Innovations in Safety and Technology for Living with Dementia

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Disclaimer
I have no financial or proprietary connection to any of the products, services or programs referenced as part of this presentation.

Any examples offered are to illuminate the concept or function of the product or service.

I do not specifically endorse the use of any product offered in this presentation.

Learning Objectives
1. Identify key safety risks within the living environment of a person with dementia.
2. Identify important points of consideration when choosing monitoring and alert systems.
3. Increase awareness of new and developing technology for senior safety.
Dementia Basics

- Progressive deterioration of the brain
- Caused by deposition of proteins that affect the ability of the brain cells to communicate with one another
- Alzheimer’s Disease is 6th leading cause of death in US
- Causes death by ultimately affecting areas of brain that control breathing, immune systems and heart function.
Dementia Impacts on Body and Brain
Cognitive/Thinking Skills
- Memory
- Understanding of information
- Judgement
- Attention
- Language skills
- Emotional Control

Dementia Impacts on Senses
Balance
- Reduces detection of position change
- Reduces sensation in feet

Hearing
- Loss of high frequency hearing

Vision
- Uncorrected poor vision is associated with a 5 to 10 x greater risk of Alzheimer’s disease.


Dementia Impacts
Vision Affects
- Amyloid beta protein buildup occurs in brain tissue and in retina of eyes
- Reduced contrast sensitivity
- Impaired night vision
- Reduced color perception especially blue/violet
- Slow recovery to changes in light levels
Dementia Impacts
Late Stage Vision Affects
Retina changes + brain interpretation
↓ object from foreground
↓ depth and distance
↓ peripheral awareness
↓ ability to detect motion

Illusions
Misperceptions
Misidentifications

Late Dementia Impacts
Immune System – less able to fight infection
Thermal Regulation - less able to control body
response to heat and cold
Satiation – reduced perception of thirst and
hunger

Putting the Pieces Together
Fall Prevention
Home Modifications
Medication Safety
Medical Alert and Monitoring Systems
Personal Safety
Fall Prevention

Over age of 65:
Falls are #1 cause of fatal and non-fatal injuries
Every 11 sec Emergency treatment for fall injury
1:3 older adults fall every year (~29 million)
27,000 die from falls annually

The epidemiologic data on falls, Journal of American Medical Association-Internal Medicine, 175, 443-445.
https://www.ncoa.org/healthy-aging/falls-prevention

Fall Prevention

Aging and Falls:
Hip Fracture is most frequent fall related fracture
20% of falls could have been prevented by simple home safety updates
Most falls in home occur around tub and shower
40% of nursing home admissions are related to falls.

Thrive, 2017 Winter, Bluecrossmn.com

Fall Prevention

En Pointe Balance Scale
Consumer and clinical use
Users are awarded a score from 1-10 gauging their balance.
Track your balance over time
Access help and advice for improving your balance, and reducing your fall risk
http://www.zibrio.com/products/
Fall Prevention
Kinesis QTUG system
Tablet computer app that works with wearable sensors attached to persons calves for objective assessment of balance while they perform tasks
Electronic Timed Up and Go
http://www.qtug.org/

The Fall Cycle

Fall
Increased Risk of Falling
Fear of Falling Again
Decreased muscle strength and balance
Less Activity

http://caringforcaregiver.com

Have a Fall Plan

1. Practice getting up from a fall
2.
3.
4.
Getting up after a Fall

Mangar ELK Lifting Device
Raises person from floor using electric powered pneumatic pillow.
~$1200 Health Products for You, ~$1600 Amazon

Fall Prevention

Most effective strategies to reduce risk of falling in senior population
1. Annual Wellness Medical Check Up
2. Exercise
3. Vision Assessment and Treatment
4. Home Modifications

Home Modification
General Principles

Good comprehensive Home Safety Outline
Alzheimer’s/Dementia Home Safety Checklist

The following are highlights of important or unique issues to this presenter.
General Principles: Lighting

Change out dim or dead lightbulbs
Add lightbulbs to fixtures
Do they have to walk across the room to turn the light on?

light switch inside door

General Principles: Lighting

Lightbulbs are not all the same

CFL bulbs last longer than incan but require time to come to full strength as wear out
LED bulbs are closer to natural light and have longer life than CFL and are more cost efficient

