

Cardiovascular Research and the National Academy of Medicine: Advancing Progress in Science and Medicine

Part 1: Who We Are

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We are seeing unparalleled advances in science and technology that have the potential to transform health and medicine. New technologies, data resources, research strategies, and delivery models are spurring advances in medical science and the delivery of care. However, notable challenges exist. The health system is strained by increasing demand and unsustainable costs. Politics has grown increasingly partisan, and trust in Congress remains low just as we enter a critical phase of uncertainty over healthcare reform. Concerns about the nation's scientific competitiveness abound as research funding remains challenging.

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There is a need for a trusted advisor to provide objective and independent advice to researchers, health professionals, policy makers, and the public on matters related to health and biomedical science. As a result, the role of scientific academies, which bridge science and policy, has never been more important. Society can benefit enormously from the activities of an independent scientific academy with the directive to mobilize the best minds to advance knowledge and accelerate progress in science, medicine, and policy.

History

Since its founding in 1970, the National Academy of Medicine (NAM; formerly the Institute of Medicine) has played that role. The NAM is 1 of the 3 academies that make up the National Academies of Sciences, Engineering, and Medicine (the National Academies) in the United States.

Our history dates back to the time of the Civil War. In 1863, President Abraham Lincoln signed the National Academy of Sciences into existence under a charter that called for the organization to “whenever called upon by any department of the Government, investigate, examine, experiment, and report upon any subject of science or art...”¹ As the scientific fields of engineering and medicine began to take more shape and importance, the National Academies of Engineering was born in 1963, and in 1970, the Institute of Medicine was founded as the health arm of the National Academy of Sciences. For nearly half a century, the Institute of Medicine served alongside the National Academy of Sciences and the National Academy of Engineering as health adviser to the nation and the international community. On July 1, 2015, the Institute of Medicine was officially reconstituted as the NAM.

National Research Council

The National Academies provide objective advice on matters related to science, technology, and health. Our reports are often congressionally mandated or commissioned by government agencies, and their recommendations have lasting impact on US Health and Science Policy.

The 3 National Academies oversee programmatic activities which are conducted under the auspices of the National Research Council, the operating arm of the National Academies. These programmatic activities convene experts in many ways to suit different purposes.² If there is a need for definitive recommendations on a subject matter or controversy, we undertake a consensus study. A consensus study brings together a diverse committee of 10 to 20 leading experts for the purpose of coming to agreement on the most practical, wise, and substantiated solutions to a problem. The committee's work is guided by a formal statement of task that outlines the scope and objectives of the study. The committee, aided by staff, conducts extensive research and detailed analysis of available data and evidence, followed by extensive deliberation that results in specific recommendations for relevant stakeholders, which are captured in a detailed report. The report undergoes a rigorous peer-review process and is then released to the public.

Our consensus reports have influenced the trajectory of health and shaped the direction of biomedical research. Some of our most influential reports include: Mapping and Sequencing the Human Genome (1988),³ Guidelines for Human Embryonic Stem Cell Research (2005),⁴ and Toward Precision Medicine: Building a Knowledge Network for Biomedical Research and a New Taxonomy of Disease (2011).⁵

If there is a need to convene multiple stakeholders to discuss, debate, and share knowledge, in an ongoing fashion, we establish Forums and Roundtables. If the need is for a discrete event to initiate dialogue on a pressing topic or to hear multiple points of view to better understand a particular topic, we host a Workshop.

NAM: Who We Are

Although the National Academies were originally created to advise the US government, our range is now global. We seek to identify and generate momentum around critical issues

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in health, marshal diverse expertise to build evidence-based solutions, inspire action through collaboration and public engagement, and foster the next generation of leaders and innovators in the United States and globally.

The NAM's reputation and influence on science, medicine, and health stem from the distinction and excellence of its members and the quality and independence of its advice. Freedom from any political affiliation and commercial interest combined with strict adherence to policies and procedures ensures that our advice is based on the best available evidence and free from any bias. The NAM is an academy of exceptional scholars and experts whose disciplines and interests span basic research to medical sciences, engineering, social sciences, public health, healthcare delivery, policy, and more. Our members have made breakthrough discoveries, cured diseases, tackled global pandemics, developed novel therapies and innovative care delivery models, and led the way in proposing and implementing policy changes that have advanced health for all. There are over 2000 members and members emeriti, including nearly 50 Nobel Laureates, 58 US National Medal of Science honorees, 21 US National Medal of Technology and Innovation honorees, multiple Lasker awardees, and countless others who have received recognition for their outstanding achievements. Each year, 80 new members (70 regular and 10 international members) are elected by the regular membership body at large on the basis of their outstanding professional achievement and commitment to service. The sheer excellence, stature, and integrity of NAM members and nonmember volunteers help ensure that our work is balanced and of the highest quality: over 2000 experts (members and nonmembers) contribute yearly to NAM activities (described below).

Looking to the Future

Our reconstitution as the NAM provides an occasion for us to re-examine our vision and our mission. Not only must we assess and advise on the state of the science and evidence, but we must also marshal that knowledge on behalf of leadership, innovation, and impact for a healthier future. We must lead the health and medical community by identifying the most urgent priorities, and we must continue to be a trusted voice guiding policy and practice in the United States and worldwide. We must also innovate, developing new solutions and seeking new partners to respond quickly to emerging challenges. And all that we do must be with a commitment to impact—our foremost goal is to shape policy, advance science, cultivate leadership, and, ultimately, improve human health.

