

## Advanced Sensor Technology Enhances Operational Effectiveness in Senior Living

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The best senior living operators have a heart for service and a mind for business. They are able to effectively balance the mission of caring for seniors with the drive for bottom-line profitability in a very complex business. Industry leaders are quickly discovering that advanced sensor technology advances the mission by offering a more proactive, preventive approach to care, while delivering a strong return on investment.

### Capturing Incremental Service Level Increases

Capturing revenue for service level increases is one of the basics of effective senior living management. Hand in hand with managing changing care levels comes a flexible staffing method that adjusts based on resident need to effectively control labor expenses. Experienced senior living operators know that it's critical to closely monitor changing resident care needs and adjust accordingly. Traditional methods include subjective assessments performed by the clinical team, and manual or occasionally online documentation of care delivery and observations of resident changing conditions by front-line caregivers.

Advanced "smart sensor" technology can detect and provide objective documentation of subtle changes that might require additional caregiver time and attention. It's estimated that "service creep", or the inability to capture incremental service level changes in residents' care needs, costs an average senior living community as much as \$200,000 in lost annual revenue.<sup>1</sup> Utilizing consistent wellness monitoring technology to assist caregivers in triaging residents can improve capture of incremental service level revenue.

Using preventive monitoring technology offers an effective time management opportunity as well as providing data that helps identify residents who may require additional assistance. Residents that are trending away from their normal baseline are highlighted so that caregivers can quickly triage. Attending to residents in a timely manner according to need rather than responding to emergencies is more efficient for caregivers and provides better quality service to residents.

In addition to daily manual or computerized charting, the senior care industry has relied on regularly updating resident assessments to track acuity, realizing that daily caregiver observations are "similar to when you watch your children grow

- An assisted living resident struggling with personal hygiene, was resistant to staff support, and insistent that she was taking care of herself. With WellAWARE Systems sensor technology in place passively collecting behavioral data, it became clear that the resident was not showering or spending enough time in the bathroom to merit adequate hygiene. In response, her care level was increased and staff discreetly intervened, providing reminders, follow-up and support to improve her personal hygiene.
- The husband, an independent living resident, was a retired physician providing care for his wife with Parkinson's disease. Once WellAWARE Systems was in place, the data revealed he was up quite a bit at night assisting his wife. During the day he was bathing her, administering her medications, and providing assistance with all her activities of daily living. The staff and the couple's daughters expressed their desire to help, concerned about his well-being. After thinking about it for several days, the husband agreed to the added assistance with his wife's care.
- An assisted living resident had a long history of hospital stays for sepsis as a result of UTIs. Once the WellAWARE System was installed in her suite, the care staff watched her data reports closely. When they noticed her bathroom visits slowly beginning to increase, the nurse checked on her and then requested a urinary analysis order. Because of the resident's history, the physician readily agreed, and the results indicated an early stage UTI. The issue was simply resolved by encouraging the resident to drink more liquids, including cranberry juice, avoiding another dangerous infection, unnecessary antibiotics and hospital stay.

everyday and somebody who hasn't seen them in months comments on how much they have grown.<sup>ii</sup> By using advanced "smart sensor" technology, subtle changes in individual care needs are detected and acted upon much earlier. Measurable data is documented to share with resident family members and other stakeholders, allowing for a seamless increased care level transition.

### Enhanced Ability to Preserve Wellness and Quality

The focus of advanced sensor technology is prevention. It provides caregivers with information to recognize subtle changes in key wellness indicators such as sleep quality, bathroom usage and activity levels that may indicate an emerging health condition, and take proactive steps to intervene before a more critical situation occurs. Examples include: preventing falls, the number one cause of emergency room visits for seniors; early identification of emerging urinary tract infections (UTIs); prompt detection of adverse medication reactions. By delivering proactive care, resident wellness is enhanced, falls and hospital visits are reduced, and customer satisfaction is preserved.

