



Remote monitoring pilot improved quality of life, increased staff efficiencies and decreased care costs

The fourth in a series of case studies from the Preparing for the Future Report

- Evaluation of remote monitoring in assisted living allowed staff to make 40% fewer physician phone consultations, thanks to having observational data which enable diagnosis and interventions
- Study showed reductions in care costs, calculated at \$828 per monitored individual compared to \$3,236 for the control, due to early detection of arising issues like urinary tract infections
- Slightly increased monthly rent of assisted living units by \$70 a month to pass the cost of remote monitoring through
- Decided to deploy sleep monitoring in skilled nursing units, which revealed that a third of residents were being awakened unnecessarily

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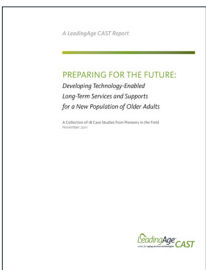
Senior Vice President of Operations

The Organization

The 115-year-old [Volunteers of America](#) (VOA) is a major provider of professional long-term nursing care for seniors and others coping with illness or injury. The organization’s 25 facilities offer a continuum of services for older people and people with disabilities that includes skilled nursing, assisted living, home health, rehabilitation and memory care. VOA manages seven senior housing communities in three states and sponsors an Aging with Options initiative that helps older people maintain independence and self-sufficiency while living at home. The initiative provides:

- Community Engagement Programs that are delivered in partnership with community partners and volunteers, and provide access to services that meet various independent-living needs.
- Home and Community-Based Services programs that include hands-on health care or assistance with activities of daily living.
- A Program of All-inclusive Care for the Elderly (PACE), which provides and coordinates services and supports for clients who live in the community but need a nursing home-level of care.

To view the full collection of case studies, please visit [LeadingAge.org/18Studies](#)



Technology-Enabled Model or Service

VOA began exploring technology-enabled services in 2004 when researchers at the University of Virginia (UVA) approached the organization seeking feedback on the design of a remote monitoring system that they were developing. An initial demonstration of what would later be known as “WellAWARE” was followed by brainstorming sessions during which VOA’s leadership team offered suggestions for possible tweaks to the technology. VOA staff also educated UVA researchers about the field of aging services and how remote monitoring might be deployed in senior care facilities.

WellAWARE uses wireless sensors and analytic software to measure key wellness indicators, such as sleep quality, activity levels, bathroom visits and other physiological information. After learning an individual’s typical daily habits, the system can detect subtle changes in those habits. When those changes become trends, the system alerts professional caregivers so they can address potential, emergent health conditions more quickly.



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Using funds from an outside investor, the UVA researchers implemented two pilot studies to test their monitoring system at facilities managed by VOA in Minnesota and the Evangelical Lutheran Good Samaritan Society in South Dakota. Pleased with the results of those pilots, both VOA and the Good Samaritan Society decided to invest in WellAWARE. Each organization now owns 25 percent of the company. VOA's investment in WellAWARE was made through a limited liability corporation that has also invested in "It's Never Too Late," a Colorado-based company that integrates hardware, software, media, ergonomic and adaptive components to create easy-to-use computer systems.

Implementation Approach

Remote monitoring with WellAWARE is becoming the new standard of care at VOA. The organization is implementing the technology throughout its Senior Care Division, including PACE, Section 202 housing and assisted living sites. In 2011, VOA began deploying WellAWARE in skilled care settings and expects that the technology will be fully deployed in all of its 14 nursing homes by the end of 2012.

VOA follows a two-tiered process to review data collected by the WellAWARE system. First, staff members at a particular setting review the data collected at that facility to identify any recent changes in the baseline behavior patterns that have been recorded for each resident. In a second review, a part-time staff member working at VOA's Eden Prairie offices examines the WellAWARE data to identify any long-term patterns that local staff may have missed.

Outcomes

Enhanced quality of care: The first pilot study conducted by UVA tested the efficacy of the WellAWARE technology and sought to determine if researchers working in Virginia could collect data on 15 older people living in Minnesota and deliver that data to their caregivers. Within the first week of the 90-day pilot, nurses at the VOA test site reported that they were successfully using the WellAWARE technology to identify urinary tract infections at early stages and then offering timely interventions to help residents avoid serious illness.

