

# Can Technology Help Older Adults Age in Place?

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A REVIEW OF CURRENT OPTIONS

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# Disclosures

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I have no conflicts or professional relationships to disclose.

# Learning Objectives

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1. Identify the different areas in which older adults may benefit from using technology in the home setting.
2. Describe the barriers impacting older adults using technology.
3. Develop technology recommendations for older adults based on their health

# Case Example

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Mrs. C, 82yo female who lives alone in a suburban home

**Medical Conditions:** mild cognitive impairment, OA, HTN

**Social Hx:** widowed, has two adult children who live in different states, they check in via phone several times per week and visit occasionally

**Challenges at Home:**

- sometimes forgets to take her medications
- struggles with stairs due to joint pain from OA
- one fall in the past year (no serious injury)
- occasionally forgets to lock doors and turn off sink and/or stove
- endorses feeling lonely and isolated



## AGING IN PLACE STATISTICS

Aging in place: the ability for the elderly to continue to live in their own homes for as long as possible.



**90%**

of seniors want to stay in their own homes as they age



**80%**

of seniors want safety precautions such as non-slip floor surfaces



**79%**

of seniors want bathroom aides such as grab bars



**60%**

have made improvements to increase their ability to live independently



**54%**

of seniors want lever-handled door knobs



**49%**

of seniors want to modify their current homes

vs



**38%**

of seniors want a new, **aging in place** ready home



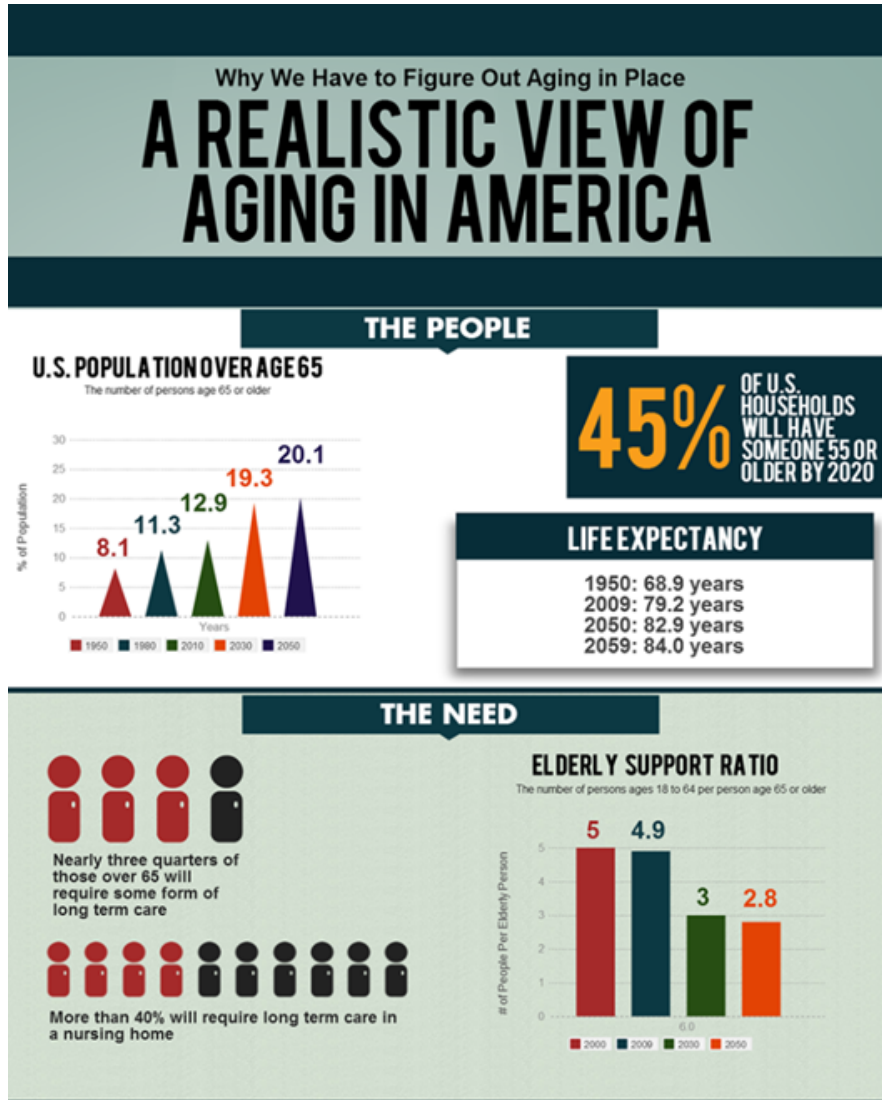
**27%**

is the revenue increase businesses see by offering **aging in place** services

# What is Aging in Place?

### PERCENTAGE OF SENIORS 65 & ABOVE

**10%** of the \$214 billion home improvement industry is dedicated to aging in place.






# Why Should We Prioritize Aging in Place?

- Maintain one's autonomy and independence
- Contributes to one's sense of identity
- Promotes successful utilization of neighborhood services
- Maintain social connections
- More cost efficient than institution-level care
- Health benefits
- Public health and policy benefits

