality & Safety  
MGH Center for Quality & Safety
- 2019    Association of University Anesthesiologists

***Editorial Experience:***

***Reviewer:***

Annals of Surgery (*ad hoc*)  
Anesthesia & Analgesia (*ad hoc*)  
Anesthesiology (*ad hoc*)  
Elsevier E-Abstract (*ad hoc*)  
Emergency Medicine Journal (*ad hoc*)  
Journal of Neuromodulation (*ad hoc*)  
Journal of Obstetrics and Gynecology (*ad hoc*)  
Journal of Pain (*ad hoc*)  
Journal of Pediatric Hematology/Oncology (*ad hoc*)(*ad hoc*)  
World Journal of Surgery (*ad hoc*)

***Mentoring Activities:***

Harvard Premedical Society's Physician Mentorship Program for Premedical Students.  
Mentored 3 students / 4-6 meetings per year  
Harvard Medical School  
2011-2014

MGH Institute of Health Professions Physician Mentorship Program  
MGH Institute of Health Professions  
2012

Duke University School of Medicine

*Medical Students: Preceptor history and physical exam skills*  
Jenny Wu - February, March, and April 2018  
Justin Ma - May 2019

*Residents: Preceptor history and physical exam skills*

Alison Brown, MD - CA-1 - December 2017  
 Luca La Colla, MD - CA-1 - April 2018  
 Andrew Wong, MD - CA-1 - May 2018  
 Henry Lather, MD - CA-1 - July 2018  
 Erika Logdek, MD - CA-1 - September 2018  
 Jason McGavin, MD - CA-1 - December 2018  
 Suhas Kochat, MD - Intern - September 2019

Duke University Health System*Administrative Fellowship Programs*

Natasha Patel - February 2017

*Faculty from MD Anderson Cancer Center*

Lakshmi Koyalagunta, MD - May 2018

***Education / Teaching Activities:*****Teaching and Supporting Learners**Duke University School of Medicine

"Perspectives on Pain," Department of Anesthesiology Fellows, March 2017

"Rethinking Your Practice in the Context of an Opioid Epidemic," Department of Anesthesiology Fellows, September 2017

"Pharmacology of Opioids," Department of Anesthesiology CA-1 Residents, November 2017

"Pediatric Pain Assessment and Management," Pain Medicine Fellows, March 2018

"Perspectives on Pain," Department of Anesthesiology Fellows, March 2018

"Pharmacology of Opioids," Department of Anesthesiology CA-1 Residents, October 2018

"Opioid and Non-Opioid Pain Management in Pregnancy," Duke Medical Students, November 2018

"Turning Clinical Program Ideas into Clinical Realities," Department of Anesthesiology Fellows, February 2019

"Career Development: Establishing a local, regional, and national presence," Department of Anesthesiology Fellows, June 2019

"Ketamine and Lidocaine," Hospice and Palliative Medicine Fellows Longitudinal Curriculum, November 2019

"Pharmacology of Opioids," Department of Anesthesiology CA-1 Residents, October 2020.

"Ketamine and Lidocaine," Hospice and Palliative Medicine Fellows Longitudinal Curriculum, November 2019

Hospice and Palliative Medicine

University of California, Irvine

Supervise and Train Fellows, Anesthesia and PM&R Residents, and Medical Students in Chronic Pain Clinic in outpatient clinical setting / Gottschalk Medical Plaza  
2014 - 2016

Supervise and Train Fellows and Anesthesia Residents in Acute Pain Service  
2014-2016

Pain Management Didactic Program  
Pain Fellows, Residents, Medical Students  
2014-2016

Pain Medicine Cadaver Teaching Symposium  
Chronic Pain Faculty, Pain Fellows, Residents  
2015

Neuroscience – Sensory Systems and Pain Course  
Medical Students  
2016

Anatomy: Cadaver lab on neuraxial access  
2016

Massachusetts General Hospital:

Supervise and Train Fellows, Anesthesia Residents, and Medical Students in MGH Chronic Pain Clinic in outpatient clinic setting  
2006 - 2014

Resident Lectures  
Resident Rotators in the Chronic Pain Service  
2006 - 2014

Journal Club  
Clinical Fellows in Pain Medicine  
2006 - 2014

Supervise and Train Fellows, Anesthesia Residents, and Medical Students in MGH Acute Pain Service  
2008 - 2014  
Pediatric Pain Management in Chronic Abdominal Pain  
Pediatric GI Fellows and Pediatric Fellows  
2008 - 2014

