

The Time is Now to Embrace Preventive Technology in Senior Care

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Benjamin Franklin is credited with saying, “An ounce of prevention is worth a pound of cure.” He intuitively knew what history and research have taught us: preventive health care enables a better quality of life, and is more cost effective.

Advanced sensor technology, passively yet proactively monitoring trends and highlighting impending issues, is not unique to healthcare. One forward-thinking example over recent years is provided by the auto industry. Many can recall a day in the past being stranded with a drained car battery because the headlights were left on, and having to find a pay phone to call for help. That’s next to impossible today because “smart vehicles” proactively alert us to the smallest detail, preventing everything from flat tires, driving without a seat belt, and even call for help in case of an emergency.

Similar technology is available that highlights key wellness indicators and allows senior care providers to offer proactive, preventive care. By unobtrusively monitoring behavioral trends and highlighting subtle changes that may signal emerging health concerns, overall wellness and independence can be maintained or improved. Advanced sensor technology is a major step forward in proactive care; helping seniors enjoy a higher quality of life. Older persons can avoid unnecessary health risks such as falls, adverse medication events, and hospitalizations, while retaining their dignity and privacy.

Senior living is slowly shifting from reacting to emergent conditions to a more proactive approach to prevention. Historically senior living caregivers have depended on reactive alerting devices to respond to health related emergencies that have already occurred. One senior care technology expert, referring to the enhancements in senior care technology in recent years, was quoted referring back to 1994 that, “everyone basically responded to boxes that beeped. And that’s still a large part of what you see and hear when you walk into an assisted living community today: Until a resident activates a bracelet or pulls a cord to call for help, caregivers don’t have much information on them.ⁱ” Despite their popularity, studies have indicated that the traditional, reactive emergency response system is not necessarily effective when used alone. Older adults who have health concerns cannot necessarily be relied upon to self-report or to interact successfully with a call device during an emergency. One study reports that, of the older people reviewed that had fallen, 95% of them had traditional call alert devices, but 80% didn’t use them.ⁱⁱ

Emerging “smart sensor” technology is playing a large part in shifting the focus from reacting to acute health conditions towards preventive health care, providing innovative, proactive support to caregivers in their daily care routines. However, there remains a great opportunity for the senior care industry to adopt technology. In a presentation for the Center for Aging Services Technology in February 2010, Bruce W. Dmytrow described the difference between adoption of technology in the acute care hospital environment and the long-term care settingⁱⁱⁱ:

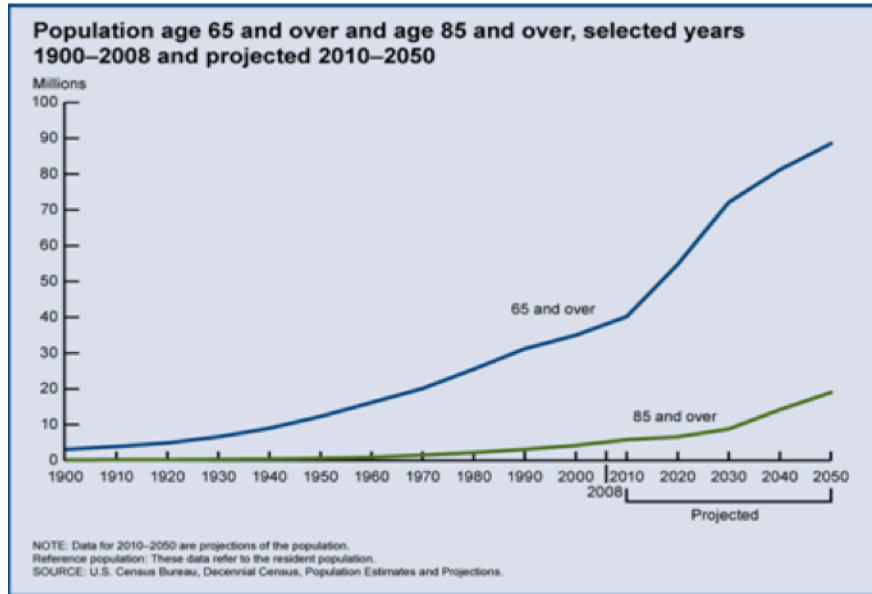
Falls are a major health related crisis for seniors that may be avoided by using preventive sensor technology. Every 35 minutes, an older adult dies from a fall, and 1,800 of those occur in a long-term care setting. Older persons fall due to a host of issues that include underlying health concerns that may have gone undetected until after the individual fell.

Falls in older adults may result from a general decline in function, poor quality sleep, exacerbation of a chronic illness such as Alzheimer’s Disease, or an underlying acute illness such urinary tract infection. Poly-pharmacy issues that result from seniors taking numerous combinations of medications can also contribute to falls.

Passive health care monitoring technologies are highly effective for older adults because of the challenge faced by seniors to self-report or interact successfully with a call device during an emergency. One study reports of 95% of older people with traditional call alert devices, only 20% used them.