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<th>CFL</th>
<th>LED</th>
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<td>60 W</td>
<td>$1</td>
<td>$2</td>
<td>$4</td>
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<td>$211</td>
<td>$54</td>
<td>$34</td>
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<tr>
<td>25K hr</td>
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Cost over 20 years

http://www.vibrilght.com

General Principles: Lighting

Add lighting in critical areas:
- Stairs – bottom of stairs
- Bathrooms and bedrooms night lighting
- Kitchen
- Lumi plug in nightlight
- Dusk to dawn sensors
- Low cost

7/23/2018
General Principles: Lighting

Touch Lamps
Easy on and off
Do not have to turn switch
Use full spectrum bulb for reading areas

Full Spectrum Light

General Principles: Floors

Remove scatter rugs EVERYWHERE
Safely secure any worn flooring surfaces
Keep shoes, purses, papers off floor

General Principles: Floors

Be aware of patterns on flooring that could cause “visual cliffing” – perceiving a change in color pattern as a hole, step or obstacle
General Principles: Stairs
Stairs have hand rails on both sides
Edge of stair marked for higher visibility
Good lighting in stairway

General Principles: Stairs
Includes stairs outside home as well

Home Modifications: Hardship Mail Delivery
You can ask for mail to be delivered to the front door for someone physically unable to safely access mail box. Requires doctor’s statement.
Contact your local post office, call 800-275-8777. www.usps.com
Home Modifications: Entrances
Lock Boxes for emergency access
Keys are placed in box and combination provided to law enforcement or care providers
Quicker emergency service
Reduced damage to doors
Low cost
Walmart.com $20-$30

Home Modifications: Entrances
Door sensor with remote alarm
Door is opened the transmitter sends a signal to the receiver/alarm that is plugged into an outlet.
Can be used on drawers and cabinets.
$39.95 ALZstore.com

Home Modifications: Entrances
Door Guardian Confounding Door Lock
Rotate stop open first then open door
Easy to install, 3M stick up options
ALZstore.com $27.95
Home Modifications:
Furniture Access
Rule of Knee
1. Stand and face a surface on which you intend to sit
2. Seat should be firm and at least as tall as the middle of your knee
3. Hips will be same height as your knee
4. You will be able to get up from the surface more easily

Home Modifications:
Furniture Access
Raise height of furniture if too low with furniture risers
Under $30 available at Walmart, Target etc

Home Modifications:
Furniture Access
Recliner Platform Boost elderstore.com $149
Home Modifications: Furniture Access
Stander Recliner Risers
Amazon $29.99
http://yredian.com/platform-chair-riser/

Home Modifications: Furniture Access
Add a support to aid in getting up from sitting
Couch Cane
Walmart ~$126
Super Pole
Walmart ~$159
Security Lift Pole
Vitality Medical $159

Home Modifications: Bathroom Safety
Add bars to aid in getting up and down from toilet
Toilet Safety frame
Walmart ~$28.99
Use commode over the toilet with bucket removed for arm supports and to raise height of toilet seat
Walmart ~$33
Home Modifications
Bathroom Safety
Tub/Shower Grab Bars
Vertical on wall as you enter
Diagonal on long wall - high-
faucet, low towards back
Must be installed into studs on wall.
Choose textured grip to prevent hand slipping
Do not use towel bar, soap dish or
shower door as a grab bar !!!

Home Modifications: Bathroom Safety
Non Permanent Grab Bars
Clamp on Bars
Walmart ~ $25 - $30
Beware of suction
cup grab bars
Test before using
EVERY TIME!!!
Walmart ~ $20

Home Modifications: Bathroom Safety
Hand Held Shower
Replace shower head
Suction cup low hook for easy reach head
Tub/Sink Spray Heads fit over faucet
Home Depot ~ $20 - $150
Home Modifications: Bathroom Safety

- Shower chair
  - Walmart ~$20

- Transfer Bench
  - ~$50

- Step with handle
  - Amazon ~$64

Home Modifications: Bathroom Safety

Tub Cut Outs

Surface Specialists 218-384-4175 cost varies

Home Modifications: Bathroom Safety

Walk in Tubs

Bath Planet

218-228-0435

~$3,000-$7,000
Home Modifications: Bathroom Safety
Remove shower doors and replace with curtains for easier access of Shower
Replace with Clear shower Curtain for Better light value

