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Commentary

Safeguarding the future of biomedical science in the United States

Tom Maniatis[1,2,3,*]
[1]New York Genome Center, New York, NY, USA
[2]Department of Biochemistry and Molecular Biophysics, Vagelos College of Physician and Surgeons, Columbia University, New York, NY, USA
[3]Zuckerman Institute of Mind Brain and Behavior, Columbia University, New York, NY, USA
*Correspondence: tmaniatis@nygenome.org
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NIH's abrupt decision to cap indirect cost reimbursement at 15% threatens the critical infrastructure supporting groundbreaking biomedical research in the United States. This policy jeopardizes America's global leadership in science and medicine. Urgent action is needed to advocate for its immediate and permanent reversal to protect the future of science.

Research, funded in large part by the National Institutes of Health (NIH), has positioned the United States as a global leader in biomedical science and technology and transformed the landscape of healthcare, engineering, and computer science. For every dollar the NIH has invested in biomedical research, the US has seen an estimated $2.46 increase in new economic activity.[1] The consistent policies of multiple presidential administrations from both political parties have enabled the extraordinary growth of the NIH and the international impact of research-based discovery from the US life sciences community. The recent policy change by the NIH capping indirect cost reimbursement at 15% of total direct costs is a profound threat to the foundation of scientific research, healthcare, and education in the US. Indirect costs—often misunderstood as administrative overhead—are, in fact, the critical resources that sustain the infrastructure necessary for groundbreaking discoveries and are an essential component of the 80-year-long golden era of American scientific innovation following World War II.[2] In the 21st century, US-based biomedical scientists are in an intense competition to maintain global leadership in biological discovery and invention. At the same time, competing nations are investing ever more aggressively in their own programs and are beginning to pull ahead in many domains.[3] Indirect costs, at the previously negotiated levels, are necessary to maintain competitive infrastructure, develop the best and most meritorious talent, and support the oversight and administration of NIH grant dollars at universities and independent research institutes. These funds support laboratory facilities, utilities, research compliance, data security, biosafety, and the recruitment and retention of top scientific talent. A drastic reduction in indirect cost recovery would undermine these essential functions, placing research institutions across the country in an untenable financial position and impacting US leadership in the life sciences.

The NIH was founded in 1887 as the "Hygienic Laboratory" within the Marine Hospital Service, and in 1931 it was reorganized under the Ransdell Act to become the NIH we know today.[4] Post-World War II, Mary Lasker, a philanthropist and health advocate, profoundly impacted the growth of the NIH—initially through budget increases, and later as an advocate for the "war on cancer" implemented by the Nixon Administration. Lasker played a crucial role in shaping the NIH into a major biomedical research powerhouse. As a philanthropist and health advocate, she worked tirelessly to increase federal funding for medical research. She lobbied Congress to increase the NIH budget, working to persuade lawmakers, including President Harry Truman, to expand NIH funding and helping secure billions of dollars for medical research. She also played a significant role in advocating for the creation and expansion of specific institutes within NIH, such as the National Cancer Institute (NCI) and the National Heart Institute. Her efforts also contributed to the passage of the National Cancer Act of 1971, signed by President Nixon, which substantially boosted cancer research funding. Mary Lasker's relentless advocacy was a critical part of transforming NIH from a modest research agency into the world's leading biomedical research institution.[5] The impact of her efforts on the treatment of heart disease and cancer was transformational.

The NIH budget in 1971 was $1.2 billion (approximately $9.3 billion in 2024 dollars).[6] Last year, the NIH budget was nearly $47.5 billion,[7] thus growing at a rate of nearly three-quarters of a billion dollars per year when adjusted for inflation. Non-partisan support in Congress over the last five decades for strong funding to universities and research institutions through NIH has been a recognition, from both sides of the political aisle, of the importance of basic and applied research in advancing our understanding of human biology and the translation of this information into the treatment of human diseases.

