

Systematizing the One Health Approach in Preparedness and Response Efforts for Infectious Disease Outbreaks: A Workshop

Committee

Casey Barton Behravesh

Co-Chair

Casey Barton Behravesh, M.S., D.V.M., Dr.P.H., DACVPM (Co-Chair) is the Director of CDC's One Health Office in the National Center for Emerging and Zoonotic Infectious Diseases and a Captain in the United States Public Health Service. Her role is to serve as the agency's lead for implementing a One Health approach to public health that connects human, animal, and environmental health, enabling CDC and partners to address emerging zoonotic and infectious diseases and other shared health threats at the human-animal-environment interface. Dr. Barton Behravesh is experienced in bringing together human, animal, and environmental health officials at the local, state, federal, and global level to bridge gaps related to emerging zoonotic and infectious diseases, including COVID-19. During her extensive career at CDC, Dr. Barton Behravesh has done everything from investigating outbreaks in the field to conducting epidemiologic research related to the prevention and control of zoonotic, foodborne, and vector-borne diseases. In her leadership role at CDC, she enjoys mentoring students and new staff to help them reach their career goals.

Jonna A. Mazet

Co-Chair

Jonna Mazet, D.V.M., M.P.V.M., Ph.D. (Co-Chair) earned her doctorate of veterinary medicine, master of preventative medicine, and her Ph.D. in epidemiology from the University of California, Davis. In addition to her faculty appointment in the Department of Medicine and Epidemiology in the UC Davis School of Veterinary Medicine, she serves as the Executive Director of the UC Davis One Health Institute (OHI). Dr. Mazet specializes in emerging infectious diseases and wildlife epidemiology, and as director of OHI, focuses on global health problem solving. In her role at UC Davis, she assists government agencies and the public with emerging health challenges, and is active in international One Health research programs such as tuberculosis in Africa, novel pathogen detection in less developed countries, and pathogen pollution of California coastal waters. Dr. Mazet founded California's Oiled Wildlife Care Network, the premier model wildlife emergency management system worldwide, and remains a consulting expert on wildlife emergency preparedness and response, serving on multiple government and nongovernment organization advisory panels. Dr. Mazet is the principal investigator and global director of the novel viral emergence early warning project, PREDICT, that has been developed with the USAID's Emerging Pandemic Threats Program. She leads a network of global NGOs and governmental agencies to build capacity within the PREDICT-engaged countries to develop surveillance systems and complete the necessary research to halt the next pandemic, like influenza, SARS, Ebola, and HIV that have preceded the program.

Kevin Anderson

Member

Kevin Anderson, Ph.D. serves as a senior program manager in the Department of Homeland Security's (DHS's) Science and Technology Directorate, providing oversight and requirements for biodetection and biodiagnostics systems development for government-wide customers and stakeholders. Since joining DHS in 2003, Dr. Anderson has provided leadership for science program development, laboratory design, and strategic planning; served as a subject matter expert and advisor to the Bioterrorism Risk Assessment and Biological Threat Characterization programs; and has participated in interagency working groups and assessments which provide guidance to medical countermeasure development, a key component of the nation's biodefense strategy. Prior to joining DHS, Dr. Anderson was a principal investigator at the U.S. Army Medical Research Institute of Infectious Diseases, leading research focused on understanding basic mechanisms of viral diseases causing hemorrhagic fever and development of medical countermeasures. He received postdoctoral training in molecular virology at the University of Alabama at Birmingham and the University of North Carolina at Chapel Hill, performing basic research on human respiratory syncytial viruses, and earned Ph.D. and B.S. degrees in microbiology from Montana State University and the University of Maryland, College Park, respectively.

