



Space Medicine Association

2018 Officer Election

Ballot

Vote for one President-Elect candidate:

Judith Hayes

Casey Pruett

Vote for one Secretary candidate:

Yael Barr

Mark Sheehan

Vote for TWO Member-at-Large candidates:

Fillipo Castrucci

Andrea Hanson

Kathleen McMonigal

Robert Mulcahy

Ed Powers



SMA Officer Election 2018

Candidate Biographies

Candidates for President-Elect:

Judith Hayes

Judith Hayes is the Chief of the NASA Biomedical Research and Environmental Sciences Division at the Johnson Space Center (JSC). She came to JSC in 1984 as a research scientist in the Neurosciences Laboratory and later established the JSC Exercise Physiology Laboratory in 1987 where she defined the space station requirements for exercise countermeasures. In addition, she was the PI on two Space Shuttle experiments studying the effects of microgravity on skeletal muscle in astronauts. She managed space physiology laboratories, Reduced Gravity Programs, Space Medicine Project, and integration of biomedical research for the Space Shuttle, Russian Mir-Shuttle, and International Space Station (ISS). In addition to JSC, she established biomedical laboratories at the Gagarin Cosmonaut Training Center in Star City, Russia in support of the NASA-Mir and ISS Programs.

Judy's career spans over three decades dedicated to ensuring astronaut health and performance during human space exploration. Currently, her Division is involved in research, operations, and project management components of several NASA programs: International Space Station (ISS), Human Research Program (HRP), and Space Biology with a combined annual budget of >\$75M. This involves activities related to spaceflight and analog research, clinical testing of astronauts, Human System Risks assessment, development of health standards, countermeasures validation, astronaut training, project management, and monitoring of space vehicle environmental health. She also works closely with NASA's international partners on various international contracts to provide ISS medical and experiment support. She is a charter member of the International Countermeasures Working Group for developing global standards for spaceflight exercise and

research. Judy has published journal papers and book chapters related to spaceflight exercise physiology.

As the Director of the NASA Space Life Sciences Summer Institute, she's influenced 900+ students who have participated in this educational institute that exposes interns and fellows to multidisciplinary challenges in space physiology, psychology, environmental health, and medicine related to human space exploration. She has lectured for various university programs, as well as various training programs for NASA flight surgeons and astronaut candidates.

Judy graduated from West Virginia University with a Bachelor of Science and Master of Science in Exercise Physiology followed by a Master of Public Health in Occupational Health/Aerospace Medicine from the University of Texas Health Sciences Center. She completed a joint fellowship at The Royal College of Surgeons of England and the London School of Hygiene and Tropical Medicine supporting epidemiologic research for the National Health Service in the United Kingdom. Judy has been recognized with various honors including the prestigious Silver Snoopy by the NASA Astronauts, as well as West Virginia University Hall of Fame (2009), Outstanding Alumnus (2014), Academy of Distinguished Alumni (2015).

Judy is a member of Sigma Xi, the scientific research honor society. She is an AsMA member since 1986 and recently elected AsMA Fellow. She is Lifetime Member of the Space Medicine Association (SMA) and served as the Executive Committee Secretary and twice as an SMA Member-at-Large.

Judy's goal for the Space Medicine Association, as it engages in new frontiers of space medicine through commercial enterprises, is to expand our network and communications to accommodate the new practitioners and scientists who are operating as part of novel human spaceflight initiatives. She seeks to pursue outreach activities that engage seasoned SMA professionals in mentoring its newest members to share lessons learned as our SMA community forges a new future.

Casey Pruett

Casey Pruett earned his Bachelor of Science degree (Magna Cum Laude) in Kinesiology at Kansas State University in 1992. He focused on motor control topics, assisting Dr. Charles Layne with his projects investigating the effects of exposure to microgravity on postural control in astronauts. After graduation, Mr. Pruett began working as a research scientist in the Neurosciences Laboratory at the NASA Johnson Space Center for Wyle (now KBRwyle) investigating the effect of exposure to microgravity on postural control and locomotion in astronauts. He was part of a team that conducted in-flight experiments on the MIR Space Station and several Space Shuttle flights, as well as pre- and post-flight experiments immediately after landing. During this time Mr. Pruett also earned his Master of Science degree in Exercise Science from the University of Houston in 1997. His thesis was titled, “The Effect of Target Distance on Neuromuscular Activation Patterns During Treadmill Locomotion”. He earned his MBA degree from University of Houston – Clear Lake in December 2011.

