



Topic Exploration Report

Topic explorations are designed to provide a high-level briefing on new topics submitted for consideration by Health Technology Wales. The main objectives of this report are to:

- Determine the quantity of evidence available for a technology of interest.
- Identify any gaps in the evidence.
- Inform decisions on topics that warrant fuller assessment by Health Technology Wales (HTW).

Topic exploration report number:	TER407
Topic:	Personal SOS alarm wearables for vulnerable and/or older people.
Summary of findings:	<p>Health Technology Wales researchers searched for evidence on personal, wearable SOS alarm device with GPS tracking, including the CPR Guardian SOS alarm.</p> <p>Two papers explore the feasibility of wearable SOS alarms. One study explored the feasibility of wearable smartwatches to detect falls and one other study explored user experiences of wearable smartwatches among people living with dementia. One study reported on quality of life using the European Health Interview Surveys-quality of life, range 0-48 (EUROHIS-QOL), but reported a no significant change in quality-of-life for people with dementia or caregivers over the study period.</p> <p>Health Technology Wales did not identify any published evidence relating to the cost effectiveness of the Guardian SOS alarm or other similar wearable SOS alarms.</p> <p>We did not identify any ongoing studies relating to wearable SOS alarms.</p>

Introduction and aims

The CPR Guardian SOS Alarm, developed by CPR Global Tech Ltd is a wearable watch fitted with a GPS locator, a heart rate monitor, and an emergency assist button. The device also acts as a fall detector and is designed for those with additional needs and vulnerable people such as older people, those living with Dementia or Alzheimer's and those suffering from domestic abuse. The device works by automatically sending text-based alerts with location data to a nominated agent. The SOS alarm watch functions as a mobile phone, with an available SIM network.

The intended benefit of the device includes anticipated healthcare savings such as the freeing up of hospital beds by releasing people in their home earlier, less time needed for healthcare professionals to find missing persons, and improvements in dementia care.

Health Technology Wales researchers searched for evidence on any personal, SOS alarm device to with GPS tracking that would be similar to the CPR Guardian SOS alarm.

Evidence overview

Evidence Standards

The CPR Guardian SOS Alarm is a digital health technology (DHT) and was determined to be a Tier C technology according to the [Evidence Standards Framework for Digital Health Technologies](#). Technologies within this classification serve as interventions. This includes technologies that are designed to record, measure and/or transmit data to guide or provide treatment. This DHT is likely to drive management as information provided by the DHT, such as fall alerts and heart rate, could be used to guide next diagnostics or interventions.

Evidence on feasibility

Health Technology Wales researchers identified two studies about the feasibility of similar wearable alarms.

One paper about the feasibility of the use of smartwatches in wearable fall detection systems (González-Cañete & Casilari 2021) evaluated several brands of wearable alarm watches including: Huawei Watch 2, Skagen Falster 2 and the Mobvoi Ticwatch Pro 2020. The paper highlighted several potential issues that could arise when wearing the device. The paper stated that wrist movements may not always correlate with the movements of the rest of the body, meaning the fall detection system may not be accurate.

The second paper (Megges et al. 2018) explored the adaptation of wearable technology to the needs of older people with mild cognitive impairment and Alzheimer's disease. The study aimed to assess users' experience of two types of wearable alarm watches (Himatic GPS Alpha watch and ReSOS-2 emergency watch) among people with dementia and caregivers, based on a four-week period of participants wearing each device. Users rated the usability, product functions, design features and product satisfaction at home and the clinic. The study found that usability ratings of both products decreased after 4 weeks of use.

Evidence of effectiveness

Megges et al. (2018) reported quality-of-life outcomes for people with dementia during the study period using the EUROHIS-QOL. Authors reported no significant changes in EUROHIS-QOL over the study period.

Cost-effectiveness evidence

We did not identify any evidence on the cost effectiveness of wearable SOS alarm devices.

Ongoing studies

We did not identify any ongoing research about wearable SOS alarms.

Areas of uncertainty

Evidence appears to be limited to smaller scale feasibility studies about similar wearable devices. We did not identify evidence to support the clinical effectiveness and cost effectiveness of the personal, wearable SOS alarm devices.

Literature search results

Health technology assessments and guidance
No evidence identified.
Evidence reviews and economic evaluations
No evidence identified.
Individual studies
González-Cañete FJ, Casilari E. (2021). A Feasibility Study of the Use of Smartwatches in Wearable Fall Detection Systems. <i>Sensors</i> . 21(6): 2254. Available at: https://pubmed.ncbi.nlm.nih.gov/33807104/
Megges H, Freiesleben SD, Rösch C, et al. (2018). User experience and clinical effectiveness with two wearable global positioning system devices in home dementia care. <i>Alzheimer's & Dementia: Translational Research & Clinical Interventions</i> . 4: 636-44. doi: https://doi.org/10.1016/j.trci.2018.10.002
Ongoing research
No evidence identified.

Date of search:	August 2022
Concepts used:	CPR Guardian SOS Alarm; personal SOS alarm personal alarms; fall detector wearable alarm/device; wearable alarms for dementia.