



Location Technology in Senior Living Communities

Improving Safety, Quality & Critical Workflows, while Realizing Dramatic ROI

Executive Summary

Asbury Communities and VersaBadge are harnessing the power of location technology to drive cost savings and create safer environments for residents and staff in senior living communities. The collaboration between Asbury, an operator of Life Plan Communities in the Mid-Atlantic serving more than 4,300 residents, and VersaBadge, creator of a flexible, affordable Bluetooth RTLS platform deployed in over 200 rural Critical Access Hospitals, is focused on bringing VersaBadge’s innovative location-based solutions to the post-acute market.

In order to differentiate itself from other Life Plan Communities and become a leader in its local markets, Asbury is focused on making strategic investments in new technology. Like many other post-acute providers, however, Asbury faces market pressures in skilled nursing – among them are competition for caregivers and stagnant reimbursement rates – that must be factored into new investments. In VersaBadge, Asbury found a technology partner with a proven track record of developing affordable and impactful solutions for healthcare markets where such technology had historically been inaccessible.

“ *What sets VersaBadge apart from other vendors is its ability to use location data to achieve the operational and financial objectives of its partners. Through a collaborative effort and the ability of the VersaBadge team to quickly innovate and iterate on feedback, we have adapted the core functionality of VersaBadge to the specific needs of Normandie Ridge and Life Plan Communities. Having several different use cases on the VersaBadge platform allows us to consolidate existing systems under a single vendor partnership.* ”

Lauren Dieter, Executive Director, Asbury Normandie Ridge

In early 2024, Asbury launched a pilot of the VersaBadge platform at its Normandie Ridge location. Recognizing the challenges faced by the senior living market, Normandie Ridge prioritized development of use cases on the VersaBadge platform that either a) increased the ability for providers to attract and retain staff, b) significantly improved staff efficiency, or c) generated a hard ROI and positively impacted the bottom line. The pilot encompassed four key use cases aligned with Asbury’s innovation goals: **Fall Prevention, Staff Safety, Elopement Monitoring and Asset Tracking.**

Asbury & VersaBadge: Pilot Use Cases



Fall Prevention
Timely rounding insights and reporting to proactively mitigate fall risk.



Staff Safety
Discreet alerting to facilitate early intervention and de-escalation of duress events.



Elopement Monitoring
Continuous resident location monitoring to provide actionable care insights and manage elopement.



Asset Tracking
Tracking location of in-use equipment to simplify billing and reimbursement processes.

The VersaBadge Platform

VersaBadge's Bluetooth Low Energy (BLE) infrastructure delivers use cases associated with location monitoring and alerting in healthcare settings. Beacons in various form factors – staff badges, resident wristbands, and equipment tags – transmit signals to a network of receivers located throughout a facility that send location data to the cloud via WiFi or PoE (power-over-ethernet). VersaBadge's proprietary algorithm processes the data to determine location at room-level or better tolerance. Depending on the use case, location information is presented in real-time or through reporting to fuel operational efficiencies, improve resident care or drive positive economic outcomes.



Pilot Results

The Normandie Ridge and VersaBadge partnership has demonstrated measurable success across use cases, resulting in a substantial reduction in falls, safer care environments, more efficient operations and meaningful cost savings. Relative to its legacy technology systems, which tend to be expensive, reach obsolescence quickly, and provide only a singular solution, VersaBadge gives Asbury the opportunity to address several high-priority use cases via a single, affordable platform.

Fall Prevention: Normandie Ridge used VersaBadge to operationalize a purposeful rounding program, with the system documenting more than 1,000 rounding interactions with residents each month. With the program in place, **the VersaBadge platform helped to reduce falls by 40% relative to historical fall rates.** For context, a reduction in fall rate of that scale would **save about \$150,000 annually** in fall-related costs for an average-sized, 50-bed senior living facility.

Eloperment Monitoring: The VersaBadge platform provided Normandie Ridge staff **continuous visibility into the location and activity of residents** and the system logged hundreds of entry and exit events relevant to potential resident elopements.

Staff Safety: Over the pilot period, the VersaBadge duress alerting functionality was used more than 5 times per month, bringing assistance to staff in need when and where it was needed. **75% of Normandie Ridge staff reported that the VersaBadge staff duress alerting system contributes in a meaningful and positive way to their organization's culture of safety.**

Asset Tracking: The VersaBadge system automatically recorded more than 1,000 billable usages of rental equipment per month, which otherwise would have had to be manually tracked by Normandie Ridge staff members. During the course of a year, **this will save Normandie Ridge more than 300 hours of administrative time each year** and produce more accurate, defensible billing data.

