***Curriculum Vitae***

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| **Date Prepared:** | 04/29/2025 |
| **Name:** | Kunal Karamchandani |
| **Office Address:** | Department of Anesthesiology and Pain management  5323 Harry Hines Blvd, Dallas, Texas, 75390 |
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**Education**

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| Year | Degree  (Honors) | Field of Study  (Thesis advisor for PhDs) | Institution |
| 1997-2002 | MBBS | Medical school | Maulana Azad Medical College, New Delhi, India |

**Postdoctoral Training**

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| --- | --- | --- | --- |
| Year(s) | Titles | Specialty/Discipline  (Lab PI for postdoc fellows) | Institution |
| 2003-2006 | Residency | Anesthesiology | All India Institute of Medical Sciences, New Delhi, India |
| 2007-2011 | Residency | Anesthesiology | Cleveland Clinic Foundation, Cleveland, Ohio, USA |
| 2012-2013 | Fellowship | Critical Care Medicine | Cleveland Clinic Foundation, Cleveland, Ohio, USA |

**Professional Development Training**

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| --- | --- | --- |
| Year(s) | Course or Program, Degree if any | Institution |
| 2025 | LEVEL-Up: Faculty Leadership Development Program | University of Texas Southwestern Medical Center, Dallas, Texas, USA |
| 2019 | Penn State Health Leadership Academy, Penn State Executive Programs | Penn State Smeal College of Business, Pennsylvania State University, State College, Pennsylvania, USA |
| 2016 | Physician Leadership Development Course | American College of Chest Physicians |
| 2016 | Teaching workshop | Society for Education in Anesthesia |

**Faculty Academic Appointments**

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| --- | --- | --- | --- |
| Year(s) | Academic Title | Department | Academic Institution |
| 09/2025- | Professor | Anesthesiology and Pain Management | University of Texas Southwestern Medical Center, Dallas, Texas, USA |
| 04/2021-09/2025 | Associate Professor | Anesthesiology and Pain Management | University of Texas Southwestern Medical Center, Dallas, Texas, USA |
| 07/2020-04/2021 | Donald E. Martin Career Development Professor in Anesthesia and Pain Medicine | Anesthesiology and Perioperative Medicine | Penn State Health Milton S. Hershey Medical Center, Hershey, Pennsylvania, USA |
| 07/2019- 04/2021 | Associate Professor | Anesthesiology and Perioperative Medicine | Penn State Health Milton S. Hershey Medical Center, Hershey, Pennsylvania, USA |
| 01/2013- 06/2019 | Assistant Professor | Anesthesiology and Perioperative Medicine | Penn State Health Milton S. Hershey Medical Center, Hershey, Pennsylvania, USA |

**Appointments at Hospitals/Affiliated Institutions**

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| --- | --- | --- | --- | --- |
| Past | | | | |
| Year(s) | Position Title | Department/Division | | Institution |
| 2013-April 2021 | Active Medical Staff | Anesthesiology and Perioperative Medicine | | Penn State Health Milton S. Hershey Medical Center, Penn State University Medical School, Hershey, Pennsylvania, USA |
| Current | | | | |
| Year(s) | Position Title | | Department/Division | Institution |
| April 2021- Present | Active Medical Staff | | Anesthesiology and Pain Management | Clements University Hospital, University of Texas Southwestern Medical Center, Dallas, Texas, USA |
| April 2021-Present | Active Medical Staff | | Anesthesiology and Pain Management | Parkland Hospital, Dallas, Texas, USA |
| April 2021-Present | Active Medical Staff | | Anesthesiology and Pain Management | Dallas North VA Hospital, Dallas, Texas, USA |

**Other Professional Positions**

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| Year(s) | Position Title | Institution |
| 2025- | Consultant | Philips Healthcare |
| 2022-2023 | Scientific advisory board member | Eagle Pharmaceuticals |

**Current Licensure and Certification**

Licensure

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| --- | --- |
| Year(s) | State |
| 2021-Present | Texas Medical Board |

**Board and Other Certification**

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| --- | --- | --- |
| Year(s) | Specialty | Certifying Organization |
| 2013-2029 | Anesthesiology | American Board of Anesthesiology |
| 2013-2029 | Critical Care Medicine | American Board of Anesthesiology |
| 2021 | Advanced Cardiac Life Support (ACLS) | American Heart Association |
| 2018 | Basic Perioperative Transesophageal Echocardiography | National Board of Echocardiography |

**Honors and Awards**

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| --- | --- | --- |
| Year | Name of Honor/Award | Awarding Organization |
| 2023 | Presidential Citation | Society of Critical Care medicine |
| 2022 | Presidential Citation | Society of Critical Care medicine |
| 2021 | Presidential Citation | Society of Critical Care Medicine |
| 2020 | Fellowship of the American College of Critical Care Medicine (FCCM) | Society of Critical Care Medicine |
| 2019 | Travel grant for poster presentation | Department of Anesthesiology and Perioperative Medicine, Penn State Health Milton S. Hershey Medical Center |
| 2018 | Best reviewers for the year 2018 | Editorial board of journal, “Anesthesia & Analgesia” |
| 2018 | Dean’s award for excellence in teaching | Penn State Health Milton S. Hershey Medical Center |
| 2018 | Travel grant for poster presentation | Department of Anesthesiology and Perioperative Medicine, Penn State Health Milton S. Hershey Medical Center |
| 2017 | Surgical Anesthesia ICU Collaborative Practice Award | Penn State Health Milton S. Hershey Medical Center |
| 2017 | Fellowship of the American College of Chest Physicians (FCCP) | American College of Chest Physicians |
| 2017 | Travel grant for poster presentation | Department of Anesthesiology and Perioperative Medicine, Penn State Health Milton S. Hershey Medical Center |
| 2016 | HCAHPS Dean’s List award for extraordinary patient satisfaction in recognition of scoring in the 99th percentile among providers nationwide | Penn State Health Milton S. Hershey Medical Center |
| 2016 | Second place at the Pennsylvania Anesthesia Resident Research conference | Pennsylvania Anesthesia Resident Research conference |
| 2015 | HCAHPS Dean’s List award for extraordinary patient satisfaction in recognition of scoring in the 99th percentile among providers nationwide | Penn State Health Milton S. Hershey Medical Center |
| 2015 | Travel grant for poster presentation | Department of Anesthesiology and Perioperative Medicine, Penn State Health Milton S. Hershey Medical Center |
| 2006 | First place in T N Jha memorial award for best oral presentation | Indian Society of Anesthesiologists (Delhi Chapter) |
| 2005 | BBraun Medical Trust Foundation Scholarship | BBraun Medical Trust |

**Major Administrative/Leadership Positions**

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| --- | --- | --- |
| Year(s) | Position Title | Institution |
| 02/2025 | Chair, Mortality Review Committee | University of Texas Southwestern medical Center |
| 10/2024 | Lead Physician Advisor for Surgical Services | University of Texas Southwestern medical Center |
| 09/2024 | Co-lead, Medication Safety Committee | University of Texas Southwestern medical Center |
| 05/2024-Present | Chair, Education Committee | Society of Critical Care Anesthesiologists |
| 05/2024-Present | Director, Board of Directors | Society of Critical Care Anesthesiologists |
| 01/2023-Present | Project lead, Institutional QI project on Delirium assessment, prevention, and treatment | University of Texas Southwestern medical Center |
| 04/2022- Present | Principal Investigator for Multicenter Perioperative Outcome Group | University of Texas Southwestern Medical Center |
| 04/2022-Present | Quality Improvement Champion for Multicenter Perioperative Outcome Group | University of Texas Southwestern Medical Center |
| 04/2021-Present | Medical Director, Anesthesia Critical Care Advance Practice Providers | University of Texas Southwestern Medical Center |
| 2021-2024 | Vice-Chair, Education committee | Society of Critical Care Anesthesiologists |
| 2021-Present | Co-Chair, Annual Meeting Program Planning committee | Society of Critical Care Anesthesiologists |
| 2021-2024 | Co-Chair, Physiologically Difficult Airway Taskforce | Society of Critical Care Anesthesiologists |
| 2020-Present | Co-lead, Education workgroup | Multicenter Handoff Collaborative |
| 07/2020-04/2021 | Medical Executive Committee Member, Department of Anesthesiology and Perioperative Medicine | Penn State Health Milton S. Hershey Medical Center |
| 07/2020- 04/2021 | Division Chief, Anesthesia Critical Care Medicine, Department of Anesthesiology and Perioperative Medicine | Penn State Health Milton S. Hershey Medical Center |
| 2019-Present | Board of Medical Advisors | American Association of Respiratory Care |
| 01/2019-04/2021 | Chairman, Hospital Pharmacy and Therapeutics committee | Penn State Health Milton S. Hershey Medical Center |
| 01/2017-04/2021 | Physician leader, Clinical  Documentation Improvement Committee | Penn State Health Milton S. Hershey Medical Center |
| 01/2017-04/2021 | Physician leader, Department of Anesthesiology and Perioperative Medicine Quality Improvement  Committee | Penn State Health Milton S. Hershey Medical Center |
| 07/2017-04/2021 | Co-Medical Director Surgical Anesthesia ICU | Penn State Health Milton S. Hershey Medical Center |
| 07/2017- 04/2021 | Resident and Medical Student Rotation Director, Surgical Anesthesia ICU | Penn State College of Medicine  Penn State Health Milton S. Hershey Medical Center |

**Committee Service (***Member, unless noted otherwise)*

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| Year(s) | Name of Committee | Institution/Organization |
| Department | | |
| 04/2025 | Perioperative Services Operations Committee: Operations Efficiency Work Group | University of Texas Southwestern Medical Center |
| 01/2023-Present | Project lead, Institutional quality improvement project on Delirium assessment, prevention, and treatment | University of Texas Southwestern Medical Center |
| 04/2022- Present | Institutional Principal Investigator for Multicenter Perioperative Outcome Group | University of Texas Southwestern Medical Center |
| 04/2022-Present | Quality Improvement Champion for Multicenter Perioperative Outcome Group | University of Texas Southwestern Medical Center |
| 04/2020-04/2021 | Department of Anesthesiology Medical Executive Committee | Penn State Health Milton S. Hershey Medical Center |
| 01/2017-04/2021 | Anesthesia Quality Improvement Committee | Penn State Health Milton S. Hershey Medical Center |
| 01/2014-04/2021 | Program Evaluation Committee – Critical Care Fellowship | Penn State Health Milton S. Hershey Medical Center |
| 01/2014-04/2021 | Clinical Competence Committee – Critical Care Fellowship | Penn State Health Milton S. Hershey Medical Center |
| 01/2019-04/2021 | Research Committee-Resource Allocation Panel | Penn State Health Milton S. Hershey Medical Center |
| 01/2017-04/2021 | Faculty Research Committee | Penn State Health Milton S. Hershey Medical Center |
| Hospital | | |
| 04/2025 | Perioperative Services Operations Committee: Operations Efficiency Work Group | University of Texas Southwestern Medical Center |
| 03/2025 | Colorectal SSI prevention Committee | University of Texas Southwestern Medical Center |
| 02/2025 | Chair, Mortality Review Committee | University of Texas Southwestern Medical Center |
| 01/2025 | Mortality Committee | University of Texas Southwestern Medical Center |
| 10/2024 | Utilization Management Committee | University of Texas Southwestern Medical Center |
| 10/2024 | Clinical Documentation Integrity (CDI)-Steering Committee | University of Texas Southwestern Medical Center |
| 04/2024-Present | Clinical Documentation Integrity (CDI)-Patient Safety Indicator (PSI) Committee | University of Texas Southwestern Medical Center |
| 03/2024-Present | Co-lead, Medication Safety Committee | University of Texas Southwestern Medical Center |
| 03/2024-Present | Patient Safety Committee | University of Texas Southwestern Medical Center |
| 08/2022- Present | Critical Care Quality Assurance and Performance Improvement Committee | University of Texas Southwestern Medical Center |
| 04/2021-Present | Advanced Practice Providers Critical Care Fellowship Committee | University of Texas Southwestern Medical Center |
| 10/2019-04/2021 | Interdisciplinary Critical Care Committee | Penn State Health Milton S. Hershey Medical Center |
| 7/2019-04/2021 | Ventilator Quality Group | Penn State Health Milton S. Hershey Medical Center |
| 01/2019-04/2021 | Chairman, Hospital Pharmacy and Therapeutics Committee | Penn State Health Milton S. Hershey Medical Center |
| 01/2019-04/2021 | Hospital Medication Safety Committee | Penn State Health Milton S. Hershey Medical Center |
| 01/2019-04/2021 | Therapeutic Duplication Taskforce | Penn State Health Milton S. Hershey Medical Center |
| 01/2017-04/2021 | Clinical Documentation Improvement Committee | Penn State Health Milton S. Hershey Medical Center |
| 04/2013-04/2021 | Surgical Anesthesia ICU Unit Quality Improvement and Patient Safety Committee | Penn State Health Milton S. Hershey Medical Center |
| State/Regional: N/A | | |
| National/International | | |
| 2025-Present | Workgroup Member | MPOG ASPIRE for Learners workgroup |
| 2025- Present | Steering Committee Member | A Pilot Evaluation of an Epic-embedded OR-ICU Handoff Report, APSF Multicenter Handoff Collaborative (MHC) |
| 01/2025 | Steering Committee Member | Perioperative Tube Feeding Consensus Statements, ASA Committee on Critical Care Medicine |
| 09/2024 | Steering Committee Member | Curriculum for Airway Skills in Critically Ill Adults: a Delphi Evaluation (CASCADE) [NCT06689748](https://clinicaltrials.gov/study/NCT06689748?term=Critical%20airway%20training&rank=2) |
| 05/2024-Present | Chair, Education Committee | Society of Critical Care Anesthesiologists |
| 05/2024-Present | Director, Board of Directors | Society of Critical Care Anesthesiologists |
| 2024-Present | Member, Committee on Anesthesiology and Critical Care | International Liver Transplant Society |
| 2024- Present | Member-at-large, Anesthesiology section steering committee | Society of Critical Care Medicine |
| 2023-Present | Member, Annual Meeting Oversight Committee | International Anesthesia Research Society |
| 2022-Present | Steering committee member | Physiologically Difficult Airway Delphi (PDADelphi) ([NCT05762068](https://clinicaltrials.gov/show/NCT05762068)) |
| 2022-Present | Steering committee member | International ob**S**ervational s**T**udy on **A**i**R**way mana**G**ement in oper**A**ting room and non-opera**T**ing room ana**E**sthesia. (STARGATE Study)  ([NCT05759299](https://clinicaltrials.gov/show/NCT05759299)) stargatestudy.com |
| 2022- Present | Member, Steering committee, Cardiovascular Special Interest Group | International Liver Transplant Society |
| 2021-2024 | Vice Chair, Education Committee | Society of Critical Care Anesthesiologists |
| 2021- Present | Co-Chair, Annual meeting organizing committee | Society of Critical Care Anesthesiologists |
| 2021-Present | Co-Chair, Physiologically Difficult Airway taskforce | Society of Critical Care Anesthesiologists |
| 2020-Present | Co-lead Education workgroup | Multicenter Handoff Collaborative |
| 2019-Present | Member, Board of Medical Advisors and ASA representative | American Association for Respiratory Care |

