

No Place Like Home: Optimizing Benefits and Mitigating Risks of Technology in Independent Living

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ECRI Institute and Annals of Long-Term Care: Clinical Care and Aging (ALTC) have joined in collaboration to bring ALTC readers periodic articles on topics in risk management, quality assurance and performance improvement (QAPI), and safety for persons served throughout the aging services continuum. ECRI Institute is an independent nonprofit that researches the best approaches to improving health care.

As the baby boomer generation ages into retirement, the United States will increasingly need independent living and home care solutions for this population. One factor that could help aging in place become a reality for more older adults is technology.

Installed in the home, technology may reduce the chances of an older adult leaving the stove on or experiencing a fall that no one witnesses. It may also reduce costs and improve older adults' ability to remain independent. Technology can provide peace of mind for already overburdened family members and staff. Care team members may be able to spend more time with older adults.

Smart home technology, medication management systems, telehealth, socialization technology, and wearables (eg, smart watches, personal emergency response systems) are just a sampling of new technologies that may support older adults' independence. However, it is important to be aware of marketing hype. Each technology poses challenges and risks for the older adult.

Understand the Risks

Loss of privacy. Privacy, in a broad sense, is a risk associated with many smart technologies. People may not be comfortable being recorded, even if that information is sent only to their children or to their health care provider. While most types of tracking technologies may seem benign or even benevolent, they could also be described as surveillance. If the older adult views the technology as surveillance, their concerns must be taken seriously.¹

Making sure that home assistants are purchased from well-established companies could be good advice, as leading companies are on the forefront of security research.²

But, almost any smart device can be manipulated. Such devices could record personal identifying information, passwords, and credit card information that hackers could then exploit. Google Home has been reported to record conversations at all times, not just when it is plugged in. A hacker has shown how an Amazon Echo can be turned into a wiretap.²

Loss of autonomy. Older adults' ability to understand and agree to technology use may also be a factor. The fact that an individual does not have the capability to make complex health care decisions does not necessarily mean it is appropriate to make all health-related decisions for the person, such as what technologies will be used in his or her home.

In many cases, the decision to adopt a technology should be completely up to the older adult. A 2017 study sought to understand the positions held by older adults, care professionals, managers of care organizations, technologists, and policymakers. The study revealed that the goals and positions of the various stakeholders frequently did not align. Centering the decision-making process around the older adult conforms with a person-centered approach. Ultimately, the older adult's wishes should be respected.³

Mismatch between technology and resident needs. Mismatches between a person's needs and the technology can arise, particularly if the older adult's needs and capabilities are not assessed first. Overreliance on a device can also be a problem—sometimes increasing rather than alleviating risk. Imagine that an older adult who has very poor balance gets a shower bench. Assuming that the shower bench means the older adult can now use the shower without assistance is very dangerous; people with poor balance can certainly slip off a shower bench.

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Care coordination. Care coordination can also present a challenge. Just because a technology collects information does not necessarily mean the information reaches all the people it needs to reach; that those people are looking at the information or making good decisions based on it; that they know who is ultimately responsible for acting on the information; or that they are communicating with each other about the information. Sharing and proper utilization of information is essential.

Scope of service. Aging services providers must define their scope of service for each service line. The availability of technologies can make it tempting to accept residents whom the given service line normally could not accommodate. But overreliance on a technology can make that situation risky if, for instance, the technology does not entirely address the need in question or if the resident's overall needs remain complex. Also, states often outline what can and cannot be provided in specific service lines, so regulatory and licensing issues may apply. For a further discussion of scope of service, see the article "Scope of Service: Matching Resident Needs and Provider Capabilities."⁴

Tailor the Technology to Meet the Individual's Needs

Technology for independent living cannot employ a "one-size-fits-all" approach. Before implementing any technology in the home, conduct a thorough assessment to identify what technology will best allow the resident to continue to live healthily and happily at home. Considerations include the health status of the older adult and his or her personal preferences, willingness to embrace technology, and financial situation.