“ *The cost savings from reducing our fall rate more than justifies the investment in VersaBadge. But what separates VersaBadge from other technology providers is that we get both a direct ROI from fall prevention and the operational benefits of its other use cases all from the same platform. VersaBadge truly is a game changer for the post-acute market.* ”

Todd Andrews, President of Community Living, Asbury Communities

Fall Prevention

The Value of Reducing Falls

Falls are a significant concern for all senior living operators, residents, caregivers and management. They are the leading cause of injury for seniors in post-acute facilities and significant injuries from falls often result in a permanent deterioration in quality of life.¹ For caregivers, 85% of senior care executives report that falls impact staff turnover in their communities. And financially, falls have a direct cost in the hundreds of thousands of dollars per year to an average post-acute facility?²

A meaningful percentage of falls that occur in senior care facilities are preventable. By reducing fall rates and fall-related injuries, providers can improve quality of life measures for residents and reduce costs associated with hospitalization or other fall-related care.

Asbury's approach to fall prevention focuses on three main program components:

1. Purposeful and timely rounding
2. Active and continuous resident monitoring
3. Accurate reporting that informs dynamic care plans.

The VersaBadge platform provides the technological backbone to facilitate each of these components more effectively than traditional methods. Particularly appealing to Asbury, VersaBadge enables a “human-centered” approach to fall prevention – allowing providers to leverage their current staff to more efficiently and effectively provide the timely, hands-on interventions that are proven to help reduce fall rates and improve resident-caregiver relationships.

“ *Each resident fall has the potential to have a six-figure impact on Asbury. The cost of just the ambulance ride to the hospital for a fall with injury is thousands of dollars each way, let alone the cost of inpatient treatment.* ”

Todd Andrews, President of Community Living, Asbury Communities

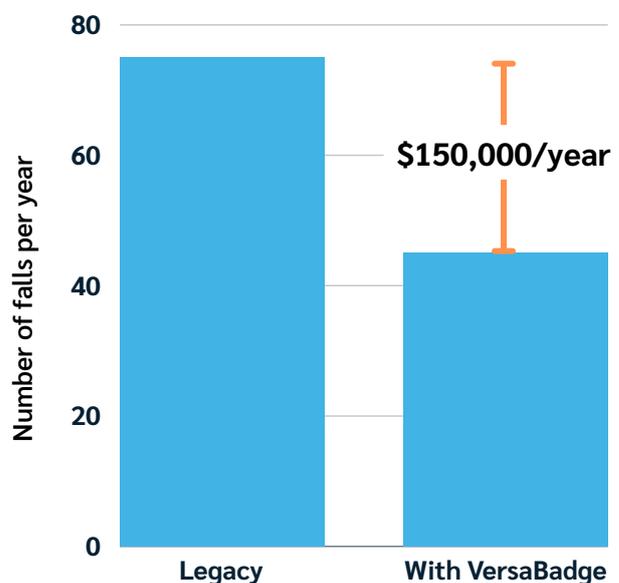
Fall Prevention Pilot Results

Rounding management: During the first 90 days of the pilot, the VersaBadge system documented thousands of rounding interactions, a huge step forward for Normandie Ridge, which had previously been unable to assess rounding compliance and accurately measure the impact of rounding on fall rates. At least once per week, Normandie Ridge leadership used the data to discuss program compliance with caregiver staff, which led to improved performance.

Decreased fall rate: The VersaBadge-enabled rounding program had a major impact on falls. During the pilot, Normandie Ridge was able to reduce falls by 40% relative to their historic falls data. Assuming a fall rate of about 1.5 falls per patient per year and a cost of \$5,000 per fall, the VersaBadge rounding management technology would save an average-sized, 50-bed senior living facility approximately \$150,000 per year.

