



Finding Your Way® and Locating Technology

Presenters:

Lili Liu, PhD, Professor, Dept. of Occupational Therapy, Faculty of Rehabilitation Medicine, University of Alberta, Edmonton, Alberta

Cathy Conway, Director Quality Management & Education, Alzheimer Society of Ontario

July 5, 2017
Event hosted by The brainXchange logo features the word 'brain' in blue and 'Xchange' in orange, with a series of colored dots (blue, yellow, orange) forming an arc above the 'X'.

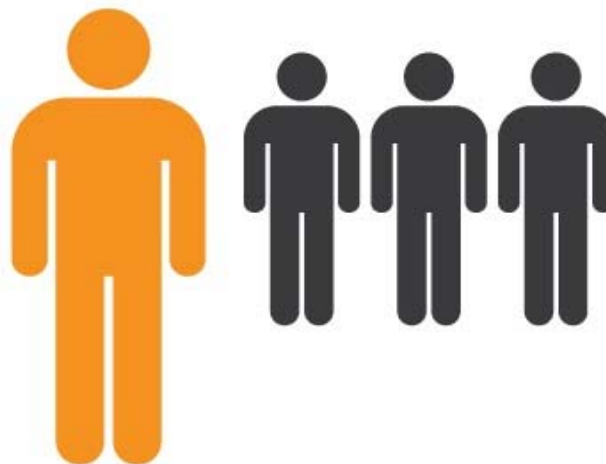
Funded by  Ontario

The Ontario logo is a stylized white outline of the province of Ontario, positioned to the left of the word 'Ontario'.

Société Alzheimer Society

Early diagnosis is critical to getting the right support to live independently for as long as possible with a quality of life

Yet **1 in 4** Canadians delay seeing their doctor up to a year or more after noticing the first signs of dementia¹



Anyone who has dementia and is able to walk is at risk of going missing...

- Statistics show that three out of five people with dementia will go missing at some point
- 50 per cent of those who go missing for 24 hours risk serious injury or death from exposure, hypothermia and drowning
- 94 per cent of people who go missing are found within 2.5 kilometers from where they disappeared

Getting around in the community...

The person with dementia can reduce the risk of becoming lost by:

- Tell someone where they are going
- Carry identification at all times
- Wear a MedicAlert® Safely Home® bracelet
- Use locating technology
- Know their surroundings
- Complete the Finding Your Way® ID form



Getting around in the community...

People with dementia may reduce their risk of fall or injury by:

- Considering the weather and dressing appropriately
- Being aware of sidewalks and pathways
- Using assistive devices including walkers and handrails

Getting around in the community...

***People with dementia can consider exploring
transportation options such as:***

- Public transportation
- Community transportation
- Taxis
- Rides from family and friends

How we minimize risks...

- Balance the person's need for independence with the amount of support required
- Be empathetic to the person with dementia and their caregiver's experience
- Recognize that as a dementia progresses, the person may need more assistance

Be on the lookout for these warning signs, at risk of going missing:

- | | |
|--------------------------|------------------------------|
| • Comes back late | • Can't find familiar places |
| • Attempts to go to work | • Asks for family |
| • Wants to "go home" | • Looks busy |
| • Appears agitated | • Appears lost |

Interacting with a person with dementia who may be lost:

The person may be:

- Inappropriately dressed for the weather
- Standing still, looking around for a long period of time
- Pacing
- Looking confused or disoriented
- Repeating the same question or statement within a short period of time

Interacting with a person with dementia who may be lost:

Know what to say:

- Speak slowly and calmly
- Loudness can convey anger
- Use short, simple words
- Ask “yes” and “no” questions
- Ask one question at a time, allow time to respond
- If necessary, repeat the same question using the exact wording

Interacting with a person with dementia who may be lost:

Know what to do:

- Approach the person from the front
- Identify yourself, explain why you've approached them
- Maintain a calm environment
- Move slowly; maintain eye contact

Interacting with a person with dementia who may be lost:

Know what to do:

- Avoid confrontation
- Avoid correcting or “reality checks”
- Call police (9-1-1) for help returning the person home safely
- Wait with the person until the police arrive

Interacting with a person with dementia who may be lost:

Know what to do:

- Look for a body-worn blue MedicAlert[®] Safely Home[®] bracelet
- Read the vital information on the back of the bracelet
- Call the 24/7 MedicAlert[®] Emergency Hotline, so the operator can quickly contact caregivers or family and provide information to bring the person home

The protocol to follow when someone with dementia is missing....

