



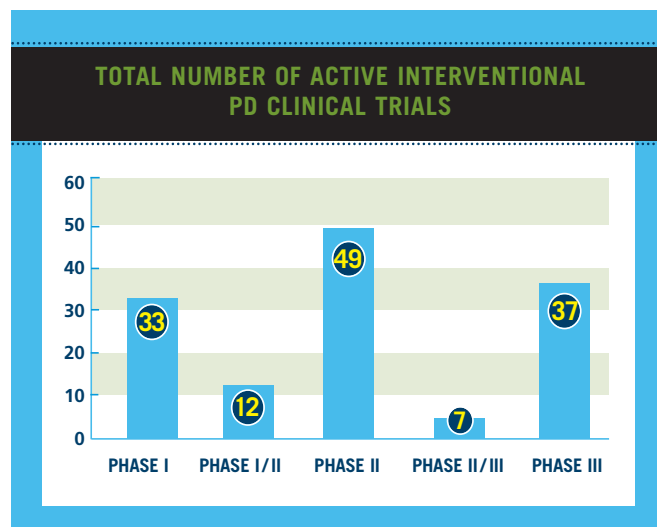
Parkinson's Disease

A GIVING SMARTER GUIDE TO ACCELERATING RESEARCH PROGRESS

An Executive Summary

PARKINSON'S DISEASE (PD) is a chronic, neurodegenerative movement disorder that affects the lives of more than 1 million Americans. PD slowly worsens over time, increasingly robbing patients of coordinated movement and inflicting a number non-motor symptoms ranging from cognitive impairment to gastrointestinal issues. Approximately 90 percent of PD cases occur spontaneously, while 10 percent of cases are familial. PD mainly affects the elderly, however the cause of PD is unknown. There are currently no treatments that can slow or stop the relentless progression of the disease.

As the size and proportion of the elderly population grows, so too will the societal and economic burden. The current estimated annual cost of PD is a staggering \$14.4 billion, which is project to double by 2040. This projection may be even higher if no effective treatments are found. In addition to the lack of disease-modifying therapies, there are no established biomarkers of disease. In other words, there are no objective measures to diagnose patients, track disease progression or



response to treatment. Rather, physicians rely on imprecise, qualitative rating scales, ultimately hampering drug development efforts and clinical trial success. Misdiagnosis is also a serious issue due to the difficulty in distinguishing several early symptoms of PD from the natural effects of aging or other neurological disorders. It is overwhelmingly clear that progress is desperately needed to combat this disorder.

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The PD field is fraught with a number of other unmet needs that hamper progress, including:

- Poor understanding of underlying PD disease biology and lack of funding to support basic research
- Poor understanding of the underlying biology of non-motor and treatment-induced symptoms
- Slow progress in biomarker discovery and the need for a more predictive translational pipeline

There is renewed interest in PD due to recent breakthroughs in the genetics of the disease and in digital health. Genetic discoveries have expanded our understanding of PD heredity and broadened insights into spontaneous disease. Moreover, key therapeutic targets have been uncovered, which are driving drug development strategy. Digital health advancements in mobile applications and wearable technology are allowing investigators to amass an unprecedented amount of patient data. These new technologies have the potential to broaden clinical trial participation and revolutionize the way PD symptoms are monitored and quantified.

Capitalizing on this momentum through strategic investment in discovery science, infrastructure, and research tools are essential for continued progress.

The Milken Institute Philanthropy Advisory Service has developed this Giving Smarter Guide for Parkinson's Disease with the express purpose of empowering patients, supporters, and stakeholders to make strategic and informed decisions when directing their philanthropic investments and energy into research and development efforts. Readers will be able to use this guide to pinpoint research solutions aligned with their interests. This guide will help to answer the following questions:

- Why should I invest in PD research?
- What key things should I know about this disease?
- What is the current standard of care?
- What is the current state of PD research efforts?
- What are the barriers preventing development of new therapeutics?
- How can philanthropy leverage existing infrastructure to support PD research and advance new therapies?

QUICK FACTS

- > The cause of PD is unknown.
- > There is no objective diagnostic exam or biomarker for PD.
- > There are no disease-modifying therapies for PD.
- > The cost of PD care is a major societal and economic burden.
- > Federal funding for PD research is only about 1% of PD care costs.

FOR THE FULL GIVING SMARTER GUIDE, VISIT [PAS.FASTERCURES.ORG/REPORTS](https://pas.fastercures.org/reports)

The Philanthropy Advisory Service, a program of the Milken Institute, counsels philanthropists, family offices, wealth advisors, and foundations seeking to make transformative investments in medical research. We provide comprehensive, digestible information that helps philanthropists evaluate research efforts and funding opportunities in various disease areas. Our analysis is shaped by scientific advisory boards, in-depth due diligence, and an objective framework for evaluation.

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