**Professional Societies**

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| **Dates** | **Society Name, Member** |
| 2023-Present | Dallas County Anesthesia Society |
| 2021-Present | Texas Medical Association |
| 2021-Present | Dallas County Medical Society |
| 2021-Present | Texas Society of Critical Care Medicine |
| 2021-Present | Texas Society of Anesthesiologists |
| 2019-Present | Multicenter Handoff Collaborative (MHC) |
| 2018-Present | International Liver Transplantation Society (ILTS) |
| 2016-Present | European Society of Intensive Care Medicine (ESICM) |
| 2014-Present | American Medical Association (AMA) |
| 2013-2021 | Pennsylvania Society of Anesthesiologists |
| 2012-Present | Society of Critical Care Anesthesiologists (SOCCA) |
| 2012-Present | American Thoracic Society (ATS) |
| 2012-2025 | American College of Chest Physicians (ACCP) |
| 2011-Present | Society of Critical Care Medicine (SCCM) |
| 2009-Present | International Anesthesia Research Society (IARS) |
| 2007-Present | American Society of Anesthesiologists (ASA) |
|  | **Committees** |
| 05/2024-Present | Chair, Education Committee |
| 05/2024-Present | Director, Board of Directors |
| 2024- Present | Member-at-large, Anesthesiology section steering committee, SCCM |
| 2023-Present | Member, Critical Care Committee, ASA |
| 2023-Present | Member, Annual Meeting Oversight Committee, IARS |
| 2022- Present | Member, Steering committee, Cardiovascular Special Interest Group, ILTS |
| 2021-2024 | Vice Chair, Education Committee, SOCCA |
| 2022-2024 | Member, Abstract Review Committee on Critical Care |
| 2022-2024 | Member, Educational Track Subcommittee on Critical Care |
| 2021- Present | Co-Chair, Annual meeting organizing committee, SOCCA |
| 2021-2024 | Co-Chair, Physiologically Difficult Airway taskforce, SOCCA |
| 2020-Present | Co-lead Education workgroup, MHC |
| 2022-Present | Member, Program Planning Committee, Society of Critical Care Medicine (SCCM) |
| 2021- 2024 | Member, Drug Shortages and Medication Safety Committee, Society of Critical Care Medicine (SCCM) |
| 2020-Present | Member, American Society of Anesthesiologists (ASA) Educational Track Subcommittee - Critical Care |
| 2020-Present | Co-lead, Education workgroup, Multicenter Handoff Collaborative (MHC) |
| 2019-Present | Member, Program Planning Committee, SOCCA |
| 2019-2020 | Member, Program Planning Committee, 2020 International Liver Transplant Society Perioperative Meeting |
| 2020- Present | Member, American Society of Anesthesiologists (ASA) Abstract Review sub-committee on Critical Care |
| 2019-Present | Member, Board of Medical Advisors and ASA representative, American Association for Respiratory Care (AARC) |
| 2019- 2022 | Member, ASA committee on Patient Safety and Education |
| 2019– 2021 | Member, ASA abstract review sub-committee on perioperative medicine |
| 2018- Present | Member, SOCCA Education Committee |
| 2018- 2020 | Member, SCCM Current Concepts in Critical Care Course Committee, Adult |
| 2017- Present | Member, ASA Committee on Respiratory Care |
| 2016- Present | Member, SCCM abstract grading committee |
| 2015- Present | Member, International Anesthesia Research Society (IARS) abstract grading committee |
| 2015- Present | Member, SOCCA abstract grading committee |
| 2015- Present | Member, American College of Chest Physicians (ACCP) CHEST critical care abstract grading committee |
| 2016- 2020 | Member, SCCM Advanced Knowledge Assessment Committee; involved in the development of questions for the SCCM *Self-Assessment in Adult Multiprofessional Critical Care* book. |
| 2015 - 2018 | Member, SCCM Undergraduate Education Committee. I was involved with the conception and development of the “Round Table discussions” at the SCCM Annual congress in San Antonio, TX. |
| 2013 - 2015 | Member, ASA Abstract Review Subcommittee on Critical Care |

**Community Engagement**

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| Year(s) | Role, brief description | Organization or institution |
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**Educational Activities**

1. Direct Teaching

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| --- | --- | --- | --- | --- | --- |
| Date | Course Name, Rotation or Session Topic | Role | Number of Instruction hours | Primary Learner Audience (number) | Department or Organization |
| Medical and Graduate School (UME) Course Instruction, Small Group Instruction, Clinical Supervision | | | | | |
| 2014-2015 | GI 723, GI/hepatic and pancreato-biliary Problem-based learning (PBL) | Facilitator | 24 | Medical students (8) | Penn State University College of Medicine |
| 05/02/2013 | Management of Acute Onset Atrial Fibrillation (Simulation session) | Faculty | 2 | Medical students (15) | Penn State University College of Medicine |
| Graduate Medical Education (GME) Course Instruction, Small Group Instruction, Clinical Supervision | | | | | |
| 05/14/2025 | Tracheal intubation in critically ill patients | Lecturer | 1.5 | Anesthesiology residents (30) | UT Southwestern Medical Center |
| 10/02/2024 | Atrial fibrillation in the ICU | Lecturer | 1 | Critical care fellows (10) | UT Southwestern Medical Center |
| 10/17/2023 | Atrial fibrillation in the ICU | Lecturer | 1 | Critical care fellows (10) | UT Southwestern Medical Center |
| 12/06/2022 | Atrial fibrillation in the ICU | Lecturer | 1 | Critical care fellows (10) | UT Southwestern Medical Center |
| 09/16/2020 | Arrhythmias in the ICU | Lecturer | 1 | Critical care fellows (4) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 08/03/2020 | “Acute ischemic stroke after paroxysmal atrial fibrillation due to recurrent  paraesophageal hiatal hernia, and recurrent stroke after general anesthesia” | Case conference moderator | 1 | Anesthesiology residents, fellows, and faculty (40) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 03/31/2020 | Cardiovascular: Cardiac Anatomy and Physiology | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 01/24/2020 | PAD Management in Adult ICU Patients | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 01/14/2020 | Cardiogenic Shock | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/14/2019 | Acute hepatic failure | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/7/2019 | Simulation Shock Session - Anaphylaxis, PEA Cases | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/12/2019 | Arrhythmias in the ICU | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/12/2019 | Arrhythmias in the ICU | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 10/31/2019 | Acute Respiratory Failure and Ventilation Strategy for Acute Respiratory Distress Syndrome (ARDS) | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 10/28/2019 | Venous Thromboembolism in the ICU | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 10/16/2019 | Arrhythmias in the ICU | Lecturer | 1 | Critical care fellows (4) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 08/12/2019 | Venous Thromboembolism in the ICU | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 07/08/2019 | Cardiogenic Shock | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 04/26/2019 | Sepsis and Septic Shock | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 04/09/2019 | Cardiovascular: Cardiac Anatomy and Physiology | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 03/26/2019 | Blood banking | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 02/25/2019 | Sepsis and Septic Shock | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 01/28/2019 | Assessing Fluid Balance in the ICU | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 01/18/2019 | Ethics in the ICU | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 12/24/2018 | Neurologic Emergencies | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 12/20/2018 | Acute hepatic failure | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 12/14/2018 | ICU Endocrine Issues | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/12/2018 | Assessing Fluid Balance in the ICU | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/08/2018 | Simulation session on shock states | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/01/2018 | Acute Respiratory Failure and Ventilation Strategy for Acute Respiratory Distress Syndrome (ARDS) | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 09/19/2018 | Arrhythmias in the ICU | Lecturer | 1 | Critical care fellows (4) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 09/05/2018 | A ticking time-bomb | Moderator | 1 | Anesthesiology residents, fellows, and faculty (40) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 8/14/2018 | Cardiogenic Shock | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 7/30/2018 | Venous Thromboembolism in the ICU | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 7/16/2018 | Cardiogenic Shock | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 5/21/2018 | PAD Management in Adult ICU Patients | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 4/20/2018 | Venous Thromboembolism in the ICU | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 4/9/2018 | Assessing Fluid Balance in the ICU | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 04/03/2018 | Cardiovascular: Cardiac Anatomy and Physiology | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 03/27/2018 | Hematologic: Transfusions, Indications, Reactions, and Complications | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 3/23/2018 | PAD Management in Adult ICU Patients | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 02/07/2018 | “How high can it be?” A case of unexplained hyperammonemia in the ICU | Moderator | 1 | Anesthesiology residents, fellows, and faculty (40) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 12/14/2017 | Management of Shock States | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/15/2017 | Organ Transplantation and Care of the Transplant Patient | Lecturer | 1 | Critical care fellows (4) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/02/2017 | Acute Respiratory Failure and Ventilation Strategy for Acute Respiratory Distress Syndrome (ARDS) | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 10/04/2017 | Developing and Measuring Quality of Care in the ICU | Lecturer | 1 | Critical care fellows (4) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 10/6/2017 | Acute Kidney Injuries | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 9/11/2017 | Assessing Fluid Balance in the ICU | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 8/9/2017 | Basic Mechanical Ventilation #1 | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 7/21/2017 | PAD Management in Adult ICU Patients | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 6/12/2017 | Arrhythmias in the ICU | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 5/22/2017 | Venous Thromboembolism in the ICU | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 3/29/2017 | Venous Thromboembolism in the ICU | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 3/27/2017 | Spinal Cord Emergencies | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 2/15/2017 | Mechanical Ventilation #2 | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 2/13/2017 | ICU Endocrine Issues | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 2/8/2017 | Arrhythmias in the ICU | Lecturer | 1 | Critical care fellows (4) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 1/10/2017 | Simulation Session: Sepsis I, Hemorrhagic Shock & possibly Sepsis II | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 12/23/2016 | Pain, Agitation & Delirium Management in Adult ICU Patients | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 12/15/2016 | Management of Shock States & Nutrition in the Intensive Care Unit (ICU) | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 12/13/2016 | ICU Endocrine Issues | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/18/2016 | Neurological Emergencies | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/03/2016 | Acute Respiratory Failure and Ventilation Strategy for ARDS | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 10/19/2016 | Neurological Emergencies | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 10/17/2016 | ICU Endocrine Issues | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 09/07/2016 | Feel the Heat: A Case of Fever in the SAICU | Moderator | 1 | Anesthesiology residents, fellows, and faculty (40) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 7/27/2016 | Sepsis and Septic Shock | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 7/5/2016 | Acute Kidney Injury | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 6/8/2016 | Organ Transplantation and Care of the Transplant Patient | Lecturer | 1 | Critical care fellows (4) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 5/11/2016 | Developing and Measuring Quality of Care in the ICU | Lecturer | 1 | Critical care fellows (4) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 5/25/2016 | Sepsis and Septic Shock | Lecturer | 1 | Residents and medical students on ICU rotation (10)) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 5/10/2016 | Basic Mechanical Ventilation #1 | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 4/5/2016 | Cardiovascular: Cardiac Anatomy and Physiology | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 1/27/2016 | Sepsis and Septic Shock | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 1/5/2016 | Acute Kidney Injuries | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/13/2015 | Diagnosis and Management of Shock | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/12/2015 | Acute Respiratory Failure and Ventilation Strategy for ARDS | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/10/2015 | CB/CA-1: Mechanical Ventilation II | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/10/2015 | CB/CA-1: Mechanical Ventilation I | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/6/2015 | Ventilator Associated Pneumonia in Surgical ICU | Lecturer | 1 | Critical care fellows (4) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/3/2015 | Airway Management | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 10/14/2015 | Diagnosis and Management of Shock | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 10/12/2015 | Mechanical Ventilation | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 10/1/2015 | Arrhythmias in the ICU | Lecturer | 1 | Critical care fellows (4) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 09/23/2015 | Acute Coronary Syndrome | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 09/15/2015 | Oxygen Balance and Acid Base | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 09/08/2015 | Thoracic and Abdominal Ultrasound | Lecturer | 1 | Critical care fellows (4) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 07/29/2015 | Electrolyte and Metabolic Disturbances | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 07/06/2015 | Perioperative Beleomycin-Induced Lung Toxicity: Challenges and Management Options | Moderator | 1 | Anesthesiology residents, fellows, and faculty (40) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 06/22/2015 | Basic Trauma and Burn Support | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 06/03/2015 | Airway Management | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 05/15/2015 | Diagnosis and Management of Shock | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 05/14/2015 | Board Review | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 05/11/2015 | Mechanical Ventilation | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 04/20/2015 | Life Threatening Infection | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 03/31/2015 | Cardiovascular: Cardiac Anatomy and Physiology | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 03/13/2015 | Oxygen Balance and Acid Base | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 03/09/2015 | Acute Respiratory Failure | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 3/2/2015 | Post-Operative Pulmonary Complications | Moderator | 1 | Anesthesiology residents, fellows, and faculty (40) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 2/20/2015 | Acute Coronary Syndrome | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 2/17/2015 | Neurologic Support | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 1/30/2015 | Surgical Anesthesia Intensive Care Unit (SAICU) Morbidity and Mortality (M&M) | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 1/26/2015 | Life Threatening Infection | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 1/13/2015 | Simulation Session: Sepsis I, Hemorrhagic Shock and Possibly Sepsis II | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 12/24/2014 | Electrolyte and Metabolic Disturbances | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 12/22/2014 | Acute Coronary Syndrome | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/20/2014 | Acute Respiratory Failure and Ventilation Strategy for ARDS | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/03/2014 | Airway Management | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 10/15/2014 | Diagnosis and Management of Shock | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 09/12/2014 | Oxygen Balance and Acid Base | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 09/08/2014 | Undiagnosed adrenal insufficiency in the ICU after partial nephrectomy | Moderator | 1 | Anesthesiology residents, fellows, and faculty (40) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 09/09/2014 | Acute Respiratory Failure | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 08/06/2014 | Airway Management | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 07/29/2014 | Special Considerations in Critical Care: Pregnancy | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 05/28/2014 | Special Considerations in Critical Care: Pregnancy | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 05/16/2014 | Acute Coronary Syndrome | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 05/02/2014 | Airway Management | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 04/28/2014 | Special Considerations in Critical Care: Pregnancy | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 04/18/2014 | Acute Coronary Syndrome | Lecturer | 1 | Residents and medical students on ICU rotation (10) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 03/03/2014 | Normal Ejection Fraction (EF): Does it always mean a normal heart? | Moderator | 1 | Anesthesiology residents, fellows, and faculty (40) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 01/28/2014 | Ventilator Associated Pneumonia in Surgical ICU | Lecturer | 1 | Critical care fellows (4) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 11/14/2013 | Acute Respiratory Failure and Ventilation Strategy for ARDS | Lecturer | 1 | Anesthesiology residents (15) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 10/07/2013 | Hip fracture in the elderly | Moderator | 1 | Anesthesiology residents, fellows, and faculty (40) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| 06/03/2013 | Takotsubo cardiomyopathy in a pregnant patient | Moderator | 1 | Anesthesiology residents, fellows, and faculty (40) | Penn State Milton S. Hershey Medical Center, Department of Anesthesiology and Perioperative Medicine |
| Instructor in Continuing Medical Education (CME), Faculty Development, National Educational Symposia | | | | | |
| 2016-Present | Multiple Anesthesiology and Critical Care related presentations (Detailed below under “Invited Lectures”) | Moderator/Course Director/Presenter for multiple courses | 10-30 hrs./month | Practicing Anesthesiologists, critical care specialists, residents and fellows in critical care and anesthesia | CME Courses being presented at multiple national and international conferences as detailed below |