Home Modifications: Bathroom Safety
If people are reluctant to bathe consider:
Covering mirrors to reduce visual confusion

Home Modifications: Bathroom Safety
Think contrast for visual guiding
Colored toilet seat
Colored towel over edge of tub
Home Modifications: Bathroom Safety
Dementia Friendly Bathroom
- Raised toilet
- Contrast seat
- Grab bars
- Covered mirror
- Covered plumbing
- Walk-in shower
- Shower seat
- Hand held shower
- Grab bars
- Good lighting

Home Modifications: Bedroom Safety
Bed height appropriate
- Take off frame if too high
- Add furniture risers if too low
Add a safety rail for balance assist
Walmart ~$30-$80

Home Modifications: Bedroom Safety
Fabrics can affects mobility
- Flannel and polar fleece:
  difficult to roll over and slide
- Satin or satin-like material:
  easier to roll over and scoot but can slide off of the bed too
Home Modifications:
Kitchen Safety
Sturdy Step stool with handle to reach items

Reacher to grab lighter weight items both high and low.

Home Modifications:
Kitchen Safety
Simplify cooking using microwave
Simple high contrast controls are best
Mark with bump dots or colored tape to be more easily read
Remove non microwaveable containers from home if turning off stove

Home Modifications:
Kitchen Safety
Good Lighting over stove and in prep areas

Stove controls easily visible, mark with tape or bump dots
Home Modifications: Kitchen Safety

If concern for stove operation
Knob controls with covers
Remove knobs (Walmart $7.95)

Install oven lock
(Amazon ~$10)

Disconnect stove

Home Modifications: Pet Safety

Reduce bending for pet dishes or scooping poop

Amazon.com ~$20
Amazon.com ~$15

Home Modifications: Pet Safety

PupSTEP for lifting pets
Amazon ~$30-60

No-Pull Harness
$30-40
Medication Safety

Smart phone prescription refills
Scan med bottles to order meds
Texts a message when ready

Medication delivery
Essentia Health 3rd St Pharmacy

Rx MedSync – meds are all refilled at same time
Ready refill – meds refilled monthly without calling
Healthy Pack Rx – meds are pre-packaged

Automatic Pill Dispensers
Med Q Timed Dispenser
medqpillbox.com $49.99
MedReady Automated Medication Dispenser
Alzstore.com $149
palmedicalsystems.com/medical-alerts/ $189.00, $35 monthly rental
Medication Safety
Livi Automatic Pill Dispenser
Easy to load up to 15 meds
Dispenses up to 24 x a day
Remote cell connection for management
liviathome.com\$1999

Personal Safety Systems
Technology is evolving quickly
Basic things to know:
GPS – Global Positioning System – locating system, satellite dependent not network based, must have line of sight connection, affected by terrain
Network Assisted GPS – GPS that uses cell towers to triangulate location, faster than GPS but network dependent

Personal Safety Systems
Radio Frequency Identification – RFID
Works through radio waves between transponder, antenna and receiver. The chip transmits a signal to the receiver, limited signal range, dependent on law enforcement support of system for emergency location.
On Line Applications – Apps – protectively manage location of a person, network/internet dependent, time interval not usually continuous reporting so delay in alerting if person is moving
Personal Safety
Home based
Work with land lines and you speak to the dispatcher thru base unit in the home. Limited range from base – in home only.

Cell Based
Work through cell networks and use GPS to locate users. Can be used away from the home. May also have limits to the range. Device is worn and activated by person.

Personal Safety
Medical Alert System Considerations
Monitored
Call button connects to someone at a 24/7 dispatching center. Monthly fees.

Non Monitored
Call button automatically dials a personally programmed call list. No monthly fees – you own the system.

Personal Safety
Medical Alert System Considerations
Fall Detection Feature
Senses quick change in physical position indicating a fall and automatically calls EMS dispatch center.
Technology still in development – not fully reliable such as dropping device or losing your balance and catching yourself.
**Personal Safety Medical Alert and Monitoring Systems**

Comparison grid handout compares 8 top Consumer Reports reviewed companies. Information is a guide to current information available at time of preparation. [https://www.consumerreports.org/medical-alert-systems/how-to-choose-a-medical-alert-system/](https://www.consumerreports.org/medical-alert-systems/how-to-choose-a-medical-alert-system/)

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**Personal Safety Medical Alert and Monitoring Systems**

