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Personal Location Technology: Supporting Uptake and Utilisation

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Outline

- What do GPS devices offer
- How are GPS devices currently being used
- Potential for promoting greater participation
- Challenges to uptake and use
- Supporting uptake and use within the community and residential environment



What do GPS Devices do?



Features

SOS –initiates a call from the device

Report Emergency Location – sends location information

Two-way Talk – allows verbal communication

Tracking – monitors location at intervals or continuously

Geofence - around a specific location

Activity Tracking - collects and reports level of activity

Falls Detection – recognises a fall event using



Alerts

Battery low/empty – when battery is close to empty

Geofence - when the person enters/leaves a designated area

Inactivity alert - when a state of inactivity is detected

Fall alert - when there is a sudden impact followed by inactivity

Speed - when there is an increase in speed detected e.g if someone gets on a bus

Medical event – specific bio data indicates an event e.g. low blood sugar

Current Situation

Approx 20 devices currently available

- Dedicated standalone devices
- Specialised and mainstream devices (paired with mobile phone)
- Apps for mobile phones



Current Use

- Monitor people who “wander” or become lost
- Reduce caregiver stress
- Provide access to support in the community
- Promotes independence and safety
- Builds confidence to remain engaged in community life

(Liu, Miguel Cruz, Ruptash, Barnard, & Juzwishin, 2017; Williamson, Aplin, de Jonge, & Goyne, 2017)



Reframing GPS devices

Traditional View

Monitor wandering
Isolation
Reduce care burden
Emergency response
Protection
Tracking
Special device

Wellbeing View

Promote activity
Social inclusion
Empower wearer
Access to support
Independence & confidence
Proactive management of risk
Mainstream apparel



What do we know?

- Devices are seldom purchased and used
- Evidence of their reliability and use is limited



Limitations of Current Research

- Large focus on dementia population
- Feedback often only sought from carers & staff
- Limited sample sizes
- Short trial periods
- No comparisons of multiple devices



Themes within the Literature

Value, acceptability, usability, and reliability

Reoccurring themes

- Ethical consideration re being monitored
 - Stigma
 - Device design + features
 - Localisation and reliability
 - Demands placed on the carer
- How do these influence uptake and use?



Our Experience

- Experience of using a range of GPS devices
- Understanding of current devices & international developments
- Working with a range of clients seeking GPS solutions
- Research into consumer experience and perceptions
- Industry project examining usability and implementation



Factors Influencing Uptake

- Perceived Value
- Features
- Device Design
- Ease of Use
- Reliability



Challenges to Uptake and Use

Only 50% interest in adoption

Cost expectations were realistic

Reasons

- Ethical considerations
- Competing demands on budget
- Perception of need
- Readiness
- Usability
- Training and support



Privacy Concerns

People mostly prioritise safety over privacy

“I never go anywhere that I wouldn’t be happy to tell people where I have been”.

One aged care participant commented:

“I could imagine that some people would say no if it were a blanket policy ...I could imagine people saying...’No I wouldn’t want that because I don’t want people to track me’... but I am sure if it was a loved one (being monitored), I would be happy”.

Perception of Need

*“I think personally – people wouldn’t wear it
(I wouldn’t) Because I don’t think I would need It”*

Complexities of accepting the need for support

“The mindset is that I don’t need it now so I won’t wear it”



Readiness

“It’s not until something happens that people realise that actually I have a problem – and if you get the right help you can still lead your life without people knowing (you have a problem)”



Demand

Many support people are also older people who may not have high levels of digital literacy.

“Staff are happy to use whatever system, as long as it is easy for the staff to operate because we aren’t sitting here waiting for calls.”



Systemic Issues

- Staff technology literacy
- Current emergency response procedures
- Existing staffing allocation



User Confidence

Wearer and carer confidence with device accuracy, reliability or with their ability to use the device impacted on willingness to use.



Importance of Training and Support

Experience has shown that staged levels of support are most effective

- Support to understand the benefits and features of GPS devices
- Support to select and customise features
- Demonstrating key functions of device and build wearer and carer confidence
- Support to address ongoing device and user error



Focus of Training

Training is targeted at:

- Wearers
- Informal carers
- Formal supports
- Tailored to individual needs
- Different levels of support are to ensure each person gets the right level of training



Nature of LifeTec Training and Support

- Face to face
- Phone in/Skype service
- Resources and cheat sheets
- Dedicated one-to-one sessions
- Review of use/questions and answers
- Follow-up phone calls



LOCATING DEVICES

What do they do?



They allow people who might be vulnerable when they are out and about on their own to be supported. These devices can identify and send their location to an emergency contact. This can occur when triggered by the user (a voluntary alert), after personal sensors identify hazards or by the emergency contact requesting access to the data. The device needs to be worn or carried by the person or attached to the object being tracked.

How do they work?

Accuracy of Location Tracking

These devices use Global Positioning Systems (GPS), Local Positioning Systems (LPS) or are hybrid and use multiple systems



GPS are most accurate in rural/ remote areas as they use satellites orbiting the earth to identify location. In cities these satellites can be blocked by buildings and vehicles



AGPS are more accurate in buildings or vehicles as they can use one or a more of the following to identify the device location: cellular stations, Wi-Fi hot spots, and radio broadcast towers

Whom can receive Notifications?



Monitored: Notifications received by staff in a call centre whom take agreed upon actions



Non-Monitored: Monitored by people whom agree to be emergency contacts

Ability to Send Location Data

These devices use cellular or satellite reception to send location data to an emergency contact



Devices using cellular reception need to be within cellular network areas to send location data



Satellite connected devices allow communication in rural or remote areas where cellular reception is not possible



Thank you

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Questions



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