My own scientific journey was deeply impacted by Mary Lasker's efforts to advance federal support for biomedical research. In 1971, I was awarded an NIH postdoctoral fellowship to study gene regulation in bacteria. As I was transitioning toward independence in 1975, recombinant DNA was developed by Paul Berg, Stanley Cohen, Herb Boyer, David Hogness and others.[8,9] I received my first

NIH grant as an independent investigator, enabling efforts to clone and characterize human globin genes.[10] This, in turn, led to the first "Molecular Cloning" course at the Cold Spring Harbor Laboratory and subsequently the first edition of "Molecular Cloning: A Laboratory Manual," co-authored with Ed Fritsch and Joe Sambrook.[11] Since that time, my laboratory has been awarded continuous NIH funding to study the mechanisms of gene regulation. My scientific career, and those of most scientists I know, would not have been possible without the steady support from NIH, not only for salaries and supplies for my lab but also to provide funds to support the building, infrastructure, and utilities where my labs have been located as well as the essential administrative support that has made our work possible.

Advances in technology and the resulting deeper understanding of human biology at the molecular level have been beyond anything we could have imagined in 1971. The development of gene cloning methods and automated DNA sequencing instruments made it possible to determine the sequence of the human genome, providing deep insights into the genetic basis of human diseases and laying the groundwork for the realization of "precision medicine"—medical care enabled by the understanding of each individual's genetic makeup.[12] The development of X-ray crystallography and cryo-electron microscopy made it possible to rapidly determine the structures of individual proteins and macromolecular complexes,[13] and this in turn provided the data necessary to predict protein structures by artificial intelligence.[14] These and many more fundamental advances were made possible through robust and stable NIH funding.

For decades, the strength of the US research enterprise was built on a partnership between governmental funding agencies and institutions dedicated to advancing science and medicine. The current system for defining indirect cost reimbursement rates for each institution is a rigorous process with thorough review, negotiation, and oversight, which ensures that federally funded research is conducted in an environment that upholds the highest standards of integrity and efficient use of funds.[15] Every institution negotiates its indirect cost rates with a federal agency through a detailed review of expenses related to research infrastructure, administration, and compliance. During this process, institutions submit data on historical and projected research-related expenses to the federal agency. The assigned agency (or cognizant agency) audits and assesses the proposal for reasonableness and compliance with federal guidelines. With input from the institution, the federal agency determines a fair rate based on financial data, peer comparisons, and budget constraints—this negotiation process typically takes four to six months. Once finalized, the resulting Negotiated Indirect Cost Rate Agreement (or NICRA) sets the allowable rate for a multi-year period. This process ensures institutions receive adequate and fair reimbursement for the essential infrastructure that enables cutting-edge research and innovation. As described above, this process is conducted with rigorous federal oversight, ensuring that rates reflect the actual costs necessary to support research—not an unfair siphoning of funds by research institutes and universities, but a vital investment in sustaining scientific, academic, and medical advancement in the US. By unilaterally capping indirect costs, the NIH is not just limiting the reimbursements at individual institutions—it is jeopardizing the very ecosystem that has made American science a global leader.

The impact of this decision, if implemented, will be immediate and far-reaching. Institutions will be forced to shift resources away from critical research initiatives, delay or cancel infrastructure improvements, lay off staff, and face increased difficulty in attracting and retaining top-tier scientists. Indirect cost rates have long been the great equalizer between large and small institutions (e.g., Association of Independent Research Institutes [AIRI], member institutions). Large institutions with significant endowments, as well as educational or healthcare revenues, have historically received lower reimbursement rates than the small independent research institutions without these income sources to fall back on. The New York Genome Center (NYGC), of which I am a co-founder, the Scientific Director, and the Chief Executive Officer, is one such small, independent non-profit academic research institution. We serve as a nexus of collaboration in genomic research and technological innovation in the New York community and beyond. The NYGC has more than a decade-long history of bringing together broad, multidisciplinary collaborations for the advancement of genomic science and the understanding of the underlying biology and molecular mechanisms of disease, as well as the development and application of innovative genomic technologies that are beyond the scope of any single institution. If the NIH indirect cost reimbursement rates are capped at 15%, small independent research institutions like the NYGC will be shuttered, stifling technological innovation, scientific progress, and collaboration. The long-term consequences will ripple well beyond academia, affecting industries that rely on NIH-supported discoveries, from biotechnology and pharmaceuticals to healthcare, public policy, and education.

