Manus Parkinson’s Pen for Parkinson’s disease

TIMEFRAME: Estimated earliest commercial availability in the UK

Currently unclear  Now  6 months  1 year  18 months  2 years  Over 2 years

Manus Parkinson’s Pen is a digital sensor pen in development by Manus Neurodynamica for the diagnosis and monitoring of people with symptoms of Parkinson’s disease. The pen combines inbuilt movement related sensor technologies with software that is a combination of an analytical engine and a decision support system.

Users perform standardised handwriting and drawing tasks with the Manus Parkinson’s Pen on a tablet computer. The pen’s pressure and motion sensors records parameters of minute limb and hand movements. Analytical software processes the movement parameters and graphically presents these as quasi-biomarkers. The biomarkers provide objective information to clinicians about movement abnormalities and enable clinicians to quantify patients’ level of motor skill and to monitor it over time. The analytical engine will be cloud based to allow the exchange of data.

Manus Parkinson’s Pen was CE marked in November 2015 with an expected UK NHS launch in the next 18 months.

POTENTIAL FOR IMPACT

Parkinson’s disease (PD) is a progressive neurological disease which affects about 127,000 people in the UK, with most aged over 50 years old. People with PD do not produce enough dopamine in their brain because some of the nerve cells have died. The main symptoms of PD are tremor, rigidity and slowness of movement. People with PD may also experience other symptoms such as tiredness, pain and depression.

Current diagnostic methods for PD are based on clinical specialists’ subjective interpretation of a person’s physical signs. Diagnosing very mild or early cases of PD can be difficult and
observations taken by specialists at different points in time may not be easily comparable. Differentiating between tremors caused by PD from other causes can also be difficult. In such cases, expensive radionuclide neuroimaging single-photon emission computed tomography (SPECT) e.g. DaTSCAN™ can be used, but results are not always conclusive.

The company states that the Manus Parkinson’s Pen can provide an objective assessment of some of the movement disorders associated with PD and help differentiate between tremors caused by PD and other tremors. The pen is non-invasive and may offer a cost saving if it can replace SPECT for differential diagnosis. The company claim that the pen is simple enough to be used by non-specialists who could therefore carry out initial diagnostic tests in patients suspected to have PD. This may reduce diagnostic and treatment waiting times. The Manus Parkinson’s Pen can also be used to monitor disease progression and/or treatment effects.

This technology is predicted to have an impact on the following domains of the NHS Outcomes Framework (www.england.nhs.uk/resources/resources-for-ccgs/out-frwrk):

- Domain 2 Enhancing quality of life for people with long-term conditions;
- Domain 4 Ensuring that people have a positive experience of care.

EVIDENCE

PUBLISHED PAPERS AND ABSTRACTS


COMPLETED UNPUBLISHED STUDIES

A clinical validation study at Mater Cordiae Hospital in Dublin (Ireland) and the University Medical Centre Groningen (Netherlands) has been completed.

ONGOING STUDIES

Clinical validation for use in differential diagnosis and monitoring, including comparison with DaTSCAN™ (portfolio study) in 6 NHS Trusts under the leadership of Professor Richard Walker at Northumbria NHS Foundation Trust is underway.

INFORMATION FROM

This Alert is based on information from the company and a time-limited internet search.
Lay summary

The *Manus Parkinson's Pen* is a new digital sensor pen with an inbuilt movement sensor to help in the diagnosis of people with symptoms of Parkinson's disease. Users perform handwriting and drawing tasks using the pen on a tablet computer. The pen records and analyses movements of the hand and arm during these tasks. A display provides information to health professionals about any abnormalities in these movements. The company claim that this is the first device that can be used to differentiate between tremors caused by Parkinson's disease and other tremors. The pen may reduce the need for more invasive tests.