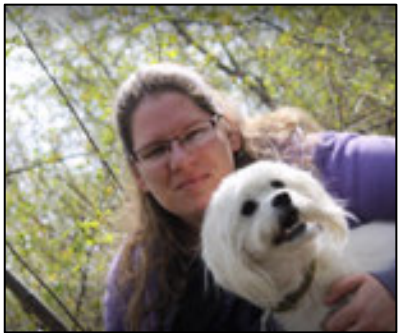




Leveraging Technology to Support Persons Living with Dementia in Rural and Northern Communities



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Speaker Disclosures

- Financial and in-kind support received from AGEWELL, Northern Health, and UNBC for CTAAN
- Technologies for some of our demonstrations as well as some slides and images today have been provided in-kind by BestBuy and Tochtech



Speaker Disclosures – managing bias

- Presenters note that they have no personal or direct commercial relationships with the technology companies showcased today and receive no direct benefits related to today's presentation
- Technologies are presented to inspire participants as to what is available and what is in development to spark thought and discussion
- The presenters do not endorse any of the technologies presented today

Bridging the Technology Gap



The Centre for Technology Adoption for Aging in the North (CTAAN) supports aging in rural and northern communities by making technologies more available to older adults, caregivers, and the healthcare systems that support them.

Broader CTAAN Goals

1. Support older adults to continue to live in rural and northern communities with dignity and high quality of life.
2. Develop and implement proactive, upstream and targeted approaches for technology to enhance health services delivery and reduce health infrastructure and acute care costs.
3. Build capacity for technology development, local talent development and recruitment of businesses to the region.
4. Stimulate the northern BC technology economy.
5. Best practices to approach technology and aging in northern communities.

Agenda

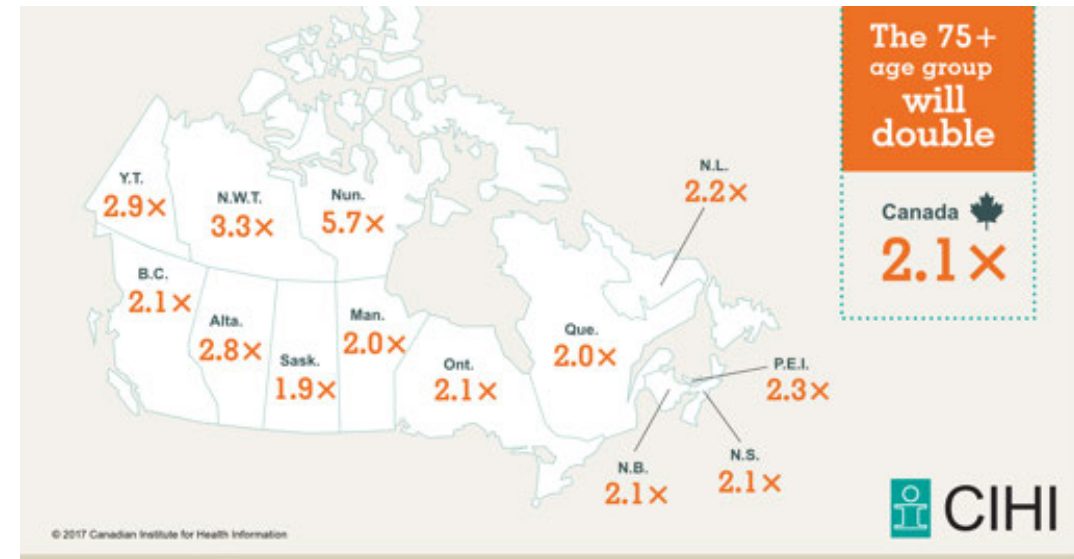
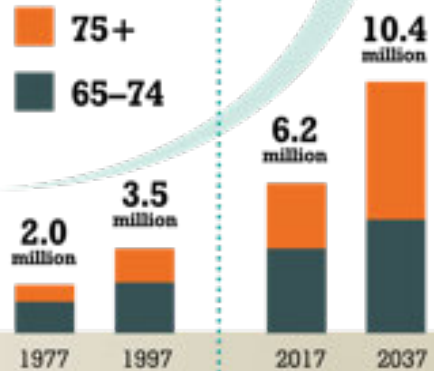
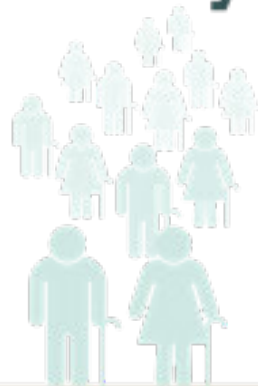
- Background– Dementia in Canada
- Showcasing technologies designed for persons with dementia and their caregivers
 - Activities in the north
 - Centre for Technology Adoption for Aging in the North (CTAAN)
- Key considerations when identifying which technology is for you

The Canadian Population is Aging and will Continue to Age

Canada's seniors population outlook: Uncharted territory

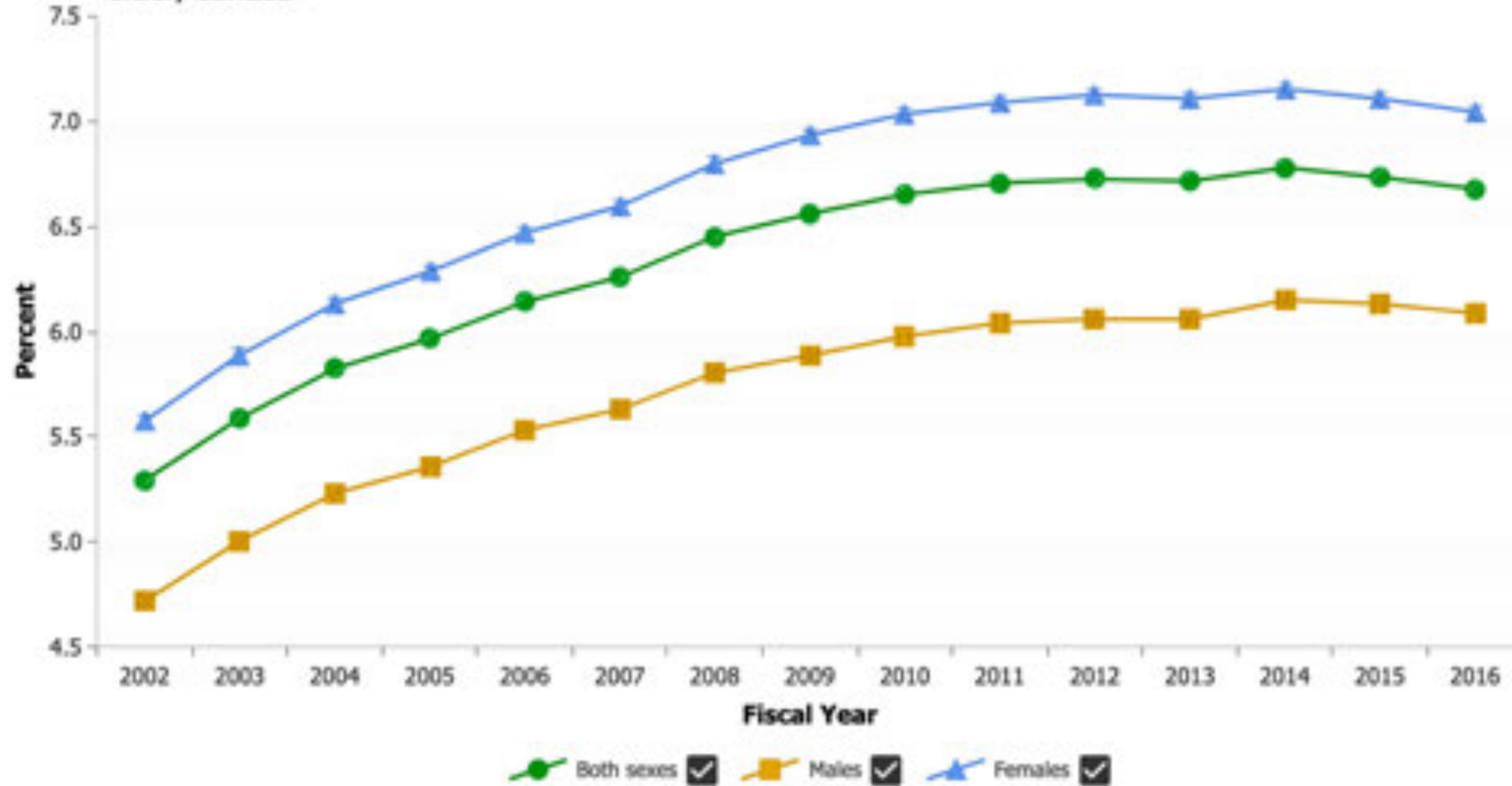
Over the next 20 years,
Canada's seniors population
is expected to
grow by