The senior care industry is preparing for a wave of seniors coming in the very near future. Persons 65 years or older represented 12.9% of the U.S. population in 2009, or about one in 8 Americans. It's estimated that in 2030 they will represent 19% of the population, or about 72.1 million individuals.

Indicator 1 – Number of Older Americans



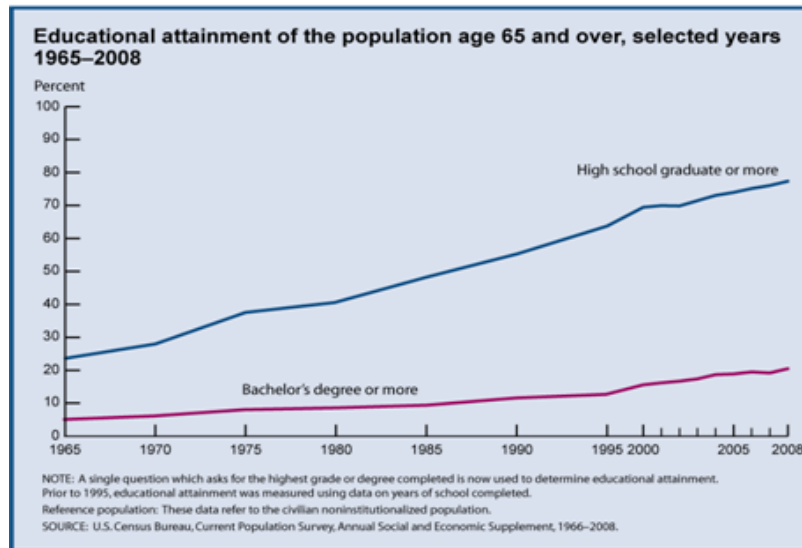
The next generation of seniors will have higher expectations regarding quality of care and technology because they and their adult children will be the most tech savvy consumers of senior living than ever before in history. A study reported in January 2009 revealed that the various age segments identified as 50-somethings, 60-somethings and 70+ embraced and used a variety of technologies at or near comparable rates as younger people. Although not all technologies, such as video games and mp3 players for example had comparable usage rates, older Americans demonstrated a high comfort level with researching and purchasing a wide range of electronic technologies^{iv}.

Not only are seniors increasingly knowledgeable about technology, they are also becoming more highly educated. The percentage of older persons completing high school rose from 28% to 77% between 1970 and 2008, and those completing a bachelor's degree had risen to 21% in 2008. As this thirst for knowledge continues, coming generations of seniors will be more educated and interested in researching the technological capabilities and market differentiators of senior care providers. These educated, tech savvy senior care consumers will likely be selective and knowledgeable about comparing cutting-edge options when shopping for the best senior care for themselves and their loved ones.

While hospitals routinely use technology in patient care, attitudes about technology are more complicated in the aging services field. Aging service providers and the people they serve don't necessarily understand technology and many are afraid to use it. Yet technology has the potential to help aging service providers prevent falls, dispense medications in a safer manner, monitor the health status of residents in a way that promotes prevention and early intervention, and keep residents safe through technology-assisted elopement management strategies.

(Dmytrow, February 2010)

Indicator 4 – Educational Attainment



Much has been written over recent years about expanding the use of technology to enhance the quality of senior care and streamline operational efficiency. In 2008, The Assisted Living Executive highlights the rise in life safety technologies that include “presence monitoring systems that feature algorithm technology customized for each resident,” putting resident information at the fingertips of caregivers by making it accessible through any internet connection. Again in 2009, a technology article in the same journal highlights the interest in emerging technologies that allow for subtle observation of residents and their daily routines^v.

Of course, no technology can replace the human touch. The best technological solutions that help support preventive wellness and enhance the quality of resident care will incorporate caregiver input, user interface training, and staff awareness. The relationships of trust that are necessary for quality care to happen can be enhanced by technology that provides caregivers with insights into the needs of those in their care.

A Passive Monitoring Success Story

Urinary Tract Infection (UTI) is a common problem for seniors. UTIs account for 7 million visits to physicians’ offices and are a contributing factor in over one million hospital admissions in the U.S. annually.^{vi} While infections of the urinary system are highly treatable, they can be very serious—even life threatening—to seniors. They also contribute to dehydration and loss of balance, which dramatically increases fall risk and further complications. Seniors with Alzheimer's disease or dementia pose particular problems for caregivers. They may not be able to sufficiently verbalize how they feel or what is wrong. Having proactive information that helps identify an emerging UTI before it becomes a threat to the overall well-being of the individual becomes a valuable tool to the caregiver, and helps prolong the stay of a resident in a senior care setting.

There are multiple examples involving the WellAWARE Systems passive monitoring where emerging UTIs have been detected. One particular example involved a resident in a senior living community that had a history of hospital stays for sepsis resulting from UTIs. Once the WellAWARE

Providers need enough transparency to be able to monitor behavior and ensure safety, even as residents express their understandable desire to live their lives without the burden of undue observation.