In 1997, Mr. Pruett began working for Human Solutions (formerly TecMath) supplying ergonomic human modeling software for seated workspace designs to the automotive industry and 3-D full body laser scanners for apparel and research industries. He became the General Manager in charge of the North American operations for this German-based company. He led a research project to develop an improved seated-posture prediction model and coordinated anthropometric research projects to develop new human anthropometry databases.

In 2002, Mr. Pruett returned to Wyle and began duties as the Managing Director for their business operations in Cologne, Germany. Mr. Pruett runs an office that provides medical support services to the European Astronaut Center. This office employs physicians, nurses, engineers, scientists, information technology experts, fitness experts, and consultants to optimize the health of European astronauts before a mission, support them during a mission, and help return them to optimal health after a mission. This office supports European life sciences research in microgravity analogues (e.g., Bed Rest Studies at MEDES and DLR :envihab), developing aerospace medicine curricula in Europe (e.g., Kings College London), and countermeasure projects to help combat the deleterious effects of long term exposure to

microgravity on human systems. Mr. Pruett was the deputy project manager for all medical and psychological elements of the 2008 – 2009 ESA Astronaut Selection campaign.

He has participated in the support to the SMA annual luncheon and meetings for the past 15 years doing a variety of tasks to make the SMA meeting a success. He served as the SMA Executive Secretary from 2010 - 2012. He served as a Member-at-Large from 2012 – 2013 when he was then elected SMA Treasurer from 2013 – 2015.

Candidates for Secretary:

Yael R. Barr, MD, MPH, FAsMA

Dr. Barr received her Doctorate of Medicine in 1995 from the Sackler School of Medicine at the Tel-Aviv University in Israel. Following a 4-year service as a physician in the Israeli Army, she completed an Anatomic Pathology residency at the Sourasky Tel-Aviv Medical Center. Dr. Barr joined the Israel Aerospace Medicine Institute in 2002 and was a co-investigator on an Israeli life sciences experiment that flew on STS-107 in 2003. In 2003 she also completed the International Space University's summer program in Strasbourg, France.

In 2009 Dr. Barr completed a 4-year combined residency in Internal Medicine and Aerospace Medicine at The University of Texas Medical Branch (UTMB) in Galveston, Texas, also receiving a Masters of Public Health from UTMB in 2008. She is board certified by the American Board of Internal Medicine and by the American Board of Preventive Medicine in Aerospace Medicine. Following the completion of residency, Dr. Barr was hired to support NASA, initially working as a research clinician with the Advanced Projects section of the Bioastronautics Contract, supporting the Exploration Medical Capability element of NASA's Human Research Program (HRP). From 2012 to 2014 she served as the Deputy Project Scientist for the Visual Impairment/Intracranial Pressure (VIIP) project, and from 2014 to present has been the Deputy Element Scientist for the Human Health Countermeasures element of NASA's HRP.

A member of AsMA since 2002, Dr. Barr is also a member of the Space Medicine Association and the Society of NASA Flight Surgeons. With AsMA and its constituents being near and dear to her heart, she has served in multiple capacities including SMA member-at-large, AsMA Council member-at-large and delegate to AsMA's Executive Committee, Chair and Deputy-Chair of AsMA's Global Liaison and Outreach Committee, member of AsMA's Resolutions and Scientific Program Committees, and former co-chair of the ASAMS Space Medicine Committee. She was selected as an AsMA Fellow in 2012.

Mark Sheehan, MD, MPH

Dr. Mark Sheehan has been a member of the Space Medicine Association since 2000. Currently he works as an occupational medicine physician at the Johnson Space Center Clinic.

Dr. Sheehan was born and raised in New Bedford, MA. He graduated from Dartmouth College in 1975 and from the University of Pittsburgh School of Medicine in 1986, and completed the Psychiatry Residency at Wilford Hall USAF Medical Center in San Antonio, TX in 1986 and the Aerospace Medicine Residency at UTMB-Galveston in 2000.