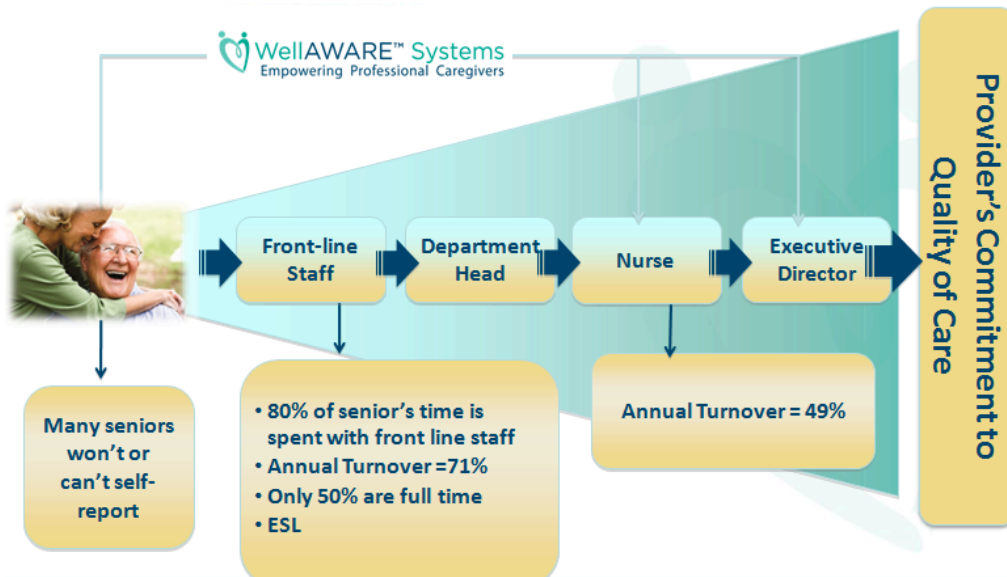
Quality assurance is critical in senior care to maintain regulatory compliance and customer satisfaction. Advanced "smart sensor" technology provides objective documentation of behavioral and wellness information to validate services being delivered according to care plans. Reports on sleep quality, bathroom visits, showering, and activity levels in the living space can help to establish when care is provided. On the rare occasion when the data helps to identify a lapse, corrective measures can be taken in a timely manner to keep quality standards at their highest and maintain customer satisfaction.

### Improved Staff Retention

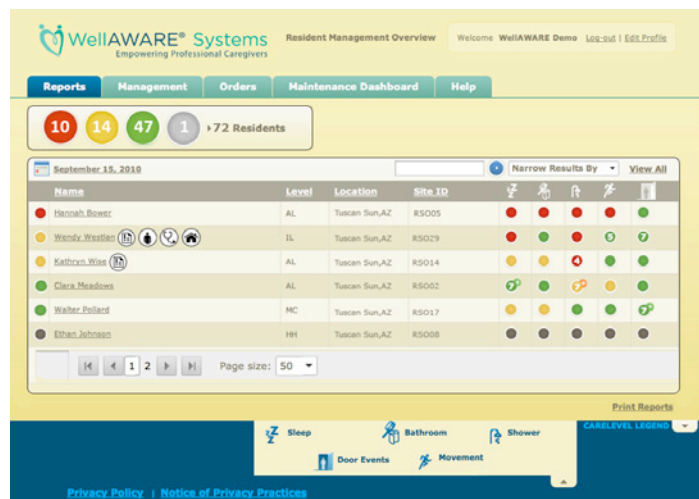
The high percentage of staff turnover in senior living makes it difficult to accurately track resident service level changes. While 80% of a resident's time is spent with front-line staff, the average senior living provider experiences a 70% annualized front line staff turnover<sup>iii</sup>. In a senior living community, a front-line caregiver is tasked with a list of tasks that distract from noting subtle changes in resident wellness. With so many tasks to accomplish in a workday, it's difficult for caregivers to pick up on a subtle increase in one resident's bathroom usage, or change in sleep quality that signal early-stage health concerns.

In addition, industry turnover in nursing staff averages 50%, making it difficult to maintain care continuity. Since senior living is regulated at the local, state and federal level, clinical staff is required to navigate layers of documentation and paperwork related to move-ins, move-outs, physicians' orders, etc. This creates a reactive model of care, responsive to health conditions and emergencies once they have already become more advanced and apparent.