Pediatric Pain Lecture  
Pediatric Residents and Fellows  
2008-2014



Fellowship Orientation Lecture Series: Intrathecal Pumps; Pediatric Pain; Chronic Abdominal Pain;  
Basic Neurological Examination  
Clinical Pain Fellows (primary audience), Rotating anesthesia residents, Medical students  
2008-2014

Acute Pain Lecture Series  
Resident Rotators in the Acute Inpatient Pain Service  
2008-2014

Acute Pain Lecture Series  
Resident Rotators in the Acute Inpatient Pain Service  
2008-2014

Acute Pain Management Updates  
SICU Fellows  
2010-2014

MGH Child Neurology CME Course, Harvard Medical School -2013  
Pediatric Pain Management

Tufts University  
Course for Master's Degree Students  
Tufts University, Boston, MA - 2008  
"Postoperative Pain Management"

***Development of Courses/Educational Programs***

University of California, Irvine

Acute Pain Didactics for Residents  
Rotation curriculum  
2014-2016

Chronic Pain Didactics for Residents  
Rotation curriculum  
2014-2016

Acute Pain Didactics for Fellows  
Full fellowship year curriculum  
2014-2016

Chronic Pain Didactics for Fellows  
Full fellowship year curriculum  
2014-2016

Introduction to Perioperative Surgical Home  
3 day course for new Residents in Anesthesiology  
2014-2016

Challenging Cases Course  
2014-2016

Multidisciplinary QA/QI  
2014-2016

Massachusetts General Hospital

Developed online 8 part modules, with pre- and post- tests, for inpatient pain resident rotators. Modules are a required component of the residents' education on the acute pain service – post tests are submitted and graded as part of their rotation

Pain Champions  
Continuing education course for nursing staff  
2012-2013

Harvard Medical School  
Acute Pain Symposium  
2012-2014

***Development of Assessment Tools and Methods***

University of California, Irvine

OSCE Skills Exam  
2014 - 2016

Pre & Post Rotation Testing for Residents in Anesthesiology  
2014 - 2016

***Education Management / Leadership***

Fellowship Director (ACGME), Pain Medicine  
Department of Anesthesiology & Perioperative Care  
University of California, Irvine  
2014 - 2016

Director, Medical Student Chronic Pain Rotation  
Department of Anesthesiology & Perioperative Care  
University of California, Irvine  
2014-2016

Fellowship Director, Acute Pain and Regional Anesthesia  
Department of Anesthesia, Critical Care, & Pain Medicine  
Massachusetts General Hospital  
2012-2014

Course Director, Acute Pain Management Symposium  
Harvard Medical School  
2012-2014

***Invited Lectures and Presentations:***

Visiting Professorships

Visiting Professor, Grand Rounds, Carney Hospital, Dorchester, MA - 2006  
"Spinal Cord Stimulation"

Visiting Professor, Craniofacial Pain Center Rounds, Tufts University, Boston, MA - 2007  
"Interventional Options for the Treatment of Rheumatic and Osteoarthritic Conditions of the Cervical Spine"

Visiting Professor, Nursing Grand Rounds Carney Hospital, Dorchester, MA - 2007  
"Perspectives in Pain Management"

Visiting Professor, Grand Rounds, Carney Hospital, Dorchester, MA - 2007  
"Opioid Rotation"

Visiting Professor, Pain Center Rounds, Tufts University, Boston, MA - 2012  
"Management of Pediatric Pain: Interventional approaches"

Visiting Professor, Grand Rounds, Tufts Medical Center, Boston, MA - 2013  
"Acute Pain Management in the Opioid Tolerant Patient"

Visiting Professor, University of California – San Francisco, San Francisco, CA - 2013  
"Hydromorphone – Evolving Concern"

Visiting Professor, University of California – San Francisco, San Francisco, CA - 2013  
"Acute Pain Management in the Opioid Tolerant Patient"

Visiting Professor, University of Nebraska, Lincoln, NE - 2014  
"Acute Pain Management in the Opioid Tolerant Patient"

Visiting Professor, Pediatric Pain Grand Rounds, Massachusetts General Hospital, Boston, MA - 2014  
"Overview Pediatric Pain Management: Updates"

