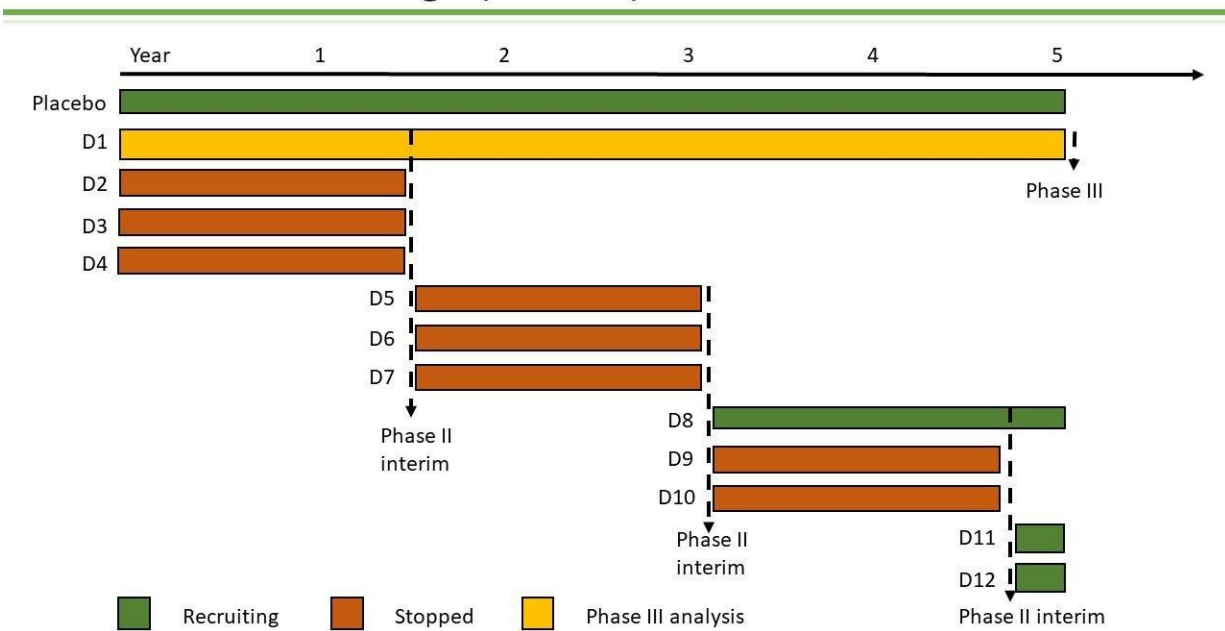


New trial platform could accelerate finding a cure for Parkinson's disease

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Multi-Arm Multi-Stage (MAMS)



Multi-Arm Multi-Stage (MAMS). Credit: IOS Press

Despite 30 years of research, not a single therapy has been found to successfully delay or stop the progression of Parkinson's disease (PD). In the *Journal of Parkinson's Disease* scientists report on the possibility of using a multi-arm, multi-stage (MAMS) trial platform to evaluate several potential therapies at once, using lessons learned from other diseases.

Many potential disease-modifying therapies have been identified as suitable for clinical evaluation in PD. Each potential cure for PD has to go through three clinical trial phases to test its safety, whether it shows signs of improving PD, and whether there is any meaningful benefit to people with PD. Running a clinical trial is a huge logistical, costly, and time-consuming undertaking. For a single new therapy this process can take the best part of a decade. Currently, phase II and phase III [clinical trials](#) in PD are set up in isolation from each other, a process that is lengthy, costly, and inefficient.

In this review, scientists introduce the concept of a multi-arm, multi-stage (MAMS) PD trial platform. MAMS [trials](#) test many potential therapies in parallel (multi-arm), transitioning seamlessly through various phases (multi-stage), i.e., from a phase II safety and efficacy study to a phase III trial. Early analyses allow unsuccessful therapies to be replaced. At the interim checkpoint, ineffective arms can be dropped and replaced by new treatment arms, thereby allowing for the continuous evaluation of interventions.

MAMS trial platforms already exist for prostate, renal, and oropharyngeal cancer and are currently being developed within the UK for other neurodegenerative disorders such as progressive multiple sclerosis (PMS) and motor neuron disease (MND).

"The current way we do trials in Parkinson's is too slow and inefficient," explained lead author Camille Buchholz Carroll, MD, Ph.D., Applied Parkinson's Research Group, University of Plymouth, Faculty of Health, Plymouth, UK. "We need to develop new ways of doing trials such as the MAMS trial platform, which will speed up the process and bring us closer to finding a cure, faster. We have the opportunity to learn from the experience in these other conditions and design a new trial that will work for people with Parkinson's."

Because a MAMS trial for PD would evaluate many potential treatments, it is critical that a widely endorsed core protocol is developed that will investigate outcomes and objectives meaningful to patients. Dr. Carroll and colleagues describe the challenges of drug selection, trial design, stratification and outcome measures, type and stage of PD to be tested, and how to best measure PD. They explore how these challenges have been met in promising MAMS trials instituted to address other diseases including the STAMPEDE trial; Motor Neuron Disease Systematic Multi-Arm Adaptive Randomized Trial (MND SMART); and UK MS Society's 2018-2022 Research Strategy.

"I was personally very excited to read about this new development," noted Prof. Bas Bloem, Co-Editor-in-Chief of the journal. "There are many promising drugs in the pipeline that have potential to slow down the progression of PD but taking that hypothesis to the test is still a long and cumbersome process. The new approach described here holds great promise for facilitating this complex procedure, so that we can gather the necessary evidence for new treatments much quicker than before. Patients will certainly applaud this development as well!"

The authors stress that to maximize the potential of a MAMS platform trial running over many years and interrogating many research questions, it is crucial that there is a pipeline in place that will continuously identify and evaluate suitable drug candidates. Furthermore, outcome measures have to be chosen that are sensitive enough to changes in [disease](#) progression over interim stages as well as the full duration of the trial.

"We believe a MAMS trial for PD is possible and could dramatically speed up the search for a cure," concluded Dr. Carroll. "Over the coming 12-18 months we will be working with the Cure Parkinson's Trust and other organizations, nationally and internationally, to achieve this."

PD is a slowly progressive disorder that affects movement, muscle

control, and balance. It is the second most common age-related neurodegenerative disorder affecting about 3% of the population by the age of 65 and up to 5% of individuals over 85 years of age.

More information: Marie-Louise Zeissler et al. Is It Possible to Conduct a Multi-Arm Multi-Stage Platform Trial in Parkinson's Disease: Lessons Learned from Other Neurodegenerative Disorders and Cancer, *Journal of Parkinson's Disease* (2020). [DOI: 10.3233/JPD-191856](https://doi.org/10.3233/JPD-191856)

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