# Cost Comparison

Cost Comparison		
Home Care	VS	Nursing Homes
<b>10 hours of care weekly:</b> \$1,299 per month		<b>Private room:</b> \$9,733 per month
<b>20 hours of care weekly:</b> \$2,598 per month		<b>Semi-private room:</b> \$8,669 per month
<b>40 hours of care weekly:</b> \$5,196 per month		
<b>24/7 care:</b> \$21,823 per month		

THE COST	
Nursing Home or Assisted Living 	If You're Living at Home or With Family 
<b>\$6,235/mo.</b> semi-private room in a nursing home	<b>\$21.00</b> per hour for a home health aide
<b>\$6,965/mo.</b> private room in a nursing home	<b>\$19.00</b> per hour for homemaker services
<b>\$3,293/mo.</b> one-bedroom unit assisted living facility	<b>\$67.00</b> per day for services in adult day health care center
 <p>We believe that everyone should educate themselves about the aging experience and how to plan appropriately for their later years so they are able to enjoy the highest quality of life possible.</p> <p>Aging in place is an option that can help make that a reality for many people. To learn more about aging in place, please visit our website at <a href="http://ageinplace.com">http://ageinplace.com</a>.</p>	
<p>Sources:</p> <p>Population Reference Bureau/Americas Aging Population, <a href="http://www.prb.org/pdf11/aging-in-america.pdf">http://www.prb.org/pdf11/aging-in-america.pdf</a>                      U.S. Census Bureau, <a href="http://www.census.gov">http://www.census.gov</a>                      Administration on Aging, <a href="http://www.aoa.gov/AoARoot/Aging_Statistics/index.aspx">http://www.aoa.gov/AoARoot/Aging_Statistics/index.aspx</a>                      Society for Certified Senior Advisors, <a href="http://www.csa-usa.org/resources/financial/longtermcareoptions/AoA_2010_statistics">http://www.csa-usa.org/resources/financial/longtermcareoptions/AoA_2010_statistics</a>, <a href="http://longtermcare.gov/costs-how-to-pay/costs-of-care/">http://longtermcare.gov/costs-how-to-pay/costs-of-care/</a></p>	

