

To: Baric, Ralph S[rbaric@email.unc.edu]
From: Peter Daszak[daszak@ecohealthalliance.org]
Sent: Tue 3/17/2020 10:03:52 AM (UTC-04:00)
Subject: Follow up to the National Academies meeting we did in February
[SC on EID and 21st Century Threats - One Pager.pdf](#)
[Standing Committee on EIDs and 21st C Health Threats. Details.pdf](#)

Hi Ralph,

Just wanted to let you know that the National Academies did set up a Standing Committee as requested by the OSTP Director, who's on the President's COVID taskforce. It's called the "Standing Committee on Emerging Infectious Diseases & 21st Century Health Threats". The charge to the committee is attached. NASEM put out a call and I was nominated. I got some questions from NAM about my relationship to the Wuhan lab, but I explained that it's purely academic (no funds from China to me), and I offered to recuse myself from any discussions about the conspiracy theories re. lab release or bioengineering. The NASEM staff were ok with that and I joined the Committee. There was a meeting to discuss research agenda for COVID-19 and a doc has been written up on this for the OSTP. The meeting had a public session. I've attached the agenda, and details of who's on the committee (provisional, but we are prob now all approved).

Just wanted to let you know what's happening. I don't think this committee will be getting into the lab release or bioengineering hypothesis again any time soon – White House seems to be satisfied with the earlier meeting, paper in Nature and general comments within scientific community. National Security staff were in the room with OSTP on the first call.

Cheers,

Peter

Peter Daszak
President

EcoHealth Alliance
460 West 34th Street
New York, NY 10001
USA

Tel.: +1-212-380-4474
Website: www.ecohealthalliance.org
Twitter: [@PeterDaszak](https://twitter.com/PeterDaszak)

EcoHealth Alliance develops science-based solutions to prevent pandemics and promote conservation

The National Academies of **SCIENCES • ENGINEERING • MEDICINE**

Health and Medicine Division

Standing Committee on Emerging Infectious Diseases and 21st Century Health Threats

In response to a request from the Office of Science and Technology Policy (OSTP) and the Office of the Assistant Secretary for Preparedness and Response (ASPR), the National Academies of Sciences, Engineering, and Medicine will convene a standing committee of experts to help inform the federal government on critical science and policy issues related to emerging infectious diseases and other 21st century health threats. The standing committee will include approximately 15 members with expertise in emerging infectious diseases, public health, public health preparedness and response, biological sciences, clinical care and crisis standards of care, risk communication, epidemiology, and regulatory issues, as well as veterinary science, One Health, ethics, and community engagement. The standing committee will provide a venue for the exchange of ideas among federal government agencies, the private sector, and the academic community, as well as other relevant stakeholders.

The standing committee will:

- Stand ready to respond on short notice to requests from the federal government to assess and consider the science and policy implications of an emerging infectious disease or significant public health threat;
- Provide a venue to enable science and policy discussions relevant to the federal government on emerging issues, research, and activities through in-depth knowledge of the sponsor's programs, goals, and objectives;
- Identify opportunities to integrate science into national preparedness and response decision making;
- Explore lessons learned and best practices from previous preparedness and response efforts, and identify opportunities to disseminate that information to a variety of stakeholders;
- Serve as a focal point for national policy discussions by experts and other leaders in the field;
- Consider, identify, and discuss strategies for addressing misinformation; and

- Respond to the federal government's needs for continuing dialog related to strategic planning and program development to address emerging infectious diseases, biosecurity, and public health and medical preparedness.

At the request of the sponsors, the standing committee will be involved in the planning, development, and oversight of related ad hoc activities undertaken by separately appointed committees operating under its auspices.

The standing committee will serve as a focal point for the discussion of scientific, technical, and policy issues relevant to emerging infectious diseases and public health preparedness and response that warrant detailed examination. Topics for discussion with the standing committee may include:

- Technical assistance and/or assessment of response to emerging infectious diseases;
- Availability of and access to information, samples, and other materials to determine the origin and evolution of emerging infectious diseases;
- International coordination and engagement;
- Technical assessment of ecological and evolutionary drivers of disease emergence;
- Approaches to proactive public messaging and strategies to address misinformation;
- Other science and policy issues relevant to emerging infectious diseases and 21st century health threats.

The committee will carry out its charge at its in-person and virtual meetings by gathering evidence from experts, deliberating, and, when necessary, by preparing short reports.

CONTACT INFORMATION

Andrew Pope

Director, Board on Health Sciences Policy

202-334-1739 (office)

apope@nas.edu

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**STANDING COMMITTEE ON
EMERGING INFECTIOUS DISEASES
AND 21ST CENTURY HEALTH
THREATS**

Health and Medicine Division

**Board on Health Sciences Policy
Board on Global Health**

**Briefing Materials
Meeting 1
March 11, 2020**

Virtual Meeting

The National Academies of
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TAB 1

Agenda and Remote Participation Information



First Meeting of the Standing Committee on Emerging Infectious Diseases and 21st Century Health Threats

Final Agenda

Wednesday, March 11, 2020, 12:00 p.m. – 5:30 p.m. ET
Virtual Zoom Meeting/Keck 201 for Local Participants

Background:

In response to a request from the Office of Science and Technology Policy (OSTP) and the Office of the Assistant Secretary for Preparedness and Response (ASPR), the National Academies of Sciences, Engineering, and Medicine will convene a standing committee of experts to help inform the federal government on critical science and policy issues related to emerging infectious diseases and other 21st century health threats. The standing committee will include members with expertise in emerging infectious diseases, public health, public health preparedness and response, biological sciences, clinical care and crisis standards of care, risk communication, epidemiology, and regulatory issues, as well as veterinary science, One Health, ethics, and community engagement. The standing committee will provide a venue for the exchange of ideas among federal government agencies, the private sector, and the academic community, as well as other relevant stakeholders.

Meeting Objectives

- Discuss the statement of task (SOT) and role of the standing committee
- Conduct the bias and conflict of interest discussion
- Discuss relevant context and key issues
- Explore potential research priorities arising as a result of the emergence of COVID-19 in the U.S. and globally
- Discuss next steps to move forward on key issues; plan second meeting and identify speakers and topics

Wednesday, March 11, 2020

CLOSED SESSION (COMMITTEE MEMBERS ONLY)

12:00 p.m. Welcome and Introductions

- Brief introductions
- Discussion of meeting objectives

Harvey Fineberg, *Committee Chair*
President
Gordon and Betty Moore Foundation

Andrew Pope
Director, Board on Health Sciences Policy
Health and Medicine Division

Julie Pavlin
Director, Board on Global Health
Health and Medicine Division

12:10 p.m. Role of National Academies Standing Committees

Andrew Pope
Director, Board on Health Sciences Policy
Health and Medicine Division

12:15 p.m. Discussion of Bias and Conflict of Interest

Lauren Shern
Associate Executive Director
Health and Medicine Division

12:30 p.m. Committee Discussion with Sponsor to Inform Open Session

Kelvin Droegemeier
Director
White House Office of Science and Technology Policy

Harvey Fineberg, *Committee Chair*
President
Gordon and Betty Moore Foundation

OPEN SESSION

SESSION I Welcoming Remarks, Introductions, and Sponsors' Charge to the Committee

1:30 p.m. Welcome and Introductions

Harvey Fineberg, *Committee Chair*
President
Gordon and Betty Moore Foundation

Marcia McNutt
President
National Academy of Sciences

Victor Dzau
President
National Academy of Medicine

Gregory Symmes
Chief Program Officer
The National Academies of Sciences, Engineering, and Medicine

1:45 p.m. Sponsors' Charge to the Committee

- Discuss the context/purpose for the standing committee
- Review the statement of task

Kelvin Droegemeier
Director
White House Office of Science and Technology Policy

David (Chris) Hassell
Senior Science Advisor
Assistant Secretary for Preparedness and Response
U.S. Department of Health and Human Services

2:00 p.m. Committee Discussion with the Sponsor

Harvey Fineberg, *Committee Chair*
President
Gordon and Betty Moore Foundation

2:30 p.m. BREAK

SESSION II Diagnostics and Viral Characterization

2:45 p.m. Presentation of the Issues

Ian Watson
Assistant Director for Biotechnology & Biosecurity
Office of Science & Technology Policy

Paige Waterman
Assistant Director for Biological Threat Defense
Office of Science & Technology Policy

David (Chris) Hassell
Senior Science Advisor
Assistant Secretary for Preparedness and Response
U.S. Department of Health and Human Services

3:00 p.m. Committee Discussion of the Issues

Harvey Fineberg, *Committee Chair*
President
Gordon and Betty Moore Foundation

SESSION III Other Selected Topics and Issues

4:00 p.m. Discussion of Committee's Selected Topics and Issues

Harvey Fineberg, *Committee Chair*
President
Gordon and Betty Moore Foundation

CLOSED SESSION (COMMITTEE ONLY)

5:00 p.m. Committee Debrief, Next Steps, and Potential Future Meeting Topics

Harvey Fineberg, *Committee Chair*
President
Gordon and Betty Moore Foundation

5:30 p.m. *ADJOURN MEETING*

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TAB 2

Standing Committee Membership Information

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Health and Medicine Division

Standing Committee on Emerging Infectious Diseases and 21st Century Health Threats

INTERNAL COMMITTEE ROSTER

Harvey Fineberg, M.D., M.P.H. (Chair)

President

Gordon and Betty Moore Foundation

1661 Page Mill Road

Palo Alto, CA 94304-1226

Phone: 650-213-3100

Email: harvey.fineberg@gmail.com

harvey.fineberg@moore.org

Georges Benjamin, M.D.