Recommended steps to consider:

- Call the police (911) – do not delay
- Tell the police the person has dementia
- How long since you last saw the person?
- Give police information (identification kit + photo)
- Tell police about medical conditions/medications
- Where do you think the person may go?
- Identification or locating devices on them?

What to do when reuniting with the person after a missing incident...

- Be prepared
- Approach calmly
- Provide reassurance
- Keep your perspective
- Ask for help



[Find an Alzheimer Society](#)

[Contact](#)

[Language](#)

English

Text



[UNDERSTANDING DEMENTIA](#)

[LIVING SAFELY IN THE COMMUNITY](#)

[ONLINE LEARNING](#)

[LOCATING TECHNOLOGIES](#)

[RESOURCES](#)

Living safely in the community

Finding Your Way* helps community members understand that we all live with risk everyday – the question is how we reduce our risk so that we may all live safely in the community.

[Take our quiz](#)



[Set my language](#)



[What is dementia?](#)



Funded by  Ontario

Société Alzheimer Society

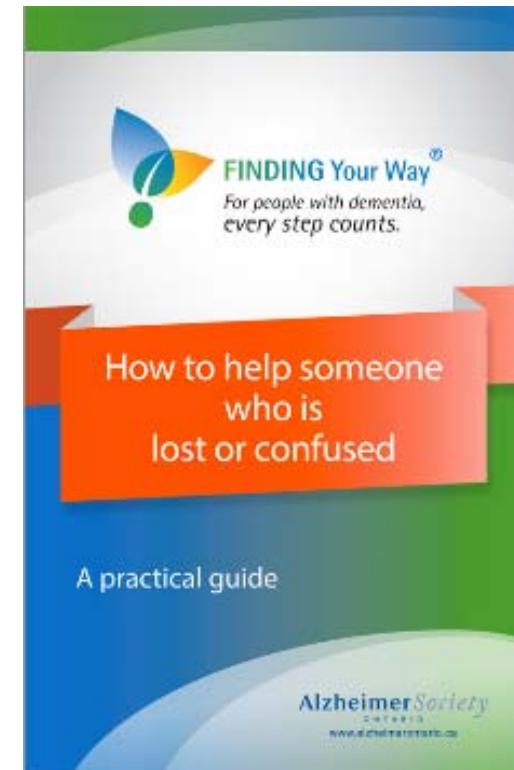


Raising Awareness and Education

- Community seminars available
- Resources & materials – 12 languages
- FREE online course (4 modules)

“Finding Your Way® Living Safely in the Community”

- Understanding dementia & its associated risks
- Communicating with a person with dementia
- Helping people with dementia to live safely in the community
- Interacting with a person who may be lost



Funded by  Ontario

Société Alzheimer Society



FINDING Your Way®

*For people with dementia,
every step counts.*

[Find an Alzheimer Society](#)

[Contact](#)

[Language](#)

English



Text



[UNDERSTANDING DEMENTIA](#)

[LIVING SAFELY IN THE COMMUNITY](#)

[ONLINE LEARNING](#)

[LOCATING TECHNOLOGIES](#)

[RESOURCES](#)

Locating technologies & risk of going missing

Learn ways to reduce the risk of going missing and learn how technology may be able to help you plan ahead.



Funded by  Ontario

Société Alzheimer Society

How do devices obtain/transmit location information?

