ARMED
ADVANCED RISK MODELLING FOR EARLY DETECTION

Case Study: ***Telecare Cardiff***

Telecare Cardiff use ARMED to support their falls prevention strategy

Telecare Cardiff is putting the emphasis on prevention. Find out how they are seeking to avoid hospital admissions through well-designed, cost-effective community-based interventions, targeting falls prevention among older people.

The challenge

Falls are a public health concern in Wales and represent the largest cause of serious injury for anyone over the age of 65. Around 30% of adults who are over 65 years of age and living at home will experience at least one fall a year. This accounts for more than 4 million hospital bed days. In Wales, it is estimated that between 230,000 and 460,000 people over the age of 65 fall every year and between 115,000 and 230,000 older people fall more than once per year. Research by Cardiff Council found that someone who'd fallen five or six times was 56% more likely to go into residential care within two years. Last year, out of the 3,796 people supported by Telecare Cardiff's response service, 1,088 of them fell, many several times.

"Protection is better than cure. I think everybody dreads falling because we've seen so many friends once they have fallen and pneumonia sets in or they're taken to hospital, it can be very serious."

Cynthia, ARMED / Telecare Cardiff service user

The solution

With the need to be more proactive a key priority for telecare commissioners, Telecare Cardiff is putting the emphasis on prevention. They are seeking to avoid hospital admissions through well-designed, cost-effective community-based interventions targeting falls prevention among older people.

Assistive technology (AT) and the data gathered from devices, can play a part in the anticipation of falls before they happen. Using a person's health statistics and artificial intelligence (AI), services can anticipate when a situation is likely to occur.

It's this recognition that led Telecare Cardiff to approach ARMED (Advanced Risk Modelling for Early Detection) with software that uses data to predict health risks before they become noticeable.

Twenty people were initially identified to be a 'falls risk', with the scheme already expanding. Participants wear a polar device and their vital statistics are sent to an app on their smart phone, which will send information to a cloud platform. Using analytics on the Microsoft Azure platform, reports are created through Microsoft Power BI.

Telecare Cardiff have an app on their desktop where each morning the participants' sleep and activity data is checked. When risk flags are raised that indicate an adverse reading, contact is made with the participant, their family or Allied Health Professional (AHP) colleagues to ensure the necessary steps are taken to prevent a fall from happening.

There are 4 risk levels in which an individual will have assigned in accordance with their health stats.

Level 0 - the user is okay, no further action is required.

Level 1 - the risk to the user is low, and requires awareness of changes within activity levels.

Level 2 - the user's risk is medium, a call will be placed to their contact and the user themselves to discuss the abnormality and provide advice on appropriate next steps.

Level 3 - the risk to the user is high, the user should be contacted immediately and also their named contact(s). A request will be made for a Mobile Warden to attend, their GP may be contacted, and a referral will be placed to ILS or CRT.

Cardiff Telecare were inspired to use ARMED following results achieved at Loreburn Housing Association where they had 100% reduction in falls for the participants involved in the trial. ARMED is currently operating as a pilot scheme in Cardiff with money from the integrated care fund.

Aaron Edwards, Implementation and Delivery Manager at Cardiff Council and chair of the Assistive Technology Network for Wales explained "What this does is it goes further upstream, we're looking five-ten years into the future and identifying risks before they happen so managing falls in a proactive and predictive sense."

Whilst it is too early to evaluate the economic outcomes of the project, Cardiff Council is confident that the ARMED project will reduce the amount of falls, GP calls, ambulance call outs, increase activity amongst service users, promote better sleep and increase the number of people being referred to the virtual Stay Steady Clinic.

Extra reassurance during the pandemic

Early in the pandemic, physios at Cardiff Council's Stay Steady Clinic predicted there would be a rise in falls. Inactivity was likely to increase and for frail individuals this could lead to 'deconditioning' and an increased risk of falling.

Aaron said "I was worried that the pandemic would increase falls further. Research shows a clear link between those people who fall frequently and premature death or entry into residential care."

Identifying risks using ARMED means preventative action can be taken. Aaron continues "We might then speak to their GP, the Independent Living Service, Community Rehab physios or the virtual Stay Steady Team," says Aaron. "We can also re-assess them for TEC so they're able to alert us if they fall."

The goal is to stop as many falls as possible and the project will now be scaled widely across the Cardiff area.

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If you would like to find out more about ARMED please email: **enquiries@technicare.solutions** or call **02038 331 866**