**MinnesotaHelp.Info**

Online directory of services designed to help people in Minnesota identify resources such as human services, information and referral, financial assistance, and other forms of aid and assistance within Minnesota. [minnesotahelp.info/](minnesotahelp.info/)

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**Personal Safety Medical Alert Systems**

**Valued Relationship Inc.**

Essentia has closed their medical alert program. It is replaced with VRI. VRI is honoring the prices of established Essentia customers. New customers will be at usual VRI rates. VRI Systems will not be locally installed or supported. They will be mailed for customer installation. See matrix for costs.
Personal Safety Medical Alert Systems

LifeLine (Phillips LifeLine)
Landline only system, inside the home
$50 monthly fee
$65 activation fee
Will set up systems in Duluth
Spectrum Community Health
2820 Piedmont Ave, Ste D,
Duluth, MN, 55811-3728

Personal Safety Medical Alert Systems

Personal Assistance Link
Only installed and serviced system in Duluth and Superior. Grand Rapids based company
Personal Emergency Response System (PERS)
Landline $39.95 month
Cellular Medical Alert System
Mobile $49.95 month
Mobile + Fall Alert
$54.95 month
palmedicalsystems.com/medical-alerts/

Personal Safety Medical Alert Systems

Wireless cell service
based monitored mobile device system in several different formats
Jitterbug Flip Phone
Jitterbug Simplified
Smart Phone
Wearable pendant or watch

greatcall.com

7/23/2018
Personal Safety
Medical Alert Systems
Payment Sources:
No coverage of systems by straight Medicare or medical assistance
Reduced costs with waivers: AC, BI, CADI, CAC, DD, EW, Essential Community Supports, Minnesota Senior Health Options (MSHO)
Some private health insurance coverage, TRICARE

Personal Safety Monitoring Systems
Integration of alerting and monitoring systems
Goal is for someone to live in their own home with remote monitoring that can activate intervention if needed.
Expensive
Tech savvy end users
Tellie-Wellness
Social Interaction

Personal Safety Monitoring Systems
Internet based with wireless WiFi connections to motion sensors, door sensors, health monitoring devices
Caregivers are connected through secure web page
Personal Safety Monitoring Systems

BeClose - wireless household sensors to remotely track daily routines in the home. Interactive monitor that allows visual contact and conversation on secure web page. http://www.cybermationinc.com/beclose-with-cybermation.html

Personal Safety Monitoring Systems

Grand Care System
Internet based with wireless sensors for viewing activity and tele-wellness info: weight, BP, blood sugar.

Secure connection to family and HIPAA compliant to health care providers.
Base $999 + $99 monthly
Grandcare.com

Personal Safety Monitoring System

Wearable GPS technology
2 way GPS tracking devices and mobile phone tracking app with continuous real-time location.
Take-along Tracker $89.00
Smart Sole $299.00

Biostride – soles with fall detection in development http://gtxcorp.com/
Personal Safety
State Wide Missing Persons Reporting
MN – BCA Missing Person’s Reporting System
WI – Silver Alert
The missing person is believed to have Alzheimer’s, dementia, or another permanent cognitive impairment that poses a threat to the individual’s health and safety.

Personal Safety
MedicAlert® + Alzheimer’s Association Safe Return®
24-hour nationwide emergency response service for people with dementia who wander or have a medical emergency.
Personalized ID Bracelet
$55 + $7 shipping and handling
$35.00 annual fee
http://www.alz.org/helpsupport/caregiving/safety
/medicaalert-safe-return

Personal Safety
Vial of Life
Lo Tech emergency info system
Record medical info and store in a vial or folder in a marked location alerting emergency responders to important health information like allergies, medical history.

Vial of Life Project
A Division of the Bridge Building Foundation 501c3 Public Charity
Personal Safety
Post emergency numbers by the phone.
List address by the phone. In an emergency you need to be able to report your location.
Consider an emergency contact guide like “Vial of Life” – that has emergency info in one spot.

Emergency 911
215 E 5th St

Personal Safety
Carry cell phone Program ICE:
In Case of Emergency
List number of person to be called in an emergency
Phone should not be so complex it can’t be used.