Global Positioning System (GPS)*

Cellular Triangulation

WiFi Router Location (IP Address)

Beacons and RF Base Stations

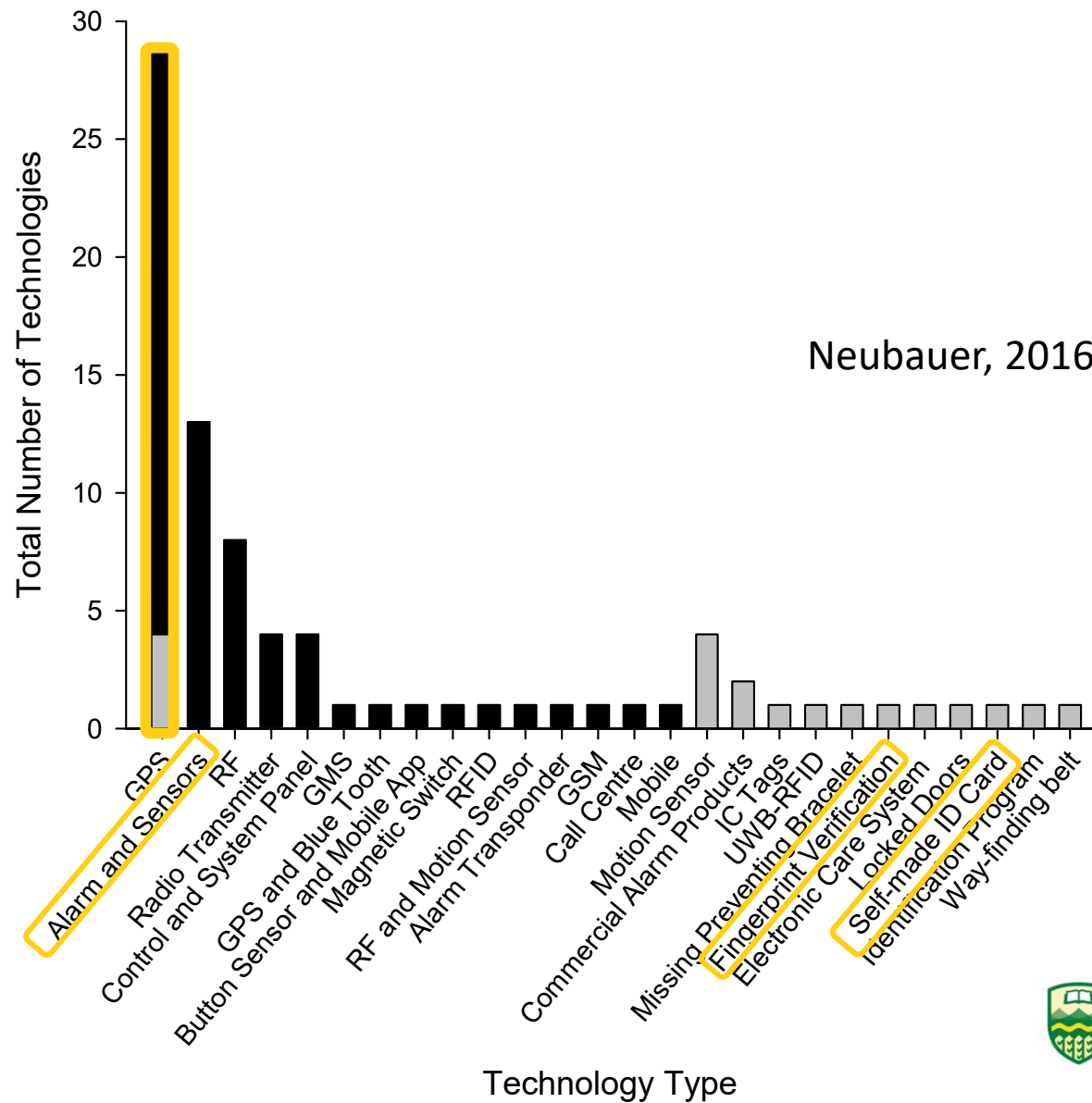
How do I find the location of person wearing the device?

