

# Stanford

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## Sesh Mudumbai

Assistant Professor of Anesthesiology, Perioperative and Pain Medicine at the Palo Alto Veterans Affairs Health Care System

### Bio

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#### BIO

After completing both a Patient Safety Fellowship and a Masters in Health Services Research at Stanford, Dr. Mudumbai joined the faculty as an Assistant Professor in the Department of Anesthesiology, Perioperative, and Pain Medicine in 2014. Dr. Mudumbai is an outcomes and health services researcher who works to integrate his clinical, administrative, and research roles. Dr. Mudumbai's main research interests are in translational research: 1) optimizing therapeutic strategies and reducing adverse outcomes related to medication management, particularly opioids; and 2) measuring and improving the quality of perioperative and pain management.

#### ACADEMIC APPOINTMENTS

- Assistant Professor - Med Center Line, Anesthesiology, Perioperative and Pain Medicine

#### ADMINISTRATIVE APPOINTMENTS

- Medical Director for VISN 21 Clinical Informatics Systems and Perioperative Analytics, VISN 21, Veterans Health Administration; <https://www.visn21.va.gov/>, (2014- present)
- Transfusion Committee, VA Palo Alto HCS, (2015- present)

#### HONORS AND AWARDS

- Junior Faculty Award, Association of University Anesthesiologists (2019)
- Kosaka Finalist, Clinical Research, International Anesthesia Research Society (2019)
- Best in Category, International Anesthesia Research Society (2012)

#### BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, American Society Of Anesthesiologists (2006 - present)
- Member, The American Society of Anesthesiology Committee on Electronic Media & Information Technology (2015 - present)
- Member, American Society of Regional Anesthesia & Pain Medicine (2016 - present)
- Member, Association of University Anesthesiologists (2018 - present)

#### PROFESSIONAL EDUCATION

- Patient Safety Fellowship, Stanford University , Patient Safety and Medical Simulation
- MS, Stanford University , Health Services Research
- Residency, Department of Anesthesiology, State University of New York -Health Science Center at Brooklyn (SUNY-HSCAB) and Mount Sinai Medical Center , Anesthesiology
- MD, State University of New York -Health Science Center at Brooklyn (SUNY-HSCAB) , Medical Education

## Research & Scholarship

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### CURRENT RESEARCH AND SCHOLARLY INTERESTS

Our research team focuses on

1) improving the ability of patients and clinicians to act on data through the evaluation of medication management and informatics tools in small groups and populations. We study the psychological, social, biologic, and system-level factors affecting medication use in order to advance the effectiveness at which clinicians work, and to inform public policy. We are currently involved in a multi-health care system study for the Food & Drug Administration examining the outcomes of opioids.

2) measuring and improving the quality of perioperative and pain management. We are actively working on a VA Health Services Research & Development (HSRD) Study on low value preoperative testing.

### Publications

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#### PUBLICATIONS

- **Development and validation of a predictive model for American Society of Anesthesiologists Physical Status.** *BMC health services research*  
Mudumbai, S. C., Pershing, S., Bowe, T., Kamal, R. N., Sears, E. D., Finlay, A. K., Eisenberg, D., Hawn, M. T., Weng, Y., Trickey, A. W., Mariano, E. R., Harris, A. H.  
2019; 19 (1): 859
- **Perioperative Opioid Prescribing Patterns and Readmissions After Total Knee Arthroplasty in a National Cohort of Veterans Health Administration Patients.** *Pain medicine (Malden, Mass.)*  
Mudumbai, S. C., Chung, P., Nguyen, N., Harris, B., Clark, J. D., Wagner, T. H., Giori, N. J., Stafford, R. S., Mariano, E. R.  
2019
- **Overdose Risk Associated with Opioid Use upon Hospital Discharge in Veterans Health Administration Surgical Patients.** *Pain medicine (Malden, Mass.)*  
Mudumbai, S. C., Lewis, E. T., Oliva, E. M., Chung, P. D., Harris, B., Trafton, J., Mariano, E. R., Wagner, T., Clark, J. D., Stafford, R. S.  
2018
- **A pragmatic approach to evaluating new techniques in regional anesthesia and acute pain medicine.** *Pain management*  
Mudumbai, S. C., Auyong, D. B., Memtsoudis, S. G., Mariano, E. R.  
2018
- **Perioperative and ICU Healthcare Analytics within a Veterans Integrated System Network: a Qualitative Gap Analysis.** *Journal of medical systems*  
Mudumbai, S., Ayer, F., Stefanko, J.  
2017; 41 (8): 118
- **Time-to-Cessation of Postoperative Opioids: A Population-Level Analysis of the Veterans Affairs Health Care System.** *Pain medicine*  
Mudumbai, S. C., Oliva, E. M., Lewis, E. T., Trafton, J., Posner, D., Mariano, E. R., Stafford, R. S., Wagner, T., Clark, J. D.  
2016; 17 (9): 1732-1743
- **Continuous Adductor Canal Blocks Are Superior to Continuous Femoral Nerve Blocks in Promoting Early Ambulation After TKA.** *Clinical orthopaedics and related research*  
Mudumbai, S. C., Kim, T. E., Howard, S. K., Workman, J. J., Giori, N., Woolson, S., Ganaway, T., King, R., Mariano, E. R.  
2014; 472 (5): 1377-1383
- **Outcomes of Ambulatory Upper Extremity Surgery Patients Discharged Home with Perineural Catheters from a Veterans Health Administration Medical Center** *PAIN MEDICINE*  
King, R., Mariano, E. R., Yajnik, M., Kou, A., Kim, T., Hunter, O. O., Howard, S. K., Mudumbai, S. C.  
2019; 20 (11): 2256-62
- **Variability and Costs of Low-Value Preoperative Testing for Carpal Tunnel Release Surgery.** *Anesthesia and analgesia*  
Harris, A. H., Meerwijk, E. L., Kamal, R. N., Sears, E. D., Hawn, M., Eisenberg, D., Finlay, A. K., Hagedorn, H., Mudumbai, S.  
2019

