



Leadership Innovation Impact



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The most urgent challenges for human health are also the most complex. Confronting existential threats like pandemics, climate change, and global systemic inequities requires coordination and collaboration across institutional, disciplinary, political, and national borders.

At the National Academy of Medicine, our mission compels us to embrace such complexity. For over 50 years, our commitment to independence and the scientific process has enabled us to build bridges where others see boundaries.

In 2021, the NAM sustained a relentless response to the COVID-19 pandemic (see pages 6-7), which has now claimed over 1 million lives in the United States and many millions more worldwide. We developed a vision for a more responsive and resilient national health system and advised U.S. government and multilateral organizations on pandemic prevention, preparedness, and response.

We have also sharpened our focus on climate change and its impact on human health and equity. In September 2021, as part of our Grand Challenge on Climate Change, Human Health, and Equity, the NAM launched an Action Collaborative on Decarbonizing the U.S. Health Sector (see page 16). The Action Collaborative has already yielded decarbonization commitments from more than 50 health care organizations.

Equity is at the center of our response to COVID-19 and climate change – as it must be in any solution to improve health. The NAM is committed to identifying and confronting the systemic barriers that result in disproportionately poorer health outcomes for certain groups, particularly racial and ethnic minority populations. As the anchor for its second phase, our Culture of Health Program has adopted a focus on understanding and communicating about the health impacts of structural racism (see page 9).

These are just a few highlights from an eventful year. In the pages that follow, you will read about our ongoing efforts to address the U.S. opioid epidemic, extend the healthspan worldwide, develop a framework to govern emerging science and technology, and more.

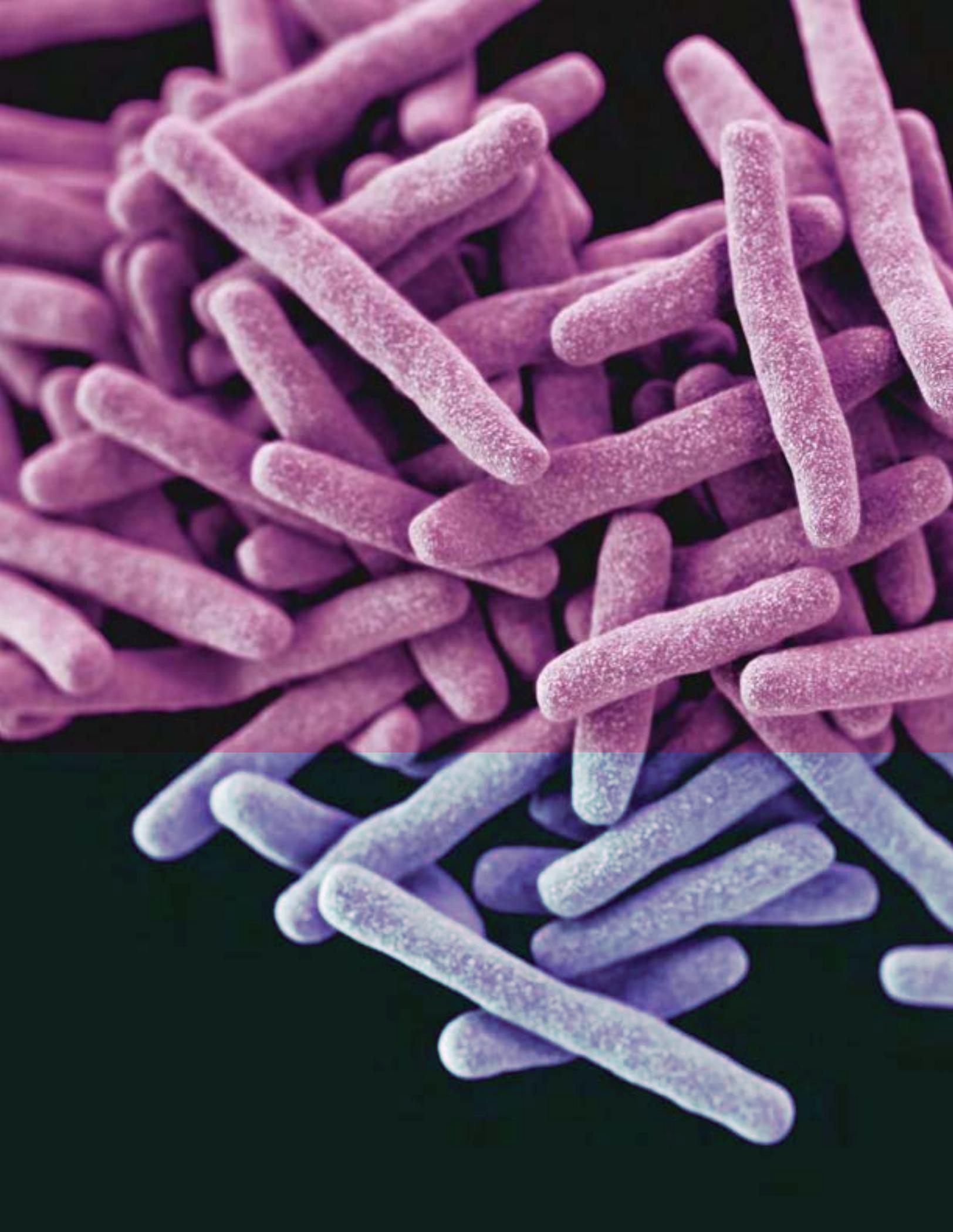
Our work would not be possible without the generosity, energy, and unparalleled expertise of the NAM's donors, members, volunteers, and staff. I am grateful for the committed and courageous individuals and organizations who are building, step by step, a healthier future for everyone.

VICTOR J. DZAU, MD

President, National Academy of Medicine

May 2022







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National Academy of Medicine

2022-2023 Council

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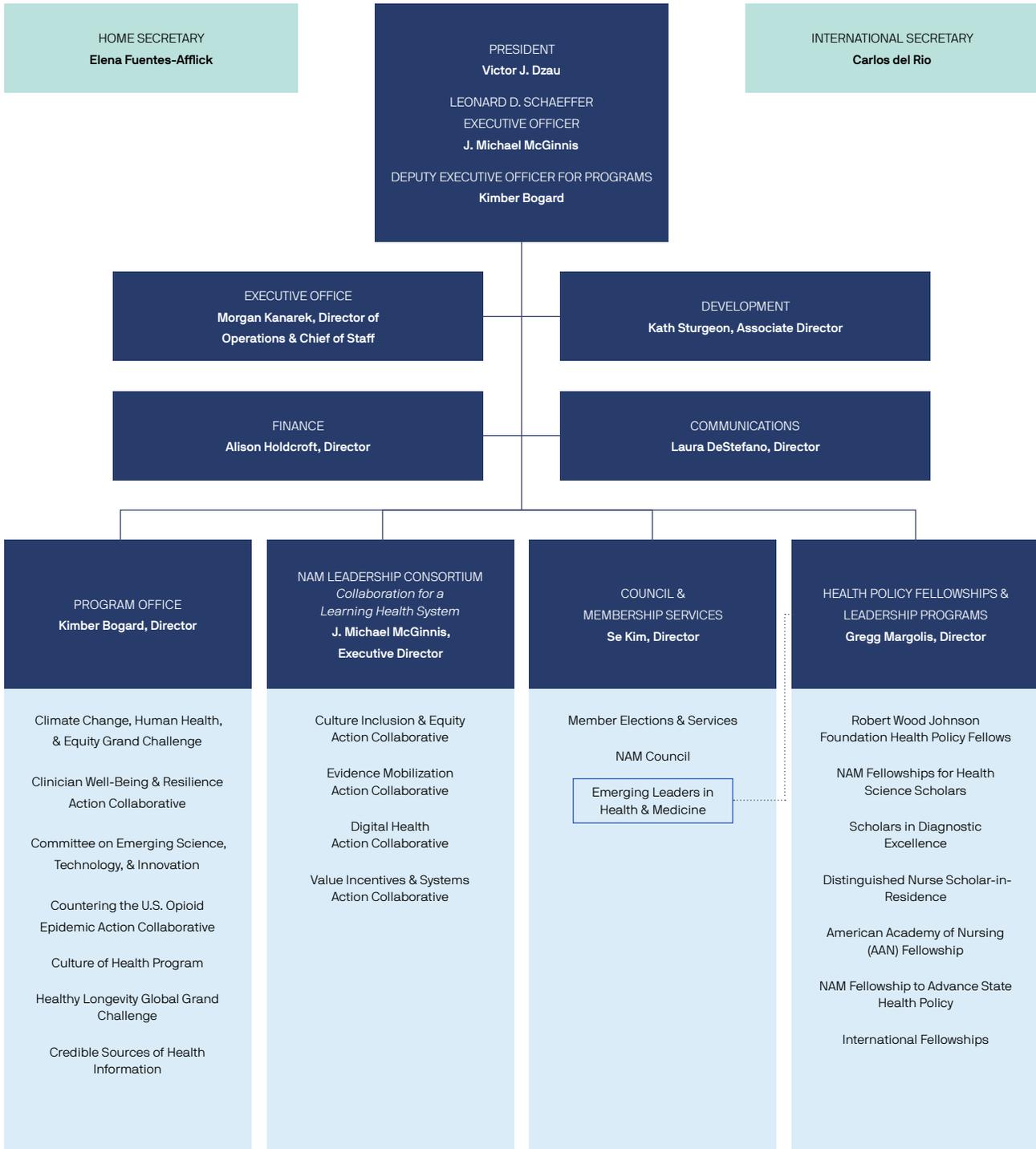
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Harvard Medical School
Brigham and Women's Hospital