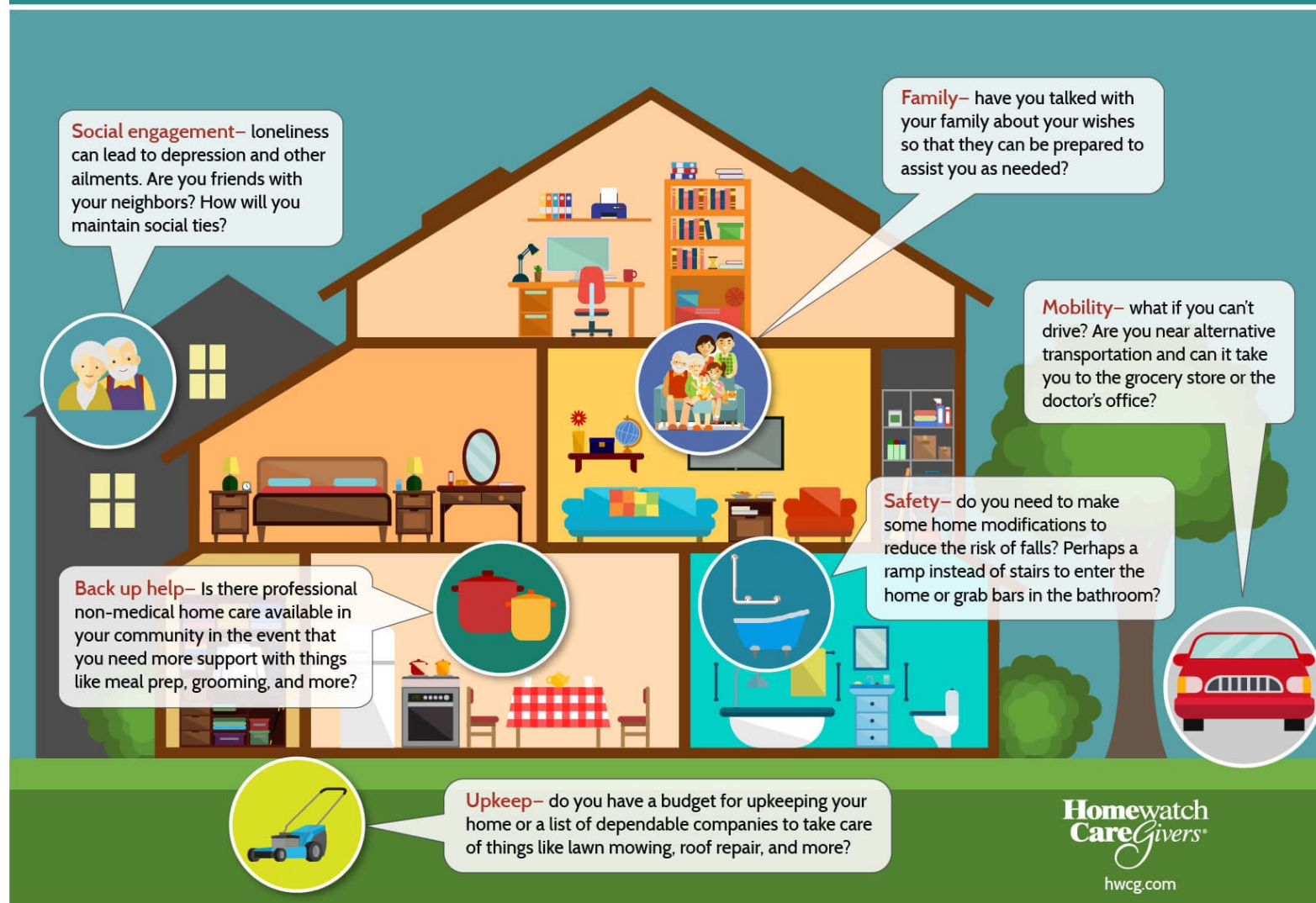
# Barriers to Aging in Place

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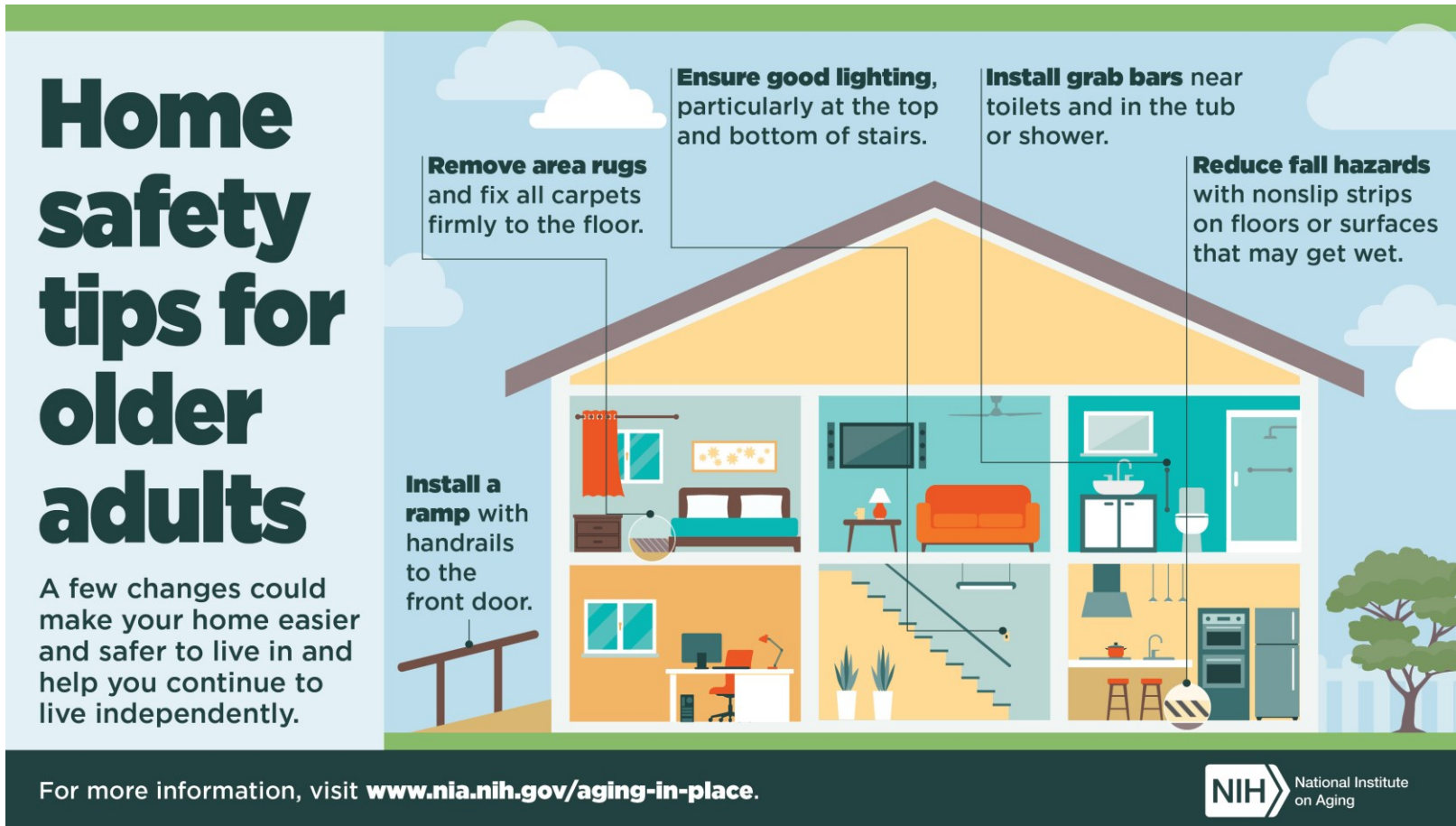
- Declining physical and mental health
- Lack of planning for advanced life events (ALEs)
- Unsafe home environment
- Social network support and isolation
- Financial limitations
- Limited access to health and social services
- Neighborhood/community accessibility