- **Persistent Postoperative Opioid Use in Older Head and Neck Cancer Patients** *OTOLARYNGOLOGY-HEAD AND NECK SURGERY*  
Saraswathula, A., Chen, M. M., Mudumbai, S. C., Whittemore, A. S., Divi, V.  
2019; 160 (3): 380–87
- **Variation in Surgeons' Requests for General Anesthesia When Scheduling Carpal Tunnel Release.** *Hand (New York, N.Y.)*  
Harris, A. H., Meerwijk, E. L., Kamal, R. N., Sears, E. D., Hawn, M., Eisenberg, D., Finlay, A. K., Hagedorn, H., Marshall, N., Mudumbai, S. C.  
2019; 1558944719828006
- **Peripheral nerve blocks are not associated with increased risk of perioperative peripheral nerve injury in a Veterans Affairs inpatient surgical population** *REGIONAL ANESTHESIA AND PAIN MEDICINE*  
Yajnik, M., Kou, A., Mudumbai, S. C., Walters, T. L., Howard, S. K., Kim, E., Mariano, E. R.  
2019; 44 (1): 81–85
- **Variability and Costs of Low-Value Preoperative Testing for Carpal Tunnel Release Surgery.** *Anesthesia and analgesia*  
Harris, A. H., Meerwijk, E. L., Kamal, R. N., Sears, E. D., Hawn, M., Eisenberg, D., Finlay, A. K., Hagedorn, H., Mudumbai, S.  
2019; 129 (3): 804–11
- **Impact of an Opioid Safety Initiative on Patients Undergoing Total Knee Arthroplasty: A Time Series Analysis.** *Anesthesiology*  
Chen, Q., Hsia, H. L., Overman, R., Bryan, W., Pepin, M., Mariano, E. R., Mudumbai, S. C., Buchheit, T., Krishnamoorthy, V., Good, C. B., Brookhart, M. A., Raghunathan, K.  
2019; 131 (2): 369–80
- **Five-year follow-up to assess long-term sustainability of changing clinical practice regarding anesthesia and regional analgesia for lower extremity arthroplasty.** *Korean journal of anesthesiology*  
Tamboli, M., Leng, J. C., Hunter, O. O., Kou, A., Mudumbai, S. C., Memtsoudis, S. G., Walters, T. L., Lochbaum, G. M., Mariano, E. R.  
2019
- **Outcomes of Ambulatory Upper Extremity Surgery Patients Discharged Home with Perineural Catheters from a Veterans Health Administration Medical Center.** *Pain medicine (Malden, Mass.)*  
King, R., Mariano, E. R., Yajnik, M., Kou, A., Kim, T. E., Hunter, O. O., Howard, S. K., Mudumbai, S. C.  
2019
- **Peripheral nerve blocks are not associated with increased risk of perioperative peripheral nerve injury in a Veterans Affairs inpatient surgical population.** *Regional anesthesia and pain medicine*  
Yajnik, M., Kou, A., Mudumbai, S. C., Walters, T. L., Howard, S. K., Edward Kim, T., Mariano, E. R.  
2019; 44 (1): 81–85
- **Practice Patterns in Perioperative Nonopioid Analgesic Administration by Anesthesiologists in a Veterans Affairs Hospital.** *Pain medicine (Malden, Mass.)*  
Kwong, J. Z., Mudumbai, S. C., Hernandez-Boussard, T., Papat, R. A., Mariano, E. R.  
2019
- **Spinal anesthesia increases the rate of opioid-free recovery after transurethral urologic surgery.** *Journal of clinical anesthesia*  
Tien, M., Kou, A., Leppert, J. T., Mariano, E. R., Mudumbai, S. C.  
2019; 60: 109–10
- **A Multidisciplinary Patient-Specific Opioid Prescribing and Tapering Protocol Is Associated with a Decrease in Total Opioid Dose Prescribed for Six Weeks After Total Hip Arthroplasty.** *Pain medicine (Malden, Mass.)*  
Tamboli, M., Mariano, E. R., Gustafson, K. E., Briones, B. L., Hunter, O. O., Wang, R. R., Harrison, T. K., Kou, A., Mudumbai, S. C., Kim, T. E., Indelli, P. F., Giori, N. J.  
2019
- **Are Case Volume and Facility Complexity Level Associated With Postoperative Complications After Hip Fracture Surgery in the Veterans Affairs Healthcare System?** *CLINICAL ORTHOPAEDICS AND RELATED RESEARCH*  
Wong, J. K., Kim, T., Mudumbai, S. C., Memtsoudis, S. G., Giori, N. J., Howard, S. K., Oka, R. K., King, R., Mariano, E. R.  
2019; 477 (1): 177–90
- **A pragmatic approach to evaluating new techniques in regional anesthesia and acute pain medicine** *PAIN MANAGEMENT*  
Mudumbai, S. C., Auyong, D. B., Memtsoudis, S. G., Mariano, E. R.  
2018; 8 (6): 475–85
- **Low Value Preoperative Testing for Carpal Tunnel Release in the Veterans Health Administration**