Financial Impact of VersaBadge

Cost savings for a 40% reduction in fall rate for an average 50-bed senior living facility*



*Assuming 1.5 falls/patient/year and a \$5,000 avg. cost per fall

Rounding Management Platform

Purposeful and hourly rounding has been shown to decrease fall rates in healthcare settings by up to 50% relative to infrequent or rare rounding and meet resident needs in a variety of other ways, including reducing call-bell usage, mitigating the occurrence of pressure sores, reducing anxiety, and increasing residents' perception of their safety.³

Martha Gurzick, Senior Director of Education and Practice for Asbury, was responsible for implementation of the Purposeful Rounding program at Normandie Ridge. *“When I was first introduced to the VersaBadge platform, I quickly recognized that it was the perfect tool to operationalize our Purposeful Rounding program. Since the installation of VersaBadge, we have been able to track rounding data in real-time, report on program compliance and identify opportunities for process improvement, none of which would be possible without using the technology.”*

Active and continuous monitoring of residents identifies risky behaviors in real-time and captures a spectrum of important data that otherwise would be impossible to track manually. VersaBadge can generate alerts when residents engage in activities outside of their approved care plans (i.e. leaving their rooms or going to the bathroom without a caregiver present), thereby directing support to the resident's location at the time it is needed and helping to prevent some falls before they would otherwise occur.

Detailed reporting from the VersaBadge system enables caregivers to dynamically incorporate fall risk data into individualized care plans that are designed to put nursing staff and residents in the best position to minimize falls. The VersaBadge platform makes it easier for Normandie Ridge staff to manage care plans across resident populations that have a varied set of needs, adjusting alerts according to the rounding schedules and behavioral risks relevant to each individual resident. VersaBadge also offers fall-related reporting that helps providers manage staff performance and compliance documentation.

VersaBadge Rounding Management Functionality

- ✓ **Tracks rounding via automated data capture**
Data captured includes time of rounding, name of staff member performing the rounding, resident rounded upon, and location of the interaction
- ✓ **Notifies staff when residents need to be rounded on**
Rounding intervals are configurable based on patient acuity
- ✓ **Generates real-time alerts when residents engage in risky behaviors**
Proactive identification of actions that increase fall risk (i.e. leaving room, using bathroom without a caregiver present)
- ✓ **Provides documentation to support compliance and risk management**
Extensive reporting capabilities produce data needed for retrospective investigations of falls and other incidents

“ **We want to work smarter, not harder – leveraging technology for improved outcomes. VersaBadge gives us the ability to manage our Purposeful Rounding program in real-time, giving us visibility into staff compliance that is critical to our ability to meaningfully reduce falls at Normandie Ridge.** ”

Martha Gurzick, Sr. Director Education & Practice, Asbury Communities

Elopement Monitoring

Legacy elopement monitoring solutions in the post-acute market are dominated by systems that emphasize deterrence and containment, using alarms and automated locking technologies to keep residents from leaving their units. In addition to being ineffective at keeping residents from eloping, the loud alarms are disruptive to both residents and caregivers. Asbury saw VersaBadge’s platform as offering a more discreet and resident-friendly approach to elopement, allowing more freedom of movement to residents with guardrails to mitigate risk.

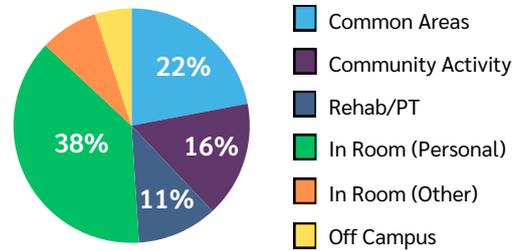
As the pilot progressed, Asbury realized that the uses for resident location data went well beyond elopement. Simply having access to a facility map showing the location of each resident enables staff to be more efficient with their time and knowledgeable about resident habits. Location data also yields metrics relevant to tracking the activities of daily living (ADLs) and social determinants of health for residents (e.g. unique locations visited each day, trips to the bathroom, time spent with other resident, etc). Analyzing trends in those metrics can help caregivers make important inferences about resident acuity.



Facility map showing real-time resident locations and delineation of social vs private spaces for “Resident Smith”

Acuity Metrics - “Resident Smith”

Time spent by location



Three Month Trend Analysis

Location Type	June	July	August
Common Areas	34%	26%	22%
Community Activity	20%	18%	16%
Rehab/PT	6%	10%	11%
In Room (Personal)	28%	33%	38%
In Room (Other)	7%	7%	8%
Off Campus	5%	6%	5%

“ I’m blown away by the resident location map. Seeing where everyone is in real-time gives me peace of mind. We have been waiting so long for something like this. ”

Jodi Spangler, Nursing Administrator, Asbury Normandie Ridge

VersaBadge Elopement Monitoring Functionality

- ✓ **Displays a real-time view of resident location**
Quick reference for caregivers to efficiently manage resident population
- ✓ **Leverages location data to identify trends in resident acuity**
Generates metrics relevant to ADLs and social determinants of health that would otherwise be difficult to track manually
- ✓ **Documents resident presence at threshold locations without loud alarms**
Logs entry and exit of residents to help manage potential resident elopements

Staff Safety

According to the Bureau of Labor Statistics, healthcare and social service workers are nearly six times more likely to experience a serious workplace violence injury than employees in other industries.⁴ Senior care is not immune to this, particularly from residents who have cognitive issues that can cause agitation.