HUDA Y. ZOGHBI, MD

Jan and Dan Duncan Neurological Research Institute
Baylor College of Medicine

National Academy of Medicine

Organizational Chart







Program Highlights

Responding to Pressing Issues

Advising on U.S. & Global Health & Science Policy

Tackling Grand Challenges & Advancing Bold Ideas

Responding to Pressing Issues



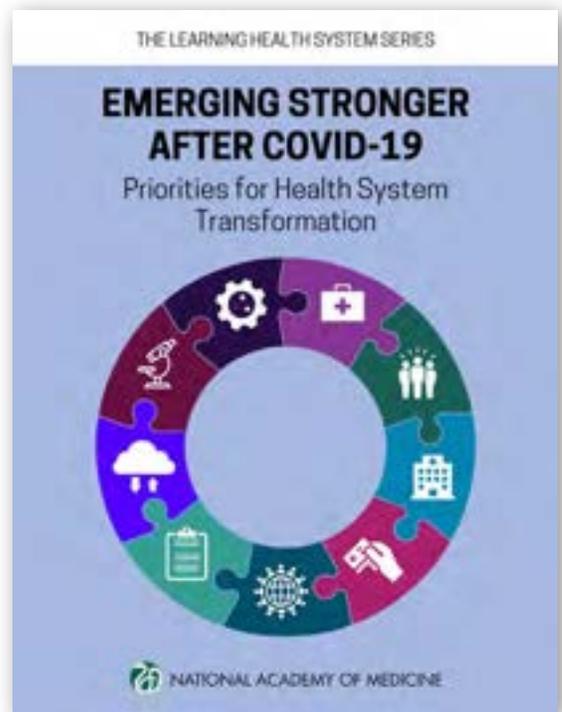
The COVID-19 Pandemic

Despite unprecedented global collaboration, scientific innovation, and the dedication of the health workforce, COVID-19 remains a serious and evolving threat. The NAM has been active in addressing many of the complex challenges of the pandemic, including crisis standards of care, vaccine allocation, equity in vaccination and treatment, and more.

The NAM Leadership Consortium: Collaboration for a Learning Health System produced a series of comprehensive assessments titled *Emerging Stronger From COVID-19: Priorities for Health System Transformation* that provide a sector-by-sector review of the health system's response to COVID-19, including priorities for transformation that build on lessons learned after the pandemic. COVID-19 Conversations, the NAM's scientific webinar series in partnership with the American Public Health Association, has hosted 22 events since its launch in April 2020.



Black and African American members of the NAM, led by Georges Benjamin and Thomas LaVeist, authored an op-ed in the *New York Times* urging Black Americans to receive their COVID-19 vaccine. This op-ed was followed by a powerful video that has been viewed nearly 250,000 times. Hispanic/Latino/Latina/Latinx members of the NAM, led by Claire Brindis, Carlos del Rio, and Elena Fuentes-Afflick, produced a similar video, available in both English and Spanish, that encourages members of the Hispanic/Latino/Latina/Latinx community to accept the COVID-19 vaccine because “we have the power to end this pandemic – together.”





Clinician Well-Being

As health care workers and clinicians across the world continue to experience a burnout epidemic that has only been heightened by COVID-19, the NAM Action Collaborative on Clinician Well-Being and Resilience worked diligently to address the crisis, announced the extension of its work for another 2 years, and welcomed U.S. Surgeon General Vivek Murthy to the group as co-chair. The Action Collaborative will release a National Plan for Clinician Well-Being in June 2022.

The U.S. Opioid Epidemic

COVID-19 has exacerbated the ongoing opioid epidemic in the United States, with a record-breaking number of 100,000 deaths due to drug overdose between April 2020 and April 2021. The NAM Action Collaborative on Countering the U.S. Opioid Epidemic extended its work for an additional 2 years, and Admiral Rachel Levine, U.S. Assistant Secretary for Health, signed on as co-chair.

Structural Racism & Health Inequity

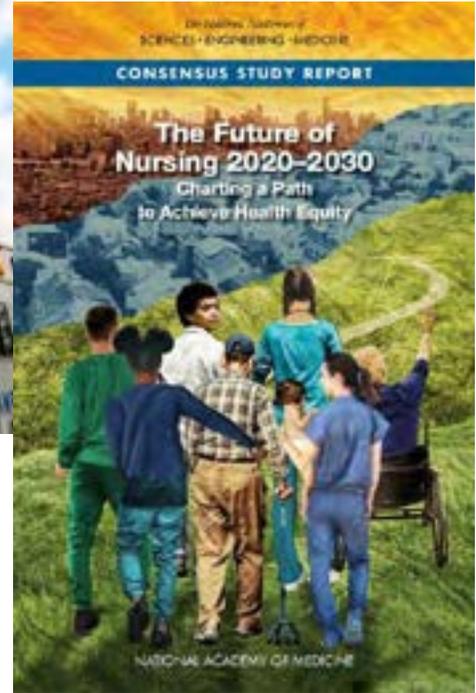
The COVID-19 pandemic has also led to disproportionately poor health outcomes in communities of color. To directly address these disparities, the Culture of Health Program is addressing structural racism as the root cause of health inequities. The program has been renewed through 2024 and is developing its priorities and perspectives informed by community listening workshops.

Health Misinformation

To address an “infodemic” of health misinformation online that threatens the success of public health efforts, an NAM advisory group led by NAM members Raynard Kington, Susan Curry, and Antonia Villarruel published principles and criteria to guide the identification of credible sources of health information online. As a result, YouTube, which provided funding for the project, began labeling certain videos with a reference to the NAM work. The principles and criteria were validated for international application by the World Health Organization, and in early 2022 the NAM and WHO issued a joint call for digital platforms to apply the guidance across their channels.



Advising on U.S. & Global Health & Science Policy



U.S. Health System Transformation

The NAM Leadership Consortium continues to foster progress toward a more effective, efficient, and equitable health care system through the efforts of its Action Collaboratives on evidence mobilization; digital health; value incentives & systems; and culture, inclusion, & equity. Together, the Action Collaboratives have informed a pressing set of research needs for the next decade, developed priorities for state & local governments to implement value-based care, assessed meaningful measures of community-based health interventions, and illustrated innovative approaches to safely and effectively sharing health data.

In January 2021, the NAM partnered with *Health Affairs* to publish *Vital Directions for Health and Health Care: Priorities for 2021*, a collection of articles that set forth health and health care priorities for the Biden-Harris administration. The NAM also formed special working groups, composed of NAM members and other leading experts, to advise the Office of Science and Technology Policy on several important areas including evolving and urgent priorities in science, medicine and public health; and the American Pandemic Preparedness Plan.

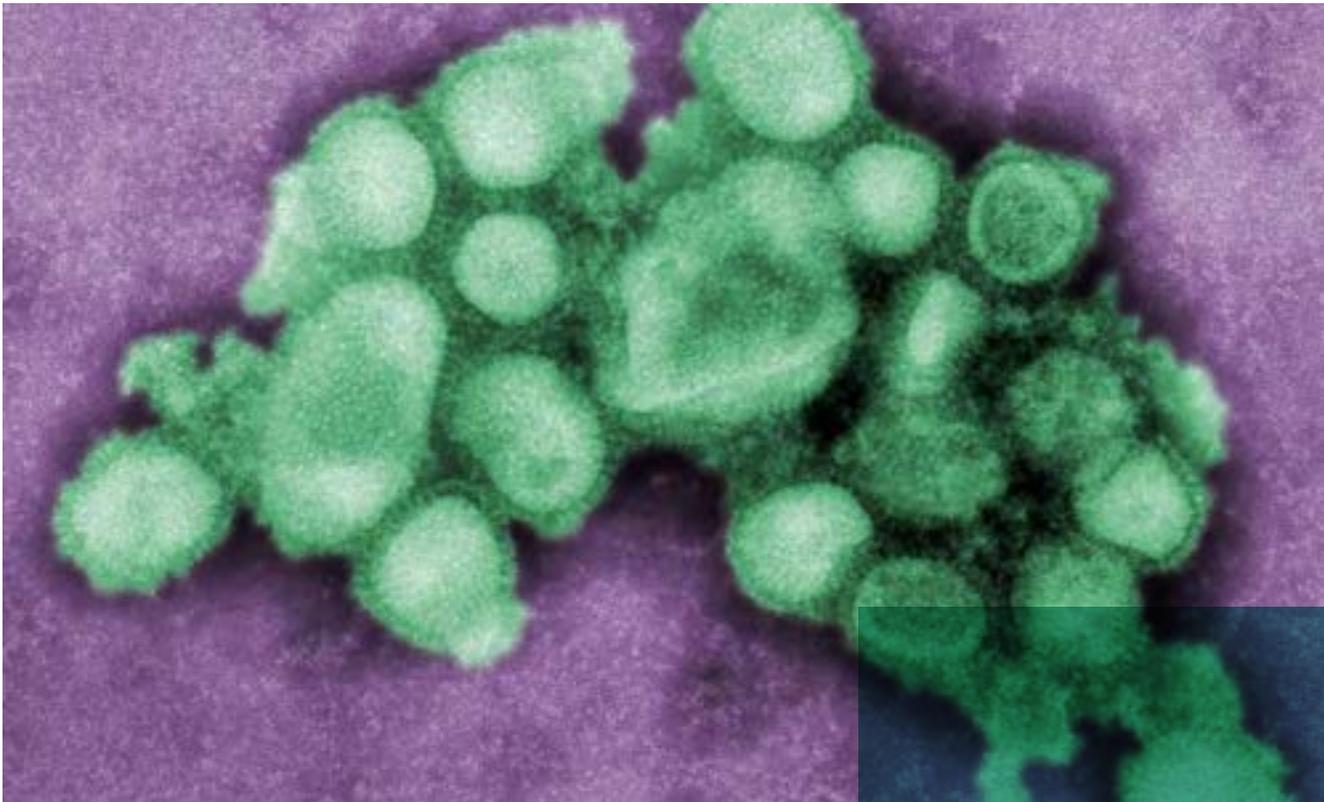
In May 2021, the NAM published *The Future of Nursing 2020-2030: Charting a Path to Achieve Health Equity*. The report explored how nurses can work to reduce health disparities and promote equity, while keeping costs at bay, utilizing technology, and maintaining patient and family-focused care into 2030. This Robert Wood Johnson Foundation–sponsored report built on the foundation set out by *The Future of Nursing: Leading Change, Advancing Health* in 2011.

