

# Worn To Protect - Empowering Frail Lives with Wearable Tech

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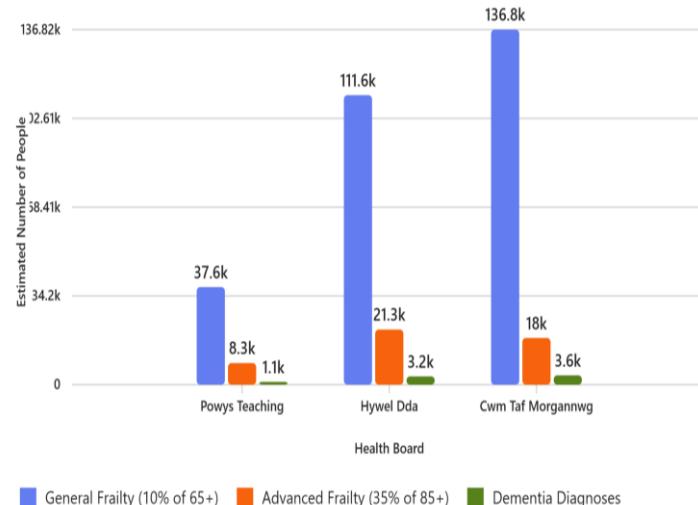
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## Background:

As frailty and dementia rise among older adults (See graph), staying safe at home becomes more challenging. Traditional care can't always provide real-time support—potentially leading to increased risks and reduced quality of life.

Personal alarm watches can offer a smart solution:

- Continuous monitoring
- Instant emergency alerts
- Peace of mind for users and caregivers



## Aims and Objectives:

Enhance safety, promote independence, and improve quality of life for vulnerable populations—particularly people living with dementia in Wales—through wearable technology.

### Objectives

- Assess Acceptability:** Understand how the watches are received by participants, caregivers, and professionals.
- Evaluate Usability:** Assess ease, reliability, and practicality in daily life.
- Measure Impact:** Measure effects on safety, independence, and overall quality of life.
- Establish Viability:** Provide evidence to support integration into health and care systems.

**"I normally worry about mum when I'm in work but don't want to be calling and texting her all the time, found with this I could check the app to see where she was which would give reassurance. (We liked) the piece of mind for the carer."**

## Approach:

### Project design

- This 12-month project co-evaluated **personal alarm watches** for individuals living with **physical frailty and dementia**.
- It focused on understanding the **acceptability** and **usability** of wearable technology across diverse settings.
- It included participants from **urban and rural communities**.
- It engaged a wide range of stakeholders: **patients, carers, and healthcare professionals**.

### Project Delivery

The project was delivered through a partnership of **Hywel Dda, Cwm Taf Morgannwg UHB, and Powys THB**.

Brought together via the **All-Wales Innovation Leads**, each Health Board offered a unique perspective on implementation and evaluation—**strengthening future adoption potential**.

The collaboration was led by **experienced clinicians**, ensuring practical, patient-focused delivery across diverse settings.

The project dealt with several challenges:

- Technical issues such as **signal loss in rural areas**, SIM card problems, and complex setup.
- Battery life and non-standard chargers posed barriers, especially for those with cognitive decline.
- Patients often needed prompting or support to wear and charge the device.
- Volume limitations made it hard for those with hearing impairments.
- Some watches were returned due to anxiety or relocation to assisted living.
- Families sometimes underutilized features due to lack of training or time.
- Cognitive status influenced acceptance and consistent use.

### Evaluation Approach

**Mixed Methods:** Combining data and lived experience to assess impact.

#### Quantitative

Short questionnaires from participants and caregivers measured safety, independence, and usability. CORE-10 PROM

#### Qualitative

Interviews and case studies captured real-world feedback.

## Impact:

- Enhanced Safety & Independence:** Real-time location tracking allowed patients to continue daily routines safely, reducing the risk of wandering and accidents. The devices helped preserve autonomy and independence while offering reassurance to caregivers.
- Improved Family Experience:** Relatives, especially those working full-time or living far away, experienced greater peace of mind.
- SOS contact setup was intuitive. Fall detection triggered alerts and calls to emergency contacts. Geo-fencing and Wi-Fi boundaries helped monitor movement. Pedometer and reminders added functional value.

Positive Outcomes	Challenges
Improved safety	Signal loss
Greater independence	Battery issues
Carer reassurance	Complex setup
	Usability limitations

- Clinical Outcomes:** The CORE-10 assessment for the CTM UHB cohort showed a decrease in clinical score from 8 to 6 over 8 days, indicating a positive shift in mental health status, with reduced anxiety and distress, though sleep difficulties and suicidal ideation remained concerns.

## Key Conclusions:

- Involving patients, carers, and community representatives throughout ensured the solution addressed real needs and preferences.
- Technology acceptance varied, influenced by cognitive ability, anxiety, and support systems—highlighting the need for tailored education and setup support.
- Reliable connectivity and simple device setup are essential, especially in rural areas and for users with cognitive challenges.
- Ongoing involvement from carers and clinicians underpins successful adoption and sustained use.