

MINIMALLY INVASIVE SURGERY

The Minimally Invasive Surgery Training and Innovation Center (MISTIC)

Johns Hopkins Medical Institutions



OVERVIEW

The Minimally Invasive Surgical Training and Innovation Center (MISTIC) at Johns Hopkins is dedicated to enhancing healthcare delivery and improving patient safety through innovative research and training. Housed in the historic labs of Alfred Blalock, MD, and Vivian Thomas, JD, MISTIC is a resource for cutting-edge research and innovation. MISTIC is also available for training, demonstration, and educational purposes.

Research and Innovation

MISTIC is committed to driving research and innovation in minimally invasive surgery. Our faculty are involved in numerous projects in collaboration with industry, aimed at developing new surgical techniques, improving existing methods, and enhancing the overall quality of patient care.

Partnerships

MISTIC collaborates with industry, scientists from the Johns Hopkins Malone Center for Engineering in Healthcare, and community groups to innovate, advance health initiatives and develop training methodologies and technologies.

Simulation and Clinical Education

MISTIC offers flexible and scalable training solutions tailored to the specific needs of each user, ensuring high-quality education for all clinical specialties.

GINA L. ADRALES, MD, MPH, FACS

Director of MISTIC; Chief, Division of Minimally Invasive Surgery; Director of Women in Surgery at Hopkins; Associate Director of the Johns Hopkins Bariatric Surgery Fellowship



RESEARCH AREAS

Surgical education, surgical skills acquisition and simulation, clinical outcomes research (foregut surgery, bariatric and metabolic surgery, and herniorrhaphy), Health services and healthcare disparity research, Patient-centered care, and Quality improvement

SUMMARY OF WORK

Dr. Gina L. Adrales directs the Division of Minimally Invasive Surgery and co-directs the JHU Bariatric Surgery Fellowship. She also leads the Minimally Invasive Surgery Training and Innovation Center (MISTIC). Her clinical expertise includes GERD and paraesophageal hernia, gallbladder disease, achalasia and other benign esophageal disorders, bariatric/metabolic surgery, and hernia repair.

A Past-President of the American Hernia Society and the first woman to serve as President, Adrales has significantly advanced hernia surgery quality. She is an associate member of the American College of Surgeons' Academy of Master Surgeon Educators and has developed surgical training modules for the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES). She is currently the Chair of the SAGES Opivoid Task Force as part of the Quality, Outcomes and Safety Committee.

At Johns Hopkins, she has engaged in programs like the Economics of Clinical Operations, Leadership Development from the Academy of Surgery Leadership, and training in Health Policy, Management, and Surgical Coaching. She has numerous publications, presentations, and research initiatives, along with global and societal leadership roles.

At MISTIC, Adrales has developed innovative training programs and a robotic surgery curriculum in collaboration with the Malone Center for Healthcare Engineering, where she holds an affiliate faculty membership. Her expertise in clinical practice, public health, and innovation makes her a sought-after thought leader and subject matter expert in academia and industry.

IVAN M. GEORGE



Managing Director, MISTIC and Anesthesia Operations (Anesthesia and Critical Care Medicine)

SUMMARY OF WORK

Ivan George, Administrative Director at Johns Hopkins University for Surgery (MISTICenter) and Anesthesiology and Critical Care Medicine, has over 25 years of experience managing perioperative support in top U.S. facilities. An expert in clinical and surgical simulation education with 15 years in advanced surgical and critical care technologies, he has played key roles in initiatives like the DoD Operating Room of the Future and the ACS Accredited Institutes. George has contributed to over 250 scholarly works and managed significant surgical innovation projects.

Holding patents for surgical, automotive safety, and educational devices, he has chaired major committees, including the ACS Global Virtual Grand Rounds and the Technology and Simulation Committees. As the inaugural chair of the M-Health/Medical Program Committee, he helped shape the India Mobile Congress 2019, attended by 60,000 participants and 5,000 CxOs from 30 countries. Additionally, he supports regional and national innovator and investor communities.

PROJECT EXAMPLES

- Engaged on the development of several robotic surgical platforms and associated curricula
- Facilitating efforts related to xenotransplant, face transplant, penile transplant, arm/hand transplant, solid organ robotic implantation, and other procedures
- Development of a universal simulator language for clinical simulation
- Creation of content-valid/high-fidelity models for minimally invasive surgery
- Advanced video technology for safe and efficient surgical, educational, and development needs
- Launching simulation-based rapid prototyping / 3D printing program in Q3 2024

FACILITIES AND RESOURCES DETAILS

- 9,000+ sq ft of dry and wet labs
- East Lab: 525 sq ft
- Main Lab: 1424 sq ft
- Dry Lab: 382 sq ft
- Conference Room: 855 sq ft
- Equipped with state-of-the-art A/V technologies

TRAINING MODALITIES

- Open, endosurgical, endoscopic, robotic, and hybrid platforms
- Simulated and tissue-based experiences
- VR, synthetic, and biological simulations

