



Massachusetts General Hospital  
Founding Member, Mass General Brigham

# Department of Anesthesia, Critical Care, and Pain Medicine (DACCPM)

2022 Report

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The Department of Anesthesia, Critical Care and Pain Medicine at Massachusetts General Hospital offers the highest standards of patient care in a safe and compassionate environment, the finest education for medical students and residents, the most innovative research laboratories, and a dedicated team of accomplished faculty.



**Seun Johnson-Akeju, MD, Anesthetist-in-Chief** Department of Anesthesia, Critical Care and Pain Medicine  
Massachusetts General Hospital

## A Message from the Chief

I am proud of our accomplishments over the past three years. Despite challenges and uncertainties caused by the COVID-19 pandemic, we redesigned our work and compensation structure to meet our evolving departmental needs. Changes associated with this redesign, such as eliminating 24-hour in-house calls and equitable compensation based on market levels, have been well received. Our residency training program is now a fully integrated and immersive four-year MGH experience. We have begun a best-in-class, innovative residency daytime didactic series and built academic days into residency training, and expanded our chief resident complement to cater to our education mission more explicitly. These changes have enhanced the rigor of our residency and made training within our department even more attractive to applicants. Our residency program is now ranked #1 in the country on Doximity by reputation and research productivity. I am immensely grateful to our tireless education team, researchers, clinicians, and support staff, who foster an intellectually stimulating and supportive environment.

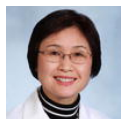
Our CEO, Anne Klibanski, MD, has a bold vision to transform Mass General Brigham from a loose federation of hospitals that often compete into an integrated system of hospitals that collaborate. The "why" behind this change is to ensure we position ourselves to meet the needs of patients for a personalized, affordable, seamless, and consistent experience. We all want the benefits of transformation. However, change is sometimes associated with anxiety. In this instance, it is also associated with the perceived threat of loss of autonomy for local decision-making and anxieties given the centralized decision-making required to endure ongoing macroeconomic and labor force challenges. There are no planned changes to our core activities and mission in clinical practice, residency training, and research programs. In the system beyond MGH, we are working to improve patient access and better support Mass General Brigham community and specialty hospitals, and surgical centers. As a member of the newly formed Mass General Brigham Enterprise Anesthesiology executive leadership team, I am committed to the responsive leadership necessary to ensure MGH maintains our culture of clinical and academic excellence while helping to define what will eventually evolve as the Mass General Brigham culture.

We continue to face stressors from hospital capacity challenges plaguing most major academic medical centers, specialty hospitals, and nursing homes. Despite this, we still excel in our mission to deliver high-quality clinical care to over 200 patients daily. Plans for clinical and academic collaboration with our colleagues in Cork University, Ireland and Karolinska Institutet, Sweden, are underway. Research within our department continues to grow and remains unrivaled with respect to breadth, scope, and funding. Our "pipeline" of residents, our future, has never been better. It is an honor to chair this department, and I am deeply grateful to our clinicians, researchers, trainees, anesthesia technicians, biomedical engineers, and administrative staff. I am optimistic about the future of our department, MGH, and Mass General Brigham.

# Community Locations



# Danvers Outpatient Surgery Center



**Xiangwei (Shannon) Zhang, MD**

Anesthesia Site Chief  
Medical Director



## Overview and Mission

The Danvers Outpatient Surgery Center (OSC), one of Mass General's offsite locations, opened on June 1, 2009. Danvers OSC has eight ORs and provides surgical/GI services to 13 specialties across Mass General, North Shore Physician Group, and various private practice groups. We aim to provide the very best health care and to advance it through innovative research and education.

This past year, our Danvers OSC team performed 9,734 cases, despite the temporary closing of ORs during the January 2022 COVID surge.

### Notable Highlights from FY22:

**Improvements in Patient Safety.** This year, we started planning and implementing all GI RN sedation to MAC conversion to improve patient safety and efficiency. Through this effort, we achieved a historic high in utilization in July and August.

**Support for Education and Training.** We have continued to provide high-quality support and immersion into the regional anesthesia elective program for Mass General Anesthesia residents as well as student registered nurse anesthetists.



# Mass General Brigham Salem Hospital



**Johanna O'Connor, MD**  
Anesthesia Chair



## Overview and Mission

Our mission is to give north shore patients the safest and highest quality care in a compassionate and respectful manner, and educate our staff and students on the latest advances in the perioperative and pain fields. We are focused on health equity as we serve several underserved communities. We continue to partner with many non-profit organizations to extend our help beyond the hospital.

### Notable Highlights from FY22:

**Developments in Opioid Sparing Techniques.** By using multi modal pain regimes in conjunction with neuroaxial anesthesia and muscle sparing peripheral nerve blocks, we decreased our opioid use and improved our LOS and same-day surgery rates across our surgical and procedural specialties.

**Focus on DEI.** We provided educational materials in Spanish to our Latin/Hispanic patients. We launched COVID education outreach programs together with Lynn Community Health. We increased in-house interpreter hours in collaboration with our ED colleagues.

**Maintained Strong SRNA Program.** We are the site for two SRNA programs, providing education in all areas of traditional anesthesia and medical knowledge, problem solving and critical thinking, empathy and compassion, team building, interpersonal skills. We also train EMT students through our North Shore Emergency Collaboration.

# Division Activities and Areas of Focus

# Cardiac Anesthesia



**Michael Fitzsimons, MD**

Division Chief, Cardiac Anesthesia



(Left) Michael Fitzsimons, MD, anesthesiologist, and (right) Samwel Ochieng, MD, resident

## Overview and Mission

The [Cardiac Anesthesia](#) team performs ~2,000 cardiac surgical cases annually including CABG, valve repair and replacement, heart and lung transplant, VAD implantation, pulmonary thromboendarterectomy, complex adult congenital heart surgery, ECMO, thoracic aortic surgery, and aortic dissections. An additional 3,000 patients receive anesthesia care through the EP service, another 300 through the Knight Center for Interventional Cardiology, and another 300 who are undergoing TEE in the ECHO lab. We also provide direct care and consultative service to patients with high-risk cardiac conditions undergoing non-cardiac surgery.

## FY22 Accomplishments

1.

**Continuing Our Service Excellence.** Our [Heart Transplant Program](#) is among the largest in New England with 40+ transplants this year, a high survival rate on the waitlist, and a high one-year survival post-transplant rate. Our team also helped launch the [Mass General Robotic Heart Surgery Program](#).

2.

**High-Level Scholarly Activity.** We continued our history of scholarly contributions via manuscripts, chapters, visiting professorships, and participation in national and international conferences. The past year has seen publications in the *Journal of Cardiothoracic and Vascular Anesthesia*, *Archives of Community Medicine*, *Up-To-Date*, *Anesthesia & Analgesia*, *JAMA Internal Medicine*, *Pacing and Clinical Electrophysiology*, and the *Brazilian Journal of Anesthesia*. Faculty members have lectured at national and international facilities. Recently, the ASA called on our expertise to create online materials addressing the safety and well-being of anesthesiologists.

3.

**Focus on Diversity, Equity and Inclusion.** We recruited seven faculty from diverse walks of life—four of whom are graduates of our [Adult Cardiothoracic Anesthesia Fellowship](#). We also completed our 10th year of community outreach to Boston Public School System students. A diverse group led a virtual, yet hands-on, heart dissection experience for 10th graders enrolled in the [MGH Youth Scholars Program](#). Students were provided with a high-quality heart model and educational guide with descriptions of the anatomy and the history of cardiac surgery. This year, a second session was held introducing residents to anesthesiology and other roles in perioperative care.



# Critical Care Anesthesia



**Kenneth Shelton, MD**

Division Chief, Critical Care  
Medical Co-Director, Heart Center ICU



Roy Kiberenge, MD, ICU fellow

## Overview and Mission

The [Trauma and Critical Care Anesthesia](#) team integrates evidence-based medicine and research to provide specialized, multidisciplinary, and cross-specialty care to critically ill patients. Our clinical team includes intensivists—physicians who are board-certified in critical care and anesthesiology, surgery, or medicine. ICUs are staffed 24/7. Our clinicians provide emergent airway coverage throughout the hospital. Our Heart Center ICU team provides cardiogenic shock and ECMO consults.

## FY22 Accomplishments

1.