68%

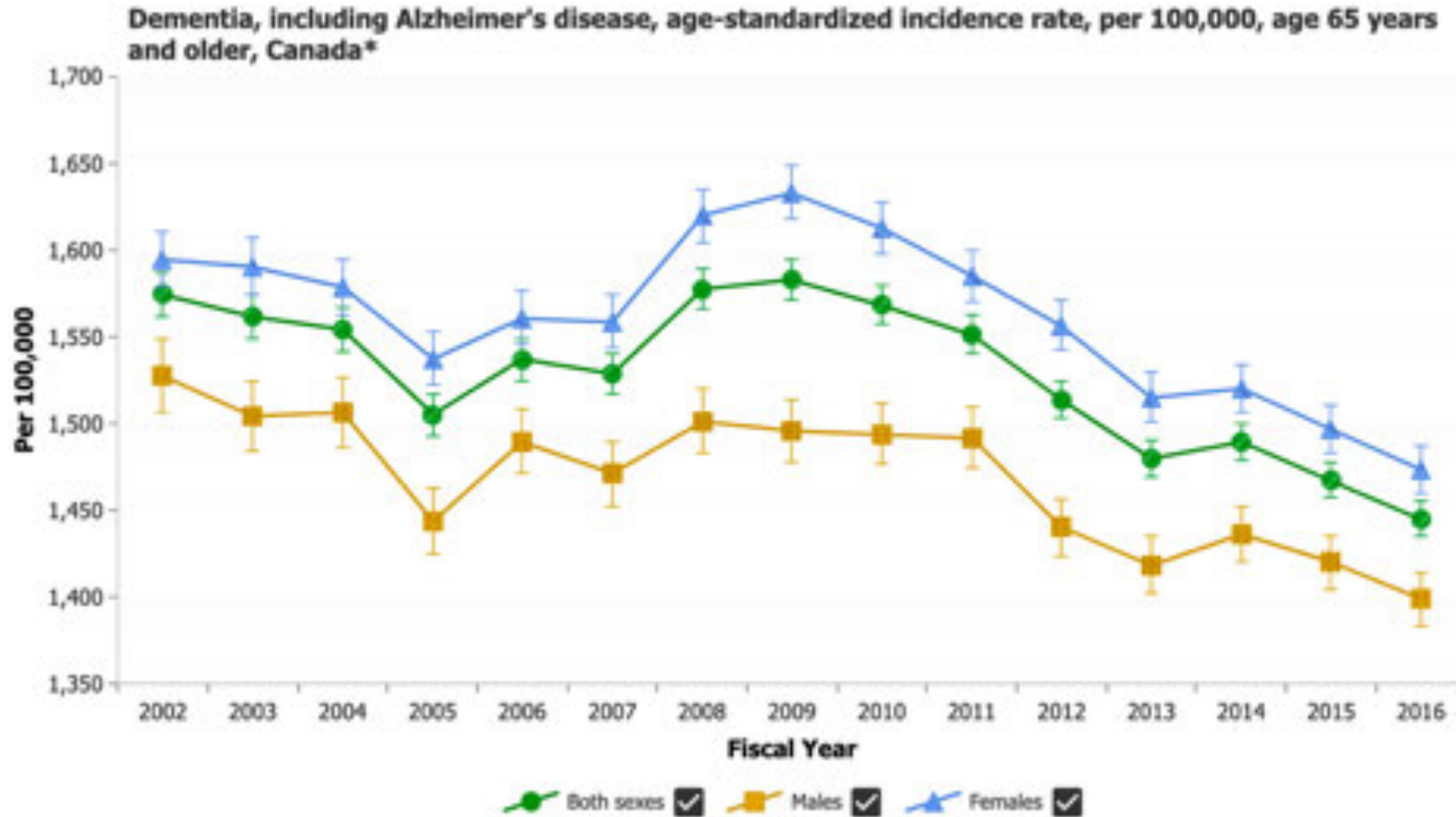


Prevalence of Dementia in Canada

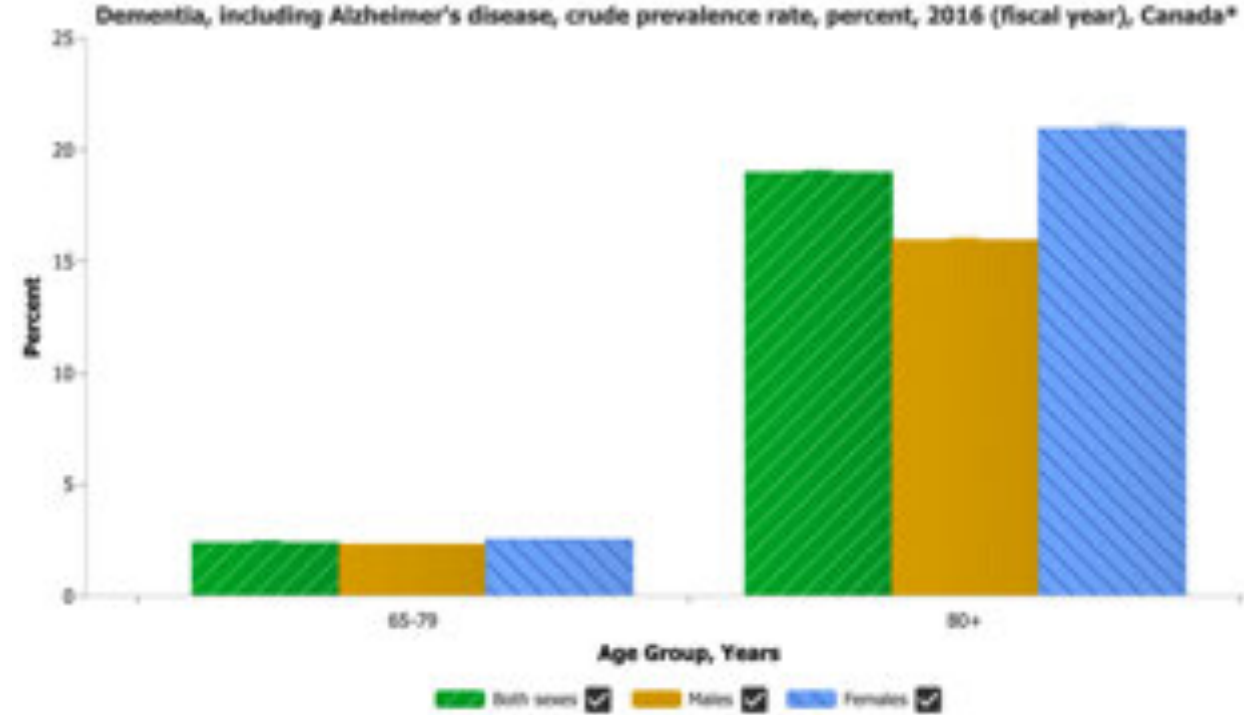
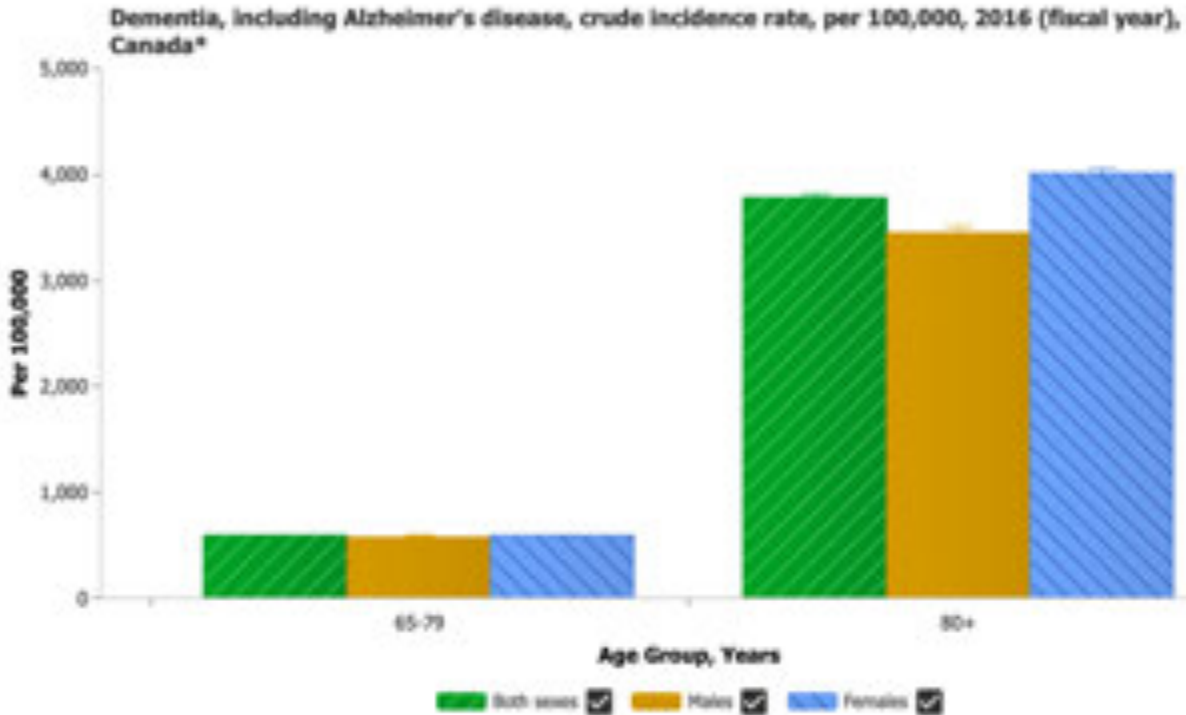
Dementia, including Alzheimer's disease, age-standardized prevalence rate, percent, age 65 years and older, Canada*