# Have You Researched How You Can Age in Place?

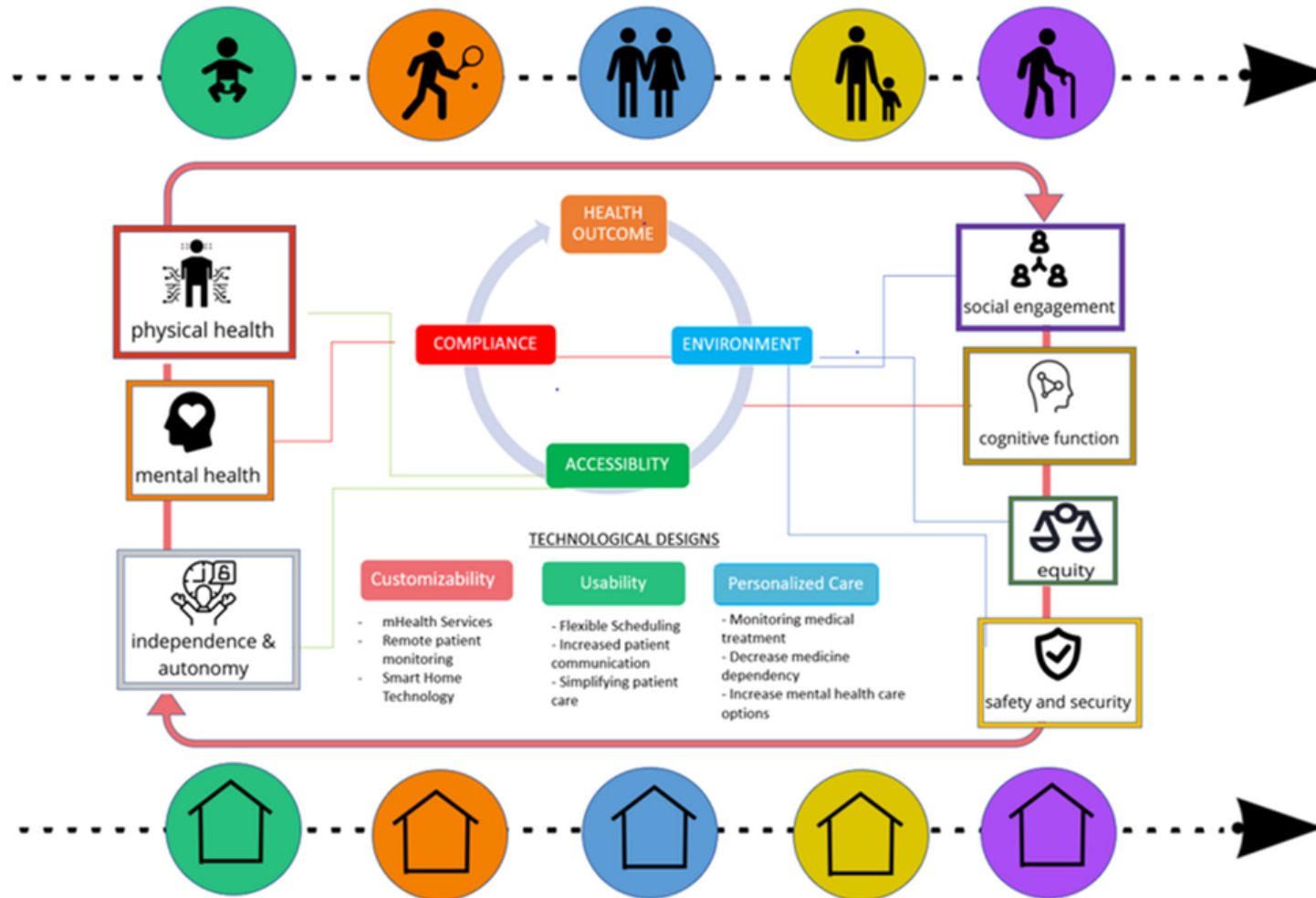


# Modifications to Allow Aging in Place



# Technological Modifications

# St(aging) in Place



# Technology Categories

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- Smart home / Artificial intelligence
- Health Monitoring and Wearables
- Social support and information and communication technologies (ICTs)
- Safety and emergency preparedness