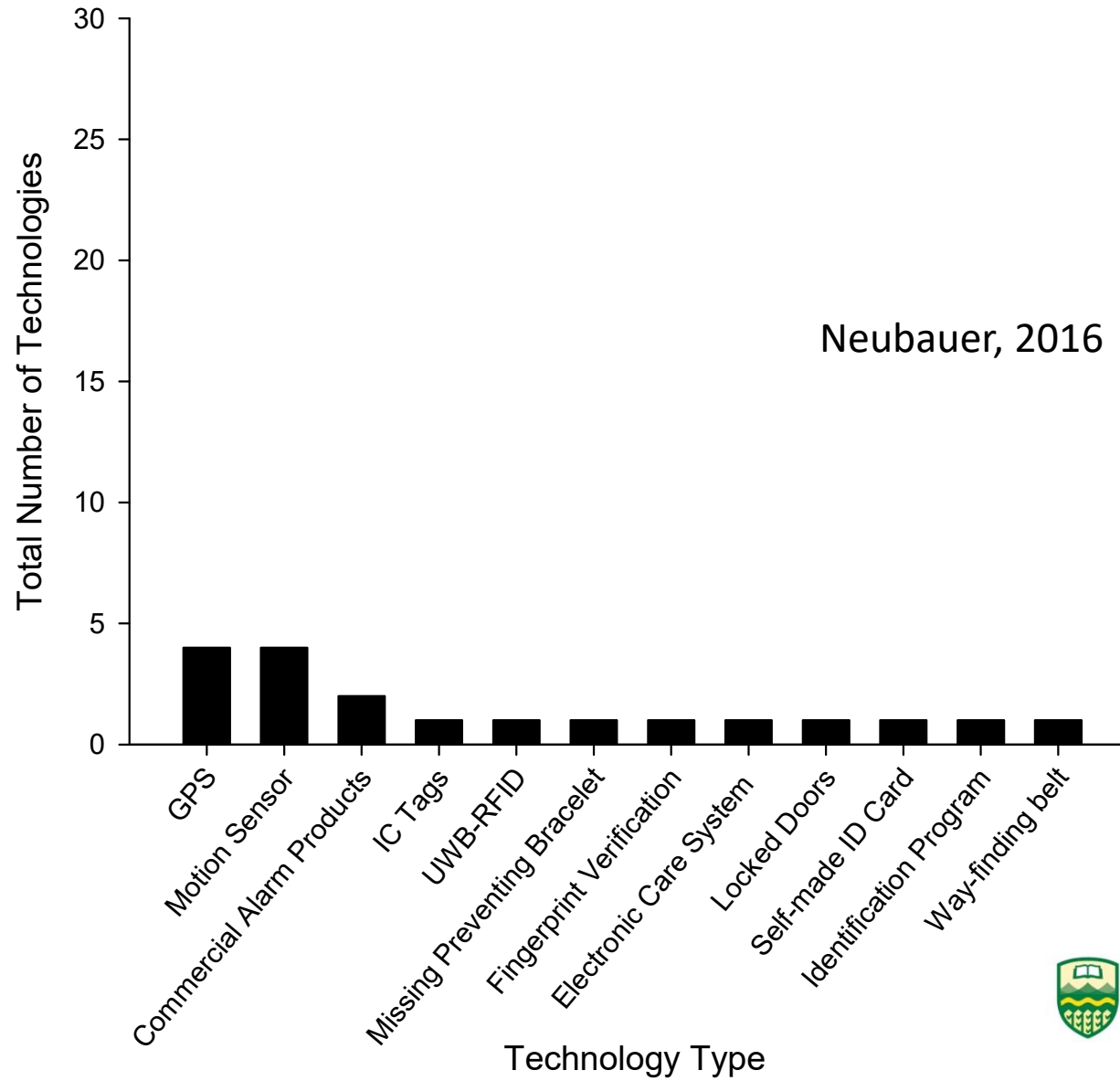
Computer

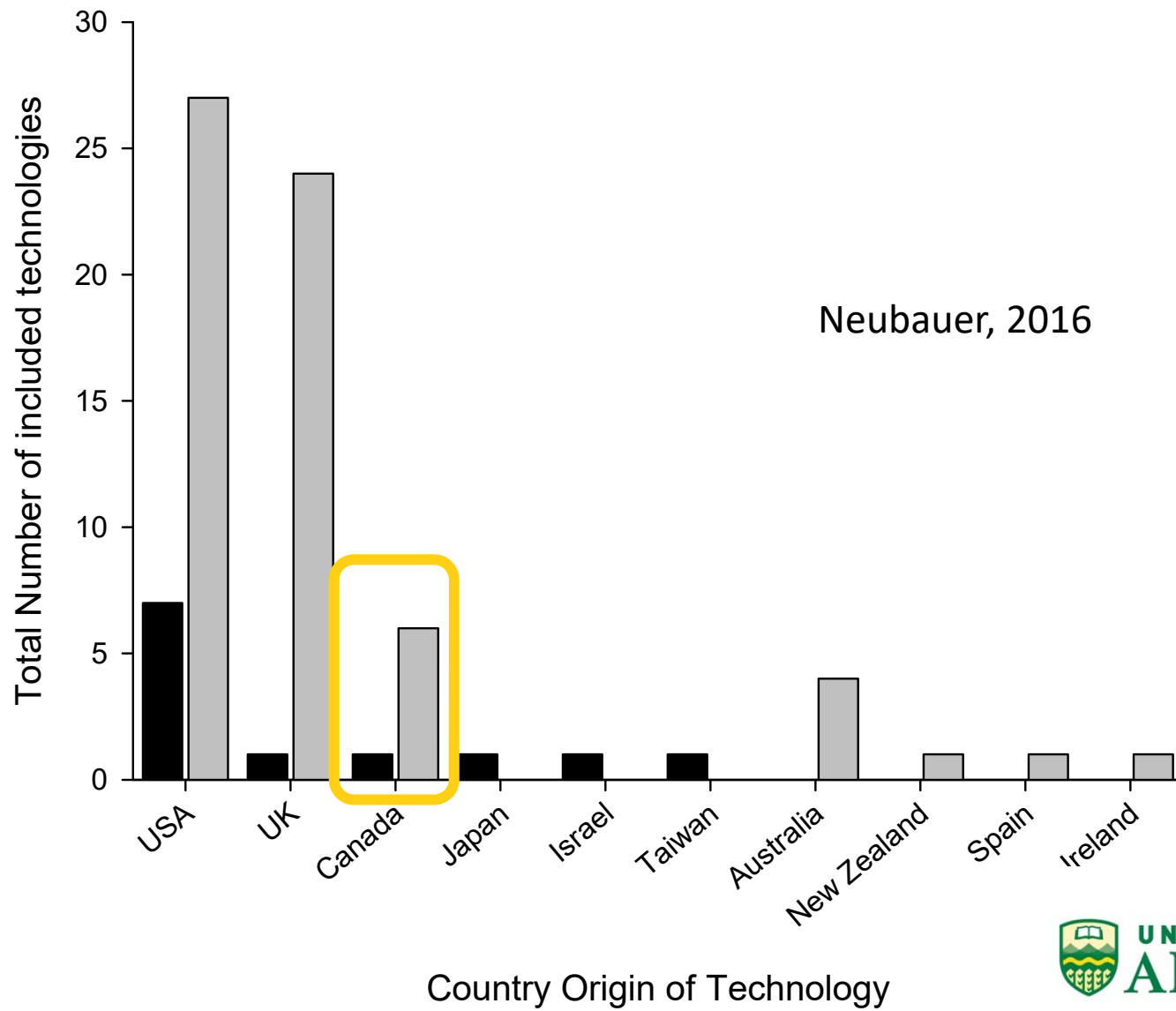
Tablet

Smartphone

Call Centre (if applicable)







Acceptance of Global Positioning System (GPS) Technology Among Dementia Clients and Family Caregivers

Lili Liu^a, Antonio Miguel Cruz^{a,b}, Tracy Ruptash^c, Shannon Barnard^c, and Don Juzwishin^c

^aUniversity of Alberta, Edmonton, Alberta, Canada; ^bUniversidad del Rosario, Bogotá, Colombia; ^cAlberta Health Services, Edmonton, Alberta, Canada

ABSTRACT

The purpose of this study was to examine the acceptance of Global Positioning System (GPS) used to help people with dementia, who are at risk for wandering in their communities. We used a mixed methods research approach that included use logs, pre and post paper-based questionnaires, and focus groups. Forty-five client-caregiver pairs (dyads) were included to use one of the GPS devices for an average of 5.8 months over a 1-year period. GPS acceptance was high; dyads were likely to continue using the GPS. According to the participants, the GPS provided caregivers peace of mind and reduced anxiety in dyads when clients got lost.