Executive Director

American Public Health Association

800 I Street, NW

Washington, DC 20001-3710

Phone: 202-777-2430

Email: georges.benjamin@apha.org

Kristian Andersen, Ph.D.

Associate Professor and Director of Infectious

Disease Genomics, Scripps Research

Translational Institute

The Scripps Research Institute

Phone: 857-389-1742

Email: andersen@scripps.edu

Richard Besser, M.D.

President and CEO

Robert Wood Johnson Foundation

50 College Road, East

Princeton, NJ 08540

Phone: 609-627-6614

Email: rbesser@rwjf.org

Assistant: Jill Faulknor

Email: jbaker@rwjf.org

Mary Bassett, M.D., M.P.H.

Director, François-Xavier Bagnoud Professor
of the Practice and Human Rights

François-Xavier Bagnoud Center for Health

Department of Social and Behavioral Sciences

Harvard School of Public Health

651 Huntington Avenue

FXB Building, 7th Floor

Boston, MA 02215

Phone: 617-432-4750

Email: mbassett@hsph.harvard.edu

Assistant: Samuel Francis

Phone: 617-432-9239

Email: speisch@hsph.harvard.edu

Peter Daszak, Ph.D.

President and CEO

EcoHealth Alliance

460 West 34th St., Ste 1701

New York, NY 10001

Phone: 212-380-4474

Email: daszak@ecohealthalliance.org

Assistant: Allison Andre

Phone: 212-380-4462

Email: andre@ecohealthalliance.org

Trevor Bedford, M.D. M.P.H.

Associate Faculty Member, Vaccine and

Infectious Disease Division, Public Health

Sciences Division, and Human Biology

Division

Fred Hutchinson Cancer Research Center

Email: trevor@bedford.io

Ellen Embrey

Managing Partner

Stratitia, Inc.

7801 Huntsman Boulevard

Springfield, VA 22153-3921

Phone: (703) 801-9305

Email: eembrey@stratitia.com

Diane Griffin, M.D., Ph.D.

Distinguished University Service Professor
W. Harry Feinstone Department of Molecular
Microbiology and Immunology
Johns Hopkins School of Public Health
615 N. Wolfe Street
Suite E5636
Baltimore, MD 21205
Phone: 410-955-3459
Email: dgriffi6@jhu.edu

Jonna Mazet, D.V.M., M.P.V.M., Ph.D.

Professor of Epidemiology and Disease
Ecology and Executive Director
One Health Institute
UC Davis School of Veterinary Medicine
Veterinary Medicine 3B Building
944 Garrod Dr.
Davis, CA 95616
Phone: 530-752-7526
Email: jkmazet@ucdavis.edu

Margaret Hamburg, M.D.

Foreign Secretary
National Academy of Medicine
500 Fifth Street, NW, NAS-316
Washington, DC 20001
Phone: 202-334-3882
Email: peggy@hbfam.net

Phyllis Meadows, Ph.D., M.S.N., R.N.

Senior Fellow, Health Programs
The Kresge Foundation
3215 W. Big Beaver Road.
Troy, MI 48084
Phone: 248-643-9630
Email: pmeadows@kresge.org

John Hick, M.D.

Associate Medical Director for EMS
Medical Director for EMS
Medical Director of Emergency Medicine
Hennepin County Medical Center
701 Park Ave.
Minneapolis, MN 55415
Phone: 612-873-3131
Email: hick.john@gmail.com

Tara O'Toole, M.D., M.P.H.

Executive Vice-President
In-Q-Tel
2107 Wilson Blvd.
Arlington, VA 22209
Phone: 703-248-3000
Email: totoole@oqt.org
Assistant: Maureen Navish
Phone: 571-206-0595
Email: mnavish@iqt.org

Kent E. Kester, M.D.

Vice President and Head, Translational
Sciences and Biomarkers
Sanofi Pasteur
Discovery Dr.
Swiftwater, PA 18370
Phone: 570-957-1924
Email: kent.kester@sanofi.com

Alexandra Phelan, S.J.D., LL.M., LL.B.

Faculty Research Instructor
Center for Global Health Science and Security
Georgetown University
Medical-Dental Building, NW306
3900 Reservoir Road NW
Washington, DC 20007
Email: alexandra.phelan@georgetown.edu

Patricia King, J.D.

Professor Emerita
Georgetown University Law Center
600 New Jersey Avenue, N.W.
Washington, DC 20001-2075
Phone: 202-662-9085
Email: kingp@law.georgetown.edu

David Relman, M.D.

Thomas C. and Joan M. Merigan Professor of
Medicine, and of Microbiology &
Immunology
Stanford University
Chief of Infectious Diseases
Veterans Affairs Palo Alto Health Care
System
3801 Miranda Ave.
Palo Alto, CA 94304
Phone: 650-852-3308
Email: relman@stanford.edu

Mark Smolinski, M.D. M.P.H.

President
Ending Pandemics
870 Market St.
San Francisco, CA 94102
Email: mark@endingpandemics.org

David Walt, Ph.D.

Hansjörg Wyss Professor of Biologically-
Inspired Engineering
Harvard University
Department of Pathology
Brigham and Women's Hospital
60 Fernwood Road HBTM-8002
Boston, MA 02115
Phone: 857-307-1112
Email: dwalt@bwh.harvard.edu

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Health and Medicine Division

Standing Committee on Emerging Infectious Diseases and 21st Century Health Threats

COMMITTEE MEMBER BIOSKETCHES

Harvey Fineberg, M.D., Ph.D. (Chair)

President

Gordon and Betty Moore Foundation

Harvey Fineberg is president of the Gordon and Betty Moore Foundation. He previously served as president of the Institute of Medicine from 2002 to 2014 and as provost of Harvard University from 1997 to 2001, following 13 years as dean of the Harvard School of Public Health. Fineberg devoted most of his academic career to the fields of health policy and medical decision-making. His past research has focused on the process of policy development and implementation, assessment of medical technology, evaluation and use of vaccines, and dissemination of medical innovations. Fineberg serves on the boards of the Carnegie Endowment for International Peace and the China Medical Board. He helped found and served as president of the Society for Medical Decision Making, previously served on and chaired the board of the William and Flora Hewlett Foundation, and chaired the committee to review the performance of the World Health Organization and the functioning of the International Health Regulations (2005) during the 2009 H1N1 influenza pandemic. Fineberg is co-author of the books *Clinical Decision Analysis*, *Innovators in Physician Education* and *The Epidemic That Never Was*, an analysis of the controversial federal immunization program against swine flu in 1976. He has co-edited several books on such diverse topics as AIDS prevention, vaccine safety, understanding risk in society and global health. He has also authored numerous articles published in professional journals. Fineberg chaired the National Academies committee that produced the 2019 report on *Reproducibility and Replicability in Science*. He earned his bachelor's and doctoral degrees at Harvard and is the recipient of several honorary degrees.

Kristian Andersen, Ph.D.

Associate Professor and Director of Infectious Disease Genomics, Scripps Research Translational Institute

The Scripps Research Institute

Kristian Andersen is an associate professor in the Department of Immunology and Microbiology at Scripps Research, with joint appointments in the Department of Integrative Structural and Computational Biology, and at the Scripps Research Translational Institute. Over the past decade, his research has focused on the complex relationship between host and pathogen. Using a combination of next-generation sequencing, field work, experimentation, and computational biology he has spearheaded large international collaborations investigating the emergence, spread and evolution of deadly pathogens, including SARS-CoV-2, Zika virus, Ebola virus, West Nile virus, and Lassa virus. His work is highly cross-disciplinary and exceptionally collaborative. Kristian earned his doctoral degree from the University of Cambridge and performed postdoctoral work in Pardis Sabeti's group at Harvard University and the Broad Institute.

Mary Bassett, M.D., M.P.H.

Director of the François-Xavier Bagnoud Center for Health and Human Rights
Harvard School of Public Health

Mary Bassett is the Director of the FXB Center for Health and Human Rights at Harvard University, as well as the FXB Professor of the Practice of Health and Human Rights at the Harvard School of Public Health. With more than 30 years of experience in public health, Dr. Mary Travis Bassett has dedicated her career to advancing health equity. Prior to her directorship at the FXB Center, Dr. Bassett served for four years as commissioner of Health for New York City. As commissioner, she worked to ensure that every New York City neighborhood supported the health of its residents, with the goal of closing gaps in population health across the city. Originally from New York City, Dr. Bassett lived in Zimbabwe for nearly 20 years. Previously, she was the Program Director for the African Health Initiative and the Child Well-being Program at the Doris Duke Charitable Foundation. She received her B.A. in History and Science from Harvard University and her M.D. from Columbia University's College of Physicians and Surgeons. She served her medical residency at Harlem Hospital Center, and has a master's degree in Public Health from the University of Washington, where she was a Robert Wood Johnson Clinical Scholar.

Trevor Bedford, Ph.D.