**Advanced "smart sensor" technology like WellAWARE Systems facilitates proactive, preventive care, documenting 24/7/365 objective insight regarding key wellness indicators, making it a consistent member of the resident care team.**



The financial impact of turnover can have a dramatic effect on the bottom line since the estimated cost to replace a staff member can be as much as 150% of their annualized income. These costs include overtime hours until a replacement is found, recruiting which may include a professional recruiter and/or advertising costs, staff time spent interviewing and hiring, orientation and training, etc<sup>iv</sup>. Having advanced sensor technology in place allows for timely scheduling decisions to be made that closely tie staffing hours to care levels. The best way to improve retention rates is to staff according to resident need. This not only helps support positive staff morale and maintain lower turnover rates, but is also an effective expense management approach since resident care labor is the largest percentage of the labor expense in a senior living community.



## A Success Story

One example of how using the WellAWARE Systems monitoring technology can identify changing care needs involved a long-time resident in a semi-independent setting who was well known to her care staff. Since her senior care residence supported aging-in-place, there had naturally been some decline in her

health during her long stay. The care staff had made their regular checks on the resident and found her several times on the floor having fallen, not knowing how long she had been there. To allow more insight into her care needs, the resident's family agreed to the installation of WellAWARE Systems in the resident's apartment.

As soon as the WellAWARE data was analyzed it became clear there was a lot going on with this resident that was unknown to her care providers. Thanks to the detailed information provided by the WellAWARE Systems data reports, the resident's care team evaluated her sleep habits and wandering patterns that were likely contributing to her risk of falls and injury, and also may signal early onset dementia. With these added insights, proactive measures and interventions could be attempted to enhance the resident's care and quality of life, and maintain her independence, and additional, appropriate services could be added to her care plan.

### Next Generation Wellness Monitoring

The WellAWARE Systems solution operates by using small, wireless, advanced sensors placed unobtrusively throughout an individual's living space. There is no hardwiring or retrofitting required and the individual does not have to wear an apparatus of any kind. The key component is the patented sleep quality sensor, a thin strip that lies horizontally across the bed. Unlike traditional contact alarming sensors, it not only monitors presence in bed, but *unique to WellAWARE Systems, it has the ability to monitor sleep quality and duration.*

*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."*



Various additional "smart sensors" work in collaboration with each other to provide the highest quality data and trending information available. These include motion sensors to gather information on activity levels and bathroom visits, humidity sensors designed to gather information on bathing, and threshold sensors for entryways. These highly accurate sensors gather and trend information on key wellness indicators, foundational to overall health. The sensor information is wirelessly transmitted to a Data Manager, a small computer, which transmits the data over a telephone or broadband connection to a remote and secure hosting facility.

Next, proprietary calculations are run on the information. The system identifies individual daily living patterns and establishes norms so that subtle, out-of-the-ordinary situations can be detected that might signal a change in condition. *And all of this is done without requiring any interaction or any wearable device on the part of the resident, and no video or audio recording of any kind.*

Additional market differentiators of the WellAWARE Systems monitoring solution include the dual source sensor reporting and proprietary inference engine. For the end user, this results in a more user-friendly interface with robust trending capabilities providing valuable, actionable inference data. For example, in a senior living community with j80 residents, trained staff might take about 15 minutes a

day to triage and manage resident care needs with WellAWARE Systems – a small time investment for HUGE time savings when compared to the current reactive care model.

Insights provided by WellAWARE Systems allows caregivers to know more about individual care needs and as a result, provide preventive, more efficient, proactive care. Timely and actionable wellness information is presented to caregivers through an easy to learn and interpret user interface. It's secure, HIPPA compliant, password protected, and accessible through any internet connection. Caregivers have access to critical wellness information everyday that helps triage individual care needs, identify potential emergent health conditions, and improve care delivery.

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

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<sup>i</sup> Fullaway, Doug (March, 2008) *Tailored Technology*. Assisted Living Executive.

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<sup>ii</sup> Martin, Anya. (Jan/Feb, 2007) *The Acute Track Record*. Assisted Living Executive.

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<sup>iii</sup> Moore, Jim (Jan/Feb, 2010) *Strategic Forecast*. Assisted Living Executive, Pp. 12-17.

[http://www.alfapublications.org/alfapublications/20100102?pg=1&search\\_term=january/february 2010&search\\_term=january/february 2010#pg14](http://www.alfapublications.org/alfapublications/20100102?pg=1&search_term=january/february 2010&search_term=january/february 2010#pg14)

<sup>iv</sup> Martin, Anya (Sept, 2007) *Employees Aren't Cheap*. Assisted Living Executive. Pp. 34-36.

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