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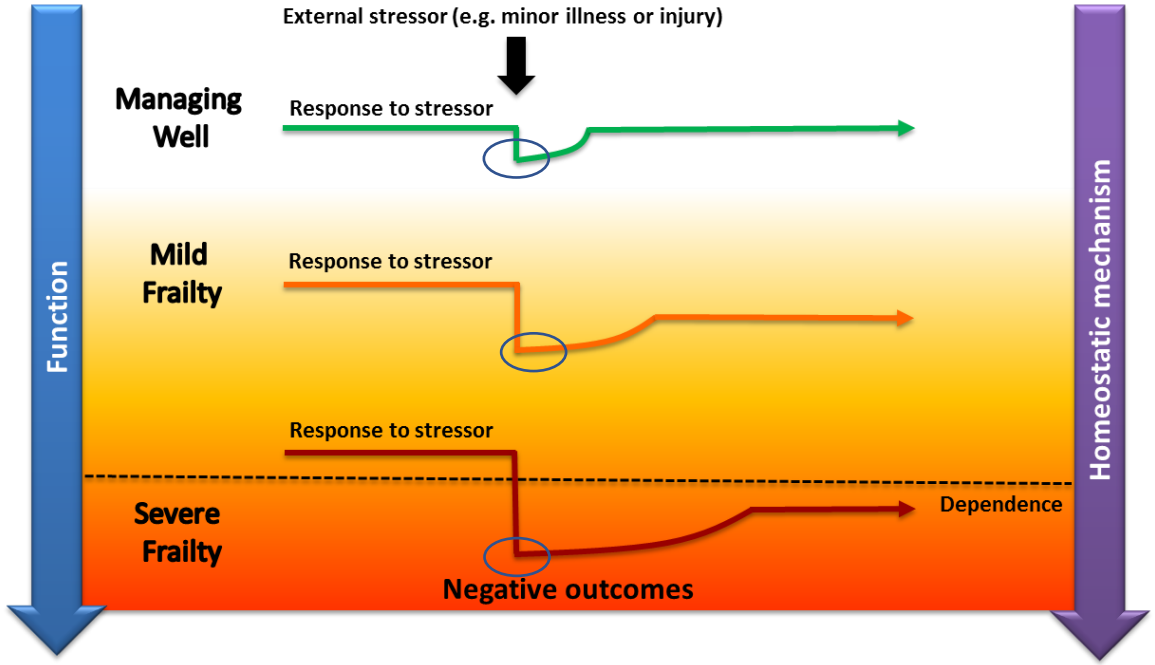
ADVANCED RISK MODELLING FOR EARLY DETECTION

