

A photograph of three women of different ages—two younger and one older—smiling and looking down at a table covered with autumn leaves. The scene is brightly lit, suggesting an indoor setting with large windows. The women are engaged in a shared activity, likely a craft or educational project involving the leaves.

ICE ROBOTICS®

BEST PRACTICES

Top Technology Trends for Senior Living Facilities in 2024

Table of Contents

| | |
|--|----|
| Introduction | 3 |
| The Growing Number of Aging Adults | 4 |
| Challenges That Come with an Aging Population | 5 |
| A Tech-Savvy Aging Population | 7 |
| 7 Technologies Crucial to Advancing Senior Living | 8 |
| 1. Robotics for Cleaner Environments and Improved Health | 9 |
| 2. Internet of Things (IoT) for Enhanced Safety and Monitoring | 9 |
| 3. Telehealth and Remote Care Services for Easier Medical Assistance | 10 |
| 4. AI-Powered Healthcare Assistants | 11 |
| 5. Robotics for Daily Assistance and Companionship | 12 |
| 6. Augmented and Virtual Reality (AR/VR) for Cognitive Engagement | 12 |
| 7. Smart Environmental Controls for Added Safety and Comfort | 13 |
| Conclusion | 14 |
| Works Cited | 15 |

Introduction

The senior living industry is undergoing a significant transformation driven by advances in technology, changing demographics, and an increasing demand for high-quality care, technology, and services for aging populations.

On a global scale, the population of those who are 65 or older is growing faster than the current birthrate.

This, along with a tech-savvy aging population and labor challenges, creates the need for technology to play a larger role in delivering care, support, and services to aging adults.

This will require senior living facilities to upscale their communities and add more offerings that are designed to help deliver exceptional care, extend independence, and play a role in creating a sense of community with other residents, caregivers, and family members.



On a global scale, the population of those who are 65 or older is growing faster than the current birthrate.

The Growing Number of Aging Adults

In the United States, “The share of residents 65 or older grew by more than a third from 2010 to 2020 and at the fastest rate of any decade in 130 years, while the share of children declined, according to new figures from the most recent census,” (Schneider).

According to a report published by the [United Nations](#), **“The number of people aged 65 years or older worldwide is projected to more than double, rising from 761 million in 2021 to 1.6 billion in 2050. The number of people aged 80 years or older is growing even faster.”**

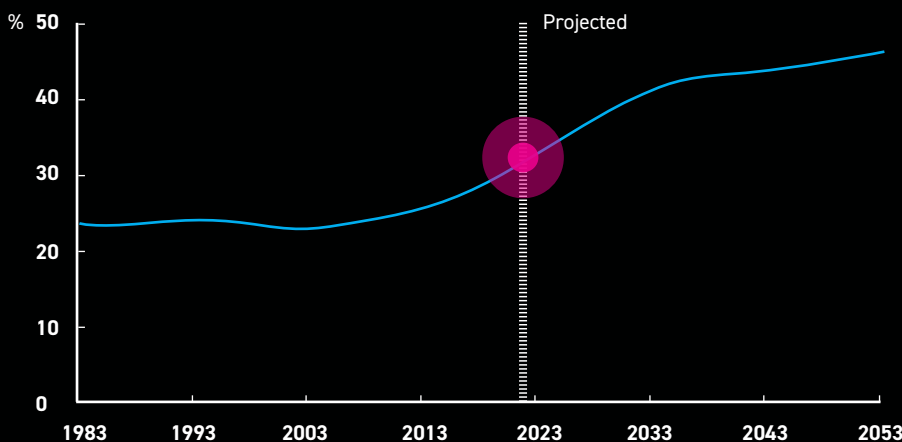
The numbers are the results of medical achievements and societal challenges. Younger generations are waiting until later in life to have children, so they can focus on education and building careers, or choose to have fewer or no children due to the cost of raising a child, inflation, the housing market, or other socio-economic concerns.

On the other hand, older generations are living longer due to healthier lifestyles and medical advancements including safer surgeries, more advanced medicine, and vaccines.

The [Washington Post reported](#) in February of 2023, citing news from the Administration on Aging, that projections **“... climb to roughly 80.8 million residents 65 and older by 2040, more than double the number in 2000. It also predicts a doubling of the number of even older residents by 2040, with the count of those 85 and older expected to grow from 6.7 million in 2020 to 14.4 million by 2040. In 2020, there were nearly 105,000 residents 100 or older.”**

With these numbers and changing demographics come unique challenges that families and senior living facilities are facing and will continue to need to adapt to.