**Expansion of Critical Care Anesthesia Fellowship.** We have increased the size of our fellowship to include spots for 10 fellows. With this expansion, we aim to provide fellows with a broad critical care experience with dedicated time in the Heart Center ICU, specifically on the cardiogenic shock service, and to provide each fellow with more individual time managing patients on mechanical circulatory support.

2.

**Initiation of Monthly Critical Care Division Research Sessions.** Our division initiated monthly research sessions with guest speakers who are internally engaged in active clinical and laboratory research. These sessions are led by Dr. Lorenzo Berra, director of critical care research, and have been well-attended. Lectures have included topics ranging from EEG-guided sedation to the metabolic biomarkers in sepsis.

3.

**Launch of Division of Critical Care Website.** Our division launched [an updated website](#) with customized content designed with patients and prospective trainees in mind, including a list of pertinent patient resources, testimonials from the anesthesia staff, links to research that focus on innovation within critical care, and an overview of our patient- and family-centered approach to critical care. With more robust digital offerings, we aim to continue advancing our support of patients who are critically ill and attracting top applicants to our [Critical Care Anesthesia Fellowship](#).

# Multispecialty Anesthesia



**Hovig Chitilian, MD**

Division Chief, Multispecialty Anesthesia



Jean He, MD, resident



Luca Zazzeron, MD, resident

## Overview and Mission

The Multispecialty Anesthesia team comprises over 100 clinicians who provide world-class anesthetic care in over 50 operating rooms and locations at Mass General. The team leads eight anesthesia services:

- Abdominal oncologic, and endocrine surgery
- Gynecologic, genitourinary, and renal transplant surgery
- Trauma and burn
- Plastic surgery and breast oncologic surgery
- Orthopedic surgery
- Thoracic surgery
- Vascular surgery
- Neurosurgery

The mission of the team is to provide excellent anesthetic care, help trainees to become experts in the field, and develop groundbreaking clinical research programs.

# Gynecologic, Genitourinary and Renal Transplant Anesthesia



**Dan Ellis, MD**

Director, Gynecologic, Genitourinary and  
Renal Transplant Surgery



## FY22 Accomplishments

1.

**Gabapentin for Clinical Use.** We assessed the impact of gabapentin on length of stay and opioid consumption in gynecologic surgical patients. Based on the results, gabapentin was phased out of routine clinical pathways.

2.

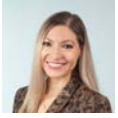
**Shipment of Patient Kits.** In collaboration with the [Mass General Enhanced Recovery After Surgery \(ERAS\)](#) team, we developed a program to ship preoperative patient preparation kits directly to patients as a way to address the equity gap in access to these items. We will continue to identify the optimal opioid-sparing anesthetic technique for ERAS patients through an analysis of intraoperative data and outcomes, improve the care for cystectomy patients through a pilot study of the utility of esophageal doppler cardiac output monitors, and design an expedited discharge pathway for living kidney donors in collaboration with the Mass General Transplant team.

3.

**Pilot of Robotic Surgery Cases.** We partnered with the [Center for Perioperative Services](#) team on a pilot to test the feasibility of conducting three robotic urology cases during a standard daytime surgical block.



# Plastics and Breast Oncologic Anesthesia



**Katarina Ruscic, MD, PhD**

Director, Plastics and Breast  
Oncology Anesthesia



Mary Foley, CRNA

## FY22 Accomplishments

1.

**Perioperative Care for Gender-Affirming Surgery.** We established connections with the [Mass General Transgender Health Program](#) and built the Anesthesia Gender-affirming Surgery Task Force. We will continue to find opportunities to optimize care and publish online materials in this area to establish our department as a leader in perioperative care of transgender patients and increase the availability of high-quality educational materials, locally and internationally.

2.

**Anesthetic Care for Neuroma Excision Surgery.** In collaboration with the plastic surgery team, we completed a retrospective electronic health record review for an outcomes study that will inform departmental guidelines for the optimal anesthetic for neuroma excision surgery and may galvanize changes in practice internationally. We will publish the results of the outcomes research study and case series. These hypothesis-generating results will form the basis for a multidisciplinary prospective clinical study.

3.

**Anesthetic Management of Plastic Surgery Patients.** We developed departmental protocols for the anesthetic management of different types of plastic surgical cases including finger re-implantation surgery, transgender surgeries, and neuroma excision surgeries. Next, we will investigate optimal anesthetic care for free flap surgery in collaboration with surgical colleagues and the [MGH Anesthesia Research Center](#). We will utilize national data to extend the reach of our findings and improve patient outcomes.

# Abdominal Oncologic and Endocrine Anesthesia



**James Creswell Simpson, MD**

Director, Abdominal Oncologic and  
Endocrine Surgery



Lisa Zappala, CRNA

## FY22 Accomplishments

1.

**Reduced the Incidence of Epidural-mediated Hypotension After Pancreatic Surgery.** In collaboration with our surgical colleagues, we reviewed a series of index cases and established a pilot to trial lower concentration epidural infusion in selected patients. We aim to lower concentration epidural mix in selected patients, and follow up on outcomes with respect to unplanned ICU admissions and lengths of stay.

2.

**Developed New Interventions and Protocols.** We piloted an educational intervention to improve appropriate antibiotic choice and administration for colorectal surgery patients and others. Preliminary data suggests process improvement in antibiotic timing as well as decrease in SSI. With Dr. Denise Gee, surgeon, we implemented an anesthetic and surgical protocol for laparoscopic sleeve gastrectomy patients to be discharged on the day of surgery.

3.

**Hosted Two Educational Workshops.** We hosted a LEAP Day workshop focused on arterial/venous access techniques and nasogastric tube (NGT)/orogastric tube (OGT) placement relevant to our complex patient population. We also hosted a workshop for junior residents on thoracic epidural analgesia in collaboration with the general surgery educational team.

# Trauma and Burns Anesthesia



**Jamie Sparling, MD**  
Director, Trauma and Burn



## FY22 Accomplishments

1.

**Revamped the Trauma Crunch Room.** Dr. Matt Abadir led an effort to revamp the set-up of the legacy trauma crunch room. Initial survey responses have shown positive feedback.

2.

**Progressed Scholarship and Educational Activities.** We hosted a trauma anesthesia Grand Rounds and burns anesthesia Grand Rounds. We have also had several residents present case conferences on trauma/acute care and burns surgery topics and medically challenging trauma and burns cases at the American Society of Anesthesiology and the International Anesthesia Research Society. A group of anesthesia clinicians and one trauma surgeon has received an Educational Committee on Teaching & Education grant to support the development of a multidisciplinary simulation for safer percutaneous tracheostomies. The grant will fund simulation courses from the [Center for Medical Simulation \(CMS\)](#) for each of the participating faculty members, and we will pilot the simulation with a before/after survey assessment.

3.

**Developed Clinical Pathways.** We developed written pathways for hemorrhagic shock, septic shock, hernia repair, and acute burns based on a literature review, anesthesia/surgical input, and Epic enhancements.



# Orthopedic Anesthesia



**Bruna Castro de Oliveira, MD**  
Director, Orthopedic Anesthesia



(Left) Bruna Castro de Oliveria, MD, anesthesiologist, and (right) Allison "Taylor" Thomas, MD, resident

## FY22 Accomplishments

1.

**Implemented Daily Huddle.** This project was developed in collaboration with orthopedic surgery and nursing leadership team to ensure timely and excellent patient care, a more predictable workflow, and improved team dynamics. We meet every morning to discuss potential challenges of the day, staffing and equipment issues, and adequate placement of waitlist cases. We also review issues encountered the day prior to prevent them from happening in the future.

2.

**Started the ON-Q Pump Program.** This program provides prolonged pain control for day-surgery patients. The program started with the placement of nerve catheters in shoulder surgery patients undergoing outpatient surgery and is now being expanded to other orthopedic surgical specialties.

3.

**Improved the Orthopedic Anesthesia Rotation for Trainees.** We have continued to build our online database of lectures and primers. We are also working closely with the residency program to ensure residents have a broad exposure to neuraxial anesthesia, nasal fiber optic intubation, beach chair cases, trauma, complex spine, and orthopedic oncology.

# Neuroanesthesia



**James Rhee, MD, PhD**  
Director, Neuroanesthesia



(Left) Jeremi Mountjoy, MD, anesthesiologist and (right) Seun Johnson-Akeju, MD, anesthesiologist-in-chief

## FY22 Accomplishments

1.