Associate Faculty Member, Vaccine and Infectious Disease Division, Public Health Sciences Division,
and Human Biology Division
Fred Hutchinson Cancer Research Center

Trevor Bedford is currently Associate Member of the Vaccine and Infectious Disease Division, the Public Health Sciences Division, and the Human Biology Division at the Fred Hutchinson Cancer Research Center. Dr. Bedford uses powerful computers and complex statistical methods to study the rapid spread and evolution of viruses. Data gathered from these processes help researchers develop successful strategies for monitoring and controlling infectious diseases. His visual representations of viral family trees are used to show how the fate of dangerous outbreaks is often determined by the genetics of the infectious agent, human behavior and geography. Dr. Bedford has applied these techniques to document the worldwide spread of seasonal flu viruses. He is developing models to predict which strains of influenza are likely to be most challenging to humans — data that help inform the crucial early decisions about which strains to include in annual flu shots. He specializes in tracking the evolutionary changes of viruses such as HIV and influenza that use RNA, rather than DNA, to carry their genetic information. RNA viruses are much more prone to rapid mutation, which makes many of them particularly nimble at escaping the human immune system and difficult to stop with vaccines. He is a leading advocate for the immediate release of research analyzing viral evolution during epidemics, fresh information that could make a lifesaving difference. He received his Ph.D. in biology from Harvard University.

Georges Benjamin, M.D.

Executive Director
American Public Health Association

Georges Benjamin is well-known as a health leader, practitioner, and administrator. Dr. Benjamin has served as the executive director of the American Public Health Association, the nation's oldest and largest organization of public health professionals, since December 2002. He is a former secretary of Health for the state of Maryland. Dr. Benjamin is a graduate of the Illinois Institute of Technology and the University Of Illinois College Of Medicine. He is board-certified in internal medicine, a Master of the American College of Physicians, a fellow of the National Academy of Public Administration and a fellow emeritus of the American College of Emergency Physicians. He serves on several nonprofit boards such as Research!America, the University of Maryland Medical System and, the Reagan-Udall Foundation. He is a member of the National Academy of Medicine. In April 2016, President Obama appointed Benjamin

to the National Infrastructure Advisory Council, a council that advises the president on how best to assure the security of the nation's critical infrastructure.

Richard Besser, M.D.

President and CEO

Robert Wood Johnson Foundation

Richard Besser is president and CEO of the Robert Wood Johnson Foundation (RWJF), a position he assumed in April 2017. Dr. Besser is the former acting director for the Centers for Disease Control and Prevention (CDC), and ABC News' former chief health and medical editor. At RWJF, Dr. Besser leads the largest private foundation in the country devoted solely to improving the nation's health. RWJF's work is focused on building a comprehensive Culture of Health that provides everyone in America with a fair and just opportunity to live the healthiest life possible. In Dr. Besser's role at ABC News, he provided medical analysis and reports for all ABC News programs and platforms. His weekly health chats on social media reached millions. Before joining ABC News in 2009, Dr. Besser worked as director of the Coordinating Office for Terrorism Preparedness and Emergency Response at the CDC. In that role, he was responsible for all the CDC's public health emergency preparedness and emergency response activities. He also served as acting director of the CDC from January to June 2009, during which time he led the CDC's response to the H1N1 influenza pandemic. He is a member of the National Academy of Medicine. He received the Surgeon General's Medallion for his leadership during the H1N1 response, and in 2011 he accepted the Dean's Medal for his contributions to public health from the Johns Hopkins Bloomberg School of Public Health. Dr. Besser received his Bachelor of Arts degree in economics from Williams College and medical degree from the University of Pennsylvania. He completed a residency and chief residency in pediatrics at Johns Hopkins University Hospital in Baltimore.

Peter Daszak, Ph.D.

President and CEO

EcoHealth Alliance

Peter Daszak is President of EcoHealth Alliance, a US-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 origins and impact of emerging diseases across the globe. He is one of the founders of the field of Conservation Medicine and has been instrumental in the growth of EcoHealth, One Health, and now Planetary Health. Dr. Daszak is a member of the National Academy of Medicine and Chair of the NASEM's Forum on Microbial Threats. He is a member of the NRC Advisory Committee to the US Global Change Research Program, the Supervisory Board of the One Health Platform, the One Health Commission Council of Advisors, the CEEZAD External Advisory Board, the Cosmos Club, and the Advisory Council of the Bridge Collaborative. He has served on the IOM 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 CRC; 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 WHO on pathogen prioritization for R&D. He received his Ph.D. in parasitic infectious disease from the University of East London.

Ellen Embrey

Managing Partner

Stratitia, Inc.

Ellen Embrey is Managing Partner of Stratitia, Inc., a consulting firm focused on developing meaningful and innovative strategies, and delivering supporting tools and partnerships to bring them successfully to life. Ms. Embrey brings deep expertise in health and medical issues, as well as a wealth of other experience gained during her extensive federal service. In her last federal role, she performed the duties of

the Assistant Secretary of Defense for Health Affairs and the Director, TRICARE Management Activity during the presidential transition period in 2009-2010. From 2002 to 2009, Ms. Embrey was the Deputy Assistant Secretary of Defense for Force Health Protection and Readiness, leading significant changes in Department of Defense policies and programs affecting deployment and combat casualty medicine, health promotion and preventive medicine, medical readiness and public health emergency preparedness and response. For 9 months in 2001, Ms. Embrey performed the duties of Assistant Secretary of Defense for Reserve Affairs, shaping policies affecting the readiness and use of the National Guard and Reserve in both federal and state status. From 2000 to 2001, she served as Chief of Staff of that office, and from 1998 to 2001, as Deputy Assistant Secretary of Defense for Military Assistance to Civil Authorities, developing policies that shaped the role of the National Guard and Reserve components in supporting homeland security, disaster preparedness, and national disaster response capabilities, including advising the president on such matters in the days and weeks following September 11, 2001. Between 1978 and 1997, Ms. Embrey served in senior-level policy analyst, budget analyst, program analyst, management analyst, and systems analyst positions in the Office of the Assistant Secretary of Defense for Reserve Affairs, the Defense Contract Audit Agency, and the Office of Personnel Management. Ms. Embrey was recognized with the Secretary of Defense's Distinguished Civilian Service Award in 2001 and 2004, and twice received the Meritorious Executive Presidential Rank Award in 2006 and 2009.

Diane Griffin, M.D., Ph.D.

Professor, Department of Molecular Microbiology and Immunology
Johns Hopkins Bloomberg School of Public Health

Diane Griffin is University Distinguished Service Professor and Alfred and Jill Sommer Chair of the W. Harry Feinstone Department of Molecular Microbiology and Immunology at Johns Hopkins Bloomberg School of Public Health. Dr. Griffin is a virologist recognized for her work on the pathogenesis of viral infections. She is known particularly for her studies on measles and alphavirus encephalomyelitis that have delineated the role of the immune response in virus clearance, vaccine-induced protection from infection, tissue damage and immune suppression. Dr. Griffin was born in Iowa City, Iowa, and grew up in Oklahoma City. She graduated from Augustana College, Rock Island, Illinois with a degree in biology and from Stanford University School of Medicine in 1968 with a Ph.D. in immunology and M.D., followed by a residency in internal medicine. She was a postdoctoral fellow in virology and infectious diseases at Johns Hopkins University School of Medicine and joined the faculty in 1974. She has been president of the American Society for Virology and of the American Society for Microbiology and is a member of both the National Academy of Sciences and the National Academy of Medicine.

Margaret Hamburg, M.D.

Foreign Secretary
National Academy of Medicine

Margaret Hamburg is an internationally recognized leader in public health and medicine, and currently serves as foreign secretary of the National Academy of Medicine and chair of the NTI | bio Advisory Group. She is a former Commissioner of the U.S. Food and Drug Administration (FDA), having served for almost six years. As FDA Commissioner she was known for advancing regulatory science, streamlining and modernizing FDA's regulatory pathways, and globalization of the agency. Before joining FDA, Hamburg was founding vice president and senior scientist at the Nuclear Threat Initiative. Previous government positions include Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services, Health Commissioner for New York City, and Assistant Director of the National Institute of Allergy and Infectious Diseases, National Institutes of Health. She is President-elect of the American Association for the Advancement of Science (AAAS), as well as an elected member of the Council on Foreign Relations and the National Academy of Medicine. Hamburg currently sits on the boards of the Commonwealth Fund, the Simons Foundation, the Urban Institute, the Global Alliance for Vaccines and Immunization, the Parker Institute for Cancer Immunotherapy and the American Museum

of Natural History. She is chair of the Joint Coordinating Group for the Coalition for Epidemic Preparedness and Innovation, and a member of the Harvard University Global Advisory Council, the Global Health Scientific Advisory Committee for the Gates Foundation, the Harvard Medical School Board of Fellows, and the World Dementia Council. Dr. Hamburg earned her B.A. from Harvard College, her M.D. from Harvard Medical School and completed her medical residency at Weill Cornell Medical Center. She is the recipient of multiple honorary degrees and numerous awards.

John Hick, M.D.