Population Age 65 or Older as a Share of the Population Ages 25 to 64



The number of Americans ages 65 and older is projected to nearly double from 52 million in 2018 to 95 million by 2060, and the 65-and-older age group’s share of the total population will rise from 16% to 23%.”

Source: Population Reference Bureau

Challenges That Come with an Aging Population

There are many positives that come from advancing medicine, improved medical care, and healthier lifestyles that keep people living longer and enjoying more fulfilling lives. However, with these positives come challenges that the healthcare and senior living communities need to take into consideration.

One growing challenge correlates with the increasing numbers of young people deciding to postpone starting a family or not have children altogether. The result of this is declining birthrates.

Across the globe, it has been common for elders to live with family members through the end of their lives and for younger generations to take care of aging parents and grandparents. However, for many complex reasons, these traditions are shifting, and with declining birthrates come fewer people available to support aging adults. Without available family members, the number of aging adults living alone without regular care is rising.

In fact, ***“The aging of the baby boom generation could fuel more than a 50 percent increase in the number of Americans ages 65 and older requiring nursing home care, to about 1.9 million in 2030 from 1.2 million in 2017.”*** Numbers like these will present many challenges for senior living facilities, especially when considering current labor challenges that are not expected to turn around any time soon.

Economic hardships are also a looming concern because a declining birthrate yields a smaller workforce, ultimately putting strain on government programs that currently help support aging adults.



Mike Schneider, a reporter for the Associated Press, notes in an [article for PBS](#):

“There are important social and economic consequences to an aging population, including the ability of working-age adults to support older people through Social Security and Medicare contributions. The Census Bureau calculates a dependency ratio, defined as the number of children plus the number of seniors per 100 working-age people. While the dependency ratio decreased for children from 2010 to 2020, it increased for seniors by 6.8 people.”

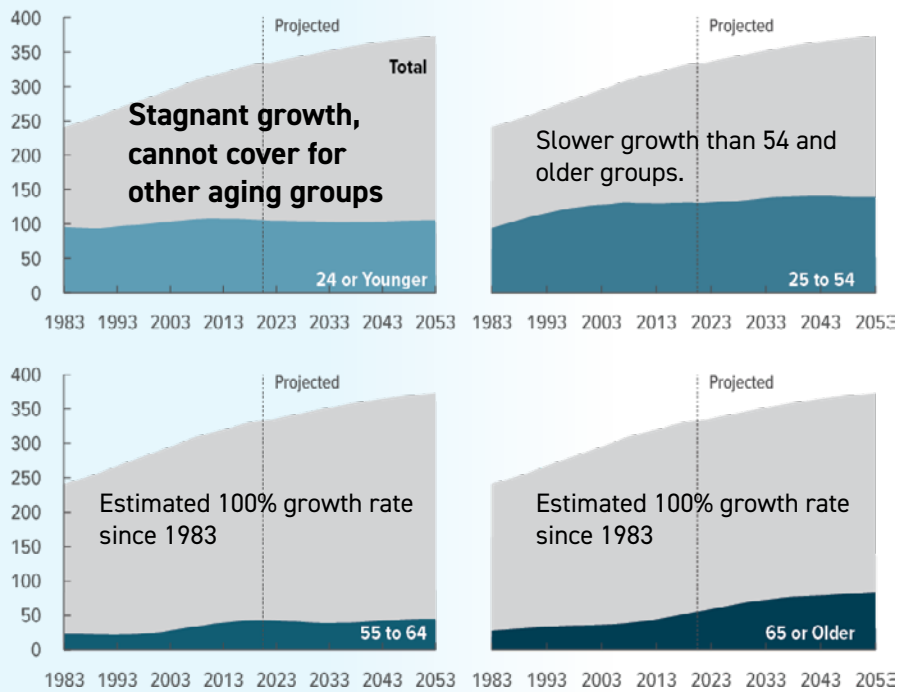
Put another way, *“The large share of older adults also means that Social Security and Medicare expenditures will increase from a combined 8.7 percent of gross domestic product today to 11.8 percent by 2050,”* according to the [Population Reference Bureau \(Fact Sheet\)](#).

Population by Age Group

Millions of people

In the agency’s projections, the number of people ages 25 to 54 is expected to grow more slowly than the number of people age 65 or older, who are less likely to be employed and who are generally eligible for Social Security and Medicare.