**Enhanced Craniotomy Pathway.** We participated in a multidisciplinary effort involving anesthesia, surgery, perioperative administration, and post-anesthesia care unit and inpatient nursing to allow a selected group of neurosurgical patients to bypass the ICU postoperatively. This effort has led to reduced overall length-of-stay as well as a reduction in ICU utilization.

2.

**Improved Intraoperative Magnetic Resonance Imaging (iMRI) Safety.** New initiatives to improve medication labeling and staff communication have been launched by Dr. Michele Szabo, the departmental lead for iMRI cases. We are actively engaged with the biomedical engineering, perioperative administration, and iMRI ancillary teams to implement Vocera access in the iMRI rooms in a way that ensures patient safety and addresses perceived technological limitations.

3.

**Expanded the Team.** We have recently welcomed new staff to the neurosurgical service, including chief residents and accomplished clinician-scientists. Their presence ensures that our practice remains up to date with cutting-edge, constantly evolving methodology and literature.

# Thoracic Anesthesia



**Xiaodong Bao, MD, PhD**  
Director, Thoracic Anesthesia



(Left) Keith Baker, MD, vice chair for education, and (right) Kiley Lawrence, MD, resident

## FY22 Accomplishments

1.

**Established Non-intubated Anesthesia for Thoracic Surgery.** Our program is one of those in the United States that can accomplish video-assisted thoracoscopic lung resection while patients spontaneously breathe. We have established international collaborations with other programs to investigate this novel approach and received IRB approval to analyze our results. We are expanding the approach to patients with prior lung resection operations.

2.

**Implemented Non-opioid Pain Management in Thoracic Surgery.** We have introduced multi-modal pain regimen and regional techniques to our thoracic service. Ketamine infusion for patients undergoing thoracic outlet surgery has been established in collaboration with the acute pain service. Application of paravertebral block and serratus anterior block has been introduced to VATS procedure patients. Based on our experience with non-opioid pain management protocol, we are working with our surgical colleagues to develop an ERAS program for VATS patients to improve our patient perioperative outcomes.

3.

**Fostered Junior Faculty Development and Resident Interest in Thoracic Anesthesia.** Our faculty has published several papers and reviews in this area. One manuscript is in preparation to summarize our experience in airway operation, and one prospective study that is supported by a senior resident is currently underway.



# Vascular Anesthesia



**James Taylor Lloyd, MD**

Director, Vascular Anesthesia



Xiaodong Bao, MD, anesthesiologist

## FY22 Accomplishments

1.

**Built the Fluoroscopic Guided Spinal Drain Program.** We developed a team of six attending anesthesiologists with a total of more than 50 successful fluoroscopy guided spinal drain placements. We will publish the results of the spinal drain efforts. We are now building out Fluoroscopic Guided Skills Suites for Anesthesiologists to extend our skills into an entirely new modality.

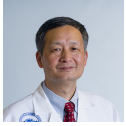
2.

**Invested in Cross-disciplinary Education Between the Vascular Anesthesia and Surgical Teams.** Through this effort, each role group better understands the clinical needs of the other role group. This effort extends to interdisciplinary teaching in the operating rooms, combined M&M's, and combined journal clubs. We will extend the vascular anesthesia educational programming across multiple channels including additional educational video references, self-assessments, podcast offerings, and mobile applications.

3.

**Recruited and Retained Three New Clinical Faculty.** Our new faculty members' interests bridge novel educational platforms, fluoroscopy techniques, and perioperative administration. These faculty will serve as platform for further resident education and service growth.

# Pain Management Center



**Jianren Mao, MD, PhD**

Division Chief, Pain Management Center



Gary Brenner, MD, PhD, pain management physician

## Overview and Mission

The [Pain Management](#) team is committed to improving the quality of life for patients experiencing pain. We advance patient care through a swath of clinical offerings, innovative research, and high-quality education. Practicing across six locations, our dedicated physicians, nurses, and administrative staff provide comprehensive, multidisciplinary care for patients with acute, chronic, and cancer-related pain.

Our physician-scientists have extensive grant support and well-established research activities. The [Chronic Pain Fellowship](#) is a 12-month ACME-accredited program that trains across the spectrum of pain medicine.

## FY22 Accomplishments

1.

**Advanced Patient Care.** We have significantly expanded our clinical practices, so much so that we have surpassed the level that they were at before the onset of the COVID-19 pandemic. Among our successes, we have increased our referral volumes, successfully retained both our support and administrative staff, grown our nursing staff, created a role for an advanced practice provider on our dedicated pain staff (a nurse practitioner), and welcomed two new attending physicians.

2.

**Provided World Class Education.** Our programs emphasize a multidimensional treatment approach focusing on interventional, pharmacologic, behavioral, integrative, and rehabilitative pain management strategies. This is achieved through a multidisciplinary environment and exposure to clinical and basic research. This year, we recruited seven fellows to our Chronic Pain Fellowship. We also received over 30 residents (anesthesia, physical medicine, and rehabilitation) rotating through the division.

3.

**Fostered Research Innovation and Academic Success.** This year, our team secured five new and/or pending National Institutes of Health (NIH) grants and/or subcontracts, promoted two faculty members to the rank of Associate Professor, promoted two faculty members to Professor, promoted one faculty member to Assistant Professor, and secured pending promotions for two faculty members to Assistant Professor.

# Pediatric Anesthesia



## John Nichols, MD

Division Chief, Pediatric Anesthesia

Medical Director of Procedural Services, Mass General for Children



(Left) Sarah Low, MD, pediatric fellow, and (right) Gennadiy Fuzaylov, MD, anesthesiologist

## Overview and Mission

The [Pediatric Anesthesia](#) team provides excellent clinical anesthesia care across multiple operative and non-operative sites, engages in innovative clinical and basic science research, and provides a nurturing educational environment for our residents and fellows. As we continue to recover from the COVID-19 pandemic and respond the changing pediatric care landscape in greater Boston, our team has expanded clinical operations in interventional cardiology, functional neurosurgery, and scoliosis surgery.

## FY22 Accomplishments

1.

**Clinical Expansion.** Our team supports growth in existing services and enables the rapid ramp-up of new services that require pediatric anesthesia care (e.g., functional neurosurgery). The recent integration of the hospital capacity team with Mass General for Children will allow for more effective use of clinical resources and management of expected ongoing volume increases over the coming year.

2.

**Pediatric Anesthesia Fellowship.** Under the guidance of Dr. Christine Mai, the [Pediatric Anesthesia Fellowship](#) is starting its fourth year. Outgoing fellow Dr. Jacki Peck published six manuscripts during her fellowship year and presented at four separate conferences. Our incoming fellow, Dr. Sarah Low, will be returning in the midst of a T32 grant to continue her clinical training.

3.

**Excellence in Research.** Dr. Amber Liu continues to build one of the largest infant spinal research programs in the country. The [MGH Translational Clinical Research Center](#) has a growing number of protocols requiring pediatric anesthesia collaboration. Dr. Jay Roberts discovered a molecular probe to detect a drug-targetable mechanism of newborn lung disease. Dr. Julia Rosenbloom published a letter to editor in Anesthesiology in response to the article, "Self-Reported Race/Ethnicity and Occult Hypoxemia: A Retrospective Cohort Study." Dr. John Nichols continues to collaborate with the Heart Center on a novel ECG-based respiratory monitor. Dr. Jeeva Martyn published two manuscripts on non-opioid pain receptors in a mouse model of burn-injury pain.



# Obstetric Anesthesia



**Rebecca Minehart, MD**

Division Chief, Obstetric Anesthesia

Program Director, Obstetric Anesthesia Fellowship



(Right) Vilma Ortiz, MD, anesthesiologist, (center) David Rollins, MD, PhD, resident, and (left) Zach Dyer, SRNA

## Overview and Mission

The [Obstetric Anesthesia](#) team provides expert, subspecialty care for patients with pregnancy-related comorbidities. We supported approximately 3,600 births. Our staff is actively engaged in research, and contributes to our specialty on a national level through lectures, publications, and professional societies including the Society for Obstetric Anesthesia and Perinatology (SOAP). This diversity of talent, experience, and scope of influence enhances the academic and clinical missions of the division.

## FY22 Accomplishments

1.

**Improving Care for Pregnant Patients (NTSV, hemorrhage management, racial/ethnic bias reduction).** Our multidisciplinary team continues to integrate and prioritize quality and safety into the fabric of our daily work. We actively participate in reviewing cases through the Perinatal Quality Assurance program as well as through weekly meetings with the L&D, antepartum, and postpartum leadership groups. Quality care metrics are reviewed with a focus on anesthesia care contributions.