WellAWARE sleep monitors have also provided VOA nursing home supervisors with critical information about which residents need to be repositioned by certified nurse assistants (CNAs) during the night and which residents are repositioning themselves and do not require assistance. Staff used this data to determine that a third of residents on one skilled nursing unit were being awakened unnecessarily. As a result of this discovery, residents who

were shown to be repositioning themselves were allowed to sleep through the night without interruption, which increased their quality of life significantly.

Reduced care costs: During WellAWARE's second pilot study, UVA researchers measured the frequency of doctor visits, laboratory tests, emergency room visits and hospital day stays for a group of monitored residents and for a control group of residents who did not have sensors in their apartments. The results showed a significant reduction in health care use by monitored residents. For example, the total cost of care for the monitored group was calculated at \$17,407 or \$828 per monitored individual. Total care costs for the non-monitored group were calculated to be \$67,753 for the control group, or \$3,236 per individual. When monitoring costs were included in the calculation, the total cost for monitored individuals rose to \$21,187, but was still significantly lower than the non-monitored group.

Greater staff efficiency: VOA reports anecdotal evidence that remote monitoring has helped care staff reduce by 40 percent the number of telephone calls they make to doctors' offices. Phone consultations with physicians about the care of non-monitored residents often required multiple calls over several days because physicians often requested that residents be observed for a few days before a diagnosis could be made. When consulting with physicians about monitored residents, however, VOA staff could provide, during one call, all the information a physician needed to make a diagnosis and prescribe treatment.

Enhanced staff morale: By collecting data during the nighttime hours, the WellAWARE technology has placed new emphasis on what happens in nursing and assisted living settings when residents are asleep. CNAs on the night shift have welcomed the new data about resident sleep patterns and feel a renewed sense that they are respected members of the facility's care team and that they make a significant difference in the quality of life of residents.

Challenges

Lackluster private-pay market: While the vast majority of VOA's assisted living residents seemed interested in the WellAWARE system, few were willing to pay \$60 each month to have a system of their own. Faced with this hesitation, VOA decided to include the WellAWARE system in the standard of care for its assisted living communities. Residents and their families quickly became fans of WellAWARE, especially when they understood the type of data that could be collected and how that data could help improve VOA services and resident outcomes.

Distrust of technology: A handful of residents were unwilling to have VOA install the WellAWARE system in their assisted living apartments. These residents either distrusted the safety of wireless technology or incorrectly assumed that the system's motion sensors would limit their activities. The organization did not deploy the remote monitoring system in the apartments of current residents who objected to the installation. However, WellAWARE will not be optional for new assisted living residents.

Multi-state deployment: The fact that VOA manages assisted living communities in multiple states has made deployment of the units more challenging and time consuming. Staff members from the organization's Eden Prairie office must be transported to VOA facilities in other parts of Minnesota and in other states in order to oversee installation, train staff and meet with families. In addition, the organization has had to review and modify resident agreements in each state to reflect the addition of WellAWARE to the standard of care.

Business Case

VOA raised the rent for assisted living apartments by \$70 per month to cover the cost of the WellAWARE units. This fee covers the cost of a basic WellAWARE system and two sets of sensors, which track residents' use of the bed and the bathroom. Residents may purchase two additional

sensors – a motion detector and a fall detector – for an additional \$40-\$50 per month.

The rent increases were designed to cover the costs involved in deploying the WellAWARE units, but not to yield a profit for the organization. Instead, VOA ties its return on investment to the fact that monitored residents have been able to remain in assisted living for longer because early intervention kept them from developing more serious health conditions that might have prompted a move for them and a vacancy for the organization.

Keys to Success

Extensive training: Members of VOA's staff meet with residents and their families whenever the WellAWARE system is rolled out at a new assisted living community. During those meetings, staff members explain the purpose of the units and why they are being deployed. During separate meetings, VOA trainers teach the community's staff how to operate the units and how to analyze resident data in order to identify emerging health issues and make appropriate interventions. VOA also tries to identify technology champions within each community who can get other staff excited about the remote monitoring technology and teach new staff how to use the WellAWARE system. ■

LeadingAge Center for Aging Services Technologies:

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