Visiting Professor, University of Nebraska, Lincoln, NE - 2014  
"Adductor Canal Blocks vs Femoral Nerve Blocks"

Visiting Professor, Department of Medicine, Grand Rounds, University of California Irvine, Irvine, CA - 2014  
"Advances in Pain Management"

Visiting Professor, University of Florida, Gainesville, FL - 2014

“Opioid Tolerance in the Substance User”

Visiting Professor, University of Florida, Gainesville, FL - 2014

"Acute Pain Management in the Opioid Tolerant Patient”

Visiting Professor, Cedars Sinai, Los Angeles, CA - 2015

“Value Based Healthcare Performance Models: A Case Study in Pain Management”

Visiting Professor, Grand Rounds, Fountain Valley Regional Medical Center, Fountain Valley, CA - 2015

“Achieving Pain Control in Your Patients”

Visiting Professor, Grand Rounds, Department of Anesthesiology, Drexel University, Philadelphia, PA - 2017

“Value Based Healthcare Performance Models: A Case Study in Pain Management”

Visiting Professor, Grand Rounds, Department of Anesthesiology, University of Colorado, Denver, CO, February 2018

“Perioperative Pain Clinic: A value proposition for improved outcomes”

Visiting Professor, Grand Rounds, Department of Anesthesiology, University of North Carolina at Chapel Hill, Chapel Hill, NC, September 2018

"Perioperative Pain Care: A value-based population health strategy"

Visiting Professor, Grand Rounds, Department of Anesthesiology and Perioperative Medicine, MD Anderson Cancer Center, The University of Texas, January 2019

"Perioperative Pain Care: Value based population health"

Visiting Professor, Department of Anesthesiology, University of Florida, Gainesville, FL, October 2019

Grand Rounds – “Perioperative Pain Management: Value based population health model”

Mini-lecture with Neuroanesthesia Division – “Ketamine Infusions as an Opioid Sparing Alternative”

Visiting Professor, Department of Anesthesiology, Rush University, Chicago, IL, March 2020

“Perioperative Pain Management: A value based population health strategy”

Visiting Professor, Department of Anesthesiology, Boston Medical Center, Boston, MA, June 2020

“Pain Management: A population health strategy”

### ***International Meetings (Invited)***

1<sup>st</sup> World Congress on Innovation in Anesthesia, All India Institute of Medicine, New Delhi, India

Lecture: “Peripheral Nerve Stimulation” - 2009

First Affiliated Hospital, Zhejiang University, Hangzhou China

Lecture: “Pain Management in the Opioid Tolerant Patient” - 2013

World Institute of Pain, Kolkata, India

Panel Discussion, Global Pain and Suffering, Solutions, International Symposium - 2013

“Cervical Interventions”

World Institute of Pain, Kolkata, India  
Scientific Chair, Global Pain and Suffering, Solutions, International Symposium - 2013  
“Cancer Pain”

XIII Congreso Anual Medica Sur Sociedad de Medicos, 2013, Quintana Roo, Mexico  
Lecture: “Philosophical Aspects of Pain” - 2013

XIII Congreso Anual Medica Sur Sociedad de Medicos, 2013, Quintana Roo, Mexico  
Lecture: “Rational Evidence-Based Approach to the Treatment of Acute Pain in the Opioid Tolerant Patient” - 2013

International Anesthesia Research Society Annual Meeting, San Diego, CA - 2013  
Lecture: “Elevated Lidocaine Serum Concentration Following J-Tip® Administration in Pediatric Patients”

All India Institute of Medical Sciences, New Delhi, India - 2014  
Lecture: “Setting up of Acute Pain Services”

International Conference on Recent Advances in Pain 2015, Kolkata, India - 2015  
Lecture: “SCS and Neuropathic Pain”

International Conference on Recent Advances in Pain 2015, Kolkata, India - 2015  
Lecture: “Challenges in Visceral Pain”

North American Neuromodulation Society Annual Meeting, Las Vegas, NV - 2015  
Lecture: “Neuromodulation in special populations”

Pain Management Conference, Cleveland Clinic Abu Dhabi, United Arab Emirates - 2016  
Lecture: “Advanced Pain Management in Cancer Patients”

North American Neuromodulation Society 20th Annual Meeting, Las Vegas, NV, January 2017  
Moderator: Scientific and Clinical Advances in Intrathecal Therapy II

International Anesthesia Research Society 2018 Annual Meeting, Chicago, IL, April 2018  
Panel: Preoperative Management and Optimization Strategies  
Speaker: "Perioperative Pain Care: Care pathways to manage high resource utilizers

EBPOM 2018: Annual London Peri-Operative Medicine Congress, London, UK, July 2018  
Speaker: "Does Choice of Opioid Influence Health Outcomes?"