2.

**Staffing and Oversight of the IVF Service.** Our team will soon launch a service that provides staffing and oversight of the IVF service line, bringing consistency to the REI teams both in terms of anesthesia providers and clinical care. Planning of key quality improvement projects and a shared research agenda will soon be underway, which will be key goals for developing the IVF service.

3.

**Neonatal and Maternal Warming Initiative.** Our team has joined the Neonatal ICU leadership to advance warming initiatives in the operating room to prevent neonatal hypothermia during Cesarean deliveries. Other important changes include documenting maternal temperature as a potential source of pre-delivery “cooling,” ensuring the OR temperature remains at goal for delivery, actively warming mothers using underbody convection warmers, and using wall-mounted fluid warming devices.

# Regional Anesthesia & Perioperative Pain



**Peter Stefanovich, MD**

Director, Regional Anesthesia Perioperative Pain Service



(Left) Brinda Kamdar, MD, anesthesiologist (right) Rafael Vazquez, MD, anesthesiologist, and (middle) Fei Wu, MD, resident

## Overview and Mission

The Regional Anesthesia and Perioperative Pain service improves perioperative patient comfort and safety while decreasing opioid use by promoting and employing multimodal analgesia, including regional anesthesia. We optimize perioperative pain management in patients with chronic pain and/or substance use disorder, prevent prolonged hospitalization due to poor pain management, and provide the best possible learning environment and teaching experience in the Regional Anesthesiology and Acute Pain Medicine Fellowship without compromising clinical efficiency and safety.

## FY22 Accomplishments

1.

**Introduction of Outpatient Regional Anesthesia Catheter Program.** Patients are discharged with an elastomeric pump that infuses local anesthetic perineurally to provide continuous pain control after extremity surgery. This intervention improves postoperative pain control and minimizes the use of opioids, which have significant side effects such as sedation, dependence, and respiratory depression. In addition, continuous infusion of local anesthetics has been shown to prevent the severe pain that can occur after the local anesthetic effect of single shot perineural nerve blocks has worn off and the prolonged hospitalizations of patients due to poor pain control.

2.

**Research Projects:** Our team has participated in a multicenter study to investigate the role of continuous peripheral nerve catheter blocks in improving post-amputation functioning by decreasing phantom limb pain and opioid use. An additional study that we are involved in is looking at the role of multimodal analgesia for the reduction of postoperative opioid use.

3.

**Educational Efforts:** Daily lectures were offered for the residents and fellows on topics related to regional anesthesia and acute pain management. Regional anesthesia nerve block simulation training has been provided to the residents at the beginning of the rotation using phantom upper and lower extremity models. Advanced regional anesthesia workshops were provided with hands-on ultrasound scanning of live models, reviewing the ultrasound anatomy and block technique of upper, lower extremity, and truncal blocks.

# Certified Registered Nurse Anesthetists



**Anne Que**

Chief Nurse Anesthetist



Celeste Day, CRNA

## Overview and Mission

The [Certified Registered Nurse Anesthetist \(CRNA\)](#) team provides high quality care in a broad practice environment across a variety of campuses including Massachusetts General Hospital, Salem Hospital, Mass General/North Shore Center for Outpatient Care, McLean Hospital, and Shriners' Children Boston. Currently, more than 100 of our CRNAs practice at these organizations, delivering world-class care in collaboration with a variety of interdisciplinary teams and participating in a range of research and teaching efforts.

## FY22 Accomplishments

1.

**Development of Leadership Positions.** The continued growth of the team and expansion of the CRNA footprint at Mass General enabled us to be able to develop a leadership team that includes three associate chief CRNAs with a distinct scope of responsibilities—leadership within clinical operation and workforce assignments, professional development and maintenance of practice, and off-campus leadership to manage the day-to-day operations at Salem Hospital and Mass General/North Shore Center for Outpatient Care.

2.

**Expansion of the Clinical Training Program Affiliations.** In addition to our longstanding regional affiliations with Northeastern University and Boston College, we successfully contracted for an additional Student Registered Nurse Anesthetist (SRNA) to join our team, specifically recruiting candidates from North Carolina's Wake Forest University, School of Medicine. Wake Forest SRNAs now rotate to Mass General as part of their clinical training.

3.

**Funding for Research.** Through the CRNA Development Grant, 10% of our CRNAs receive limited protected time or are reimbursed for presenting their scholarly research at national or regional conferences. CRNAs also participate in research through their own professional affiliations. Research topics being investigated on our team include clinician burnout, suicide prevalence and prevention, and medication safety in the perioperative setting.



# Anesthesia Technicians



**Nha Nguyen**

Interim Manager of Anesthesia Supply and Technical Support



(Right) Luz Harvey, technician

## Overview and Mission

The Mass General Anesthesia Technician team offers comprehensive and ongoing support to clinicians that are caring for patients in every anesthetizing location across the hospital. Composed of nearly 50 individuals with a vast range of backgrounds and experiences, MGH anesthesia technicians share a commitment to the department's mission to provide the highest quality and safest care to every patient.

## FY22 Accomplishments

1.

**Establishment of Anesthesia Technician Support Fund.** Utilizing funds that were raised during Ether 175, the department established a Sundry Fund unique to the Anesthesia Technician team with the goal of providing meaningful support to team members in professional development and education, staff experience, and moments of unexpected hardship.

2.

**Strengthening of the Team Structure.** In recognition of the dynamic nature of our procedural environments and the need for immediate, expert decision-making related to clinical workflow, we created a Clinical Operations Lead Technician role. Promoted from within the technician team, Nha Nguyen serves as a clinical reference point, monitoring and adjusting resources as appropriate.

3.

**Participation in Liver Transplant Study.** Anesthesia technicians on the liver transplant team are participating in a multi-center observational clinical trial designed to assess the agreement of the TEG® 6s system using the Heparin Neutralization Cartridge with its comparators. Whole blood samples are collected from patients undergoing liver transplantation to assess coagulation status at several time points. Enrolled patients are representative of a population of patients who are at an increased risk of coagulopathy or coagulopathy-related critical complications, as well as patients with clinically apparent or suspected coagulopathy.

# Anesthesia IT and Clinical Engineering



**Bill Driscoll**

Executive Director Biomedical Technology Services



José Miranda-Rivas, master biomedical engineer technician

## Overview and Mission

The Mass General Anesthesia IT and Clinical Engineering team supports anesthesia and perioperative clinicians and staff, ensuring safe and efficient care for all patients. Our team selects, maintains, and develops technological solutions that are aligned with departmental, hospital, and system priorities. We leverage data and enable systems to answer questions and solve problems that serve the hospital's mission. Importantly, we aim to train and develop the future leaders in medical technology support.

## FY22 Accomplishments

1.

**Updates to Improve the Provider Experience.** Our team migrated the anesthesia departmental schedule system from Open Tempo to Qgenda for improved features and capability; completed OR renovations for four ORs including a new Hybrid OR and an additional 10 bed pre/post area to optimize care; and planned and equipped the new MGB iCare Ambulatory Surgery Center in Salem, NH, which opened this past September.

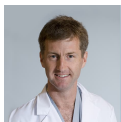
2.

**Contributed to Internal and External Education.** Members of our team presented, at a national conference, on the lessons learned from critical equipment shortages during the COVID-19 pandemic. We also reinstituted our in-person resident training program on anesthesia equipment this past year to provide a more hands-on experience for our new residents.

3.

**Participation in Research Efforts.** Members of our team completed an RCT for our SepsisWatch electronic SafetyNet application, monitoring compliance in sepsis pathway management to see if the software notifications improved CMS requirements for sepsis bundle measures. Our technical team also completed a project to improve MPOG registry data collection and include integration with the STS and NSQIP registries.

# Community and Global Health



**Paul Firth, MBCHB**

Head, Community and Global Health



**Lena Dohlman, MD, MPH**

Coordinator, Global Health Education



Gennadiy Fuzaylov, MD, anesthesiologist

## Overview and Mission

Anesthesia safety and access is a significant problem for over half the world's population. Our mission is to support and improve safe global anesthesia, critical care, and pain management through teaching, research, and innovation. These activities occur in communities in need, and are grounded in ethics, equity, and inclusion. [Our program](#) benefits from the inter-disciplinary expertise at Mass General and Harvard, which offers a rich opportunity for long-term impacts in underserved populations. After the limitations of two years of COVID lockdowns, we are re-starting and expanding our programs to align with our mission.