(Stone, Nov/Dec 2009)

System was in place, the care team was able to determine when the resident's bathroom usage slowly began to increase. Based on the resulting data, the nurse requested a urinary analysis order from the physician, and the results indicated an early stage urinary tract infection. The emerging issue was resolved in the early stages simply by encouraging the resident to drink more water and cranberry juice, possibly saving the resident from another hospital stay.

This example demonstrates how passive, preventive healthcare monitoring can have a positive effect on the wellness care in a senior living community. Most importantly, quality of life was positively impacted by preventing an illness from becoming more severe and requiring her to be sent to the hospital for another stay. Secondly, providing proactive care is a more efficient use of caregivers' time, rather than reacting to a crisis that requires more time and documentation on the staff's part.

Unique Ability to Monitor Sleep Quality

Recent studies validate the importance of sleep as a wellness indicator, particularly for seniors due to their increased incidence of sleep disturbances, placing them at a higher risk for resulting health issues including falls^{vii}. It's reported that 65% of residents in senior living communities experience sleep disturbances; however, only one in eight geriatric sleep disorders is diagnosed or even reported.^{viii}

The problems caused by lack of sleep include irritability, memory problems, symptoms of depression, accidents and falls, and suppressed immunities. Validating that seniors are particularly at risk for these issues, the findings of a 2008 study reported in the *Archives of Internal Medicine* concluded that older women who slept less than five hours per night were about 47% more likely to have fallen twice or more. Also, a study reported by the American Academy of Sleep Medicine showed that "health risk factors increase in those getting the most and the least amounts of sleep." The study results suggested that seniors who don't sleep enough are at higher risk of poor health, and too much sleep is indicative of the presence of existing health concerns.^{ix}

Of course, many seniors cannot or will not self-report sleep disruptions, and none are more susceptible than seniors with dementia. Many of the issues resulting from sleep problems can be magnified and potentially life threatening due to the complicating risk factors of the most common cause of dementia, Alzheimer's disease. Sleep habits often change due to the neurological effects of Alzheimer's, causing a person to confuse their days and nights, sleep too much, or not sleep enough.^x

The WellAWARE Systems advanced sensor technology has the unique ability to trend sleep quality and report on subtle changes, allowing caregivers to intervene proactively. Therefore, some of the risk factors of poor quality sleep can potentially be avoided, including the often life threatening complications resulting from fatigue-related falls.

A Cutting Edge Preventive Solution

WellAWARE Systems offers peace of mind by enabling senior living caregivers to detect and proactively intervene in developing health concerns before they become serious. This often results in saving time and resources, avoiding crisis interventions, and creating more informed interactions with care recipients and their stakeholders. Senior living operators utilizing WellAWARE Systems as a resource provide a more pro-

Our commitment is to implement new and innovative ways in which seniors can live well, and at the same time offer family members peace of mind knowing that their loved one is being cared for," said David J. Horazdovsky, president and chief executive officer for the Good Samaritan Society. "There is no other product out there that collects this level of quality information and trending. This noninvasive approach was our vision for interfacing with seniors where they live."

active wellness program that enhances quality of life for those in their care, extending stays in senior living settings, and offering a differentiator in the marketplace.

The WellAWARE System is an unobtrusive, passive monitoring tool that tracks individual behavioral trends so that overall wellness and independence can be maintained. This next-generation solution is comprised of proactive hardware, partnered with a software-reporting tool accessed through the secured WellAWARE System website. WellAWARE Systems is a major step forward in **proactive care**, helping seniors enjoy a higher quality of life and avoid serious health complications, while maintaining their dignity and privacy.

WellAWARE Systems is uniquely user friendly for senior care providers. This is due in large part to the organization's management team that has collectively over 250 years of senior care experience. The WellAWARE Systems executive team is knowledgeable about the requirements of care providers utilizing the solution as well as the care concerns of the individuals being monitored.

The solution was developed by the senior care industry for the industry, to enhance quality of life and improve efficiency of care delivery in a variety of settings – Home Health, Group Homes, Independent Living, Assisted Living, Memory Care, and Skilled Nursing. After initial prototype designs were developed, joint research and development studies were conducted with Volunteers of America and The Evangelical Lutheran Good Samaritan Society, two of the country's largest not-for-profit providers of senior care. After extensive and successful testing, the WellAWARE™ System was commercially launched in 2009.

For more information about WellAWARE Systems, visit <http://www.wellawaresystems.com/>.

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ⁱⁱ http://www.americangeriatrics.org/files/documents/annual_meeting/2010/handouts/saturday/the_falls/S1100A_K_Milisen.pdf

ⁱⁱⁱ Center for Aging Services Technology (February, 2010) *Moving Towards Adoption: Exploring Strategies to Expand the Implementation of Appropriate Aging Services Technology*. www.agingtech.org

^{iv} Business Wire. (Jan 7, 2009) *Older Americans Embrace Technology to Enhance Their Lives, According to a New Study from TNS Compete and the Consumer Electronics Association*. Reuters. <http://www.reuters.com/article/idUS147394+07-Jan-2009+BW200901>

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^{vii} <http://www.modernmedicine.com/modernmedicine//article/articleDetail.jsp?ts=081810124945&id=669407>, 8.18.10

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