Image source: [cbo.gov](#)



“The aging of the baby boom generation could fuel more than a 50 percent increase in the number of Americans ages 65 and older requiring nursing home care, to about 1.9 million in 2030 from 1.2 million in 2017.”

—Source TK



A Tech-Savvy Aging Population

Along with the noted pressing challenges, comes the added complexity of an aging population that is tech-savvy. Contrary to popular belief, baby boomers spend a significant amount of time engaged with technology and rely on it for conducting everyday activities.

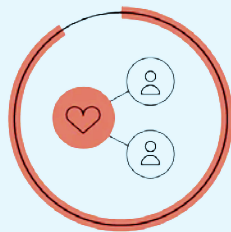
In a [Google Consumer Insights](#) report, writer Kelly Twohig notes, **“According to the Pew Research Center, about 80% of Americans 55 and over are online, and today’s 65-year-olds have spent much of their adult lives experiencing advances in technology firsthand: They were only 36 when the first internet browser was introduced in 1992 and 42 when Google was founded in 1998.”**

The point here is that senior living facilities need to prepare for a group that expects all the technological advancements they’ve been relying on and more to be available.

Adopting technology in senior living facilities of all kinds will increasingly be important as the population of aging adults continues to grow. Not only can technology make the communities safer and more comfortable, but the technology is also a support system for care providers that are in short supply.

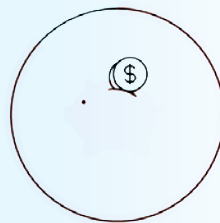
“Simply put, senior living providers must ramp up their tech spending and adoption to attract and retain customers. Many are. Among organizations polled in 2020, 87% indicated they would increase their technology budgets in 2021. Eighty-six percent of providers reported an increase in tech spending in 2020, with amounts ranging from less than 25% to 50% or more,” says [Dr. Eric George](#) Forbes Council member and *Founder and CEO of [ERG Enterprises](#)* and a nationally recognized thought leader on entrepreneurship, investing and leadership.

Why Seniors Turn to Digital



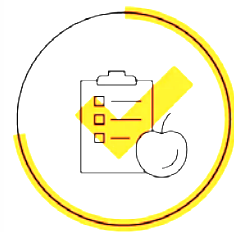
91%

Staying in touch with friends and family



87%

Organizing their finances



73%

Improving health and wellness

7 Technologies Crucial to Advancing Senior Living

For these reasons and more, it will be necessary for senior living facilities to implement a variety of advanced technology to provide the care and services the next generation of aging adults needs and expects.

Without technology to assist staff, the next generation of seniors could be left in situations that are risky and pose threats to their health and well-being.

Additionally, it will not be enough to just adopt technology and assume this will solve the problem. Technology needs to provide clear services that aging adults can adapt to easily for the solution to be effective.

As [Dr. Eric George](#) notes, **“Simply investing more in technology doesn’t necessarily capitalize on the opportunity. Senior living providers must acquire devices and systems that create value for the consumer.”** He goes on to point out that the adopted technology should first and foremost meet these criteria:

▶ It must be simple.

▶ It must offer immediate feedback.

▶ It must be useful.

▶ It must be connected (George).

Beyond that, implementing technology that meets the needs and expectations of the next generation of aging adults is necessary to remain competitive amongst all senior care providers.

“...to compete with other senior living providers, as well as its alternatives, those in the industry must offer a more convenient, automated, and immediate experience with technology at its nucleus,” says [George](#).

Moving forward, it will be essential for senior living facilities to adopt a range of cutting-edge technologies to enhance resident care, improve operational efficiency, and provide a safer and more enjoyable living environment.

To remain competitive and provide the best possible care, senior living operators must stay abreast of emerging technology trends. The following technology trends are expected to shape the senior living industry in 2024 and beyond.



1. Robotics for Cleaner Environments and Improved Health

Autonomous cleaning solutions will play an integral role in keeping senior living facilities clean, especially as labor challenges continue to plague the industry.

Cross-contamination is one example of how illness spreads quickly and with limited numbers of staff, it can be difficult to make sure high-touch areas are cleaned, sanitized, and disinfected regularly.

Autonomous cleaning solutions, like [Cobi 18](#) by [ICE Cobotics](#), can help offset these challenges because the unit can be deployed to clean floors on its own. In this way it takes care of the time-intensive and repetitive task of floor cleaning, freeing staff to focus on critical high-touch surfaces, helping to diminish the spread of germs and illness.

