



NEUROLOGY

A Critical Moment

The global toll of morbidity and mortality from neurological disorders is rapidly growing. But unprecedented scientific and technological advances are providing new hope for patients and new tools for physicians. We are at an inflection point, with breakthroughs in our understanding of the causes of Alzheimer's disease, Parkinson's disease, stroke, epilepsy, amyotrophic lateral sclerosis (ALS) and so many other conditions.

With philanthropic support we will build an environment with a virtual feedback loop, utilizing insights gained from treating patients and leveraging findings from research programs to reveal new knowledge that can be transformed into more effective care and healthier outcomes.

Guided by our patients' needs, our mission is to be the leading academic neurology department by providing superior clinical care while rapidly discovering treatments to reduce and eliminate the devastating impact of neurological disorders.

Positioned for Impact

Technology now allows doctors to extend their senses in new ways—with imaging, they look inside the body; with laboratory tests, they see molecules in the blood; DNA sequencing provides an extended family history; and digital phenotyping extends their ability to detect subtle changes from the patient's own baseline. Mass General's outstanding clinicians and scientists have been at the forefront of these advances, including:

- Identifying the first genes involved in Alzheimer's disease and developing the "Alzheimer's in a dish" technique to accelerate the identification and evaluation of therapies to treat this disease
- Launching the HEALEY ALS Platform Trial, the first time more than one promising ALS therapy can be tested simultaneously, significantly reducing the time and cost involved in finding meaningful treatments for ALS
- Developing new imaging techniques that allow us to see both amyloid and tau (Alzheimer's disease) and neurons (ALS and Parkinson's)
- Leading the TeleStroke movement, connecting patients everywhere to expert advice
- Directing major national consortia to discover how strokes and other conditions affecting brain circulation cause memory loss and cognitive impairment

Our Vision

People and families with neurological disorders must have rapid access to the best care and new, effective treatments. The Mass General Department of Neurology faculty and staff will discover new approaches to early diagnosis and prevention of neurological disorders. Our department will continue to be the best place for our brilliant, diverse and talented faculty and staff to work.

Through our continued partnerships with our colleagues across Mass General, we will make discoveries that will improve the lives of our patients and of those living with neurological disorders around the world. We will leverage big data, gene editing, brain organoids, novel imaging tools, artificial intelligence and other technologies to improve care for people with neurological disorders and for those at risk. We want our faculty in the clinic and in the laboratory focused on

Bold Breakthroughs. Compassionate Care. Revolutionary Results.

conquering these disorders, paving the way for prevention and the development of targeted therapies and individualized treatments.

Opportunities to Support

This moment demands we aim high, and we need your help to turn our bold vision into reality. The following opportunities are tangible ways philanthropy will help us reach our goals.

» PEOPLE

- **Transformative scholar awards:** These awards will help us nurture the best young scientific minds with support that encourages innovation, seeds new ideas, encourages partnerships with other academic institutions and industry, and prepares more neurologists and neuroscientists to participate in therapeutic development.
- **Mass General Neurology endowed chairs and scholars:** These positions allow our clinicians and scientists the freedom to explore new frontiers and to dedicate the time and resources needed to attract additional foundation and federal grant support, while remaining compassionate caregivers.
- **Innovation Impact Awards:** Some of the most exciting ideas happen when an interdisciplinary group brings their diverse skills together. Innovation Impact Awards will support pilot studies that allow the best and boldest new ideas to develop into high-impact strategies and treatments.
- **Clinician educators:** The growing number of people with neurological disorders requires full-time clinician educators to serve as the best primary care neurologists, with expertise in diagnosis and care, and to partner with our disease specialists to train the next generation of neurologists.

» INFRASTRUCTURE

- **Imaging facility:** This facility will be equipped with super-resolution and expansion microscopy capabilities for researchers to study new frontiers in neuronal biology, along with a nanofabrication center that will make microfluidic devices and extraordinary depth of imaging to precisely target therapies for each patient.
- **Induced Pluripotent Stem (IPS) Cell facility:** The IPS Cell facility will use individual patient cells to develop and treat neurological diseases in more precise and effective ways.
- **Data sequencing:** In collaboration with the biobank, we seek to expand collection and pay for sequencing of as many patients who visit our clinics as possible, to illuminate patterns and develop preventive strategies for people at risk of certain neurological diseases.

» PROGRAMS

- **Neurotherapeutics:** We are harnessing big data to create adaptive statistical approaches and evaluate the effectiveness of promising therapies quickly across a wide range of brain diseases. We are also internationally recognized leaders for designing and leading the innovative clinical trials that translate laboratory results into proven treatments for neurologic disorders.
- **Team-based clinical care groups:** Teams will respond to clinical care needs 24/7. Team members will include our top neurology nurses, social workers, physical and occupational therapists, and any other support specialties needed.
- **Quality and safety initiatives:** Measuring the effectiveness of new protocols and therapeutic strategies is essential to ensuring every patient receives the right therapy at the right time, for the best response. This work will allow us to measure and improve quality of care and outcomes and minimize safety risks.



JOIN US

Philanthropic support will enable better and faster diagnoses, individualized treatments that are available more quickly, and improved readouts for clinical trials. Your partnership will help us provide our patients with access to the best available treatments, develop new treatments for patients globally and allow people to live better lives. Thank you for making these advances possible.

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