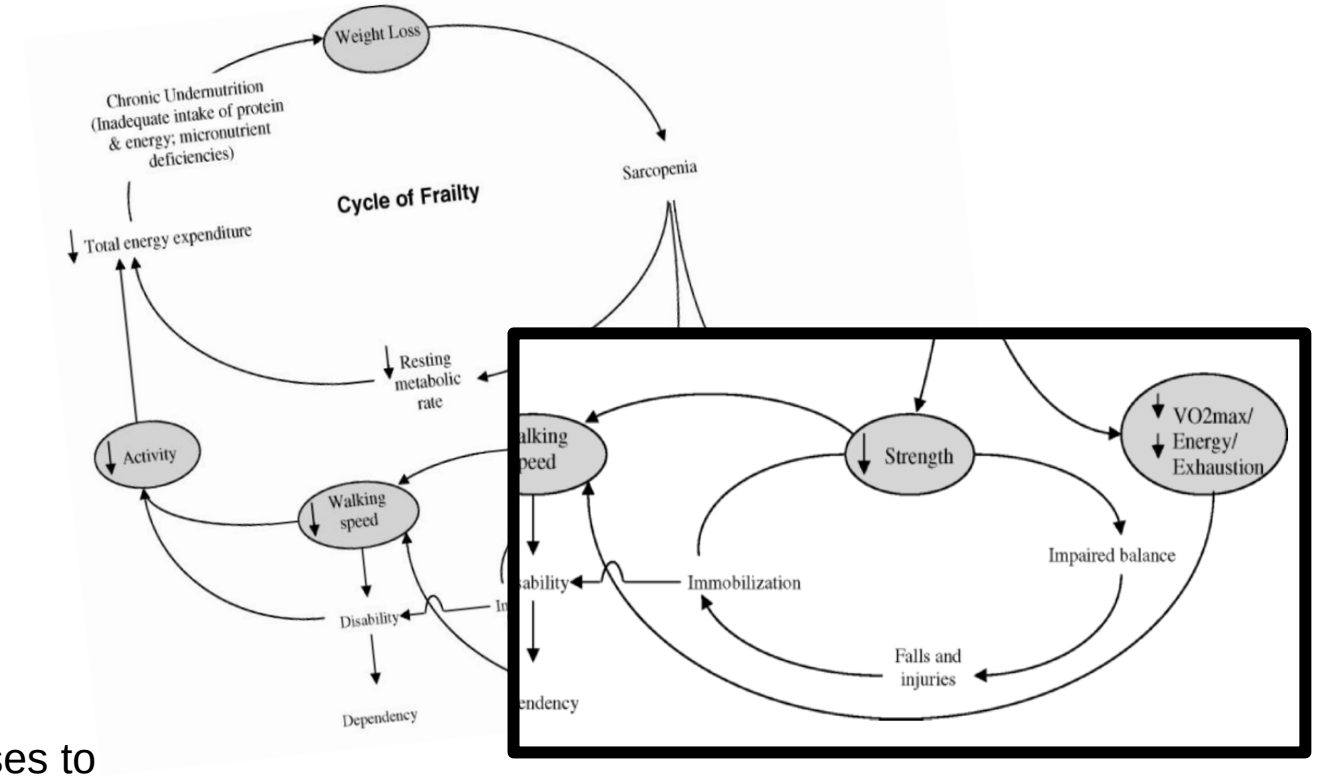
Identifying Escalating Risk Management to Support Prevention

