



This meeting was held virtually via Zoom.

Dean Daley called the meeting to order, welcomed members and guests, and requested approval of the minutes of the Faculty of Medicine meeting of May 8, 2023, which were provided in advance of the meeting. The minutes were approved, as submitted.

Dean Daley called on Dr. Jesse Roberts, Associate Professor of Anaesthesia at Massachusetts General Hospital, to read the memorial minute on Dr. Warren Myron Zapol.

Warren Myron Zapol, MD

Warren Myron Zapol, M.D., visionary, inventor, polar explorer, Massachusetts General Hospital critical care physician and anesthesiologist, mentor, colleague, friend, and beloved husband, father and grandfather, died December 14, 2021.

Born in Brooklyn, NY, on March 16, 1942, Warren learned decades later that he was adopted by neighbors at birth, following the death of his mother from eclampsia. Bernard Zapol, a businessman, and his wife, Florence, a schoolteacher, nurtured Warren as their own, steered him to Stuyvesant High School in Manhattan, and sent him off to the Massachusetts Institute of Technology at the young age of 16. Warren skipped his 1962 MIT graduation ceremony to lead a group of classmates on an overland scientific goodwill expedition by Land Rover to Southeast Asia. During the trip, he contracted malaria and became extremely ill. Saved – and inspired – by a Harvard Medical School-trained nurse-nun in Rawalpindi, Pakistan, Warren set his sights on becoming a doctor.

Following an internship on the Harvard Medical School surgical service at Boston City Hospital, he was accepted into the Public Health Service as a research associate in a laboratory led by Dr. Theodor Kolobow at the National Institutes of Health (NIH). Using hand-made, silicone rubber membrane “artificial lungs,” Warren and Ted conducted animal and human studies of extracorporeal membrane oxygenation (ECMO), a temporary, life-sustaining means of oxygenating the blood outside the body while giving lungs time to heal.

After completing his research at the NIH, Warren applied to several residencies. Dr. Richard J. Kitz, then chief of the MGH Department of Anesthesia, offered Warren an anesthesia residency combined with support and protected time for research during his training. The draw was compelling: MGH had the first respiratory care unit in the nation, established by Dr. Henning Pontoppidan, and it had a premier blood-gas laboratory led by Dr. Myron Laver. For the next 52 years, Warren remained tethered to the MGH as a clinician, researcher, and, from 1994 to 2008, its third Anesthetist-in-Chief.

Warren’s many contributions toward improving clinical care and science at MGH were marked by his enduring belief in the importance of teamwork and the value of every team member’s contribution. He encouraged an entrepreneurial spirit, supporting such wide-ranging efforts as developing smart IV pumps, improving monitors, and using a computerized intraoperative record system. He brought acupuncture services and research into the department. He made pain medicine an investigative priority and supported ongoing studies seeking to unravel the mysteries of the brain under anesthesia. In addition, he established four Harvard Medical School-endowed chairs in anesthesia at MGH, supporting the research careers of several investigators in the department.

One of Warren’s crowning achievements for medicine – and humanity – was his pioneering work with nitric oxide (NO). Nitrogen oxides, including NO, were known to be gaseous components of air pollution. But work by others had demonstrated that NO produced within the body also serves as a signaling gas in the cardiovascular system. Warren was fond of telling the story of how a newspaper article about nitrogen oxides in air pollution prompted him to wonder whether inhaling low levels of purified NO could actually be therapeutic. Pharmacologist Lou Ignarro, one of three scientists to receive the 1998 Nobel Prize for discovering NO’s signaling activities, said he initially had doubts about Warren’s unorthodox idea of NO inhalation because of NO’s potentially toxic properties. During successful bench-to-bed experiments, initially involving designing and constructing a safe NO inhalation system and newborn lambs, Warren and Dr. Jesse Roberts Jr., an MGH neonatologist and pediatric anesthesiologist, were the first to demonstrate that inhaled NO could safely treat