ARTICLE HISTORY

Received 29 August 2016
Accepted 27 November 2016

KEYWORDS

Alzheimer's disease;
dementia; global positioning
system; technology
acceptance; UTAUT model

Introduction

By 2015, nearly 44 million people were diagnosed with Alzheimer's disease or related dementias (Alzheimer's Disease International [ADI], 2014). According to Alzheimer Society of Canada, over the next 30 years, the number of people with dementia will increase from 500,000 to 1,125,000 (Alzheimer Society Canada, 2012). One significant concern for individuals with cognitive impairment is becoming lost when alone, and walking or navigating in an unfamiliar environment, (Chang, Chu, Chen, & Wang, 2008). This behavior is also known as wandering. As many as 40% of individuals with dementia wander from their homes and become lost (McShane et al., 1998). More than 40% of family caregivers report that the emotional stress of their role is high or very high (ADI, 2014). Global positioning system (GPS) is a technology that may be effective in mitigating risks for some wanderers. The technology allows caregivers to monitor an individual's geographic location and allows the individual some autonomy (Pot, Willemse, & Horjus, 2012). Existing studies have been conducted with cognitively intact



Société

CONTACT Lili Liu  lliliu@ualberta.ca  Department of Occupational Therapy, Faculty of R Medicine, University of Alberta, 2-64 Corbett Hall, Edmonton, Alberta, T6G 2G4, Canada.
 Supplemental data for this article can be accessed at www.tandfonline.com/wths.
© 2017 Taylor & Francis Group, LLC



ALBERTA



★ Grande Prairie

(460 Km)

★ Edmonton

(300 Km)

★ Calgary



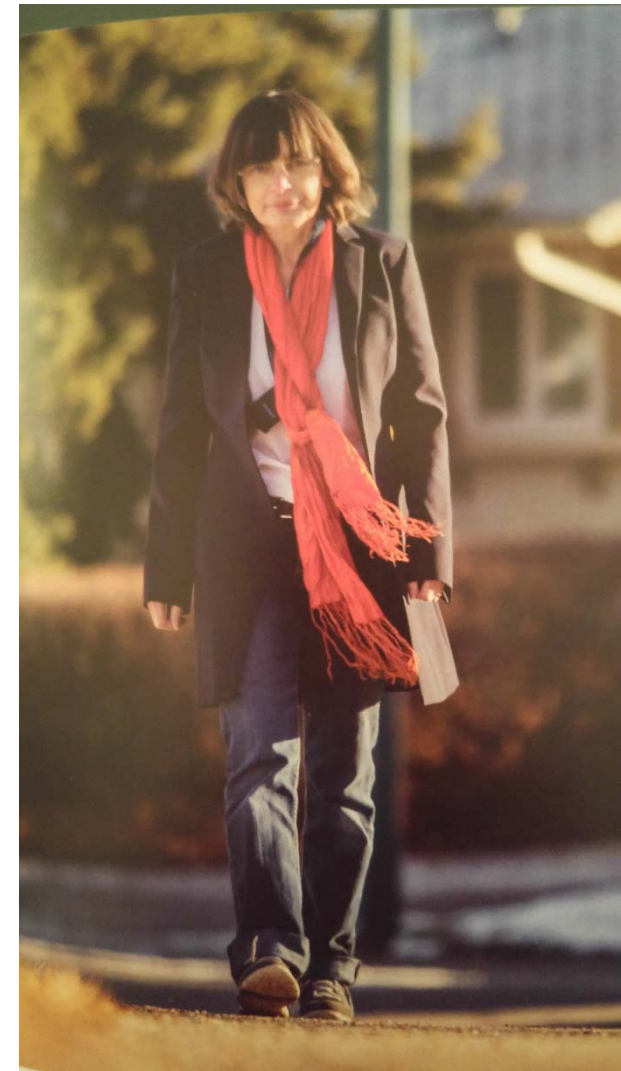
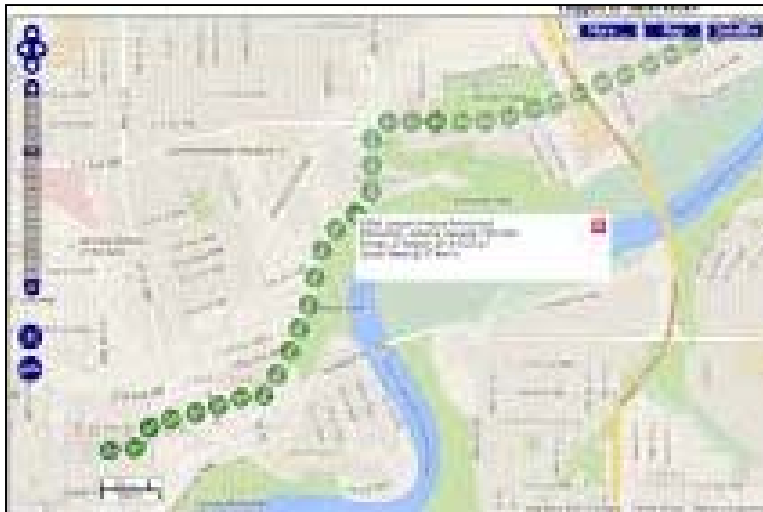
Participants with dementia