Numbers of New Cases of Dementia in Canada



Dementia in Canada by Age

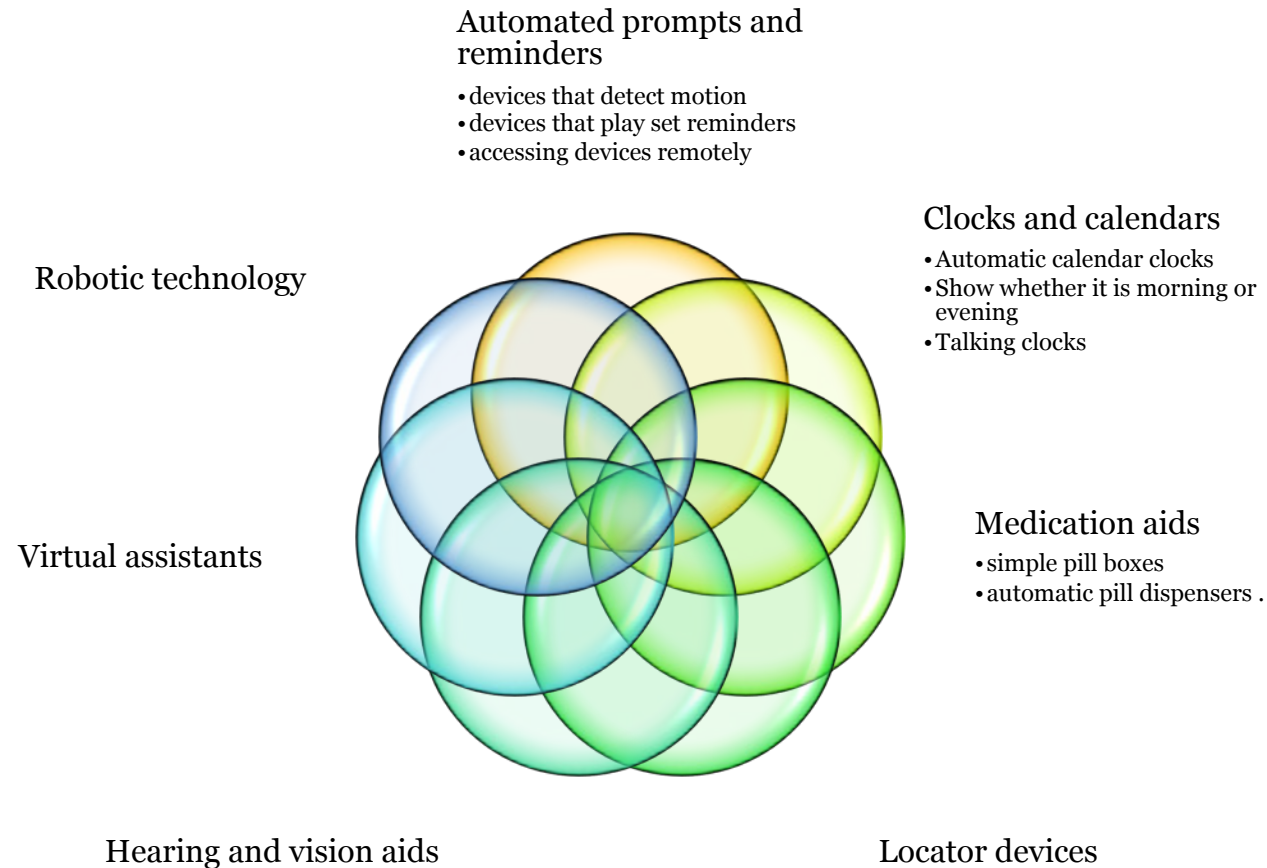


Dementia Care Practice Recommendations



Fazio, S., Pace, D., Maslow, K., Zimmerman, S., & Kallmyer, B. (2018). Alzheimer's Association dementia care practice recommendations.

Many Technologies to Support Persons with Dementia



Many Technologies to Support Persons with Dementia



Care Team Approach to Quality Dementia Care

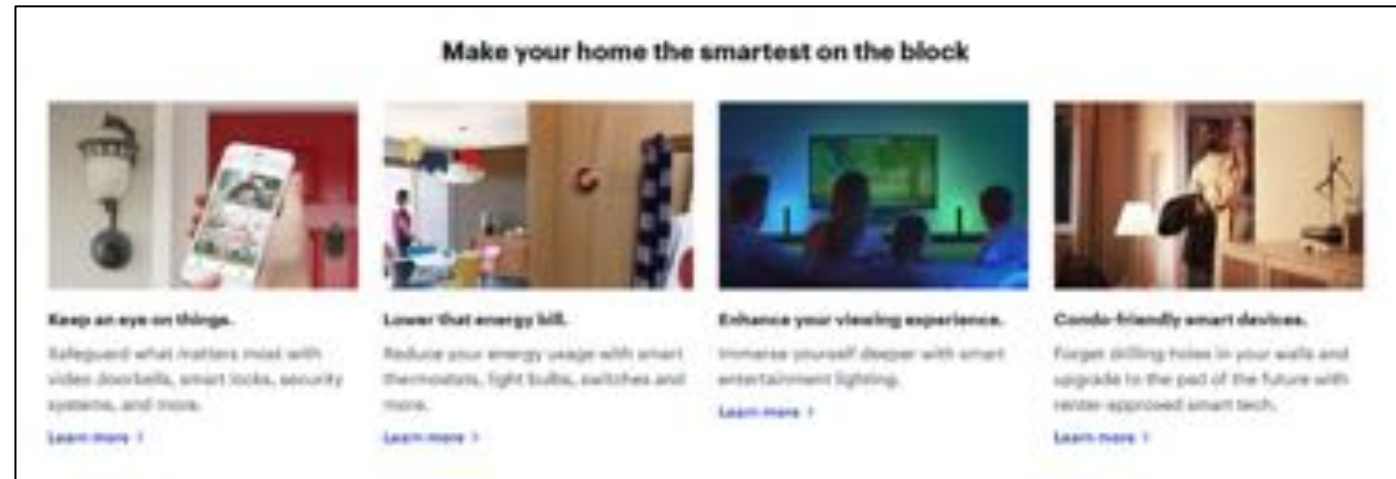
- 6% of the Canadian population are caring for a person living with dementia
- A dementia-inclusive community

"Allows people living with dementia and their caregivers to: optimize their health and wellbeing; live as independently as possible and remain part of their community; be understood and supported; safely navigate and access their local communities, including banks, shops, restaurants, entertainment and transportation; and maintain or expand their social networks"



Categorizing Technologies for Persons with Dementia

- Devices can be
 - Operated and installed by the person (radio, TV, phone)
 - Installed and maintained by others but which the person uses (electricity, heating, air conditioner)
- Monitoring and surveillance systems and devices which are either
 - Activated by the user (safety alarms)
 - Activated automatically when an incident occurs (fire alarm, fall alarm)
 - Monitors continuously or when operator decides (cameras, tagging devices)



Technology to Support Persons with Dementia to Access Local Facilities – Shops, Cafes, Post Offices

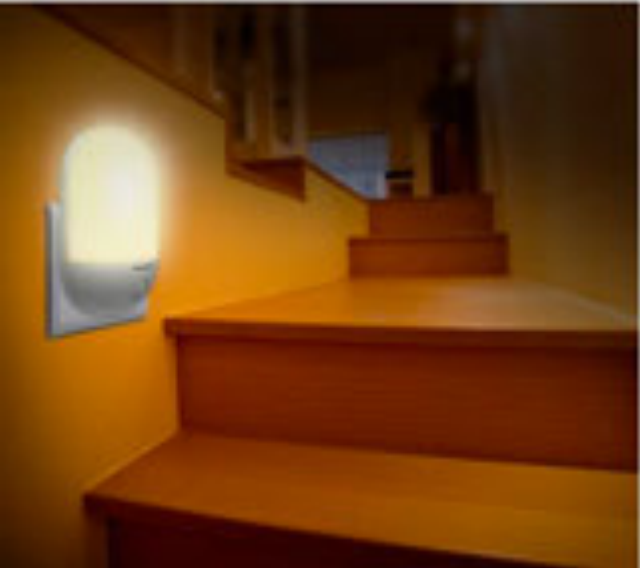
- Safer Walking Technologies for Wandering
 - Alarm system that is used to alert carers that a person with dementia has moved outside a set boundary
 - Tracking devices to locate a person at any time or place
- Great resource
 - <https://www.alzheimers.org.uk/about-us/policy-and-influencing/what-we-think/safer-walking-technology>

Technology to Optimise Health and Wellbeing of Persons with Dementia – Hydroponic Tower Gardening

- Technology can support engagement for persons with dementia in meaningful activities that can be independent
 - Must remember - Not everyone wants to be with others in a group activity
 - Identified need for tower based on older adults input
- Example – Pilot Hydroponic gardening program
 - Especially useful for those with mobility issues
 - Easy to use and maintain
- Provided opportunity for engagement in meaningful activities
 - Feel value and accomplishments in growing and consuming vegetables



