



Welcome to our new Quarterly Research Bulletin.

Parkinson's Ireland are excited to share this update with you. In this bulletin, we'll be focusing on the most important topics based on what you, our valued members, have told us matters most to you.

We use your feedback from our research priorities poll to help guide our work and ensure we're focusing on what's most relevant to you. We're committed to aligning our priorities with your needs and will continue to listen and make improvements based on your input.

Research in Parkinson's disease is evolving with a focus on developing therapies that improve quality of life for patients. This includes advancements in non-invasive treatments like wearable devices that help manage symptoms like tremors and mobility issues. Advances in personalised treatments and neuroprotective approaches are also improving symptom management and quality of life and many other avenues including biomarkers & pharmacological treatments.

The aim of our bulletin is to provide members with up-to-date information on the latest medical research and treatment options, helping them make informed decisions about their health and work closely with their healthcare providers. We hope to increase interest in research that empowers patients with Parkinson's Disease (PD) and offer opportunities to learn about global advancements.

Additionally, we aim to provide chances for patients to get involved in research projects that may interest them, helping to shape the future of PD care.

Why is research so important to us?



Research is key to making sure our charity has the greatest possible impact on the people they help. It provides valuable information about the needs of the community, helping charities use their resources wisely.

Patient and public involvement (PPI) is an important part of this process, making sure that the voices of those affected by the charity's work are heard. Research results are shared, helping to spread knowledge, best practices, and lessons learned. The Research & Impact Subcommittee, made up of seven dedicated members, guides the charity's research to ensure it stays focused on helping the community in the best way possible.

Alongside this new quarterly bulletin, please keep an eye on our [website](#) and our weekly e-zine for research opportunities and developments.

Help us keep the most up to date priorities by completing our members [research poll here](#).

Many thanks to Dr Emma O'Shea for our first research round-up, read on below and enjoy!

Research Round-Up



New directions for Parkinson's disease research

In this 'Research Round-Up' article, I will outline some important and interesting Parkinson's-related research projects and findings, both internationally and in Ireland.

International Developments

There have been several important research studies published so far in 2024 which suggest a shift towards a much clearer understanding of Parkinson's disease (PD), and which may help with timelier diagnosis and more tailored treatment and management approaches. Below is an overview of some of these important international findings and their potential implications.

United States

Researchers at Northwestern University in Chicago recently published their discovery of novel DNA methylation patterns (i.e., changes) in the blood of people living with PD. In fact, the research team discovered 75 genes with different methylation patterns in the people with Parkinson's disease. These patterns were not found in the comparison group, which was comprised of people who didn't have PD. Of the genes identified, one particularly remarkable gene with differences in DNA methylation was the CYP2E1 gene. This gene is known to metabolize things like pesticides, which we know have some connection to PD.

The researchers believe that there is potential for using this kind of 'DNA methylation' to identify those who are at risk of developing PD. Research on this is ongoing, as the team at Northwestern University now plans to study DNA methylation data from people who are in the 'prodromal phase' of Parkinson's, i.e., those who are at risk of developing PD, but don't yet have any symptoms. They also plan to do further research into how environmental exposures (e.g., pesticides) impact DNA changes in patients over time.

Germany

Another recent study from Germany was funded by the Michael J. Fox Foundation and conducted in partnership with PD UK, The Peto Foundation,

Great Ormond Street Hospital and others. The findings were published in the prestigious journal 'Nature Communications' in June of 2024. This research team were also interested in finding markers of PD in the blood, but in a different way than the US team outlined above. This team analysed plasma samples from people with untreated Parkinson's and a comparison group of people living without PD, using artificial intelligence.

The study identified 8 blood biomarkers that were unique to the participants with PD. This panel of eight blood markers may be able to identify which patients will go on to develop PD, up to 7 years before developing motor symptoms. While further research is needed, this is very promising. Experts in the field, including Professor Ray Chaudhuri of King's College London, believe that if this is replicated in larger studies, objective tests could be developed to support the diagnosis of PD in the near future. The study team also believe this finding will improve recruitment for clinical trials focused on PD prevention.

Developments in Ireland

Researchers in Ireland are also making great strides, with research on wearables technologies and on women's health in PD. Here is a roundup of PD research being carried out by my colleagues at the Parkinson's Disease Research Cluster in University College Cork (UCC).

PragmaClin

In September 2024, the Centre for Gerontology and Rehabilitation (CGR) in UCC and the Wireless Sensor Network Group (WSN) in Tyndall National Institute kicked off a collaborative project with PragmaClin Inc, part-funded by the INSIGHT SFI Centre for Data Analytics. PragmaClin, a Canadian AI health technology company has developed 'PRIMS'. This is a state-of-the-art digital assessment tool. It has been designed to accurately and objectively assess PD symptoms using advanced technologies, such as 3D depth cameras and machine learning.

The hope is that this system can provide clinicians with frequent remote data to inform treatment decisions and improve overall PD care. This technology may reduce the need for frequent clinical visits and offer real-time insights into patients' daily motor functions. This project is led by Prof Suzanne Timmons from CGR and Dr Salvatore Tedesco from the WSN's Edge AI team. Pilot testing will be carried out in clinics and in an operational environment.

My Moves Matter



Researchers at UCC are also currently conducting a research study aimed at better understanding how hormonal changes in women with Parkinson's can impact their symptoms, leading to unique healthcare needs.

Approximately 40% of people living with Parkinson's are women, and up to 30% of these are under the age of 60. Women may experience Parkinson's symptoms differently at distinct stages of their monthly menstrual cycle, and of their reproductive lifecycle.

Professor Aideen Sullivan and her colleagues at UCC are collaborating with Richelle Flanagan and the My Moves Matter app in this first-of-a-kind research study. Richelle was diagnosed with Young Onset PD shortly after the birth of her daughter. She developed the My Moves Matter digital app to help women with Parkinson's to track and manage their symptoms and medications across their menstrual cycle.

The research study will analyse anonymised data from the My Moves Matter app, and from anonymous online surveys, to explore fluctuations in symptoms and responses to medication across the menstrual cycle. This study is the first globally to track how hormonal changes in women with Parkinson's can impact their symptoms.

This research has potential to help people with Parkinson's, especially women who are struggling to manage their many and varied symptoms, along with balancing their family and working lives. Anyone interested in the app can [download it here.](#)



To access the research survey relating to this app, please scan this QR code using the camera app on your smartphone.



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