2. Curriculum Development

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Date | Course Name or Curriculum Product | Role | Purpose | Primary Learner Audience | Organization or Institution |
| 2025 | MPOG ASPIRE QI for learners | Workgroup member | To leverage MPOG ASPIRE program for QI endeavors for learners | Anesthesiology residents/Student Registered Nurse Anesthetists | Multicenter Perioperative Outcomes Group (MPOG) |
| 01/2014 | Medical Student Surgical Anesthesia ICU curriculum | Creating course guidelines and educational topics for the rotation | The curriculum was designed for medical students rotating through the Surgical Anesthesia ICU | Medical students | Penn State University Medical School, Penn State Health Milton S. Hershey Medical Center |

3. Mentoring and Advising

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date | Mentee Name | Mentee Level/ Program and Institution | Role | Mentee Outcomes, Current Position |
| 2025-Present | Zoe Zhang | Medical student, UT Southwestern Medical Center | Research mentor | Summer research project |
| 2025- Present | Jessica Wu | Medical student, UT Southwestern Medical Center | Research mentor | Summer research project |
| 2023-Present | Asad Khawaja | Medical student, UT Southwestern Medical Center | Research mentor | 1. Study abstract presented at the UTSW Medical Student research meet  (Medical student) |
| 2023-Present | Alex Iancau | Medical student, UT Southwestern Medical Center | Research mentor | 1. Study abstract presented at the UTSW Medical Student research meet  2. Study abstract presented at international conference  (Medical student) |
| 2023-2024 | Anthony Dao | Resident physician, Department of Anesthesiology and Pain Management, UT Southwestern Medical Center | Research advisor | 1. Poster presented at a national conference  (Anesthesiology resident)  2. Working on a case report |
| 2021-Present | Siddharth Dave | Assistant Professor, Department of Anesthesiology and Pain Management, UT Southwestern Medical Center | Mentor, Research advisor | 1. Received a research grant  2. Published a book chapter  3. Published an editorial  4. Published a pro-con article  (Associate Professor) |
| 2021-Present | Christopher Choi | Assistant Professor, Department of Anesthesiology and Pain Management, UT Southwestern Medical Center | Mentor, Research advisor | 1. Published a pro-con article  2. Published a book chapter  3. Published a newsletter article  (Assistant professor) |
| 2021-Present | Raksha Bangalore | Assistant Professor, Department of Anesthesiology and Pain Management, UT Southwestern Medical Center | Mentor, and Research advisor | 1. Presented a session at national meeting  2. Published a book chapter  3. Institutional PI for an ongoing international trial  (Assistant Professor) |
| 2021-Present | Joy Chen | Associate Professor, Department of Anesthesiology and Pain Management, UT Southwestern Medical Center | Mentor and Research advisor | 1. Presented multiple sessions at the national meetings  2. PI for a multi-institutional study  (Associate Professor) |
| 2021-2025 | Jack Jenkins | Medical student, UT Southwestern Medical Center | Research mentor | 1. Review article submitted for publication  (Resident physician, MGH) |
| 2021-2023 | Sarah Khorsand | Assistant Professor, Department of Anesthesiology and Pain Management, UT Southwestern Medical Center | Mentor and Research advisor | 1. Published two review articles  2. Published a research paper  (Private practice Intensivist) |
| 2021-Present | Dana Darwish | Assistant Professor, Department of Anesthesiology and Pain Management, UT Southwestern Medical Center | Research advisor | 1. Published a Pro-con article  2. Presented a medically challenge case at conference  3. Review article submitted for publication  (Assistant Professor) |
| 2022-Present | Kathryn Jan | Resident physician, Department of Anesthesiology and Pain Management, UT Southwestern Medical Center | Mentor and Research advisor | 1. Published a book chapter  (Anesthesiology resident)  2. Working on a case report |
| 2020-Present | Abraar Muneem | Medical student, Penn State College of Medicine | Research mentor | 1.Poster presentation  2. Published a case report  3. Manuscript submitted for publication  (Medical Student) |
| 2021-2023 | Rebecca Piland | Resident physician, Department of Anesthesiology and Pain Management, UT Southwestern Medical Center | Mentor | 1. Presented a case report poster at international conference  2. Submitted a review article  3. Published a newsletter article  (Critical care fellow, Weil Cornell Medical Center) |
| 2018-2021 | Gilles Dongmo | Resident physician, Department of Anesthesiology and Perioperative Medicine, Penn State College of Medicine, Penn State Health Milton S. Hershey Medical Center | Faculty mentor | Cardiothoracic Anesthesiologist, Department of Anesthesiology, University of Maryland School of Medicine |
| 2019-2020 | Jonathan Wheelwright | Resident physician, Department of Anesthesiology and Perioperative Medicine, Penn State College of Medicine, Penn State Health Milton S. Hershey Medical Center | Research mentor | Published a review article.  (Staff Anesthesiologist and Intensivist, Milcreek Anesthesia) |
| 2019-2020 | Ae Lim Yang | Medical student, Penn State College of Medicine | Research mentor | Published a review article.  (Resident physician, Yale College of Medicine) |
| 2019-2021 | Matthew Evers | Medical student, Penn State College of Medicine | Research mentor | Published a pro-con article.  (Resident physician, Penn State Anesthesiology) |
| 2019-2020 | Maria Escudoro-Fung | Medical student, Penn State College of Medicine | Research mentor | Published research article  (Resident physician, UC Davis Health, Department of Radiology) |
| 2018-2019 | Kofi Owusu | Resident physician, Department of Anesthesiology and Perioperative Medicine, Penn State College of Medicine, Penn State Health Milton S. Hershey Medical Center | Research mentor | 1. Presented poster at an international conference  2. Published a case report  (Anesthesiologist, Geisinger Health) |
| 2017-2019 | Victoria Haney | Medical student, Penn State College of Medicine | Research mentor | 1. Presented a poster  2. Published a quality improvement report  (Resident physician, Department of Surgery, GW School of Medicine) |
| 2017-2021 | Melanio Bruceta | Medical student, Penn State College of Medicine | Research Mentor | 1. Presented multiple posters  2. Published multiple research articles and case reports  (Faculty Anesthesiologist, University of Miami Health System) |
| 2017-2018 | David Carroll | Resident physician, Department of Anesthesiology and Perioperative Medicine, Penn State College of Medicine, Penn State Health Milton S. Hershey Medical Center | Research mentor | 1. Presented abstract at the SCCM annual congress  2. Published a quality improvement report  (Assistant Professor, Department of Anesthesiology, Medical University of South Carolina) |
| 2017-2018 | Jacob Benrud | Resident physician, Department of Anesthesiology and Perioperative Medicine, Penn State College of Medicine, Penn State Health Milton S. Hershey Medical Center | Research mentor | Published a case report.  (Assistant Professor, Department of Anesthesiology, Penn State Health Milton S. Hershey Medical Center) |
| 2017-2018 | Graham Fehr | Resident physician, Department of Anesthesiology and Perioperative Medicine, Penn State College of Medicine, Penn State Health Milton S. Hershey Medical Center | Research mentor | 1. Presented posters at national meetings  2. Published multiple case reports  (Pediatric anesthesiologist, Children's Hospital of The King's Daughters) |
| 2017-2019 | Sonal Sharma | Resident physician, Department of Anesthesiology and Perioperative Medicine, Penn State College of Medicine, Penn State Health Milton S. Hershey Medical Center | Research mentor | 1. Presented multiple posters  2. Published multiple research papers  (Assistant Professor, Department of Anesthesiology, Penn State Health Milton S. Hershey Medical Center) |
| 2016-2018 | Robert Schoaps | Resident physician, Department of Anesthesiology and Perioperative Medicine, Penn State College of Medicine, Penn State Health Milton S. Hershey Medical Center | Research mentor | 1. Presented multiple posters  2. Published multiple research papers  (Intensivist, NTEGRIS Baptist Medical Center, Oklahoma City, OK) |
| 2016-2017 | Kyle Barden | Resident physician, Department of Anesthesiology and Perioperative Medicine, Penn State College of Medicine, Penn State Health Milton S. Hershey Medical Center | Research mentor | 1. Presented abstract at international congress  2. Published a quality improvement report  (Private practice anesthesiologist, Findlay, OH) |
| 2015-2016 | Galen Royce Nagel | Resident physician, Department of Anesthesiology and Perioperative Medicine, Penn State College of Medicine, Penn State Health Milton S. Hershey Medical Center | Research mentor | Published case report and presented a poster.  (Anesthesiologist and Intensivist, Duke Health) |
| 2014-2015 | Brandon Bortz | Resident physician, Department of Anesthesiology and Perioperative Medicine, Penn State College of Medicine, Penn State Health Milton S. Hershey Medical Center | Research mentor | 1. Presented two posters  2. Published two case reports  (Faculty Anesthesiologist, Penn Medicine Lancaster General Health) |
| 2013-2017 | Pradeep Singanallur | Resident physician, Department of Anesthesiology and Perioperative Medicine, Penn State College of Medicine, Penn State Health Milton S. Hershey Medical Center | Faculty Mentor | Associate Chief Medical Officer, Centra Health, Bedford, NH, USA |

