

AGING IN PLACE THE NEXT EVOLUTION OF TELEHEALTH

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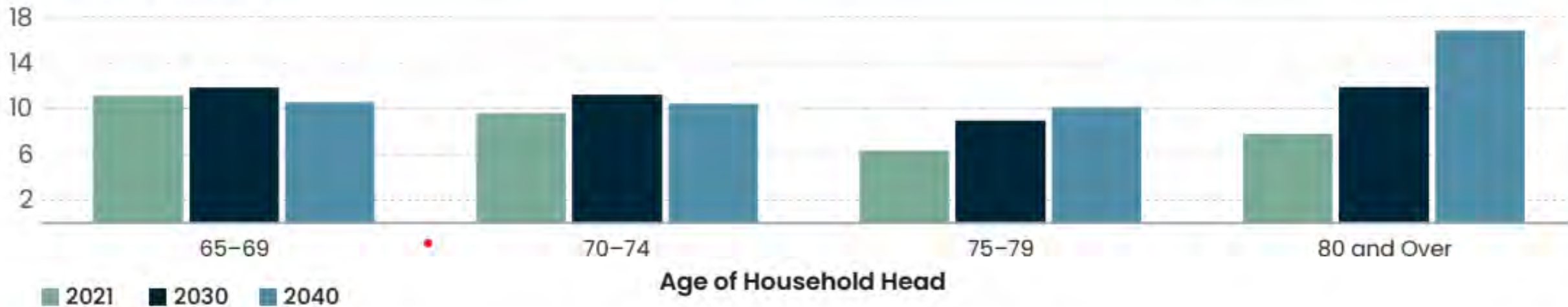


WHAT DO YOU THINK ABOUT WHEN YOU THINK ABOUT AGING?



Households Headed by Someone in Their 80s and Over Will Double in Number by 2040

Households (Millions)



Notes: Projections use Census 2017 population projections with low immigration scenario. Projections have been re-benchmarked with 2021 actual population.

Source: 2018 JCHS Household Projections.

CONNECT. EMPOWER. INSPIRE.

US POPULATION BY AGE BRACKET WOMEN/MEN 2024

119 Million People over the age of 61



The concepts of aging well, including healthy aging, active aging and aging in place, often overlap and have similar goals as we age.

HEALTHY AGING

A proactive process of maintaining good physical, mental, and social well-being throughout life by adopting healthy habits like regular exercise, nutritious eating, and staying mentally stimulated and prioritizing emotional health.

ACTIVE AGING

A comprehensive strategy and lifestyle that promotes and optimizes the opportunities to maintain health, participate in the community, and live safely and securely to improve the quality of life as we age.

AGING IN PLACE

The desire and ability to live in your own home and community as long as your health permits by having the necessary social and support systems in place to keep you safe and independent.



44% of people over the age of 65 have a disability

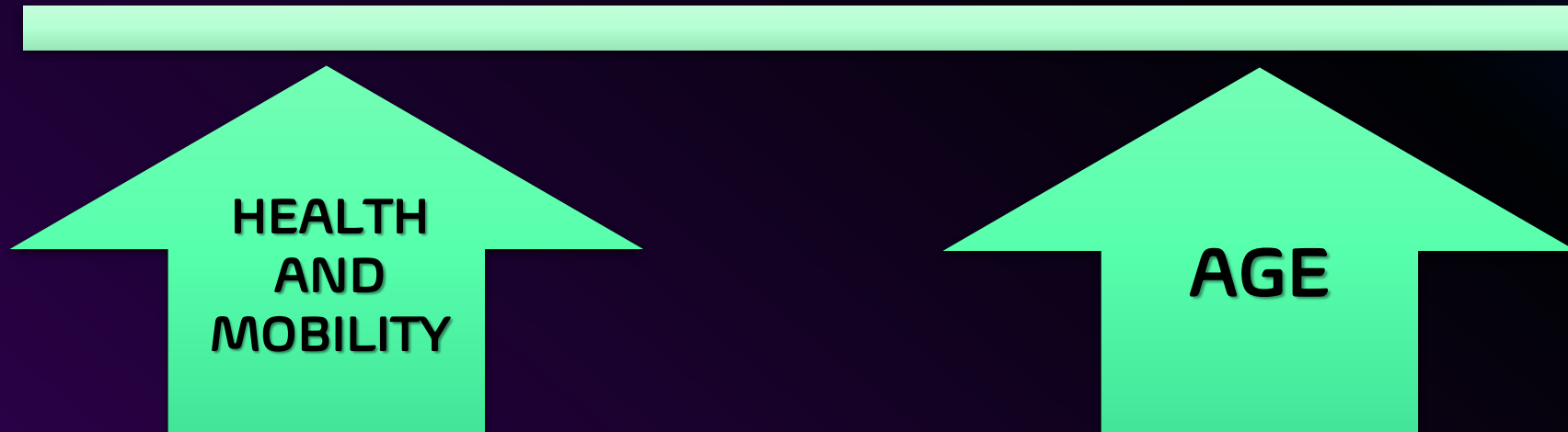
Age 65–79: 28% have mobility limitations.