Emerging Science, Technology, & Innovation in Health and Medicine

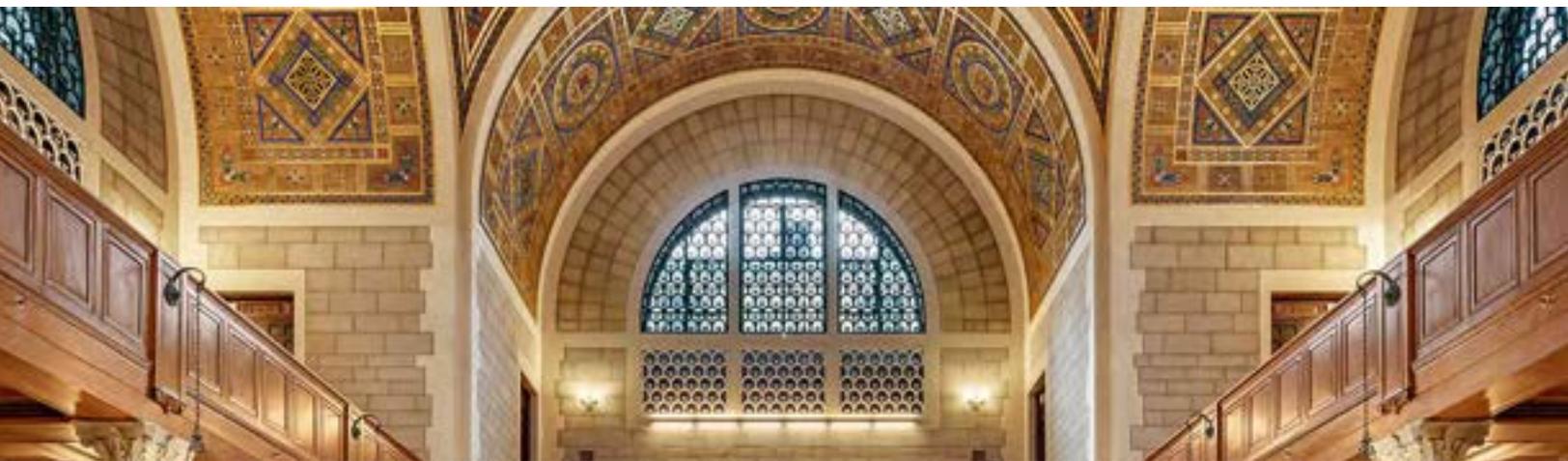
The NAM Committee on Emerging Science, Technology, and Innovation completed its work to develop case studies, visioning, and principles and values that can help guide analysis of the implications of emerging technologies and drafted a cross-sectoral governance framework. In early 2022, the NAM launched a consensus study to build on the work of the committee, due for publication in mid-2023.

Influenza Vaccine Preparedness & Response

The NAM's Advancing Pandemic and Seasonal Influenza Vaccine Preparedness and Response Initiative, funded by the Office of Global Affairs at the U.S. Department of Health and Human Services, developed four consensus studies to explore how the scientific and technical breakthroughs from the COVID-19 pandemic could advance pandemic and seasonal influenza preparedness and response. Written by independent committees comprised of international experts, these reports highlighted why the global community needs to act immediately, comprehensively, and strategically to mitigate future threats from seasonal and pandemic influenza.



Tackling Grand Challenges & Advancing Bold Ideas



Healthy Longevity

As part of the NAM's Healthy Longevity Global Grand Challenge, the Healthy Longevity Global Competition has partnered with 10 international collaborator organizations representing over 50 countries and territories. The first two rounds of competition received over 2,500 applications and distributed 299 Catalyst Awards for breakthrough ideas with the potential to extend the human healthspan. Catalyst awardees came together to learn, connect, get inspired, and celebrate at the first-ever Healthy Longevity Innovator Summit in September 2021.

In June 2022, the NAM published the *Global Roadmap for Healthy Longevity*, an international, multidisciplinary assessment of the challenges and opportunities presented by global population aging. Worldwide implementation events will be hosted throughout 2022, and the NAM will produce tools for community-level application of findings and conclusions.

Climate Change, Human Health, & Equity

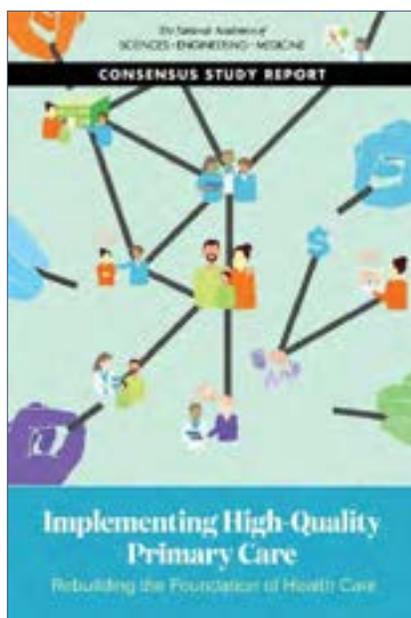
In 2021, the NAM launched its second grand challenge: the Grand Challenge on Climate Change, Human Health, and Equity, which is actively working to communicate the climate crisis as a public health and equity crisis; develop a roadmap for systems transformation; decarbonize the health sector and ensure its resilience; and accelerate research and innovation at the intersection of climate, health, and equity.

As part of the grand challenge, the NAM launched an Action Collaborative on Decarbonizing the U.S. Health Sector, a public-private partnership of leaders from across the health system committed to addressing the sector's environmental impact while strengthening its sustainability and resilience.

A vertical strip on the left side of the page shows several white microcentrifuge tubes or wells. Each well contains a dark liquid with numerous small, brightly colored spots in shades of blue, purple, and red, likely representing fluorescently labeled cells or particles under a microscope. The background of the entire page is a solid teal color.

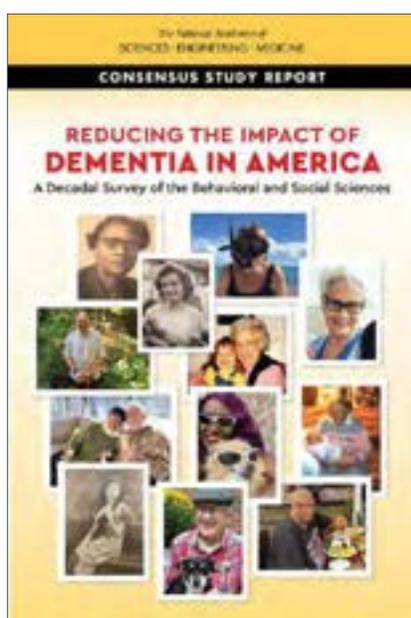
Featured Consensus Reports

Featured Consensus Reports from the National Academies of Sciences, Engineering, and Medicine



Implementing High-Quality Primary Care: Rebuilding the Foundation of Health Care

High-quality primary care is the foundation of the health care system. Unequal access remains a concern, and the COVID-19 pandemic amplified pervasive economic, mental health, and social health disparities that ubiquitous, high-quality primary care might have reduced. Primary care is the only health care component where an increased supply is associated with better population health and more equitable outcomes. For this reason, primary care is a common good, which makes the strength and quality of the country's primary care services a public concern. This report put forth an evidence-based plan with actionable objectives and recommendations for implementing high-quality primary care in the United States.

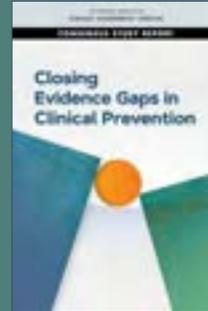


Reducing the Impact of Dementia in America

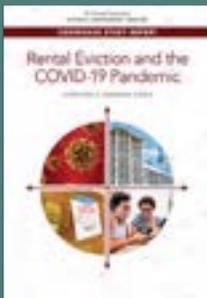
By one estimate, nearly 14 million people in the United States will be living with dementia by 2060. Those who live with and care for individuals experiencing these diseases face challenges that include physical and emotional stress, difficult changes and losses in their relationships with life partners, loss of income, and interrupted connections to other activities and friends. From a societal perspective, these diseases place substantial demands on communities and on the institutions and government entities that support people living with dementia and their families, including the health care system, the providers of direct care, and others. This report assessed the contributions of research in the social and behavioral sciences and identified a research agenda for the coming decade.



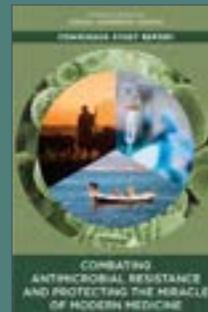
Building Resilience into the Nation's Medical Product Supply Chains examined the root causes of medical product shortages and identified ways to enhance their resilience, including during public health emergencies.



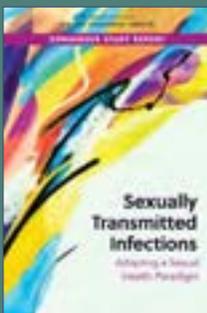
Closing Evidence Gaps in Clinical Prevention presented a taxonomy of evidence gaps in clinical prevention recommendations.



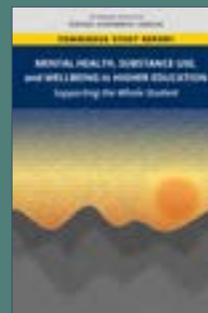
Rental Eviction and the COVID-19 Pandemic: Averting a Looming Crisis recommended actions to be taken both urgently and over the next three years aimed at addressing the immediate crisis as well as long-standing needs related to housing choice, affordability, and security across the United States.