4. Learner Assessment Activities or Tool Development

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| --- | --- | --- | --- | --- | --- |
| Date | Course Name or Session Topic | Role | Number of Evaluation Hours | Primary Learner Audience | Organization or Institution |
| 2014 | *SAICU Morning Report* (An educational endeavor for medical students, residents, and fellows rotating through the Surgical Anesthesia ICU. An hour-long session with discussion on a research paper published in a journal or an interesting clinical case.) | Creator |  | House staff and medical students rotating through the Surgical Anesthesia ICU | Penn State College of Medicine, Penn State Health Milton S. Hershey Medical Center |
| 2014 | *SAICU Orientation videos* (Development of “YouTube” videos for orientation of medical students and residents to the SAICU rotation.) | Mentor |  | House staff and medical students rotating through the Surgical Anesthesia ICU | Penn State College of Medicine, Penn State Health Milton S. Hershey Medical Center |

5. Educational Administration and Leadership

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| --- | --- | --- | --- | --- | --- |
| Date | Title | Responsibilities | Time (FTE or hours) | Organization and Program Scope | Outcomes |
| 2025-Present | Member, MPOG ASPIRE QI for learners workgroup | * To leverage MPOG ASPIRE program for QI endeavors for learners | 2 hrs./month | Multicenter Perioperative Outcomes group (MPOG) |  |
| 2024-Present | Chair, Education committee | * Curating educational content related to critical care medicine and managing various sub-committees including program planning, webinar development, virtual education, journal club, and board review course | 30 hrs/month | Society of Critical Care Anesthesiologists |  |
| 2021-2024 | Vice Chair, Education committee | * Curating educational content related to critical care medicine and managing various sub-committees including program planning, webinar, CME and board review course | 20 hrs/month | Society of Critical Care Anesthesiologists |  |
| 2020-Present | Co-lead, Education workgroup | * Creating resources for perioperative handoff education at a national level | 5 hrs./month | Multicenter handoff collaborative |  |
| 2014-2021 | Member, Clinical Competence Committee – Critical Care Fellowship | * Evaluating the performance of anesthesia critical care fellows | 4 hrs./month | Penn State College of Medicine, Penn State Health Milton S. Hershey Medical Center |  |
| 2014-2021 | Member, Program Evaluation Committee – Critical Care Fellowship | * Curriculum development for the anesthesia critical care fellowship program | 4 hrs./month | Penn State College of Medicine, Penn State Health Milton S. Hershey Medical Center |  |
| 2017-2021 | Medical Student Rotation Director for Surgical Anesthesia ICU | * Scheduling * Curriculum development * Evaluation | 4 hrs./month | Penn State College of Medicine, Penn State Health Milton S. Hershey Medical Center |  |
| 2017-2021 | Resident Rotation Director for Surgical Anesthesia ICU | * Scheduling * Curriculum development * Evaluation | 4 hrs./month | Penn State College of Medicine, Penn State Health Milton S. Hershey Medical Center |  |

**Grant Review Activities**

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| Year(s) | Name of Review Committee | Organization |
|  |  |  |
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**Editorial Activities**

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| --- | --- |
| Year(s) | Journal Name |
| Editor/Associate Editor | |
|  |  |
|  |  |
| Editorial Board | |
| 2022- Present | BMC Anesthesiology |
| 2022- Present | Frontiers in Anesthesiology |
| Ad Hoc Reviewer | |
| 2019- Present | “BMJ Open” 1-2/year |
| 2019- Present | “Journal of the American College of Emergency Physicians Open” 2-4/year |
| 2019- Present | “Journal of Critical Care” 4-6/year |
| 2019- Present | “Journal of Cardiothoracic and Vascular Anesthesia” 1-2/year |
| 2019- Present | “Journal of Intensive Care Medicine” 1-2/year |
| 2019- Present | “PLOS one” 1-2/year |
| 2018- Present | “Anesthesia & Analgesia Practice” 4-6/year |
| 2018 - Present | “International Journal of Obstetric Anesthesia” 1-2/year |
| 2018 - Present | “Anesthesia & Analgesia” 4-6/year |
| 2018 - Present | “Cardiovascular Diagnosis and Therapy” 1-2/year |
| 2017 - Present | “Critical Care Nurse” 1-2/year |
| 2017 - Present | “American Journal of Case Reports” 2-3/year |
| 2017 - Present | “Medical Science Monitor” 2-3/year |
| 2016 - Present | Reviewer, Research abstracts for Society of Critical Care Medicine (SCCM) annual meeting |
| 2015 - Present | Reviewer, Research abstracts for American College of Chest Physicians (ACCP) annual meeting |
| 2015 - Present | Reviewer, Research abstracts for International Anesthesia Research Society (IARS) annual meeting |

**Grant Support**

Active

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| --- | --- |
| 1. | *Grantor:* National Institute of Health (NIH) |
|  | *Title of Project:* The choice of vasopressor to prevent postoperative acute kidney injury after major non-cardiac surgery: a multicenter pragmatic cluster cross-over randomized trial (NCT06802224) |
|  | *Role (Principal Investigator, Co-Investigator):* Co-investigator/mentor |
|  | *Annual amount and date (direct costs only):* USD $675,175; 01/14/2025 |
| 2. | *Grantor:* Takeda Pharmaceuticals |
|  | *Title of Project:* A Phase 3, Prospective, Randomized, Open-label, Adaptive Group Sequential, Multicenter Trial with Blinded Endpoint Assessment to Evaluate the Efficacy and Safety of TAK-330 for the Reversal of Direct Oral Factor Xa Inhibitor-induced Anticoagulation in Patients Requiring Urgent Surgery/Invasive Procedure |
|  | *Role (Principal Investigator, Co-Investigator):* Principal Investigator |
|  | *Annual amount and date (direct costs only):* USD38,416.15, 05/03/2024 |
| 2. | *Grantor:* Texas Society of Anesthesiologists |
|  | *Title of Project:* Vasopressor Outcomes in Spine Surgery (V-SPINE) Trial |
|  | *Role (Principal Investigator, Co-Investigator):* Co-Investigator/mentor |
|  | *Annual amount and date (direct costs only):* USD25,000, 09/01/2023 |

Past

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| --- | --- |
| 1. | *Grantor (travel grant):* UT Southwestern Medical Center |
|  | *Title of Project:* Assessing Nurse Perceptions of CAM-ICU and S-PTD for Delirium Diagnosis: A Comparative Study Across Intensive Care Units |
|  | *Role (Principal Investigator, Co-Investigator):* Co-Investigator |
|  | *Annual amount and date (direct costs only):* USD1300, 02/2024-05/2024 |
| 2. | *Grantor (travel grant):* UT Southwestern Medical Center |
|  | *Title of Project:* Management of a Physiologically Difficult Airway: Expert consensus statements using a Delphi method |
|  | *Role (Principal Investigator, Co-Investigator):* Primary Investigator |
|  | *Annual amount and date (direct costs only):* USD1300, 01/2024 |
| 3. | *Grantor:* Penn State Health Milton S. Hershey Medical Center |
|  | *Title of Project:* Timing of transversus abdominis plane (TAP) blocks using liposomal bupivacaine and its impact on postoperative pain scores and opioid consumption. |
|  | *Role (Principal Investigator, Co-Investigator):* Primary Investigator |
|  | *Annual amount and date (direct costs only):* USD800, 08/2019 |
| 4. | *Grantor (travel grant):* Penn State Health Milton S. Hershey Medical Center |
|  | *Title of Project:* Factors Associated with Admission to ICU After Elective Non-cardiac  Surgery. |
|  | *Role (Principal Investigator, Co-Investigator):* Primary Investigator |
|  | *Annual amount and date (direct costs only):* USD1000, 05/2017 |
| 5. | *Grantor (travel grant):* Penn State Health Milton S. Hershey Medical Center |
|  | *Title of Project:* Adherence to surgical antimicrobial prophylaxis and surgical site  infections. |
|  | *Role (Principal Investigator, Co-Investigator):* Primary Investigator |
|  | *Annual amount and date (direct costs only):* USD1000, 05/2017 |
| 6. | *Grantor (travel grant):* Penn State Health Milton S. Hershey Medical Center |
|  | *Title of Project:* Takotsubo’s cardiomyopathy in an eclamptic patient |
|  | *Role (Principal Investigator, Co-Investigator):* Mentor |
|  | *Annual amount and date (direct costs only):* USD1000, 01/2015 |

**Clinical Trials Activities**

Present

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| 1. | *Grantor:* Patient-Centered Outcomes Research Institute (PCORI) |
|  | *Title of Project:* Trajectories of Recovery after Intravenous propofol vs. inhaled VolatilE anesthesia |
|  | *Role (Principal Investigator, Co-Investigator):* Site Principal Investigator |
| 2. | *Grantor:* National Institute of Health (NIH) |
|  | *Title of Project:* The choice of vasopressor to prevent postoperative acute kidney injury after major non-cardiac surgery: a multicenter pragmatic cluster cross-over randomized trial (NCT06802224) |
|  | *Role (Principal Investigator, Co-Investigator):* Co-investigator/mentor |
| 3. | *Grantor:* Takeda Pharmaceuticals |
|  | *Title of Project:* A Phase 3, Prospective, Randomized, Open-label, Adaptive Group Sequential, Multicenter Trial with Blinded Endpoint Assessment to Evaluate the Efficacy and Safety of TAK-330 for the Reversal of Direct Oral Factor Xa Inhibitor-induced Anticoagulation in Patients Requiring Urgent Surgery/Invasive Procedure |
|  | *Role (Principal Investigator, Site PI, Sub investigator):*Site PI |
| 4. | *Grantor:* University of Turin, Italy |
|  | *Title of Project:* International obServational sTudy on AiRway manaGement in operAting room and non-operaTing room anaEsthesia. (STARGATE) [NCT05759299](https://clinicaltrials.gov/show/NCT05759299) |
|  | *Role (Principal Investigator, Site PI, Sub investigator):*Steering committee member |
| 5. | *Grantor:* European Society of Intensive Care Medicine (ESICM) |
|  | 1. *Title of Project:* Association of intraoperative **He**modynamic characteristics with postoperative **Co**mplications and **Mo**rtality (HeCoMo) |
|  | *Role (Principal Investigator, Site PI, Sub investigator):*Steering committee member |

Past

|  |  |
| --- | --- |
| 1. | *Grantor:* European Society of Intensive Care Medicine (ESICM) |
|  | *Title of Project:* The Decubitus in Intensive Care Units study (DecubICUs) |
|  | *Role (Principal Investigator, Site PI, Sub investigator):*Sub investigator |
| 2. | *Grantor:* National Institute of Health (NIH) |
|  | *Title of Project:* Therapeutic Anticoagulation with Heparin in Critically Ill Patients with Covid-19 |
|  | *Role (Principal Investigator, Site PI, Sub investigator):*Site PI |
| 3. | *Grantor:* National Institute of Health (NIH) |
|  | *Title of Project:* Therapeutic Anticoagulation with Heparin in Non-Critically Ill Patients with Covid-19 |
|  | *Role (Principal Investigator, Site PI, Sub investigator):*Sub investigator |

