

Wireless neurostimulator to revolutionize patient care

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Credit: Edward Jenner from Pexels

Many neurological disorders like Parkinson's, chronic depression and other psychiatric conditions could be managed at home, thanks to a collaborative project involving researchers at the University of

Queensland (UQ).

Queensland Brain Institute (QBI) Professor Peter Silburn AM said his team, together with Neurosciences Queensland and Abbott Neuromodulation have developed a remote care platform that allows patients to access treatment from anywhere in the world. More details about this development are published in *Scientific Reports*.

"By creating the world's first integrated and completely wireless remote care platform, we have removed the need for patients to see their doctor in person to have their device adjusted," Professor Silburn said.

Electrodes are surgically inserted into the brain and [electrical stimulation](#) is delivered by a pacemaker which alters [brain function](#)—providing therapeutic relief and improving quality of life. This [digital platform](#) allows clinicians to monitor patients remotely, as well as adjust the device to treat and alleviate symptoms in real time.

"We have shown that it is possible to minimize disruption to patients' and caregivers' lifestyles by increasing accessibility to the service, saving time and money," Professor Silburn said.

"There are no cures for many of these conditions which often require life-long treatment and care, so for those people the device would be a game-changer."

He said the system also fostered increasingly personalized treatment and data-driven clinical decisions, which could improve [patient care](#).

"During the study, we established the platform safety, security, usability and effectiveness and optimized its features using patient feedback in a biodesign process," Professor Silburn said.

"In the initial weeks of a limited market release, we conducted 858 remote care sessions and maintained a robust and high success rate."

While the team started working on this digital health solution before COVID-19, the pandemic elevated the need for remote care platforms, particularly for older people and those living in remote areas with increased travel difficulties.

"Through the pandemic patients have become more familiar with telemedicine and far more willing to adapt to platforms that connect them remotely to their healthcare teams," Professor Silburn said.

The researchers are confident the technology could be adapted for many other conditions in the future.

"As we discover more about the biomarkers in brain-related disorders, we will refine neuromodulation systems to improve treatment for [neuropsychiatric disorders](#) like depression, [obsessive-compulsive disorder](#), anorexia, and Tourette's syndrome, to name a just a few," Professor Silburn said.

The digital health platform for remote neuromodulation systems has regulatory approval and launched in Australia in October 2021. It has also been adopted in the United States by the Food and Drug Administration Service and the European CE-Mark.

More information: Peter Silburn et al, Rapid development of an integrated remote programming platform for neuromodulation systems through the biodesign process, *Scientific Reports* (2022). [DOI: 10.1038/s41598-022-06098-7](https://doi.org/10.1038/s41598-022-06098-7)

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