# Smart Home / Artificial Intelligence

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Amazon Echo



Google Nest



Relish



Kasa Smart Plug



WiZ Smart Bulb



# Smart Home / Artificial Intelligence

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Amazon Echo

	Amazon Echo
Cost	\$149.99 Optional: Alexa+ \$19.99/month, Prime membership \$14.99/month
Insurance Coverage?	No
Features	Voice control, entertainment, smart home control, everyday assistance, communication
Other Forms of Tech Needed	Internet/WiFi, smart phone or tablet, Alexa app, Amazon account, power outlet, external speakers, other smart home devices, Bluetooth devices

# Smart Home / Artificial Intelligence

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Google Nest

	Google Nest
Cost	\$99.99 Additional: Google Nest Doorbell \$179.99, Indoor Security Camera \$94.99, Nest Audio \$99.99, Nest Aware \$8/month, Nest Aware+ \$15/month
Insurance Coverage?	No
Features	Voice control, entertainment, smart home control, information access, entertainment
Other Forms of Tech Needed	Internet/WiFi, Android smart phone or tablet, Google Home app, Google account, power outlet, other smart home devices, Bluetooth devices



# Smart Home / Artificial Intelligence



Relish

	Relish
Cost	\$179.99
Insurance Coverage?	No
Features	Visual and audible task alerts, clock
Other Forms of Tech Needed	Power outlet

# Smart Home / Artificial Intelligence

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Kasa Smart Plug

	Kasa Smart Plug
Cost	4 pack \$43.99
Insurance Coverage?	No
Features	Remote or voice control, scheduling, energy monitoring, safety
Other Forms of Tech Needed	Internet/Wifi, power outlet, Kasa app, smart phone or tablet, AI compatibility (ex. Alexa, Google Assistant)

# Smart Home / Artificial Intelligence

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WiZ Smart Bulb

	WiZ Smart Bulb
Cost	3 pack \$8.75
Insurance Coverage?	No
Features	Remote, voice, or motor sensing control, scheduling, energy monitoring
Other Forms of Tech Needed	Internet/Wifi, WiZ app, smart phone or tablet, AI compatibility (ex. Alexa, Google Assistant)

# Health Monitoring & Wearables

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Apple Smart Watch



Dexcom



InPen



CapMedic



MedaCube

# Health Monitoring & Wearables

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Apple Smart Watch

	Apple Smart Watch
Cost	\$399 Additional: cellular service cost
Insurance Coverage?	No but if plan has a wellness program or partnership, may contribute to cost
Features	Health monitoring, communication, entertainment, every day assistance
Other Forms of Tech Needed	Internet/Wifi, iPhone, Apple account, Bluetooth, cellular service

# Health Monitoring & Wearables

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Dexcom

	Dexcom
Cost	Variable based on insurance coverage <ul style="list-style-type: none"><li>- Sensor \$140</li><li>- Receiver \$350</li></ul>
Insurance Coverage?	Yes
Features	Real-time blood glucose readings, customizable alerts for high and low readings, remote sharing with caregivers, data analysis, compatible with insulin plumps
Other Forms of Tech Needed	Not required

# Health Monitoring & Wearables



InPen

	InPen
Cost	Approximately \$900 without insurance
Insurance Coverage?	Yes but may require prior authorization
Features	Dose tracking and reminders, dose calculation, temperature monitoring, integration with continuous glucose monitors, shareable data analysis, reusable, battery free, carb counting support
Other Forms of Tech Needed	Smart phone, InPen app

# Health Monitoring & Wearables



CapMedic

	CapMedic
Cost	\$99, includes a 6 month subscription to app but then is \$49 for renewal
Insurance Coverage?	In theory yes, actual coverage is highly variable
Features	Medication reminds, real-time feedback, coaching, home spirometry, data tracking
Other Forms of Tech Needed	Smart phone, Capmedic app, prescription inhaler



# Health Monitoring & Wearables

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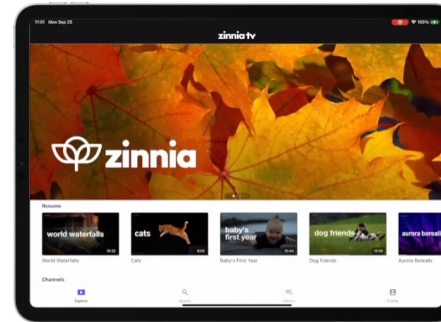
MedaCube

	MedaCube
Cost	\$1,199 Additional: \$30 per month if connected to cellular service rather than WiFi
Insurance Coverage?	Possibly if your insurance considers it as DME. Is also HSA/FSA eligible. VA might cover it?
Features	Automatic dispensing, large capacity (16 meds), customizable scheduling, use-recorded voice prompts, reminders, caregiver monitoring, picture verification of dose, tamper resistant, 24 hour backup battery
Other Forms of Tech Needed	Smart phone or computer, MedaCube website, prescription medications, power outlet