## FY22 Accomplishments

1.

**Humanitarian Care.** Dr. Gennadiy Fuzaylov organized and led a two-week outreach clinic to deliver comprehensive pediatric burn care in Ukraine. His team developed COVID protocols for a group from the Mass General and Shriners' Burn Hospital to safely travel to Ukraine and deliver advanced burn care for children. Dr. Fuzaylov subsequently helped to evacuate injured children to the United States.

2.

**Resident Education.** Dr. Lena Dohlman, Dr. Dan Saddawi-Konefka, and Dr. Michael Fitzsimons organized a community outreach elective for anesthesia interns. They will have the opportunity to participate in two programs promoting interest in STEM fields among a diverse set of high school students in Boston. Dr. Dohlman will mentor a third-year resident in an educational needs assessment in Uganda.

3.

**Surgical Care in Low-Income Countries.** Dr. Paul Firth completed initial work on a database at Mbarara Hospital in Uganda, delineating surgical, obstetric, and anesthesia outcome measures. This study identified metrics that can be used to measure and guide the delivery of surgical care in low-income countries.



# Research & Innovation

# Research & Innovation



(Left) Patrick Purdon, PhD, and (right) Emery Brown, MD, PhD, anesthesiologists

## Overview and Mission

The [department's research activities](#) encompass a broad range of disciplines with active research units in the areas of cardiac and pulmonary pathophysiology, molecular and system neuroscience, pharmacology, pain neurobiology, neuroimaging, stem cell research, genetics, comparative outcome research, biomedical engineering, and new drug and medical device development.

Our strategic research priorities:

1. Expanding a premier research team
2. Strengthening a platform that promotes integration between basic science and clinical research
3. Using research invention and innovation to advance translational research and support basic science and clinical research

## New Research Programs

1.

**Department Research Council.** The Department's Research Council drafted a Departmental Research Blueprint for the next decade. This blueprint will serve as a guiding document for future strategies and operational plans for research in the department.

2.

**Neuroscience Research Center.** Dr. Emery Brown and his research group are working with the Massachusetts Institute of Technology to [establish a Neuroscience Research Center](#). This center will conduct both basic science and clinical research on the brain mechanisms of general anesthesia.

3.

**Neuroimmune Research on Pain and Cognitive Disorders.** Dr. Shen Shiqian has established and now leads a new laboratory that conducts neuroimmune research on pain and cognitive disorders. The lab is now situated in the Mass General location in the Charlestown Navy Yard.

# Anesthesia Research Center

115 

research projects  
supported

109 

investigators  
involved in collaborations

## Type of Research Projects

60%

outcomes and  
observational research

29%

prospective clinical  
research

6%

basic research and  
administration

5%

grant submissions

## Vision & Mission

By bringing together clinical research coordinators/fellows, data scientists, statisticians, and research administrators with extensive research experience, the Anesthesia Research Center at Mass General fosters high-quality, innovative clinical research that enhances and advances the field of anesthesiology.

It provides a resource-rich research infrastructure that facilitates clinical research endeavors, ensures regulatory compliance, trains the next generation of clinician-scientists, and ultimately supports high-impact clinical investigations.





# Research Spotlights



## Keith Miller, PhD

Investigator, Mass General  
Professor, Harvard Medical School

## Cryo-EM Structures of GABA(A) Receptors

For four decades, research led by Dr. Keith Miller and his collaborators has produced findings that explain the molecular mechanisms by which general anesthetics act to produce the state of anesthesia and its side effects. This year, Dr. Miller and his collaborators showed the first Cryo-EM structures of the extrasynaptic subfamily of GABA(A) receptors. These new structures begin to define how their five subunits are assembled from 19 known subunits. The significance is that neurotransmitters, anesthetics, and other drugs bind between pairs of subunits.

Miller KW, et al. Differential Assembly Diversifies GABAA Receptor Structures and Signalling. *Nature*. 2022 Apr;604(7904):190-194. doi: 10.1038/s41586-022-04517-3. PMID: 35355020.



## Shiqian Shen, MD

Physician Investigator, Mass General  
Associate Professor, Harvard Medical School

## Neuro-immune Interactions and the Gut Microbiome

Dr. Shen Shiqian's group investigates the mechanisms of neuro-immune interactions influenced by the gut microbiome, using animal behavior as readouts, including pain and cognitive dysfunction. They've established multi-omics and imaging modalities to query neural dynamics over multiple temporal and spatial scales. Last year, his group published 12 papers, including four as corresponding or co-corresponding authors. Dr. Shen was awarded an NIH R01 with one R61 grant pending for the Notice of Award.



## Gary Brenner, MD, PhD

Physician Investigator, Mass General  
Associate Professor, Harvard Medical School

## Schwannoma and Attenuated Salmonella Typhimurium

NF2 and schwannomatosis are genetic disorders associated with schwannomas, benign nerve sheath tumors that cause pain, neurologic deficits, and death. Surgical resection, the standard of care, has major limitations. Dr. Gary Brenner and his team demonstrated that injection of schwannomas with an attenuated strain of *Salmonella typhimurium* controls tumor growth and leads to systemic anti-tumor immunity that targets uninjected tumors and prevents new tumors. These results support the translation of *S. typhimurium* schwannoma immunotherapy to clinical trials.

Brenner GJ, et al. Intratumoral Injection of Schwannoma with Attenuated *Salmonella Typhimurium* Induces Antitumor Immunity and Controls Tumor Growth. *Proc Natl Acad Sci USA*. 2022 Jun 14. doi: 10.1073/pnas.2202719119.



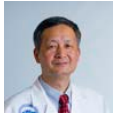
## Patrick Purdon, PhD

Associate Investigator, Mass General  
Associate Professor, Harvard Medical School

## The Neural Mechanisms of Anesthesia

Dr. Patrick Purdon and his team have been studying the neural mechanisms of anesthesia, developing novel neural signal processing methods, and investigating brain dynamics during aging, Alzheimer's disease, child development, and sleep. More recently, the team is studying the relationships among anesthetic exposure, opioid administration, brain oscillations, and post-operative trajectories for cognition and pain using both prospective and retrospective clinical data sources.

# Grants



**Jianren Mao, MD, PhD**  
**Title:** BACPAC- Biomarkers for Evaluating Spine Treatments (BEST) Study  
**Sponsor:** University of North Carolina at Chapel Hill



**Xiaodong Bao, MD, PhD**  
**Title:** Hypotension Prediction Index Software Guided Hemodynamic Management for Noncardiac Surgery Patients—Blood Pressure Trial  
**Sponsor:** Edwards Lifesciences



**Joseph Cotten, MD, PhD**  
**Title:** Evaluation of the Drug-Drug Interactions of Fentanyl with Stimulants in the Context of Overdose  
**Sponsor:** Clear Scientific



**Timothy Houle, PhD**  
**Title:** Forecasting Migraine Attacks  
**Sponsor:** NIH



**Edward Bittner, MD, PhD**  
**Title:** Development of a Novel Cuff-Less Wrist Wearable Continuous Blood Pressure Monitor  
**Sponsor:** Dynocardia, Inc.



**Fumito Ichinose, MD, PhD**  
**Title:** Evaluation of the Effects of Guanylate Cyclase-modulating Agent on Neurological Outcomes After Cardiac Arrest  
**Sponsor:** Cyslerion Therapeutics, Inc.



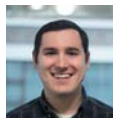
**Samuel Smith, MD, MPH**  
**Title:** MGH Magic Wand: Monitoring Intraoperative Blood Loss  
**Sponsor:** MGH—Wellman Center for Photomedicine



**Hovig Citilian, MD**  
**Title:** MGH Magic Wand: Universal Linear Ultrasound Transducer Needle Guide  
**Sponsor:** MGH—Wellman Center for Photomedicine



**Aranya Bagchi, MBBS**  
**Title:** Magic Wand: Detecting Tissue Hypoxia  
**Sponsor:** MGH—Wellman Center for Photomedicine



**Eric Melonakos, PhD**  
**Title:** The Roles of Genetically Distinct Cortical Neuron Types in General-Anesthesia- and Sleep-Induced Slow Waves  
**Sponsor:** NIH



**Lorenzo Berra, MD**  
**Title:** The Inhaled Sedation vs Propofol in Respiratory Failure – ICU (INSPIRE-ICU) 2 Study  
**Sponsor:** Sedana Medical AB (publ), Corp.