Age 80 and over: 45% have mobility limitations

HEALTH
AND
MOBILITY

AGE

RELATIONSHIP BETWEEN HEALTH
AND MOBILITY AND AGE



**RELATIONSHIP BETWEEN HEALTH
AND MOBILITY AND AGE**

What If We Could Take What We Learned From Telemedicine/Telehealth And Apply It To Aging?

Relationship – creating a sense of presence and empathy through video

Need – linking an unmet need with a resource

Technology – fitting the right technology to the need

Telecommunications – communications, internet

Satisfaction – are people happy with telehealth/telemedicine

Outcomes – were clinical outcomes and quality of life better or worse after telemedicine?



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1. Video

2. Audio

3. HVAC

4. Cooking

5. Mobility

6. Socialization

7. Health

a. RPRM

b. Care Coordination

c. Clinical Visits

d. Mental Health Checks

The key to technology in aging is safety, security, well-being, socialization, health

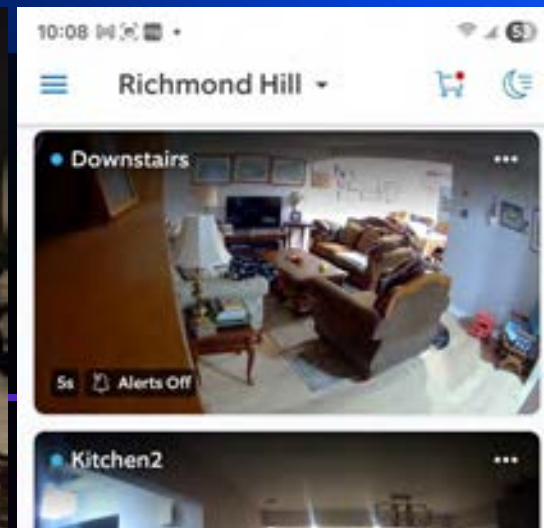
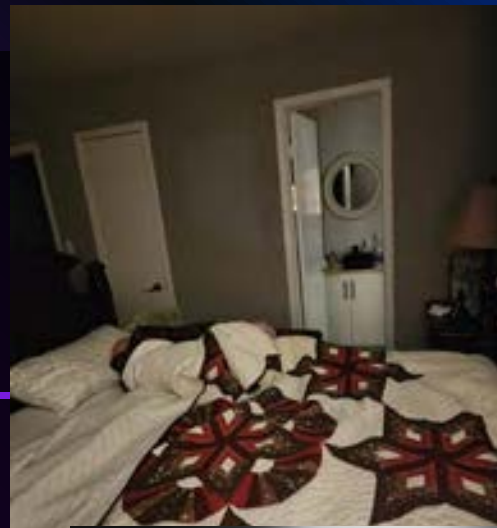
- Remote cameras
- Remote Patient Monitoring
- Activity trackers/sensors/alarms
- PERS for falls and geolocating
- Elopement
- Heat/cold sensors