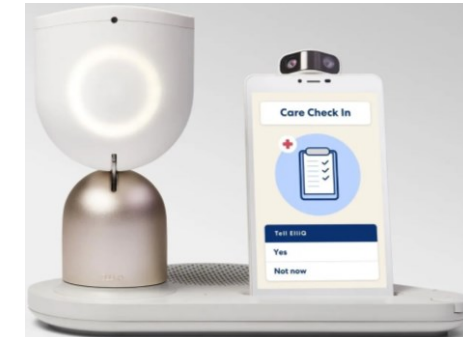
# Social Support & Information and Communication Technologies (ICTs)



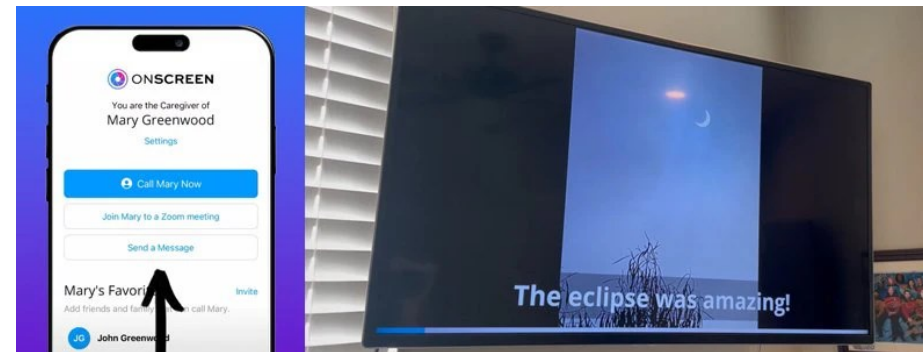
Team Vivo



Zinnia TV

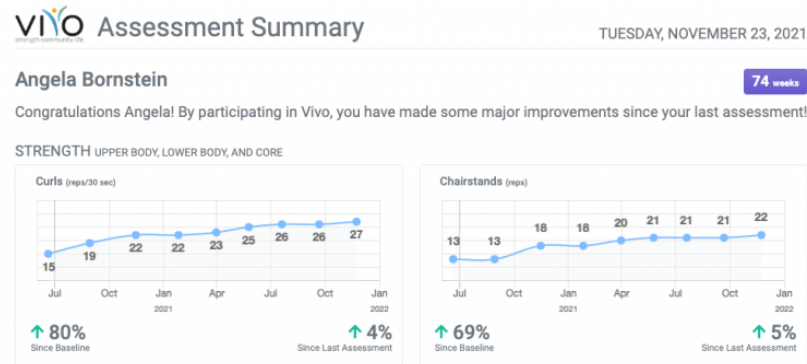


ElliQ



OnScreen

# Social Support & Information and Communication Technologies (ICTs)



Team Vivo

	Team Vivo
Cost	1 class per week \$99/month 2 classes per week \$159/month 3 classes per week \$199/month
Insurance Coverage?	No
Features	Live, virtual small group fitness classes over zoom, fitness assessment, result tracking, trainer assessment and feedback, nutrition guidance
Other Forms of Tech Needed	Internet/WiFi, webcam, smart phone or tablet, basic fitness equipment

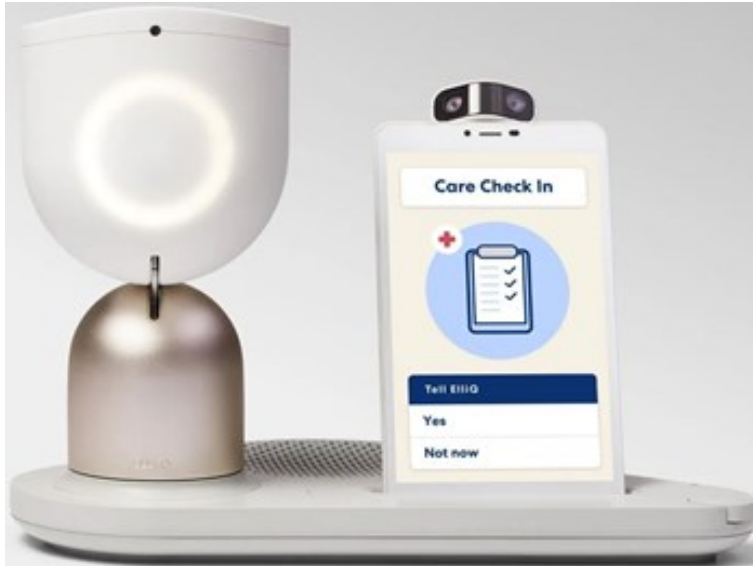
# Social Support & Information and Communication Technologies (ICTs)



Zinnia TV

	Zinnia TV
Cost	\$9.99 per month or \$69.66 per year
Insurance Coverage?	No
Features	Engagement and connection, videos, respite for caregivers, educational content
Other Forms of Tech Needed	Internet/WiFi, smart phone, tablet, or TV