The NAM has many groundbreaking activities aligned with this vision. For example, the NAM Leadership Consortium (formerly called Roundtable) for Value & Science-Driven Health Care⁶ convenes senior leaders and innovators to advance progress toward a continuously learning health system. Our Health Policy Educational Programs and Fellowships,⁷ which launched in 1973, nurture the next generation of health and medical leaders by immersing them in health policy and administration at the national level. And one of our newest programs, Innovation to Incubation,⁸ uses staff enrichment, strategic support, networking, and targeted communications to increase the impact of Academies reports and activities.

We have also launched several novel initiatives aligned with our strategic vision.

This year we released our Global Health Risk Framework report, a blueprint for countering international infectious disease crises. The initiative was a rapid-response effort to the Ebola crisis in West Africa, in which more than 11 000 people lost their lives; the NAM worked quickly to convene an independent Commission of experts to develop a more efficient global response to infectious disease threats. The Commission report, *The Neglected Dimension of Global Security: A Framework to Counter Infectious Disease Crises*,^{9,10} stated that pandemics pose a threat to national security and argued that we have grossly underinvested in efforts to prevent and prepare for infectious disease outbreaks relative to other national security threats. An original analysis commissioned for the report estimates \$60 billion in annualized expected losses from pandemics. Against this figure, the Commission proposes an investment of \$4.5 billion per year—only a fraction of what we stand to lose.

Consistent with our commitment to lead by identifying urgent priorities and guiding policy and practice, the Human Gene Editing initiative,¹¹ a joint effort of the NAM and the National Academy of Sciences, was developed in response to a critical need for ethical, scientific, and regulatory boundaries in a controversial and rapidly developing field. In December 2015, we cohosted with the Royal Society and the Chinese Academy of Sciences a groundbreaking international summit¹² to examine the issue, with experts from 20 nations in attendance. A consensus study, conducted under the auspices of the NRC, is now under way to provide a framework of fundamental scientific, medical, and ethical principles for human gene-editing research.

We are also leading efforts to guide future health policy and practice. With the next US president and administration only weeks away from taking office, it is a critical time for the NAM to lead policy discussions by identifying the most urgent priorities in health and health care and offer independent, nonpolitical, evidence-based recommendations for the next administration. As a result, we launched the Vital Directions for Health and Health Care, a nonpolitical, bipartisan initiative¹³ to identify vital priorities from leading policy makers and health experts to inform policy and practice for the future. The initiative focuses on identifying policies and actions that could yield timely, measurable progress toward 3 key, overarching goals for the United States: better health and well-being, high-value health care, and strong science and technology. We commissioned a series of 19 expert papers from nearly 150 of the nation's leading researchers, scientists, and policy makers which were published as NAM perspective papers and discussed at a national symposium this September. The series will culminate in a comprehensive synthesis and will be discussed in detail with policy makers and other key stakeholders preparing for, and engaging with, the transition to the new Administration.

Conclusions

With nearly 50 years of history and experience as a trusted scientific adviser resulting from the integrity of its processes and the participation of the world's experts, the NAM is committed to providing evidence and advice, forums to address complex

challenges, and innovative space to accelerate progress in health and medicine to ensure a healthier future for everyone.

Disclosures

None.

References

1. National Academy of Sciences. History. <http://www.nasonline.org/about-nas/history/archives/founding-and-early-work.html>. Accessed November 1, 2016.
2. Dzau VJ. The Institute of Medicine: ensuring integrity and independence in scientific advice on health. *Lancet*. 2016;387:1686–1692. doi: 10.1016/S0140-6736(15)00468-7.
3. National Research Council. *Mapping and Sequencing the Human Genome*. Washington, DC: The National Academies Press; 1988.
4. Institute of Medicine and National Research Council. *Guidelines for Human Embryonic Stem Cell Research*. Washington, DC: The National Academies Press; 2005.
5. National Research Council. *Toward Precision Medicine: Building a Knowledge Network for Biomedical Research and a New Taxonomy of Disease*. Washington, DC: The National Academies Press; 2011.
6. Leadership Consortium for a Value & Science-Driven Health System. National Academy of Medicine Website. <https://nam.edu/programs/value-science-driven-health-care/>. Accessed November 1, 2016.
7. Health Policy Educational Programs and Fellowships. National Academy of Medicine Website. <https://nam.edu/programs/health-policy-educational-programs-and-fellowships/>. Accessed November 1, 2016.
8. Innovation to Incubation. National Academy of Medicine website. <http://nam.edu/programs/innovation-to-incubation/>. Accessed November 1, 2016.
9. National Academy of Medicine. *The Neglected Dimension of Global Security: A Framework to Counter Infectious Disease Crises*. Washington, DC: The National Academies Press, 2016.
10. Sands P, Mundaca-Shah C, Dzau VJ. The neglected dimension of global security—a framework for countering infectious-disease crises. *N Engl J Med*. 2016;374:1281–1287. doi: 10.1056/NEJMs1600236.
11. Human Gene Editing Initiative. National Academies of Sciences, Engineering, and Medicine Website. <http://nationalacademies.org/gene-editing/index.htm>. Accessed November 1, 2016.
12. National Academies of Sciences, Engineering, and Medicine. *International Summit on Human Gene Editing: A Global Discussion*. Washington, DC: The National Academies Press; 2016.
13. Vital Directions for Health and Health Care. National Academy of Medicine Website. <http://nam.edu/initiatives/vital-directions-for-health-and-health-care/>. Accessed November 1, 2016.

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