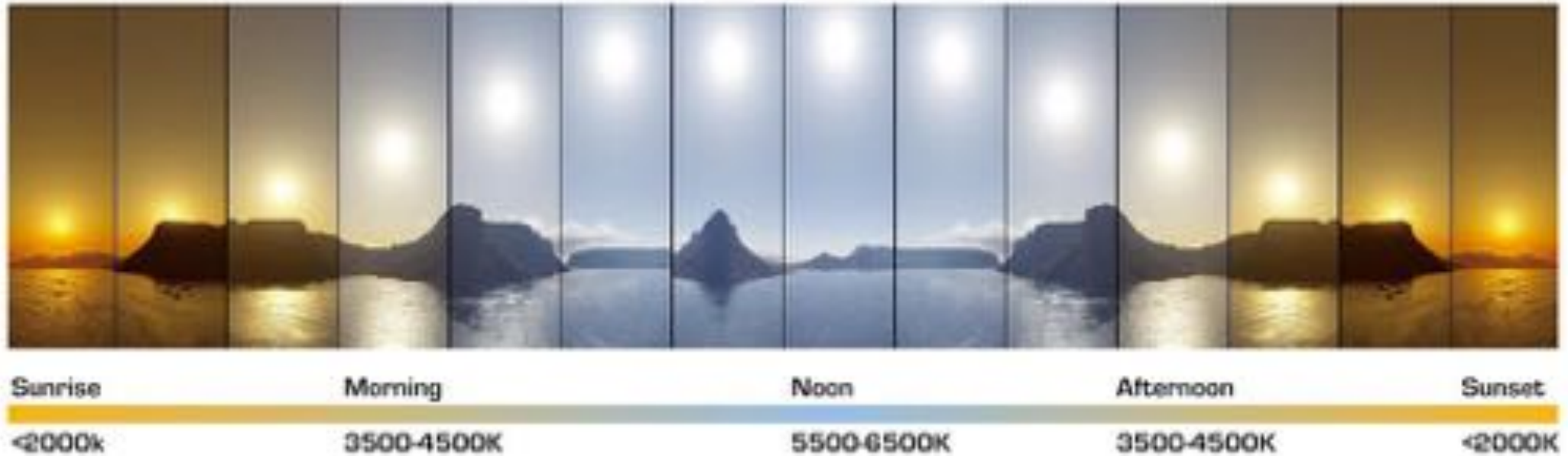
Lighting for Enhanced Safety - Wayfinding



A person is lying in bed at night, holding up a smartphone with a glowing screen. The scene is dimly lit, with the primary light source being the phone's screen. The person is wearing a dark shirt and light-colored pants. The bed has white sheets and a green pillow. The overall atmosphere is dark and quiet, emphasizing the impact of artificial light in a bedroom.

Lighting for Health & Wellness

Lighting for Health & Wellness



Sundowning – “late-day confusion”

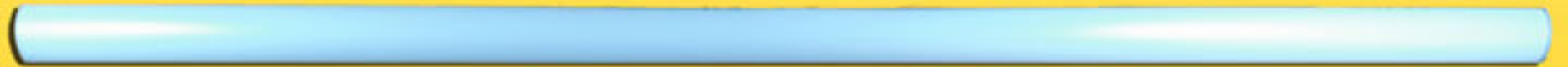
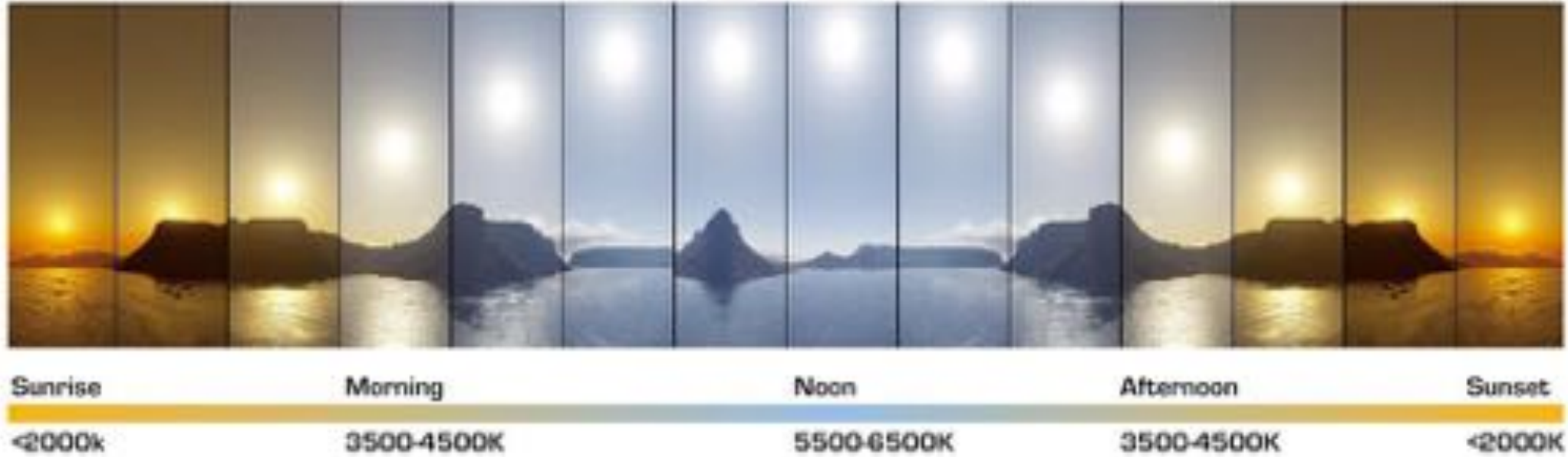
Sundowning is a symptom of Alzheimer’s disease and other forms of dementia as a result of changes in sleep-wake cycles.

Confusion and agitation may get worse in the late afternoon and evening.

Light therapy for sundowners shows promise for people living with dementia



Lighting for Health & Wellness



Technology to Detect and Monitor Cognitive Decline – Winterlight



WINTERLIGHT LABS

Services ▾

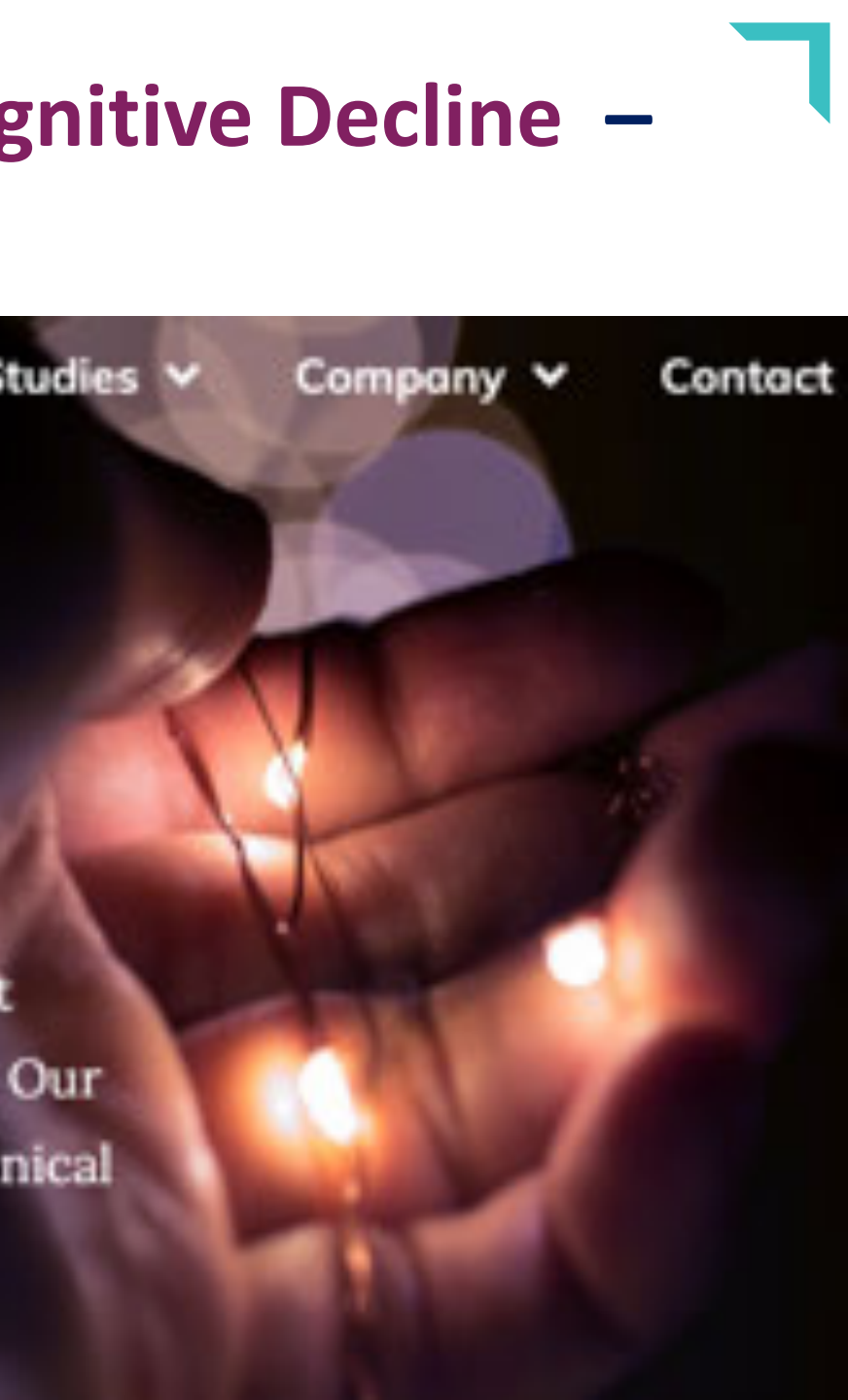
Studies ▾

Company ▾

Contact

Monitoring cognitive impairment through speech

Winterlight has developed a tablet-based assessment that is fast, objective, and stress-free. By analyzing speech alone, we can detect cognitive impairment associated with dementia and mental illness. Our assessment can be used in life science research, senior care and clinical settings.



