

About R3SSI

The NASEM Response and Resilient Recovery Strategic Science Initiative (R3SSI) will inform decision-making critical to planning for crisis response and recovery across U.S. society. This novel approach will convene an Executive Council of leaders from government, business, academia, and other communities who will identify major categories of concerns and opportunities for improvement related to the COVID-19 pandemic and its collateral effects and will prioritize among them.

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Response and Resilient Recovery Strategic Science Initiative (R3SSI)

Stakeholder(s):

National Academies of Sciences, Engineering, and Medicine :

The National Academies of Sciences, Engineering, and Medicine (NASEM) will establish an activity to inform decision making critical to planning for crisis response and recovery across U.S. society.

R3SSI Committee

Martin-José J. Sepulveda :

CHAIR — Martín-José Sepulveda, M.D. Sc.D. FACP, FAAP, FACOEM, is an IBM Fellow, elected member of the National Academy of Medicine, the Connecticut Academy of Science and Engineering, and the Florida Academy of Science, Engineering and Medicine. He is CEO and principal of CLARALUZ LLC, a health, data, technology and analytics consulting firm. He is a senior executive advisor to five health technology start-up companies and the retired Vice President of Health Systems and Policy Research, IBM Research Division. Prior to this post, he served as IBM Vice President of Integrated Health Services and led health policy and strategy, health benefits innovation and purchasing, occupational health and well-being services for IBM globally. He is currently an active board member in the National Academy of Medicine's Board on Children, Youth and Families, the University of Pennsylvania School of Nursing Board of Overseers, the University of Iowa College of Public Health, and the Council for Health Research for Development.

Dolores Acevedo-Garcia :

MEMBER — Dolores Acevedo-Garcia, Ph.D., MPA-URP is the Samuel F. and Rose B. Gingold Professor of Human Development and Social Policy, and Director of the Institute for Child, Youth and Family Policy at the Heller School for Social Policy and Management, Brandeis University. Her research focuses on the social determinants of racial/ethnic inequities in health; the role of social policies in reducing those inequities; and the health and wellbeing of children with special needs. She is Project Director for diversitydatakids.org, a comprehensive research program and indicator database on child wellbeing and opportunity by race/ethnicity across multiple sectors (e.g., education, health, neighborhoods) and geographies, funded by the W.K. Kellogg Foundation and the Robert Wood Johnson Foundation. Dr. Acevedo-Garcia is an investigator and member of the Steering Committee on the Housing and Children's Healthy Development Study funded by the National Institute of Child Health and Human Development, the U.S. Department of Housing and Urban Development, and the MacArthur Foundation. She was a member of the MacArthur Foundation Research Network on How Housing Matters for Families and Children (2009-2014). Her professional activities include invited presentations at the White House Open Opportunity

Project (2016), the National Conference on Housing Mobility (2015, 2012, 2010), the HUD/MacArthur Foundation "How Housing Matters" Conference (2011, 2012), and the White House conference on the Future of Rental Housing Policy (2010). She served on two national expert panels convened by the Centers for Disease Control (Housing and Health, and Social Determinants of Health), and on the expert panel for the award-winning PBS documentary series "Unnatural Causes: Is Inequality Making us Sick?" She is a member of the editorial board of the Journal of Health and Social Behavior, Social Problems, and Cityscape. Dr. Acevedo-Garcia received her B.A. in public administration from El Colegio de Mexico (Mexico City), and her MPA-URP and Ph.D. in Public Policy with a concentration in Demography from the Woodrow Wilson School of Public and International Affairs at Princeton University.

Thad W. Allen, USCG, Ret :

MEMBER — Adm. Thad W. Allen is a senior executive advisor at Booz Allen Hamilton Inc. He was formerly the executive vice president in the firm's Departments of Justice and Homeland Security business. Adm. Allen completed his distinguished career in the U.S. Coast Guard as its 23rd commandant. Prior to his assignment as commandant, he served as Coast Guard chief of staff. His other Coast Guard assignments include Atlantic Area commander and commander of the Coast Guard's Seventh District. In 2010, President Barack Obama selected him to serve as the national incident commander for the response to the Deepwater Horizon oil spill in the Gulf of Mexico. Admiral Allen is a fellow in the National Academy of Public Administration and a trustee of the Coast Guard Foundation. He is a graduate of the U.S. Coast Guard Academy. He holds an M.A. in public administration from George Washington University and an M.S. in management from the Massachusetts Institute of Technology's Sloan School of Management, and has been awarded several honorary doctorates.

