



Topic Exploration Report

Topic explorations are designed to provide a high-level briefing on new topics submitted for consideration by Health Technology Wales. This report was prepared by Health Technology Wales on behalf of the Bevan Commission. It summarises the existing evidence on the technology of interest to support a Bevan health technology exemplar application.

Topic:	Parkinson's KinetiGraph™ system
Topic exploration report number:	TER028
Referrer:	Lauren Evans
Topic exploration undertaken by:	Health Technology Wales

Aim of Search

Health Technology Wales researchers searched for evidence on the use of virtual clinics supported by the Parkinson's KinetiGraph data logger, or any other wearable device used to measure motor symptoms in people with Parkinson's disease.

Summary of Findings

There is very limited evidence on the effectiveness of KinetiGraph as a method of measuring motor symptoms. We identified two small studies that investigated the effectiveness of KinetiGraph and its consistency with other motor symptom measurements, but further high-quality research is needed.

The use of wearable devices in general by people with Parkinson's disease has been assessed in a number of recent systematic reviews. These highlight that a wide range of different wearable devices are available, but that further high-quality research is needed to better understand the utility of these in Parkinson's disease.

Key sources of evidence

- Hubble, R.P., et al., Wearable sensor use for assessing standing balance and walking stability in people with Parkinson's disease: a systematic review. PLoS One, 2015. 10(4): p. e0123705.
- Rovini, E., C. Maremmani, and F. Cavallo, How Wearable Sensors Can Support Parkinson's Disease Diagnosis and Treatment: A Systematic Review. Front Neurosci, 2017. 11: p. 555.
- Ossig C, Gandor F, Fauser M, Bosredon C, Churilov L, Reichmann H, et al. Correlation of Quantitative Motor State Assessment Using a Kinetograph and Patient Diaries in Advanced PD: Data from an Observational Study. PloS one. 2016;11(8):e0161559.

Areas of Uncertainty

Existing evidence on the use of KinetiGraph is limited, and we did not identify any ongoing trials studying the effectiveness of this device in the UK (or internationally). Further high-quality research is needed on KinetiGraph and the range of wearable devices available for people with Parkinson's disease

Brief literature search results

Resource	Results
Guidelines and guidance	
NICE <i>We searched for guidelines, technology appraisals, diagnostics, interventional procedures, and medical technologies guidance.</i>	<p>No specific guidance was identified on Kinetigraph or any other wearable device for use by people with Parkinson's disease.</p> <p>NICE have produced a Guideline (NG71) on Parkinson's disease in adults, but this does not make any recommendations about the use of virtual clinics or the use of wearable devices to monitor symptoms.</p>
Healthcare Improvement Scotland: <i>We searched the HIS website for any relevant advice and hand-searched Scottish Health Technologies Group and Scottish Intercollegiate Guidelines Network publications.</i>	<p>No specific guidance was identified on Kinetigraph or any other wearable device for use by people with Parkinson's disease.</p> <p>SIGN have produced a Guideline on diagnosis and pharmacological management of Parkinson's disease (SIGN 113), but this does not make any recommendations about the use of virtual clinics or the use of wearable devices to monitor symptoms.</p>
Guidelines International Network	<p>No other guidelines relevant to the UK were identified.</p>
Secondary literature and economic evaluations	
ECRI	<p>No relevant results were identified.</p>
Cochrane library <i>We searched for relevant Cochrane Reviews.</i>	<p>We did not identify any Cochrane Reviews studying Kinetigraph or any other wearable device for use by people with Parkinson's disease, or the use of virtual clinics in general.</p>
Medline <i>We searched the Medline database for systematic reviews, meta-analyses, economic evaluations only.</i>	<ol style="list-style-type: none"> Godinho, C., et al., A systematic review of the characteristics and validity of monitoring technologies to assess Parkinson's disease. <i>J Neuroeng Rehabil</i>, 2016. 13: p. 24. Hubble, R.P., et al., Wearable sensor use for assessing standing balance and walking stability in people with Parkinson's disease: a systematic review. <i>PLoS One</i>, 2015. 10(4): p. e0123705. Rovini, E., C. Maremmani, and F. Cavallo, How Wearable Sensors Can Support Parkinson's Disease Diagnosis and Treatment: A Systematic Review. <i>Front Neurosci</i>, 2017. 11: p. 555.
Primary studies	
Medline <i>We searched the Medline database for studies of any design.</i>	<ol style="list-style-type: none"> Horne M, McGregor S, Lynch P, Zoellner Y. Objective Data In Parkinson's Disease Therapy Management - A Retrospective Analysis Of The Parkinson's Kinetigraph (Pkg) Database. <i>Value in health: the journal of the International Society for Pharmacoeconomics and Outcomes Research</i>. 2015;18(7):A685. Ossig C, Gandor F, Fauser M, Bosredon C, Churilov L, Reichmann H, et al. Correlation of Quantitative Motor State Assessment Using a Kinetograph and Patient Diaries in Advanced PD: Data from an Observational Study. <i>PloS one</i>. 2016;11(8):e0161559.
Cochrane library	<p>No relevant trials were identified.</p>

<i>We searched the Cochrane Trials database for studies of any design.</i>	
Ongoing research	
Clinicaltrials.gov	We did not identify any ongoing research on Kinetigraph to remotely monitor symptoms in people with Parkinson's disease.

Date of search:	August 2018
Concepts used:	Kinetigraph; Parkinson's disease; wearable devices; follow up/monitoring