

Standing Committee on Aerospace Medicine and the Medicine of Extreme Environments

Committee

Jeffrey Kahn

Chair

Jeffrey Kahn, Ph.D., M.P.H., is the Andreas C. Dracopoulos Director of the Johns Hopkins Berman Institute of Bioethics, a position he assumed in July 2016. From 2011, he has been the inaugural Robert Henry Levi and Ryda Hecht Levi Professor of Bioethics and Public Policy. He is also Professor in the Department of Health Policy and Management of the Johns Hopkins Bloomberg School of Public Health. He works in a variety of areas of bioethics, exploring the intersection of ethics and health/science policy, including human and animal research ethics, public health, and ethical issues in emerging biomedical technologies. Kahn has served on numerous governmental and international advisory panels, including most recently on the International Commission on the Clinical Use of Heritable Human Genome Editing. He is currently chair of National Academies of Sciences, Engineering, and Medicine's (NASEM's) Committee on Aerospace Medicine and Medicine of Extreme Environments and has previously chaired its committee on the Use of Chimpanzees in Biomedical and Behavioral Research (2011); the committee on Ethics Principles and Guidelines for Health Standards for Long Duration and Exploration Spaceflights (2014); and a committee on the Ethical, Social, and Policy Considerations of Mitochondrial Replacement Techniques (2016). He is current a member of the National Academy of Medicine Council.

Serena Maria Auñón-Chancellor

Member

Serena Auñón-Chancellor, MD, MPH, was selected in July 2009 as one of 14 members of the 20th NASA astronaut class. During her training period, she completed multiple scientific and technical briefings, intensive instruction in space station systems, spacewalks, robotics, physiological training and over 500 hours in the T-38 training jet. She has served in the ISS Station Operations branch handling medical issues and the Capsule Communicator (CAPCOM) branch as a lead Capcom for multiple Commercial Cargo resupply missions. In January of 2017, Dr. Auñón-Chancellor began an international training regimen for launch on the Soyuz MS-09 spacecraft from Kazakhstan for a 6 month trip to the International Space Station. Her crew launched from the Baikonur Cosmodrome on June 6, 2018 and landed on December, 20th, 2018 spending 197 days on orbit. During her time on both Expedition 56 and 57, her crew completed over 150 different experiments in multiple fields including: biology & biotechnology, cancer, Parkinson's, and Alzheimer's research, materials science, nuclear physics, physical sciences, and Earth science. They also completed successful robotic capture operations for four visiting commercial vehicles bringing critical cargo to the ISS where Dr. Auñón-Chancellor was the lead for one of those mission. Dr. Auñón-Chancellor performed multiple outreach events to students in grade school and universities all over the world during her time on orbit inspiring the next generations of scientists, physicians, engineers, and explorers. She currently serves as an Associate Professor of Clinical Medicine for the LSU Internal Medicine Residency Program in Baton Rouge, LA in partnership with Our Lady of the Lake Regional Medical Center where she continues to actively teach and lead hospital teams with residents and medical students. In addition to this, she is the current UTMB Aerospace Medicine Residency Program Director and focuses on the training of physicians to serve this nation's space program as well as the burgeoning commercial space industry. Finally, she maintains an active role in the Astronaut Office where she covers medical issues and provides guidance for ISS, Lunar, and Exploration-Class missions.

James P. Bagian

Member

Jim Bagian, MD, is a Professor in the Medical School and the College of Engineering and the Executive Director of the Center for Risk Analysis Informed Decision Engineering at the University of Michigan. He has extensive experience in the fields of human factors, aviation, and patient safety. Previously he served as the first and founding director of the Veterans Administration's (VA) National Center for Patient Safety and as the VA's first Chief Patient Safety Officer where he developed numerous patient safety related tools and programs that have been adopted nationally and internationally. He is a veteran NASA astronaut and flew on two Space Shuttle missions including as the lead mission specialist for the first dedicated Life Sciences Spacelab mission. He also served as the Chief Flight Surgeon and Medical Consultant for the Space Shuttle Columbia Accident Investigation Board in 2003. He was one of the leaders in the development of the Space Shuttle Escape system and his research has advanced the understanding and mitigation of operationally significant physiologic challenges such as immersion hypothermia, parachute related injuries, and resulted in the successful treatment of space motion sickness. Dr. Bagian holds a B.S. degree in mechanical engineering from Drexel University and a doctorate in medicine from Thomas Jefferson University. He is a Fellow of the Aerospace Medical Association and an elected member of the National Academy of Engineering and the National Academy of Medicine.