In response, the scientific community must unite to advocate for the reversal of this policy. A broad coalition—including universities, independent research institutes, medical centers, and professional societies—must collectively voice the negative impact of this short-sighted decision. We must engage with policymakers to ensure they understand the true function of indirect cost reimbursement and the devastating effects of this policy shift. Additionally, collaboration with industry leaders, foundations, and philanthropists will be essential in emphasizing the broader economic and societal impact of weakening the nation's scientific infrastructure. As a starting point, we at the NYGC launched a petition calling on NIH, policymakers, and lawmakers to reverse this harmful decision. We invite all members of the scientific community and the public to join us by signing and circulating this petition. A united front across academic, medical, and independent research institutions is essential to preventing this devastating policy from taking effect.

Sign the petition here: https://chng.it/kK2HMP5pGk

The US scientific ecosystem has long been an engine of innovation fueled by strategic investment and collaborative effort. Weakening this system now, at a time when research is more vital than ever to public health, technological advancement, and competition on the

global stage, would be a grave mistake. We must act swiftly and decisively to safeguard the future of science in the US and ensure that research institutions have the resources they need to continue their essential work.

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DECLARATION OF INTERESTS

T.M. is a co-founder, member of the Board of Directors, and holds shares in the biotechnology company Kallyope.

REFERENCES

1. United For Medical Research (2024). NIH's Role in Sustaining the U.S. Economy 2024 Update (United For Medical Research). https://www.unitedformedicalresearch.org/wp-content/uploads/2024/03/UMR-NIHs-Role-in-Sustaining-the-US-Economy-2024-Update.pdf.
2. The National Science Foundation (2025). The National Science Foundation: A Brief History. https://www.nsf.gov/about/history/narrative.
3. OECD (2025). Main Science and Technology Indicators. https://www.oecd.org/en/data/datasets/main-science-and-technology-indicators.html.
4. National Library of Medicine (1995). Images From the History of the Public Health Service — Biomedical Research: The Beginnings of Organized Biomedical Research. https://www.nlm.nih.gov/exhibition/phs_history/beginningsbio.html.
5. Wallace, L.G. (2016). Catalyst for the National Cancer Act: Mary Lasker (Lasker Foundation). https://laskerfoundation.org/catalyst-for-the-national-cancer-act-mary-lasker.
6. National Institutes of Health (2015). The NIH Almanac: Appropriations (Section 2). https://www.nih.gov/about-nih/what-we-do/nih-almanac/appropriations-section-2.
7. National Institutes of Health (2024). NIH Data Book — Total NIH Budget Authority: FY 2024 Operating Plan. https://report.nih.gov/nihdatabook/report/5.
8. Yi, D., and Mertz, J.E. (2024). Paul Berg and the origins of recombinant DNA. Cell *187*, 1019–1023. https://doi.org/10.1016/j.cell.2024.01.007.
9. Cohen, S.N. (2013). DNA cloning: a personal view after 40 years. Proc. Natl. Acad. Sci. USA *110*, 15521–15529. https://doi.org/10.1073/pnas.1313397110.
10. Maniatis, T., Fritsch, E.F., Lauer, J., and Lawn, R.M. (1980). The molecular genetics of human hemoglobins. Annu. Rev. Genet. *14*, 145–178. https://doi.org/10.1146/annurev.ge.14.120180.001045.
11. Maniatis, T., Fritsch, E., and Sambrook, J. (1982). Molecular Cloning: A Laboratory Manual (Cold Spring Harbor Laboratory).
12. Ginsburg, G.S., and Phillips, K.A. (2018). Precision Medicine: From Science To Value. Health Aff. *37*, 694–701. https://doi.org/10.1377/hlthaff.2017.1624.
13. Callaway, E. (2020). Revolutionary cryo-EM is taking over structural biology. Nature *578*, 201. https://doi.org/10.1038/d41586-020-00341-9.
14. Jumper, J., Evans, R., Pritzel, A., Green, T., Figurnov, M., Ronneberger, O., Tunyasuvunakool, K., Bates, R., Žídek, A., Potapenko, A., et al. (2021). Highly accurate protein structure prediction with AlphaFold. Nature *596*, 583–589. https://doi.org/10.1038/s41586-021-03819-2.
15. National Institutes of Health (2020). Indirect Cost Submission. https://oamp.od.nih.gov/division-of-financial-advisory-services/indirect-cost-branch/indirect-cost-submission.