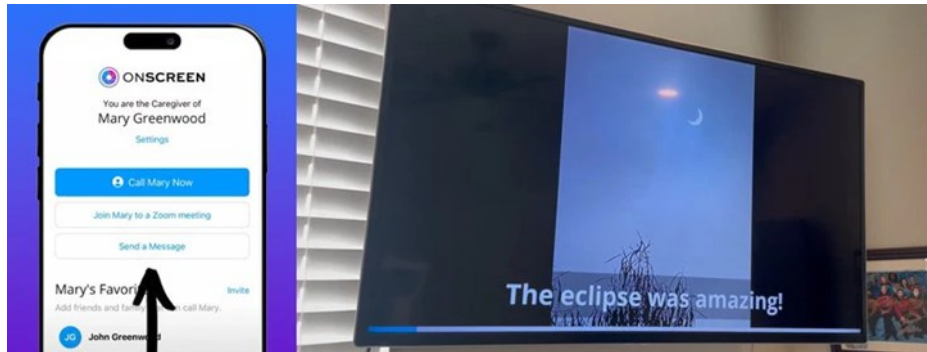
# Social Support & Information and Communication Technologies (ICTs)



ElliQ

	ElliQ
Cost	\$249.99 one time subscription fee for 12 months \$49.99 annual subscription
Insurance Coverage?	No
Features	Conversations, reminders, check-ins, personalized suggestions, exercises, vital and symptom tracking, music and entertainment , video calls, cognitive games
Other Forms of Tech Needed	Power outlet, internet/WiFi, ElliQ connect app for caregivers

# Social Support & Information and Communication Technologies (ICTs)



OnScreen

	OnScreen
Cost	\$149.99 one time hardware and activation fee \$29.99 per month
Insurance Coverage?	No
Features	Video calls, automatic answering, security, AI companion “Joy”, reminders and notifications, health check-ins, integrated with Zoom and Youtube
Other Forms of Tech Needed	Power outlet, internet/WiFi, OnScreen app for caregivers, TV

# Safety & Emergency Preparedness

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Ring Doorbell



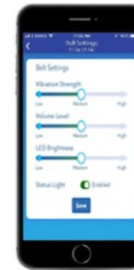
YoLink Water Sensor



Chirp



Life Alert



Tango Belt

# Safety & Emergency Preparedness

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Ring Doorbell

	Ring Doorbell
Cost	\$99.99 Ring Home Basic Subscription \$4.99 per month
Insurance Coverage?	No
Features	Video, motion detection, two-way talk, real-time notifications, integration with Alexa
Other Forms of Tech Needed	Internet/WiFi, smart phone or tablet, Ring app, power outlet if not battery version



# Safety & Emergency Preparedness



YoLink Water Sensor

	YoLink Water Sensor
Cost	\$47.99 for 3 pack
Insurance Coverage?	No
Features	Real-time monitoring, freeze warning, wireless, integration with Alexa and Google Home
Other Forms of Tech Needed	Internet/WiFi, YoLink app, smart phone or tablet

# Safety & Emergency Preparedness

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Chirp

	Chirp
Cost	\$38 per month
Insurance Coverage?	No
Features	Non-intrusive monitoring, activity and fall monitoring, voice-activated help, two-way communication
Other Forms of Tech Needed	Power outlet, internet/WiFi, Chirp app for caregivers

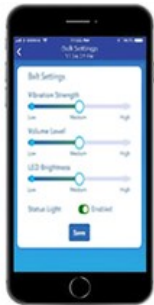
# Safety & Emergency Preparedness



Life Alert

	Life Alert
Cost	\$49.95 per month plus activation fee of \$197 for basic plan
Insurance Coverage?	No
Features	24/7 emergency response, wearable pendant, two-way communication, fall detection, GPS tracking, waterproof
Other Forms of Tech Needed	Life alert app for caregivers, landline or cellular connection

# Safety & Emergency Preparedness



Tango Belt

	Tango Belt
Cost	\$1,500 and can only be used one, replacement airbags is additional \$599
Insurance Coverage?	No
Features	Automatic fall detection, caregiver notifications (WiFi), analysis of mobility and potential risks
Other Forms of Tech Needed	TangoBelt app for caregivers, battery charger

# Can Older Adults Use Technology?

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*Yes!*

# Do Technological Modifications Help?

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Yes, but there are limitations

# Barriers to Utilizing Technology in Homes

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- Perceived distrust regarding functionality and privacy
- Perceived need or utility
- Lack of training or availability of human support
- Supportive technology already being present in their area/home
- Cost