It is imperative to involve the older adult in the decision-making process. In many cases, the decision to adopt a technology should be completely up to the older adult. Even after learning of the benefits of a certain technology, the older adult may not wish to have the technology in the home. Centering the decision about technology for independent living around the older adult aligns with a resident-centered approach. Ultimately the older adult's wishes should be respected, which helps uphold his or her dignity.⁵

The most important indicators of whether an older adult will adopt a technology are whether the person perceives it as useful and easy to use.⁶ One of the most common barriers older adults report is how long it takes to learn a new technology. They also commonly report frustration that the process is taking them longer than they had hoped.⁷ Thus, assessing whether the older adult understands how to use the technology is essential. Provide education not just on how to use the device but also on why it may be useful. If assessment shows that the resident will not easily adopt a particular piece of technology, do not purchase the

technology; discuss alternatives instead. Such assessments should be revisited following adverse events, in order to ensure that the technology is still usable for the older adult.

Also, assess where to locate the device within the home. Assessment should include evaluating the older adult's mobility to determine whether grab bars, ramps, or fall-detecting sensors should be installed. Other considerations include whether the older adult has an active social life, which can inform whether companionship technologies such as robots should be included.

Fall-detecting sensors can be placed in rooms that the older adult is more likely to visit, as well as rooms where a fall is most likely to occur, such as the bathroom or bedroom. Assessment should also include potential ways that the technology could increase risk; wires, for instance, may present a tripping hazard.

Set a Written Policy Regarding Technology for Independent Living

Technology is fallible. There is always a chance a device will fail without warning. While there is no way to ensure failures will never occur, a well-defined policy regarding technology for independent living can help mitigate risk. This policy should clearly spell out who is responsible for providing, maintaining, and repairing each unit of technology. It should also include acknowledgment that the resident has received training and understands the risks and benefits of technology use. It should be modified further based on the resident's needs and abilities.

The following should also be addressed in organizational policy:

- Clearly explain to residents and their families which services will or will not be provided and the limits of such services.
- Ensure that the language used to communicate with residents and families (eg, whether an app will be used for "monitoring" or "tracking" the resident) clearly represents the services provided.
- Provide residents and their families with "frequently asked questions" about the services provided.
- Consider requiring residents to sign an informed consent form before services are provided.
- Review educational and marketing materials from a legal perspective.

Internet. A well-defined policy will address appropriate online activity. Questions to consider when developing a policy regarding internet use in a home include who will be allowed to use the Wi-Fi network, whether certain websites should be blocked, and what actions can be taken to make sure that adults in independent living settings do not unknowingly become victims of financial or sexual exploitation online.

A resident internet policy should include, at minimum, an acknowledgment that certain internet content is harmful or offensive; a description of the responsibilities of the user; and the organization's definition of inappropriate use.⁸ This policy should also address staff use of the resident's Wi-Fi network.

Smartphones. A policy regarding smartphone use should also be in place, including what may and may not be posted on social media. Photos posted online from smartphones could unwittingly indicate an address or other personally identifying information about other residents. Residents using smartphones might also post images of staff members on social media, against their wishes.⁸

Backup plans. Technology can fail for many reasons—and sometimes for no discernable reason. A good policy will address contingency plans to maintain service in the event that failures occur. For organizations that manage electronic systems in residents' homes, policies should stipulate back-up processes and assign responsibility for handling power outages or other technological failures.

Having a plan in place for power outages is especially important. The older adult must have a way to reach for help if a device fails—at the very least, he or she must be able to make a phone call if cell phone service is disrupted or the technology fails. One plan is to make certain the resident still has a landline phone, which will work during power outages. Also, emergency services can track the location of 911 calls more easily from a landline. If landlines are in use, periodically make sure the resident's landline is still plugged in.⁹

Another strategy to consider is establishing Wi-Fi hotspot locations in buildings so people can communicate with loved ones and others via email or social media when cellular networks experience diminished service during

emergencies. These types of back-up communication methods can help provide safety-critical options for residents and staff to stay in touch, provide updates, and help to maintain continuity of care and services during an emergency.

Conclusion

Many technological advances can help counteract the loneliness that may occur with independent living. But technology is not the solution to loneliness. Some studies have shown that an increase in technology use can actually exacerbate loneliness.¹⁰ All stakeholders, from residents to staff to family members, must remember not to let technology replace human interaction. In a perfect situation, technology for independent living will supplement the work staff perform. ■

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