2018 Morpheus Annual Symposium, London, UK, August 2018  
Speaker: "Opioids: Can we kick the habit? The US Experience

North American Neuromodulation Society 21st Annual Meeting, Las Vegas, NV, January 2020  
Moderator: Plenary Session II: Next Generation Neuroscience

North American Neuromodulation Society 22nd Annual Meeting, Las Vegas, NV, January 2019  
“Managing Conflicts of Interest and the Impact on Clinical Decision Making”

International Neuromodulation Society, PACC Webinar 2: Intrathecal Drug Delivery: Complications and Management, December 2020  
 “Refill/Programming Complications”

***National Scientific Meetings (Invited)***

American Society of Anesthesiologists Annual Meeting, New Orleans, LA, October 2009  
 Speaker: "Spinal Cord Stimulation for Radicular Pain Secondary to Retained Bullet"

MGMA Annual Anesthesia Conference, Chicago, IL, April 2015  
 Speaker: “Perioperative Surgical Home – An administrator's role”

American Society of Interventional Pain Physicians, Orlando, FL, April 2015  
 Speaker: “Morphine over Hydromorphone, Does Choice of Opioid Influence Outcomes?”  
 Speaker: “Spine Surgery in Opioid Tolerant Patients – Prevalence and Patterns of Opioid Use in the Year after Surgery”

American Society of Regional Anesthesia and Pain Medicine 40<sup>th</sup> Annual Regional Anesthesiology & Acute Pain Medicine Meeting, Las Vegas, NV, May 2015  
 Speaker: “Morphine versus hydromorphone: does choice of opioid influence outcomes?”  
 Speaker: “Morphine before hydromorphone – Results of a quality improvement initiative”

American Society of Anesthesiology Annual Meeting, San Diego, CA, October 2015  
 Speaker: “The Chronic Pain Patient: Costs Associated with Their Care and the Best Approach to Creating a Value Based Healthcare Model”  
 Speaker: “Billing and Compliance-Avoiding Fraud, Maximizing Potential”  
 Speaker: “Can Pharmacogenetic Testing Improve the Treatment of Pain?”  
 Panel Discussion: “Opioids Are Safe and Effective and Should Continue as the Cornerstone for Analgesic Management Perioperatively”  
 Speaker: “Epidural Steroid Injections: Do We Really Need the Steroid?”

Society of American Gastrointestinal and Endoscopic Surgeons Annual Meeting, Boston, MA, March 2016  
 Speaker: “Non-Narcotic Pain Management Alternatives for Hernia Surgery”

American Society of Anesthesiology Annual Meeting, Chicago, IL, October 2016  
 Panel Discussion: “Optimizing Your Revenue and Minimizing Your Risk”  
 Speaker: “Prioritizing and Selecting Regional and Neuraxial Anesthetic Choices in the Patient with Chronic Pain”  
 Speaker: “Intrathecal Pumps are the Most Effective Form of Opioid Delivery”  
 Speaker: “Pharmacogenetics in the Treatment of Pain”

ASA Practice Management 2017, Grapevine, TX, January 2017  
 Speaker: “Pain Coding: Changes for 2017”

American Society of Anesthesiology Annual Meeting, Boston, MA, October 2017  
 Moderator: Chronic Pain and Cancer Pain Session

Speaker: Can personalized and integrative medicine improve pain

Speaker: "Updates in billing, coding and compliance: Optimizing revenue and minimizing risk"

American Society of Regional Anesthesia 16th Annual Pain Medicine Meeting, Orlando, FL - November 2017

PBLD: "Coding and Compliance: Do's and Don'ts"

Moderator: Resident/Fellow Program: The Business of Medicine: A Crash Course in Practice Management 2017

Speaker: Resident/Fellow Program: "Pain Medicine Coding and Compliance"

Speaker: ASA Practice Management Portfolio Session: "Reporting Measures and Payment Models/Coding for Pain Medicine Services"

ASA Practice Management 2018, New Orleans, LA, January 2018

Speaker: "Pain Coding: Changes for 2018"