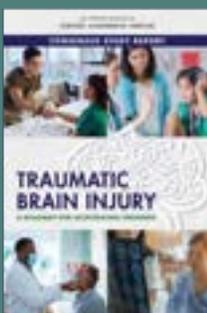
Combating Antimicrobial Resistance and Protecting the Miracle of Modern Medicine discussed ways to improve detection of resistant infections in the United States and abroad, including monitoring environmental reservoirs of resistance.



Sexually Transmitted Infections: Adopting a Sexual Health Paradigm reviewed the current state of STIs in the United States and provided advice on future public health programs, policy, and research.



Mental Health, Substance Use, and Wellbeing in Higher Education: Serving the Whole Student laid out a variety of possible strategies and approaches to meet increasing demand for mental health and substance use services.



Traumatic Brain Injury: A Roadmap for Accelerating Progress called not merely for improvement, but for a transformation of attitudes, understanding, investments, and care systems for TBI.



Call to Action for Science Education: Building Opportunity for the Future articulated a vision for high-quality science education, described gaps in opportunity for many students, and outlined key priorities to advance better, more equitable science education across grades K-16.

Member Highlights

Members Elected in 2021

2021 Nobel Prize in Physiology or Medicine

In Memoriam



Members Elected in 2021

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Washington University School of Medicine

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National Institutes of Health

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University of Texas Medical Branch, Galveston

PABLO A. CELNIK, MD

Johns Hopkins University School of Medicine, Johns Hopkins Hospital and Johns Hopkins Medicine

DAVID CLAPHAM, MD, PHD,

Howard Hughes Medical Institute, HHMI Janelia Research Campus and Harvard Medical School

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PAUL GINSBURG, PHD

University of Southern California and Brookings Institution

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Harvard Medical School and Harvard University

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Vaccine Dynamics and U.S. Army

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Massachusetts Institute of Technology

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Johns Hopkins University and Howard Hughes Medical Institute

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Stanford University

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Harvard Medical School and Harvard Stem Cell Institute

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Weill Cornell Medicine

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Skoll Foundation

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Stanford University Medical Center

VAMSI K. MOOTHA, MD

Harvard Medical School, Massachusetts General Hospital, Howard Hughes Medical Institute and Broad Institute

LENNART MUCKE, MD

Gladstone Institutes and University of California, San Francisco

VIVEK HALLEGERE MURTHY, MD, MBA

U.S. Department of Health and Human Services

JANE WIMPFHEIMER NEWBURGER, MD, MPH

Harvard Medical School and Boston Children's Hospital

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Stanford University

CHARLES M. RICE, PHD

Rockefeller University

MARYLYN D. RITCHIE, PHD, FACMI

Center for Translational Bioinformatics, University of Pennsylvania Perelman School of Medicine

YVETTE D. ROUBIDEAUX, MD, MPH

National Congress of American Indians

ERIC J. RUBIN, MD, PHD

New England Journal of Medicine

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Mass General Brigham and Harvard Medical School

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Northwestern University Feinberg School of Medicine

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SARAH A. TISHKOFF, PHD

University of Pennsylvania Perelman School of Medicine

PETER TONTONNOZ, MD, PHD

David Geffen School of Medicine, University of California, Los Angeles

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GILBERT RIVERS UPCHURCH JR., MD

University of Florida College of Medicine

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Johns Hopkins Bloomberg School of Public Health

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Johns Hopkins University School of Medicine

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Bill & Melinda Gates Foundation

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National Institutes of Health

FENG ZHANG, PHD

Massachusetts Institute of Technology

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University of Ghana School of Public Health

HILARY O.D. CRITCHLEY, MBCHB, MD, FRCOG, FMEDSCI, FRSE

University of Edinburgh

JENNIFER LEIGH GARDY, PHD

Bill & Melinda Gates Foundation

TEDROS ADHANOM GHEBREYESUS, PHD, MSC

World Health Organization

TRICIA GREENHALGH, OBE, MA, MD, PHD, MBA, FMEDSCI, FRCP, FRCGP, FFPH, FFCI, FHEA

University of Oxford

EDITH HEARD, FRS

Collège de France

MATSHIDISO MOETI, MD, MSC

World Health Organization

JOHN-ARNE ROTTINGEN, MD, PHD

Norwegian Ministry of Foreign Affairs

SAMBA OUSEMANE SOW, MD, MSC, FASTMH

Centre pour les Vaccins en Développement, Mali

GUSTAVO TURECKI, MD, PHD, FRSC

McGill University, Douglas Institute

2021 Nobel Prize in Physiology or Medicine



Photo of David Julius by Steve Babuljak, UCSF

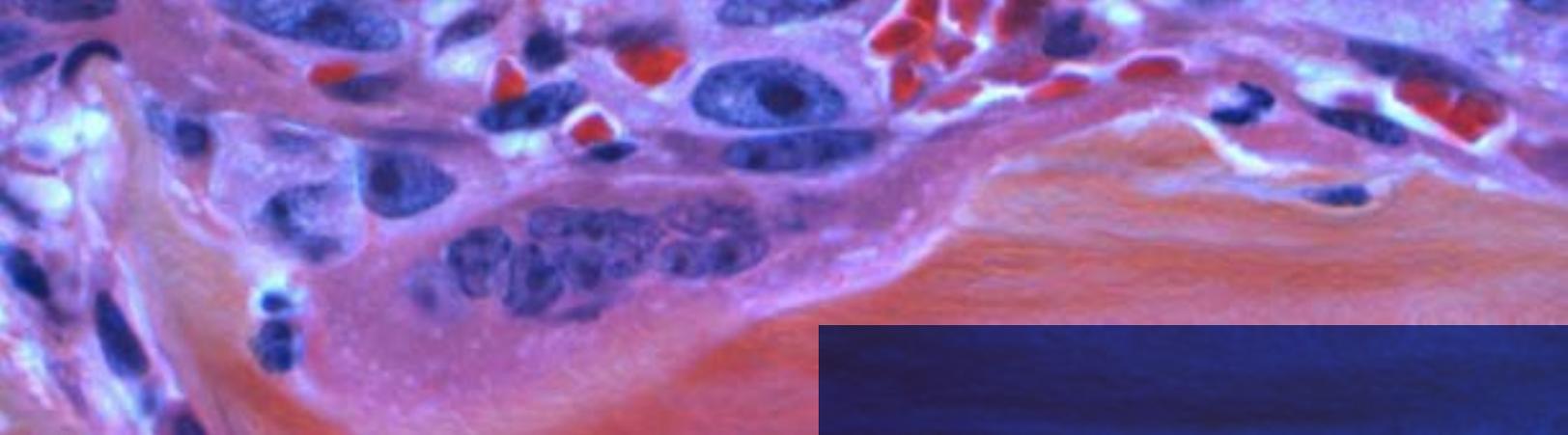
The 2021 Nobel Prize in Physiology or Medicine was awarded jointly to David Julius and Ardem Patapoutian for their discoveries of receptors for temperature and touch. Julius is a dual member of the NAM and the National Academy of Sciences (NAS), and Patapoutian is a member of the NAS.

The two laureates explained how heat, cold, and touch can initiate signals in the nervous system. The identified ion channels are important for many physiological processes and disease conditions. Intensive ongoing research includes discoveries focused on elucidating their functions in a variety of physiological processes. This knowledge is being used to develop treatments for a range of disease conditions, including chronic pain.

In Memoriam

The NAM honors members who passed away between January 1, 2021, and May 1, 2022.

DANIEL L. AZARNOFF, MD	CHARLES A. "SCOTTY" MCCALLUM, DMD, MD
ALBERT BANDURA, PHD	HUGH MCDEVITT, MD
JOHN G. BARTLETT, MD	MORTIMER MISHKIN, PHD
JOSÉ BASELGA, MD, PHD	DUNCAN V. B. NEUHAUSER, PHD
AARON T. BECK, MD	ARTHUR W. NIENHUIS, MD
ROBERT L. BRENT, MD, PHD	SIR MICHAEL PECKHAM, MD
C. THOMAS CASKEY, MD, FACP	WILLIAM C. RICHARDSON, PHD
PURNELL W. CHOPPIN, MD	MICHAEL L. RUTTER, MD
ERNEST G. CRAVALHO, PHD	ROBERT W. SCHRIER, MD
THOMAS S. EDGINGTON, MD	J. SANFORD SCHWARTZ, MD
RICHARD R. ERNST, PHD	ELEANOR BERNERT SHELDON, PHD
PAUL E. FARMER, MD, PHD	ZENA A. STEIN, MB, BCH
KRISTINE GEBBIE, BSN, RN, MN, DRPH	JOHN Q. TROJANOWSKI, MD, PHD
CHARLES B. HAMMOND, MD	THOMAS A. WALDMANN, MD
BIRT HARVEY, MD	STEPHEN T. WARREN, PHD
ALBERT R. JONSEN, PHD	PAUL C. WEILER, LLB
JEROME KAGAN, PHD	JEAN D. WILSON, MD
HAIG H. KAZAZIAN, JR., MD	GERALD N. WOGAN, PHD
CHARLES R. KLEEMAN, MD	TADATAKA YAMADA, MD
DAVID M. LIVINGSTON, MD	LAURENCE R. YOUNG, SCD
BERNARD LOWN, MD	WARREN M. ZAPOL, MD



Awards

NAM Member Awards

Gustav O. Lienhard Award for
Advancement of Health Care

Rhoda and Bernard Sarnat International
Prize in Mental Health

David and Beatrix Hamburg Award for
Advances in Biomedical Research and
Clinical Medicine

Cecil Awards

NAM Member Awards

In 2021, the NAM honored two members for their outstanding service — **Christine Cassel**, visiting professor at the University of California, San Francisco; and **Mary Wakefield**, visiting distinguished professor at Georgetown University and distinguished fellow at the University of Texas at Austin.

