LeadingAge CAST
center for aging services technologies

Case Study:

Reducing Fall Risk and Improving Overall Mobility Through Technology During COVID-19

Montgomery Place

VIRTUSENSE™

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Categories:

- Prolonging, Supporting, Regaining Independence
- Improving Function
- Improving Quality of Life/ Satisfaction with Care
- Reducing Healthcare Utilization
- Cost of Care and ROI to Providers, Payers, or Consumers

About the Organization

Organization Name:
Montgomery Place, Chicago

Main Contributor:
Deborah E. Hart,
President and CEO

Organization Type:
Continuing Care Retirement Community (CCRC)

Organization Description:
Montgomery Place is located in Chicago's Hyde Park neighborhood overlooking Lake Michigan. The lakeside setting and vibrant urban lifestyle of the Hyde Park community engages the heart and enriches the mind. The community features 1-, 2-, and 3-bedroom independent living apartments, as well as skilled nursing care, assisted living and memory care and support apartments, and long-term care accommodations.

Project Description

Every year, one in four older adults falls and one in five of those will result in a serious injury, such as broken bones or a head injury. This is a $50 billion per year dilemma. Fall prevention is something every senior living community is grappling with and even more so in the coming years as the aging population continues to grow. According to the U.S. Census Bureau, the number of Americans ages 65 and older is projected to nearly double from 52 million in 2018 to 95 million by 2060--that's more than 1 million people per year.

Montgomery Place partnered with VirtuSense Technologies to help reduce falls and keep residents mobile using VSTBalance, which objectively assesses and identifies musculoskeletal and sensory deficiencies in older adults—all in less than three minutes. Following identification of mobility level, the AI engine, along with clinician feedback, will create clinical pathways to route residents appropriately.

Functional Assessment and Activity from Resident's Perspective

VSTBalance can objectively identify an older person's fall risk factors in a two-minute assessment, and route them to a path of therapy to improve their balance, gait, and function. Each assessment requires the resident to perform simple movements to measure their functional capabilities. No tools or devices are used in the assessments.

Business Model

As a CCRC, our mission is to support residents throughout their lifespan. Our experience working with seniors tells us that independence is tied to mobility. Residents want to be as independent as possible, for as long as possible, and a CCRC is uniquely qualified to achieve that goal because it allows them to age in place with a comprehensive support system that adapts to their individual needs and can pivot with them if and when they transition.

VSTBalance technology is an integral part of our strategy to fully understand where residents are with regards to mobility and independence, helps us to provide responsive care plans and therapy recommendations that can safeguard and prolong their independence, and illustrates with data changes as they occur or over time to help family members as well as physicians fully understand their loved ones experience and needs.

Implementation Approach

Fall prevention is an ongoing problem in senior living, but it was exacerbated during the height of the COVID-19 pandemic, with seniors isolated and lonely due to quarantine and social distancing precautions. They were also more sedentary in isolation, which caused mobility to decline and fall rates to increase. Therapy and wellness programs were greatly

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limited, so these problems could not be resolved even as they became more and more pressing.

Staff and administrators at Montgomery Place in Chicago saw the mental and physical decline residents were experiencing due to being isolated in their apartments. To prevent further decline, their director of Rehabilitation Services, went door-to-door with VSTBalance so she could determine which residents needed an intervention before a fall would occur.

By providing residents with data to illustrate their actual fall risk, it motivated them to incorporate COVID-safe exercise plans into their day, including outpatient therapy. The system includes training games that older adults can perform to improve in five areas: balance, memory/logic, cognitive function, endurance, and flexibility. The biofeedback games are fun, and residents asked to do them again and again.

VSTBalance provides a proactive approach to mobility improvement and fall prevention. These assessments are holistic and can cover the range of balance, gait, and function. The analysis of these assessments is backed with normative data according to age group as defined in peer-reviewed studies, the National Institute of Health (NIH), academic journals, and CMS research.

Each VSTBalance assessment offers a personalized comparison with normative data and calculates each resident's mobility level (high, medium, or low mobility). Additionally, for residents over the age of 70, the gait assessment will calculate not only the mobility level but also the probability for the resident to suffer a fall within the next 12 months.

Following identification of mobility level, the AI engine, along with clinician feedback, will create clinical pathways to route residents appropriately. With the information generated from their assessments, the care team will have specific musculoskeletal movement data to form a plan of care appropriate to the resident mobility level (high, medium, low) and their identified movement deficiencies. Following the initial clinical pathway, the AI engine will flag residents with minimal progress and provide the clinician actionable data to formulate an alternate plan of care. VirtuSense Technologies' HIPAA-compliant cloud dashboard is accessible from any browser-based device, such as a smartphone, tablet, or computer, to all levels of care providers in long-term care.

Outcomes

Improving function and reducing fall risk.

Residents and their families appreciate the proactive approach to fall prevention that we have taken with VSTBalance. In fact, many residents initially shrugged off the value of having an assessment thinking their mobility was fine. After the assessments, however, they were surprised to learn they had some deficits in their balance and gait and were thankful we had this resource to identify these problems before a fall occurred. They enjoyed the recommended therapies and exercises and benefited from the improvements they made over time.

Challenges and Pitfalls to Avoid

For many residents, the repercussions of suffering a fall last well beyond the initial incident, and can have a profoundly negative effect on their psychophysical well-being. Residents who experience a fall with injury and have no prior injury history have a 56.3% chance of recuperating. Additionally, when residents fall, even if they are not seriously injured, they become increasingly anxious about falling again, which decreases their daily activity level. As activity level decreases, so too does overall mobility, leaving residents at an increased likelihood of suffering recurrent falls.

Currently, resident risk levels and changes in functional status data are not easily transferable between therapy, nursing, and wellness in a long-term care community. Being equipped with this data in real-time, the care team can design contingency protocols such as preventative care plans, increased rounding, reduced bed heights, and other means to prevent falls.

Lessons Learned/Advice to Share with Others

Falls are devastating for all involved and can cause serious impairments and even be life threatening. VSTBalance assessments give us real data about our residents, that can also be shared with their family members and physicians, so they can improve their mobility and avoid a fall altogether. Our therapists like it because it is extremely portable, interactive, and fun to use. Residents are engaged in the games that make up the assessment and are truly excited to see how they did in their first test compared to their second, and against each other.

Montgomery Place's use of VSTBalance was so successful internally that this summer the organization is planning a series of assessments at other high-rise apartment and condo buildings frequented by seniors. By bringing VSTBalance technology to them, we can help them understand their own fall risks so that they can remain independently living there, or decide whether or not it is time to bring in a caregiver, or consider moving to a senior community.