Technology to Detect and Monitor Cognitive Decline – Winterlight

Tracking cognitive wellness in senior care

It is challenging to care for seniors with complex medical needs and frequently with cognitive impairments. Combined with your existing health data, we identify seniors at-risk of cognitive or functional decline. Our assessment can help you provide better proactive care at a time when it is most needed to have the greatest impact on the health and happiness of your residents.

REACH US HERE →



Technology to Detect and Monitor Cognitive Decline – Winterlight

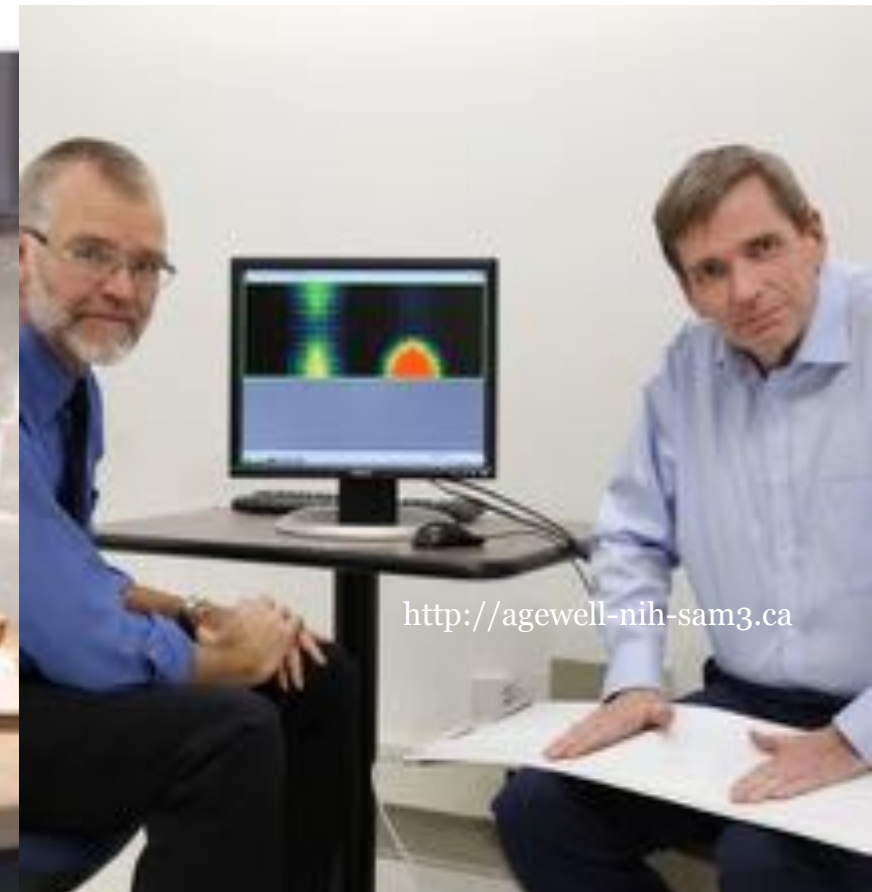
Partnership with Retirement Facilities and Home Health Care

Whereas the Winterlight tool can be used for a variety of purposes, the company would like to initially work with resident care teams (e.g. nurses, physicians, loved ones) and residents at retirement homes to optimize how this technology and approach will add value to needs assessments and help improve the overall quality of care and enable seniors to age in place.

To achieve this objective, Winterlight Labs is proposing to conduct telephone based assessments on 5 or more residents who are interested in this trial. Each resident would participate in a 10 minute call during which they will be asked a standard set of questions to assess their mood and behavior (similar to PHQ-9 and the needs assessment questions). An additional 2 or 3 questions will also be posed to assess mental health. Responses will be recorded, transcribed, shared and discussed with the care team. The report will also include predictions for whether the residents are at risk for depression or mood symptoms.

Reports can be matched against standard scores used by clinicians (e.g. PHQ-9) and observations from the care team, to compare overall accuracy, ease of delivery, and how best to approach future remote monitoring and care in rural areas.

Technology to Support Persons with Dementia to Live Independently in Their Community – Sensors for Informing and Supporting Care



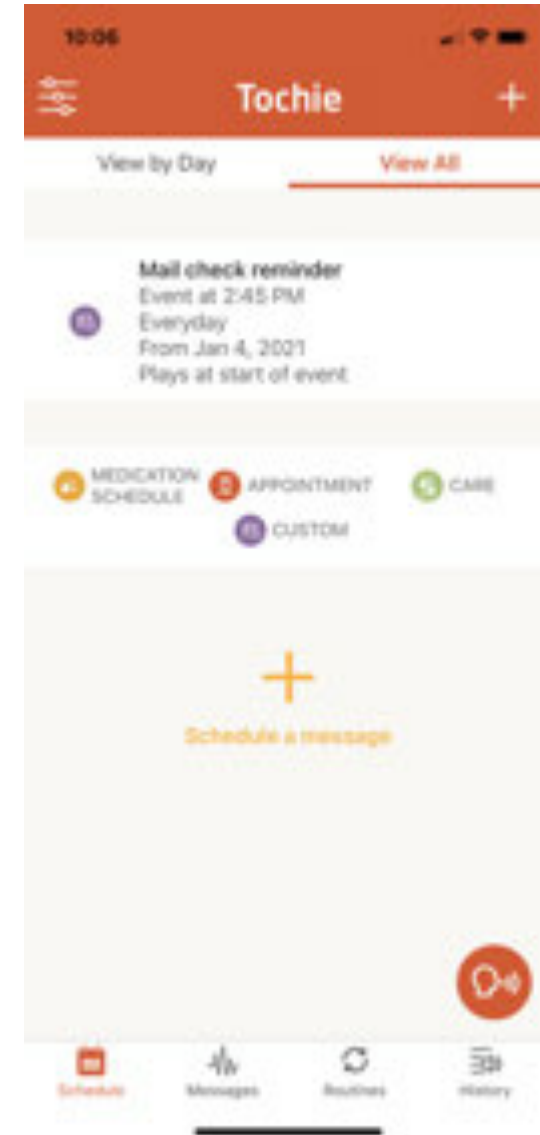
<http://agewell-nih-sam3.ca>

Smarturns – Safer Cooking – Tochtech Technologies



Tochie – Tochtech Technologies

A personal voice aid designed to personalize remote care.



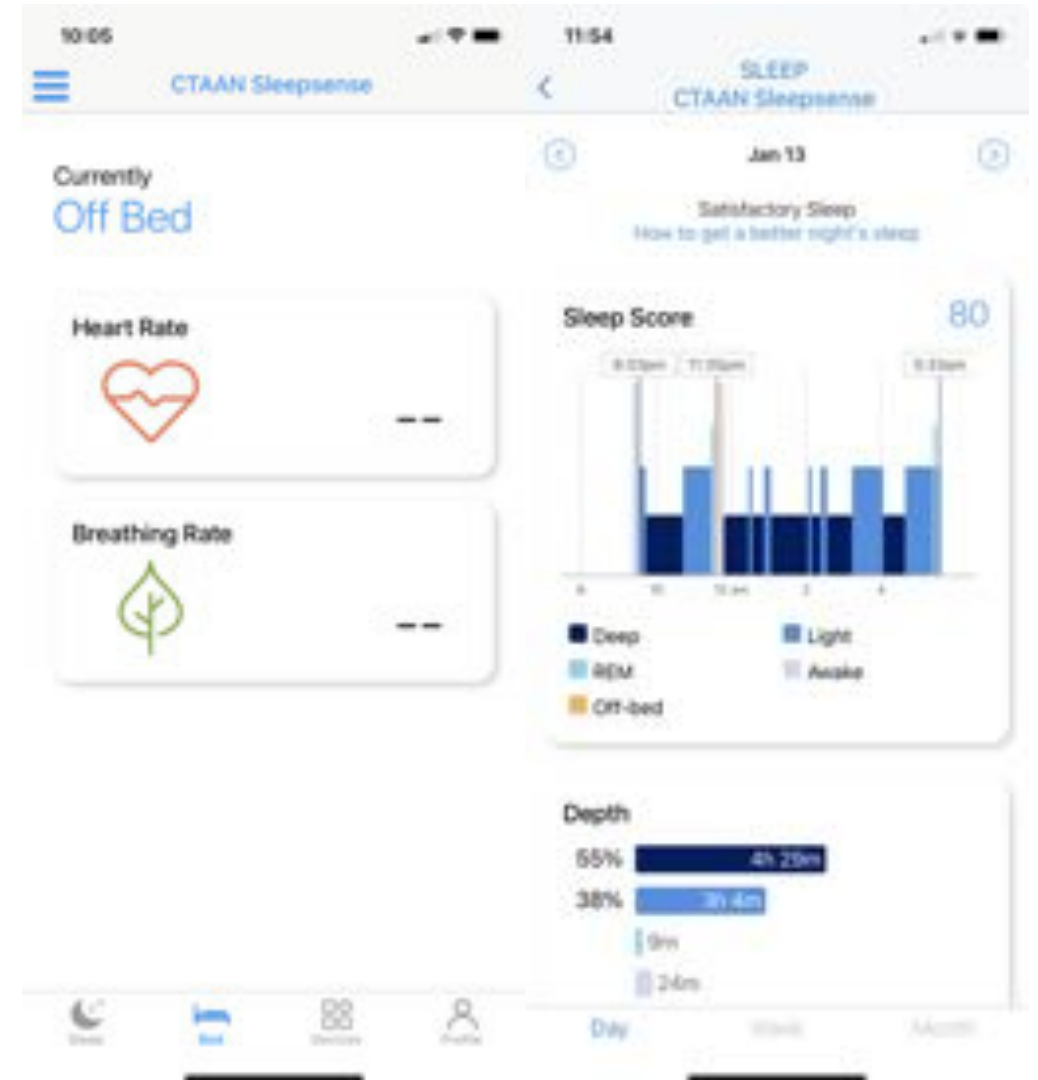
Sleepsense – Tochtech Technologies



Sleepsense

Sleep tracker and safety notification system.