**Invited Lectures**

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| --- | --- | --- |
| Year(s) | Title | Location |
| International | | |
| 03/2025 | Speaker, “Critical Care Challenges in patients with obesity” | International Society for the Perioperative Care of the Obese Patient (ISPCOP) 9th Annual Symposium, 2025, Honolulu, HI, USA |
| 03/2025 | Faculty for ticketed workshop, “Point-Of-Care Ultrasound (POCUS) During Medical Emergencies/ Focused Echocardiographic Evaluation in the Peri Resuscitative Period | IARS/SOCCA Annual Meeting, 2025, Honolulu, HI, USA |
| 03/2025 | Speaker, Tracheal intubation in critically ill patients: Where we are and where we need to go? for session, “Emergency Airway Management Outside the Operating Room: Not for the Faint at Heart!” | IARS/SOCCA Annual Meeting, 2025, Honolulu, HI, USA |
| 02/2025 | Speaker, “Beyond the Antiarrhythmics” | Society of Critical Care Medicine’s (SCCM) Annual Congress 2025 Digital |
| 02/2025 | Speaker, “Year in Review: Anesthesiology” | SCCM Annual Congress 2025, Orlando, FL, USA |
| 02/2025 | Speaker, “Glucagon-Like Peptide-1 Agonist Risks and Complications in Critically Ill and Perioperative Patients.” | SCCM Annual Congress 2025, Orlando, FL, USA |
| 10/2024 | Speaker, “Ex-Lap in the ICU, is that even possible?” | ASA Annual Meeting 2024, Philadelphia, PA, USA |
| 10/2024 | Speaker, “Challenges Associated with Emergency Airway Management-the Physiologically Difficult Airway" | ASA Annual Meeting 2024, Philadelphia, PA, USA |
| 10/2024 | Speaker, “What is a Physiologically Difficult Airway"? | ASA Annual Meeting 2024, Philadelphia, PA, USA |
| 10/2024 | Moderator, “Postoperative complications: How Can We Do Better?” | ASA Annual Meeting 2024, Philadelphia, PA, USA |
| 09/2024 | Speaker, “Is Analgesia Based Sedation Always the Right Choice?” | IARS Webinar |
| 05/2024 | Moderator, “Perioperative Handoffs: How Can We Make Them Better?” | IARS/SOCCA Annual Meeting 2024, Seattle, WA, USA |
| 05/2024 | Speaker, “What is a Physiologically Difficult Airway"? And Why Does It Matter?” | IARS/SOCCA Annual Meeting 2024, Seattle, WA, USA |
| 05/2024 | Workshop faculty, “Point-of-Care Ultrasound (POCUS) During Medical Emergencies/ Focused Echocardiographic Evaluation in the Peri Resuscitative Period.” | IARS/SOCCA Annual Meeting 2024, Seattle, WA, USA |
| 05/2024 | Moderator, “Cardiovascular Topics in Liver Transplantation Featured Symposium: Ensuring the Heart is Ready for Transplant” | ILTS Annual Meeting 2024, Houston, TX, USA |
| 05/2024 | Speaker, “Postoperative challenge in ICU” | ILTS Annual Meeting 2024, Houston, TX, USA |
| 01/2024 | Moderator for “The Physiologically Difficult Airway: Prediction, Mitigation and Recovery” | SCCM Annual Congress 2024, Phoenix, AZ, USA |
| 10/14-10/17/2023 | Moderator for virtual session: “Tips and tricks to keep your patient out of the ICU” | ASA Annual Meeting 2023, San Francisco, CA, USA |
| 10/14-10/17/2023 | Speaker for virtual session: “To Line or Not to Line, that is the question. A debate about peripheral vasopressors.” | ASA Annual Meeting 2023, San Francisco, CA, USA |
| 10/16/2023 | Speaker: “OR versus ICU procedures for ICU patients too sick to transport to the operating room” | ASA Annual Meeting 2023, San Francisco, CA, USA |
| 10/15/2023 | Speaker: “Differentiate volume responsiveness measures in the spontaneously breathing and mechanically ventilated patient” | ASA Annual Meeting 2023, San Francisco, CA, USA |
| 10/13/2023 | Speaker: “Acute and Acute-on-Chronic liver failure: To transplant or not?” | ILTS/SATA Perioperative Care in Liver Transplantation Meeting 2023, San Francisco, CA, USA |
| 04/14/2023 | Speaker: “Is Analgesia-first strategy right for ICU sedation” | Society of Critical Care Anesthesiologists Annual Meeting, Denver, CO, USA |
| 01/21/2023 | Moderator for Star Research Presentations: sepsis | Society of Critical Care Medicine Annual Congress, San Francisco, CA, USA |
| 01/22/2023 | Speaker: Managing Patients with Opioid Use Disorder in the ICU | Society of Critical Care Medicine Annual Congress, San Francisco, CA, USA |
| 12/01/2022 | Emergency out-of-OR Airway Management: Not for the faint at heart | Tata Memorial Centre - Difficult Airway Conference, Mumbai, India |
| 10/25/2022 | Absolute or Relative Change from Baseline: In Search of the Holy Grail of Intraoperative Blood Pressure Management | ASA Annual Meeting 2022, New Orleans, LA, USA |
| 10/25/2022 | When Your PACU Turns Into an ICU | ASA Annual Meeting 2022, New Orleans, LA, USA |
| 10/22/2022 | The Tube Went in Alright, Then Why Did my Patient Arrest? | ASA Annual Meeting 2022, New Orleans, LA, USA |
| 10/21/2022 | Patients fulfilling CCM criteria: LT is contraindicated, part of PRO/CON Discussion: Cirrhotic Cardiomyopathy. | Perioperative Care in Liver Transplantation Meeting 2022, New Orleans, LA |
| 05/2022 | NORA-ICU: Challenges galore | SAMBA Annual Meeting 2022, Phoenix, AZ, USA |
| 05/2022 | NORA-ICU PBLD | SAMBA Annual Meeting 2022, Phoenix, AZ, USA |
| 04/2022 | Current concepts in Critical Care, “Atrial fibrillation” | SCCM Annual Congress 2022 (Virtual) |
| 04/19/2022 | Breaking the Habit: Addiction Management in the ICU | SCCM Annual Congress 2022 (Virtual) |
| 03/18/2022 | The Tube Went In, But Why Did My Patient Collapse? | SOCCA Annual meeting 2022 (Virtual) |
| 2021 | Airway management outside the operating room | XII National Airway Conference All India Difficult Airway Association, October 2021 (Virtual) |
| 2021 | Ex-Lap in the ICU: Is that even Possible?” for the session “My Patient is Too Sick for Surgery, But Not For NORA? Confronting Challenges To Patient Safety Outside of the OR | ASA Annual Meeting 2021 at San Diego, CA, USA |
| 2021 | Relative change in blood pressure is precision medicine and the way forward! For the session, Absolute or relative to baseline - is there a magic intraoperative blood pressure number? | ASA Annual Meeting 2021 at San Diego, CA, USA |
| 2021 | My Worst Critical Care Case: Four Case Studies of Intraoperative Disasters | ASA Annual Meeting 2021 at San Diego, CA, USA |
| 2021 | Does intraoperative lung protective ventilation matter? | ASA Annual Meeting 2021 at San Diego, CA, USA |
| 2021 | Escalation of Antifungal Agents after Liver Transplant. Prophylactic or Empirical: An Ever-Growing Challenge | 2nd Advanced Institute of Liver & Biliary Sciences (AILBS) International Conference, New Delhi, India |
| 2021 | Out of OR Emergency Airway Management | IARS AUA SOCCA 2021 virtual annual congress |
| 2021 | Emergency Airway Management outside the operating room: same problem, different answers! | SOCCA webinar |
| 2020 | Key Issues in Liver Transplant Intensive Care | 3rd Annual conference of the Liver Transplantation Society of India, New Delhi, India |
| 2020 | New Perspectives on Traditional ICU Education Topics: A Series of Snap Talks, Atrial Fibrillation | SOCCA webinar |
| 2020 | Atrial fibrillation and COVID | SCCM web-based learning module |
| 2020 | COVID 19 Questions and Answers | SCCM webinar |
| 2020 | Pro/Con Debate: PADIS Guidelines: Always Use Narcotics? | 49th SCCM Critical Care Congress, Orlando, USA. |
| 2020 | Current Concepts in Adult Critical Care | 49th SCCM Critical Care Congress, Orlando, USA. |
| 2019 | Perioperative Management | ILTS Perioperative Care in Liver Transplantation Meeting, Orlando, USA. |
| 2019 | Beyond the Standard: New Resuscitation Paradigms in Critical Care | 2019 SOCCA Annual Meeting and Critical Care Update, Montreal, Canada. |
| 2019 | PBLD on “Perioperative atrial fibrillation: challenges in prevention and management” | IARS Annual meeting 2019, Montreal, Canada. |
| 2018 | Heart failure and liver transplantation | ILTS Perioperative Care in Liver Transplantation Annual Meeting, San Francisco, USA. |
| 2018 | 50 Years of ARDS: An Update | IARS Annual meeting 2018, Chicago, USA. |
| 2018 | PBLD on “To Intubate or Not: Management of Postoperative Acute Respiratory Failure” | IARS Annual meeting 2018, Chicago, USA. |
| 2017 | PBLD on “Lung Protective ventilation under general anesthesia: Myth or Reality” | IARS Annual meeting 2017, Washington DC, USA. |
| National | | |
| 2024 | Airway management in critically ill patients: beware of the physiologically difficult airway! | Robert Wood Johnson University Hospital, Rutgers, The State University of New Jersey, New Brunswick, New Jersey. |
| 2020 | Atrial Fibrillation: challenges for the perioperative physician | Department of Anesthesiology, Joe R. & Teresa Lozano Long School of Medicine, UT Health Science Center at San Antonio, San Antonio, TX |
| 2019 | Acute heart failure after liver transplantation: challenges for the perioperative physician | Department of Anesthesiology, UT Health McGovern Medical School, Houston, TX |
| 2017 | Opioid epidemic and the ICU | Department of Anesthesiology, Thomas Jefferson University Medical Center, Philadelphia, PA. |
| 2015 | Acute respiratory distress syndrome (ARDS): An update | Department of Anesthesiology, Drexel University, Philadelphia, PA. |
| Regional/Local | | |
| 10/2024 | Tracheal intubation in critically ill patients: beware of the physiologically difficult airway! | Neuroscience ICU, University of Texas Southwestern Medical Center, Dallas, TX |
| 11/2023 | Intraoperative blood pressure management: What we know or rather what we don’t know | Department of Anesthesiology, Dallas VA Medical Center, Dallas, TX |
| 04/2023 | Nuts and Bolts of MPOG and how to leverage it for research and QI endeavors | Department of Anesthesiology and Pain Management, University of Texas Southwestern Medical Center, Dallas, TX |
| 11/2021 | Intraoperative hypotension and blood pressure management under general anesthesia | Department of Anesthesiology, Dallas VA Medical Center, Dallas, TX |
| 01/2021 | Sugammadex for neuromuscular block reversal (Pro-Con Debate) | Department of Anesthesiology and Perioperative Medicine, Penn State Health Milton S. Hershey Medical Center, Hershey, PA |
| 07/2020 | Atrial Fibrillation: challenges for the perioperative physician | Department of Anesthesiology and Perioperative Medicine, Penn State Health Milton S. Hershey Medical Center, Hershey, PA |
| 2018 | Sedation in the ICU and the opioid epidemic | Celebrate SICU meeting at the University Conference Center, Hershey, PA |
| 2017 | Acute Respiratory Distress Syndrome | 3rd Annual Adult Respiratory Care Conference at Milton S. Hershey Medical Center. |
| 2017 | Sedation in the ICU and the opioid epidemic | 22nd Annual Challenges in Critical Care Conference of the Pennsylvania Society of Critical Care Medicine at Hotel Hershey, Hershey, PA. |
| 2017 | Opioid epidemic and the ICU | Department of Anesthesiology and Perioperative Medicine, Penn State Health Milton S. Hershey Medical Center, Hershey, PA |
| 09/2016 | Preventing Ventilator Associated Events (VAE): Bringing everyone together | 21st Annual Challenges in Critical Care Conference of the Pennsylvania Society of Critical Care Medicine, Hershey, PA. |
| 2016 | Preventing Ventilator Associated Events (VAE): Bringing everyone together | Department of Anesthesiology and Perioperative Medicine, Penn State Health Milton S. Hershey Medical Center, Hershey, PA |
| 06/2016 | Deep vs awake extubation: pro-con debate | Department of Anesthesiology and Perioperative Medicine, Penn State Health Milton S. Hershey Medical Center, Hershey, PA |
| 03/2015 | Acute Respiratory Distress syndrome (ARDS): An update | Department of Anesthesiology and Perioperative Medicine, Penn State Health Milton S. Hershey Medical Center, Hershey, PA |
| 02/2015 | Perioperative fluid management- a Paradigm shift | Department of Anesthesiology and Perioperative Medicine, Penn State Health Milton S. Hershey Medical Center, Hershey, PA |
| 08/2013 | Management of severe sepsis and septic shock: An update | Department of Anesthesiology and Perioperative Medicine, Penn State Health Milton S. Hershey Medical Center, Hershey, PA |

**Technological and Other Scientific Innovations** N/A

**Quality and patient safety activities**

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| Year(s) | Project | Institution |
| 2025- Present | A Pilot Evaluation of an Epic-embedded OR-ICU Handoff Report | APSF Multicenter Handoff Collaborative |
| 2025- Present | Improving medication reconciliation process during hospital admission, transitions of care, and hospital discharge. | UT Southwestern Medical Center |
| 2024-Present | Improving medication administration practices in the intraoperative setting using barcode medication administration | UT Southwestern Medical Center |
| 2023-Present | Ensuring guideline-based prophylaxis and treatment of postoperative nausea vomiting (PONV) in patients undergoing surgery under anesthesia care | UT Southwestern Medical Center |
| 2023-Present | Improving the assessment, prevention, and treatment of delirium in critically ill patients | UT Southwestern Medical Center |
| 2022-Present | Participation in the multi-institutional QI program (ASPIRE) | UT Southwestern Medical Center |
| 2019-2021 | Reorganization of medication storage in Pyxis machines to prevent inadvertent administration of wrong medications | Penn State Health Milton S. Hershey Medical Center |
| 2018-2021 | Preventing complications from blind insertion of nasal feeding tubes in hospitalized patients. | Penn State Health Milton S. Hershey Medical Center |
| 2018-2021 | Ensuring appropriate discharge instructions on ineffectiveness of oral contraceptives in females receiving sugammadex and aprepitant during their perioperative course. | Penn State Health Milton S. Hershey Medical Center |
| 2017-2021 | Reduce inappropriate administration of IV Tylenol during the perioperative period | Penn State Health Milton S. Hershey Medical Center |
| 2017-2021 | Improving documentation of medications administered by the anesthesia providers during intubations performed outside the operating room | Penn State Health Milton S. Hershey Medical Center |
| 2017-2021 | Reviewing the rate of unplanned extubation in the Surgical Anesthesia ICU and formulating a multidisciplinary plan for prevention. | Penn State Health Milton S. Hershey Medical Center |
| 2017-2018 | Assessment of barriers toward conducting appropriate interdisciplinary, patient centric rounds in the Surgical Anesthesia ICU. An audit of bedside nursing staff and rounding physicians. | Penn State Health Milton S. Hershey Medical Center |
| 2015-2021 | Hospital wide implementation of a patient safety initiative, “Time Out for Sign Out”. A verbal bedside handoff process between the ICU and OR teams upon transfer of a patient from the ICU to the OR and vice versa. | Penn State Health Milton S. Hershey Medical Center |
| 2013-2021 | Improving adherence to surgical antimicrobial prophylaxis guidelines in patients undergoing surgery and anesthesia. | Penn State Health Milton S. Hershey Medical Center |
| 2012-2014 | Estimation of continuation of newly initiated atypical antipsychotic medications in critically ill adult patients on ICU discharge. | Penn State Health Milton S. Hershey Medical Center |
| 2011-2016 | Evaluation of risk factors associated with admission to the ICU after elective non-cardiac surgery in a cohort of surgical patients. | Penn State Health Milton S. Hershey Medical Center |
| 2009-2016 | Assessing the rate of prescription of anticoagulation on hospital discharge in critically ill patients with new-onset atrial fibrillation admitted to all adult ICUs. | Penn State Health Milton S. Hershey Medical Center |