Andrew Clements

Member

Andrew Clements, Ph.D. is a Senior Scientific Advisor for the Emerging Threats Division in the U.S. Agency for International Development's Bureau for Global Health. He received his Ph.D. in Anaerobic Microbiology from Virginia Tech and completed his post-doctoral training in biochemistry at the National Institutes of Health. Between 1997 and 2005, he served as an infectious disease advisor at USAID focusing on the development, management, and monitoring of international programs to address malaria, tuberculosis, antimicrobial resistance, and infectious disease surveillance. Since 2005, he has managed a number of projects (PREDICT, PREVENT) and partnerships with the Food and Agriculture Organization of the UN and the World Health Organization that support prevention, detection, and response to emerging zoonotic threats in developing countries. He also analyzes trends for emerging zoonotic threats and has participated in USAID's responses to new diseases, including H5N1 and H7N9 avian influenza, H1N1 pandemic influenza, MERS-CoV, and Ebola.

Peter Daszak

Member

Peter Daszak, Ph.D. is president of EcoHealth Alliance, a U.S.-based organization that conducts research and outreach programs on global health, conservation, and international development. Dr. Daszak's research has been instrumental in identifying and predicting the impact of emerging diseases across the globe. His achievements include identifying the bat origin of SARS, identifying the underlying drivers of Nipah and Hendra virus emergence, producing the first ever global emerging disease 'hotspots' map, developing a strategy to find out how many unknown viruses exist that could threaten to become pandemic, identifying the first case of a species extinction due to disease, and discovering the disease chytridiomycosis as the cause global amphibian declines. Dr. Daszak is a member and chair-elect of the National Academy of Sciences, Engineering and Medicine's Forum on Microbial Threats. He is a member of the National Research Council (NRC) Advisory Committee to the U.S. Global Change Research Program, the Supervisory Board of the One Health Platform, the One Health Commission Council of Advisors, the Center of Excellence for Emerging and Zoonotic Animal Diseases External Advisory Board, the Cosmos Club, and the Advisory Council of the Bridge Collaborative; he has served on the Institute of Medicine committee on global surveillance for emerging zoonoses, the NRC committee on the future of veterinary research, the International Standing Advisory Board of the Australian Biosecurity Cooperative Research Centres, and has advised the Director for Medical Preparedness Policy on the White House National Security Staff on global health issues. Dr. Daszak is a regular advisor to the World Health Organization (WHO), World Organisation for Animal Health, and the Food and Agriculture Organization of the United Nations, and is actively involved in the WHO Expert group on Public Health Emergency Disease Prioritization. Dr. Daszak won the 2000 Commonwealth Scientific and Industrial Research Organisation medal for collaborative research on the discovery of amphibian chytridiomycosis, is the EHA institutional lead for USAID-EPT-PREDICT, is on the editorial boards of Conservation Biology, One Health, and Transactions of the Royal Society of Tropical Medicine & Hygiene, and is editor-in-chief of the journal EcoHealth. He has authored over 300 scientific papers, and his work has been the focus of extensive media coverage, ranging from popular press articles to television appearances.