Karen Dynan :

MEMBER — Karen Dynan, Ph.D. is a Professor of the Practice in the Department of Economics at Harvard University. She served as Assistant Secretary for Economic Policy and Chief Economist at the U.S. Department of the Treasury from 2014 to 2017, leading analysis of economic conditions and development of policies to address the nation's economic challenges. From 2009 to 2013, Dr. Dynan was Vice President and Co-director of the Economic Studies program at the Brookings Institution. Before that, she was on the staff of the Federal Reserve Board for 17 years, playing a leadership role in a number of areas, including macroeconomic forecasting, household finances, and the Fed's response to the financial crisis. Dr. Dynan also served

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Stakeholders (continued)

as a senior economist at the White House Council of Economic Advisers from 2003 to 2004 and as a visiting assistant professor at Johns Hopkins University in 1998. Dr. Dynan teaches in the Harvard Economics Department and at the Harvard Kennedy School; she is also currently a nonresident senior fellow at the Peterson Institute for International Economics. Dr. Dynan's research focuses on fiscal and other types of macroeconomic policy, consumer behavior, and household finances. She received her Ph.D. in economics from Harvard University and her A.B. from Brown University.

Edward H. Frank :

MEMBER — Edward H. Frank, Ph.D. is co-founder and CEO of Brilliant Lime and Cloud Parity, both social/mobile software firms. Previously, Frank was a vice president at Apple, Inc. and corporate vice president research and development at Broadcom. Prior to becoming Corporate VP of R&D, Dr. Frank co-founded and led the engineering group for Broadcom's Wireless LAN business, which is now one of Broadcom's largest business units. Dr. Frank joined Broadcom in May 1999 following its acquisition of Epigram, Inc., where he was the founding CEO and Executive Vice President. From 1993 to 1996, he was a co-founder and Vice President of Engineering of NeTpower Inc., a computer workstation manufacturer. From 1988 to 1993, Dr. Frank was a Distinguished Engineer at Sun Microsystems, Inc., where he co-architected several generations of Sun's SPARCstations and was a principal member of Sun's Green Project, which developed the precursor to the Java(tm) cross-platform web programming language. Dr. Frank holds over 40 issued patents. He is a University Life Trustee of Carnegie Mellon University and a member of its Board's Executive Committee. Dr. Frank received a B.S.E.E. and an M.S.E.E. from Stanford University and a Ph.D. in Computer Science from Carnegie Mellon University.

John R. Lumpkin :

MEMBER — John R. Lumpkin, M.D., M.P.H. is President of the Blue Cross and Blue Shield of North Carolina Foundation. He most recently served as Senior Vice President, Programs for the Robert Wood Johnson Foundation (RWJF) from 2003 to 2019. He is the former chairman of the board of directors of the Robert Wood Johnson University Hospital. In 1985, Dr. Lumpkin joined the Illinois Department of Public Health where he worked for more than 17 years, 12 of which he served as the department's first African-American director. Dr. Lumpkin is a member of the National Academy of Medicine and a fellow of the American Academy of Nursing, the American College of Emergency Physicians and the American College of Medical Informatics. He has been chairman of the National Committee on Vital and Health Statistics. Dr. Lumpkin has also served on the U.S. Department of Agriculture's Council on Maternal, Infant and Fetal Nutrition; the advisory committee to the director of the U.S. Centers for Disease Control and Prevention; and the National Institute of Medicine's Committee on Assuring the Health of the Public in the 21st Century. He has served on the boards of directors for the Public Health Foundation and National Quality Forum, as president of the Illinois College of Emergency Physicians and the Society of Teachers of Emergency Medicine, and as speaker of the board of directors of the American College of Emergency Physicians. Dr. Lumpkin earned his M.D. and B.M.S. degrees from Northwestern University Medical School and his M.P.H. from the University of Illinois School of Public Health. He was the first

African-American trained in emergency medicine in the country after completing his residency at the University of Chicago, and has served on the faculty of the University of Chicago, Northwestern University, and University of Illinois at Chicago.

Gary E. Machlis :

MEMBER — Gary E. Machlis, Ph.D. is University Professor of Environmental Sustainability at Clemson University, and served as Science Advisor to the Director, U.S. National Park Service (NPS) during both terms of the Obama administration. He was the first scientist appointed to this position within the NPS, and advised the director on a range of science policy issues and programs, as well as serving as the Science Integrity Officer for the agency. Dr. Machlis was co-Leader of the U.S. Department of the Interior's Strategic Sciences Group, which conducts scientific assessments during major environmental crises. He joined the Clemson faculty in 2013; he was on the faculty at the University of Idaho from 1979-2013. Dr. Machlis received his bachelor's and master's degrees from the University of Washington in Seattle, and his Ph.D. in human ecology from Yale University. He has written numerous books and scientific papers on issues of conservation, human ecology, and sustainability. His most recent books (co-authored) are *The Structure and Dynamics of Human Ecosystems* (2017), which received an award as an Academic Title of the Year from Choice, and *The Future of Conservation in America: A Chart for Rough Water* (2018). His research has been published in journals as varied as *Bioscience*, *Climatic Change*, *Conservation Biology*, *Society and Natural Resources*, and *Science*. Dr. Machlis is active in international conservation, and is a member of the IUCN's Commission on National Parks and Protected Areas. He worked in China in 1981 and again in 1986-87 and 2004 on the Giant Panda Project for the World Wildlife Fund, and has conducted research on conservation and sustainability issues in the Galápagos Islands, the national parks of Kenya, and in Eastern Europe. Most recently, he has helped advance environmental science and sustainability collaborations between the U.S. and Cuba. As co-leader of the Strategic Sciences Group, Dr. Machlis led the Group's response and assessment related to the Deepwater Horizon oil spill and Hurricane Sandy. He also led the AAAS project to rebuild science capacity in Haiti after its devastating earthquake. In 2010, Dr. Machlis was elected a Fellow of the American Association for the Advancement of Science.