Cassel received the **Walsh McDermott Medal**, which is awarded to a member for distinguished service to the National Academies of Sciences, Engineering, and Medicine over an extended period. She has contributed her expertise in quality of care, aging and geriatric medicine, medical ethics, and clinical education to foundational reports that have had lasting impacts on care delivery, including *To Err Is Human*, *Crossing the Quality Chasm*, and *Improving Diagnosis in Health Care*. Since 1995, she has served on 23 committees and boards, including as chair, co-chair, or vice chair for five of them.

Wakefield was awarded the **David Rall Medal**, which is given to a member who has demonstrated distinguished leadership as chair of a study committee or other activity, showing a commitment that substantially exceeds the usual expectations for that role. An NAM member since 2004, Wakefield is a leader in nursing, health policy, and health care delivery. She has chaired four consensus study committees, has been a member of three others, and has served on several boards and roundtables of the National Academies. Notably, Wakefield chaired the committee that wrote the *Future of Nursing 2020-2030* report, which began in 2019 and extended its work through 2021 to consider the COVID-19 pandemic and its implications for the nursing profession.



Christine Cassel



Mary Wakefield

Gustav O. Lienhard Award for Advancement of Health Care



Risa Lavizzo-Mourey

Risa Lavizzo-Mourey received the 2021 **Gustav O. Lienhard Award for Advancement of Health Care** for her unwavering efforts to improve the health of all Americans by expanding health care coverage, addressing childhood obesity, and creating a vision for a “Culture of Health” in the United States. The award, which recognized Lavizzo-Mourey’s achievements with a medal and \$40,000, was presented at the NAM’s annual meeting in October. Lavizzo-Mourey is the Robert Wood Johnson Foundation Population Health and Health Equity Professor Emerita at the University of Pennsylvania and former president and CEO of the Robert Wood Johnson Foundation (RWJF).

During her nearly 15-year tenure leading RWJF, Lavizzo-Mourey championed bold health initiatives such as reducing the number of uninsured Americans, improving the quality of health care in outpatient settings, identifying local strategies to build healthier, more equitable communities, and ensuring every child in the U.S. has the opportunity to grow up at a healthy weight. These intensive efforts, which integrated health, health care, and social determinants of health, culminated in RWJF’s vision to build a “Culture of Health” to enable everyone in the U.S. to live longer, healthier lives.

Throughout her career, Lavizzo-Mourey sought to empower leaders in health care, which included committing to elevating the role of nurses as well as developing new generations of nurse leaders. Through action coalitions in every state and Washington, DC, she championed a campaign targeting policymakers, health care professionals, educators, and business leaders to respond to the country’s increasing demand for safe, high-quality, and effective health care. In recognition of this work, she received an honorary fellowship from the American Academy of Nursing. Since returning to University of Pennsylvania in 2018, she has focused on expanding leadership opportunities for underrepresented groups and worked to meet the challenges presented by COVID-19 and calls for racial justice.

Rhoda and Bernard Sarnat International Prize in Mental Health

Spero M. Manson received the 2021 **Rhoda and Bernard Sarnat International Prize in Mental Health** in recognition of his 43-year career dedicated to improving the mental health of American Indians and Alaska Natives — and bringing a culturally informed lens to the assessment, epidemiology, treatment, and prevention of mental health conditions. The award, which recognized Manson’s achievements with a medal and \$20,000, was presented at the NAM’s annual meeting in October. Manson, Pembina Chippewa, is a distinguished professor of public health and psychiatry and the Colorado Trust Chair in American Indian Health at the University of Colorado’s School of Public Health.



Spero M. Manson

As the founder of the Centers for American Indian and Alaska Native Health, Manson pursues research, education, program development, training, and collaboration with 250 Native communities, spanning rural, reservation, urban, and village settings. In this role, he has worked to improve access to and delivery of mental health services, inform policy change for Native veterans, and mentor younger generations of American Indian and Alaska Native scientists.

Mental health conditions, including post-traumatic stress disorder, depression, and alcohol and substance abuse, are highly stigmatized among American Indian and Alaska Native people. Discriminatory public policies, generational trauma, and Western treatment models have also affected the quality and outcomes of mental health care. Throughout his career, Manson has sought to redress these historical inequities and incorporate Native experience, culture, and traditions in his research.

David and Beatrix Hamburg Award for Advances in Biomedical Research and Clinical Medicine



In 2021, the NAM announced the creation of a new award to recognize creative and accomplished biomedical scientists who are advancing health and the human condition around the world. Named for David Hamburg, who was president of the Institute of Medicine from 1975-1980, and Beatrix Hamburg, an NAM member and expert in child and adolescent behavioral health, the award will be presented annually and includes a medal and \$50,000. The award will be funded by an endowment that was established in 2004 in honor of the Hamburgs' life and legacy. The award opened for its first round of applications in January 2022, and the first awardee will be named at the NAM's annual meeting in October.

The award will honor an exceptional biomedical research discovery, translation, or public health intervention by one or more scientists that has fundamentally enriched the understanding of biology

and disease, leading to a significant improvement in human health and social well-being and reduction in global health inequities.

"David and Beatrix Hamburg have contributed so much to the legacy of the Institute of Medicine and the NAM," said Victor J. Dzau, NAM president, in a press release. "It is truly fitting that their lifelong dedication to scientific excellence, collaboration, and interdisciplinary research and discovery will be honored with this award. The NAM is proud to add this award to the prizes we bestow every year."

Cecil Awards

The Cecil Awards recognize staff from throughout the National Academies who have demonstrated superb skill and commitment in furthering the mission of the NAM: to improve health for all by advancing science, accelerating health equity, and providing independent, authoritative, and trusted advice nationally and globally.

The following individuals were chosen for the 2021 Cecil Awards by a committee composed of NAM members and staff representatives from across the National Academies:

Sandra H. Matthews Cecil Award for Administrative Excellence

Stacey Smit, Program Coordinator, Division of Behavioral and Social Sciences and Education

*The NAM remembers **Sandra H. Matthews**, a beloved colleague and friend, on the occasion of her passing on February 16, 2022. Mrs. Matthews supported three presidents throughout her tenure at the Institute of Medicine, in addition to contributing her guidance and wisdom to many other projects, including the National Academies' African American Histories Program. She is the only staff member to have an award issued in her honor.*



Sandra H. Matthews

Cecil Award for Individual Excellence

Katie Bowman, Senior Program Officer, Health and Medicine Division

Cecil Award for Excellence of a Group/Team

Lisa Brown, Ben Kahn, Rebecca Chevat, Emma Fine, Aurelia Attal-Juncqua, Andy Pope, Rose Marie Martinez, Elizabeth Finkelman, and Laura DeStefano, the Health and Medicine Division and NAM study team for *Framework for Equitable Allocation of COVID-19 Vaccine*

*In 2021, the NAM also conferred a Special Cecil Award to **Clyde Behney** for 40 years of unparalleled service leading and shaping the nation's ability to receive expert and unbiased advice on scientific and technical matters of particular priority and potential in advancing the human condition upon his retirement as Executive Director of the Health and Medicine Division.*



Clyde Behney

Fellowships & Emerging Leaders



The NAM administers the following fellowships and leadership programs to build future leadership capacity, promote innovation, and accelerate advances in health, medicine, and biomedical sciences.

Robert Wood Johnson Foundation (RWJF) Health Policy Fellows — after nearly 50 years in operation, this is the NAM's longest-standing program

Distinguished Nurse Scholar-in-Residence — provides a one-year immersion experience at the NAM for outstanding nurse leaders

NAM Fellowships for Health Science Scholars — nine distinct programs across diverse disciplinary areas of focus for high-potential early-career professionals

International Fellowships — provides an opportunity for emerging leaders from abroad to become directly involved with the work of the NAM and the National Academies and to contextualize our work to a global setting

NAM Scholars in Diagnostic Excellence — supports the implementation and dissemination of programs that advance diagnostic excellence and equity at the national level

Emerging Leaders in Health and Medicine — supports exceptional individuals as they develop innovative, creative interdisciplinary approaches to challenges in health and medicine



Launching of Two New NAM Fellowships for Health Science Scholars

The NAM is proud to announce two new NAM Fellowships:

- **American Academy of Nursing (AAN) Fellowship**
with support from the AAN
- **NAM Fellowship to Advance State Health Policy**
with support from the Advancing a Healthier Wisconsin Endowment

These fellowships offer unique learning opportunities for outstanding early-career health policy or health science scholars to get directly involved in the work of the NAM and the National Academies. Fellows gain a hands-on experience developing sound, evidence-based strategies and policies; learn to see health policy issues from various perspectives considering a wide range of disciplines and viewpoints; expand professional networks of experts and leaders in health and medicine; and accelerate their own career development in becoming future leaders in the field.

These programs require a 10-20% time commitment for two years and include mentorship; a \$25,000 grant per fellow to advance the fellows' professional and academic careers; and additional domestic travel funds for the fellows to participate in approved fellowship activities.