Angela Tarvet – ARMED Senior Account Manager

What the Research Tells Us

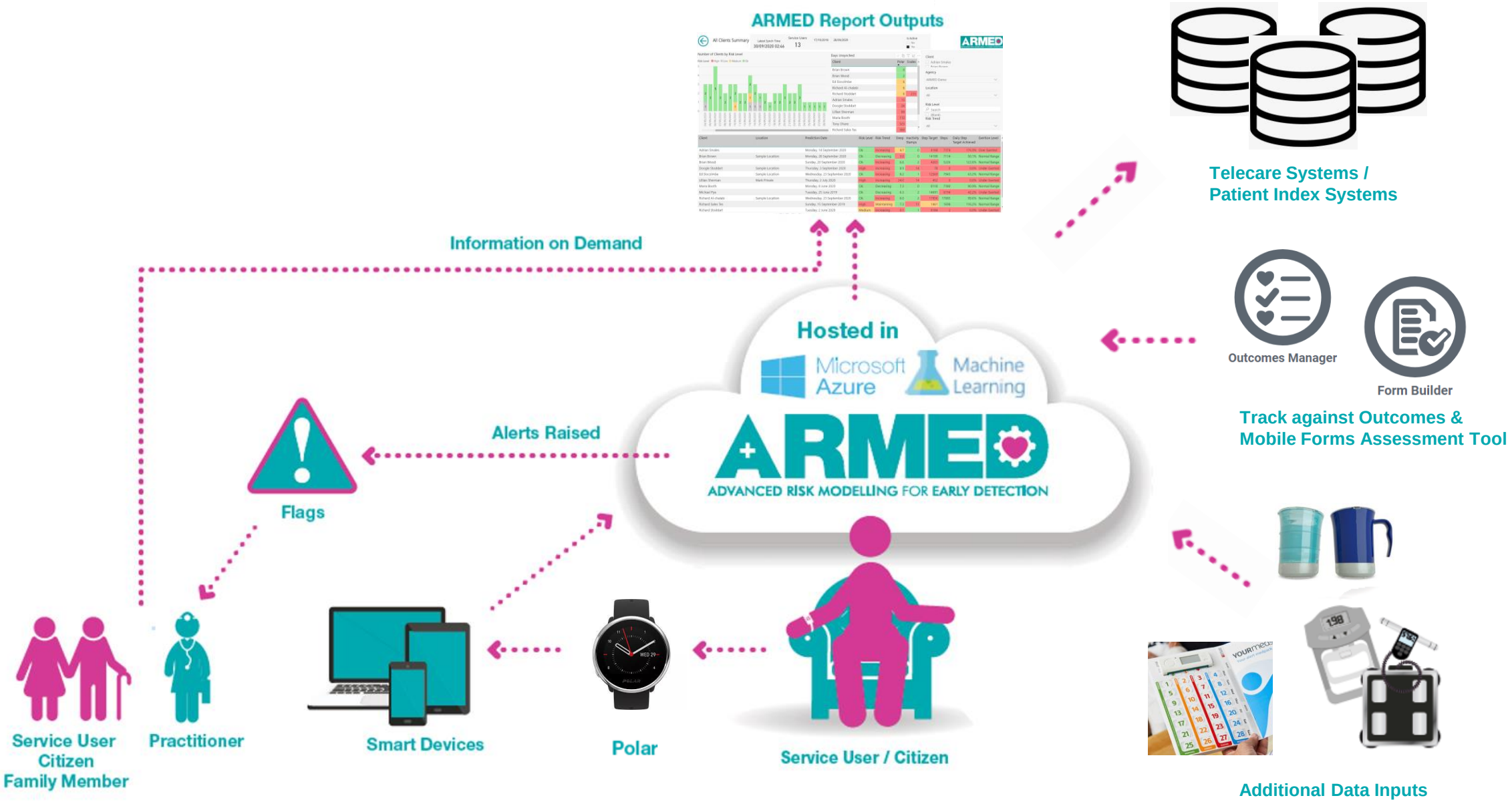


Significant Inactivity = Decrease in Strength



- 34% of individuals over 65 deemed at risk of falls. Increases to 45% for those over 80
- 10% will suffer a fragility fracture; 8% moderate with 2% serious
- Cost of retaining status quo unsustainable for services as well as poor outcomes for individuals

ARMED Data Model



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Polar Device Data Metrics

Daytime Activity

Dat
e
Resting
Sitting

Low
Medium
High

Sleep Pattern

Total sleep

Restful sleep

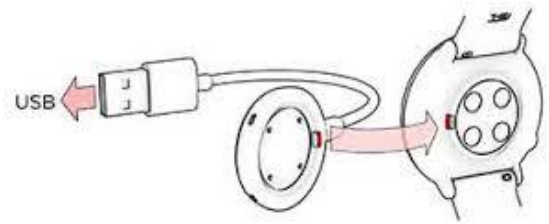
Restless sleep

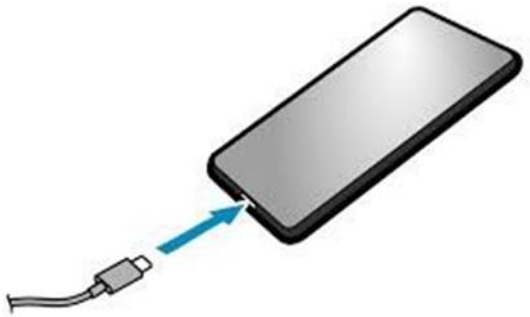
Mobility

Inactivity stamps

Distance walked

Steps taken





The settings ARMED can assist

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Reablement based services

- Acute to community / Discharge to assess
- Prevention of admission
- Identify priorities for where services are most effectively delivered to

Telecare response services

- Transforming service re-design through prevention & earlier interventions
- Providing ability to proactively react and support as opposed to reactively dealing with incidents

Learning / Cognitive Disability

- Reducing overnight support services supporting care planning decisions
- OR other cognitive impairments such as dementia – understanding trends

Housing Sector

- Sheltered scheme housing / Extra care settings
- Residential Care settings

Long COVID

- Sleep patterns / overnight recharge
- Heart rate / breathing rates
- Pulmonary rehab patients