Association of Physician Assistants in Cardiothoracic and Vascular Surgery 37th Annual Meeting, Miami, FL, April 2018

Speaker: "Prescribing Controlled Substances"

Speaker: "Perioperative Pain"

American Alliance of Orthopaedic Executives 2018 Annual Conference, Orlando, FL, April 2018

Speaker: "Clinical Models for Orthopaedic Value Based Care: What you need to know"

EBPOM-USA Masters Course. A Perioperative Care Practicum: "The How to Guide" for evaluation, management and implementation, Atlanta, GA, April 2018

Speaker: "The Rationalization: Data, outcomes, and economics; the practical realities: screening, workflow and workforce, financials, and tracking"

Speaker: Case Study and Panel Discussion (Pain)

American Association for Thoracic Surgery 98th Annual Meeting, San Diego, CA, April 2018

Speaker: "Perioperative Pain Management in the Anti-Narcotic Era"

19th Annual Duke Anesthesiology Conference, Controversies in Perioperative Medicine, Orlando, FL, June 2018

Speaker: "Postoperative Rescue Teams: How do we fit in?"

Speaker: "Perioperative Pain Clinic"

Speaker: "Leadership Models: Why we need to be better managers"

EBPOM-USA Masters Course. A Perioperative Care Practicum: "The How to Guide" for evaluation, management and implementation, Chicago, IL, September 2018

Speaker and Panel: "Perioperative Pain Management"

American Society of Anesthesiology Annual Meeting, San Francisco, CA, October 2018

Panel Discussion: "Perioperative pathways for patients taking methadone"

Panel Discussion: "Preoperative opioid reduction pathway to improve perioperative outcomes in opioid addicted and opioid tolerant neurosurgical and non-neurosurgical patients"

Speaker: "Pain medicine practice management for beyond 2018, staying ahead and compliant through knowledge of the evolving landscape"

Speaker: "Physician owned practices in the era of health system mergers, expansions, and ACOs: Evolving to thrive"

California Anesthesiology Society Annual Meeting, Maui, HI, January - February 2019

Speaker: "Perioperative Pain Care: A comprehensive model"

Speaker: "Optimal Management of the Substance User"

PBLD: "Neuraxial or Regional Technique for a Patient Presenting for Thoracic Surgery"

Speaker: "Cybersecurity: Impact on perioperative devices"

Association of Physician Assistants in Cardiothoracic and Vascular Surgery 38th Annual Meeting, Miami, FL, April 2019

Speaker: "Safe Opioid Prescribing"

American Association of Hip and Knee Surgeons Spring Meeting, New York, NY, May 2019

Panelist: Symposium VI: The Psychology of Total Joint Replacement

American Society of Anesthesiology Annual Meeting, Orlando, FL, October 2019

Speaker: "Buprenorphine Can Be Continued in the Perioperative Setting"

Speaker: "Clinical Science Contending the Use of Regenerative Medicine Modalities for Chronic Pain"

American Society of Regional Anesthesia and Pain Medicine 18th Annual Pain Medicine Meeting, New Orleans, LA - November 2019

Speaker: "Buprenorphine in the Perioperative Setting: What to do AFTER surgery"

Speaker: "Policy and Advocacy in Pain Medicine: Fighting for the greater good"

Speaker: "Stronger Together: Coordinating care in a practice of physician and non-physician care extenders"

American Association of Hip and Knee Surgeons Spring Meeting, Dallas, TX, November 2019

Panelist: Symposium S117: The Psychology of Total Joint Replacement

Society for Perioperative Assessment and Quality Improvement (SPAQI), Orlando, FL, March 2020

Speaker: "Perioperative Pain Management: Opioids and addiction"

American Society of Anesthesiology Annual Meeting, October 2020 virtual

Speaker: "The Acute Pain Management in the Substance Abuser"

### **Instructional Courses, Workshops, Symposiums (International and National)**

American Society of Anesthesiologists Annual Meeting, New Orleans, LA - 2009

Instructor, Cadaver Course

"Spinal Cord Stimulation"

Abdel Mehio Ultrasound-Guided Regional Anesthesia Course and Workshop, Massachusetts Society of Anesthesiologists - 2012

"Complications in Regional Anesthesia"

Gator RAP Workshop, University of Florida, Gainesville, FL - 2014



“Complications in Regional Anesthesia”