“blue babies” – the color signifying a failure in oxygenation. In the pioneering studies in the MGH intensive care nursery, critically ill blue babies turned pink right before the eyes of the eager and ecstatic caregiving team. These clinical observations were first reported in Circulation in 1991. A landmark Lancet paper was published a year later, establishing inhaled NO as an effective and safe treatment for persistent pulmonary hypertension in the newborn. Their work, joined by others entering the field, led to FDA approval of inhaled NO in 1999 for the treatment of critically ill blue babies. Subsequently, inhaled NO was administered to patients of all ages with cardiovascular-related complications. Today, more than 10,000 patients a year receive inhaled NO. In recognition of this groundbreaking work, in 2003, Warren received the Inventor of the Year Award from the Intellectual Property Owners Association.

Beyond NO, Warren earned a reputation as a bold explorer, earning him the moniker “Dr. Adventure.” Beginning in 1974, he led a series of nine expeditions to Antarctica to study the physiology of Weddell seals, marine mammals that dive more than 600 feet below the surface of the ice where they can remain for more than an hour while avoiding the bends and maintaining adequate oxygen levels. His team devised bespoke microcomputer-controlled sensors, which were temporarily glued on the seal's fur to capture real-time vital signs and blood samples during diving. These seal studies shed important light on physiologic mechanisms of adaptation. Warren's commitment and contributions to Antarctic science prompted the US Board of Geographic Names to honor him in 2006 with his own glacier. The Zapol Glacier extends from the west side of Mount Vinson, the highest peak at the bottom of the world.

Perhaps Warren's greatest legacy – beyond pioneering therapies and opening scientific pathways – can be found in the life-changing personal connections he forged with the generations of people who trained with, learned from, and were inspired by him. Generations of leaders in anesthesia around the world trained under him. As a faculty member of the Harvard-MIT Health Sciences and Technology program, he was particularly noted for his enthusiasm in introducing MIT graduate students to clinical and translational research. His influence even extended into space, as his fellow Jessica Meir became a NASA astronaut and carried the MGH flag to the International Space Station in 2020. The MGH Anesthesia Center for Critical Care Research, which he established together with Dr. Kenneth Bloch, in part with royalties the MGH received from the sale of nitric oxide, continues to advance this game-changing science while inspiring young investigators. Until his own final breath, this happy warrior, though stringent in his expectations, shed a brilliant light on their future and made their work fun.

Respectfully submitted,

*Lorenzo Berra, Chairperson
Emery N. Brown
Patricia K. Donahoe
Fumito Ichinose
Louis Ignarro
Edward Lowenstein
Jesse D. Roberts
Vamsi K. Mootha
Nikki J. Zapol*

Dean Daley requested that the memorial minute be inscribed on the permanent records of the Faculty of Medicine.

Dean Daley then turned to the introduction of the newly appointed professors. Dean Daley called upon Dr. Anne Becker, Dean for Academic and Faculty Affairs, to introduce those who were recently promoted, or appointed, to the rank of Professor.

Dean Becker then introduced Harvard Medical School's newly appointed Professors. **Amit Anand**, Professor of Psychiatry, Brigham and Women's Hospital