TECHNOLOGY
AND AGING IN
PLACE

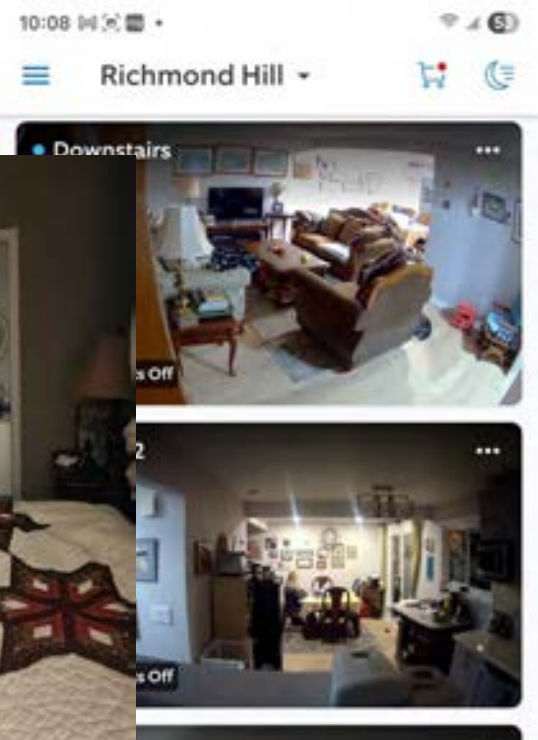
VIDEO TECHNOLOGY



Visits, Live Episodic, or Continuous Monitoring



SAFETY AND MONITORING TECHNOLOGY



SITUATIONAL TECHNOLOGY



**WHEN HEALTH IS NOT THE DRIVING FACTOR –
DEVELOPMENTAL DISABILITY OR OTHER MENTAL
CONDITION:**

***SAFETY/SOCIALIZATION – VIDEO, ASYNCHRONOUS
COMMUNICATION, ACTIVITY/MOTION MONITORING**

**WHEN HEALTH IS THE DRIVING FACTOR –
SAFETY-SOCIALIZATION-HEALTH
MONITORING-CLINICAL CARE:**

***VIDEO, ASYNCHRONOUS COMMUNICATION,
MOTION MONITORING, RPRM, HVAC, EXIT,
CLINICAL EXAM TECHNOLOGY**



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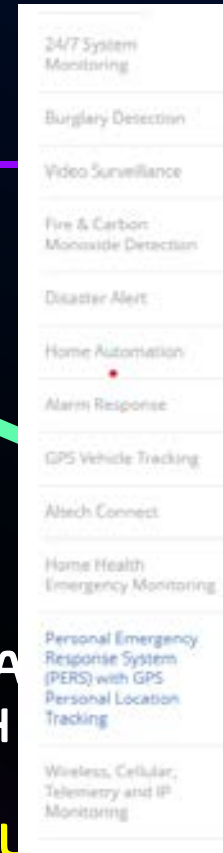
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Smart Home Technologies 2010

- Combination of
 - Artificial intelligence
 - Domotics (home-based remote controlled automatic devices)
 - Robotics
- Add in
 - Medicine
 - TeleHealth
 - Social services



Smart Home Technology

- Ensures safety of the person at home
- Identifies concerning situations
- Automatic devices that are human independent
- Connected to a supervising destination
 - Health care organization
 - Third party control center
 - Family member



Smart Home Technology

- Motion sensors
- Temperature sensors
- Automatic turn-on, shut off sensors
- Lack of activity sensors
- Motorized essentials such as blinds, curtains, shower doors, locks
- Smoke, CO, Excessive heat, bath temperature, microwave use, non-flammable gases, excessive moisture
- Burglar alarms, exit alarms
- Security cameras

Ecobee Thermostat



- Programmable from the web
- Remote access
- Control from a remote
- Alert when system is not functioning properly

Smart Microwave



Scan the barcode
on the food package
which turns on
the microwave
to the right
cooking temperature
and time.



- Automatically detects unattended cooking
- Stovetop Fire Prevention
- Stove Guard Protects the Most-at-Risk people!
- "Aging at Home" Seniors living alone, Early-Stage Alzheimer's or Dementia, Post Traumatic Stress Disorder, Easily-distracted or other cognitive memory disorders