Janet Napolitano :

MEMBER — Janet Napolitano was the 20th president of the University of California from 2013 to 2020, and the first woman to serve in this role. She led a university system of 10 campuses, five medical centers, three affiliated national laboratories, and a statewide agriculture and natural resources program. The UC system has more than 285,000 students, 227,000 faculty and staff, an operating budget of \$39.8 billion, and two million living alumni. A distinguished public servant, Napolitano served as the U.S. Secretary of Homeland Security from 2009 to 2013, as governor of Arizona from 2003 to 2009, as attorney general of Arizona from 1998 to 2003, and as U.S. attorney for the District of Arizona from 1993 to 1997. She was elected to the American Academy of Arts and Sciences in 2015.

Audrey Thevenon :
STAFF OFFICER

Vision

Resilient response and recovery from crises

Mission

To inform decision-making critical to planning for crisis response and recovery across U.S. society

Values

Planning

Decision Making

Resilience

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1. Concerns & Opportunities

Identify and prioritize categories of concerns and opportunities for improvement related to the COVID-19 pandemic

In this novel approach called the Response and Resilient Recovery Strategic Science Initiative (R3SSI), NASEM will convene an Executive Council of leaders from government, business, academia, and other communities who will identify major categories of concerns and opportunities for improvement related to the COVID-19 pandemic and its collateral effects and will prioritize among them. The concerns and opportunities may relate to issues such as the vulnerability in the food production sector due to illness among workers, financial viability of hospitals and the healthcare system, differential efficacy of vaccines when they become available, or childcare and K-12 education, just to name a few examples.

1.1. Food

Consider the vulnerability in the food production sector due to illness among workers

Stakeholder(s):

Food Production Sector

1.2. Healthcare

Consider the financial viability of hospitals and the healthcare system

Stakeholder(s):

Hospitals

Healthcare System

1.3. Vaccines

Consider the differential efficacy of vaccines when they become available

1.4. Childcare & Education

Consider childcare and K-12 education

Stakeholder(s):

Children

K-12 Schools

2. Strategies

Identify strategies for prioritized opportunities

NASEM will establish Response and Resilient Recovery Strategy Groups (the Strategy Groups) that will consider the prioritized opportunities from the Executive Council and conduct rapid, scenario-based analyses of both possible and probable outcomes, including the impacts of natural and human-initiated stressors and possible interventions. The goal of the scenarios will be to identify resilient strategies that can provide roadmaps for recognizing vulnerabilities with approximate levels of scientific uncertainty, and identifying potential interventions.

2.1. Groups

Establish Response and Resilient Recovery Strategy Groups

Stakeholder(s):

Response and Resilient Recovery Strategy

Groups :

The Strategy Groups will include sector-based leaders and experts to better define the challenges,

scenarios, data available, key actors, and required resources.

2.2. Questions & Scenarios

Develop conceptual frameworks to address the questions and scenarios

The Strategy Groups will develop a conceptual framework for addressing the question or scenario, including a set of initial conditions, input variables, and process assumptions to be explored in the scenarios, as well as indicators for estimating potential outcomes.

2.2.1. Variables

Consider the variables that could impact the scenarios

They will consider the variables that could impact the scenarios including various scientific, commercial, educational, environmental, transportation, health, and other entities in the future.

2.2.2. Societal Responses

Include societal responses

They will also include societal responses such as following social distancing guidelines or accepting a new vaccine.

2.2.3. Consequences

Determine potential chains of consequences

The Strategy Groups will determine potential chains of consequences based on potential pandemic scenarios of various probability (e.g., timeline of vaccine availability, mutation of the virus to be more or less virulent or transmissible), which can be revised as new information is obtained.

2.3. SMEs

Enlist subject-matter experts

Each Strategy Group will also be able to enlist subject-matter experts on a flexible basis to support the specific needs of the question or scenarios under examination.

Stakeholder(s):

Subject-Matter Experts

2.4. Pilot

Work out more granular aspects of the approach by piloting a question or topic

The first Strategy Group to be appointed will begin with a pilot question or topic, during which some of the more granular aspects of the approach are worked out and insight is gained into the overall initiative structure and implementation.

2.5. Revision & Refinement

Revise and refine the process and approach based on the experience of the pilot scenario

The Executive Council will revise and refine the process and approach based on the experience of this pilot scenario.

2.6. Dissemination

Disseminate the analyses in timely manner

The analyses will be made available in timely manner. These analyses will be directly disseminated through national associations and other organizations directly relevant to the scenarios and to the communities they affect in order to inform future preparation, response, and recovery decisions.

Stakeholder(s):

National Associations

Affected Communities

Administrative Information

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End Date:

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