R. A. Charo

Member

Alta Charo, J.D., is professor emerita of law and bioethics at the University of Wisconsin, and now works as a consultant to government and industry on biotechnology ethics, policy, and regulation. She has worked in government as a science policy analyst at the former congressional Office of Technology Assessment, the US Agency for International Development, and the FDA. Her government advisory service includes the NIH Human Embryo Research Panel and President Clinton's National Bioethics Advisory Commission. She is an elected member/fellow of the National Academy of Medicine, the American Association for the Advancement of Science, the German Academy of Sciences (Leopoldina) and the American Academy of Arts and Sciences. At the U.S. National Academies, she co-chaired the committee that issued guidelines for embryonic stem cell research and the committee that wrote the seminal report on ethics and governance of human genome editing.

Barbara J. Evans

Member

Barbara J. Evans, Ph.D., J.D., is a Professor of Law and Stephen C. O'Connell Chair at the University of Florida Levin College of Law and Professor of Engineering at the University of Florida Herbert Wertheim College of Engineering. Her research interests include privacy, human-subject protection, and FDA/CLIA/state regulatory issues with AI/ML medical software, genomic testing, and other advanced medical technologies. She was named a Greenwall Foundation Faculty Scholar in Bioethics for 2010-2013 and is an elected member of the American Law Institute. She has served on several National Academies ad hoc committees addressing biotechnology and medical regulatory issues and has served one previous term on the CAMMEE standing committee. She recently served on an Expert Advisory Panel convened by the U.S. Government Accountability Office (GAO) and NAM to advise on Artificial Intelligence in Health Care. She is licensed to practice law in New York and Texas and is an affiliated member of the Florida Bar. She holds an electrical engineering degree from the University of Texas at Austin; M.S. and Ph.D. degrees from Stanford University; a J.D. from Yale Law School; and she completed a post-doctoral Fellowship in Clinical Ethics at the M.D. Anderson Cancer Center.

Elder Granger

Member

Elder Granger, M.D., is currently the President and CEO of THE 5Ps, LLC, a health care, education, and leadership consulting organization, Centennial, CO 80015 since August 6, 2009. Prior to his retirement from the US Army on July 1, 2009, MG Granger served as the Deputy Director and Program Executive Officer of the TRICARE Management Activity, Office of the Assistant Secretary of Defense (Health Affairs), Washington, DC, from December 2005 to May 2009. In this role, he was the principal advisor to the Assistant Secretary of Defense (Health Affairs) on DOD health plan policy and performance. In his role, leading MG Granger required strong, value based relationships with major insurers to be affiliates. This required clear guidelines to assess and determine "best value". A rigorous process was implemented to ensure clear requirements and criteria to manage these relationships to measurable, accountable outcomes.

Michelle Hanlon

Member

Michelle Hanlon, J.D., LL.M., is the Co-Director of the Air and Space Law Program at the University of Mississippi. She is the Editor-in-Chief of both the Journal of Space Law, the world's oldest law journal dedicated to the legal problems arising out of human activities in outer space and the Journal of Drone Law and Policy. Michelle is a Co-Founder and President of For All Moonkind, Inc., and the President of the National Space Society. Michelle received her B.A. in Political Science from Yale College and her J.D. magna cum laude from the Georgetown University Law Center. She earned her LLM in Air and Space Law from McGill University. Michelle's research focuses on the transition of the human species into a multiplanetary species specifically with a focus on the laws and regulations necessary to assure this evolution is successful, sustainable and ethical. Among other things, she has written extensively on the development of human communities on orbit – in commercial space stations – and on other celestial bodies.

Dan Hudson

Member

Dan Hudson, Ph.D., CAP, CPH, is the Director of Applied Technology at HII Mission Technologies and an expert in applying data science, social science, and management science across multiple industries and domains including healthcare and public health, reliability and safety of engineered systems, and risk management. Dr. Hudson is a decision scientist who helps organizations better leverage data and technology as strategic assets to answer key questions, spur innovation, drive performance improvement, and optimize resource allocation. He previously served in private sector roles supporting several federal agencies. These roles included: Senior Director of Data for a digital services firm (Ad Hoc); Director of Advanced Analytics and Intelligent Automation for a global consulting firm (Guidehouse); and Chief Technology Officer (CTO) and Chief Data Scientist for a technology consulting firm (ReefPoint Group). He also previously served for 10 years as a Nuclear Risk Analyst for a federal agency (U.S. Nuclear Regulatory Commission). Dan is a Veteran of the U.S. Armed Forces. He served for more than 11 years, first as a Marine Electronics Technician and then as a Navy Diver and Submarine Warfare Officer. Dan is a Certified Analytics Professional (CAP) and is Certified in Public Health (CPH). He earned a BS with Distinction in Aerospace Engineering from the U.S. Naval Academy; an MS in Reliability Engineering from the University of Maryland; and a PhD in Health Policy and Management from the Johns Hopkins University.