Plus, due to fleet management, like [i-SYNERGY](#) that comes on Cobi 18 and stores cleaning data in the cloud, managers and directors are able to access data and analytics in near real-time, allowing them to confirm when cleaning is completed. This can help them keep their facility cleaning plans on schedule and relieve them of having to physically check buildings or areas of the community.

This way managers and directors can spend their time and attention on supporting staff and residents, all while knowing they are providing a clean and safe environment.



2. Internet of Things (IoT) for Enhanced Safety and Monitoring

According to the 2023 mid-year [State of the Nursing Home Industry Survey](#) conducted by the American Healthcare Association (AHA), 77% of 425 surveyed nursing homes say they are facing high levels of staffing shortages.

Smart sensors, wearable devices, and connected appliances can help offset labor challenges because they enable real-time monitoring of residents' vital signs, movement, and activities by allowing staff to monitor conditions from afar.

These systems can detect emergencies such as falls, changes in health conditions, or wandering, allowing for immediate response and intervention. This not only adds a level of increased safety and improved response times in case of emergency, but it also supports staff with monitoring and care.

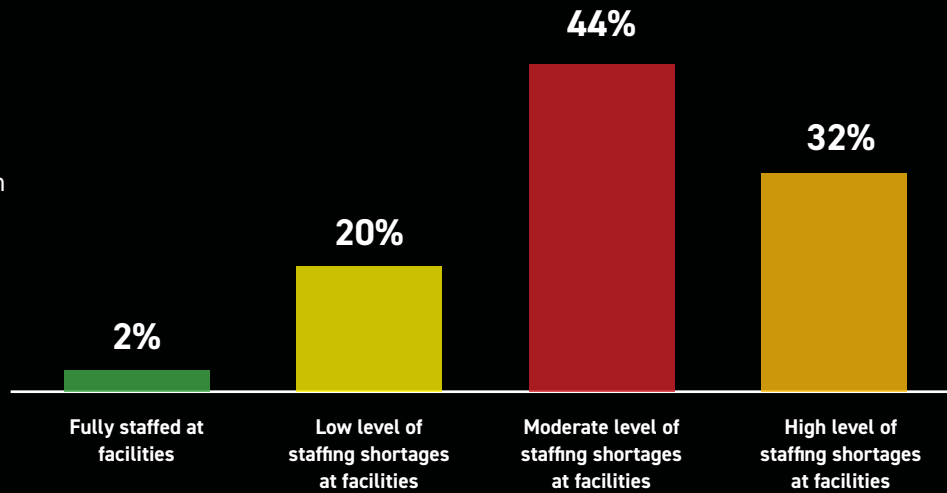
[Matt McLaughlin writing for HealthTech Magazine](#) interviewed Jessica Longly, a senior care strategist for CDW Healthcare who notes ***“Advances in smart home technologies allow residents to age in place longer.” She goes on to point out that “Patients with congestive heart failure or chronic obstructive pulmonary disorder can use smart home tools to make living easier for them. These advances will take pressure off nursing staff, and the automation of rote tasks will enable them to spend more time with patients”*** (McLaughlin).

IoT technology will play a pivotal role in ensuring the safety and well-being of senior residents living in independent and assisted living communities as they continue to face labor challenges.

Data analytics and machine learning will be used to analyze resident data, enabling predictive modeling for personalized care plans. By monitoring trends in health and behavior, senior living facilities can anticipate and proactively address individual needs, reducing hospital readmissions and improving overall quality of care.

What is Your Current Staffing Situation?

Note: "Staffing Shortages" are defined as on more than one occasion, you could not fill in all of your shifts without agency or asking people to work overtime/extra shifts



Source: American Health Care Association Survey of 425 Nursing Home Providers, May 2023

3. Telehealth and Remote Care Services for Easier Medical Assistance

Telehealth and remote care services have gained immense popularity, especially in response to the COVID-19 pandemic. This is in part due to care gaps in the healthcare and assisted living systems, and in part because it makes it easier for seniors to access necessary care.

For some aging adults it can be difficult to get around due to illness, injuries or not having the means to transport themselves to a doctor or healthcare office for an in-person appointment. Telehealth and remote care services address all these needs and help to make sure elderly patients receive the essential care they need.

In an Interview with [Senior Housing News](#), GenCare Lifestyle CEO Leon Grundstein points out ***“that telehealth services have helped improve patient privacy and help residents access support sooner than having to schedule in-person physician visits”*** (Montgomery).