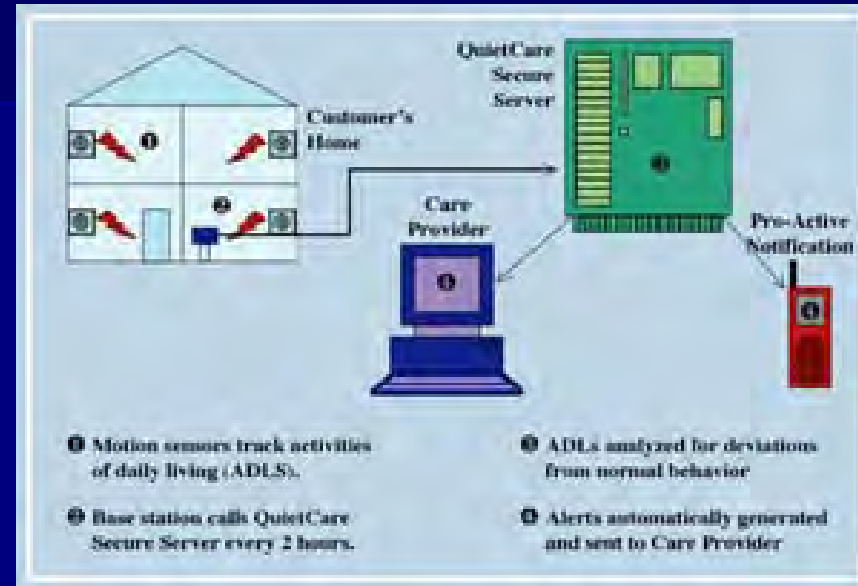
Automatic Stove Shut-Off

Preventing Hot Water Burns

- Designed to prevent accidental scalding
- Increases the amount of available hot water
- Anti scald technology is low maintenance



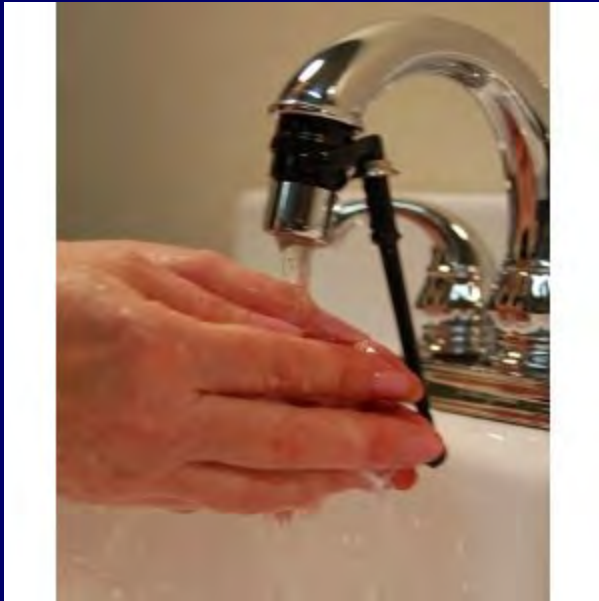
'Lack of Activity' Sensors



- Meal preparation (Did the person eat?)
- Wake-up (Did they get up?)
- Suspected falls (Stayed in bedroom for an extended time)
- Overnight bathroom use (An increase or decrease?)
- Overall activity (or lack there of)
- Temperature in the client's home

Ever Forget to Turn off the Water?

Automatic Turn On/Off Faucets



Also Regulate the Temperature

Remote Controlled Blinds & Shades



Remote Controls



Personal Safety



- Personal Emergency Response System
- GPS tracking
- Automatic Falls Detection
- Geo-fencing
- Walk in the Park tracking



Identify the person, describe the service, position for outcomes, then select technology.





**LOW TO INTERMEDIATE RISK
PATIENTS**



Hospital at Home



LEGAL AND REGULATORY

- **Elder and vulnerable populations abuse, neglect, and exploitation laws**
- **Criminal activity – theft, impersonation, dishonesty, CMS fraud**
- **Contractual Law**
- **Cybersecurity and Privacy**

CYBERSECURITY/ PRIVACY



Same issues for any online activity:

1. Any device/technology you are accessing remotely or that is broadcasting
2. Enable two-factor authentication (2FA)
3. Secure your network
4. Use strong passwords
5. Review your privacy settings
6. Be careful of apps like "Neighbors"

Keys to Securing Your Router

- Change the default settings
- Enable encryption
- Check for updates
- Disconnect unused devices



"Hey, Siri"



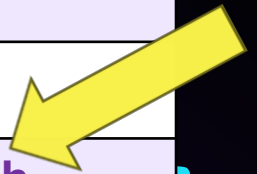
SECURING ONLINE CAMERAS:

1. RESEARCH
2. SECURE YOUR NETWORK
3. UPDATE CAMERA SOFTWARE
4. USE STRONG PASSWORDS
5. TURN ON CAMERA'S SECURITY FEATURES
6. WATCH YOUR OWN FEED REMOTELY
7. CHECK CAMERA LOGS FOR UNKNOWN IP ACCESS
8. THINK BEFORE SHARING ONLINE FEED WITH OTHERS