Text notifications sent for in/out of bed.



Application User Interface

Wearable Monitoring Technology

Tenera Care's technology aims to create a safer environment in a care facility by monitoring the location of residents, staff, visitors and assets both indoors and outdoors, detects hazardous situations, and minimizing incident response time.



LOCATION & MONITORING



CONTACT CONTROL



AUTOMATED BURSE CALL



MOBILE APP



NOTIFICATIONS



DATA REPORTING

Technology to Support Persons with Dementia to Live Independently in Their Community - A Day in the Life: Susan and her mom Edna



Start

7:10 AM



Wake Up

Concern: In bed/out of bed
Care-Recipient: "Let's start my day"
Caregiver: "Did mom have a good night sleep? Is she up and about?"

7:30 AM



Shower

Concern: Safety inside the washroom
Care-Recipient: "I hope I don't slip again"
Caregiver: "How do I know if mom can get help if needed?"

8:30 AM



Breakfast

Concern: Eating patterns
Care-Recipient: "I don't really feel like breakfast today"
Caregiver: "Did she eat today?"

10:00 AM



Morning TV

Concern: Reachability
Care-Recipient: "Was that the phone ringing?"
Caregiver: "Mom is not answering her phone. Where is she? Is she okay?"

11:30 AM



Chores

Concern: Home maintenance
Care-Recipient: "I am too tired"
Caregiver: "Can my mom still take care of her home?"

1:15 PM



Share Trend Report

Concern: Sharing of behavior trends
Care-Recipient: "I have an appointment soon. Let me get my tablet"
Caregiver: "Mom received the reminder for her medical appointment. It sent the doctor the activity reports"

3:45 PM



Watching TV

Concern: Remote support
Care-Recipient: "Why isn't this working?"
Caregiver: "How do I help mom remotely?"

2:30 PM



Bathroom

Concern: Toilet usage patterns
Care-Recipient: "This doesn't feel right but it will go away."
Caregiver: "I noticed that she is going to bathroom a lot more than usual. What does this mean?"

3:00 PM



Video Call Family

Concern: social connection, two-way video calls
Care-Recipient: "How do I make a video-call?"
Caregiver: "Why can't she remember how to log on?"

1:30 PM



Telehealth Appointment

Concern: Easy way to connection to a medical professional
Care-Recipient: "Let me share the results with my daughter"
Caregiver: "How do I stay involved?"

4:00 PM



Care Aid visit

Concern: Who is at the door
Care-Recipient: "I wish I could see who is at the door on my TV"
Caregiver: "When did the care aid come today?"

5:00 PM



Grocery Shopping

Concern: Getting lost outside 2) locking the door
Care-Recipient: "Did I lock the door?"
Caregiver: "When did mom go?"

6:00 PM



Cook Dinner

Concern: Forgetting they are cooking
Care-Recipient: "What is that smell?"
Caregiver: "I hope mom is safe at home"

6:45 PM



Medication

Concern: Medication adherence at the correct time
Care-Recipient: "Which pills do I take?"
Caregiver: "Did she take her medicine today?"

7:00 PM



Listening to Music

Concern: Remote control of technology
Care-Recipient: "Why isn't this working?"
Caregiver: "How do I help mom remotely?"

3:00 AM



Sleep

Concern: Wandering or falling in the morning
Care-Recipient: "I need to go outside"
Caregiver: "Is mom safe and sound at home?"

A Solution

Wellness Monitoring Solution to support caregivers and their family member to stay at home for as long as possible through one app.

View Wellness Data and Activity Patterns



Stay informed and get key alerts if anything is out of the ordinary

Benefits

- Informed
- Independence
- Peace of Mind
- Keep safe

Assured Living Starter Kit



Furnish the home with:

- 1 Control Panel
- 2 Contact Sensors x3
- 3 Motion Sensor
- 4 Bed Sensor



Additional products can be added based on need

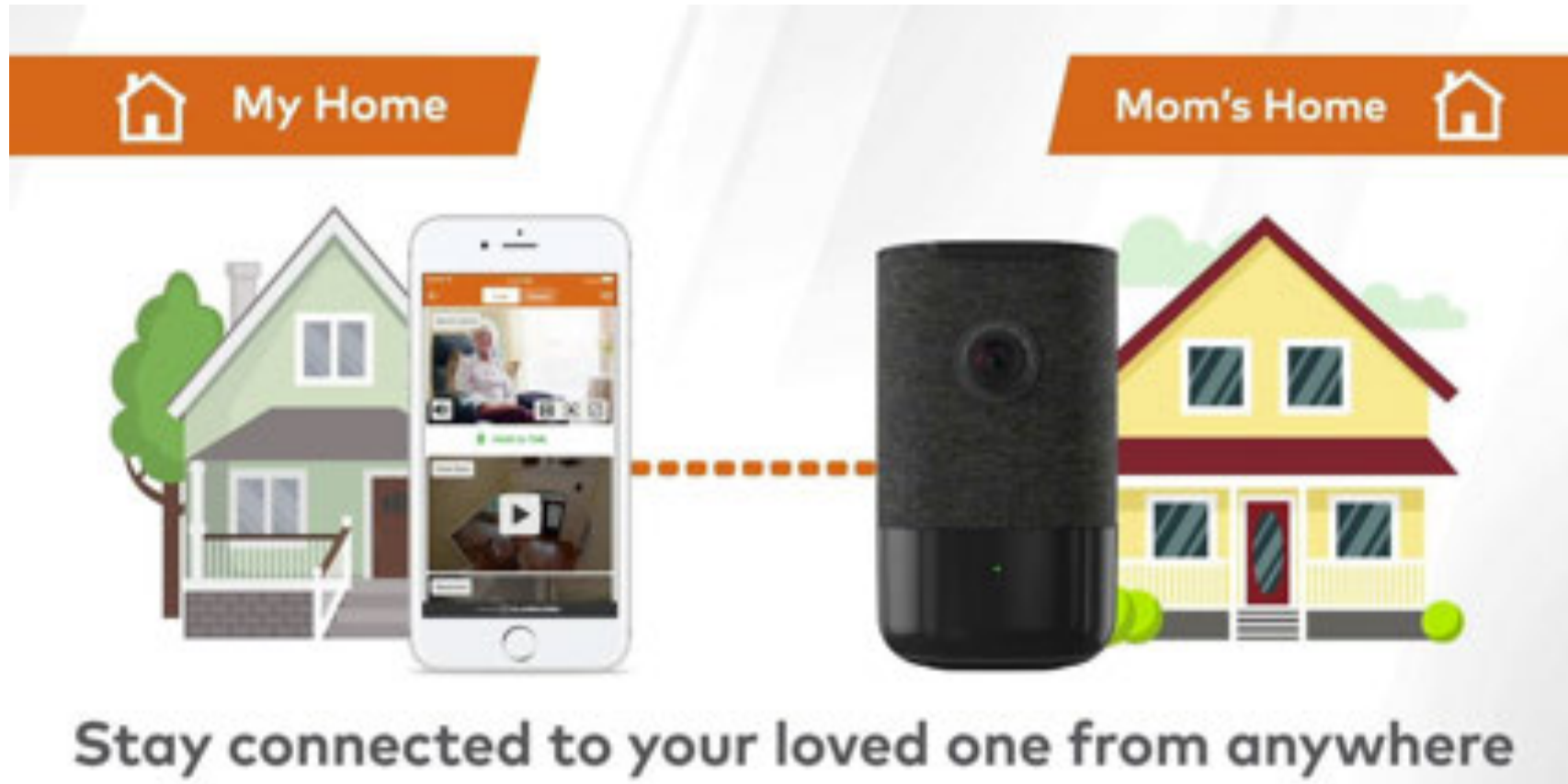
**BEST
BUY**

Wellness Monitoring: Assured Living

- Setup alerts
- Compare patterns
- Movement and occupancy
- Security (cameras)