**Paul Lichtenegger, MD**  
**Title:** Extracorporeal Membrane Oxygenation and Phototherapy for the Treatment of Carbon Monoxide Poisoning in a Porcine Model of Acute Respiratory Distress Syndrome  
**Sponsor:** Max Kade Foundation



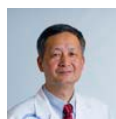
**Hilary Gallin, MD**  
**Title:** FastLine: Single-Handed Venous Access Device  
**Sponsor:** Mass General Brigham



**Christa Nehs, PhD**  
**Title:** Metabolic Interventions for Sleep, Anesthesia-related Neurocognitive Disorders and Alzheimer's Disease  
**Sponsor:** NIH



**Tina McKay, MD**  
**Title:** Investigation of a Novel Biomarker of Postoperative Delirium  
**Sponsor:** NIH



**Jianren Mao, MD, PhD**  
**Title:** Task Order #2: EPPIC HEAL Initiative (EPPIC-Net): Master Site Clinical Trial Agreement (F. Maurizio, CCC PI)—Hub Site (J. Mao)  
**Sponsor:** Mass General



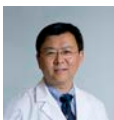
**Brian Wainger, MD, PhD**  
**Title:** Identifying Phytocannabinoids for Treating Pain  
**Sponsor:** President and Fellows of Harvard College



**Patrick Purdon, PhD**  
**Title:** Characterizing Brain Dynamic Biomarkers of Fentanyl Using Intracranial and High-density Electroencephalogram in Humans  
**Sponsor:** NIH



**Susana Vacas, MD, PhD**  
**Title:** Mechanisms Mediating Postoperative Neurocognitive Disorders  
**Sponsor:** NIH



**Zhongcong Xie, MD, PhD**  
**Title:** Postoperative Delirium and Alzheimer's Disease Related Dementias  
**Sponsor:** NIH



**Ran Liu, PhD**  
**Title:** Model-based Optimization of Pain Management in Surgical Patients  
**Sponsor:** NIH



**Julian Goldman, MD**  
**Title:** A Robot-Assisted Perfusion System to Improve Patient Safety in the Cardiac OR  
**Sponsor:** Brigham & Women's



**Shiqian Shen, MD**  
**Title:** Inhibiting RIPK1 with Necrostatin-1 for Safe and Effective Pain Treatment  
**Sponsor:** NIH



**Aranya Bagchi, MBBS**  
**Title:** Hepcidin-Ferroportin-Iron Axis in Cardiac Surgery-associated Acute Kidney Injury  
**Sponsor:** NIH



**Brian Wainger, MD, PhD**  
**Title:** From Nerve to Brain: Toward a Mechanistic Understanding of Spinal Cord Stimulation in Human Subjects  
**Sponsor:** NIH



**Amit Bardia, MD, MPH**  
**Title:** Targeting Surgical Site Infections through a Perioperative Antibiotic Clinical  
**Sponsor:** AHRQ



**Weihua Ding, MD**  
**Title:** Thalamic Reticular Nucleus Dysfunction Contributes to Sleep Lose Induced Hyperalgesia  
**Sponsor:** Mass General

# Research Articles on *Advances in Motion*

## **Human Stem Cell-Derived Organoids Facilitates Research Into Als Pathogenesis, Therapy**

Researchers at Mass General, including Dr. Brian Wainger, generated the first cultured organoids that allow comparison of neuromuscular junctions derived from amyotrophic lateral sclerosis patients and from controls.

[Read the article](#)

## **Pandemic-Related Stressors May Impact Brain Health of Uninfected Individuals**

A team of Mass General DACCPM researchers recently explored the effects of COVID-19 pandemic-related stressors on the brain health of individuals who were not infected.

[Read the article](#)

## **COVID-19 ARDS Has Distinct Phenotypes**

Researchers investigated phenotypic groupings among patients with ARDS secondary to COVID-19. They found two distinct phenotypes—one associated with greater mortality is characterized by renal and cardiac impairment, altered coagulation and only mild relative hyperinflammation.

[Read the article](#)

## **Numerous Genetic Variants Are Linked with Differences in Food Intake**

Researchers at Mass General, including Richa Saxena, PhD, principal investigator in the Department of Anesthesia, have identified 26 genomic regions that may affect overall variation in dietary intake.

[Read the article](#)

## **High-Dose Inhaled Nitric Oxide Safe, Effective For Non-Intubated Covid-19 Patients**

Researchers at Mass General, including Lorenzo Berra, MD, anesthesiologist and medical director for Respiratory Care at Mass General, and Bijan Safaee Fakhr, MD, anesthesia research fellow, initiated a study that investigated the effectiveness and safety of inhaling 160 ppm nitric oxide (NO) gas twice daily for 30 minutes in 29 spontaneously breathing, non-intubated hospitalized patients with mild to moderate COVID-19-induced pneumonia.

[Read the article](#)

## **Inhaled Nitric Oxide Improves Oxygenation in Pregnant Patients with COVID-19 Pneumonia**

Pneumonia caused by COVID-19 is particularly threatening to pregnant patients, as it can quickly progress to oxygen insufficiency in the blood and bodily tissues

Led by Mass General, a team of four Boston medical centers investigated the use of high-dose inhaled nitric oxide gas (iNO) as a potential respiratory therapy.

[Read the article](#)

# Education and Training



# Excellence in Medical Education

**We recruit and develop diverse groups of the brightest clinicians who are poised to shape the future of our field.**



**Keith Baker, MD, PhD**  
Vice Chair, Education and  
Faculty Affairs



(Left) Gabriel Washington, MD, chief resident, and (right) Daniel Saddawi-Konefka, MD, MBA, residency program director

## **Our Approach to Education and Training.**

We approach teaching and learning with a mastery orientation, employing both strategy and effort. All activities, including giving and receiving feedback, aim to improve trainees' performance no matter their current level. We use experimentally demonstrated strategies to improve our approach to education, and provide opportunities for learning and improving. We see failure as an opportunity to learn and improve.

**"To attain expert performance, you have to always reinvest in your ongoing professional growth."**

# Anesthesia Residency Program



**Daniel Saddawi-Konefka, MD, MBA**  
Residency Program Director



**Michael Fitzsimons, MD**  
Residency Associate Program Director



**Alexander Kuo, MD**  
Residency Associate Program Director



**Yvonne Lai, MD**  
Residency Associate Program Director



(Left) Keith Baker, MD, vice chair for education, and (right) Kiley Lawrence, MD, resident

## Transformation in Recent Years

- Gone fully categorical to increase longitudinal mentoring, foster community, and leverage intern year rotations
- Created incentive shifts to ease the cost of living for residents
- Spread the residency educational footprint to learn about advanced, non-OR interventions for some of our most ill patients
- Shortened weekday call to create time for academic pursuits
- Implemented a method for reviewing and reflecting on feedback
- Provided sustainable funding for advanced ultrasound certifications
- Established a fund for resident research grants
- Increased rotation-specific didactic offerings
- Increased vacation time to four weeks per year, in addition to five days of meetings per year
- Added yearly social events including class retreats and an anesthesia-surgery resident mixer
- Transformed our core curriculum to monthly full day sessions that are customized by year-in-training