Dr. Sheehan served in the Air Force for 20 years as both a psychiatrist and a flight surgeon, including assignments to the School of Aerospace Medicine and Air Force Research Laboratory and two overseas wartime deployments, to the United Kingdom in 1992 in support of Operation Desert Storm and to Iraq in 2007/8. He also served as a base level psychiatrist and base level flight surgeon in a reserve F-16 squadron.

Upon retiring from the Air Force in 2009 Dr. Sheehan moved to Johnson Space Center, where, in addition to working as an occupational medicine physician, he has worked in experimental test subject support, supporting human experimentation from a subject safety standpoint and serving as a medical consultant for test readiness reviews of engineering development programs involving human participants.

In his spare time for the past five years Dr. Sheehan has served as the secretary of the Board of Directors of his church.

Candidates for Members-At-Large:

Filippo Castrucci, MD, PhD

Since 1999, Dr. Filippo Castrucci has served as Flight Surgeon at the German Space Agency (DLR) Institute for Flight Medicine and at the European Space Agency Astronaut Centre (ESA-EAC), Space Medicine Team. Both institutions are in Cologne Germany. As International Partner Flight Surgeon/Deputy Crew Surgeon, he has supported Space Shuttle, Soyuz and ISS long-duration missions. He currently serves as ESA Lead Flight Surgeon in the Space Medicine Team at ESA-EAC.

Filippo currently serves as ESA member of the Multilateral Medical Operations Panel (MMOP), representing the international partners of the ISS, and has co-chaired the Panel in 2010-2011 and 2015-2016. For some years he has also represented ESA in the MMOP Countermeasures working group.

Filippo gained his MD degree at the University of Perugia Medical School, Perugia Italy and received his PhD degree in Cardiovascular Pathophysiology at the University of Rome Tor Vergata, Rome Italy, where, among others, he was co-investigator in scientific studies in the domains of Space Medicine and Microgravity countermeasures.

Filippo completed two ESA Fellowships. The first in Gravitational Physiology at the Institute of Physiology of the Free University of Berlin, Germany, while the second at ESA-EAC on the effectiveness and development of new physical countermeasures for microgravity.

Filippo has attended the ISS International Partner Flight Surgeon training at NASA in the 2000-2003 timeframe and has been the first non US and non-Russian Flight Surgeon assigned to an ISS Increment, as Deputy Crew Surgeon, in 2002.

The intense mission support activities in the past two decades have not allowed Dr Castrucci to actively engage in the Space Medicine Association activities and he is honored to be proposed as an SMA “Member at Large” candidate, so to share his experience and contributions with the Association.

Andrea Hanson, PhD

Dr. Andrea Hanson has worked at NASA Johnson Space Center for the past seven years, and serves as the ISS Exercise Countermeasures Operations Integration Lead. She also supports the Exploration Medical Capabilities Element as a member of the Systems Engineering & Integration team, implementing model based systems engineering design concepts while developing the medical systems for exploration mission vehicles, and is also the NASA Technical Lead for Countermeasure Operations with the Human Physiology, Performance, and Protection & Operations (H3PO) Laboratory at JSC. She earned a BS in Chemical Engineering at the University of North Dakota, and Master’s and PhD in Aerospace Engineering at the University of Colorado, focusing on the Bioastronautics and Microgravity Sciences Discipline. Dr. Hanson performed her post-doctoral work as an NSBRI Fellow in the Department of Orthopedics and Sports Medicine at the University of Washington where her research focused on biomechanics in reduced gravity environments. She was the recipient of the 2010 AsMA Fellows Scholarship. Her research interests have focused on muscle and bone atrophy during spaceflight and development of pharmaceutical and exercise based musculoskeletal countermeasures.

Dr. Hanson was a co-investigator on two shuttle payloads, supports ISS research, and served as the Principal Investigator of the Force Shoe Evaluation on ISS. Today, she supports ground evaluations of portable load monitoring devices and advanced exercise concepts. She is also leading efforts in technology development to enhance human health and performance during exploration missions through application of outcomes based healthcare, and works closely with industry and DoD partners with cross cutting interests and needs. She is exploring means of incorporating exercise into a precision medicine model of genetic markers for the next generation of space explorers. She serves as the chair of the Alumni Advancement Board at the

US Space & Rocket Center (home of Space Camp), and is passionate about promoting STEM education and inspiring future generations of space scientists, engineers, and teachers. She enjoys sailing, traveling, scuba diving, kayaking, snow skiing, and hiking with family and friends in her free time.