Normandie Ridge was initially hesitant to view staff safety as a use case pressing enough for the VersaBadge pilot. The assumption among leadership was that less resident turnover and greater average age than other venues in healthcare yield more stable relationships that decrease the likelihood of a violent incident. Caregivers, however, overwhelmingly supported the implementation of a duress alerting use case during the VersaBadge pilot, citing a number of past incidents where they needed to call for help while dealing with agitated residents or visitors.

“ *One of my former memory care residents – a 90+ year old – became confused and aggressively grabbed and held my neck from behind. Having a system like VersaBadge’s staff duress alerting in place would have allowed me to bring help to my location at a time where I could not yell out for help.* ”

Jodi Spangler, Nursing Administrator, Asbury Normandie Ridge

Staff Safety Pilot Results

A vast majority of Normandie Ridge staff reported that the VersaBadge staff duress alerting system helps them to feel safer in their workplace, and the system usage statistics bear that out. Thirty caregivers in the personal care and memory care units were provided staff duress-enabled badges and the system recorded eight alerts over the first month of usage.

Asbury Normandie Ridge Staff Safety Survey

- + 75% of caregivers believe that the VersaBadge staff duress alerting system contributes in a meaningful and positive way to their organization’s culture of safety
- + 40% of caregivers have been threatened, spoken harshly to, yelled at, or otherwise subject to violence from residents, family members, visitors or other staff
- + Caregivers feel 24% safer after installation of the VersaBadge system

“ *It’s clear how much our staff benefit from having the VersaBadge system in place. It helps us keep our staff feeling comfortable in the workplace. Going forward, I see staff duress systems being a must-have for senior living providers.* ”

Lauren Dieter, Executive Director, Asbury Normandie Ridge

Duress Alerting

The VersaBadge platform facilitates early intervention and de-escalation of duress events for Normandie Ridge team members. Staff are assigned individual, lightweight badges with a small physical button. Pressing the button triggers a series of discreet, preconfigured alerts to designated alert recipients via the VersaBadge mobile alert app, desktop dashboard, and SMS. Alerts include the name of the staff member in duress and their specific location.

Improved staff safety yields several key benefits for Normandie Ridge. Most obviously, staff can call for help more quickly and easily, reducing the risk of harm in a duress event. Further, facilitating rapid assistance from colleagues and other responders can make de-escalation possible, thwarting aggressive behavior before it gets violent. Robust reporting about duress events allows the Normandie Ridge team to optimize security and staffing coverage and can influence the larger safety culture in an organization. Finally, staff feel supported, creating a more satisfied workforce, which reduces turnover, reduces costs and improves quality of care.



LOG	STAFF	BADGE ID	LOCATION	CREATED	ACCEPTED	DISMISSED	DISMISSED USER	DISMISSAL TYPE	COMMENT
285	RN Samantha Joy	4	1109 Bathroom	9/2/2024 6:28:34 AM	9/2/2024 7:34:34 AM	9/4/2024 9:32:55 AM	SO Ken Jenner	Emergency Assist	combative resident
286	LPN Jen Hurley	88	1105 Bathroom	8/22/2024 3:20:32 PM	8/22/2024 3:28:09 PM	8/22/2024 3:38:55 PM	SO Ken Jenner	Staff Assist	assistance for combativeness
287	PCA Kodi Getty	7	1102 Bathroom	8/18/2024 8:38:05 AM	8/18/2024 8:45:02 AM	8/18/2024 9:07:39 AM	SO Ken Jenner	Staff Assist	
288	Med Tech Jon West	116	Room 1112	8/15/2024 10:59:59 PM	8/16/2024 2:54:22 PM	8/16/2024 2:55:10 PM	SO Ken Jenner	Other	test
289	PCA Hannah Brown	22	MC Dining Room	8/6/2024 10:53:05 PM	8/7/2024 6:38:20 AM	8/8/2024 4:23:30 PM	SO Ken Jenner	Emergency Assist	combative resident
290	LPN Sara Reeder	46	1107 Bathroom	7/27/2024 10:27:17 AM	7/30/2024 8:15:08 AM	7/30/2024 1:55:55 PM	SO Ken Jenner	Staff Assist	needed assistance
291	RN Maxine Ortiz	68	Room 1103	7/9/2024 12:49:06 PM	7/9/2024 12:57:19 PM	7/9/2024 12:57:54 PM	SO Ken Jenner	Staff Assist	resident transfer
292	PCA Michelle Cain	5	1105 Bathroom	7/4/2024 8:14:31 AM	7/5/2024 9:44:53 AM	7/5/2024 9:44:39 AM	SO Ken Jenner	Emergency Assist	combative resident
293	Med Tech Gina Sauter	74	Room 1101	7/5/2024 8:14:31 AM	7/6/2024 9:44:53 AM	7/6/2024 9:44:39 AM	SO Ken Jenner	Other	agitated visitor
294	Med Tech Faye Brenne	5	MC Dining Room	7/6/2024 8:14:31 AM	7/7/2024 9:44:53 AM	7/7/2024 9:44:39 AM	SO Ken Jenner	Emergency Assist	
295	RN Grace Matthews	15	PC Activity Room	7/7/2024 8:14:31 AM	7/8/2024 9:44:53 AM	7/8/2024 9:44:39 AM	SO Ken Jenner	Other	test