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Hospital admission

- Single most predictive risk for functional decline in older people
- Rates of functional decline after hospital admission range from 10% to 50%
- However….
- **Over the course of 2020/21, although perhaps not in hospital, people have been extremely sedentary therefore demonstrating the same functional decline / escalating risks**

Source: Dr Christine McArthur, Falls Lead, NHS Highland

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Use Case:

mPOWER Project – Dumfries & Galloway

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The Challenge:

- Significantly rural area
- On average 90 people aged 75 years and over are admitted to Dumfries and Galloway Royal Infirmary's Combined Assessment Unit each week – 37% identified as frail
- Equates therefore to 34 frail people aged 75 years and over is admitted to DGRI each week


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Case Study: *Dumfries and Galloway HSCP*

Utilising activity data and predictive analytics to improve support for individuals with intellectual disabilities

Dumfries and Galloway Health and Social Care Partnership has successfully utilised ARMED prevention technology to re-design night-time support for adults with intellectual disabilities. In this case study, we will be exploring how predictive analytics have led to improved sleep patterns, thereby reducing pressures on night-time support services currently in place for adults with intellectual disabilities.

The challenge

Dumfries and Galloway HSCP embarked on an ambitious project to review the overnight support services delivered to individuals with an intellectual disability, with the aim of improving wellbeing and social care outcomes for the individuals involved in the trial.

Alongside this, Keys to Life, Scotland's Learning Disability strategy, indicated inequity of opportunity for individuals with an intellectual disability. These included:

- Limited access to daytime activities
- Increased social isolation
- Greater health inequalities than the general population
- Risk averse services
- High number of people accessing overnight support

Dumfries and Galloway HSCP were keen to embrace innovative digital technologies to ensure better outcomes for health, housing, and social care. To enable this, they collaborated with the ARMED team to utilise data and cutting-edge predictive analytics to support the decision process for better interventions to help improve the wellbeing and social care outcomes for people with intellectual disabilities.

The Use Case:

- Deploying ARMED to 70 individuals across variety of service areas
  - Residential care setting
  - Telecare response service
  - STARS Reablement service
  - Learning / Intellectual disability overnight support service
  - Pulmonary rehab service

The Opportunity:

- Promoting proactive self-management supporting positive behaviour change
- Identify escalating risk traits ad/or exacerbations within chronic conditions supporting earlier interventions
- Work in partnership with the HSCP to support service redesign and transformation

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mPOWER Project – Cohort Selection

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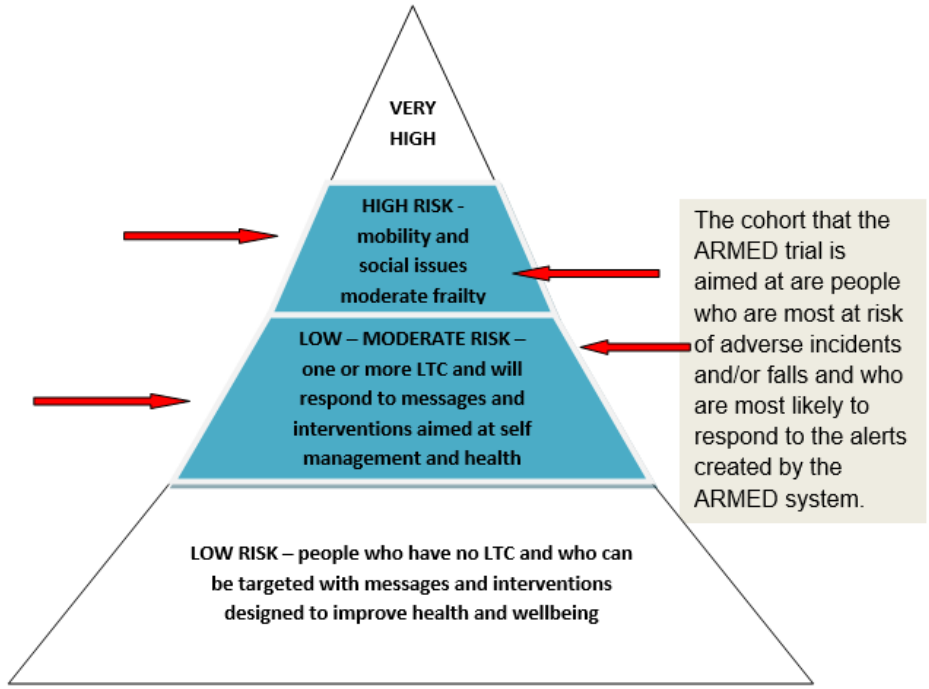
Living at Home:
Initial assessment – 83% confident to very confident
After 3 months – Increased to 88%