At risk for wandering: 75%

Mental status: MMSE mean 16/30

Caregiver: 100% had primary,
30% secondary caregiver

Living arrangement: 70% lived with spouse or
children, 22% lived alone



Société Alzheimer Society

The Warmans



45 dyads
3 evaluation approaches




GPS devices used by participants

Average duration of use 5.8 months
(range 30-323 days)

| Type of GPS device | n (%) |
|-------------------------|-----------|
| Watch | 22 (47.8) |
| Handheld (lanyard worn) | 21 (45.7) |
| Insoles | 3 (6.5) |

Client (GPS User) Initial Questionnaire

This questionnaire helps us understand what factors affect your use of GPS in daily life. Please rate items 1 to 18 using the scale to show your level of agreement. Mark only one X in a box per item.

| Item |  Disagree |  Neutral |  Agree |
|---|---|--|--|
| 1. The GPS would increase my independence. | | | |
| 2. Using the GPS would help me with my daily activities (e.g., activities outside of the home; shopping, transportation). | | | |
| 3. I would find the GPS useful to inform my caregiver where I am. | | | |
| 4. Learning to use the GPS would be easy for me. | | | |
| 5. Even with the GPS, I worry about getting lost when I walk outside. | | | |
| 6. The GPS will help me feel more confident walking outside | | | |

Caregiver Initial questionnaire

This questionnaire helps us understand what factors affect your relative's or care recipient's (replace "_____" with name) use of GPS in daily life. Please rate items 1 to 25 using the scale to indicate your level of agreement. Mark X in one box per item. Provide your comments for item 26.

| Item | Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|--|-------------------|----------|----------------------------|-------|----------------|
| 1. In general, _____ thinks I should support the use of the GPS. | | | | | |
| 2. The GPS would increase _____'s independence. | | | | | |
| 3. Using the GPS would help _____ with daily activities (e.g., activities outside of the home; shopping, transportation) | | | | | |
| 4. _____ would find the GPS useful to inform me about his (or her) location. | | | | | |
| 5. In general the GPS would assist _____ in daily activities outside of the home. | | | | | |
| 6. GPS use would increase the quantity and quality of _____'s daily activities (e.g., shopping, transportation). | | | | | |
| 7. GPS use would make it easier for _____ to do daily activities outside of the home (e.g., shopping, transportation) | | | | | |

PE: I2, I3, I4, I5, I6, I7; IEE: I8, I9, I10; ISI: I1, I11, I12, I13; IFC: I14, I15, I16; IBI: I22, I23, I24; IAtt: I17, I18, I19; IAnx: I20, I21, I25!

1

Focus Groups

(caregivers and stakeholders)

1. Describe your experience living with (or working with) persons at risk for getting lost or wandering
2. Describe your experience using a locator device
3. Describe your experience responding to a call initiated or triggered using a locator device
4. What do you like BEST about the locator device?
5. What do you like LEAST about the locator device?
6. Comment on the web interface (platform on mobile phone, laptop, desktop)
7. In your opinion, what would be a reasonable cost for the device and service?
8. Who should pay for this device and service
9. Would you recommend this device to people at risk for wandering, and their families?