Work-Related Injury Workshop: New Challenges & New Solutions, Boston Medical Center, Waltham, MA - 2014

“Dependency & Addition: Early Detection and Prevention”

Faculty Ultrasound Guided Blocks Workshop, Regional Anesthesia Service, Massachusetts General Hospital, Boston, MA - 2014

Evidence Based Perioperative Medicine USA Masters Course: A Perioperative Care Practicum, Atlanta, GA, April 2018

Speaker: Session: Standing Up a Preoperative Pain Clinic - "The Rationalization; Data Outcomes;

Economics: The practice realities: screening, workflow and workforce, financials, and tracking

Speaker: Case Study and Panel Discussion

International Anesthesia Research Society, Boston, MA - 2012

A Complicated Case of Intracranial Hypotension Caused by Anterior Cervical Cerebrospinal Fluid Leak Alleviated by a Thoracocervical Epidural Blood Patch

American Society of Interventional Pain Physicians Meeting, Washington DC - 2012

Anterior Cutaneous Nerve Entrapment

American Society of Anesthesiology Annual Meeting, San Diego, CA - 2015

A Preliminary Assessment of Intrathecal Sufentanil Equianalgesic Conversion Ratios and Efficacy

American Society of Regional Anesthesia and Pain Medicine 40<sup>th</sup> Annual Meeting, Las Vegas, NV - 2015

Limited Access to Outpatient Specialty Care in Pain Leads to Increased Utilization of Acute Hospital Care Resources

American Society of Regional Anesthesia and Pain Medicine 40<sup>th</sup> Annual Meeting, Las Vegas, NV - 2015

Level of Training and Its Effect on Success Rates of Epidural Catheters Placed for Postoperative Pain

### **Regional Presentations and Posters:**

Cancer Pain Rounds, DACCPM, Massachusetts General Hospital, Boston, MA - 2005

"Mucositis; Cancer Pain"

Chronic Pain Rounds, DACCPM, Massachusetts General Hospital, Boston, MA - 2005

"Iatrogenic Central Pain Syndrome"

Interventional Pain Lecture Series, DACCPM, Massachusetts General Hospital, Boston, MA - 2005

"Laser Discectomy; Neurolytic Blocks; Epiduroscopy"

Cancer Pain Rounds, DACCPM, Massachusetts General Hospital, Boston, MA - 2006

"Conversion Disorder"

Chronic Pain Rounds, DACCPM, Massachusetts General Hospital, Boston, MA - 2006  
"Role of Intrathecal Drug Delivery in End of Life Care"

Chronic Pain Rounds, DACCPM, Massachusetts General Hospital, Boston, MA - 2006  
"Somatic Symptomatology and Iatrogenic Misadventures"

Cancer Pain Rounds, DACCPM, Massachusetts General Hospital, Boston, MA - 2006  
"Chronic Abdominal Pain of Unclear Etiology – Pain Management"

Interventional Pain Lecture Series, DACCPM, Massachusetts General Hospital, Boston, MA - 2006  
"SCS IPG Analysis & Reprogramming; Epiduroscopy"

Surgical Grand Rounds, DACCPM, Massachusetts General Hospital, Boston, MA - 2009  
"Patient Controlled Epidural Analgesia"

Anesthesia Grand Rounds Case Conference, DACCPM, Massachusetts General Hospital, Boston, MA - 2009  
"Epidural Management"

Harvard Anesthesia Update: Innovation and Transformation in Anesthesiology, Boston, MA - 2010  
"Acute Pain Service: An anesthesiologist's domain?"

Trauma Rounds, DACCPM, Critical Care Trauma Team, Massachusetts General Hospital, Boston, MA - 2010  
"The Perfect Pain Killer"

Trauma Rounds, DACCPM, Critical Care Trauma Team, Massachusetts General Hospital, Boston, MA - 2010  
"Pain Management in the Critically Ill and Trauma Patient"

Otolaryngology Rounds, DACCPM, Massachusetts Eye & Ear Infirmary, Boston, MA - 2010  
"Acute Postoperative Pain Management"

Anesthesia Grand Rounds Case Conference, DACCPM, Massachusetts General Hospital, Boston, MA - 2010  
"Post Dural Puncture Headache"

Harvard Anesthesia Update: Innovation and Transformation in Anesthesiology, Boston, MA - 2011  
"Postoperative Pain Management in Opioid Tolerant Patients"