**Bibliography**

**Peer-Reviewed Publications**

Original Research Articles

|  |  |
| --- | --- |
|  | **Karamchandani K**, Nasa P, Jarzebowski M, Brewster DJ, De Jong A, Bauer PR, Berkow L, Brown CA 3rd, Cabrini L, Casey J, Cook T, Divatia JV, Duggan LV, Ellard L, Ergan B, Jonsson Fagerlund M, Gatward J, Greif R, Higgs A, Jaber S, Janz D, Joffe AM, Jung B, Kovacs G, Kwizera A, Laffey JG, Lascarrou JB, Law JA, Marshall S, McGrath BA, Mosier JM, Perin D, Roca O, Rollé A, Russotto V, Sakles JC, Shrestha GS, Smischney NJ, Sorbello M, Tung A, Jabaley CS, Myatra SN; Society of Critical Care Anesthesiologists (SOCCA) Physiologically Difficult Airway Task Force. Tracheal intubation in critically ill adults with a physiologically difficult airway. An international Delphi study. Intensive Care Med. 2024 Aug 20. doi: 10.1007/s00134-024-07578-2. Epub ahead of print. |
|  | Singh NP, Makkar JK, Goel N, **Karamchandani K**, Singh M, Singh PM. Effect of prophylactic corticosteroids on postoperative neurocognitive dysfunction in the adult population: An updated systematic review, meta-analysis, and trial sequential analysis of randomised controlled trials. Indian J Anaesth. 2024 Jun;68(6):517-526. |
|  | Carr ZJ, Li J, Agarkov D, Gazura M, **Karamchandani K**. Estimates of 30-day postoperative pulmonary complications after gastrointestinal endoscopic procedures: A retrospective cohort analysis of a health system population. PLoS One. 2024 Feb 23;19(2):e0299137. |
|  | **Karamchandani K**, Khorsand S, Ebeling C, Yan L, Nakonezny PA, Carr ZJ. Predictors of Failure to Rescue After Postoperative Respiratory Failure: A Retrospective Cohort Analysis of 13,047 Patients Using the ACS-NSQIP Dataset. J Surg Res. 2023 Oct 10;293:482-489. |
|  | Myler CS, Chapman MR, Eden BD, Lehman EB, **Karamchandani K**. Oral versus intravenous acetaminophen for perioperative pain management in adult patients undergoing non-cardiac surgery: A quantile segmented regression analysis. J Clin Anesth. 2023 Jul 25; 90:111220. |
|  | Bruceta M, Singh PM, Bonavia A, Carr ZJ, **Karamchandani K**. Emergency use of sugammadex after failure of standard reversal drugs and postoperative pulmonary complications: A retrospective cohort study. J Anaesthesiol Clin Pharmacol. 2023 Apr-Jun;39(2):232-238. |
|  | Darden N, Sharma S, Wu X, Mancini B, **Karamchandani K**, Bonavia AS. Long-Term Clinical Outcomes in Critically Ill Patients with Sepsis and Pre-existing Sarcopenia: A Retrospective Cohort Study. medRxiv [Preprint]. 2023 Apr 17:2023.04.12.23288490. |
|  | **Karamchandani K**, McDowell BJ, Raghunathan K, Krishnamoorthy V, Lehman EB, Ohnuma T, Bonavia A. Failure to Rescue After Severe Acute Kidney Injury in Patients Undergoing Non-Cardiac Surgery. J Surg Res. 2022 Jun 28; 279:148-163. |
|  | Malviya, A.K., Bruceta, M., Singh, P.M., Bonavia A., **Karamchandani K**., Gupta A. Analysis of the American College of Surgeons National Surgical Quality Improvement Program® (ACS NSQIP®) Database to Identify Factors Associated with Postoperative Mortality After Elective Non-cardiac Surgery. *Indian J Surg* (2022) |
|  | Tollinche LE, Seier KP, Yang G, Tan KS, Tayban YD, Pastores SM, Yeoh CB, **Karamchandani K**. Discharge prescribing of enteral opioids in opioid naïve patients following non-surgical intensive care: A retrospective cohort study. J Crit Care. 2022 Apr; 68:16-21. |
|  | Escudero-Fung M, Lehman EB, **Karamchandani K**. Timing of Transversus Abdominis Plane Block and Postoperative Pain Management. Local Reg Anesth. 2020 Nov 3; 13:185-193. |
|  | Haney V, Maman S, Prozesky J, Bezinover D, **Karamchandani K**. Improving intraoperative administration of surgical antimicrobial prophylaxis: a quality improvement report. BMJ Open Qual. 2020 Sep;9(3): e001042. |
|  | McDowell BJ, **Karamchandani K**, Lehman EB, Conboy MJ, Carr ZJ. Perioperative risk factors in patients with idiopathic pulmonary fibrosis: a historical cohort study. Can J Anaesth. 2021 Jan;68(1):81-91. |
|  | **Karamchandani K**, Schoaps RS, Abendroth T, Carr ZJ, King TS, Bonavia A. CHA2DS2-VASc score and in-hospital mortality in critically ill patients with new-onset atrial fibrillation. J Cardiothorac Vasc Anesth. 2020 May;34(5):1165-117. |
|  | Bruceta M, De Souza L, Carr ZJ, Bonavia A, Kunselman AR, **Karamchandani K**. Post-operative intensive care unit admission after elective non-cardiac surgery: A single-center analysis of the NSQIP database. Acta Anaesthesiol Scand. 2020 Mar;64(3):319-328. |
|  | Bonavia A, Javaherian M, Skojec AJ, Chinchilli VM, Mets B, **Karamchandani K**. Angiotensin axis blockade, acute kidney injury, and perioperative morbidity in patients undergoing colorectal surgery: A retrospective cohort study. Medicine(Baltimore). 2019 Aug;98(33):e16872. |
|  | **Karamchandani K**, Pyati S, Bryan W, Pepin M, Lehman EB, Krishnamoorthy V, Raghunathan K. New Persistent Opioid Use After Postoperative Intensive Care in US Veterans. JAMA Surg. 2019 Aug 1;154(8):778-780 |
|  | Carr ZJ, Miller L, Ruiz-Velasco V, Kunselman AR, **Karamchandani K**. In a Model of Neuroinflammation Designed to Mimic Delirium, Quetiapine Reduces Cortisol Secretion and Preserves Reversal Learning in the Attentional Set Shifting Task. J Neuroimmune Pharmacol. 2019 Sep;14(3):383-390. |
|  | Schoaps RS, Quintili A, Bonavia A, Carr ZJ, Lehman EB, Abendroth T, **Karamchandani K**. Stroke prophylaxis in critically-ill patients with new-onset atrial fibrillation. J Thromb Thrombolysis. 2019;48(3);394-399. |
|  | **Karamchandani K**, Barden K, Prozesky J. Adherence to surgical antimicrobial prophylaxis: ‘checking-the-box’ isn’t enough. Int J Health Care Qual Assur. 2019 Mar 11;32(2):470-473. |
|  | **Karamchandani, K**., Schoaps, R. S., Bonavia, A., Prasad, A., Quintili, A., Lehman, E. B., & Carr, Z. J. (2018). Continuation of atypical antipsychotic medications in critically ill patients discharged from the hospital: a single-center retrospective analysis. Ther Adv Drug Saf. 2018 Nov 2;10:204-209. |
|  | Carr ZJ, Vells B, Wood BR, Lowery JD, Rogers AM, Kunselman AA, **Karamchandani K**, Vaida SJ. A double-blind randomized placebo controlled pilot study of single-dose preoperative modafinil for functional recovery after general anesthesia in patients with obstructive sleep apnea. Medicine (Baltimore). 2018: Sep;97(39): e12585. |
|  | **Karamchandani K**, Fitzgerald K, Carroll D, Trauger ME, Ciccocioppo LA, Hess W, Prozesky J, Armen SB. A multidisciplinary handoff process to standardize the transfer of care between the Intensive Care Unit and the Operating Room. Qual Manag Health Care. 2018 Oct/Dec;27(4):215-222. |
|  | **Karamchandani K**, Schoaps RS, Printz J, Kowalesky JM, Carr ZJ. Gender Differences In The Use Of Atypical Antipsychotic Medications For ICU Delirium. Crit Care. 2018 Sep 21;22(1):220. |
|  | **Karamchandani K**, Rewari V, Trikha A, Batra RK. Bispectral index correlates well with Richmond agitation sedation scale in mechanically ventilated critically ill patients. J Anesth. 2010 Jun; 24(3):394-8. Epub 2010 Mar 12. |