2021-2022 RWJF Health Policy Fellows

KRISTIN ASHFORD, PHD, WHNP-BC, FAAN

Professor and Associate Dean of Undergraduate Faculty & Interprofessional Education Affairs

Good Samaritan Professor for Community Nursing
University of Kentucky, College of Nursing
Lexington, KY

Placement: House Committee on Energy and Commerce (Minority)

ANN SHEEHY, MD, MS

Associate Professor of Medicine
Division Head, Hospital Medicine
School of Medicine and Public Health
University of Wisconsin
Madison, WI

Placement: Office of the Speaker of the House, The Honorable Nancy Pelosi

BRENDA BAKER, PHD, RN, FAAN

Assistant Clinical Professor
Nell Hodgson Woodruff School of Nursing
Emory University
Atlanta, GA

Placement: Office of Senator Bill Cassidy (R-LA)

BRIAN WILLIAMS, MD

Professor of Trauma and Acute Care Surgery
Department of Surgery
University of Chicago Medicine
Chicago, IL

Placement: Office of Senator Chris Murphy (D-CT)

ANGELA PERONE, PHD, JD, MSW, MA

Founding Executive Director
SAGE Metro Detroit
Detroit, MI

Placement: Office of Senator Tammy Baldwin (D-WI)

CHARLTON WILSON, MD

Chief Medical Officer
Mercy Care
Phoenix, AZ

Placement: House Committee on Energy and Commerce (Majority)

2021-2022 Distinguished Nurse Scholar-in-Residence

JESSICA CASTNER, PHD, RN-BC, FAEN, FAAN

Editor-in-Chief, Journal of Emergency Nursing
President and Principal
Castner Incorporated
Grand Island, NY

NAM Fellowships for Health Science Scholars

Norman F. Gant/American Board of Obstetrics and Gynecology (ABOG) Fellowship

ALEXANDER MELAMED, MD, MPH (2021-2023)

Assistant Professor of Obstetrics and Gynecology
Columbia University Vagelos College of Physicians and Surgeons

Gynecologic Oncologist

NewYork-Presbyterian/Columbia University Irving Medical Center

New York, NY

James C. Puffer, M.D./American Board of Family Medicine (ABFM) Fellowship

RITA HAMAD, MD, PHD (2020-2022)

Associate Professor in Residence

Director, Social Policies for Health Equity, Research (SPHERE) Program

Department of Family and Community Medicine

Philip R. Lee Institute for Health Policy Studies

University of California, San Francisco

San Francisco, CA

STEVEN LIN, MD (2021-2023)

Clinical Associate Professor

Executive Director, Stanford Healthcare AI Applied Research Team (HEA3RT)

Vice Chief of Technology Innovation, Division of Primary Care and Population Health

Stanford University School of Medicine

Stanford, CA

Gilbert S. Omenn Fellowship

ANDREW GONZALEZ, MD, JD, MPH (2021-2023)

Assistant Professor of Surgery

Indiana University School of Medicine

Associate Director for Data Science in Health Services Research

Regenstrief Institute

Indianapolis, IN

American Board of Emergency Medicine (ABEM) Fellowship

TRACY MADSEN, MD, PHD, FACEP, FAHA (2021-2023)

Associate Professor, Department of Emergency Medicine

Associate Director, Division of Sex and Gender

Alpert Medical School of Brown University

Brown University School of Public Health

Co-Director, Rhode Island Hospital Comprehensive Stroke Center

Director, Emergency Department Acute Stroke Services, Rhode Island Hospital

Providence, RI

Greenwall Fellowship in Bioethics

KAVITA SHAH ARORA, MD, MBE, MS (2021-2023)

Associate Professor

Division Director for General Obstetrics and Gynecology

University of North Carolina, Chapel Hill

Chapel Hill, NC

Fellowship in Pharmacy

ADAM BRESS, PHARM.D, MS (2020-2022)

Associate Professor

Division of Health System Innovation and Research

Department of Population Health Sciences

University of Utah School of Medicine

Salt Lake City, UT

Fellowship in Osteopathic Medicine

JULIEANNE SEES, DO, FAAOS, FAOAO, FAOA (2020-2022)

Associate Professor, Sidney Kimmel Medical College

Thomas Jefferson University

Orthopedic Surgeon, Division of Orthopedics

Department of Orthopedics

Nemours/Alfred I. duPont Hospital for Children

Wilmington, DE

International Fellowships

NAM International Health Policy Fellowship

VINCENT CHUNG, PHD, MSC (2021-2023)

Associate Professor, Jockey Club School of Public Health and Primary Care

Head, Development Division, School of Chinese Medicine
Faculty of Medicine

The Chinese University of Hong Kong

Hong Kong Special Administrative Region, China

NAM-HKU Fellowship in Global Health Leadership

HOLLY HOU, PHD, MSC (2021-2022)

Former Health Field Officer

East Asia Regional Delegation

International Committee of the Red Cross

Beijing, China

2021-2022 NAM Scholars in Diagnostic Excellence

This listing includes the titles of project proposals submitted by Scholars as part of their application.

JONATHAN BAGHDADI, MD, PHD

Assistant Professor

Department of Epidemiology and Public Health

University of Maryland School of Medicine

Infectious Disease Physician and Hospital Epidemiologist

University of Maryland Medical Center

Baltimore, MD

“Diagnostic Stewardship of Multiplex Molecular Panels to Improve Antibiotic Use”

KOMAL BAJAJ, MD, MS-HPED

Chief Quality Officer

NYC Health + Hospitals/Jacobi

Clinical Director

NYC Health + Hospitals Simulation Center

Professor of Obstetrics and Gynecology

Albert Einstein College of Medicine

Bronx, NY

“Not a Moment to Lose! Using Simulation to Identify and Mitigate Diagnostic Errors that Contribute to Delays during Maternal Hemorrhage Care”

EFREN FLORES, MD

Assistant Professor of Radiology

Harvard Medical School

Radiologist

Massachusetts General Hospital

Boston, MA

“A Community-Based Participatory Approach to Understand Current and Emerging Barriers and Promoters to Lung Cancer Screening (LCS) One-Year Post-COVID-19 Pandemic Start and Guide Culturally Tailored LCS Outreach among Latino Communities”

LINDA GENG, MD, PHD

Clinical Assistant Professor

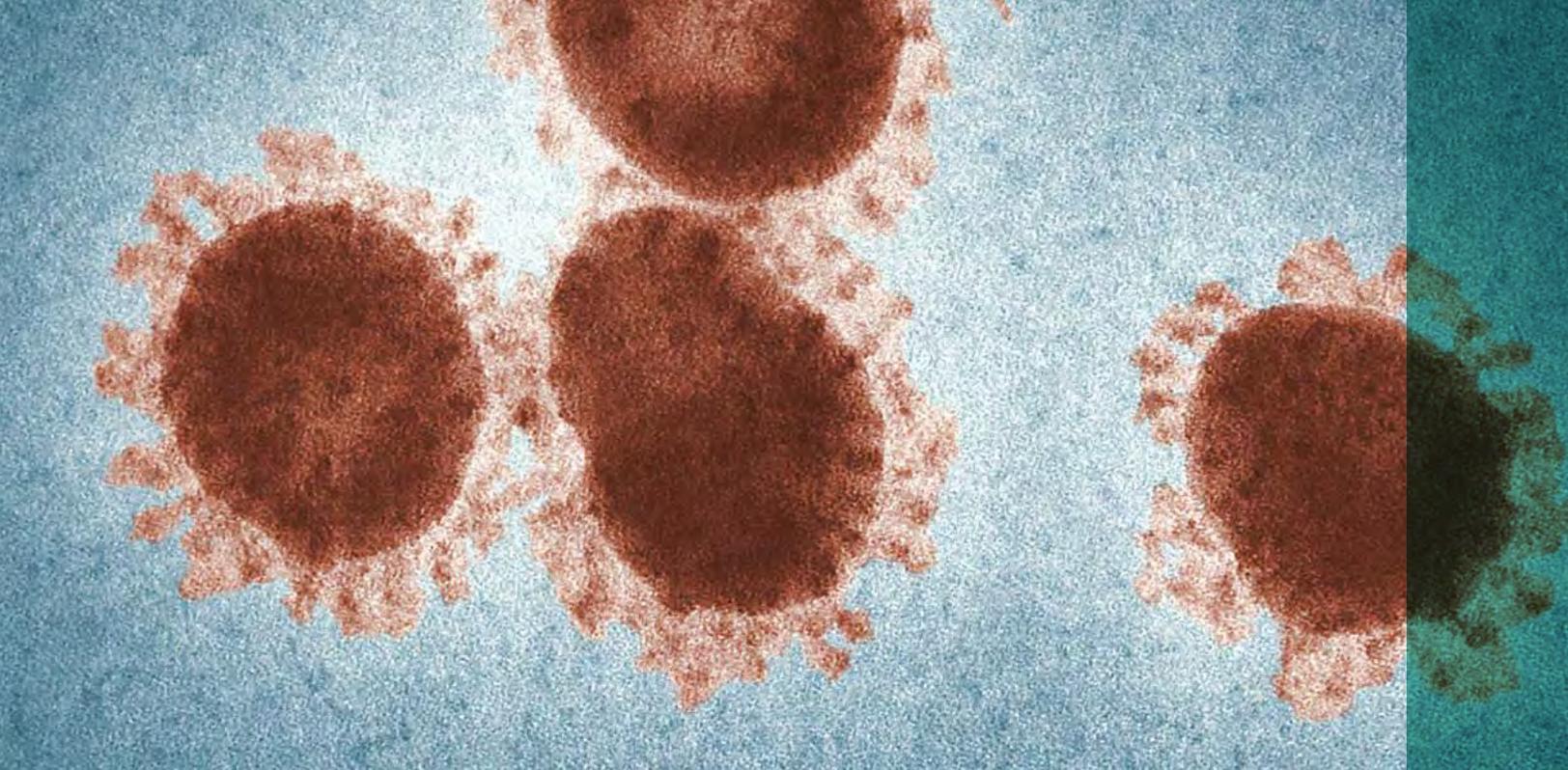
Division of Primary Care and Population Health

Department of Internal Medicine

Stanford University

Stanford, CA

“Improving the Diagnosis of Underrecognized Diseases in Racial and Ethnic Minorities through Patient Engagement and Empowerment”



TRABER GIARDINA, PHD, MSW

Assistant Professor

Baylor College of Medicine

Investigator, Center for Innovations in Quality, Effectiveness and Safety

Michael E. DeBakey VA Medical Center

Houston, TX

“Overcoming Barriers to Diagnostic Safety for Underrepresented Populations: Implementing Structured Tools to Engage Patients in Diagnosis (The ISTEP Dx Project)”

CORNELIUS JAMES, MD

Assistant Professor

Departments of Internal Medicine and Pediatrics

University of Michigan

Ann Arbor, MI

“Data Augmented, Technology Assisted Medical Decision Making and Diagnosis (DATA-MD): A Novel Curriculum”