Associate Medical Director for EMS
Medical Director of Emergency Medicine
Hennepin County Medical Center

John L. Hick is a faculty emergency physician at Hennepin Healthcare and a Professor of Emergency Medicine at the University of Minnesota. Dr. Hick serves as the deputy medical director for Hennepin County Emergency Medical Services and Medical Director for Emergency Preparedness at HCMC. He is also the Vice-Chair of the Clinical Council for Life Link III helicopter service and medical director for MN TF-1 state US&R team. He served the Minnesota Department of Health as the medical director for the Office of Emergency Preparedness until becoming an Advisor to the Director of OEM at ASPR/HHS where he is the lead editor for the TRACIE healthcare disaster preparedness website. He is the founder and past chair of the Minneapolis/St. Paul Metropolitan Hospital Compact, a 32-hospital mutual aid and planning group active since 2002. He is a national speaker on hospital preparedness issues and has published numerous papers dealing with hospital preparedness for contaminated casualties, personal protective equipment, crisis standards of care, and surge capacity and was honored to serve the Institute of Medicine on their Crisis Standards of Care projects as well as the Forum on Medical and Public Health Preparedness for Disasters and Emergencies. Dr. Hick holds an M.D. from the Mayo Medical School.

Kent E. Kester, M.D.

Vice President and Head, Translational Science and Biomarkers
Sanofi Pasteur

Kent Kester is currently Vice President and Head, Translational Science and Biomarkers at Sanofi Pasteur. In this capacity, Dr. Kester leads a team of over 200 research and clinical professionals in the US and France focused on the translational development of new vaccines. During a 24-year career in the US 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 with a major emphasis on emerging infectious diseases, 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). During his military service, Dr. Kester was appointed as the lead policy advisor to the US Army Surgeon General in both Infectious Diseases and in Medical Research & Development. In these capacities, he worked extensively in the interagency environment and developed a variety of Army and DoD medical policies related to infectious diseases, both clinical and research aspects. Dr. Kester holds an undergraduate degree from Bucknell University and an M.D. from Jefferson Medical College, completing his internship and residency in internal medicine at the University of Maryland and a research fellowship in infectious diseases at the Walter Reed Army Medical Center. Currently a member of the US Government Presidential Advisory Council on Combating Antibiotic-Resistant Bacteria (PACCARB) and the Department of Veterans Affairs Health Services Research & Development Service Merit Review Board, he previously chaired the Steering Committee of the NIAID/USUHS Infectious Disease Clinical Research Program, and has served as a member of the FDA Vaccines & Related Biologics Products Advisory Committee (VRBPAC), the NIAID Advisory Council, and the CDC Office of Infectious Diseases Board of Scientific Counselors. He is the Vice Chair of the National Academy of Medicine Forum on Microbial Threats. Board-certified in both internal medicine and infectious diseases, Dr. Kester

holds faculty appointments at USUHS and the University of Maryland; and is a fellow of the American College of Physicians, the Royal College of Physicians of Edinburgh, the Infectious Disease Society of America, and the American Society of Tropical Medicine and Hygiene. He is a member of the clinical faculty at the University of Maryland Shock Trauma Center in Baltimore.

Patricia King, J.D.

Professor Emerita

Georgetown University Law Center

Patricia King is Professor of Law emeritus at Georgetown University Law Center and an Adjunct Professor in the Department of Health Policy and Management, School of Hygiene and Public Health at Johns Hopkins University. She is the co-author of *Cases and Materials on Law, Science and Medicine*. She is a member of the National Academy of Medicine, a member of the American Law Institute, a fellow of the Hastings Center and a faculty affiliate of Georgetown's Kennedy Institute of Ethics. Her scholarship focuses on race and genomics, racial disparities in health and reproductive health. Professor King has served on numerous national advisory bodies formed to address the ethical issues generated by developments in science and technology, including the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1974-78), which produced the seminal "Belmont Report," the President's Advisory Committee on Human Radiation Experiments (1994-95), the National Institutes of Health's Embryo Research Panel (co-chair for policy, 1994), the Ethics, Legal and Social Issues Working Group of the NIH's Human Genome Project (1989-95), and the NIH's Recombinant DNA Advisory Committee (1979-81). She has served on numerous boards and Institute of Medicine committees and is currently a member of the Board of Health Sciences Policy of the National Academies. She is also a Director of Mathematica an employee-owned company. She is a graduate of Wheaton College (Massachusetts) and has served as a Trustee and Chair of the Wheaton College Board of Trustees. In 2018 she was designated a Life Trustee by the Wheaton College Board. She graduated from Harvard Law School and is a past member of the Harvard Corporation the governing board of Harvard University. She has received honorary degrees from Wheaton College, Old Dominion University, and Harvard University.

Jonna Mazet, D.V.M., M.P.V.M., Ph.D.

Executive Director, One Health Institute

UC Davis School of Veterinary Medicine

Jonna Mazet is a Professor of Epidemiology and Disease Ecology and Executive Director of the One Health Institute in the UC Davis School of Veterinary Medicine, where she focuses on global health problem solving, especially for emerging infectious disease and conservation challenges. Dr. Mazet is active in international One Health research programs, most notably in relation to disease transmission among wildlife, domestic animals, and people and the ecological drivers of disease emergence. Currently, she is the Global Director of a \$175 million viral emergence early warning project, named PREDICT, that has been developed with the US Agency for International Development's (USAID) Emerging Pandemic Threats Program. She was elected to the National Academy of Medicine in 2013 in recognition of her successful and innovative approach to emerging environmental and global health threats and serves on the National Academies' Forum on Microbial Threats, as well as chairs the Academies' One Health Work Group. Jonna joined the UC Global Health Institute Board of Directors as co-vice chair in April 2019. She holds a D.V.M., M.P.V.M., and Ph.D. from UC Davis.

Phyllis Meadows, Ph.D., M.S.N., R.N.

Senior Fellow, Health
The Kresge Foundation

Phyllis Meadows currently serves as the Senior Fellow and Program Advisor for the Kresge Foundation Health Team. In this role, she is responsible for supporting the health team in the development and implementation of investment opportunities within and across the Foundation's various programming areas. Her professional career includes leadership roles in philanthropy, academia, community health and governmental public health. She has previously served in the role of Associate Dean for Public Health Practice and Clinical Professor - Health, Management and Policy with the University of Michigan School of Public Health. She has led several initiatives to expand multi-disciplinary practice in communities, designing the University's first certification program on population health and health equity for medical residents. She is currently a Distinguished Towsley Policy Maker in Residence with the University of Michigan's Gerald Ford School of Public Policy. She has taught and developed graduate level and professional continuing education courses to address emerging health issues, including topics on health policy and public health leadership. Dr. Meadows has extensive experience in public health practice having served in various leadership roles in public health. She has held several official appointments in public health leadership at the state, county and local levels. In her most recent appointment, she served as the Chief Health Officer and Director of Health for the City of Detroit, providing leadership for the department of health, environmental health, infectious diseases, child health, clinical and dental services for the residents of Detroit. Her philanthropic experience includes positions as Program Director for the W.K. Kellogg Foundation - Youth, Education and Higher Education; and advisor for several national initiatives of the Robert Wood Johnson Foundation including the Nurse Executive Leadership Program, Partners in Nursing, and the County Roadmaps project. As a registered nurse, she has worked in both community-based health and hospitals. She currently serves as a Board Member and Advisor for several state level organizations and private foundations focusing on health.

Tara O'Toole, M.D., M.P.H.

Executive Vice President
In-Q-Tel

Tara O'Toole currently serves as Executive Vice President at In-Q-Tel. Dr. O'Toole was confirmed as the Under Secretary for Science and Technology (S&T) at the U.S. Department of Homeland Security (DHS) and served from November 4, 2009 to September 23, 2013. From 2003 to November 2009, Dr. O'Toole was the CEO and Director of the Center for Biosecurity at the University of Pittsburgh Medical Center (UPMC), and Professor of Medicine and of Public Health at the University of Pittsburgh. The Center for Biosecurity of UPMC is an independent organization dedicated to improving the country's resilience to major biological threats. Dr. O'Toole is internationally known for her work on biosecurity and on health and safety issues related to the U.S. nuclear weapons complex. Her publications in the biodefense field include articles on the response to anthrax, smallpox, and plague biological attacks; containment of contagious disease epidemics; biodefense research and development strategies; and hospital preparedness. She is the founding editor of the journal *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*. She was a principal author and producer of *Dark Winter*, an influential exercise conducted in June 2001 to alert national leaders to the dangers of bioterrorist attacks. She was also a principal writer and producer of *Atlantic Storm*, an international ministerial-level biosecurity exercise held in January 2005. Prior to founding the UPMC in 2003, Dr. O'Toole was one of the original members of the Johns Hopkins Center for Civilian Biodefense Strategies and served as its director from 2001 to 2003. She has served on numerous government and expert advisory committees dealing with biodefense, including panels of the Defense Science Board; the National Academy of Engineering Committee on Combating Terrorism; and the National Academy of Sciences Working Group on Biological Weapons. She served as chair of the Board of the Federation of American Scientists from 2006 to 2007, and in 2006 she was appointed to the board of Google Foundation's International Networked System for Total Early Disease

Detection. From 1993 to 1997, Dr. O'Toole served as Assistant Secretary of Energy for Environment Safety and Health. In this position, she was the principal advisor to the Secretary of Energy on environmental protection and on the health and safety of the approximately 100,000 workers in the U.S. nuclear weapons complex and Department of Energy (DOE) laboratories. She developed the first overall management and safety plan for dealing with the highly enriched uranium, plutonium, spent fuel, and radioactive waste left in place when nuclear weapons production was stopped in the early 1990s. She ran the multi-agency, multimillion-dollar task force that oversaw the government's investigations into human radiation experiments conducted during the Cold War and led the U.S. delegation to Russia to establish the U.S./Russia cooperative effort to study radiation exposure and environmental hazards of the Russian nuclear weapons complex. Prior to her work at DOE, Dr. O'Toole was a senior analyst at the Congressional Office of Technology Assessment, where she directed several projects and studies, including the health impact of pollution resulting from nuclear weapons production. She also served as a consultant to industry and government in matters related to occupational and environmental health; worker participation in workplace safety protection; and organizational change. Dr. O'Toole practiced general internal medicine in community health centers in Baltimore from 1984 to 1988. She is board certified in internal medicine and occupational and environmental health. She has a bachelor's degree from Vassar College, an M.D. from the George Washington University, and a Master of Public Health degree from Johns Hopkins University. She completed internal medicine residency training at Yale University and a fellowship in Occupational and Environmental Medicine at Johns Hopkins University.