MGHfC Case Conference, DACCPM, Massachusetts General Hospital, Boston, MA - 2012  
"The Approach to Acute Pain Management in Inflammatory Arthritis"

Primary Care Pediatrics Conference, Harvard Medical School, Boston, MA - 2012  
"Pain Management in the Outpatient Setting"

NYSSA Postgrad Assembly Meeting - 2012  
"Spinal Cord Stimulation for Radicular Pain Following Retained Bullet in the Spinal Canal"

56<sup>th</sup> Annual Meeting of the New England Society of Anesthesiologists, Lenox, MA - 2013  
"Spectrum of Acute to Chronic Pain: Modifiable by perioperative practice?"  
"Acute Pain Management in the Opioid Tolerant and Suboxone Patient"

MESAC Monthly Meeting, Massachusetts General Hospital, Boston, MA - 2013  
"Morphine First Initiative"

Quality Oversight Committee Meeting, Massachusetts General Hospital, Boston, MA - 2013  
"Morphine First Initiative"

PACU Monthly Staff Meeting, DACCPM, Massachusetts General Hospital, Boston, MA - 2013  
"Comparison of Outcomes with Continuous Transversus Abdominis Plane (TAP) Block versus Epidural Analgesia for Elective Abdominal Surgery"

OB/GYN Grand Grounds, DACCPM, Massachusetts General Hospital, Boston, MA - 2013  
"Effective Pain Management: From pharmacology to regulatory considerations"

Chiefs Council, Massachusetts General Hospital, Boston, MA - 2013  
"Morphine First Initiative"

University of California Irvine Medical Center, Orange, CA - 2014  
"Pain Management of a Pediatric Patient with Castleman's Disease and Paraneoplastic Pemphigus"

Montclair Hospital Medical Center, Montclair, CA - 2014  
"Pain Assessment and Management"

Paul Merage School of Business, University of California Irvine, Irvine, CA - 2014  
"Healthcare Policy on Prescription Drugs"

University of California Irvine, Irvine, CA - 2014  
"Fostering Excellence"

Ortho Group Meeting, Massachusetts General Hospital, Boston, MA - 2014  
"Opioid Tolerance"

NP Pharmacology Conference, Massachusetts General Hospital, Boston, MA - 2014  
"Medical Marijuana"

Medical Operation Meeting, Massachusetts General Hospital, Boston, MA - 2014  
"Opioid Equivalence"

Quality & Safety Weekly Didactics Meeting, Massachusetts General Hospital, Boston, MA - 2014  
"Opiate and Insulin Dosing Conversion"

Quality & Safety Monthly Meeting, Massachusetts General Hospital, Boston, MA - 2014  
"Elevated Lidocaine Levels with J-Tip"

DACCPM Case Conference, Massachusetts General Hospital, Boston, MA - 2014  
"Pain Management in the Substance User"

DACCPM Grand Rounds, Massachusetts General Hospital, Boston, MA - 2014  
"Opioid Tolerance"

Arnold and Mabel Beckman Center of the National Academies of Sciences and Engineering, Irvine, CA - 2015  
"Project Champion's Address to Collaborative"

Family Health Center, University of California Irvine, Irvine, CA - 2015  
"Pain Management in Primary Care"

Paul Merage School of Business, University of California Irvine, Irvine, CA - 2015  
"Impact of Opioid Tolerance"

Chino Valley Medical Center, Chino, CA - 2015  
"Pain Perception: A Patient's Perspective"

Montclair Hospital Medical Center, Montclair, CA - 2015  
"Pain Perception: A Patient's Perspective"

Heritage Victor Valley Medical Group, Victorville, CA - 2015  
"Pain Management – Regulatory Considerations"

Whittier Medical Center, City of Industry, CA - 2015  
"Chronic Pain Management for In-Patients on Long Term Medications"

Department of Anesthesiology and Perioperative Care, University of California Irvine, Irvine, CA - 2015  
"Perioperative Surgical Home – Pathways to Success"

Placentia Linda Hospital, Placentia, CA - 2015  
"New Pain Management Guidelines"

University of California Irvine Medical Center, Orange, CA - 2015  
"Safe Opioid Prescribing"

Chino Valley Medical Center, Chino, CA - 2015  
"Pain Assessment – A Patient's Perspective"