Ingrid Bassett, Professor of Medicine, Massachusetts General Hospital
Marcy Bolster, Professor of Medicine, Massachusetts General Hospital
Katherine Burdick, Professor of Psychology in the Department of Psychiatry, Brigham and Women's Hospital
Ciprian Catana, Professor of Radiology, Massachusetts General Hospital
Jean Connors, Professor of Medicine, Brigham and Women's Hospital
Florian Eichler, Professor of Neurology, Massachusetts General Hospital
Michael Gee, Professor of Radiology, Massachusetts General Hospital
Christopher Gibbons, Professor of Neurology, Beth Israel Deaconess Medical Center
Teresa Gomez-Isla, Professor of Neurology, Massachusetts General Hospital
Anna Greka, Professor of Medicine, Brigham and Women's Hospital
Taekjip Ha, Professor of Pediatrics, Boston Children's Hospital
Christopher Harvey, Professor of Neurobiology, Harvard Medical School
Richard Iorio, Professor of Orthopedic Surgery, Brigham and Women's Hospital
Edward Lee, Professor of Radiology, Boston Children's Hospital
Cynthia Lemere, Professor of Neurology, Brigham and Women's Hospital
Moussa Mansour, Professor of Medicine, Massachusetts General Hospital
Beverly Moy, Professor of Medicine, Massachusetts General Hospital
Kenneth Mukamal, Professor of Medicine, Beth Israel Deaconess Medical Center
Sua Myong, Professor of Pediatrics, Boston Children's Hospital
Shawn Rangel, Professor of Surgery, Boston Children's Hospital
Alireza Shamshirsaz, Professor of Surgery, Boston Children's Hospital
Lydia Shrier, Professor of Pediatrics, Boston Children's Hospital
J. Andrew Taylor, Professor of Physical Medicine and Rehabilitation, Spaulding Rehabilitation Hospital

Dean Daley then introduced the Barbara J. McNeil Faculty Award for Exceptional Institutional Excellence. The McNeil Award was established to recognize faculty for exceptional institutional engagement and service in supporting the missions of Harvard Medical School and Harvard School of Dental Medicine. The award was named in honor of Dr. Barbara J. McNeil, Ridley Watts Professor of Health Care Policy and Professor of Radiology.

Dean Daley introduced Dean Joan Reede so she could present this year's award recipient.

Dean Reede presented the award to Dr. Vicki Rosen, Professor and Chair of Developmental Biology at Harvard School of Dental Medicine. Dean Reede invited Dr. Rosen to give brief remarks. Dr. Rosen expressed her gratitude for receiving the award.

Dean Daley introduced Dean David Roberts for an update on the external education program.

Dean Roberts discussed the Office for External Education (OEE) which focuses on expanding HMS global reach and impact by providing best-in-class medical and health care knowledge and insights. The OEE educates the world via Postgraduate Medical Education

(PGME) for current and aspiring clinicians, researchers, and other health care professional; corporate learning for leaders at all levels working in the health care industry; Harvard Health Publishing (HHP) for patients, families, and curious learners. From a single lesson to a certificate to a degree, they utilize innovated approaches to teaching and learning:

- Asynchronous online
- Live and live virtual
- Published content

He showed a trailer of the HMX course content, with snippets from existing HMX courses, including fundamentals, pro-level courses, and HMX topics which are smaller and more focused segments.

Dean Roberts spent some time on the impact of OEE. There has been steady growth since inception in 2014. Recognized worldwide as a leader in healthcare education, OEE saw growth despite/during COVID disruptions, expanding relationship across academics and industry including programs with Harvard Chan School of Public Health, Harvard Business School, Office of the Vice Provost for Advances in Learning, Anthem, Moderna, Johnson & Johnson, Nancy Lurie Marks Family Foundation, to name a few.

The OEE is launching and delivering new programs and learning resources, bringing HMS's expertise to new audiences around the world, and contributing to a vibrant Harvard Community. Dean Roberts highlighted some of the new programs and learning resources:

- "Leading Digital Transformation in Health Care" delivered to 677 executive education learners
- More than 530 learners have enrolled in a new corporate learning program "Health and Wellness: Designing a Sustainable Nutrition Plan"
- 147 million sessions on health.harvard.edu in FY23
- 600+ companies enrolled groups in HMX courses
- Launched two new HMX pro courses
 - Drug Discovery and Development
 - Clinical Drug Development

Dean Roberts mentioned that the office provides unique opportunities for HMS faculty through:

- Expanded reach, recognition, and impact
- New avenues for research funding and collaborations
- Opportunities for academic advancement

He also encouraged HMS faculty to engage with the OEE to explore how they can help achieve professional goals through teaching and publishing.

Dean Roberts then turned the meeting over to Dean Daley.

Dean Daley expressed his deepest appreciation to all of the HMS faculty and adjourned the meeting at approximately 4:34pm.