Reviews, Monographs and Editorials

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|  | Dave S, Flynn B, **Karamchandani K.** The expanding role of critical care anesthesiologists outside the ICU. J Clin Anesth. 2025 Feb 20:111779. |
|  | Lachmann E, **Karamchandani K.** CON: Quantitative Neuromuscular Monitoring Is Required When Sugammadex Is Used for Reversal of Neuromuscular Blockade. J Cardiothorac Vasc Anesth. 2025 Feb 3:S1053-0770(25)00112-0. |
|  | **Karamchandani K**, Iancau A, Jabaley CS. Optimising oxygenation prior to and during tracheal intubation in critically ill patients. Indian J Anaesth. 2024 Oct;68(10):855-858. |
|  | Piland R, Jenkins RJ, Darwish D, Kram B, **Karamchandani K**. Substance-Use Disorders in Critically Ill Patients: A Narrative Review. Anesth Analg. 2024 Aug 8. |
|  | Khawaja A, **Karamchandani K**. Induction agents for emergency airway management in critically ill patients. Indian J Anaesth. 2024 Jun;68(6):514-516. |
|  | Darwish D, **Karamchandani K**. PRO: Vasopressors Can Be Administered Safely via a Peripheral Intravenous Catheter. J Cardiothorac Vasc Anesth. 2024 Feb 14:S1053-0770(24)00105-8. doi: 10.1053/j.jvca.2024.02.009. Epub ahead of print. |
|  | **Karamchandani K**, Evers M, Smith T, Bonavia A, Deshpande R, Klick JC, Abdelmalak BB. Pro-Con Debate: Should Critically Ill Patients Undergo Procedures at Bedside or in the Operating Room? Anesth Analg. 2023 Dec 1;137(6):1149-1153. |
|  | Dave S, **Karamchandani K**. CON: High-Flow Nasal Oxygenation Should Be Used for All Patients Undergoing General Anesthesia Without an Endotracheal Tube. J Cardiothorac Vasc Anesth. 2023 Jul 26:S1053-0770(23)00516-5. |
|  | **Karamchandani K**, Dave S, Hoffmann U, Khanna AK, Saugel B. Intraoperative arterial pressure management: knowns and unknowns. Br J Anaesth. 2023 Jul 5:S0007-0912(23)00313-6. |
|  | Hardman B, **Karamchandani K**. Management of anesthetic complications outside the operating room. Curr Opin Anaesthesiol. 2023 Aug 1;36(4):435-440. |
|  | Choi C, **Karamchandani K**. CON: The Best Induction Agent for the Physiologically Difficult Airway Is Ketamine-Propofol Admixture ("Ketofol"). J Cardiothorac Vasc Anesth. 2023 Mar 24:S1053-0770(23)00196-9. |
|  | Manohar C, **Karamchandani K**. Con: The Best Method to Preoxygenate a Patient With a Physiologically Difficult Airway Is Non-invasive Ventilation. J Cardiothorac Vasc Anesth. 2023 Mar 24:S1053-0770(23)00197-0. |
|  | Elia J, Diwan M, Deshpande R, Brainard JC, **Karamchandani K**. Perioperative Fluid Management and Volume Assessment. Anesthesiol Clin. 2023 Mar;41(1):191-209. |
|  | Khorsand S, Chin J, Rice J, Bughrara N, Myatra SN, **Karamchandani K**. Role of Point-of-Care Ultrasound in Emergency Airway Management Outside the Operating Room. Anesth Analg. 2023 Jan 24. doi: 10.1213/ANE.0000000000006371. Epub ahead of print. |
|  | Bonavia A, Abdelmalak B, **Karamchandani K**. Non-operating room anesthesia in the intensive care unit. J Clin Anesth. 2022 Jun; 78:110668. Epub 2022 Feb 4 |
|  | Khorsand S, **Karamchandani K**, Joshi GP. Sedation-analgesia techniques for nonoperating room anesthesia: an update. Curr Opin Anaesthesiol. 2022 Mar 11. Epub ahead of print |
|  | Jarzebowski M, Estime S, Russotto V, **Karamchandani K**. Challenges and outcomes in airway management outside the operating room. Curr Opin Anaesthesiol. 2022 Jan 31. Epub ahead of print. |
|  | Michael MM, Ambardekar AP, Pukenas E, **Karamchandani K**, Nguyen H, Potestio CP, Tubinis MD, Huang NR, Riesenberg LA. Enablers and Barriers to Multicenter Perioperative Handoff Collaboration: Lessons Learned From a Successful Model Outside the Operating Room. Anesth Analg. 2021 Nov 1;133(5):1358-1363. |
|  | **Karamchandani K**, Wheelwright J, Yang AL, Westphal ND, Khanna AK, Myatra SN. Emergency Airway Management Outside the Operating Room: Current Evidence and Management Strategies. Anesth Analg. 2021 Jun 21. doi: 10.1213/ANE.0000000000005644. Epub ahead of print. |
|  | **Karamchandani K**, Dalal R, Patel J, Modgil P, Quintili A. Challenges in Sedation Management in Critically Ill Patients with COVID-19: a Brief Review. Curr Anesthesiol Rep. 2021 Feb 26:1-9. |
|  | Khanna AK, **Karamchandani K**. Macrocirculation and Microcirculation: The "Batman and Superman" Story of Critical Care Resuscitation. Anesth Analg. 2021 Jan;132(1):280-283. |
|  | Sharma S, Sonny A, Dalia AA, **Karamchandani K**. Acute Heart Failure after Liver Transplantation: a narrative review [published online ahead of print, 2020 Sep 17]. *Clin Transplant*. 2020;e14079. |
|  | Mondal S, Quintili AL, **Karamchandani K**, Bose S. Thromboembolic disease in COVID-19 patients: A brief narrative review. *J Intensive Care*. 2020;8:70. Published 2020 Sep 14. |
|  | **Karamchandani K**, Quintili A, Landis T, Bose S. Cardiac Arrhythmias in Critically Ill Patients With COVID-19: A Brief Review [published online ahead of print, 2020 Aug 11]. J Cardiothorac Vasc Anesth. 2020; S1053-0770(20)30807-7. |
|  | Bonavia A, Vece G, **Karamchandani K**. Prerenal acute kidney injury-still a relevant term in modern clinical practice? [published online ahead of print, 2020 Jun 29]. *Nephrol Dial Transplant*. 2020. |
|  | **Karamchandani K**, Khanna AK, Bose S, Fernando RJ, Walkey AJ. Atrial Fibrillation: Current Evidence and Management Strategies During the Perioperative Period. Anesth Analg. 2020 Jan;130(1):2-13. |
|  | **Karamchandani K**, Khanna AK. Caring for critically ill patients with opioid use disorder: Phone a friend? J Crit Care. 2019 Jul 25; 54:74-75. |
|  | Francescangeli J, **Karamchandani K**, Powell M, Bonavia A. The Serotonin Syndrome: From Molecular Mechanisms to Clinical Practice. Int J Mol Sci. 2019 May 9;20(9) pii: E2288. |
|  | **Karamchandani K**, Klick JC, Dougherty ML, Bonavia A, Allen SR, Carr ZJ. Pain Management in Trauma Patients Affected by The Opioid Epidemic: A Narrative Review. J J Trauma Acute Care Surg. 2019 Aug;87(2):430-439. |
|  | Groff A, Singbartl K, **Karamchandani K**, Bonavia A. Clinical Utility of Extracorporeal Cytokine Hemoadsorption Therapy: A Literature Review. Blood Purif. 2018 Sep 3;46(4):337-349. |
|  | **Karamchandani K**, Carr ZJ, Bonavia A, Tung A. Critical Care Pain Management in Patients Affected by the Opioid Epidemic: A Review. Ann Am Thorac Soc. 2018 May 29. doi: 10.1513/AnnalsATS.201801-028FR. |

Books Chapters

|  |  |
| --- | --- |
|  | Lubinsky GT, Lubinsky KS, **Karamchandani K**. Physiologically Difficult Airway. In Gómez-Ríos M (editor) Evidence-based Guide on Difficult Airway Management. Springer Nature, Switzerland AG. [in press] |
|  | Bangalore R, Jan K, Elia J, **Karamchandani K**. Perioperative Fluid Management and Volume Assessment. In Faintuch J, Faintuch S (eds.) Recent strategies in high-risk surgery. Springer Nature, Switzerland AG. |
|  | Choi C, Dave S, Garcia T, **Karamchandani K**. Pre-hospital and Trauma Airway Management. Springer Nature, Switzerland AG. [in press] |
|  | Patel A, **Karamchandani K**, Khanna AK. Monitoring of Opioid Analgesic Use and Its Effects in Acute Care. In J.L. Pascual, T.G. Gaulton (eds.) Opioid Use in Critical Care: A practical guide, Springer Nature Switzerland AG 2021. |
|  | McCann BM, McCann MD, Zhong D, **Karamchandani K**. Solid Organ transplant. In Joffe A, Gollapudi D (eds.) Preoperative Manual Coexisting Diseases. Philadelphia: Wolters Kluwer. [in press] |
|  | Patel A, **Karamchandani K**. Alcohol withdrawal syndrome. In Cohn S, Heard S, Lisbon A (eds.) 50 Landmark Papers Every Intensivist Should Know. [in press] |
|  | Bess L, **Karamchandani K**. Spinal Cord Injury. In Sonny A, Bittner EA, Horvath JR, Berg SM, eds. Critical Care Medicine Review 1000 Questions and Answers. Philadelphia: Wolters Kluwer, 2019. |
|  | Potter K, **Karamchandani K**. Thyroid. In Sonny A, Bittner EA, Horvath JR, Berg SM, eds. Critical Care Medicine Review 1000 Questions and Answers. Philadelphia: Wolters Kluwer, 2019. |
|  | Baskin SM, **Karamchandani K**. Platelet Disorders. In Sonny A, Bittner EA, Horvath JR, Berg SM, eds. Critical Care Medicine Review 1000 Questions and Answers. Philadelphia: Wolters Kluwer, 2019. |

Books/Textbooks

|  |  |
| --- | --- |
|  | **Karamchandani K**, Grant J, eds. Substance Abuse Disorders in Critically Ill Patients. Springer Nature. Switzerland AG. October 25, 2024. ISBN-13: 978-3031670688 |

Case Reports

|  |  |
| --- | --- |
|  | Kathryn M. Jan, Anthony Q. Dao, Ravi Joshi, Sreekanth Cheruku, Suzanne Dellaria, **Kunal Karamchandani**. Immediate postoperative cardiac tamponade following robotic lung resection surgery: a case report. Front. Anesthesiol. , 29 January 2025, Sec. Perioperative Medicine, Volume 4 - 2025 | |
|  | Muneem A, Rahim MA, **Karamchandani K**, Fehr G. Increased Ileostomy Output as an Indicator of Thyroid Storm in a Patient without an Established History of Underlying Thyroid Disease. Am J Case Rep. 2021 Nov 6;22: e933751. |
|  | Karamchandani DM, Go P, Bayerl M, **Karamchandani K**. Esophageal post-Therapy Myeloid Sarcoma masquerading as Poorly Differentiated Adenocarcinoma: A Diagnostic Pitfall. Histopathology. 2021 Aug 6. doi: 10.1111/his.14538. Epub ahead of print. |
|  | Mardini J, Bruceta M, Parrella-O'Donnell W, **Karamchandani K**. Postoperative atrial fibrillation in paraesophageal hernia repair: can it be prevented? Perioper Med (Lond). 2021 Jul 20;10(1):17. |
|  | Owusu K, Stredny ES, Williamson G, Carr ZJ, **Karamchandani K**. Cardiovascular Collapse in a Patient With Parotid Abscess: Dangerous Cross Talk Between the Brain and Heart: A Case Report. A A Pract. 2019 Oct 1;13(7):281-283. |
|  | **Karamchandani K**, Benrud J, Swick JT. Acute Pulmonary Edema in a Pregnant Patient with Undiagnosed Levo-Transposition of the Great Arteries. Am J Case Rep.2018 Dec 6;19:1445-1448. |
|  | **Karamchandani K**, Leathem J, Sinz EH. Acute Adrenal Insufficiency in the Perioperative Period: A Case Report. A A Pract. 2019 Feb 1;12(3):63-65. |
|  | Sharma S, **Karamchandani K**, Wilson R, Baskin S, Bezinover D. Acute heart failure after Orthotopic liver transplantation: a case series from one center. BMC Anesthesiol. 2018 Jul 31;18(1):102. |
|  | Bruceta M, De Souza L, Carr Z, Bonavia A, **Karamchandani K**. Novel Association of Juvenile Polyposis Syndrome With Atrial Septal Aneurysm and Patent Foramen Ovale: A Case Report. A A Pract. 2018 Jun 15;10(12):331-334. |
|  | Sharma S, Prasad A, **Karamchandani K**. Extracorporeal Membrane Oxygenation in a patient with Cirrhotic Cardiomyopathy. J Cardiothoracic Vasc Anesthesia. 2018 Feb 12. pii: S1053-0770(18)30121-6. doi: 10.1053/j.jvca.2018.02.017. [Epub ahead of print] |
|  | Royce-Nagel G, and **Karamchandani K**. “Pulmonary Edema and Diastolic Heart Failure in the Perioperative Period.” Case Rep Anesthesiol. 2018 Jan 23; 2018:5101534. doi:10.1155/2018/5101534. |
|  | **Karamchandani K**, Bortz B, Vaida S. Acute pulmonary edema in an eclamptic pregnant patient: A rare case of Takotsubo syndrome. Am J Case Rep. 2016 Sep 23; 17:682-685. |
|  | **Karamchandani K**, John M. Levenick, Charles E. Dye, David Campbell. A pseudopyloric channel created by repeated blind post-pyloric feeding tube placement. Endoscopy 2015; 47: E525. |
|  | Sugino S, Bortz BJ, Vaida S, **Karamchandani K**, Janicki PK. Peripartum anesthetic management and genomic analysis of rare variants in a patient with familial pulmonary fibrosis. A&A Case Rep, 2015. 5(10): p. 169-172. |
|  | Chhabra A, Chaitra M, **Karamchandani K**, Aggarwal A, Subramaniam R. Near-fatal ventricular arrhythmias because of central venous pressure catheter tip migration during laparoscopic hemicolectomy. Anesthesia Analgesia. 2006 Dec; 103(6):1626-7. |
|  | Arora MK, **Karamchandani K**, Bakhta P, Kumar V. Combination of inhalational, intravenous and local anesthesia for intubation in neonates with congenital lobar emphysema. Paediatr Anaesth. 2006 Sep;16(9):998-9. |
|  | Arora MK, **Karamchandani K**, Trikha A. Use of gum elastic bougie to facilitate blind nasotracheal intubation in children: a series of three cases. Anaesthesia 2006 Mar; 61(3):291-4. |
|  | **Karamchandani K**, Chouhan RS, Bithal PK, Dash HH. Severe bradycardia and hypotension after connecting negative pressure to the subgaleal drain during craniotomy closure. British Journal of Anaesthesia 2006 May; 96(5):608-610. |
|  | **Karamchandani K**, Darlong V, Rampal P, Mohan V. Intraoperative bronchospasm after organophosphate inhalation. Anesthesia Analgesia 2006 Apr; 102(4):1291-2. |

Letters to the Editor

|  |  |
| --- | --- |
|  | **Karamchandani K,** Jabaley C. Can Propofol Be Safely Used for Tracheal Intubation in Critically Ill Patients: Does the Dose Matter? Crit Care Med. 2024 Jul 1;52(7):e409-e410. |
|  | **Karamchandani K**. In Response. Anesth Analg. 2021 Sep 1;133(3):e38-e39 |
|  | Pal N, Lim A, **Karamchandani K**. Sepsis-Induced Myocardial Dysfunction: "Right Ventricular Dysfunction" or "Biventricular Dysfunction"? Chest. 2021 Apr;159(4):1684-1685. doi: 10.1016/j.chest.2020.11.054. Epub 2021 Apr 6. |
|  | **Karamchandani K**, Carr ZJ, Bonavia A. Organ Dysfunction After Surgery in Patients Treated with Individualized or Standard Blood Pressure Management. *JAMA.* 2018;319(7):719. |
|  | **Karamchandani K**. Better pre-operative evaluation. Anaesthesia 2006 May; 61(5):509. |