VersaBadge Staff Safety Functionality

- ✓ Provides staff with an easily-accessible button on their badge
Button can be pressed discreetly to call for help in a duress event
- ✓ Facilitates proactive de-escalation and early intervention
Responders receive immediate notification, including current location of staff member
- ✓ Discreet alerting minimizes impact on other residents
Alerts delivered via SMS, web-dashboard and subscribed devices so staff don't need to yell for help
- ✓ Historical data and reporting capabilities
Allows administrators to make decisions that improve the culture of safety at their facility

Asset Tracking

Providing instant visibility into equipment location on a web-based dashboard or mobile device, the VersaBadge platform helps improve staff efficiency by ensuring time is spent on caregiving, rather than locating wheelchairs, walkers, lift-assets, or other care aids. The platform also streamlines inventory tracking, acting as a foundation for par level management, maintenance schedules and repair plans.

Of particular interest at Normandie Ridge is VersaBadge's ability to apply its asset tracking capabilities to improve billing; with their legacy manual process, they suspected they might be leaving money on the table when rental equipment use went unnoticed or undocumented.

“ *Prior to VersaBadge, it was difficult to ensure we were comprehensive with billing for rental equipment. The process was very manual. I would get an email from admissions telling me someone had an IV or oxygen tank to bill for services and equipment. Once they arrived I would wait a few days, then go and verify the equipment was there. One week before the end of the month, I would do a walk-through and make sure that I had everyone's information correct. And if someone was on oxygen that I didn't have information for, I would pull their chart and start charging them depending on what I found.* ”

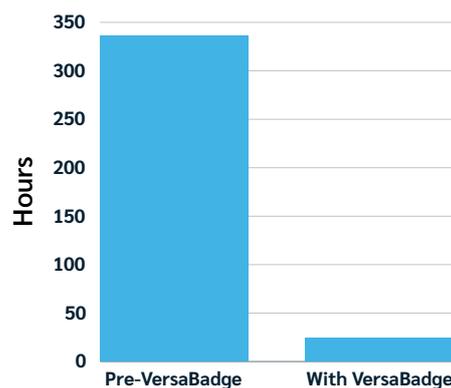
Alice Forney, former Billing Manager, Asbury Normandie Ridge

Asset Tracking Pilot Results

During the three months of the asset tracking pilot, the VersaBadge system tracked 49 assets that were in routine use within the Normandie Ridge SNF unit, including oxygen concentrators, bladder scanners, vital machines, mechanical lifts, otoscopes, nebulizers, IV poles and bariatric beds/mattresses. The VersaBadge system automatically recorded more than 1,000 billable usages per month during the pilot that otherwise would have had to be manually tracked by Normandie Ridge staff members.

The benefits to Normandie Ridge could be measured in a) time savings associated with the billing processes and b) the accuracy and defensibility of the underlying billing data. Overall, Normandie Ridge expects to save over 300 hours of administrative time each year because of the VersaBadge platform, while also producing more accurate billing data. In the future, there may be opportunities to use the VersaBadge data to support or replace the recording of resident equipment usage in the EMR, which would further save time and free up caregivers from some of their documentation burden to perform higher value resident-facing tasks.

