LeadingAge CAST
center for aging services technologies

Case Study:

Larksfield Place Reduces Falls with Injury by 80% using Artificial Intelligence

LARKSFIELD PLACE

VIRTUSENSE™

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Categories:

- Reduced Response Time, Incidences, and Costs
- Increased Resident/ Staff/Family Safety & Satisfaction, and Peace of Mind
- Improved Regulatory Compliance and Outcomes

About the Organization

Organization Name:
Larksfield Place Retirement Communities

Main Contributor:
Tammy Flaming, VP Marketing

Organization Type:
Home Health/Home Care, Hospice, Assisted Living Facilities, Long-term Care Rehab Facilities, Skilled Nursing Facilities, Memory Care Facility, Life Plan Communities (LPC)

Organization Description:
Larksfield Place Retirement Communities (LFP), Inc. is a not-for-profit, single-site Life Plan community in Wichita, Kansas. LFP's mission is to enrich the lives of discerning older adults by providing distinctive lifestyle, health, and wellness services including independent living, assisted living, memory support, rehab-ilitation, and long-term care.

Project Description

LFP employed the two-part VirtuSense ecosystem to reduce falls for its resident community. To determine which residents are a high fall risk, therapists used VSTBalance, a fall-risk assessment tool that uses artificial intelligence (AI) and machine vision to identify deficits in balance, gait, and function. To then protect residents who are high risk, LFP used VSTAlert, an in-room AI monitoring platform that identifies a resident's intent to exit their bed or chair 30–65 seconds before they rise, notifying staff to prevent a fall. The ecosystem provided fall reduction for the entire community on an individualized level.

Safety Technology Category

Fall Detection and Prevention

System Embodiment

Sensors embedded in the environment – LIDAR sensors and artificial intelligence

VSTBalance used a mobile sensor that could be taken to residents for AI-powered fall-risk assessments.

VSTAlert used sensors mounted on the wall or ceiling directly across from a resident's headboard for infrared motion analysis by AI.

Business Model

Standard of Care and Other Payment Sources

Implementation Approach

The VirtuSense ecosystem brought long and short-term fall prevention into LFP by introducing VSTBalance and VSTAlert. This allowed LFP to manage and monitor the entire resident population for fall risk and keep residents safe, healthy, and independent.

VSTBalance, a long-term fall prevention tool, uses AI and machine learning to conduct a 2-minute fall-risk assessment per resident. After the assessment, VSTBalance produces a report detailing the resident's fall risk. From there, therapists create effective, personalized care plans, and track progress within the VSTBalance platform. Residents have access to their progress reports, care plans, and exercises directly in a mobile app, VSTWell, for increased ownership over their health. VSTBalance also allows

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therapists to view fall risk for LFP's entire community. This allows staff to conduct group therapy that targets specific areas of concern, and builds community engagement in health and wellness.

For especially high-risk residents, LFP used VSTAlert in eight rooms for immediate fall prevention. VSTAlert is an AI-powered, in-room monitoring solution. Using LIDAR sensors to monitor the room, VSTAlert's precise AI detects a resident's intent to exit a chair or bed and sends an alert to care staff 30-65 seconds before they exit. This allows staff to arrive and assist before a fall can occur. The AI sensor is 98% accurate, reduced false alarms by 95%, and is an added layer of security for residents and staff during low-staffing night shifts.

VSTAlert sends alerts directly to assigned care staff's mobile devices for immediate responses, and all alerts are tracked on a central console for at-a-glance floor oversight. The system allows staff to maintain peace of mind for resident safety without the need for increased rounding, sitters, or tele-sitters. This allows staff to focus on one-on-one resident care.

The combined ecosystem of VSTBalance and VSTAlert empowers LFP to be proactive when it comes to fall prevention for all their residents and fosters a stronger community and care team.

Outcomes

After introducing the VST ecosystem, LFP saw **over 70% community-wide fall reduction**. What's more, VSTBalance screenings allowed for preventative measures that kept residents in independent living longer. VSTBalance helped therapists prescribe the right therapy and exercises that addressed their specific risk areas. It was quickly assimilated into practice and provided instant and tangible evidence of the need for intervention. LFP was able to make recommendations to outpatient PT/OT departments based on medium to low mobility indicators.

In LFP's short-term rehab unit, **using VSTAlert on only eight out of 38 beds reduced falls with injury by 80%**. VSTAlert was installed in rooms with the highest risk, so when an alert was sent, the staff knew that was the highest priority immediately. Staff were able to rely on the system to alert them, so they were able to attend to other residents' needs without constant worry.

Challenges and Pitfalls to Avoid

The implementation of VSTBalance within the community could have easily been incorporated in a larger event. The newest technology always seems to draw interest, and we felt that an introductory event could have helped to introduce the AI technology and demonstrate the assessments. Our residents are driven and competitive even within their own communities, so a preventative health drive could have been a great way to introduce VSTBalance and its wellness initiatives.

Lessons Learned/Advice to Share with Others

One of the challenges after implementation of VSTAlert was training new employees on how to use the system in all departments. Nursing had a lead that was involved in the orientation process for new employees, but other ancillary departments, such as dietary, housekeeping, and activities also needed to be trained. We had to show them what the system does and teach them the importance of how and when to pause the system when they enter and leave the room. This education was key in getting buy-in and maintaining compliance. This also cut down on the number of false alerts that were being sent to the caregivers, to minimize alarm fatigue. It took a lot of communication between departments to make sure everyone knew when there was a new hire and training needed to be scheduled.

We also found that it was imperative that a maintenance staff member become an expert with the system and to have them available to assist with troubleshooting. Some of the issues were in the location of the VSTAlert sensor, or the glare from the sun interfering with the infrared sensor, which required relocation of the camera, not just reprogramming.