Personal Safety
Audio and video monitors Stay connected when in the home without being in the same room.
Monitor with up to 1,000 ft of range, Vibrating Sound-Alert, Talk Back Intercom
VTech DM221-2 Audio
Amazon $49.95
Personal Safety

RFID – Bluetooth tracking devices to help locate lost items

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<th>TrackR  Pixel</th>
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<tr>
<td>Range</td>
<td>200 ft</td>
<td>100 ft</td>
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<tr>
<td>Size</td>
<td>1.5” square</td>
<td>1” circle</td>
</tr>
<tr>
<td>Weight</td>
<td>11g</td>
<td>4g</td>
</tr>
<tr>
<td>Cost</td>
<td>$35</td>
<td>$25</td>
</tr>
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Personal Safety

Lock up important items to avoid loss or misuse
Lock a cupboard or a safe
medications
important papers
jewelry
money/wallets/purses
keys

Medication Safety

Medication Lock Boxes
Secure meds to prevent uncontrolled access

Small 49.95 13 med bottles
Medium 59.95 22-24 med bottles
Large 69.95 36 bottles

palmedicalsystems.com/medical-alerts/
High Risk Considerations

Regularly monitor bank accounts
Establish auto – bill pay
Close credit cards or limit chargeable amounts
Secure internet access to avoid fraud, unexpected purchases

66% over 65 are Internet users
connectsafely.org/seniors/

High Risk Considerations

Remove or secure firearms in the home
Store unloaded
Store ammunition separately
Disable firearm
Trigger locks
Firearm Safe

27% of seniors are gun owners.
Older white males have highest suicide rates.
Double suicides or suicide-murders among elderly couples are more common than among other age groups.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3487668/

High Risk Considerations

Closely monitor or reduce use of:
Power Tools
Snowblowers
Lawnmowers
ATV’s
Golf Carts
High Risk Considerations
Community Mobility vs Driving
American Academy of Neurology
Early dementia: assess skills, start making plans for driving retirement
WHEN not IF
Reassess every 6 months
Average person outlives their ability to drive by 10 years.

High Risk Considerations
Driving Skills Assessments
Physician referral
1. Clinical driving skills assessment
   Occupational Therapy Eval
   St. Luke’s 249-6076, Ann Forrest Clark
   Essentia Health 786-5360
2. Behind the Wheel Assessments
   Northland Driving School
   218-428-6639, Ann Forrest Clark
   Must have passed clinical skills assessment, $200 out of pocket

Driving Assessments
Clinical Community Mobility Skills
   Standardized tests of physical, visual and cognitive skills
   Driving Risk Calculator used to determine need for on road assessment: 4 moderate risk and or 1 high risk skill performance
Behind the Wheel
   Freeway and non freeway courses used, maneuvers scored 0-4 error rate
Driving and Dementia

- Communicate travel plans to another person: when and where going, when expected back.
- Always carry a charged cell phone with GPS tracking device or vehicle GPS “On Star”
- Stop and call if lost or confused
- Reassess skills every 6mo or if change in health or cognitive condition is observed

Ron & Mary Tamowski of Duluth found dead in their vehicle 8/5/18

Have the Conversation

Alzheimer’s Association Dementia and Driving Resource Center
https://m.alz.org/driving.asp?sp=true

Hartford Association

Don’t take away the keys unless you address how someone is going to get around.

Driving Alternative Resources

Duluth and surrounding areas:
- AgeWell Arrowhead 218-623-7800
- Senior Linkage Line 1-800-333-2433

Wisconsin / Superior surrounding areas:
- North Country Independent Living
  Bob Olsgard 715-392-9118
- Senior Connections 715-394-3611
The Learning Lab for Eldercare Technologies
Connect older Minnesotans and care partners with home health and safety technologies
Augustana Care’s Learning Lab
1015 4th Ave N Suite 204, Minneapolis, MN
612-843-6790
Kate Ingalls-Maloney, Director
Lynn Taylor, Coordinator
http://thelearninglab.org/

The Learning Lab
Health, Safety, Social, Education, Hybrid
Environmental technologies
Items demonstrated in lab
Demo items may be loaned on trial
Do not sell items but assist families in pursuing purchase
Services are free

Learning Objectives
✓ Identify key safety risks within the living environment of a person with dementia.
✓ Identify important points of consideration when choosing monitoring and alert systems.
✓ Increase awareness of new and developing technology for senior safety.
Questions?!?

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Home Safety Evaluations
Driving Skills Assessments