



National Institute of Neurological Disorders and Stroke



Walter J. Koroshetz, M.D., became NINDS Director in 2015. He oversees scientific and administrative NINDS functions and holds leadership roles in NIH neuroscience initiatives. He previously was vice chair of neurology and director of stroke and neurointensive care at Massachusetts General Hospital, where he helped pioneer advanced brain imaging for stroke.

Mission

To seek fundamental knowledge about the brain and nervous system and to use that knowledge to reduce the burden of neurological disease.

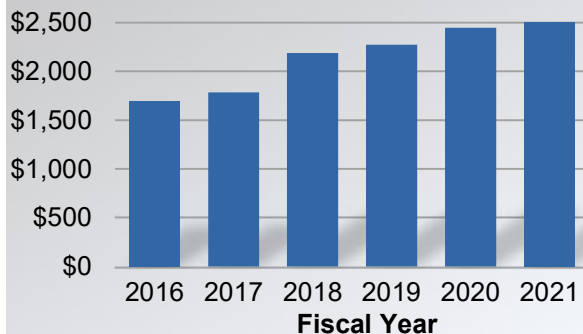
Neurological disorders include common and rare conditions that affect people of all ages. By some measures, they account for a greater burden than any other group of diseases.

NINDS

- Supports and performs basic, translational, and clinical neuroscience research, including studies to understand the nervous system in health and disease and to develop and test new and improved therapies.
- Funds and conducts research training and career development programs to ensure a vibrant, talented, and diverse neuroscience workforce.
- Disseminates neuroscience discoveries and their implications for health to the public, health professionals, researchers, and policy-makers.

NINDS Appropriations History

(Dollars in Millions)*



FY 2022 President's Budget: \$ 2,783 million

*Includes funds from the 21st Century Cures Act

Facts and Figures

	2017	2018	2019	2020
FTEs	525	504	496	525
Research Project Grants ¹	745	980	896	1,013
Extramural Principal Investigators ²	893	1,179	1,127	1,267
Extramural Early Stage Investigators ^{1,3}	88	127	145	160
Intramural Principal Investigators	48	45	47	51

¹ Competing awards only. ² Includes Principal Investigators (PIs) and Multiple Principal Investigators (Contact PIs and MPis). ³ Early Stage Investigators (ESIs) are within 10 years of their terminal research degree or end of postgraduate clinical training and have not received a substantial NIH independent research award.

Research Highlights

Through research supported and conducted by NINDS, researchers understand more about the nervous system and the diseases and conditions that affect it. NINDS has contributed to:

- Decades of decline in stroke deaths, due to advances in prevention and treatment including the clot-busting drug t-PA, clot retrieval devices, and innovative acute stroke imaging methods.
- New therapies for common and rare neurological disorders such as epilepsy, multiple sclerosis, migraine, spinal muscular atrophy, and muscular dystrophy.
- Devices that connect to the nervous system to restore functions lost or impaired due to disease or injury, including implanted brain stimulation therapies for Parkinson's disease, epilepsy, and spinal cord injury.
- Growing evidence for vascular contributions to dementia, which may inform new approaches to prevent cognitive decline and promote healthy brain aging.
- Cutting-edge tools for neuroscience research allowing studies to classify the many cell types in the human brain, map complex neural circuits, and observe brain activity in unprecedented detail.

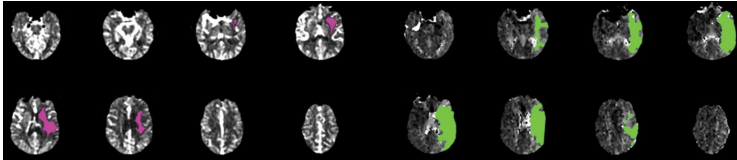


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Recent accomplishments

Good outcomes for more patients and at later times after stroke than once thought possible.

Ischemic stroke, the most common stroke type in the US, is caused when a clot blocks a brain artery, risking permanent brain injury if blood flow is not restored. In 2018, an NINDS-funded clinical trial (DEFUSE 3) showed that brain imaging can identify stroke patients who can benefit from a procedure to remove brain clots up to 16 hours after symptom onset. Previously, the use of this procedure, called endovascular thrombectomy, was only approved for up to six hours after symptom onset, a hard goal to meet in many stroke cases.



Brain imaging shows stroke-affected areas. (Albers *et al.*, N Engl J Med 2018)

Gene-targeted therapies for neurological disorders move from promise to reality.

NINDS research on disease causes and innovative genetic technologies is leading to new treatments targeting genes linked to neurological disorders. In 2016, the FDA approved nusinersen, an antisense oligonucleotide (ASO) for spinal muscular atrophy (SMA) and the first disease-modifying treatment for this progressive disease. This success was followed in 2019 by the first gene therapy for SMA, which delivers a functioning copy of the disease gene. NINDS has also advanced gene-targeted therapies in the pipeline for other neurological disorders, including amyotrophic lateral sclerosis (ALS), Huntington's disease, and spinocerebellar ataxia.

Trans-NIH neuroscience research

NINDS is a leading partner in trans-NIH neuroscience initiatives, reflecting the nervous system's role in many aspects of human health, development, and disease.

- The **Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative**® is accelerating basic neuroscience research and technologies to study complex brain circuits and functions.
- NINDS leads the **NIH Pain Consortium** and is a key partner in the **NIH Helping to End Addiction Long-termSM (HEAL) Initiative**, an aggressive effort to develop and optimize treatments for opioid addiction and misuse and to develop non-addictive treatments for pain.
- NINDS and the National Institute on Aging (NIA) work together to advance research on **Alzheimer's Disease and Alzheimer's Disease-Related Dementias (ADRD)**.
- The **NIH Blueprint for Neuroscience Research** is a collaboration among NIH Institutes, Centers, and Offices to address cross-cutting needs for neuroscience research and research training.
- NINDS and the National Institute of Allergy and Infectious Diseases (NIAID) lead the trans-NIH **Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS)** working group.

Future Initiatives

- **Health Disparities and Health Equity Research** NINDS is committed to reducing the disproportionate burden of neurological disease borne by underserved groups of society. Guided by strategic planning with public input, NINDS will strengthen research on health disparities and health equity and minority, community, and global health.
- **NINDS Ultra-rare Gene Therapy (URGenT) Network** URGenT will support precision medicine therapy development for serious, life-threatening ultra-rare neurological diseases affecting fewer than 20 in one million people. Together, these diseases represent a large medical need without available treatments and with little incentive for therapy development.
- **Accelerating Leading-edge Science in ALS (ALS²)** NINDS is partnering with the NIH Common Fund on an initiative to dramatically increase knowledge about the biology of ALS. The program solicits proposals for high-risk, high-reward research, including studies that use emerging research tools and bring new talent to ALS research.

