

A.I. tools for front line clinicians in stroke, heart failure and vascular dementia. For the first time if successful we intend to explore the common causal factors across all 4 disease areas and create a unique synthetic/augmented data resource for the UK and Europe.

## 12 USABILITY AND ACCEPTABILITY OF WEARABLE TECHNOLOGY IN THE EARLY DETECTION OF DEMENTIA

Sarah Wilson. *Newcastle University*

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**Objective** Digital technology is transforming health and social care. Digital technologies, which includes smartphones and wearables, can be used to predict, diagnose, monitor, and/or develop treatments for different diseases. These technologies also have the potential to detect markers of neurodegenerative diseases at a much early stage than is currently possible.

The Early Detection of Neurodegeneration (EDoN) initiative aims to use digital technologies to detect preclinical dementia, with aspirations to validate a digital toolkit for clinical practice. To enhance its development, we aimed to assess the usability and acceptability of the EDoN toolkit in people with cognitive impairments and their carers.

**Methods** Various UK-based networks such as Join dementia research were used to recruit participants.

The EDoN toolkit, which includes a smartwatch (Fitbit Charge 4),

EEG headband (Dreem 3), and two smartphone applications (Longevity and Mezurio), was sent to each participant. University ethical approval was obtained (2135/12893/2020). Written and video guides were provided to support participants' when using the toolkit. Participants' initial perspectives of the toolkit and experiences of the setup process were explored through an initial interview, conducted approximately three days after receiving the devices. Follow-up interviews were conducted two weeks later to explore the acceptability and usability of the toolkit. NVivo enabled the thematic analysis of the interview transcripts. Emerging themes were discussed and refined by the research group.

**Results** Sixteen semi-structured interviews were conducted with nine participants, at two-time points. Four participants had mild cognitive impairment, two had frontotemporal dementia, one had Alzheimer's disease and two were carers.

Key themes were identified and centre around usability, acceptability, and inequity. Sub-themes within usability included the utility of the toolkit, experiences of setting up the devices, comfort of the wearables, and preference towards the written guides over the video guides, especially amongst those 'who don't like technology' (P3) and 'prefer instruction booklets rather than go backward and forwards online'(P1). In terms of acceptability, participants appeared to show a greater acceptance for familiar devices (e.g., previously worn a fitbit) and an initial hesitancy for the EEG Headband as it looked 'cumbersome'(P3). They described the importance of understanding how the device worked and obtaining feedback for 'personal interest' (P4), and raised fears around the implications of a high score in practice, with their 'driving license being taken'(P3) . Various inequities of the toolkit were uncovered such as a lack of accessibility to compatible phones and Wi-Fi connection, 'sore patches' (P6) caused by the wearables amongst individuals with dermatological issues, and

digital exclusion regarding poor digital literacy and the view that technology is 'alien'(P6).

**Conclusion** These results highlight that the EDoN toolkit was usable amongst only some individuals with cognitive impairments and their carers. Feedback on product acceptability and usability will be fed back to developers to help improve the different devices. Future work is needed to increase the inclusivity of the EDoN toolkit to support health equity and to reduce the stigma surrounding dementia.

## Part II: ePosters

### Winner of Best ePoster

## 13 THEMATIC REVIEW OF MEDICATION-RELATED INCIDENTS AT A MAJOR TEACHING HOSPITAL AND THE POTENTIAL MITIGATION OF THESE INCIDENTS WITH ELECTRONIC PRESCRIBING AND MEDICINES ADMINISTRATION

Adam Khimji. *University of Nottingham/Birmingham Community Healthcare NHS Foundation Trust*

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**Objective** To describe the frequency of the different types of harmful medication related incidents reported from one NHS Trust. To then assess whether the likelihood of these incidents occurring would have been reduced by a specific ePMA system, Nervecentre.

**Methods** Two researchers retrospectively reviewed 387 medication related incidents reported to DATIX, a national reporting system, between September 2020 and August 2021 at Nottingham University Hospitals NHS Trust.

The incidents only involved hospital inpatients and had to be associated with patient harm. Descriptive statistics were used to describe the frequencies and percentages of incidents per type of medication-related error, degree of harm, hospital division and specialty. Incidents were classified based on the extent to which Nervecentre could have reduced the likelihood of the incident occurring.

The actions from this review were adopted into project planning, risk management and deployment planning with a view to repeating the review pre-deployment.

**Results** Administration incidents were commonly reported (179 incidents, 46.3%), with the Prescribing, Pharmacy and Discharge categories containing fewer incidents. Hospital divisions reported similar frequencies of incidents, with more variation observed between specialties. While most incidents were not likely to be impacted by ePMA (243 incidents, 63.1%), Nervecentre could have reduced the likelihood of 72 incidents (18.6%).

Configuration and development to the system had the potential to reduce the likelihood of a further 29 (7.2%) and 43 (11.1%) incidents, respectively. Analysis of harm suggested that the likelihood of approximately 1 in 5 moderate harm incidents could have been reduced by Nervecentre (without configuration).

**Conclusion** Implementation of Nervecentre would likely be an effective intervention to reduce many types of harmful medication-related incidents at this Trust. Alternative interventions are required to mitigate errors that would not be impacted by ePMA systems.