Meeting Summaries or Proceedings

|  |  |
| --- | --- |
|  | “Tracheal Intubation and Increased Mortality in Patients With Acute Respiratory Failure.” Presented at the SCCM Annual Congress, 2025 at Orlando, FL. **Presenter** |
|  | “Trends and Variations in Tracheal Intubation for Acute Respiration Failure in Critically Ill Patients in the US: An analysis of the National Inpatient Sample.” Presented at the IARS/SOCCA Annual Meeting 2024 at Seattle, WA. **Presenter** |
|  | “Assessing Nurse Perceptions of CAM-ICU and S-PTD for Delirium Diagnosis: A Comparative Study Across Intensive Care Units.” Presented at the IARS/SOCCA Annual Meeting 2024 at Seattle, WA. **Presenter** |
|  | “Choice of Anesthetic Induction Drugs for Tracheal Intubation in Critically Ill Patients and Impact on Outcomes. A Systematic Review”. Presented at the 62nd Annual Medical Student Research Forum, University of Texas Southwestern Medical School, Dallas, TX. **Mentor** |
|  | “Trends and Variation in Tracheal Intubation for Acute Respiratory Failure in the United States”. Presented at the 62nd Annual Medical Student Research Forum, University of Texas Southwestern Medical School, Dallas, TX. **Mentor** |
|  | “Management of a Physiologically Difficult Airway: Expert consensus statements using a Delphi method”. Presented at the Society of Critical Care Medicine (SCCM) Annual Congress 2024 at Phoenix, AZ. **Presenter** |
|  | “Immediate postoperative cardiac tamponade following robotic lung resection surgery: A case report”. Presented at the SCCM Annual Congress 2024 at Phoenix, AZ. **Mentor** |
|  | “Subcostal-Only-View Echocardiography in Emergency Airway Management Outside of the Operating Room: Case Series”. Presented at the International Anesthesia Research Society (IARS) Annual Meeting 2023 at Denver, CO. **Co-author** |
|  | “Myocardial Ischemia Immediately Following Coronary Artery Bypass Graft Surgery Due To External Graft Compression”. Presented at the Society of Critical Care Anesthesiologist (SOCCA) Annual Meeting 2023 at Denver, CO. **Mentor** |
|  | “Autoimmune Heparin-Induced Thrombocytopenia in a Patient with Decompensated Liver Cirrhosis”. Presented at the Society of Critical Care Medicine (SCCM) Critical Care Congress 2023 at San Francisco, CA. **Co-author** |
|  | “Long-Term Outcomes in Septic Critically Ill Patients With Preexisting Sarcopenia”. Presented at the Society of Critical Care Medicine (SCCM) Critical Care Congress 2023 at San Francisco, CA. **Co-author** |
|  | “A Quality Improvement Project to Improve Medication Administration by Anesthesia Providers during Non-OR Airway Emergencies”. Presented at the virtual 2021 IARS and SOCCA annual meeting. **Mentor** |
|  | “Factors Associated with Failure to Rescue after Postoperative Respiratory Failure in Patients Undergoing Non-cardiac Surgery: An Analysis of the NSQIP Database”. Presented electronically at the virtual 2021 International Anesthesia Research Society (IARS) annual meeting. **Presenter** |
|  | “Failure to rescue after Acute Kidney Injury in patients undergoing elective non-cardiac surgery”. Presented electronically at the virtual 2021 Society of Critical Care Medicine (SCCM) Critical Care Congress. **Presenter** |
|  | “Effect of Preadmission Atrioventricular Node-Blocking Medications on Outcomes in Critically Ill Patients with Atrial Fibrillation”. Presented electronically at the virtual American Society of Anesthesiologists (ASA) annual meeting 2020. **Mentor** |
|  | “Effects of emergency use of sugammadex after failure of standard reversal drugs on postoperative pulmonary complications.” Presented electronically at the International Anesthesia Research Society (IARS) annual meeting 2020. **Mentor** |
|  | “A single center analysis of the ACS NSQIP database to identify factors associated with postoperative mortality after elective non-cardiac surgery.” Presented electronically at the International Anesthesia Research Society (IARS) annual meeting 2020. **Author** |
|  | “Effect of Timing of Transversus Abdominis Plane Block on Postoperative Pain Management in Patients Undergoing Colorectal Surgery” Presented electronically as a moderated session at the American Society of Regional Anesthesia’s 45th Annual Regional Anesthesiology & Acute Pain Medicine meeting 2020. **Mentor** |
|  | “A Single-center Retrospective Study of Perioperative Outcomes in Patients with Interstitial Lung Disease: A strong association between gender and outcomes.” Presented at the Society of Critical Care Anesthesiologists (SOCCA) annual meeting 2019, Montreal, Canada. **Co-author** |
|  | “A Single-Center Retrospective Pilot Analysis of ICU Delirium and Its Relationship to Glucose Variability.”Presented at the Society of Critical Care Anesthesiologists (SOCCA) annual meeting 2019, Montreal, Canada. **Co-author** |
|  | “Improving adherence to intraoperative administration of surgical antimicrobial prophylaxis: A single center experience”. Presented at the International Anesthesia Research Society (IARS) annual meeting 2019, Montreal, Canada. **Mentor** |
|  | “Persistent post-intensive care opioid use in us veterans after major abdominal surgery.” Presented at the 39th International Symposium on Intensive Care and Emergency Medicine 2019 at Brussels, Belgium. **Presenter** |
|  | “CHA2DS2VASc score and in-hospital mortality in patients with New Onset Atrial Fibrillation.” Presented at the 2019 Society of Critical Care Medicine (SCCM) Critical Care Congress at San Diego, CA. **Presenter** |
|  | “New Persistent Opioid Use After Thoracic Surgery Within the Veteran Affairs System.” Presented at the 2019 Society of Critical Care Medicine (SCCM) Critical Care Congress at San Diego, CA. **Presenter** |
|  | “Digital Media in Resident Education: Innovative Use of Video for ICU Orientation of House Staff.” Presented at the 2019 Society of Critical Care Medicine (SCCM) Critical Care Congress at San Diego, CA. **Mentor** |
|  | “Iron Overload Cardiomyopathy After Orthotopic Liver Transplant.” Presented at the 2019 Society of Critical Care Medicine (SCCM) Critical Care Congress at San Diego, CA. **Mentor** |
|  | “Undiagnosed Tracheobronchomalacia as a Cause of Extubation Failure in the ICU.” Presented at the 2019 Society of Critical Care Medicine (SCCM) Critical Care Congress at San Diego, CA. **Mentor** |
|  | “Trigeminal Neuropathy Leading To Syncope: A Dangerous Presentation Of The Trigeminocardiac Reflex”. Presented at 2018 ASA Annual meeting in San Francisco, CA. **Mentor** |
|  | "Extensive Rhabdomyolysis From Multi-extremity Compartment Syndrome Leading To Distributive Shock". Presented at 2018 ASA Annual meeting in San Francisco, CA. **Mentor** |
|  | “Angiotensin Axis Blockade And AKI In Patients Undergoing Colorectal Surgery”. Presented at the NYSSA Postgraduate Assembly in Anesthesiology. **Co-author** |
|  | “Executive Functioning After Surgery And Anesthesia”. Presented at the NYSSA Postgraduate Assembly in Anesthesiology. **Co-author** |
|  | “A novel association of Juvenile Polyposis Syndrome with atrial septal aneurysm and patent foramen ovale.” Presented at Association of University Anesthesiologists (AUA) Annual Meeting 2018 and Society of Critical Care Anesthesiologists (SOCCA) Annual Meeting and Critical Care Update 2018 at Chicago, IL. **Presenter** |
|  | “Factors Associated with Admission to ICU After Elective Non-cardiac Surgery.” Presented at the 2018 Society of Critical Care Medicine (SCCM) Critical Care Congress at San Antonio, TX. **Presenter** |
|  | “Time Out for Sign Out: A hospital wide patient safety initiative.” Presented at the 2018 Society of Critical Care Medicine (SCCM) Critical Care Congress at San Antonio, TX. **Mentor** |
|  | “Continuation of atypical antipsychotic medications in ICU patients discharged from the hospital: A retrospective analysis.” Presented at the 2017 ASA Annual meeting at Boston, MA. **Mentor** |
|  | “Feeling the Heat: A Case of Fever in the ICU.” Presented at the 2017 ASA Annual meeting at Boston, MA. **Mentor** |
|  | “ECMO in a patient with cirrhotic cardiomyopathy.” Presented at the 2017 ASA Annual meeting at Boston, MA. **Mentor** |
|  | “Adherence to surgical antimicrobial prophylaxis and surgical site infections.” Presented at the International Anesthesia Research Society (IARS) annual meeting 2017 at Washington DC. **Presenter** |
|  | Anticoagulation on hospital discharge in critically-ill patients with new-onset atrial fibrillation. Presented at the SCCM Annual Congress 2017. **Mentor** |
|  | Incidence of new-onset atrial fibrillation in Surgical and Neurosurgical Intensive Care Units in a tertiary care academic center. Presented at the Society for neuroscience in anesthesiology and critical care (SNACC) 44th annual meeting at Chicago, IL. **Mentor** |
|  | Anesthetic Management of a Nonagenarian with Severe Pulmonary Hypertension and Severe Valvular Aortic Stenosis for an Urgent Hip Fracture Repair. Presented at 2015 ASA Annual meeting at San Diego, CA. **Mentor** |
|  | Delayed Central Pontine Myelinolysis in Liver Transplant Recipient. Presented at 2015 ASA Annual meeting at San Diego, CA. **Mentor** |
|  | Takotsubo’s cardiomyopathy in an eclamptic patient. Presented at the 2015 Society of Critical Care Medicine (SCCM) Critical Care Congress at Phoenix, AZ. **Presenter** |
|  | Acute Respiratory Distress in a Gravid Patient with Interstitial Lung Disease. Presented at the 2014 ASA Annual Meeting at New Orleans, LA. **Mentor** |
|  | Undiagnosed adrenal insufficiency in the ICU after a partial nephrectomy. Presented at the 2014 ASA Annual Meeting at New Orleans, LA. **Mentor** |
|  | Emergency airway management in a patient with tracheal stent in situ. Presented at the Society of Airway Management (SAM) annual conference 2011 held at Scottsdale, AZ. **Presenter** |
|  | Pre-op BNP as a predictor for post-op cardiac morbidity after non-cardiac surgery: A Meta-analysis. Presented at the ASA conference 2008 at Orlando, FL. **Presenter** |
|  | Evaluation of Bispectral Index for assessing sedation in critically ill patients. Presented at the American Society of Anesthesiologists (ASA) conference 2006 at Chicago, IL. **Presenter** |
|  | Use of gum elastic bougie to facilitate blind nasotracheal intubation in children: a series of three cases. At the SPA/AAP annual conference 2006 held at Fort Myers, FL. **Presenter** |

Clinical Practice Guidelines

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|  | Early Recovery After Surgery (ERAS) pathway for microlaryngeal surgery, Department of Anesthesiology and Pain Management, UT Southwestern Medical Center, Dallas, Texas |
|  | Uro-oncology Surgery Perioperative Pathway. A practice advisory, Department of Anesthesiology and Perioperative Medicine, Penn State Health Milton S. Hershey Medical Center, Hershey, PA |

**Non-peer reviewed scientific or medical publications/materials in print or other media (no abstracts)**

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|  | “Perioperative Handoff Education Resources.” Christopher P. Potestio, Desteni Barnes, Kunal Karamchandani, Meghan Michael, Lee Ann Riesenberg. Published in Anesthesia Patient Safety Foundation (APSF) Newsletter. July 31, 2024. |
|  | “Maximizing Success for Physiologically Difficult Airway (PDA) Management in the ICU.” Published in “ASA Monitor”, the official newsletter of the American Society of Anesthesiologists, April 2024. |
|  | “Impact of Drug Shortages on Patient Outcomes.” Published in “Critical Connections” Winter 2024 edition, the official newsletter of the Society of Critical Care Medicine. |
|  | “Ultrasound for Airway Management: Is it all Hocus POCUS?”. Published in Interchange, the official newsletter of Society of Critical Care Anesthesiologists (SOCCA) fall edition 2023. |
|  | “Navigating Hospital Drug Shortages: Bringing the Team Together”. Published in “Critical Connections” Spring 2023 edition, the official newsletter of the Society of Critical Care Medicine. |
|  | “Critical Care Management of Adults with Substance Abuse Disorders”. Published in “Critical Connections” Spring 2023 edition, the official newsletter of the Society of Critical Care Medicine. |
|  | “Airway management in critically ill patients”. Published in “Critical Connections” Fall 2022 edition, the official newsletter of the Society of Critical Care Medicine. |
|  | “Emergency Non-OR Airway Management”. Published in Anesthesiology News, July 12, 2021. |
|  | “Airway Management in Critically Ill Patients – Striving to Improve Outcomes”. Published in ICU Management and Practice, Volume 21-Issue 3, 2021 |
|  | “Opioids and the Intensivist”. Published in “ASA Monitor”, the official newsletter of the American Society of Anesthesiologists, February 2020. |
|  | “New Persistent Opioid Use After Surgery”. Published in “ASA Monitor”, the official newsletter of the American Society of Anesthesiologists, February 2020. |
|  | “Atrial Fibrillation in the critically ill” published in “Current Reviews in Adult Critical Care”, the multi-professional educational course by the Society of Critical Care Medicine, February 2020. |
|  | “The Impact of Opioids on the Delivery of Critical Care in the 21st Century”. Published in “Critical Connections”, the official newsletter of the Society of Critical Care Medicine, November 2019. |
|  | “Uro-oncology Surgery Perioperative Pathway. Published as a practice advisory on the Department of Anesthesiology and Perioperative Medicine website. |
|  | “The Opioid Epidemic and the role of ICU”. Published in Interchange, the official newsletter of Society of Critical Care Anesthesiologists (SOCCA) fall edition 2017. |