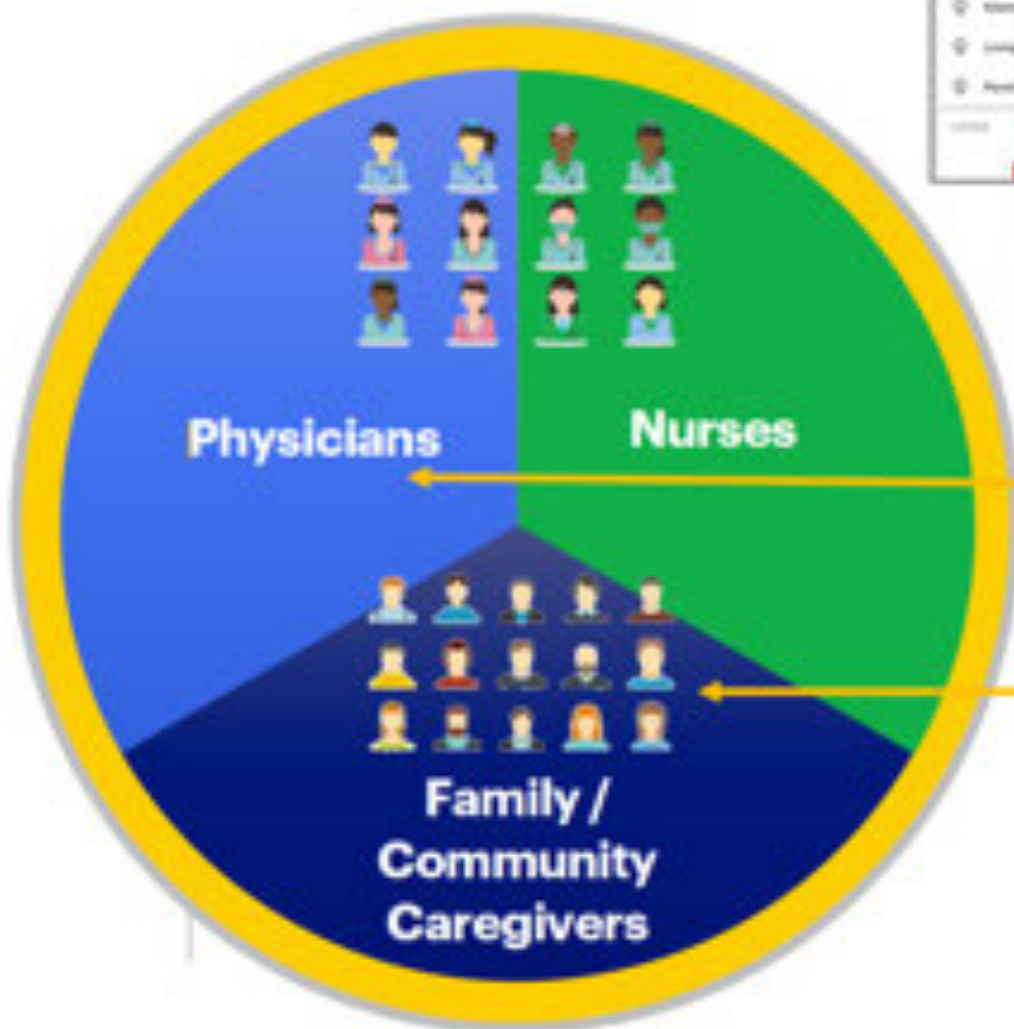
Remote Check-ins



Expand Circle of Care

Enabling **aging in place** or **move out of care home**.

Nurses have a consolidated view of all their care recipients and share knowledge & responsibilities with family & community caregivers.



Nurses can share wellness patterns with physicians for better diagnosis

Nurses can add family and community members to notifications to take care



Technology to Support Persons with Dementia to be Understood – Supporting Communication – Memory and Engagement



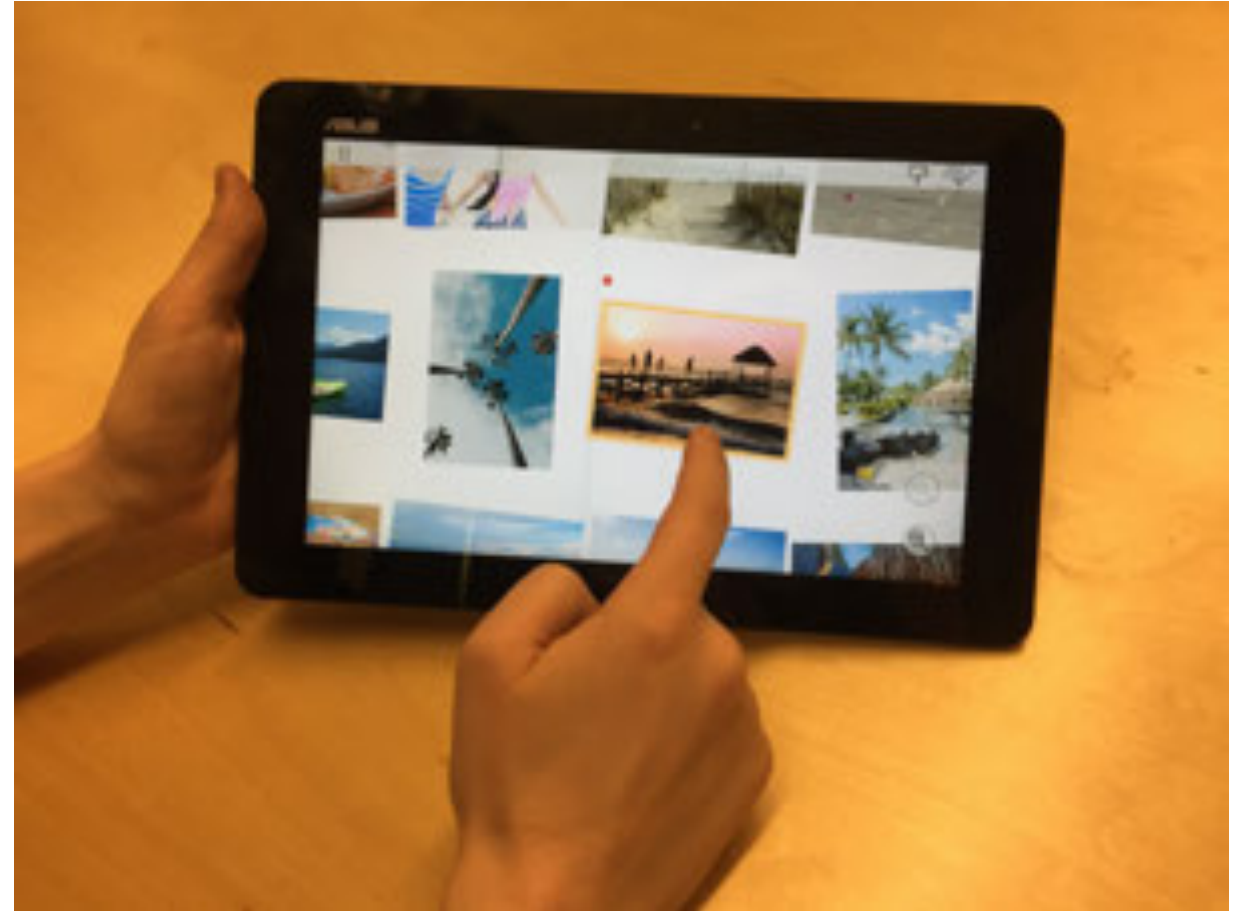
CIRCA: Computer Interactive Reminiscing and Conversation Aid

- CIRCA is a multimedia communication system for people living with dementia.
- CIRCA contains photograph, videos and music to spark off memories that people can chat about with family, friends and caregivers.
- It can be used in a group or one-to-one conversation
- The contents can be customized to different languages and cultures.
- To find out how you can access CIRCA email us at: astellab@gmail.com