Sox-Harris, A., Meerwijk, E. L., Kamal, R. N., Sears, E., Finlay, A. K., Hawn, M. T., Eisenberg, D., Mudumbai, S.  
ELSEVIER SCIENCE INC.2018: E32

- **Are Case Volume and Facility Complexity Level Associated With Postoperative Complications After Hip Fracture Surgery in the Veterans Affairs Healthcare System?** *Clinical orthopaedics and related research*  
Wong, J. K., Kim, T. E., Mudumbai, S. C., Memtsoudis, S. G., Giori, N. J., Howard, S. K., Oka, R. K., King, R., Mariano, E. R.  
2018
- **Persistent Postoperative Opioid Use in Older Head and Neck Cancer Patients.** *Otolaryngology--head and neck surgery : official journal of American Academy of Otolaryngology-Head and Neck Surgery*  
Saraswathula, A., Chen, M. M., Mudumbai, S. C., Whittemore, A. S., Divi, V.  
2018: 194599818778276
- **The Perioperative Surgical Home model facilitates change implementation in anesthetic technique within a clinical pathway for total knee arthroplasty.** *Healthcare (Amsterdam, Netherlands)*  
Mudumbai, S. C., Walters, T. L., Howard, S. K., Kim, T. E., Lochbaum, G. M., Memtsoudis, S. G., Kain, Z. N., Kou, A., King, R., Mariano, E. R.  
2016; 4 (4): 334-339
- **An ultrasound-guided fascia iliaca catheter technique does not impair ambulatory ability within a clinical pathway for total hip arthroplasty.** *Korean journal of anesthesiology*  
Mudumbai, S. C., Kim, T. E., Howard, S. K., Giori, N. J., Woolson, S., Ganaway, T., Kou, A., King, R., Mariano, E. R.  
2016; 69 (4): 368-375
- **Can bedside patient-reported numbness predict postoperative ambulation ability for total knee arthroplasty patients with nerve block catheters?** *Korean journal of anesthesiology*  
Mudumbai, S. C., Ganaway, T., Kim, T. E., Howard, S. K., Giori, N. J., Shum, C., Mariano, E. R.  
2016; 69 (1): 32-36
- **Implementation of an Anesthesia Information Management System in an Ambulatory Surgery Center** *JOURNAL OF MEDICAL SYSTEMS*  
Mudumbai, S. C.  
2016; 40 (1)
- **Invasive Mechanical Ventilation in California Over 2000-2009: Implications for Emergency Medicine.** *The western journal of emergency medicine*  
Mudumbai, S. C., Barr, J., Scott, J., Mariano, E. R., Bertaccini, E., Nguyen, H., Memtsoudis, S. G., Cason, B., Phibbs, C. S., Wagner, T.  
2015; 16 (5): 696-706
- **A retrospective comparative provider workload analysis for femoral nerve and adductor canal catheters following knee arthroplasty** *JOURNAL OF ANESTHESIA*  
Rasmussen, M., Kim, E., Kim, T. E., Howard, S. K., Mudumbai, S., Giori, N. J., Woolson, S., Ganaway, T., Mariano, E. R.  
2015; 29 (2): 303-307
- **Variations in inpatient pediatric anesthesia in California from 2000 to 2009: a caseload and geographic analysis** *PEDIATRIC ANESTHESIA*  
Mudumbai, S. C., Honkanen, A., Chan, J., Schmitt, S., Saynina, O., Hackel, A., Gregory, G., Phibbs, C. S., Wise, P. H.  
2014; 24 (12): 1295-1301
- **Thirty-day mortality risk associated with the postoperative nonresumption of angiotensin-converting enzyme inhibitors: A retrospective study of the veterans affairs healthcare system.** *Journal of hospital medicine*  
Mudumbai, S. C., Takemoto, S., Cason, B. A., Au, S., Upadhyay, A., Wallace, A. W.  
2014; 9 (5): 289-296
- **Effectiveness of preoperative beta-blockade on intra-operative heart rate in vascular surgery cases conducted under regional or local anesthesia.** *SpringerPlus*  
Mudumbai, S. C., Wagner, T., Mahajan, S., King, R., Heidenreich, P. A., Hlatky, M., Wallace, A. W., Mariano, E. R.  
2014; 3: 227-?
- **Effectiveness of preoperative beta-blockade on intra-operative heart rate in vascular surgery cases conducted under regional or local anesthesia.** *SpringerPlus*  
Mudumbai, S. C., Wagner, T., Mahajan, S., King, R., Heidenreich, P. A., Hlatky, M., Wallace, A. W., Mariano, E. R.  
2014; 3: 227-?
- **Association of age and packed red blood cell transfusion to 1-year survival - an observational study of ICU patients** *TRANSFUSION MEDICINE*