JESSICA KEIM-MALPASS, PHD, RN

Associate Professor of Nursing

Associate Professor of Pediatrics

University of Virginia

Charlottesville, VA

“Developing an Economic Framework for Critically Ill Children to Achieve Diagnostic Excellence in Sepsis: Achieving Balance between Early Diagnostic Action and Medical Overuse”

MEI-SING ONG, PHD

Assistant Professor

Department of Population Medicine

Harvard Medical School and Pilgrim Health Care Institute

Boston, MA

“A Data-Driven Approach Towards Understanding the Patterns of Diagnostic Delay”

JORGE RODRIGUEZ, MD

Hospitalist and Researcher

Division of General Internal Medicine and Primary Care

Brigham and Women’s Hospital

Instructor in Medicine

Harvard Medical School

Boston, MA

“Towards Diagnostic Equity: Evaluating Diagnostic Error in Telemedicine Among Limited English Proficient Patients Presenting with Abdominal Pain”

LEKSHMI SANTHOSH, MD, MAED

Assistant Professor of Pulmonary/Critical Care Medicine

Associate Program Director, UCSF Pulmonary and Critical Care Fellowship Program

University of California, San Francisco

San Francisco, CA

“PAUSE for Uncertainty: Development & Implementation of a Novel Framework for Diagnostic Uncertainty During Transitions of Care”

2021 Emerging Leaders in Health and Medicine Scholars

AMI S. BHATT, MD, PHD

Assistant Professor of Medicine (Hematology, BMT) and Genetics; Director of Global Oncology, Center for Innovation in Global Health, Stanford University

MARIA ELENA BOTTAZZI, PHD

Associate Dean, National School of Tropical Medicine Professor, Pediatric Tropical Medicine & Molecular Virology & Microbiology Baylor College of Medicine

BRANDON BROWN, PHD, MPH

Associate Professor of Medicine, Department of Social Medicine, Population, and Public Health, University of California, Riverside

ALEJANDRA CASILLAS, MD, MSHS

Assistant Professor of Medicine in Residence, David Geffen School of Medicine, University of California, Los Angeles

CHRISTOPHER R. COGLE, MD

Professor of Hematology and Oncology, University of Florida

PAUL COHEN, MD, PHD

Albert Resnick, M.D. Associate Professor, The Rockefeller University

CARRIE H. COLLA, PHD

Associate Professor, The Dartmouth Institute for Health Policy & Clinical Practice, Geisel School of Medicine at Dartmouth

JUSTIN BASILE ECHOUFFO TCHEUGUI, MD, PHD

Associate Professor of Medicine, Johns Hopkins University School of Medicine

OLUWADAMILOLA "LOLA" FAYANJU, MD, MA, MPH

Helen O. Dickens Presidential Associate Professor of Surgery, Perelman School of Medicine, University of Pennsylvania

ANNA GREKA, MD, PHD

Associate Professor of Medicine, Brigham and Women's Hospital and Harvard Medical School; Broad Institute of MIT and Harvard

KELLI STIDHAM HALL, PHD, MS

Associate Professor, Heilbrunn Department of Population & Family Health, Mailman School of Public Health, Columbia University; Associate Professor, Rollins School of Public Health, Emory University

SIDNEY H. HANKERSON, MD, MBA

Vice Chair for Community Engagement in Psychiatry, Icahn School of Medicine at Mount Sinai

RONALD L. HICKMAN, JR., PHD, RN, ACNP-BC, FNAP, FAAN

The Ruth M. Anderson Endowed Chair and Associate Dean for Research, Frances Payne Bolton School of Nursing, Case Western Reserve University

EHSAN HOQUE, PHD

Assistant Professor of Computer Science; Affiliate faculty, Goergen Institute for Data Science, University of Rochester

LEORA HORWITZ, MD

Associate Professor, New York University School of Medicine

MARK HUFFMAN, MD, MPH

Professor of Medicine and Co-director, Global Health Center, Washington University in St. Louis

NING (JENNY) JIANG, PHD

Peter & Geri Skirkanich Associate Professor of Innovation, University of Pennsylvania

CAPRICE KNAPP, PHD

Medicaid Director, State of North Dakota

JOSEPH A. LEWNARD, PHD

Assistant Professor of Epidemiology, University of California, Berkeley

MIGUEL MARINO, PHD

Associate Professor of Biostatistics, Oregon Health & Science University

MARK NEUMAN, MD

Associate Professor of Anesthesiology and Critical Care,
University of Pennsylvania

ZIAD OBERMEYER, MD

Acting Associate Professor of Health Policy and Management,
University of California, Berkeley

BREA PERRY, PHD

Professor of Sociology, Indiana University

NATHAN PRICE, PHD

CEO, Onegevity

CHRISTINA ANN ROBERTO, PHD

Mitchell J. Blutt and Margo Krody Blutt Presidential Associate
Professor of Health Policy, University of Pennsylvania

HASSAN A. TETTEH, MD, MBA, MPA, MS

Chief Medical Informatics Officer, United States Navy
Associate Professor of Surgery, Uniformed Services University
of the Health Sciences

BROWNSYNE TUCKER EDMONDS, MD, MPH, MS

Vice President and Chief Health Equity Officer, Indiana
University Health; Associate Professor of Obstetrics and
Gynecology and Clinical Pediatrics, and Associate Dean for
Health Equity Research, Indiana University

JING WANG, PHD, MPH, MSN, RN, FAAN

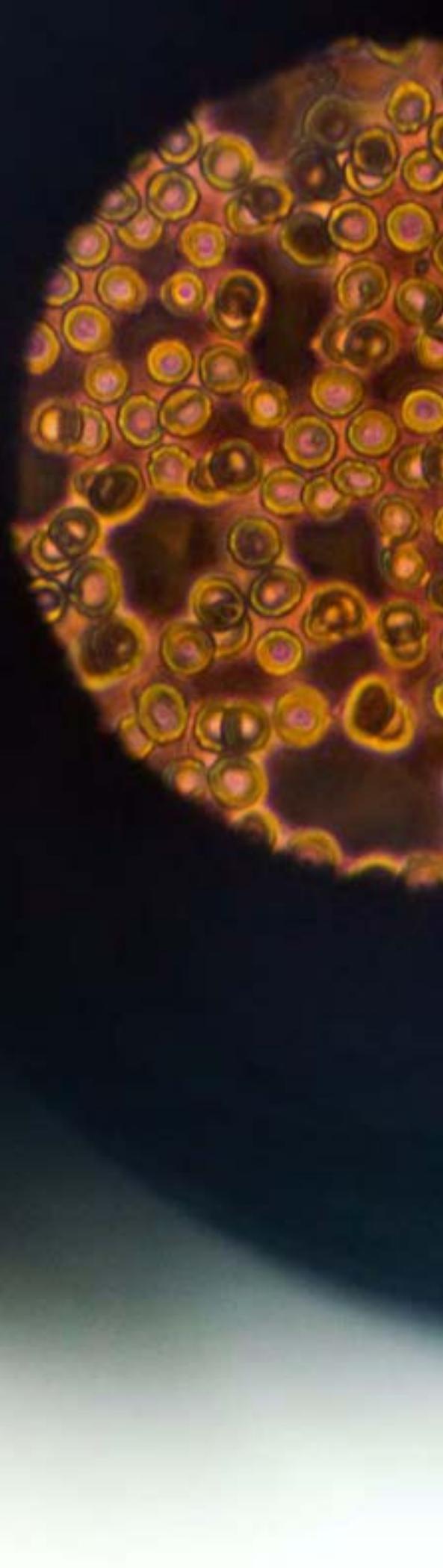
Dean and Professor, Florida State University

KEEGAN WARREN-CLEM, JD, LL.M

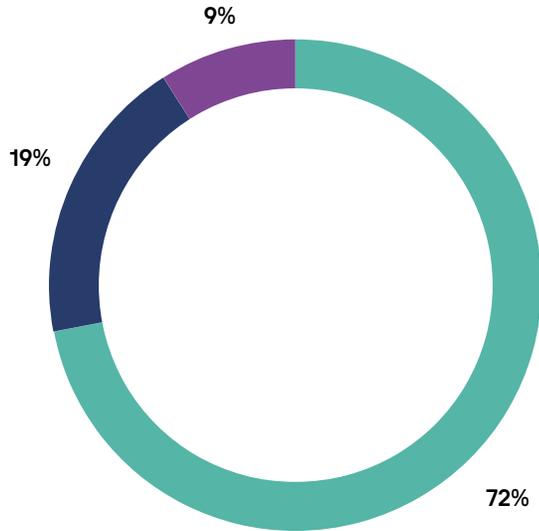
Director and Managing Attorney, Medical-Legal Partnerships
at Texas Legal Services Center; Adjunct Professor, The
University of Texas School of Law and McCombs School of
Business

JEFFREY K. WICKLIFFE, PHD, MS

Professor and Chair, Department of Environmental Health
Sciences, School of Public Health, University of Alabama at
Birmingham



Finances 2021

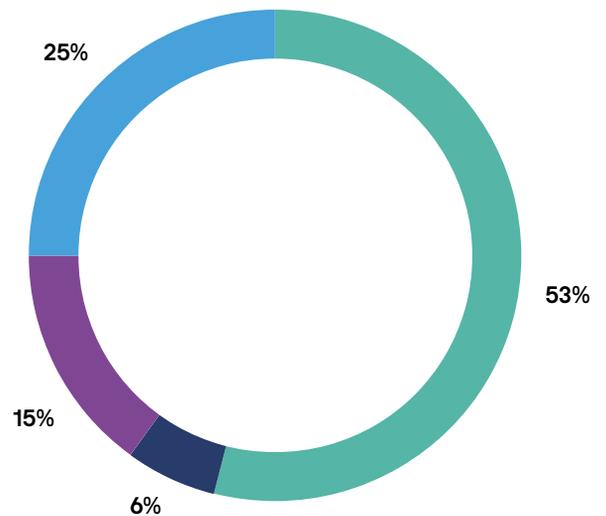


Revenues

● Grants, Contributions, & Other	\$13.2M
● NRC Indirects	\$3.5M
● Endowment Payout	\$1.6M

Expenses

● Programs	\$9.4M
● Membership & Council	\$1.1M
● Health Policy Fellowships	\$2.7M
● Operations	\$4.4M



2021 Honor Roll of Donors

We gratefully acknowledge the support of private contributors to the National Academy of Medicine. The collective, private philanthropy of our members and friends helps to enhance the NAM's mission to lead, inspire innovation, and impact the health of all people.