Memory and Engagement: PhotoFlow

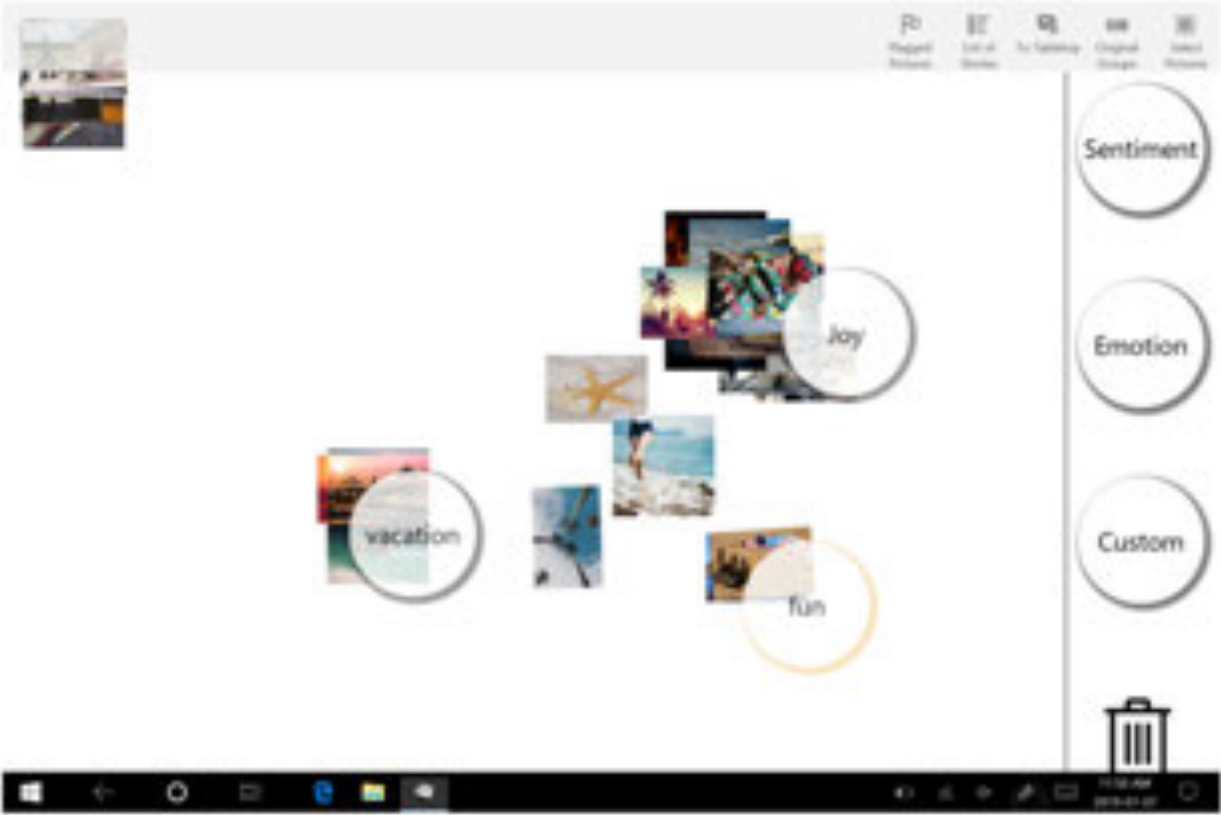
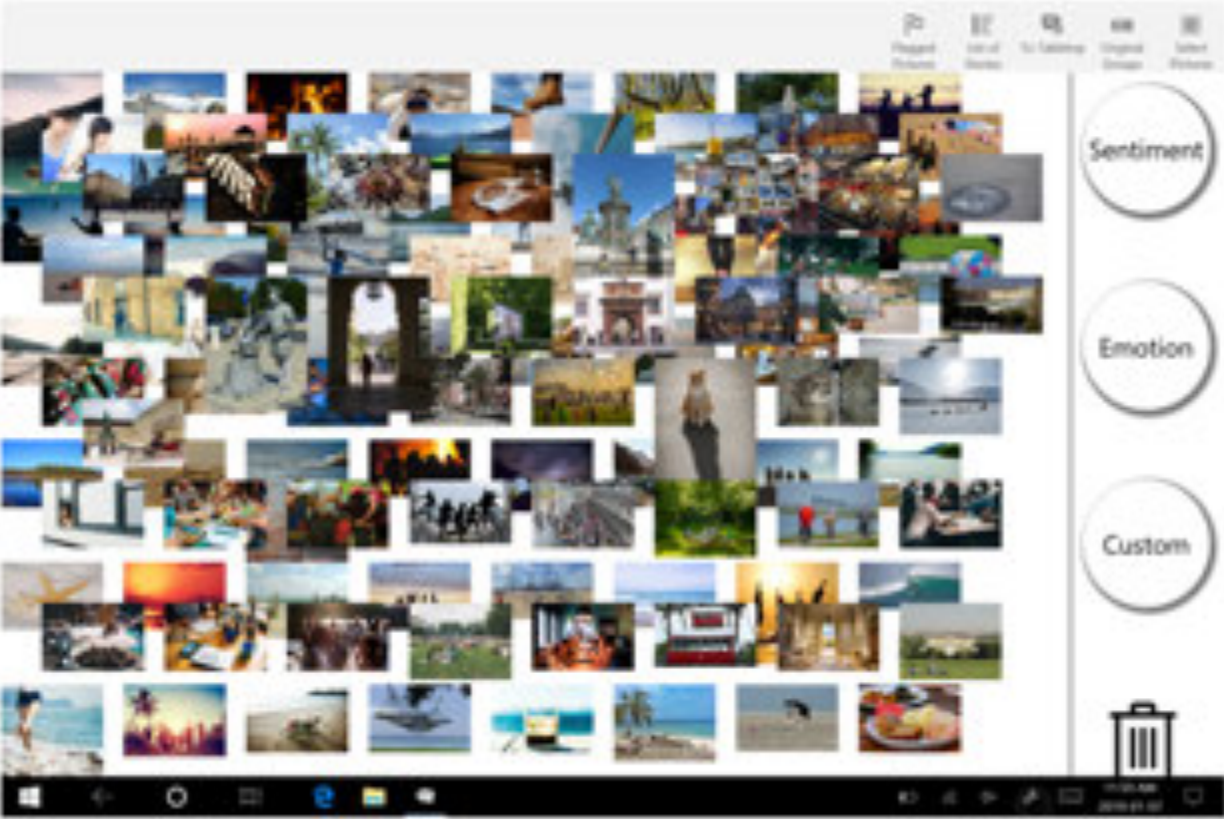
A Mobile Digital Tabletop Picture-Mediated Sharing of Older Adults' Family Memories



PhotoFlow

- Family connections are maintained through sharing reminiscences.
- These activities are often supported by family photographs which easily prompt memories.
- However, there is a gap between sharing memories from physical pictures and the limited support for social reminiscence afforded by digital tools.
- Based on a contextual inquiry of older adults' current photo storytelling activities, PhotoFlow is a digital application that supports picture-mediated social storytelling of family memories.
- Intuitive metaphor mirroring sharing physical family pictures on a table top.

PhotoFlow



Technology to Support Persons with Dementia to Maintain Social Contacts and Networks – A Better Visit app

- Online Game apps to foster meaningful intergenerational connection
- Many people challenged on finding things to talk about
- Can use technology to facilitate gameplay

“By playing the games in the app carers and other family members will be inspired to engage with the person with dementia through the interaction, images and sounds enhancing their enjoyment and discussions.”



Dementia Australia <https://www.dementia.org.au/>

<https://apps.apple.com/au/app/a-better-visit/id1433291135>

<https://www.dementia.org.au/about-us/news-and-stories/news/tic-tac-toe-tango-twist-virtual-fishing-ocean-sounds-and-classic>

Key Considerations When Selecting Technology for Persons with Dementia and Caregivers

Technologies should:

- Give a feeling of independence
- Support the person in making choices
- Have a positive impact on his/her life
- Support skills maintained or do not emphasize lost skills
- Not focus on the user as a person with disabilities, but support the self image of being a person with abilities
- Address the user's needs

Determining if the Technology is the Right Fit – Questions to Consider

- How advanced is the person's dementia?
- Is the user comfortable with the technology?
- How will the technology be set up?
- What are the limitations of the technology (geography, battery life)
- Who will make sure it's charged and used
- Could it cause agitation or concern in the person with dementia
- Is a Wi-Fi connection necessary
- Does it solve an important need or bring joy?

Look for Guidance and Inspiration from Trusted Sources

- Alzheimer Society
 - Canada – <https://alzheimer.ca/en/help-support/dementia-resources/shopping-assistive-products>
 - UK - <https://www.alzheimers.org.uk/get-support/staying-independent/using-technology-everyday-life#content-start>
- Centre for dementia learning
 - Australia
 - <http://dementialearning.org.au/technology/>



Look for Guidance and Inspiration from Trusted Sources

- Alzheimer Society Canada and AGEWELL teamed up to create a checklist to help caregivers compare locating devices
 - https://archive.alzheimer.ca/sites/default/files/files/national/brochures-day-to-day/day-to-day-series_locating-devices.pdf?_ga=2.202699473.1338053202.1611615299-1712467026.1610062973
- Alzheimer's WA (Western Australia)
 - Excellent resource for brochures on different types of assistive technologies
 - <https://www.alzheimerswa.org.au/about-dementia/living-well-dementia/assistive-technology-help-sheets/>
- Disrupting Alzheimer's report on opportunities for technology
 - <https://agewell-nce.ca/wp-content/uploads/2015/09/Disrupting-ALZ-WP-Final-7.15.pdf>

Checklist for Comparing Locating Devices

As you research locating devices, use this checklist to compare product features to decide which device is most appropriate for your specific situation. There is no one standard locating device that is appropriate for every person with dementia in Canada as the Alzheimer Society does not recommend any particular locating device.

Make sure the device is available in Canada because products from other countries may not work in Canada.

To complete the checklist, review the various device manufacturer websites or call the manufacturers and ask questions.

Record the following information about each device:

	Product #1 Name	Product #2 Name	Product #3 Name
Cost:			
Cost of the device			
Activation fee			
Monthly service			
Cost of any additional technology needed to use the device (like a smart phone, computer or tablet)			
Size and Weight:			
Size			
Weight			
Battery:			
Battery life			
Device range			

Other questions to consider:

	Product #1	Product #2	Product #3
Is the device available in Canada? If it is from another country, it may not work in Canada.	Check #1 (Y)	Check #2 (Y)	Check #3 (Y)
Does the device manufacturer have a good reputation? Look for product reviews to assess the credibility of the manufacturer and the quality of the device.			
Does the device have customizable features that you are interested in? For example, some devices allow the caregiver to customize how the device will alert them.			
Will the device be comfortable for the wearer? For example, a large watch may not be comfortable for someone with a small wrist.			
Does the device require additional technology like a smart phone, computer or tablet?			
Is the device water resistant?			
The device is a one-time set-up?			
The device is complicated to set-up?			
Does the device have fall detection?			
Does the device have longer detection?			
Does the device have a geo-zone feature? This feature alerts the caregiver an alert when the person with dementia leaves or arrives in the area determined by the caregiver.			
Does the device work outdoors?			
Does the device work indoors?			

Indoor/outdoor technology

GPS (Global positioning system) technology uses satellite signals to find the location of the person wearing the device. As a result, although GPS locating devices are most effective outdoors, they are most effective indoors.

Radio frequency technology uses radio signals to find the location of the person wearing the device, but at a shorter range than GPS. As a result, although RF locating devices can be used outdoors, they are most effective indoors.



Opportunities to Connect with CTAAN

CTAAN Research Lab will come online in March where we will co-develop integrated solutions for defined settings

Participate in working groups to discuss needs and challenges

Just call to chat, share your needs and insight, co-develop

CTAAN Connector Newsletter

Sign up to our mailing list on our Website: www.ctaan.ca

If a technology can impact your work, we want you to know!



CTAAN

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