Eva Harris

Member

Eva Harris, Ph.D. is a Professor in the Division of Infectious Diseases, Director of the Center for Global Public Health, and Chair of the Infectious Diseases and Immunity PhD Program in the School of Public Health at the University of California, Berkeley. She has developed a multidisciplinary approach to study the molecular virology, pathogenesis, immunology, epidemiology, diagnostics, clinical aspects and control of dengue, Zika and chikungunya, the most prevalent mosquito-borne viral diseases in humans. Her work addresses immune correlates of protection and pathogenesis and viral and host factors that modulate disease severity, using in vitro approaches, animal models, and research involving human populations. One research major focus is on studies of arboviral disease in humans, including antibody and B cell responses and correlates of protection, diagnostics and seroprevalence studies, and viral evolution. Another focus is viral pathogenesis, specifically the role of flavivirus NS1 protein in vascular leak. Recently, she has also initiated new studies on COVID-19 pathogenesis, therapeutics, epidemiology and seroprevalence both locally and internationally. Her international work includes laboratory-based and epidemiological studies of arboviral diseases in endemic Latin American countries, particularly in Nicaragua through close collaborations for over 30 years. Ongoing long-term projects in Nicaragua include clinical and biological hospital-based studies of severe arboviral disease, as well as a long-term pediatric cohort study and household transmission studies of dengue, Zika, chikungunya, influenza, and COVID-19 in Managua. Dr. Harris has published over 295 peer-reviewed articles, as well as a book on her international scientific work. She is deeply committed to scientific capacity building globally; in 1997, she received a MacArthur Award for work over the previous ten years developing programs to build scientific capacity in developing countries to address public health and infectious disease issues. This enabled her to found a non-profit organization in 1998, Sustainable Sciences Institute (SSI; www.sustainablesciences.org), with offices in San Francisco and Nicaragua, to continue and expand this work worldwide. Dr. Harris was named a Pew Scholar for her work on dengue pathogenesis. She also received a national recognition award from the Minister of Health of Nicaragua for her contribution to scientific development and was selected as a “Global Leader for Tomorrow” by the World Economic Forum. In 2012, she was elected Councilor and in 2018 was appointed a Fellow of the American Society of Tropical Medicine and Hygiene. In 2019, she received the Beijerinck Virology Prize from the Royal Netherlands Society of Arts and Sciences. She currently serves on the Scientific Council of the Institut Pasteur, the Advisory Board of the Pew Latin American Fellows Program, and the Forum on Microbial Threats of the National Academy of Sciences.

Kent E. Kester

Member

Kent E. Kester, M.D. is currently vice president and head of Translational Science and Biomarkers at Sanofi Pasteur. During a 24-year career in the U.S. Army, he worked extensively in clinical vaccine development and led multiple research platforms at the Walter Reed Army Institute of Research, the U.S. Department of Defense's largest and most diverse biomedical research laboratory—an institution he later led as its commander/director. His final military assignment was as the associate dean for clinical research in the School of Medicine at the Uniformed Services University of the Health Sciences (USUHS). Dr. Kester holds an undergraduate degree from Bucknell University and an M.D. from Jefferson Medical College. He completed his internship and residency in internal medicine at the University of Maryland and a fellowship in infectious diseases at the Walter Reed Army Medical Center. A malaria vaccine researcher with over 70 scientific manuscripts and book chapters, Dr. Kester has played a major role in the development of the malaria vaccine candidate known as RTS,S. Currently a member of the U.S. Government Presidential Advisory Council on Combating Antibiotic-Resistant Bacteria, he previously chaired the Steering Committee of the National Institute of Allergy and Infectious Diseases (NIAID)-USUHS Infectious Disease Clinical Research Program, and has served as a member of the Food and Drug Administration's Vaccines and Related Biologics Products Advisory Committee, the NIAID Advisory Council, and the U.S. Centers for Disease Control's Office of Infectious Diseases Board of Scientific Counselors. Board certified in both internal medicine and infectious diseases, he holds faculty appointments at USUHS and the University of Maryland; and is a fellow of the American College of Physicians, the Infectious Diseases Society of America, and the American Society of Tropical Medicine and Hygiene.

Maureen Lichtveld

Member

Maureen Lichtveld, M.D., M.P.H. is a member of the National Academy of Medicine with over 35 years of experience in environmental public health. She is the Dean of the Graduate School of Public Health, the Jonas Salk Chair in Population Health, and Professor of Environmental and Occupational Health at the University of Pittsburgh. Dr. Lichtveld previously served as Chair, Professor, and Freeport McMoran Chair in Environmental Policy, Department of Global Environmental Health Sciences, Tulane University, School of Public Health and Tropical Medicine. Her research focuses on environmentally-induced disease, health disparities, climate and health, environmental health policy, disaster preparedness, public health systems, and community resilience. Lichtveld's track record in community-based participatory research includes the impact of chemical and non-chemical stressors on communities facing environmental health threats, disasters, climate vulnerability, and health disparities. As Director, Center for Gulf Coast Environmental Health Research, Leadership, and Strategic Initiatives, she is the PI of several Gulf Coast-associated environmental health research projects. Dr. Lichtveld is a member of the NAS Board on Global Health, the One Health Action Collaborative, NAM's planning committee on Climate and Health, NAS Committee on Best Practices for Assessing Mortality and Significant Morbidity Following Large-Scale Disasters, and the Advisory Committee for the NASEM-wide Climate Communications Initiative. She serves on the Board of the Consortium of Universities for Global Health and co-chairs the Caribbean Expert Panel on Climate and Health. Dr. Lichtveld received her MD degree from the University of Suriname and an MPH in environmental Health Sciences from Johns Hopkins University, School of Public Health. Honors include: Johns Hopkins' Society of Scholars and CDC's environmental health scientist of the year.