Alexandra Phelan, S.J.D., LL.M., LL.B.

Faculty Research Instructor
Center for Global Health Science and Security
Georgetown University

Alexandra Phelan is a member of the Center for Global Health Science and Security and a Faculty Research Instructor in the Department of Microbiology and Immunology at Georgetown University. Dr. Phelan also holds an appointment as Adjunct Professor of Law at Georgetown University Law Center. Dr. Phelan works on legal and policy issues related to infectious diseases, with a particular focus on emerging and reemerging infectious disease outbreaks and international law. She has worked as a consultant for the World Health Organization, the World Bank, and Gavi: the vaccine alliance, and has advised on matters including international law and pathogen sharing, human rights law and Zika, intellectual property law, and contract law. She previously worked for a number of years as a solicitor at a firm in Melbourne, Australia and was admitted to practice to the Supreme Court of Victoria and High Court of Australia in 2010. Dr. Phelan's doctorate examined how overlap between fields of international law – in particular, global health law, international human rights law, and international environmental law – can serve as the catalyst to progressively develop international law to prevent and respond to infectious diseases. She also holds a Master of Laws, specializing in international law, from the Australian National University and a Bachelor of Biomedical Science/Bachelor of Laws (Honours) double degree from Monash University. She also holds a Diploma of Languages (Mandarin Chinese). Dr. Phelan is a General Sir John Monash Scholar and was recognized as an Associate Fellow of the Royal Commonwealth Society in 2015 for her human rights advocacy during the 2013-16 Ebola outbreak.

David Relman, M.D.

Thomas C. and Joan M. Merigan Professor in Medicine, and Chief of Infectious Diseases
Stanford University; VA Palo Alto Health Care System

David Relman is the Thomas C. and Joan M. Merigan Professor in Medicine, and Microbiology and Immunology at Stanford University, and Chief of Infectious Diseases at the Veterans Affairs Palo Alto Health Care System. Dr. Relman is also Senior Fellow at the Freeman Spogli Institute for International Studies (FSI), and served as Science Co-Director at the Center for International Security and Cooperation (2013-2017), at Stanford. He is currently director of a new Biosecurity Initiative at FSI. Relman trained at

MIT and then Harvard Medical School, followed by clinical training in internal medicine and infectious diseases at the Massachusetts General Hospital in Boston, and then a postdoctoral fellowship in microbiology at Stanford. His early research focused on molecular methods for pathogen discovery and over the past 20 years, on the human microbiome. He was elected to the National Academy of Medicine in 2011. Dr. Relman served as vice-chair of the National Research Council Committee that reviewed the science performed for the FBI 2001 Anthrax Letters investigation, chair of the Forum on Microbial Threats (2007-2017), and is currently a member of the Intelligence Community Studies Board (2016-) as well as Chair of a Standing Committee tasked with examining the health-related problems of US embassy personnel stationed overseas, all at the U.S. National Academies of Science. He was a founding member of the National Science Advisory Board on Biosecurity (2005-2014), a member of the Working Group on Biodefense for the President's Council of Advisors on Science and Technology (The White House) (2016), and served as President of the Infectious Diseases Society of America (2012-2013). He holds an M.D. from Harvard Medical School.

Mark Smolinski, M.D., M.P.H.

President

Ending Pandemics

Mark Smolinski currently serves as President of Ending Pandemics. Dr. Smolinski 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. 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 B.S. in Biology and M.D. 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.

David Walt, Ph.D.

Hansjörg Wyss Professor of Biologically Inspired Engineering
Harvard Medical School

David Walt is a member of the faculty at Harvard Medical School in the Department of Pathology, and a Howard Hughes Medical Institute Professor. Dr. Walt pioneered the use of microwell arrays for single-molecule detection and analysis, which has revolutionized the process of genetic and proteomic sequencing, enabling the cost of DNA sequencing and genotyping to plummet nearly a millionfold in the last decade. His current research employs optical fiber microarrays for the detection and analysis of single enzyme molecules to provide mechanistic insight into enzyme mechanisms. In another project, he is also investigating the limits of creating high-density sensing arrays containing thousands of microensors and nanosensors, and are preparing arrays to perform high-density nucleic acid and protein analysis. Dr. Walt is the Scientific Founder of Illumina, Inc. and Quantarix Corp, and has co-founded several other life sciences startups. Previously, he was a University Professor, Professor of Neuroscience, and Professor of

Oral Medicine at Tufts University. He is a member of the National Academy of Engineering, the National Academy of Medicine, a Fellow of the American Academy of Arts and Sciences, a Fellow of the American Institute for Medical and Biological Engineering, and a Fellow of the National Academy of Inventors. He has received numerous awards and honors, including the 2017 American Chemical Society Kathryn C. Hach Award for Entrepreneurial Success, the 2016 Ralph Adams Award in Bioanalytical Chemistry, the 2014 American Chemical Society Gustavus John Esselen Award, the 2013 Analytical Chemistry Spectrochemical Analysis Award, the 2013 Pittsburgh Analytical Chemistry Award, and the 2010 ACS National Award for Creative Invention. He received a B.S. in chemistry from the University of Michigan and a Ph.D. in chemical biology from SUNY at Stony Brook, and did postdoctoral studies at MIT.

Standing Committee on Emerging Infectious Diseases and 21st Century Health Threats

Working Group Topics for Consideration

****Note:** Underlined names indicate that formal committee appointment is pending.

Group A – Viral Characteristics (SC Leads: David Relman, Jonna Mazet)

Staff Leads: Autumn Downey and Carolyn Shore

Members: Kristian Andersen
Trevor Bedford
Peter Daszak
Diane Griffin
Ralph Baric

Topics: Viral characterization (including genomic surveillance)
Transmission, incubation, and environmental stability
One Health

Viral characterization (virus genetics, origin, and evolution of SARS-CoV-2)

Examples of short-term research needs

- Biological/molecular characteristics of SARS-CoV-2
- Real-time tracking of whole genomes and a mechanism for coordinating the rapid dissemination of that information to inform the development of diagnostics and therapeutics and to track variations of the virus over time.
- Access to geographic and temporal diverse sample sets to understand geographic distribution and genomic differences, and determine whether there is more than one strain in circulation. Multi-lateral agreements such as the Nagoya Protocol could be leveraged.

Transmission, incubation, and environmental stability

Examples of short-term research needs

- Physical science of the coronavirus (e.g., charge distribution, adhesion to hydrophilic/phobic surfaces, environmental survival to inform decontamination efforts for affected areas and provide information about viral shedding).
- Persistence and stability on a multitude of substrates and sources (e.g., nasal discharge, sputum, urine, fecal matter, blood).
- Persistence of virus on surfaces of different materials (e.g., copper, stainless steel, plastic).
- Effective decontamination protocols

- Range of incubation periods for the disease in humans (and how this varies across age and health status) and how long individuals are contagious, even after recovery.
- Prevalence of asymptomatic shedding and transmission (e.g., particularly children).
- Seasonality of transmission.
- Correlates of immunity- and whether immunity occurs and duration.
- Resistance of previously infected people to mutated strains.

One Health

Examples of long-term research needs

- Enhance capacity (people, technology, data) for sequencing with advanced analytics for unknown pathogens, and explore capabilities for distinguishing naturally-occurring pathogens from intentional.
- One Health surveillance of humans and potential sources of future spillover or ongoing exposure for this organism and future pathogens, including both evolutionary hosts (e.g., bats) and transmission hosts (e.g., heavily trafficked and farmed wildlife and domestic food and companion species), inclusive of environmental, demographic, and occupational risk factors.
- Evidence that livestock could be infected (e.g., field surveillance, genetic sequencing, receptor binding) and serve as a reservoir after the epidemic appears to be over.
 - Evidence of whether farmers are infected, and whether farmers could have played a role in the origin.
 - Surveillance of mixed wildlife- livestock farms for SARS-CoV-2 and other coronaviruses in Southeast Asia.
 - Experimental infections to test host range for this pathogen.