Lifetime Giving Societies

We gratefully acknowledge the following members and friends who have made generous charitable lifetime contributions. Their collective, private philanthropy enhances the impact of the academies as advisor to the nation on matters of science, engineering, and medicine.

The Lincoln Society

In recognition of members and friends who have made lifetime contributions of \$1 Million or more to the National Academy of Sciences, National Academy of Engineering, or National Academy of Medicine as of December 31, 2021. Boldfaced names are NAM members.

Bruce and Betty Alberts
Richard and Rita* **Atkinson**
Norman R. Augustine
Craig and Barbara Barrett
Jordan and Rhoda Baruch*
Stephen D. Bechtel, Jr.*
Arnold and Mabel Beckman*

Leonard Blavatnik
Harry E. Bovay, Jr.*
Donald Bren
Ralph J.* and Carol M. Cicerone
Harvey V. Fineberg and Mary E. Wilson
Bernard M. Gordon
Cecil H. Green*
John O. and Candace E. Hallquist
Michael and Sheila Held*
William R. and Rosemary B. Hewlett*
Ming and Eva Hsieh
Irwin and Joan Jacobs
Robert L.* and Anne K. James
Kenneth A. Jonsson*
Fred Kavli*
Daniel E. Koshland, Jr.*
Tillie K. Lubin*
Whitney* and Betty MacMillan
John F. McDonnell
George P. Mitchell*
The Ambrose Monell Foundation
Gordon and Betty Moore
Philip and Sima **Needleman**
Peter O'Donnell, Jr.*
Gilbert S. Omenn and Martha A. Darling
Robert* and Mayari Pritzker
Richard L. and Hinda G. Rosenthal*

Martine A. Rothblatt

Jack W. and Valerie **Rowe**

Fritz J. and Dolores H. Russ Prize
Fund of the Russ College of
Engineering and Technology
at Ohio University

William Rutter

Dame Jillian Sackler

Raymond and Beverly Sackler*

Bernard and Rhoda Sarnat*

Leonard D. Schaeffer

Sara Lee and Axel Schupf

James H. and Marilyn Simons

John and Janet Swanson

Marci and James J. Truchard

Anthony J. Yun and Kimberly A.

Bazar

The Franklin Society

In recognition of members and friends who have made lifetime contributions of \$500,000 to \$999,999 to the National Academy of Sciences, National Academy of Engineering, or National Academy of Medicine as of December 31, 2021. Boldfaced names are NAM members.

Rose-Marie and Jack R.
Anderson*

John and Elizabeth Armstrong

Kenneth E. Behring*

Gordon Bell

Elkan R.* and Gail F. **Blout**

Russell L. Carson

Charina Endowment Fund

James McConnell Clark*

Barry and Bobbi **Coller**

Henry David*

Richard Evans*

Eugene Garfield Foundation

Theodore Geballe*

Penny and Bill George, George

Family Foundation

Christa and Detlef Gloge

William T.* and Catherine

Morrison Golden

Alexander Hollaender*

Thomas V. Jones*

Cindy and Jeong Kim

Ralph and Claire Landau*

Asta and William W. Lang*

Robin K. and Rose M. McGuire

Ruben F.* and Donna Mettler

Dane* and Mary Louise Miller

Oliver E. and Gerda K. Nelson*

Shela and Kumar Patel

Henry and Susan Samuelli

Herbert A. and Dorothea P. Simon*

Raymond S. Stata

Roy and Diana **Vagelos**

Andrew and Erna* Viterbi

Alan M. Voorhees*

Anonymous (1)

The Marie Curie Society

In recognition of members and friends who have made lifetime contributions of \$250,000 to \$499,999 to the National Academy of Sciences, National Academy of Engineering, or National Academy of Medicine as of December 31, 2021. Boldfaced names are NAM members.

The Agouron Institute

John and Pat Anderson

W.O. Baker*

Warren L. Batts

Elwyn* and Jennifer Berlekamp

Daniel and Lana Branton

George* and Virginia Bugliarello

Gail H. Cassell

Clarence S. Coe*

Rosie and Stirling A. Colgate*

W. Dale and Jeanne C. Compton*

Lance and Susan Davis

Nicholas M. Donofrio

David and Miriam Donoho

Ruth and **Victor Dzau**

Dotty* and Gordon England

William L.* and Mary Kay Friend

George and Christine Gloeckler

Paul and Judy Gray

Jerome H.* and Barbara N.

Grossman

John L. Hennessy

Chad and Ann Holliday

William R. Jackson*

Anita K. Jones

Mary and Howard Kehrl*

Kent Kresa

Mark and Becky Levin

Frances and George Ligler

Stella and Steve Matson

William W. McGuire

Janet and Richard M.* Morrow

Clayton Daniel and Patricia L.

Mote

Ralph S. O'Connor*

Kenneth H. Olsen*

Ann and Michael Ramage

Simon Ramo*

Richard F. and Terri W. Rashid

Anne and Walt* Robb

Matthew L. Rogers and Swati

Mylavarapu

Julie and Alton D. Romig, Jr.

Stephen* and Anne **Ryan**

H.E. Simmons*

Edward C. Stone

Judy Swanson

Ted Turner

Leslie L. Vadasz

Martha Vaughan*

Charles M.* and Rebecca M. Vest

Robert and Robyn Wagoner

Wm. A. Wulf

Anonymous (3)

The Einstein Society

In recognition of members and friends who have made lifetime contributions of \$100,000 to \$249,999 to the National Academy of Sciences, National Academy of Engineering, or National Academy of Medicine as of December 31, 2021. Boldfaced names are NAM members.

Laura E. and John D. Arnold

Holt Ashley*

Nadine Aubry and John L. Batton

Francisco J. and Hana Ayala

William F. Ballhaus, Sr.*

David Baltimore

Thomas D.* and Janice H. Barrow

H.H. and Eleanor F. Barschall*

Donald and Joan Beall

Daniel and Frances Berg

Diane and Norman Bernstein

Bharati and Murty Bhavaraju

Chip and Belinda Blankenship

Erich Bloch*

Barry W. Boehm

Gopa and Arindam Bose

Paul F. Boulos

David G. Bradley

Lewis M. Branscomb

Sydney Brenner*

Lenore and Rob Briskman

Malin Burnham

Ursula Burns and Lloyd Bean*

Eugen and Cleopatra Cabuz

Chau-Chyun and Li-Li Chen

Josephine Cheng

Priscilla and Sunlin* Chou

John and Assia Cioffi

Paul Citron and Margaret Carlson

Citron

A. James Clark*

Ellen Wright Clayton and Jay

Clayton

G. Wayne Clough

John D. Corbett*

Ross and Stephanie Corotis

Roy Curtiss and Josephine Clark-

Curtiss

Ruth David and Stan Dains
 Jeffrey Dean and Heidi Hopper
 Zhonghan John Deng

Roman W. DeSanctis

Julie H. and **Robert J. Desnick**
 Robert* and Florence Deutsch
 Paul M. Doty*

Charles W. Duncan, Jr.
 George and Maggie Eads

Robert and Cornelia Eaton

The Eleftheria Foundation

James O. Ellis, Jr. and Elisabeth
 Paté-Cornell

Emanuel and Peggy* Epstein

Thomas E. Everhart

Peter Farrell

Michiko So* and Lawrence
 Finegold

Tobie and Daniel J.* Fink

Delbert A. and Beverly C. **Fisher**

George and Ann Fisher

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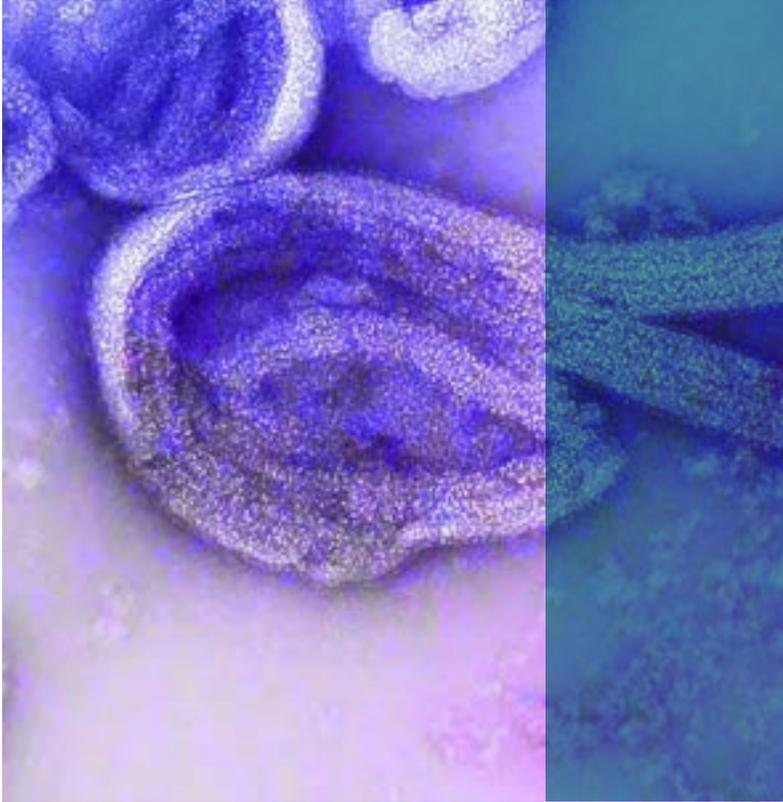
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