Sally A. Miller

Member

Sally A. Miller, Ph.D. is a professor of plant pathology and state extension specialist for vegetable pathology at The Ohio State University, Ohio Agricultural Research and Development Center in Wooster, Ohio. She received her B. Sc. in biology from The Ohio State University (OSU), and M.S. and Ph.D. degrees in plant pathology from the University of Wisconsin-Madison. Prior to joining The Ohio State University faculty in 1991, she was a research manager at Agri-Diagnostics Associates in Cinnaminson, New Jersey, an early developer of plant disease diagnostic assays. Dr. Miller's research is focused on the development of sustainable disease management strategies for conventional and organic vegetable crops, in open field and protected (greenhouse and high tunnel) production systems. This includes diagnosis and management of diseases caused by viruses, bacteria, fungi, oomycetes (water molds), and nematodes. Her lab diagnoses more than 300 vegetable samples from growers and home gardeners each year, at no cost to Ohio residents. Areas of research emphasis are bacterial disease management in processing, fresh market and hydroponic tomatoes, downy mildew and bacterial wilt in cucurbits, soilborne diseases in all vegetable crops, and food safety. Outreach efforts are directed primarily to vegetable growers and extension educators, and in addition to diagnostics include providing management advice through presentations, fact sheets and other printed information, and social media (websites, blogs, and Twitter). Dr. Miller has been active in long-term international agricultural development projects on integrated pest management (IPM) and plant diagnostics in South and Southeast Asia, Ukraine, West and East Africa, and Central America, primarily under the auspices of the U.S. Agency for International Development (USAID). Current USAID-funded IPM programs are underway in East Africa (Tanzania, Kenya, and Ethiopia) and South/Southeast Asia (Bangladesh, Nepal, and Cambodia). Dr. Miller has been active in the leadership of the American Phytopathological Society, serving as president in 2015-2016. She has recently been appointed to a Food and Agriculture Organization of the United Nations expert panel on antimicrobial resistance, and serves on the executive committee and two working groups for OSU's Global One Health Initiative.

Brianna Skinner

Member

CAPT Brianna Skinner, D.V.M., M.P.H is assigned to the Office of Counterterrorism and Emerging Threats (OCET) at the U.S. Food and Drug Administration (FDA) with a focus on regulatory science, animal welfare, and public health. She is as a Senior Regulatory Veterinarian and subject matter expert for OCET serving as a One Health and animal model expert for the administration of policies to facilitate the availability of safe and effective medical countermeasures against chemical, biological, radiological, nuclear agents and emerging threats. In February of 2019, FDA's Chief Scientist sought Dr. Skinner's assistance to establish an agency-wide One Health Initiative and she was one of the leading experts to pioneer this development, which came to fruition in July 2019. For over 11 years and prior to transferring to the FDA, Dr. Skinner worked at the Centers for Disease Control and Prevention supporting infectious disease research and consulting with principal investigators on animal care and use in compliance with federal laws and regulations. She is a Commissioned Corps Officer in the U.S. Public Health Service (USPHS) with prior service in the United States Army Veterinary Corps. As a uniformed service officer, she has both national and international work experience and duties that include disaster and humanitarian response missions. She earned her Doctor of Veterinary Medicine degree from Tuskegee University and is a diplomate in the American College of Laboratory Animal Medicine. She also has a Masters of Public Health from Benedictine University. Dr. Skinner is associated with another activity in National Academies of Sciences, Engineering and Medicine where she serves as a roundtable member for Institute of Laboratory Animal Research.