Group B – Patient Care and Medical Countermeasures (MCM) (SC Leads: Don Berwick, Co-Lead TBD)

Staff Leads: Lisa Brown and Scott Wollek

Members: Kristian Andersen
Rich Besser
Diane Griffin
Margaret Hamburg
John Hick
Kent Kester
Tara O'Toole
David Relman
David Walt
Dan Hanfling

Topics: Vaccines and therapeutics
Diagnostics

Patient care (including personal protective equipment, crisis standards of care, and quality)

Vaccines and therapeutics

- Need for an end-to-end process for getting promising products to the people who need them (e.g. small biotechs may not have developed a vaccine before and may lack scale-up manufacturing and/or support for larger studies)
- Research and development and evaluation efforts

Examples of short-term research needs

- Evaluate/investigate effectiveness of drugs and antivirals being developed and tried to treat COVID-19 patients.
 - E.g., Would it be beneficial to give IL6 receptor antibodies therapy prior to admission to the ICU; use of monoclonal antibodies.
- Clinical and bench trials to investigate less common viral inhibitors against COVID-19 such as naproxen, clarithromycin, and minocycline that may exert effects on viral replication.
- Methods to evaluate potential complication of Antibody-Dependent Enhancement (ADE) in vaccine recipients.
- From a clinical development perspective, explore use of best animal models and their predictive value for a human vaccine.
- Capabilities to discover a therapeutic (not vaccine) for the disease, and clinical effectiveness studies to discover therapeutics, to include antiviral agents.
- Alternative models to aid decision makers in determining how to prioritize and distribute scarce, newly proven therapeutics as production ramps up. This could include identifying approaches for expanding production capacity to ensure equitable and timely distribution to populations in need.

Example of long-term research needs

- Efforts targeted at a universal coronavirus vaccine.

Diagnostics

- Systematic, holistic approach to diagnostics (from the public health surveillance perspective to being able to predict clinical outcomes)

Examples of short-term research needs

- Evaluate how widespread current exposure is to be able to make immediate policy recommendations on mitigation measures. Denominators for testing and a mechanism for rapidly sharing that information, including demographics, to the extent possible. Sampling methods to determine asymptomatic disease (e.g., use of serosurveys (such as convalescent samples) and early detection of disease (e.g., use of screening of neutralizing antibodies such as ELISAs),
- Efforts to increase capacity on existing diagnostic platforms and tap into existing surveillance platforms.

- Development of a rapid, point-of-care test (like a rapid influenza test; home tests;) and rapid bed-side tests, recognizing the tradeoffs between speed, accessibility, and accuracy.
- Best tests to look at IgM and IgG antibodies and how best to scale up and create a rapid test.
- Rapid design and execution of targeted surveillance experiments calling for all potential testers using PCR in a defined area to start testing and report to a specific entity. These experiments could aid in collecting longitudinal samples, which are critical to understanding the impact of ad hoc local interventions (which also need to be recorded).
- Separation of assay development issues from instruments, and the role of the private sector to help quickly migrate assays onto those devices.
- Establish efforts to track the evolution of the virus (i.e., genetic drift or mutations) and avoid locking into specific reagents and surveillance/detection schemes.
- Latency issues and when there is sufficient viral load to detect the pathogen, and understanding of what is needed in terms of biological and environmental sampling.
- Use of diagnostics such as host response markers (e.g., cytokines) to detect early disease or predict severe disease progression, which would be important to understanding best clinical practice and efficacy of therapeutic interventions.
- Policies and protocols for screening and testing.
- Policies to mitigate the effects on supplies associated with mass testing, including swabs and reagents.

Examples of long-term research needs

- Technology roadmap for diagnostics.
- Barriers to developing and scaling up new diagnostic tests (e.g., market forces), how future coalition and accelerator models (e.g., Coalition for Epidemic Preparedness Innovations) could provide critical funding for diagnostics, and opportunities for a streamlined regulatory environment.
- New platforms and technology (e.g., CRISPR) to improve response times and employ more holistic approaches to COVID-19 and future diseases.
- Coupling genomics and diagnostic testing on a large scale.
- Enhance capabilities for rapid sequencing and bioinformatics to target regions of the genome that will allow specificity for a particular variant.

Patient care

- Risk factors

Examples of short-term research needs

- Data on potential risks factors
 - Smoking, pre-existing pulmonary disease
 - Co-infections (determine whether co-existing respiratory/viral infections make the virus more transmissible or virulent) and other co-morbidities

- Differences in respiratory/viral infections for neonates and pregnant women
- Socio-economic and behavioral factors to understand the economic impact of the virus and whether there were differences.
- Pediatrics – Innate immune system of children vs adaptive immune system response of adults (e.g., cross reactivity between some routine childhood vaccination that is providing protection to the youngest in the population).
- Surge capacity and nursing homes

Examples of short-term research needs

- Resources to support skilled nursing facilities and long term care facilities.
 - Mobilization of surge medical staff to address shortages in overwhelmed communities.
 - Efforts to inform allocation of scarce resources
- Examples of short-term research needs*
- Age-adjusted mortality data for Acute Respiratory Distress Syndrome (ARDS) with/without other organ failure – particularly for viral etiologies
 - Extracorporeal membrane oxygenation (ECMO) outcomes data of COVID-19 patients; and,
 - Outcomes data for COVID-19 after mechanical ventilation adjusted for age.
 - Knowledge of the frequency, manifestations, and course of extrapulmonary manifestations of COVID-19, including, but not limited to, possible cardiomyopathy and cardiac arrest.
 - Application of regulatory standards (e.g., EUA, CLIA) and ability to adapt care to crisis standards of care level.

- Personal protective equipment

Example of short-term research needs

- Approaches for encouraging and facilitating the production of elastomeric respirators, which can save thousands of N95 masks.
- Alternative methods to advise on disease management

Examples of short-term research needs

- Best telemedicine practices, barriers and facilitators, and specific actions to remove/expand them within and across state boundaries.
- Guidance on the simple things people can do at home to take care of sick people and manage disease.
- Oral medications that might potentially work.

Example of long-term research needs

- Use of AI in real-time health care delivery to evaluate interventions, risk factors, and outcomes in a way that could not be done manually.
- Processes of care

Example of short-term research needs

- Best practices and critical challenges and innovative solutions and technologies in hospital flow and organization, workforce protection, workforce allocation,

community-based support resources, payment, and supply chain management to enhance capacity, efficiency, and outcomes.

Group C – Community Engagement and Population Health (SC Leads: Mary Travis Bassett, Robert Groves)

Staff Leads: Julie Pavlin and Monica Feit (DBASSE)

Members: Georges Benjamin

Rich Besser

Peter Daszak

Phyllis Meadows

Mark Smolinski

Jeff Duchin

Baruch Fischhoff

(SBS WG, membership TBD)

Topics: Epidemiology and population surveillance
Social and public health interventions
Public communication and understanding

Epidemiology and population surveillance

- Systematic, holistic approach to diagnostics (from the public health surveillance perspective to being able to predict clinical outcomes and for understanding/guidance to be implemented).

Examples of short-term research needs

- Plans for serosurveys of previously exposed/immune individuals. Evaluation of background level of people with Covid19 antibodies in the community.
- Policies and protocols for screening and testing (e.g. screening/testing schedule for post-exposure).
- Policies to mitigate the effects on supplies associated with mass testing, including swabs and reagents.
- Recruitment, support, and coordination of local expertise and capacity (public, private—commercial, and non-profit, including academic), including legal, ethical, communications, and operational issues.
- National guidance and guidelines about best practices to states (e.g., how states might leverage universities and private laboratories for testing purposes, communications to public health officials and the public).
- Validation and sharing (and effectively using) modeling outputs.

Examples of long-term research needs

- Technology roadmap for diagnostics.
- Barriers to developing and scaling up new diagnostic tests (e.g., market forces), how future coalition and accelerator models (e.g., Coalition for Epidemic Preparedness

Innovations) could provide critical funding for diagnostics, and opportunities for a streamlined regulatory environment.

- New platforms and technology (e.g., CRISPR) to improve response times and employ more holistic approaches to COVID-19 and future diseases.
- Coupling genomics and diagnostic testing on a large scale (intersection with Group A).

Social and public health interventions

Example of short-term research needs

- Effectiveness of non-therapeutic public health measures (e.g. patient contact tracing, social distancing strategies, school closings, telework). Rapid design and execution of experiments to examine and compare NPIs currently being implemented.
 - Risk/benefit of various social distancing measures
 - Optimal timing of social distancing (what are the triggers to start, when is it too late)
 - Importance of herd immunity
 - Avoiding the second wave
- Guidance on ways to scale up NPIs in a more coordinated way (e.g., establish funding, infrastructure and authorities to support real time, authoritative (qualified participants) collaboration with all states to gain consensus on consistent guidance and to mobilize resources to geographic areas where critical shortfalls are identified) to give us time to enhance our health care delivery system capacity to respond to an increase in cases.
- Methods to control the spread in communities, barriers to compliance and how these vary among different populations.

Examples of long-term research needs

- Models of potential interventions to predict costs and benefits that take account of such factors as race, income, disability, age, geographic location, immigration status, housing status, employment status, and health insurance status.
- Policy changes necessary to enable the compliance of individuals with limited resources and the underserved with NPIs. Research on why people fail to comply with public health advice, even if they want to do so (e.g., social or financial costs may be too high).
- Research on the economic impact of this or any pandemic. This would include identifying policy and programmatic alternatives that lessen/mitigate risks to critical government services, food distribution and supplies, access to critical household supplies, and access to health diagnoses, treatment, and needed care, regardless of ability to pay.