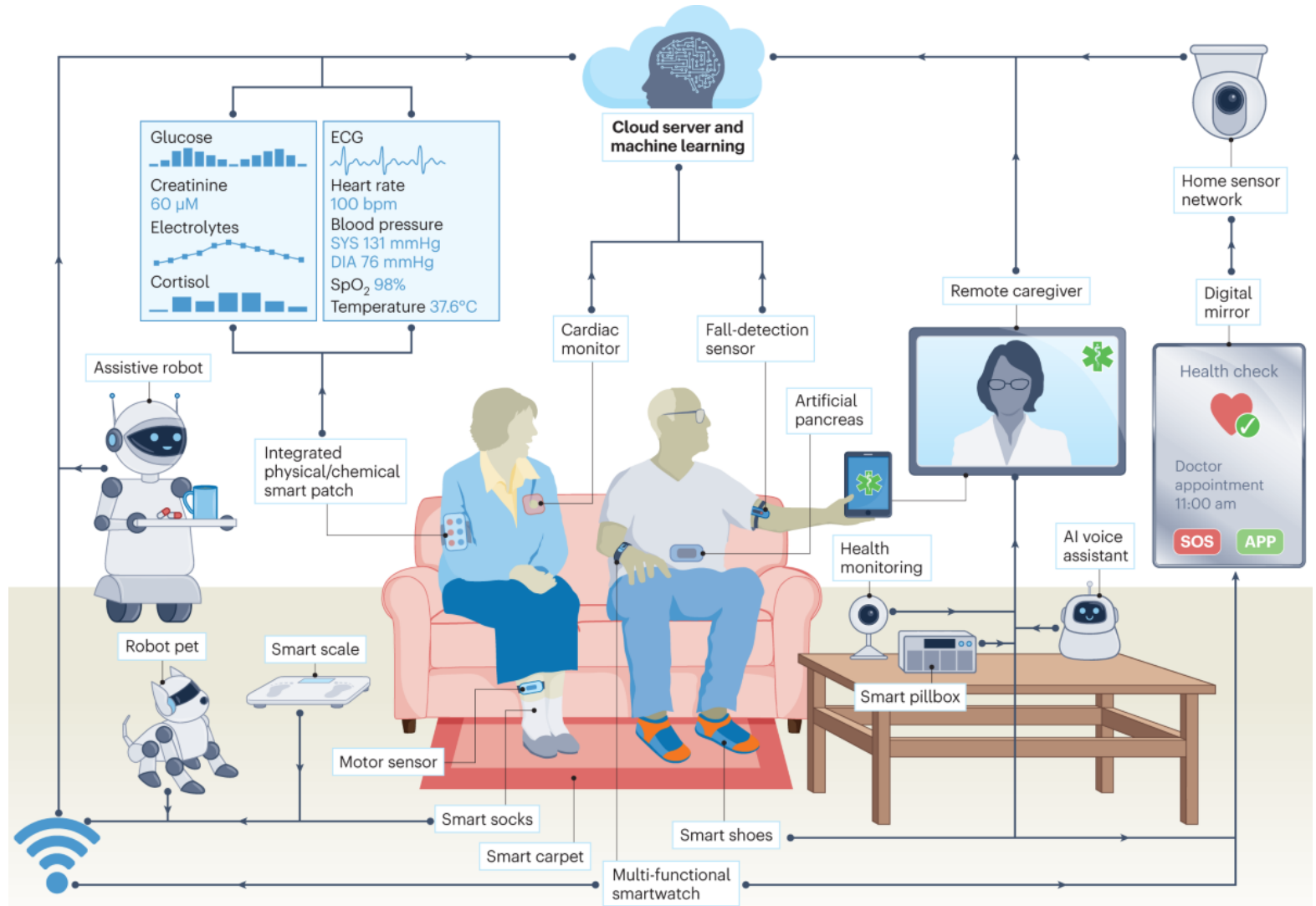
# Potential Pitfalls of In-Home Technology

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- Incorporating data input into primary and specialist's care
- Impact on expectations during transitions of care
- Technical reliability



# What Does the Future of Gerontechnology Look Like?



# Case Example

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Mrs. C, 82yo female who lives alone in a suburban home

**Medical Conditions:** mild cognitive impairment, OA, HTN

**Social Hx:** widowed, has two adult children who live in different states, they check in via phone several times per week and visit occasionally

**Challenges at Home:**

- sometimes forgets to take her medications
- struggles with stairs due to joint pain from OA
- one fall in the past year (no serious injury)
- occasionally forgets to lock doors and turn off sink and/or stove
- endorses feeling lonely and isolated

1. **Medication Management:** smart pill dispenser, voice reminders via smart speaker

2. **Fall Detection and Home Safety:** wearable fall detection device, smart lighting system, smart water leak sensor, smart stove shut off sensor, smart doorbell with camera system

3. **Mobility and Independence:** stairlift, voice controlled smart home hub

4. **Social Engagement:** tablet with simplified interface for seniors, virtual companionship, support services



# Conclusions

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- Older adults can use technology to age in place!
- Significant barriers to utilizing technology
- Landscape is constantly changing
- Depending on the clinical scenario, patient needs, and patient/caregiver limitations, technology may be an option to help an individual age in place for longer

# Resources

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