Mae C. Jemison

Member

Mae Jemison, M.D., is president of the BioSentient Corporation and the first African American woman to go into space. She is also principal of 100 Year Starship, a collaborative effort to make human travel beyond the solar system a reality within the next 100 years. Prior to becoming an astronaut, Dr. Jemison practiced medicine in Los Angeles and was the Area Peace Corps medical officer for Sierra Leone and Liberia in West Africa. Dr. Jemison served six years as a NASA astronaut, and in 1992 served as a mission specialist on STS-47 aboard the space shuttle Endeavour. After retiring from NASA in 1993, Dr. Jemison founded the Jemison Group, Inc., a private company that aims to research, develop, and implement advanced technologies suited to the social, political, and cultural contexts of the developing world. She also founded the non-profit Dorothy Jemison Foundation for Excellence, which hosts an annual international science camp for teenagers. From 1995 to 2002, Dr. Jemison taught environmental studies at Dartmouth College and was an A.D. White Professor-at-large at Cornell University. Dr. Jemison was elected to the National Academy of Medicine in 2001, and served on the Committee on the Space Station (1995-1997), the Committee for Technological Literacy (1999-2002), and the Committee on Aerospace Medicine and Medicine of Extreme Environments (2014-2017). Dr. Jemison received her undergraduate degree from Stanford University and her medical degree from Cornell University.

Daniel H. Lowenstein

Member

Daniel Lowenstein, M.D., is Professor of Neurology in the Department of Neurology at the University of California, San Francisco (UCSF). Dr. Lowenstein is a clinician-scientist who studies both basic science and clinical aspects of epilepsy. His laboratory studies (carried out from 1989 to 2002) have addressed the fundamental mechanisms of neuronal network remodeling that occur during epileptogenesis; i.e. the process in which a normal network transforms into a hyperexcitable network capable of producing or relaying seizure activity. In 2017, Dr. Lowenstein was elected to the National Academy of Medicine in recognition of his numerous contributions to academic medicine. Dr. Lowenstein serves on the Scientific Advisory Board of the Translational Research Institute for Space Health (TRISH), a NASA-sponsored program based at Baylor College of Medicine that provides grants for research relevant to space medicine. Dr. Lowenstein received his B.A. degree in Mathematics from the University of Colorado in 1973, an M.S. degree in Man-Environment Relations from The Pennsylvania State University in 1978, and an M.D. degree from Harvard Medical School in 1983. Following an internship in Pediatrics at UCSF in 1983-84, he completed his residency in Neurology at UCSF from 1984-87, serving as Chief Resident in the final year.

Anna C. Mastroianni

Member

Anna Mastroianni, JD, MPH, is Research Professor in Bioethics and Law at the Johns Hopkins Berman Institute of Bioethics, and Charles I. Stone Emeritus Professor of Law at the University of Washington (UW) School of Law. She was formerly associate director of the UW's Institute for Public Health Genetics and held additional faculty appointments in the UW's School of Public Health and School of Medicine. Before joining academe, she worked as a practicing attorney and served in a number of legal and governmental policy positions in Washington, D.C. including as Staff Director of the White House Advisory Committee on Human Radiation Experiments and NASEM Study Director. Her scholarly work examines the intersection of law, bioethics, public health, and health policy. Professor Mastroianni is an elected Fellow of the American Association for the Advancement of Science, recognized for her contributions to health policy, law, and bioethics. She serves on consensus, advisory, and oversight committees, both nationally and internationally. For NASEM, that work has included: ethics and policy for oversight of social sciences research, policies for the National Immunization Program's research procedures and data sharing, ethical and policy issues in the introduction of mitochondria replacement techniques, and ethics of health standards for long-duration space flight.

Lawrence A. Palinkas

Member

Lawrence Palinkas, Ph.D., is the Albert G. and Frances Lomas Feldman Professor of Social Policy and Health and at the USC Suzanne Dworak-Peck School of Social Work. He also holds secondary appointments as professor in the departments of anthropology and Population and public health sciences at USC. He obtained his B.A. in Anthropology in 1974 from the University of Chicago and his M.A. and Ph.D. in Anthropology from the University of California, San Diego in 1975 and 1981, respectively. A medical anthropologist, his primary areas of expertise lie within mental health services research, preventive medicine, and cross-cultural medicine. Dr. Palinkas is particularly interested in behavioral health, global health and health disparities, implementation science, community-based participatory research, and the sociocultural and environmental determinants of health and health-related behavior. His research has been funded by the National Science Foundation, NASA, NIH, the MacArthur Foundation, and the William T. Grant Foundation. Current research encompasses implementation of child and adolescent mental health services, sustainment of prevention programs and initiatives and effects of climate change on vulnerable populations. Dr. Palinkas is the co-lead of the Social Work Grand Challenge on Strengthening Social Responses to Environmental Change and a member of committees of the National Research Council and National Academy of Medicine. Dr. Palinkas is an elected fellow of the American Academy of Social Welfare and Social Work, a fellow of the Society for Social Work and Research, American Anthropological Association and Society for Applied Anthropology, and the author of more than 475 publications.