Mark S. Smolinski

Member

Mark S. Smolinski, M.D., M.P.H. is the president of Ending Pandemics. He brings 25 years of experience in applying innovative solutions to improve disease prevention, response, and control across the globe. Mark is leading a well-knit team—bringing together technologists; human, animal, and environmental health experts; and key community stakeholders to co-create tools for early detection, advanced warning, and prevention of pandemic threats. Community health workers, village volunteers, farmers, and interested public citizens in Albania, Brazil, Cambodia, Europe, Laos, Myanmar, Tanzania, Thailand, and the United States are among those using their own solutions to address pressing local needs. Since 2009, Mark has served as the Chief Medical Officer and Director of Global Health at the Skoll Global Threats Fund (SGTF), where he developed the Ending Pandemics in Our Lifetime Initiative in 2012. His work at SGTF created a solid foundation for the work of Ending Pandemics, which branched out as an independent entity on January 1, 2018. Prior to SGTF, Mark developed the Predict and Prevent Initiative at Google.org, as part of the starting team at Google’s philanthropic arm. Working with a team of engineers, Google Flu Trends (a project that had tremendous impact on the use of big data for disease surveillance) was created in partnership with the U.S. Centers for Disease Control. Mark has served as Vice President for Biological Programs at the Nuclear Threat Initiative, a public charity directed by CNN founder Ted Turner and former U.S. Senator Sam Nunn. Before NTI, he led an 18-member expert committee of the National Academy of Medicine on the 2003 landmark report “Microbial Threats to Health: Emergence, Detection, and Response.” Mark served as the sixth Luther Terry Fellow in Washington, D.C., in the Office of the U.S. Surgeon General and as an Epidemic Intelligence Officer with the U.S. Centers for Disease Control and Prevention. Mark received his BS in Biology and MD from the University of Michigan in Ann Arbor. He is board-certified in preventive medicine and public health and holds an M.P.H. from the University of Arizona, where he was recognized as the 2016 Alumnus of the Year. Mark was on the investigation team that discovered hantavirus, a newly identified pathogen, in 1993. His passion for helping all peoples of the world save lives and improve livelihoods motivates partners on five continents.

Mary E. Wilson

Member

Mary E. Wilson, M.D. is Clinical Professor of Epidemiology and Biostatistics, University of California, San Francisco and Adjunct Professor of Global Health and Population, Harvard T.H. Chan School of Public Health. Her academic interests include antibiotic resistance, the ecology of infections and emergence of microbial threats, travel medicine, tuberculosis, and vaccines. She received an M.D. from the University of Wisconsin and completed an internal medicine residency and infectious diseases fellowship at Beth Israel Hospital in Boston. She is a fellow in the Infectious Diseases Society of America, the American College of Physicians, the American Society of Tropical Medicine and Hygiene, and the International Society of Travel Medicine. She has served on the Advisory Committee on Immunization Practices (ACIP) of the CDC, the Academic Advisory Committee for the National Institute of Public Health in Mexico, and on five committees for the National Academies of Sciences, Engineering, and Medicine, where she was Vice-Chair of the Forum on Microbial Threats through 2019 and is a member of the One Health Action Collaborative. She was a member of the Pew National Commission on Industrial Farm Animal Production, whose report, *Putting Meat on the Table: Industrial Farm Animal Production in America*, was released in 2008 and is author of *Antibiotics: What Everyone Needs to Know* (Oxford University Press, 2019). She served on the Board of Trustees for icddr,b in Bangladesh for 6 years, is a member of the Advisory Board for the Fogarty International Center at NIH, and on the Board of Directors for the Center for Disease Dynamics, Economics, and Policy.