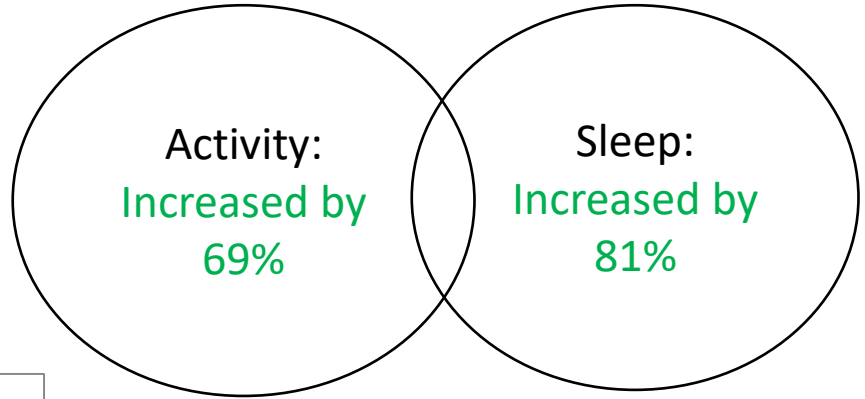
Managing Long Term Conditions:
Initial assessment – 70% somewhat to very confident
After 3 months – Increased to 75%

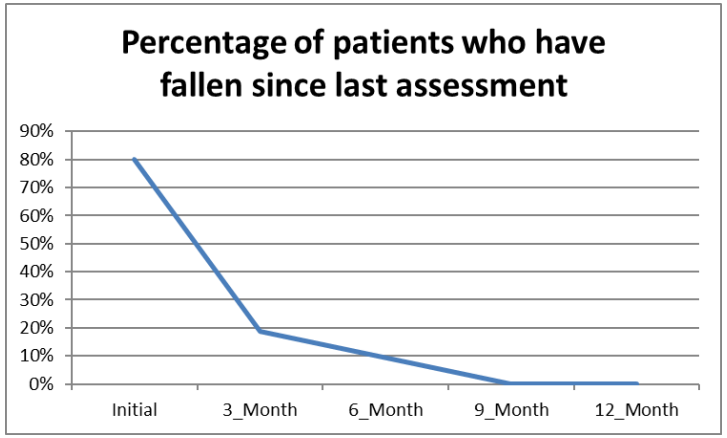


The cohort that the ARMED trial is aimed at are people who are most at risk of adverse incidents and/or falls and who are most likely to respond to the alerts created by the ARMED system.

The Rockwood Frailty Scale will be used as a tool to measure beneficiaries' perception on their frailty level.

Using Technology:
Initial assessment – 73% confident to very confident
After 3 months – Increased to 75%





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A Case Study: Rosemary

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Rosemary is an 80 year old service user who we started providing care for in April last year following discharge from hospital, she is a very anxious lady and can often feel low and lethargic. She is very anxious about Covid-19 especially. However, since commencing the Polar device trial on 3rd November 2020, Rosemary has stated that the Polar device has lifted her mood quite significantly, it has motivated her to be more active and she really enjoys getting the feedback on how she is doing. She stated that in the evenings while she is watching TV the polar band advises her to get up and move around which motivates her to do so, she said that before she had the Polar device she would just have sat and watched TV and dozed off whereas she is now in a good routine of getting up and moving around regularly, staying awake until she goes to bed and therefore has a better night's sleep. Rosemary said that she really enjoys the feedback from the Polar device on how well she's doing and this has motivated her and lifted her mood a lot. On a physical level, Rosemary's legs are now much less swollen due to moving around more regularly therefore it's now easier for her to get around.

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Measure more, live better

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