Annual Billing Hours
Admin time spent documenting rental usage



“ *Early in the pilot, we were unable to locate several nebulizers in the Skilled Nursing Unit. Consulting the map provided by VersaBadge allowed us to quickly find them so that we could spend more time providing care to residents rather than searching for missing equipment.* ”

Stephanie Phillips, SNF Nurse Administrator, Asbury Normandie Ridge

Real-Time Location, Loss Prevention and Par Level Management

The VersaBadge system provides timestamps and trigger alerts if assets reach an exit corridor or restricted area, enabling providers to reduce inventory and improve utilization. Par level management functionality helps streamline maintenance efforts and reporting.

On a regular basis during the pilot, staff members reported using VersaBadge to locate high-value equipment, particularly non-billable items like lifts and vital machines that were urgently needed to support resident care.

“ Automating the tracking of billable equipment usage turns a major, time-consuming headache into a simple, almost enjoyable, process in comparison. ”

Lauren Dieter, Executive Director, Asbury Normandie Ridge

Billing for Rental Equipment

The VersaBadge pilot tracked 34 individual rental equipment assets as they were used across the Normandie Ridge facility. Billable equipment included oxygen concentrators, nebulizers, IV poles, bariatric beds and bariatric mattresses. Non-billable equipment included bladder scanners, vital machines, mechanical lifts, stand up lifts and otoscopes.

Asset	O2 Con 1	O2 Con 2	O2 Con 3	O2 Con 4	Nebulizer 1	Nebulizer 2	Bariatric Bed 1	Bariatric Bed 2	Bariatric Bed 3
Start date	8/1/24								
End date	8/31/24								
Billable Events YTD	271	267	280	251	295	334	240	243	243
Billable Events Current Period	30	3	45	9	0	31	31	31	31
101	0	1	0	8	0	0	0	0	0
102	9	0	0	0	0	0	0	0	0
103	0	2	0	1	0	0	0	0	0
104	2	0	0	0	0	0	0	0	0
105	19	0	0	0	0	0	31	0	0
106	0	0	31	0	0	0	0	31	0
107	0	0	14	0	0	0	0	0	0
108	0	0	0	0	0	0	0	0	30
109	0	0	0	0	0	31	0	0	0
110	0	0	0	0	0	0	0	0	1

Example billable usage report for rental equipment

The system records a billable usage when an asset exceeds a predefined threshold of time in a resident room and summarizes billable usages across all rental equipment in reporting that is easily filtered by asset and time period. This takes the manual elements out of the process for Normandie Ridge, automating rental equipment usage documentation and feeding more accurate and defensible usage data into their billing processes, which helps providers see cost savings from a personnel perspective and ensure correct inputs from a billing perspective.

VersaBadge Asset Tracking Functionality

- ✓ **Tracks the real-time location of high-value assets**
Provides a map or table view of the facility allowing staff to find assets in an instant
Alerts when assets leave or enter pre-defined boundaries
Reports on par level management and preventative maintenance
- ✓ **Reduces the manual effort associated with billing for rental equipment**
Identifies when rental equipment exceeds billing thresholds associated with resident usage
Provides reporting to staff necessary to support the billing process, including total number of billable usages, location, time of usage, etc for each resident

Looking Ahead

Based on the results of the pilot, Asbury Communities plans to grow its relationship with VersaBadge; first by expanding implementation of the platform to each of its eleven senior living communities, and second by collaboratively working to develop new analytics and functionality that leverage the unique capabilities of the location-enabled technology. Asbury Communities is highly focused on developing ways to turn the enormous amounts of data produced by the VersaBadge platform into actionable measures: improving staffing efficiency, enhancing communication with families and loved ones, reducing operational and financial risks, improving quality and clinical outcomes, and beyond.



We have already accomplished so much with VersaBadge's core use cases and we are excited to build on our success together through continued development of the platform.



Todd Andrews, President of Community Living, Asbury Communities



Sources:

1. Centers for Disease Control and Prevention. Older Adult Falls Data. <https://www.cdc.gov/falls/data-research/index.html>.
2. The State of Falls 2022, "From Crisis to Opportunity: Coming Together for Transformative Change". <https://info.safely-you.com/state-of-falls-report/>.
3. Studer Group (2023). Hardwired results: Issue 7. <https://www.huronlearninglab.com/hardwiredresults/hardwired-results-07/improve-clinical-outcomes-with-hourly-rounding>.
4. Bureau of Labor Statistics <https://www.bls.gov/iif/factsheets/workplace-violence-healthcare-2018.htm>.

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