Public communication and understanding

- Messaging to the public, health professionals, civic leaders, etc.
- Communicating with high-risk populations

Examples of short-term research needs

- Modes of communicating with target high-risk populations (elderly, health care workers).
- Risk communication and guidelines that are easy to understand and follow (include targeting at risk populations' families too).
- Communication that indicates potential risk of disease to all population groups.
- Clarify community measures
- Clarify misunderstanding around containment and mitigation

Group D – Cross-cutting Issues (SC Leads: Tara O'Toole, Alta Charo)

Staff Leads: Andy Pope and Lisa Brown

Members: Ellen Embry
Patricia King
Phyllis Meadows
Alexandra Phelan

Topics: Ethics, equity, and law
International relations and cooperation
Innovative solutions across the public and private sectors
Lessons learned/future outbreaks

Ethics, equity, and law

- Consideration of the health needs and wellbeing of underserved/disfranchised populations

Examples of short-term research needs

- Action plan to mitigate gaps and problems of inequity in the Nation's public health capability, capacity, and funding to ensure all citizens in need are supported and can access information, surveillance, and treatment.
- Measures to reach marginalized and disadvantaged populations.
- Data systems and research priorities and agendas incorporate attention to the needs and circumstances of disadvantaged populations and underrepresented minorities.
- Understand and mitigate threats to incarcerated people from COVID-19, assuring access to information, prevention, diagnosis, and treatment.
- Understand coverage policies (barriers and opportunities) related to testing, treatment, and care

International relations and cooperation

- The role of international regulatory organizations, WHO, etc

- Reliance and mutual recognition agreements (see NASEM study: Mutual Recognition Agreements in the Regulation of Medicines <https://www.nationalacademies.org/our-work/mutual-recognition-agreements-in-the-regulation-of-medicines>)
- Data standards and nomenclature:
 - Methods for coordinating data-gathering with standardized nomenclature.
 - Consistent platform for sharing response information among planners, providers, and others.
 - Understand and mitigate barriers to information-sharing.

Innovative solutions across public and private sectors

- Governmental public health
 - Example of short-term research needs*
 - Determine how to recruit, support, and coordinate local (non-Federal) expertise and capacity relevant to public health emergency response (public, private—commercial and non-profit, including academic).
 - Examples of long-term research needs*
 - Better integration of federal/state/local public health surveillance systems.
 - Value of investments in baseline public health response infrastructure preparedness capacity and capability.

Lessons learned/Future outbreaks

- Research needs to improve our understanding of the viral diversity and risk factors for viruses that are not yet known to medicine but exist and are available to infect humans and present epidemic and pandemic threats.
- Research needs and evaluation metrics to inform the immediate response and future outbreak response.

To: Baric, Ralph S[rbaric@email.unc.edu]
Cc: Aleksei Chmura[chmura@ecohealthalliance.org]
From: Peter Daszak[daszak@ecohealthalliance.org]
Sent: Wed 5/6/2020 7:16:01 PM (UTC-04:00)
Subject: FW: Washington Post story on bat CoVs etc.

Here's what I said to the Washington Post reporter. Hope that works. If he asks you about GoF I strongly recommend you just come back with the comments:

- Well that's already been debated extensively and decided on by NIH
- The origin of COVID-19 doesn't have anything to do with this because a NASEM committee and a paper in Nat. Med clearly show the virus has a natural origin, no evidence of manipulation

I practice lines like that and ways to get it back onto the real issue of either the importance of Remdesivir, or the massive interface in rural China (1-7 million people per year infected by bat CoVs from our serology study), or the greater issue of needing broad based drugs and vaccines. They will eventually move on to that topic...

I will from now on make everything extremely clear to reporters about the way this all happens...

Cheers,

Peter

Peter Daszak
President

EcoHealth Alliance
460 West 34th Street
New York, NY 10001
USA

Tel.: +1-212-380-4474
Website: www.ecohealthalliance.org
Twitter: [@PeterDaszak](https://twitter.com/PeterDaszak)

EcoHealth Alliance develops science-based solutions to prevent pandemics and promote conservation

From: Peter Daszak <daszak@ecohealthalliance.org>
Sent: Wednesday, May 6, 2020 5:41 PM
To: Sonne, Paul <Paul.Sonne@washpost.com>
Cc: Robert Kessler <kessler@ecohealthalliance.org>; Aleksei Chmura <chmura@ecohealthalliance.org>
Subject: Re: Washington Post story on bat CoVs etc.
Importance: High

Hi Paul – I was just talking with Ralph Baric at UNC about the work in China and he mentioned that you were likely running with the story. Glad to hear that. Let me know if there's anything you might need fact-checking – I'm available and will respond rapidly.

He mentioned the link between our work sampling bats in China and the breakthrough drug Remdesivir. It's a

complicated chain, and to be honest one that I only realized recently, but the genetic sequences of the bat viruses that we discovered in China are put online (Genbank, GISAID) and have been used to help test how effective the drug Remdesivir would be against not only SARS-CoV, but also MERS, and 'other potentially zoonotic, or pre-pandemic bat-CoVs'. This is all done without even the need for culture of virus, or shipping viruses internationally, despite what has been said by some conspiracy theorists. I have articles to support that if you need to cross-reference.

Hope that helps, and please don't hesitate if any other comments/quotes need to be checked or supported by data/publications.

Cheers,

Peter

Peter Daszak

President

EcoHealth Alliance
460 West 34th Street – 17th Floor
New York, NY 10001

Tel. +1 212-380-4474

Website: www.ecohealthalliance.org

Twitter: [@PeterDaszak](https://twitter.com/PeterDaszak)

EcoHealth Alliance develops science-based solutions to prevent pandemics and promote conservation.

From: Sonne, Paul <Paul.Sonne@washpost.com>

Sent: Monday, April 27, 2020 12:40 PM

To: Peter Daszak

Subject: Washington Post Interview

Hi Dr. Daszak,

I cover national security for The Washington Post out of our office in Washington DC.

I'm wondering if you would have some time for a phone interview, as I'm interested in writing a story about US-funded research into novel bat coronaviruses over the years, and I see that your organization has been one of the main drivers in this space. (I cover the military and noticed in particular the funding stream from DTRA).

I've read a number of stories covering the alliance's work, and was hoping you might be able to walk me through a few things. Thanks very much.

All the best,

Paul

--

Paul Sonne

The Washington Post

+1 202 412 1708

paul.sonne@washpost.com

Twitter @PaulSonne

Sent: Friday, May 8, 2020 2:31 PM

To: 'David A Relman' <relman@stanford.edu>; 'Baric, Ralph S' <rbaric@email.unc.edu>; 'Saif, Linda' <saif.2@osu.edu>; 'Perlman, Stanley' <stanley-perlman@uiowa.edu>; 'Peter Daszak' <daszak@ecohealthalliance.org>; 'Harvey V. Fineberg' <harvey.fineberg@moore.org>; 'Diane Griffin' <dgriffi6@jhmi.edu>; 'Peggy Hamburg' <peggy@hbfam.net>; 'jwleduc@UTMB.EDU' <jwleduc@UTMB.EDU>; 'Dave Franz' (davidrf Franz@gmail.com)' <davidrf Franz@gmail.com>; 'Shi, Pei yong' (peshi@UTMB.EDU)' <peshi@UTMB.EDU>

Cc: 'Frances Sharples' <fsharples_3@hotmail.com>; Lowenthal, Micah <mloewenth@nas.edu>; 'Baric, Toni C' (antoinette_baric@med.unc.edu)' <antoinette_baric@med.unc.edu>; 'Alison Andre' <andre@ecohealthalliance.org>; 'Jennifer Ryan' <jennifer.ryan@moore.org>; Bowman, Katherine <KBowman@nas.edu>

Subject: RE: Virtual U.S. China dialogue meeting on COVID-19: planning discussion on May 7

Importance: High

Greetings,

Thanks for joining the call last night. We received good news from CAS this morning. They agreed to hold the two sessions as we requested. However because George Gao is not available on the second day they want to push the second session back by one day. That's not bad because as I noted on the call, Jim Le Duc and Harvey Fineberg were not available at that time anyway.

So for the Americans we will keep the time on Monday, May 11 (from 9-11:00 PM ET) as planned but move the second session back one day to Wednesday, May 13th (from 9-11:00 PM ET). I hope the new time for the second session works for most of you.

In addition they said that the topical agenda (topic list we sent) looks fine and that there would about a dozen Chinese experts (said no more than 13) on the call on their side.

I will send you more info later today.