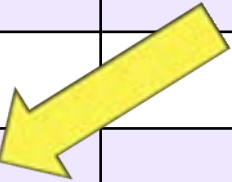
PROTECTING YOUR ONLINE PRIVACY

COST ACTIVITY/ITEM	MEMORY CARE COST/MO.	ASSITED LIVING	AGING IN PLACE COST/MO.
INTERNET			
VIDEO TECHNOLOGY			
EXIT TECHNOLOGY			
RPRM			
MONITORING STAFF/CENTER			
CAREGIVERS			
ROOM AND BOARD			
MEDICATION MANAGEMENT			
EXTRA BATHS			
PERSONAL CAREGIVER			
TOTALS			

COST ACTIVITY/ITEM	MEMORY CARE COST/MO.	ASSISTED LIVING	AGING IN PLACE COST/MO.
INTERNET			\$100/mo
VIDEO TECHNOLOGY			\$500 one time charge
EXIT TECHNOLOGY			\$170 one time charge
RPRM			\$200/mo
MONITORING STAFF/CENTER			-
CAREGIVERS			\$3,000-9,000/mo (\$6,000)
ROOM AND BOARD			\$1000
MEDICATION MANAGEMENT			-
EXTRA BATHS			-
PERSONAL CAREGIVER			-
TOTALS			\$7200/month

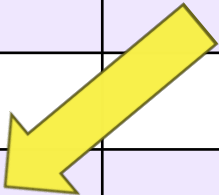


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INTERNET		\$100	\$100/mo
VIDEO TECHNOLOGY		\$500 one time charge	\$500 one time charge
EXIT TECHNOLOGY		\$170 one time charge	\$170 one time charge
RPRM		\$200/mo	\$200/mo
MONITORING STAFF/CENTER		-	-
CAREGIVERS		\$500 average	\$3,000-9,000/mo (\$6,000)
ROOM AND BOARD		\$5200/mo.	\$1000
MEDICATION MANAGEMENT		\$250/mo	-
EXTRA BATHS		\$200/mo	-
PERSONAL CAREGIVER		\$4200	-
TOTALS		\$10,400/month	\$7200/month



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INTERNET	\$100	\$100	\$100/mo
VIDEO TECHNOLOGY	\$500 one time charge	\$500 one time charge	\$500 one time charge
EXIT TECHNOLOGY	-	\$170 one time charge	\$170 one time charge
RPRM	-	\$200/mo	\$200/mo
MONITORING STAFF/CENTER	-	-	-
CAREGIVERS	\$2,700-9,000 (\$5850)	\$500 average	\$3,000-9,000/mo (\$6,000)
ROOM AND BOARD	\$8100	\$5200/mo.	\$1000
MEDICATION MANAGEMENT	\$250	\$250/mo	-
EXTRA BATHS	\$200	\$200/mo	-
PERSONAL CAREGIVER	\$7,200	\$4200	-
TOTALS		\$10,400/month	\$7200/month

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MEDICATION MANAGEMENT	\$250	\$250/mo	-
EXTRA BATHS	\$200	\$200/mo	-
PERSONAL CAREGIVER	\$7,200	\$4200	-
TOTALS	\$21,000/month	\$10,400/month	\$7200/month





COST/MO.	AGING IN
charge	\$500
	\$170



MEDICATION MANAGEMENT	
EXTRA BATHS	
PERSONAL CAREGIVER	
TOTALS	\$



COLLEGE EDUCATED=MATHEMATICS AND ELECTRONICS
WORKED AT 3M, OWNED A BUSINESS, RETIRED FROM SONY
PLAYED SEMI-PRO FOOTBALL, HOCKEY AND GOLF
RETIRED AT 55

LIVED VERY RURAL AND OFF THE GRID ON A MAPLE SYRUP FARM – 130
ACRES

2015 THOUGHT HE HAD MEMORY PROBLEMS – ENTERED STUDY

2018 BECAME A MISSING PERSON WITH SILVER ALERT TRAVELING
FROM CANADA TO THE US

2019 OFFICIAL DIAGNOSIS OF DEMENTIA UNKNOWN ETIOLOGY



HERE IS THE STORY
OF BOB

DID OK FOR ABOUT THE FIRST YEAR

COULDN'T FIX HIS TRACTOR

RUINED TWO SETS OF SOLAR
BATTERIES

RAN OUT OF FIREWOOD

HOUSE WAS A MESS

INFESTATION OF MICE

DIDN'T KNOW ANYTHING WAS
WRONG



1/2019-9/2020



HERE IS THE STORY
OF BOB

IN 2020 IT BECAME CLEAR THAT BOB COULD NOT STAY OFF THE GRID AND
MANAGE HIS HOUSE AND LIFE.