# FY22 Resident Graduates



**Christopher Michael Aiudi, MD, PharmD**  
Chief Resident, MGH



**Jonathan Scott Erdman, MD**  
Faculty, Mount Auburn Hospital



**Ronnie Ibrahim, MD**  
Pain Medicine Fellowship, MGH



**Miguel Alejandro Patino Montoya, MD**  
Critical Care Medicine Fellowship, MGH



**Shamsa Baaj, MD**  
Faculty, Cleveland Clinic



**Adam Flaczyk, MB, BCh, BAO, MS**  
Faculty, MGH



**Lee-Wei Kao, MD**  
CT Anesthesiology Fellowship, MGH



**Kyle Riley, MD**  
CT Anesthesiology Fellowship, MGH



**Kyla Francesca Ballesteros, MD**  
Faculty, USAP Austin



**Jeffrey Paul Fleming, MD**  
Faculty, MGH



**Angela Lu Lang, MD, MSc**  
CT Anesthesiology Fellowship, MGH



**Mohammad Max Samimi, MD**  
Faculty, Pacific Valley Medical Group



**Shika Card, MD, MA**  
CT Anesthesiology Fellowship, MGH



**Philipp Gerner, MD**  
Regional Anesthesiology and Acute Pain Medicine Fellowship, BWH



**Johanna Meehyun Lee, MD**  
Pediatric Anesthesiology Fellowship, BCH



**Zachary Paul Sullivan, MD**  
Critical Care Medicine Fellow, Stanford University



**Juan Manuel Cotte Cabarcas, MD**  
Faculty, Rhode Island Hospital



**Lauren Gibson, MD**  
Critical Care Medicine Fellowship, MGH



**Gem Marian Manalo, MD**  
CT Anesthesiology Fellowship, MGH



**Gabrielle Anne White-Dzuro, MD**  
Faculty, MGH



**Sean Dangelmajer, MD**  
Faculty, Indiana University



**Jean Jingpeng He, MD**  
Obstetric Anesthesiology Fellowship, MGH



**Lukas Matern, MD**  
Chief Resident, MGH



**Samuel Dawson Wood, MD**  
Pediatric Anesthesiology Fellowship, Seattle Children's Hospital

# Anesthesia Fellowship Programs



**Amit Bardia, MBBS**  
Program Director, Adult  
Cardiothoracic  
Anesthesiology



**Mark Wong, MD**  
Associate Director,  
Adult Cardiothoracic  
Anesthesiology



**Edward Bittner, MD, PhD**  
Program Director,  
Critical Care Medicine



**Marvin Chang, MD, PhD**  
Associate Director, Critical  
Care Medicine



**Gary Brenner, MD, PhD**  
Program Director, Pain  
Medicine



**James Rhee, MD,  
PhD**  
Program Director,  
Neuroanesthesiology



**Brinda Kamdar, MD**  
Program Director,  
Regional Anesthesiology  
and Acute Pain Medicine



**Christine Mai, MD, MS-HPed**  
Program Director, Pediatric  
Anesthesiology



**Rebecca Minehart, MD,  
MS-HPed**  
Program Director,  
Obstetric Anesthesiology



**Emily Naoum, MD**  
Associate Program  
Director, Obstetric  
Anesthesiology

## Fellowship Programs

1.

**Adult Cardiothoracic Anesthesia Fellowship.** A 12-month training program that prepares individuals to become highly skilled in the anesthetic care of cardiothoracic patients.

2.

**Critical Care Anesthesia Fellowship.** A 12-month ACGME-accredited training program that prepares individuals for a career in the care of critically ill patients and management of an intensive care unit.

3.

**Obstetric Anesthesia Fellowship.** A 12-month training program devoted to the comprehensive anesthetic management, perioperative care and pain management of women during pregnancy and the puerperium.

4.

**Pain Medicine Fellowship.** A 12-month ACGME-accredited training program that provides individuals with a full spectrum of expertise in pain medicine through exposure to a wide variety of patient cases, management strategies and research opportunities.

5.

**Pediatric Anesthesia Fellowship.** A 12-month accredited training program that prepares individuals for a highly skilled career in pediatric anesthesia.



# FY22 Fellowship Graduates

## Adult Cardiothoracic Anesthesiology



**David Convissar, MD**  
Faculty, MGH



**Stephan Hain, MD**  
Critical Care  
Medicine Fellowship,  
MGH



**Ronny Munoz-Acuna, MD**  
Faculty, Yale New  
Haven Hospital



**Peter Ochieng, MD**  
Faculty, MGH



**Richard Tenure, MD**  
Faculty, University of  
Massachusetts



**Nancy Wu, MD**  
Faculty, MGH

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## Critical Care Medicine



**Cliodhna Ashe, MBBS**  
Undecided



**Devan Cote, MD**  
Faculty, MGH



**Roy Kiberenge, MD**  
Allina Health,  
Minneapolis MN



**Davit Kocharyan, MD**  
Faculty, University  
of New Mexico



**Christopher Joseph Mariani, MD, PhD**  
Regions Hospital,  
Trauma Center  
Association of  
America



**Kelly Ann Tankard, MD**  
Faculty, MGH



**Elisa Claire Walsh, MD**  
Faculty, MGH



**Jeffrey Yu, MD**  
CT Anesthesiology  
Fellowship, MGH

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## Pain Medicine



**Jenny Zhao Cheng, MD**  
Faculty, BIDMC



**Gregory Harkins Foos, MD**  
Maine Medical Partners  
Neurosurgery and Spine



**Andrew Gruenzel, MD**  
Lake Health Physician  
Group Pain Management



**Oliver Hulland, MD**  
Faculty, Hartford  
HealthCare



**Woo Jin Lee, MD**  
Faculty, Brown  
University



**Rupeng Li, MD, PhD**  
Faculty, Emory University



**Stefani Schwartz, MD,**  
Faculty, MGH

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## Obstetric Anesthesiology



**Hilary Gallin, MD, MBA**  
Faculty, MGH



**Jacquelin Elizabeth Peck, MD**  
Faculty, Joe DiMaggio  
Children's Hospital



**Casey Hamilton, MD**  
Faculty, Newton-  
Wellesley  
Hospital



**Norver J. Trinidad, MD**  
Faculty, MGH

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## Regional Anesthesiology and Acute Pain Medicine

# Diversity, Equity, and Inclusion

# Diversity, Equity, and Inclusion

We believe in prioritizing diversity, equity, and inclusion to cultivate a safe and supportive environment. We emphasize the importance of continuous education on disparities in health care and addressing the unconscious biases that can harm both quality of care and workplace culture. We celebrate the diverse perspectives and identities of every individual, creating equitable access to opportunities.











## Our Commitment to a Diverse and Inclusive Community

We are committed to the advancement of a culturally competent and diverse faculty, staff, and trainee community. We welcome individuals from all backgrounds inclusive of all genders and gender identities, races, ethnicities, abilities, and sexual orientations.

Our [DEI committee](#) aims to cultivate a welcoming environment where all can experience a true sense of belonging. Our department holds as a core belief that everyone is respected and valued—it doesn't matter where they're from, how they identify, what color their skin is, who they love or how they experience faith.

## Our Team

 <b>Rafael Vazquez, MD</b>	 <b>Julia Rosenbloom, MD</b>
 <b>Gabriel Washington, MD</b>	 <b>Max Samimi, MD</b>
 <b>Sarah Low, MD</b>	 <b>David Hao, MD</b>
 <b>Anne Que, CRNA</b>	 <b>Amy Du, MD, MS</b>

# DEI Accomplishments & Initiatives

1.

**Advance equitable and inclusive hiring, recruitment, and career development strategies.** The director of DEI has direct input on hiring and resident recruitment.

2.

**Organize training and research efforts** to further our collective understanding of implicit bias, racism, and disparities in health care. In FY22, we:

- Hosted a Grand Rounds on the lessons learned using race to diagnose and manage kidney disease with Dr. Nwamaka Eneanya, MD, MPH, FASN
- Hosted a Grand Rounds on how communication fosters belonging and brought to light subtle acts of exclusion in common use with Dr. Scott Markowitz
- Hosted a Unity Forum as part of our Grand Rounds where we celebrated our diverse clinicians
- Provided our intern anesthesia class with microaggression training

3.

**Implemented mentoring pathways for URiM medical students, trainees, and junior faculty.** Dinners are hosted by our underrepresented physician staff to discuss mentorship and career paths.

4.

**Arranged DEI committee-run social events** with the purpose of bringing people of all backgrounds together outside of work:

- Hosted a Latino/Hispanic mixer, Black History Month event, and an Asian American Pacific Islander luncheon
- Collaborated with the Harvard anesthesia programs to host the 2nd annual Harvard Anesthesia Pride Picnic
- Hosted our first annual Celebrating Diversity Picnic

5.

**Hosted a virtual URiM open house** to introduce URiM medical students to the Mass General Anesthesia Residency Program.

6.

**Launched community outreach efforts** with support from [Mass General Brigham's United Against Racism](#) campaign to bridge health care inequities in subspecialty areas of medicine across the enterprise:

- Identified disparities in the way labor analgesia education is delivered to vulnerable populations
- Implemented an electronic checkbox to track labor analgesia education at prenatal care
- Hired a dedicated labor analgesia educator to render education to the health centers at Chelsea and Revere
- Tracked labor analgesia education efforts with the goal of ensuring 80% of our patient population receives education



# Quality and Safety

# Quality and Safety (Q&S)

Our vision is to be a department in which every member can do their best work, with zero harm, and the highest quality care for every patient, every time.