Mudumbai, S. C., Cronkite, R., Hu, K. U., Heidenreich, P. A., Gonzalez, C., Bertaccini, E., Stafford, R. S., Cason, B. A., Mariano, E. R., Wagner, T.  
2013; 23 (4): 231-237

- **Vascular Surgery Patients Prescribed Preoperative beta-Blockers Experienced a Decrease in the Maximal Heart Rate Observed During Induction of General Anesthesia** *JOURNAL OF CARDIOTHORACIC AND VASCULAR ANESTHESIA*

Mudumbai, S. C., Wagner, T., Mahajan, S., King, R., Heidenreich, P. A., Hlatky, M., Wallace, A., Mariano, E. R.  
2012; 26 (3): 414-419

- **External Validation of Simulation-Based Assessments With Other Performance Measures of Third-Year Anesthesiology Residents** *SIMULATION IN HEALTHCARE*

Mudumbai, S. C., Gaba, D. M., Boulet, J. R., Howard, S. K., Davies, M. F.  
2012; 7 (2): 73-80

- **Association of admission hematocrit with 6-month and 1-year mortality in intensive care unit patients** *TRANSFUSION*

Mudumbai, S. C., Cronkite, R., Hu, K. U., Wagner, T., Hayashi, K., Ozanne, G. M., Davies, M. F., Heidenreich, P., Bertaccini, E.  
2011; 51 (10): 2148-2159

- **Feasibility of an internet-based global ranking instrument.** *Journal of graduate medical education*

Mudumbai, S. C., Gaba, D. M., Boulet, J., Howard, S. K., Davies, M. F.  
2011; 3 (1): 67-74

- **Use of Medical Simulation to Explore Equipment Failures and Human-Machine Interactions in Anesthesia Machine Pipeline Supply Crossover** *ANESTHESIA AND ANALGESIA*

Mudumbai, S. C., Fanning, R., Howard, S. K., Davies, M. F., Gaba, D. M.  
2010; 110 (5): 1292-1296

- **Trigger Video of Simulated Intraoperative Cardiac Arrest**

Goldhaber-Fiebert, S., Harrison, K., Mudumbai, S. C., Howard, S., McCowan, K., Gaba, D.  
MedEd Portal, The Journal of Teaching and Learning Resources. Washington DC.  
2010 (6): 0.15766/mep\_2374-8265.7826