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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ELENA FUENTES-AFFLICK, MD, MPH  
Home Secretary  
University of California, San Francisco

CARLOS DEL RIO, MD  
International Secretary  
Emory University School of Medicine

CLAIRE BRINDIS, DRPH  
NAM Council Vice Chair  
University of California, San Francisco

JEFFREY R. BALSER, MD, PHD  
Vanderbilt University Medical Center  
Vanderbilt University

MARSHALL H. CHIN, MD, PHD  
The University of Chicago

SUSAN J. CURRY, PHD  
College of Public Health  
University of Iowa

KAREN B. DESALVO, MD, MPH, MSC  
Google Health  
University of Texas at Austin, Dell Medical School

JOSÉ J. ESCARCE, MD, PHD  
David Geffen School of Medicine  
Fielding School of Public Health  
Department of Medicine  
University of California, Los Angeles

LINDA P. FRIED, MD, MPH  
Joseph L. Mailman School of Public Health  
Columbia University  
Columbia University Medical Center

EVE J. HIGGINbotham, MD  
Leonard Davis Institute of Health Economics  
Scheie Eye Institute, Perelman School of Medicine  
University of Pennsylvania

MAE C. JEMISON, MD  
The Jemison Group, Inc.

MAUREEN LICHTVELD, MD, MPH  
Graduate School of Public Health  
University of Pittsburgh

KELSEY C. MARTIN, MD, PHD  
David Geffen School of Medicine  
University of California, Los Angeles

LINDA A. MCCAELEY, PHD  
Nell Hodgson Woodruff School of Nursing  
Emory University

JUANITA L. MERCHANT, PHD, MD  
University of Arizona College of Medicine

CHRISTINE E. (KRICKET) SEIDMAN, MD  
Howard Hughes Medical Institute  
Harvard Medical School  
Brigham and Women's Hospital

HUDA Y. ZOGHBI, MD  
Jan and Dan Duncan Neurological Research Institute  
Baylor College of Medicine
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.
Featured Consensus Reports
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.

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.

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.

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.

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

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.

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.

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
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<thead>
<tr>
<th>Member Name</th>
<th>Institution/Title</th>
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<tbody>
<tr>
<td>Samuel Achilefu, PhD</td>
<td>Washington University School of Medicine</td>
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<tr>
<td>Alexandra K. Adams, MD, PhD</td>
<td>Montana State University</td>
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<tr>
<td>Michelle Asha Albert, MD, MPH</td>
<td>University of California, San Francisco</td>
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<tr>
<td>Guillermo Antonio Ameer, SCD</td>
<td>Northwestern University Feinberg School of Medicine</td>
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<tr>
<td>Jamy D. Ard, MD</td>
<td>Wake Forest School of Medicine</td>
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<tr>
<td>John M. Balbus, MD, MPH</td>
<td>U.S. Department of Health and Human Services</td>
</tr>
<tr>
<td>Carolina Barillas-Mury, MD, PhD</td>
<td>National Institutes of Health</td>
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<tr>
<td>Shari Barkin, MD, MSHS</td>
<td>Vanderbilt University Medical Center</td>
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<tr>
<td>Monica M. Bertagnolli, MD</td>
<td>Harvard Medical School</td>
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<tr>
<td>Luciana Lopes Borio, MD</td>
<td>Council on Foreign Relations and Arch Venture Partners</td>
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<tr>
<td>Eriq Brodt, MD</td>
<td>Oregon Health &amp; Science University</td>
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<tr>
<td>Kendall Marvin Campbell, MD, FAAFP</td>
<td>University of Texas Medical Branch, Galveston</td>
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<tr>
<td>Pablo A. Celnik, MD</td>
<td>Johns Hopkins University School of Medicine, Johns</td>
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<td></td>
<td>Hopkins Hospital and Johns Hopkins Medicine</td>
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<tr>
<td>David Clapham, MD, PhD, PHD</td>
<td>Howard Hughes Medical Institute, HHMI Janelia Research</td>
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<td></td>
<td>Campus and Harvard Medical School</td>
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<tr>
<td>Mandy Krauthamer Cohen, MD, MPH</td>
<td>North Carolina Department of Health and Human Services</td>
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<tr>
<td>Daniel E. Dawes, JD</td>
<td>Morehouse School of Medicine</td>
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<tr>
<td>Ted M. Dawson, MD, PhD</td>
<td>Institute for Cell Engineering and Johns Hopkins</td>
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<td></td>
<td>University School of Medicine</td>
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<tr>
<td>Job Dekker, PhD</td>
<td>University of Massachusetts Chan Medical School</td>
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<tr>
<td></td>
<td>and Howard Hughes Medical Institute</td>
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<tr>
<td>Nancy-Ann Min Deparle, JD</td>
<td>Consonance Capital Partners</td>
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<tr>
<td>Maximilian Diehn, MD, PhD</td>
<td>Stanford University School of Medicine</td>
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<tr>
<td>Kafui Dzirasa, MD, PhD</td>
<td>Duke University Medical Center</td>
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<tr>
<td>Katherine A. Fitzgerald, PhD</td>
<td>University of Massachusetts Chan Medical School</td>
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<tr>
<td>Yuman Fong, MD</td>
<td>City of Hope</td>
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<tr>
<td>Howard Frumkin, MD, DRPH</td>
<td>University of Washington School of Public Health</td>
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<tr>
<td>Andrés J. García, PhD</td>
<td>Petit Institute for Bioengineering and Bioscience and</td>
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<td>Georgia Institute of Technology</td>
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<tr>
<td>Darrell J. Gaskin, PhD, MS</td>
<td>Johns Hopkins University</td>
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<td>Wondwosse Abebe Gebreyes, DVM, PhD</td>
<td>Ohio State University</td>
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<tr>
<td>Jessica Gill, RN, PhD</td>
<td>Johns Hopkins University School of Nursing</td>
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<tr>
<td>Paul Ginsburg, PhD</td>
<td>University of Southern California and Brookings</td>
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<td>Institution</td>
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<tr>
<td>Sherita Hill Golden, MD, MHS</td>
<td>Johns Hopkins University School of Medicine</td>
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<tr>
<td>Joseph Gone, PhD</td>
<td>Harvard Medical School and Harvard University</td>
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<tr>
<td>John D. Grabenstein, RPH, PhD</td>
<td>Vaccine Dynamics and U.S. Army</td>
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<tr>
<td>Linda G. Griffith, PHD</td>
<td>Massachusetts Institute of Technology</td>
</tr>
<tr>
<td>Taekjip Ha, PhD</td>
<td>Johns Hopkins University and Howard Hughes Medical</td>
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<td>Institute</td>
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</tbody>
</table>
International Members Elected in 2021

RICHARD M.K. ADANU, MBCHB, MPH, FWACS, FGCS, FACOG
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, FFCH, 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
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
PURCELL 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
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.
Gustav O. Lienhard Award for Advancement of Health Care

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.

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.
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.

**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.
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)

ANGELA PERONE, PHD, JD, MSW, MA
Founding Executive Director
SAGE Metro Detroit
Detroit, MI
Placement: Office of Senator Tammy Baldwin (D-WI)

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)

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

JULIJEANNE SEESE, 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*

EFRÉN 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*

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*

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

MARI 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

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Helen O. Dickson 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
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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

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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
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**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
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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.

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