Telehealth and remote care are also safer for elderly patients who can be prone to falling and injuring themselves. Being able to access care from the safety and comfort of their living spaces is an important step in providing elevated care.

4.AI-Powered Healthcare Assistants

Perhaps the most impactful part of AI-powered healthcare assistants is the level of communication and connection they provide residents in senior living and assisted living communities and their families.

Artificial Intelligence (AI) powers virtual healthcare assistants that are capable of monitoring and assisting residents as well as powering communication tools and devices that help connect residents based on similarities and personal preferences.

For example, ***“AI can serve as a smart social network and connect residents with other residents. Through a digital community engagement platform, AI can sort through community profiles for shared interests and make suggestions for future friends,”*** according to Fahad Aziz, co-founder and CTO at Caremerge writing for [Senior Housing Business](#).

This provides residents with a way to make connections and start new friendships in an environment that can seem overwhelming at first. The AI helps foster a sense of community by connecting residents to those with similar interests.

AI-powered healthcare assistants also support staff by enabling them to spend more one-on-one time with residents and ultimately deliver better care.

[Aziz](#) goes on to point out that “AI can mitigate the burden on staff so that they can focus on the person-centered aspect of care. Mundane responsibilities such as scheduling, billing, and manual documentation can be automated, and CNAs can spend more quality, one-on-one time with residents.”

In addition to that, AI-powered databases can help families stay in contact and up to date on the health of their loved ones through online family-facing portals.

“AI-powered family engagement can improve the quality and timeline of this dialog: automated systems will be able to answer questions and provide valuable information instantly if a CNA is busy. With an automated feedback system about health updates and community engagement, CNAs can take time to send personalized messages and photos to family members” (Aziz).

AI-powered healthcare assistants make communication and companionship easier and faster, benefiting residents by helping them develop relationships and by helping staff and family to communicate faster and more easily.



5. Robotics for Daily Assistance and Companionship

One of the many life-altering scars the pandemic created and left in its wake is the loneliness that comes with isolation. During the pandemic, senior living facilities were closed off from family and friends leaving many seniors without outside connection and thus feeling lonely.

Even without having to weather the pandemic, loneliness is an issue for aging adults as people start to pass away or suffer from limited mobility and illness.

This is where robots will fill in gaps. Robotics will become more prevalent in senior living facilities to assist with daily tasks and companionship. Robotic caregivers can help with tasks like medication management, meal preparation, and housekeeping while social companion robots can provide emotional support and reduce feelings of loneliness among residents.

In one example, according to a [New York Times article](#), some long-term care facilities have been experimenting with robotics since before the pandemic.

A robot named Stevie started a two-year trial at Knollwood Life Plan Community in Washington DC. Stevie, designed by Trinity College in Dublin Ireland, ***“told jokes, played bingo, led karaoke and used stories and music for reminiscence therapy. To help with infection control, it could go into rooms carrying ultraviolet lights that killed germs on surfaces”*** (Leland).

While the technology is still new, it can be a welcome relief when feeling lonely, not to mention a reliable way to help residents stay on top of medications and important daily healthcare reminders.

6. Augmented and Virtual Reality (AR/VR) for Cognitive Engagement

Another way to combat feelings of isolation and loneliness is using Augmented and Virtual Reality. This technology allows older residents to enter realities that provide them with new and exciting opportunities, and when done together this can help create a sense of community.

In one example, [written by Sol Rogers for Forbes magazine](#), an associate working in a long-term care facility obliged one of the residents by capturing video of one of her favorite plum orchards. It struck him that delivering this through a VR headset would be a much more captivating experience for the resident who could no longer travel.



Kenta Toshima says, **“By supplementing their physical handicap with technology, the VR travel experiences can help improve the elderly’s motivation for rehabilitation and improve their quality of life. The VR experience makes them feel like they are out of the nursing home and can help ease their anxiety and loneliness”** (Rogers).



“Sharing their feelings and experience with those around them creates a sense of community which can counteract feelings of loneliness”

—Sol Rogers, Forbes Magazine

AR and VR technologies also help enhance cognitive health. Memory and cognitive issues are common in the aging community. Using AR and VR can help stimulate memory and increase cognitive functions.

A study done at the [University of Maryland](#) to measure how virtual reality impacts memory found an “8.8 percent accuracy improvement in recall in the participants when they were using the VR headsets”(Treacy).

7. Smart Environmental Controls for Added Safety and Comfort

Smart home technologies are already being integrated into senior living facilities to provide residents with more independence, greater control over their environment, and greater ability to connect with staff.