Prem S. Subramanian

Member

Prem Subramanian, M.D., Ph.D., is the Clifford R. and Janice N. Merrill Endowed Chair in Ophthalmology and is professor of ophthalmology, neurology, and neurosurgery and vice chair for academic affairs at the Sue Anschutz-Rodgers University of Colorado Eye Center/School of Medicine. He is also Adjunct Professor of Surgery at the Uniformed Services University of the Health Sciences. He is a founding member of the medical staff of the Marcus Institute for Brain Health, which serves to improve the functioning of patients with traumatic brain injury through intensive outpatient rehabilitation. His current research is focused on finding more effective medical treatments for patients at risk for progressive thyroid ophthalmopathy, developing better treatments of vision problems in patients with increased intracranial pressure, and using vestibular and visual therapies to overcome visual and balance dysfunction after traumatic brain injury. He has published over 240 research articles, book chapters, and web-based educational materials and is a dedicated educator in several countries around the world.

Gregory R. Wagner

Member

Gregory Wagner, M.D., is Adjunct Professor of Environmental Health, Harvard T.H. Chan School of Public Health. Dr. Wagner teaches about the science behind occupational and environmental policies and regulations, and the process of improving health protections at work. At Harvard he serves as a principal investigator in the Harvard Center for Work, Health, and Wellbeing where he also leads the Policy Working group. Previously he worked at the U.S. National Institute for Occupational Safety and Health (NIOSH) where he directed the Division of Respiratory Disease Studies, headed the Mining Research program, and was senior advisor to the NIOSH director. He subsequently served as the U.S. Department of Labor Deputy Assistant Secretary for Mine Safety and Health. Dr. Wagner received the American Public Health Association Alice Hamilton Award for lifetime achievement, American Thoracic Society John Peters Award for leadership in research and practice, and the American College of Occupational and Environmental Medicine Presidential Award for contributions to establishing ethical standards. Dr. Wagner has worked closely with both the World Health Organization and International Labour Organization. Board-certified in both internal and preventive medicine (occupational health), he has practiced rural primary care medicine and taught both medicine and public health. Dr. Wagner received his AB from Harvard University and his MD from Albert Einstein College of Medicine.

Gayle E. Woloschak

Member

Gayle Woloschak, Ph.D., is Professor of Radiation Oncology at Northwestern University, and prior to that was Senior Scientist at Argonne National Laboratory. She received her PhD from the Medical College of Ohio and did post-doctoral training at Mayo Clinic. Her current research is in areas of radiation biology understanding the consequences of radiation exposure on biological systems, working in both external and internal exposures. She also carries out research in nanotechnology. She has done significant work with radiation effects from space environments, approaches to mitigate the effects of these exposures, and general radiation protection approaches. Dr. Woloschak is a recipient of the Lauriston Taylor award from the National Council on Radiation Protection (NCRP) and Measurements and is Chair of Program Area Committee 1 for NCRP, Vice-Chair of Committee-1 for the International Commission on Radiation Protection, and represents the US at the UN Scientific Committee for Effects of Atomic Radiation. She has also served on many committees for the National Academies over the years.

Rebecca English

Staff Officer

Rebecca English, M.P.H. (Project Director), is a Senior Program Officer in the Board on Health Sciences Policy. She has directed, co-directed, and staffed a number of projects at the National Academies including, most recently, Realizing the Promise of Equity in the Organ Transplantation System (2022), Assessment of Strategies for Managing Cancer Risks Associated with Radiation Exposure During Crewed Space Missions (2021), and Necessity, Use, and Care of Laboratory Dogs at the U.S. Department of Veterans Affairs (2020). She is currently the Responsible Staff Officer for a new congressionally mandated study committee on Amyotrophic Lateral Sclerosis: Accelerating Treatments and Improving Quality of Life. She staffed the Forum on Drug Discovery, Development, and Translation at the National Academies in various capacities between 2009 - 2016, working on wide-ranging projects related to the United States clinical trials enterprise as well as multidrug-resistant tuberculosis throughout the world. Prior to joining the National Academies, she worked on health policy for Congressman Porter J. Goss (FL-14) and for the National Active and Retired Federal Employees Association. Rebecca holds an M.P.H. from the University of Michigan and a B.A. from the University of Notre Dame in political science.