Kind regards,

Ben

Benjamin Rusek
The U.S. National Academy of Sciences
1-202-334-3975

From: Rusek, Benjamin

Sent: Thursday, May 7, 2020 4:58 PM

To: 'David A Relman' <relman@stanford.edu>; 'Baric, Ralph S' <rbaric@email.unc.edu>; 'Saif, Linda' <saif.2@osu.edu>; 'Perlman, Stanley' <stanley-perlman@uiowa.edu>; 'Peter Daszak' <daszak@ecohealthalliance.org>; 'Harvey V. Fineberg' <harvey.fineberg@moore.org>; 'Diane Griffin' <dgriffi6@jhmi.edu>; 'Peggy Hamburg' <peggy@hbfam.net>; 'jwleduc@UTMB.EDU' <jwleduc@UTMB.EDU>; 'Dave Franz' (davidrf Franz@gmail.com)' <davidrf Franz@gmail.com>; 'Shi, Pei yong' (peshi@UTMB.EDU)' <peshi@UTMB.EDU>

Cc: 'Frances Sharples' <fsharples_3@hotmail.com>; Lowenthal, Micah <mloewenth@nas.edu>; 'Baric, Toni C' (antoinette_baric@med.unc.edu)' <antoinette_baric@med.unc.edu>; 'Alison Andre' <andre@ecohealthalliance.org>; 'Jennifer Ryan' <jennifer.ryan@moore.org>; Bowman, Katherine <KBowman@nas.edu>

Subject: RE: Virtual U.S. China dialogue meeting on COVID-19: planning discussion on May 7

Importance: High

Greetings,

Below you will find an agenda for tonight's (8:00 PM ET) call. Diane is the U.S. chair so will lead the call (with input from others).

- 1) Introductions (Diane, Ben, group)
- 2) The China bio dialogue: brief background, previous meetings and key Chinese participants (Jim, Dave, Diane, Peggy, Pei-yong, Ben, others)
- 3) Recent work (2020) to set up the virtual dialogue sessions, purpose of the call and issues we should probably avoid (Diane, Ben, others)
- 4) Discussion topics/questions (see attachment), assign discussion leaders for each question (Diane, others)
- 5) Call logistics (best way to interact on the Zoom call, recording the sessions, plan between calls, etc.) (Ben, Micah, Diane)

6) Other questions or concerns (group)

I have re attached the “agenda” (list of topics/questions) for the dialogue meetings next week for your information. Also the Zoom call in information is below:

<https://nasem.zoom.us/j/93418637725?pwd=OHBnamM1cWs5MUI1TWFiNmINDGMwQT09>

Meeting ID: 934 1863 7725

Password: 662746

Kind regards,

Ben

Benjamin Rusek
The U.S. National Academy of Sciences
1-202-334-3975

From: Rusek, Benjamin

Sent: Wednesday, May 6, 2020 5:42 PM

To: 'David A Relman' <relman@stanford.edu>; 'Baric, Ralph S' <rbaric@email.unc.edu>; 'Saif, Linda' <saif.2@osu.edu>; 'Perlman, Stanley' <stanley-perlman@uiowa.edu>; 'Peter Daszak' <daszak@ecohealthalliance.org>; 'Harvey V. Fineberg' <harvey.fineberg@moore.org>; 'Diane Griffin' <dgriffi6@jhmi.edu>; 'Peggy Hamburg' <peggy@hbfam.net>; 'jwleduc@UTMB.EDU' <jwleduc@UTMB.EDU>; 'Dave Franz' (davidrf Franz@gmail.com)' <davidrf Franz@gmail.com>; 'Shi, Pei yong' (peshi@UTMB.EDU)' <peshi@UTMB.EDU>

Cc: 'Frances Sharples' <fsharples_3@hotmail.com>; Lowenthal, Micah <mloventh@nas.edu>; 'Baric, Toni C' (antoinette_baric@med.unc.edu)' <antoinette_baric@med.unc.edu>; 'Alison Andre' <andre@ecohealthalliance.org>; 'Jennifer Ryan' <jennifer.ryan@moore.org>; Bowman, Katherine <KBowman@nas.edu>

Subject: RE: Virtual U.S. China dialogue meeting on COVID-19: planning discussion on May 7

Importance: High

Greetings,

Information on how to join the planning call **at 8:00 PM ET, Thursday, May 7 is below:**

Zoom link: <https://nasem.zoom.us/j/93418637725?pwd=OHBnamM1cWs5MUI1TWFiNmINDGMwQT09>

Meeting ID: 934 1863 7725

Password: 662746

Please join by Zoom (but the call in phone number is below my email signature if you need it). Thank you again for agreeing to participate in the planned virtual dialogue meeting next week.

Kind regards,

Ben

Benjamin Rusek
The U.S. National Academy of Sciences
1-202-334-3975

Benjamin Rusek is inviting you to a scheduled Zoom meeting.

Topic: Zoom meeting to discuss U.S. China dialogue
Time: May 7, 2020 08:00 PM Eastern Time (US and Canada)

Join from PC, Mac, Linux, iOS or Android:

<https://nasem.zoom.us/j/93418637725?pwd=OHBnamM1cWs5MUI1TWFiNmINDGMwQT09>

Password: 662746

Or iPhone one-tap :

US: +16513728299,,93418637725# or +13017158592,,93418637725#

Or Telephone:

Dial(for higher quality, dial a number based on your current location) :

US: +1 651 372 8299 or +1 301 715 8592 or +1 312 626 6799 or +1 470 250 9358 or +1 646 518 9805 or +1 646 558 8656 or +1 213 338 8477 or +1 253 215 8782 or +1 602 753 0140 or +1 669 219 2599 or +1 669 900 6833 or +1 720 928 9299 or +1 971 247 1195 or 888 475 4499 (Toll Free) or 877 853 5257 (Toll Free)

Meeting ID: 934 1863 7725

Password: 662746

International numbers available: <https://nasem.zoom.us/j/93418637725>

Would you like to test your Zoom connection? Please click on the link below.

<https://nasem.zoom.us/test>

From: Rusek, Benjamin

Sent: Monday, May 4, 2020 6:15 PM

To: 'David A Relman' <relman@stanford.edu>; 'Baric, Ralph S' <rbaric@email.unc.edu>; 'Saif, Linda' <saif.2@osu.edu>; 'Perlman, Stanley' <stanley-perlman@uiowa.edu>; 'Peter Daszak' <daszak@ecohealthalliance.org>; Harvey V. Fineberg <harvey.fineberg@moore.org>; 'Diane Griffin' <dgriffi6@jhmi.edu>; 'Peggy Hamburg' <peggy@hbfam.net>; 'jwleduc@UTMB.EDU' <jwleduc@UTMB.EDU>; 'Dave Franz' (davidrf Franz@gmail.com) <davidrf Franz@gmail.com>; Shi, Pei yong (peshi@UTMB.EDU) <peshi@UTMB.EDU>

Cc: 'Frances Sharples' <fsharples_3@hotmail.com>; Lowenthal, Micah <mloewenth@nas.edu>; 'Baric, Toni C' (antoinette_baric@med.unc.edu) <antoinette_baric@med.unc.edu>; Alison Andre <andre@ecohealthalliance.org>; Jennifer Ryan <jennifer.ryan@moore.org>; Bowman, Katherine <KBowman@nas.edu>

Subject: Virtual U.S. China dialogue meeting on COVID-19: planning discussion on May 7

Importance: High

Greetings,

Thank you for agreeing to participate in a virtual bilateral dialogue meeting between Chinese and American experts studying and fighting the COVID-19 pandemic. I am reaching out to you now so 1) the group is connected by email and 2) to organize the planning teleconference for the American participants on May 7. The purpose of the May 7 discussion is to fill you in on the dialogue background, discuss the topics/questions (list in your invitation letter and attached) and issues we should probably avoid (origin questions, politics), logistics, and address any other questions or concerns you may have.

We are proposing that this ~1 hour discussion take place over Zoom at 8:00 PM ET on Thursday, May 7. If this time does not work for someone we could push the time up or back slightly. Please let me know. Also if Thursday evening is impossible I can brief you on the discussion over the phone sometime on Friday.

Re the actually dialogue meeting with the Chinese group, as your invitation letter notes we have proposed that the dialogue meeting take place on the evenings of Monday, May 11th (to address the first set of bullet points) and Tuesday, May 12th (to ask/answer follow-up questions and address the second set of bullet points), at 9:00 PM ET for the Americans. George Gao has not yet let us know if these exact times work but we should hear back from him soon (the Chinese May day holidays end on the 5th).

Kind regards,

Ben

Benjamin Rusek
The U.S. National Academy of Sciences
1-202-334-3975

Topics for future collaborations between the NAS and CAS on COVID-19, Day 1.

1. Natural experiment underway in the USA as states implement various strategies of public health response to address COVID-19 and resume normal activities
2. Clinical Disease—Acute and Convalescence
 - a. Early predictors of severe disease/cytokine storm
 - b. Long-term sequela seen in survivors
 - c. Better understanding/recognition of Pediatric Inflammatory Syndrome of COVID
3. Pathogenesis and Treatment options
 - a. Antiviral drug targets and development (not really discussed but important for future dialogue)
 - b. Monoclonal antibody therapies (anti-IL-6 monoclonal antibody treatment; “balance” with coagulation dysfunction)
 - c. Clinical trial of chloroquine treatment (preliminary results shared)
4. Prophylactics and Preventatives
 - a. Passive antibody therapy (raised question but not really discussed)
 - b. Vaccine development
 - i. Various techniques under development (not discussed)
 - ii. Animal models (mentioned but details not shared)
 - iii. Clinical testing (not discussed)
 - iv. Production capacity (not discussed)
 - v. Ethics considerations (not discussed)
 - c. Isolation of contacts (Wuhan lock-down)
 - d. Educational tools for communications with populations at risk