HE SOLD HIS PROPERTY AND MOVED INTO THE 'FOREVER' HOME IN A SMALL
COMMUNITY WITH TWO GROCERY STORES, A HARDWARE STORE, A LIBRARY,
DOCTOR, DENTIST, AND HYGIENIST, THREE FAMILY OWNED RESTAURANTS,
AND NO CARS ON THE STREET AFTER 5PM

IT WAS HEAVEN!

2021

HAD SEVERAL COOKING FIRES
LEFT THE DOG OUTSIDE ALL NIGHT
FORGOT TO EAT – DOWN FROM 210 TO 140 LBS.
DIDN'T TAKE HIS MEDS RIGHT DESPITE AUTO SYSTEM
BROUGHT IN MORNING AND EVENING HELP FOR ONE HOUR EACH
INSTALLED CAMERAS – BEDROOM, KITCHEN, SOLARIUM, BACK DOOR
SUSPICIOUS OF PEOPLE STEALING FROM HIM, ENTERING THE HOUSE



SPRING 2024

CLEAR HE COULD NOT STAY ALONE ANY LONGER AND BE SAFE

HERE IS THE STORY
OF BOB

MAY – AUG 2024

SHORT STINT AT TWO MEMORY CARE FACILITIES = \$100,000

AUG 2024

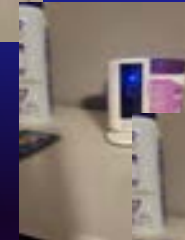
MOVED INTO PRIVATE HOME WITH 24X7 CAREGIVERS
REMOTE CAMERA TECHNOLOGY – BEDROOM (3), LIVING ROOM,
KITCHEN

OCT 2025

INSTALLED MOTION SENSORS, ADDITIONAL CAMERAS, TRIED BED-EXIT
TECHNOLOGY



HERE IS THE STORY
OF BOB



**CAREGIVER
ACCESS**

2019

2020

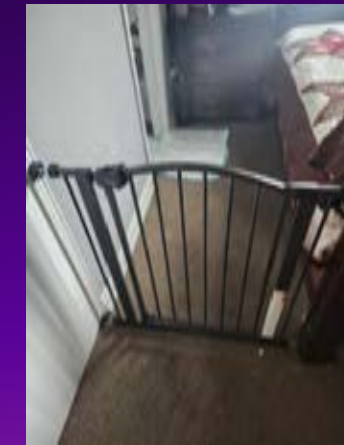
2021

2022

2023

2024

2025



BOB'S TECHNOLOGY JOURNEY

SITUATIONAL TECHNOLOGY FOR BOB



CONNECT. EMPOWER. INSPIRE.

THE LESSON IS THAT BOB:

1. STAYED TWO YEARS LONGER IN HIS OWN HOME WITH VIDEO SURVEILLANCE TECHNOLOGY, IN-HOME COOKING AND CLEANING, AND AUTOMATED MEDICATION SYSTEMS

2. BOB HAS NOW QUALIFIED FOR LONG TERM CARE BUT HAS NO PLANS TO ENTER SUCH FACILITIES

3. BOB HAS NOW STAYED FIVE YEARS IN HIS OWN HOME LONGER THAN POSSIBLE WITHOUT THE USE OF TECHNOLOGY AND CAREGIVERS

4. NUTRITION, EATING HABITS, PHYSICAL ACTIVITY, SOCIALIZATION, MENTAL STIMULATION = ACTIVE AGING

5. BEING IN HIS OWN HOME (RENTED) WITH HIS THINGS AND PEOPLE WHO CARE AND ARE PERSONALLY DEDICATED TO HIM = AGING IN PLACE



HERE IS THE STORY
OF BOB

SECONDARY BENEFITS



Family comfort – less worry and stress

Improved quality of life for both the individual, caregivers, and family

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