1. Describe your experience living with (or working with) persons at risk for getting lost or wandering

Caregiver

- *Timing for us was unfortunate, Dad got lost a week before we got the device ... they were ready to call out a helicopter except it was down for repairs. If we had that device we could have found him within half an hour.*

Stakeholder

- *I do recall one incident ... where a lady left a care facility and she was found in the spring. She had died.*
- *We've had a number of instances where seniors leave their place of residence and then are found close by or at great distances, but it takes an extraordinary amount of resources.*

9. Would you recommend this device to people at risk for wandering, and their families?

Caregivers

- *Absolutely, I think that as soon as you get a diagnosis of Alzheimer's, you should be handled one of these things.*
- *Not everyone wanders, but they should be available to everybody.*
- *Alzheimer's so unpredictable ... I want to make sure that he's never going to feel alone or desperate.*

Stakeholders

- *I would recommend it in the vast majority of cases*
- *Clients with other conditions or in other environments: The Autism Society ... should be aware of the [technology].*

Web-based consumer guideline for choosing locator technologies

- Consumer information about dementia-related locator technologies varies between products
- Creates challenges for care partners who are seeking technologies for people with dementia, and health service providers who are helping consumers choose devices.

Web-based consumer guideline for choosing locator technologies

An online consumer guideline of commercially available locator technologies was developed to:

- Allow care partners to compare and match product features to their individual circumstance
- Acquire the technology more suitable for their needs

Website Key Features

- Vendors to describe their products in a standardized way
- Consumers to compare products on a consistent list of features before purchasing a device.

Finding Your Way Forum December 1, 2016

- Input from 100 stakeholders
 - Police
 - Researchers
 - Industry
 - Caregivers
 - Health practitioners
 - Alzheimer Society of Ontario reps

<https://tech.findingyourwayontario.ca/products>



[VIEW PRODUCTS](#)

[ADMIN/VENDOR ACCESS](#)

Products List

Search



PrimeMobile™

SafeTracks GPS Canada Inc.

[VIEW](#)

[+ COMPARE](#)



TRiLOC™

Safetracks GPS Canada Inc.
(SafeTracks™)

[VIEW](#)

[+ COMPARE](#)



BlueBeacon™

SafeTracks GPS Canada Inc.
(SafeTracks™)

[VIEW](#)

[+ COMPARE](#)



**S911 Lola Mobile Personal
Emergency Response
System**

Laipac Technology Inc.



GoSafe

Philips Lifeline

© 2016 Alzheimer Society of Ontario

[Report Bugs](#)

Société Alzheimer Society

Durability

Water Proof



Water Resistant



Shock Resistant



Drop Tested



Hypoallergenic



Cost

Device cost

Device: \$399.95 CAD

Device: \$145 USD

Device: \$0 CAD

Activation Fee

Activation: \$35 CAD

Activation: \$0 USD

Activation: \$90 CAD

Monthly Device Cost

Monthly Device Fee: \$0 CAD

Monthly Device Fee: \$ USD

Monthly Device Fee: \$ CAD

Monthly Plans

TRiLOC™ Canada- in partnership with Rogers -- \$49.95 CAD

LocationNow -- \$17 USD

No Monthly Plan

US Roaming Plans

Leasing Plan -- \$69.95 CAD

No US Roaming

No US Roaming

TRiLOC™ USA- in partnership with AT&T -- \$49.95 CAD

Battery

Battery Life:

L: 48 hours

L: 30 hours

L: 0 hours

Charge Time:

C: 90 minutes

C: 90 minutes

C: 0 minutes

Monitoring

Caregiver



Remote Monitoring
Status



Other



Size and Weight

Height

8.75 centimeters

1.6 centimeters

Inches

Usability

Part 1: Talk aloud method

5 participants (2 vendors, 3 caregivers)

Recorded and transcribed

Part 2: Pop-up survey, 8 questions (Likert scale)

20-40 participants

- 1) I think the website was easy to find
- 2) I think that the website was easy to navigate
- 3) I think that the information was easy to understand
- 4) I think that the information was useful
- 5) I found what I was looking for
- 6) I am likely to recommend this web-site to a friend or relative.
- 7) Overall satisfaction
- 8) Comments (Open ended question)

Questions?