The Pain Society of the Carolinas Annual Meeting, Asheville, NC, September 2016  
"An Acute Pain Service – Past, Present, and Future"

California Society of Anesthesiologists Fall Anesthesia Meeting, Waimea, HI, October 2016  
"Case-Based Learning: Billing and Compliance"  
"Use of Epidural Steroid Injection and Spinal Cord Stimulation"  
"Personalized Medicine: The Role of Pharmacogenetic Testing in Chronic Pain"  
"Prescribing Opioids: Keeping the Patient and Your Practice Safe"  
"Anesthesia and the Substance User: Perioperative Considerations"

Newport Beach Public Library, Newport Beach, CA - 2016

“Managing Your Pain- How Your Doctor Can Help You and How You Can Help Yourself”

Department of Anesthesiology and Perioperative Care, Grand Rounds, University of California Irvine, Irvine, CA - 2016

“Acute Pain Management in the Substance User”

Department of Family Medicine, University of California Irvine, Irvine, CA - 2016

“Pain Management in Primary Care”

Department of Medicine, University of California Irvine, Irvine, CA 2016

“Substance Abuse”

Department of Anatomy and Neurobiology, University of California Irvine, Irvine, CA - 2016

“Pain Modulation”

Fountain Valley Regional Medical Center, Grand Rounds, Fountain Valley, CA - 2016

“Achieving Pain Control in Your Patients”

Montclair Hospital Medical Center, Montclair, CA - 2016

“Pain Perception: A Patients Perspective”

CalOptima, Orange, CA - 2016

“New Pain Management Guidelines: From Pharmacology to Regulatory Considerations”

Pain Nurses of North Carolina, Pain Management in 2018, Durham, NC, February 2018

"Advanced Pain Management in Cancer Patients"

13th Annual Duke Health Quality and Safety Conference, Durham, NC, March 2018

"Safe Opioid Prescribing: Implementation of a critical imperative"

Frye Regional Medical Center, Hickory, NC, June 2018

"Pain Management"

Durham County Department of Public Health, Strategies for Managing Pain, Durham, NC, July 2018

"Manage Your Pain: How your doctor can help you and how you can help yourself"

Duke Cardiothoracic Surgery Grand Rounds, Duke University School of Medicine, Durham, NC, July 2018

"Optimal Approach to Pain Management in Cardiothoracic Surgery Patients"

Duke Palliative Care Grand Rounds, Duke University School of Medicine, Durham, NC, September 2018

"Advances in Cancer Pain Management"

Duke Anesthesiology Grand Rounds, Duke University School of Medicine, Durham, NC, October 2018

"Opioid Use and Surgery: Small steps to move mountains"

Providence Anesthesiology Associates, Charlotte, NC, November 2018

"The Opioid Crisis"

Innovative Pain Strategies: A population health approach to pain management, Duke University Health System, Department of Anesthesiology Pfizer-Lilly Preceptorship, Durham, NC, December 2018

"Duke Perioperative Pain Care: Small steps to move mountains"

"Pain Management: Are we there yet?"

14th Annual Duke Health Quality and Safety Conference, Durham, NC, March 2019

"Safe Opioid Prescribing: Understanding the impact of regulations on providers and patients"

Duke Cardiothoracic Surgery Grand Rounds, Duke University School of Medicine, Durham, NC, July 2019

"Optimal Approach to Pain Management in Cardiothoracic Surgery Patients"

Duke Department of Anesthesiology Lunch and Learn Series, Duke University School of Medicine, Durham, NC, September 2019

"Managing Change"

Croasdaile Village, Durham, NC, November 2019

"Managing Your Pain - How Your Doctor Can Help You and How You Can Help Yourself"

The Pain Society of the Carolinas 10th Annual Meeting, Charleston, SC, December 2019

"Integrated Pain Program - A Case Study at Duke"

Duke Gastroenterology Grand Rounds, Duke University School of Medicine, Durham, NC, January 2020

"Integrated Pain Management: A novel proactive model of care"

Duke Department of Psychiatry and Behavioral Sciences Grand Rounds, Duke University School of Medicine, Durham, NC, May 2020

"Safe Opioid Prescribing: From a state of affairs to affairs of state"

Duke NSU Spine Symposium, Duke University School of Medicine Durham, NC, October 2020

"Perioperative Pain Management in Spine Surgery Patients: The Duke approach"