Kathleen McMonigal, MD, FCAP

Kathleen A. McMonigal, MD, FCAP, is the Director of Clinical Laboratories for the National Aeronautics and Space Administration (NASA) at the Lyndon B. Johnson Space Center in Houston, Texas. Dr. McMonigal oversees astronaut and occupational medicine laboratory testing at NASA. She is the chair of NASA's Aerospace Medicine Board, leading discussion of medical issues regarding individuals' qualifications for flight. Her duties also include coordinating the review of medical information for astronaut selection. She is past chair of NASA's Institutional Review Board. Her clinical laboratory team supports operational and research activities in the NASA space flight program. Dr. McMonigal created and serves as director of the NASA Biospecimen Repository and is the Principal Investigator of the ISS Repository Specimen Protocol.

Dr. McMonigal earned her medical degree from the University of Minnesota in Minneapolis. After completing a surgery internship at Virginia Mason Medical Center in Seattle WA, she returned to the University of Minnesota for a residency in anatomical and clinical pathology and a fellowship in virology and microbiology. After joining NASA, she completed the Aerospace Medicine Primary Course at the School of Aerospace Medicine at Brooks AFB, San Antonio TX and was awarded Air Force Flight Surgeon wings.

Dr. McMonigal has been the recipient of several awards at NASA, including the NASA Superior Achievement Award, NASA Exceptional Achievement Medal, and the NASA Space Flight Awareness Flight Safety Award. She has also been honored by the College of American Pathologists with the Pathologist Spotlight Service Award and the Public Service Award.

Rob Mulcahy, MD, MPH

Rob Mulcahy studied chemical engineering at Rice University in Houston before enrolling in medical school at the University of Texas Medical Branch (UTMB) in Galveston. Following medical school, Rob completed a combined residency in Aerospace Medicine and Internal Medicine at UTMB. During residency, he received the UTMB Outstanding First Year Resident award in addition to the William K Douglas Scholarship and the Jeff Myers Young Investigator Award. He joined the NASA Johnson Space Center (JSC) as a flight surgeon after graduation from his residency in 2016. He is an FAA Aviation Medical Examiner and has received training in hyperbarics during residency. His current roles include patient care in the JSC Flight Medicine Clinic and support for the JSC Fatigue Management Service. His hobbies include technology, travel, and SCUBA.

William Edward (Ed) Powers, MD, MS

Dr. Ed Powers is currently Director of Clinical Preventive Medicine and Director of the Aerospace Medicine Residency Program at UTMB in Galveston. He is the principle investigator for several research and education grants for UTMB including those from NASA, FAA and Baylor. He is Manager of the UTMB KBR-Wylie Health & Human Performance Subcontract. He is the course director for 4 courses in the MPH degree program at UTMB. In addition, he is a Senior FAA AME at the Aerospace Medicine Center for clinical operations at UTMB, issuing all classes of FAA medical certificates including FAA Special Issuances. In addition, he is the main FAA AME for the HIMS program for monitoring substance dependent pilots in recovery.

Ed was a NASA flight surgeon for a 10 years, serving as crew surgeon/deputy crew surgeon for five space shuttle missions and four long-duration ISS missions. He also served as Chief of the Medical Operations Branch at NASA Johnson Space Center and as Chair of the Multilateral Medical Operations Panel (MMOP), representing the international partners of the ISS. He has received several NASA Achievement Awards.

Ed holds BS and MS degrees in biomedical engineering and he is a Fulbright Scholar. After medical school, he completed an Emergency Medicine Residency training program in Orlando and the Aerospace Medicine Residency training program at Wright State University. He has been board certified in Aerospace Medicine since 1994. In addition, he has served as a Major in the Air Force Reserve.

Ed is a Life Member of the Aerospace Medical Association and an Associate Fellow. He has served on the AsMA Scientific Program Committee and the History & Archives Committee and he has chaired scientific sessions at AsMA Annual Meetings. He received the Randolph Lovelace Award from the Society of NASA Flight Surgeons in 2015.