Kerting Laurent, senior clinical biomedical engineer

## Overview and Mission

The [Q&S team](#) analyzes the department's successes and failures to continually improve the quality of our care, build a culture of safety that protects patients and colleagues, and develop the next generation of Q&S leaders.

Our goals are to:

1. Increase our presence by promoting quality assurance events, sharing positive feedback, and increasing our team's integration
2. Enhance QA/quality improvement through support and promotion of learning outside of the immediate Q&S team
3. Foster team wellness and mitigate burnout by continuing to support our clinicians

“Our mission is to learn from our successes and failures, continuously improve the quality of care we provide, commit to a culture of safety that protects our patients and colleagues, and to inspire and develop the next generation of quality and safety leaders.”

# FY22 Accomplishments



Yesupatham Santhakumar, lead cardiac technician

1.

**New Program for Anesthesiologists.** As part of CRICO, we instituted a program to encourage anesthesiologists to (1) learn about the other role groups on their teams and (2) translate this information into actionable teamwork behaviors. So far, 117 anesthesiologists have engaged colleagues in other role groups to learn about the interprofessional work. Participants were asked to commit to a behavior change and report back. Some of the implemented actions include improved communication, reduced burden, and allotted additional time to complete tasks. We presented this work at the International Anesthesia Research Society, Association of University Anesthesiologists, and the department's resident poster session.

2.

**Critical Incident Debriefing Project.** This is a multidisciplinary project with the Q&S Improvement Committee (QSIC) that has implemented an empathetic debrief within an hour after an intraoperative death or cardiac arrest. Its goals are to support the providers, gather critical information, sequester medications or devices (if necessary), and ensure that appropriate actions are taken for follow-up. We have trained multidisciplinary individuals to be debriefers and to help support all clinicians involved in the case.

3.

**Q&S Restructure.** We restructured our QSIC and M&M conferences. Our QSIC group now supports the success of resident-led QI projects by teaching established process improvement methodologies. At our monthly M&Ms, we now share data about QA events, relay positive comments, and summarize the most recent QA Committee meetings, all with the goal of enhancing transparency and teaching.

# Faculty Affairs



# Faculty Affairs

We offer a variety of paths for career development depending on an individual's interests, and we maximize our efforts by focusing on common interests. We offer morning sessions on the Harvard Medical School promotion process, preparation of the CV using EasyCV, providing feedback to trainees, accessing MPOG and EPIC datasets, debriefing after medical events, speaking up in the perioperative setting, celebrating DEI, and developing clinical research projects. Our Faculty Career Enhancement Program provides faculty with dedicated time to focus on an aspect of career development of their choosing.

## Promotions



**Brian Wainger**  
MD, PhD

Associate  
Professor of  
Anaesthesia



**Richa Saxena**  
PhD

Professor of  
Anaesthesia



**Paul Firth**  
MBCHB

Associate  
Professor of  
Anaesthesia

## MGH Main Campus New Hires in FY22



**Amit Bardia, MD**



**Adam Flaczyk,**  
MBBCH, BAO



**Peter Ochieng, MD**



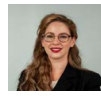
**Susana  
Vacas, MD, PhD**



**Maurizio Cereda, MD**



**J. Paul  
Fleming, MD**



**Stefani  
Schwartz, MD**



**Gabrielle White-  
Dzuro, MD**



**David Convissar, MD**



**Hilary Gallin,**  
MD, MBA



**Kelly Ann Tankard,**  
MD



**Nancy Wu, MD**



**Devan Cote, MD**



**David Hao, MD**



**Norver Trinidad,**  
MD



**Ellesse Credaroli, DO**



**Gregory Kirby,**  
MD



**Matthew Tung, MD**



**Michelle  
Dyrholm, DO**



**Simona Lupu, MD**

# Notable Faculty Achievements



Anesthesiologists (left) Katarina Ruscic, MD, and (right) Jerome Crowley, MD, MPH

1.

**Promotion of First Internal Female Faculty Member to Full Professor at HMS:** [Dr. Richa Saxena](#) was promoted to Professor of Anaesthesia at Harvard Medical School. She earned her PhD at MIT in 2000 and has been with Mass General since 2009. Her lab studies the genetics of circadian rhythms which regulate diverse physiological processes including the sleep-wake cycle, feeding behavior, hormone secretion, drug metabolism, and glucose homeostasis.

2.

**Launch of First Fully Integrated Mass General Anesthesia Internship:** Our [Anesthesia Residency Program](#) launched a new internship as part of a new, fully integrated four-year curriculum. Intern rotations integrate with other departments across the hospital. The curriculum has embedded mentorship and a structured education day every two weeks. These education days employ simulation, small groups, and interactive sessions to cover clinical and non-clinical topics.

3.

**Winner of 2022 Gruber Neuroscience Prize:** Dr. Emery Brown was co-winner of the 2022 Gruber Neuroscience Prize, which honors scientists for major discoveries that have advanced the understanding of the nervous system. He and his co-winners have been pioneers in the fields of computational and theoretical neuroscience. Using mathematics, physics, statistics, and machine learning, they have generated theories, models, and computational tools that have transformed the field of neuroscience and provided profound insights into the nature of the brain and the mind.

# Other Highlights

# 175th Anniversary of the First Public Demonstration of the Use of Ether as Anesthesia for Surgery

Seun Johnson-Akeju, MD, hosted hundreds of faculty, staff, alumni, and friends from around the world for a two-day virtual celebration of Ether Day and the incredible contributions this department has given the field of anesthesiology.



## Topics

- The History of Ether Anesthesia
- A Day in the Life at the DACCPM
- Our Response to COVID-19
- The Broad Impact of the DACCPM on Anesthesiology Today
- The DACCPM and the Future of Anesthesiology

## Leadership

- Lorenzo Berra, MD
- Gary Brenner, MD
- Emery Brown, MD, PhD
- Seun Johnson-Akeju, MD
- Christa Nehs, PhD
- Patrick Purdon, PhD
- Jesse Roberts, MD
- Richa Saxena, PhD
- Ken Solt, MD

## Speakers

- David Brown, MD, FACEP
- Jeffrey Cooper, PhD
- Anne Klibanski, MD
- Edward Lowenstein, MD
- Jeeva Martin, MD, MBBS
- Keith Miller, MA, DPhil, AM
- Rafael Ortega, MD,
- Jim Rathmell, MD
- Nathaniel Sims, MD
- Peter Slavin, MD
- Jeanine Wiener-Kronish MD
- Warren Zapol, MD

[Click here to watch the recorded event](#)



# Staff Spotlights

## **Bhavika Shah, CRNA**

**Certified Registered Nurse Anesthetist**



Bhavika talks about the decision to build her career at Mass General, the challenges and rewards that she values in her work, and her vision for the future of the CRNA profession.

[Read the spotlight](#)

## **Dr. Jerome Crowley**

**Critical Care Physician**



Dr. Crowley talks about his day-to-day in an intensive care setting, the lessons he has learned throughout his career, and how he stays motivated in his work.

[Read the spotlight](#)

## **Drs. May Pian-Smith and Jean Kwo**

**Anesthesiologists**



In celebration of Women's History Month, Dr. Pian-Smith and Dr. Kwo share their advice for women pursuing a career in medicine and their visions for the future of their field.

[Read the spotlight](#)

## **Drs. Hilary Gallin, Susana Vacas & Katarina Ruscic**

**Anesthesiologists**

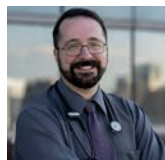


We spoke with three physician-scientists who are pioneering new discoveries that will lead to more effective treatments, interventions, medications, and, overall, approaches to patient care.

[Read the spotlight](#)

## **Dr. Dan Saddawi-Konefka**

**Anesthesia Residency Program Director**



Dr. Saddawi-Konefka speaks about newly launched initiatives in the residency program, what he has learned from our residents, and a project that he led to help providers access mental health care.

[Read the spotlight](#)

## **Karen Little, RN**

**Chronic Pain Nurse Practitioner**



Karen describes her experience as the first dedicated nurse practitioner at the Pain Management Center and what she wants patients, caregivers, and providers to know about pain management.

[Read the spotlight](#)