In one example, a senior living community in Tucson, AZ called [Splendido at Rancho Vistoso](#) was given a “floor-to-ceiling technology makeover” according to Chris Hayhurst writing for [Healthtech Magazine](#).

“What we learned is that seniors are excited about technology,” Patel says. “If you provide them with training and show them what it can do, most really want to use it”

—Hayhurst, Healthtech Magazine

The goal of the makeover, according to [Hayhurst](#), was total connectivity for the tech-savvy incoming residents. The company in charge of the technology makeover, Mather IT, installed indoor and outdoor voice-controlled smart lights, smart speakers, video doorbell systems, Nest thermostats and temperature sensors, and motorized window blinds.

The makeover is intended to provide residents with technology that makes their living environment situation more comfortable and easier for them to adjust as they see fit.

With the integration of WIFI-enabled technologies, “Residents can adjust these – and all other smart devices – using either their personal smartphone or the preconfigured Apple iPad device they receive when they move into their villa. They also can access everything from community common areas using Splendido’s own public Google Nest Hub smart displays,” (Hayhurst).

By integrating senior living facilities with smart home systems, residents are safer, can maintain independence, and tailor their space to their preferences.

Conclusion

The senior living industry is on the cusp of a technological revolution, with numerous innovations poised to reshape how senior care is delivered in 2024. Embracing these technology trends can enhance the quality of life for senior residents, improve operational efficiency for senior living facilities, and ensure that the industry continues to meet the evolving needs of an aging population.

To stay competitive and provide the best possible care, senior living operators should carefully evaluate and invest in these emerging technologies, keeping residents' safety, well-being, and comfort at the forefront of their strategies. By doing so, they can position themselves as leaders in the evolving landscape of senior living in 2024 and beyond.

ICE Cobotics is a leading cleaning technology and equipment company specializing in autonomous solutions and the all-inclusive subscription. Our automation experts are available to help you implement autonomous cleaning solutions. Schedule a call today.



Contact Info

[icecobotics.com](https://www.icecobotics.com)

Works Cited

Aziz, Fahad.. ["How Artificial Intelligence Can Humanize the Senior Living Experience."](#) Seniors Housing Business, 18 Dec. 2019.

["The Demographic Outlook: 2023 to 2053."](#) Congressional Budget Office, Congressional Budget Office, accessed 10 Oct. 2023.

["Digital Habits of Today's Seniors - Think with Google."](#) Google, Google, accessed 10 Oct. 2023.

["Fact Sheet: Aging in the United States."](#) PRB, accessed 10 Oct. 2023.

George, Dr. Eric. ["Council Post: How Tech-Savvy Seniors Are Shaking up Senior Living."](#) Forbes, Forbes Magazine, 10 Sept. 2021.

Hayhurst, Chris. ["Smart Technologies Create a More Connected Environment for Older Adults."](#) Technology Solutions That Drive Healthcare, 22 May 2023.

Leland, John. ["Can Robots Save Nursing Homes?"](#) The New York Times, The New York Times, 21 Apr. 2022.

McLaughlin, Matt. ["The Future of Senior Care Technology."](#) Technology Solutions That Drive Healthcare, 22 May 2023.

Montgomery, Austin. ["How Senior Housing Operators Are Using Game-Changing Telehealth and AI Technology."](#) Senior Housing News, 1 Aug. 2023.

Rogers, Sol. ["How Virtual Reality Is Benefiting Seniors."](#) Forbes, Forbes Magazine, 10 Dec. 2021.

Schneider, Mike. ["With Population of Aging Americans Growing, U.S. Median Age Jumps to Nearly 39."](#) PBS, Public Broadcasting Service, 25 May 2023.

Searing, Linda. ["More than 1 in 6 Americans Now 65 or Older as U.S. Continues Graying."](#) The Washington Post, WP Company, 10 Feb. 2023.

["SNF Survey Mid-Year 2023: State of the Nursing Home Industry."](#) American Health Care Association, 23 May 2023.

Treacy, Siobhan. ["Study Finds Virtual Reality Leads to Better Recall, Memory."](#) Electronics 360, Electronics 360, 14 June 2018.

Twohig, Kelly. ["Digital Habits of Today's Seniors - Think with Google."](#) Google Consumer Insights, Google, July 2021.

["UN Report Calls for Re-Thinking Social Protection as World Ages."](#) United Nations, United Nations, 17 Jan. 2023.