Zemplee

GRAVITY

Activity as the Sixth Vital Sign

How Zemplee is Transforming Senior Outcomes

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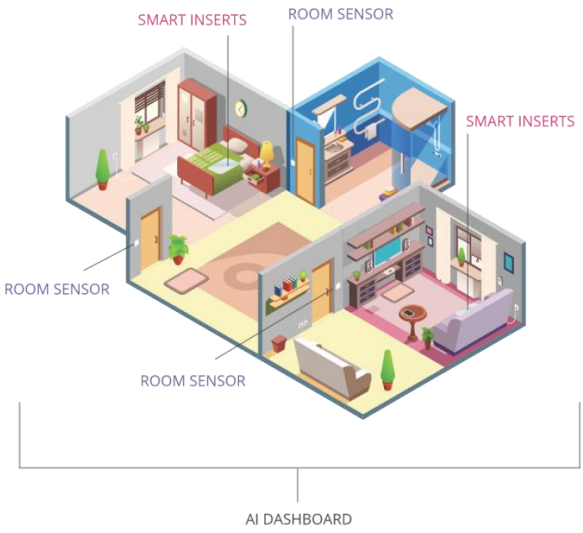
Activity as the Newest Vital Sign: How Zemplee is Transforming Senior Outcomes

In 2024 and 2025, Gravity Healthcare Consulting conducted two independent research studies examining the clinical and operational effectiveness of **Zemplee**, an AI-powered passive monitoring platform. Designed for aging-in-place support, Zemplee leverages discreet, non-intrusive sensors to detect health and safety risks through continuous behavioral pattern analysis via AI. Leveraging activity as a new vital sign, Zemplee empowers families and caregivers to detect health risks and medical changes earlier, leading to more timely interventions and a better quality of life for older adults. These studies—conducted in both home and assisted living environments—found that Zemplee meaningfully improved clinical outcomes, reduced hospital utilization, significantly reduced falls, and enabled earlier and more accurate diagnosis of common conditions such as urinary tract infections (UTIs).

How Zemplee Works: Capturing the New Vital Sign of "Activity"

Zemplee is installed in a resident's home or living space using ambient smart sensors that passively track key indicators such as mobility, sleep patterns, bathroom usage, and behavioral trends. Without cameras or wearables, the AI engine aggregates this data to create personalized behavioral baselines and then flags deviations suggestive of clinical concern—such as increased fall risk, cognitive changes, or UTI indicators. When anomalies are identified, Zemplee's AI generates alerts and insights that enable care teams to intervene proactively, improving outcomes and supporting aging-in-place with greater safety and independence.



Zemplee's Early Intervention in the Home: A Continuing Care at Home Program

Friends LifeCare
Your Life • Your Independence • Your Home

Gravity's first study evaluated Zemplee's effectiveness in supporting high-risk individuals insured under a Continuing Care at Home program, regulated by the Pennsylvania Department of Insurance as a continuing care retirement community without walls, Friends Life Care is the first and largest program of its kind in the country. Participants lived independently, either alone or with a partner, and were identified as being at elevated risk for institutional care. Participants in the study group utilized Zemplee within their homes, with platform access extended to designated family members, informal caregivers, and insurance care managers to support collaborative oversight and timely intervention. A clinically and demographically comparable control group was also observed during the study period without the use of Zemplee technology.

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Over the course of the one-year study, both groups experienced an equal number of hospitalizations. However, the Zemplee group accumulated just 18 total hospital days, while the control group totaled 31 days—a 42% reduction in inpatient length of stay (See Figure 1). This additional length of stay in the hospital correlated to increased cost and is indicative of the fact that Zemplee helped the care coordinators and family members to identify potential clinical and medical needs earlier and thus avoid exacerbations of the medical symptoms and increased length of stay at the hospital. These outcomes are particularly notable given that the Zemplee group had higher baseline risk indicators, including lower performance on the 30-second chair stand test and lower home safety scores (See Figure 2). Despite this, fall risk and overall clinical risk decreased in the Zemplee group while remaining static in the control group. Cognitive status, measured by SLUMS assessments, remained equivalent in both groups.

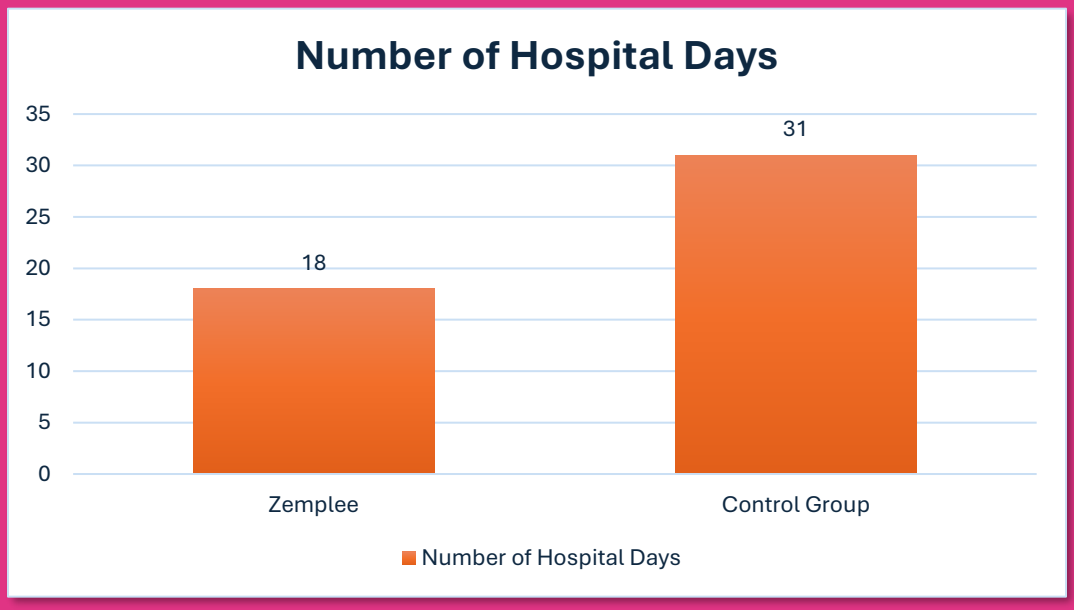

Figure 1: Number of days spent in hospital for Zemplee clients and control group.

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Figure 2: Risk rating of Zemplee group versus control group.

An anonymized survey was conducted with the Zemplee study group at both the beginning and conclusion of the research period. Using a scale of 1 to 5, accompanied by descriptive anchors for each item, participants reported a 60% reduction in anxiety related to their ability to remain at home, as well as a 60% reduction in their perception of personal safety risk when living alone. When asked about their concern over falling at home and potentially remaining on the floor for hours or days without help, Zemplee users expressed a threefold decrease in fear over the course of the study. Notably, participants also reported a 33% increase in peace of mind as they continued to live independently, highlighting the emotional reassurance Zemplee offers in addition to clinical benefits.

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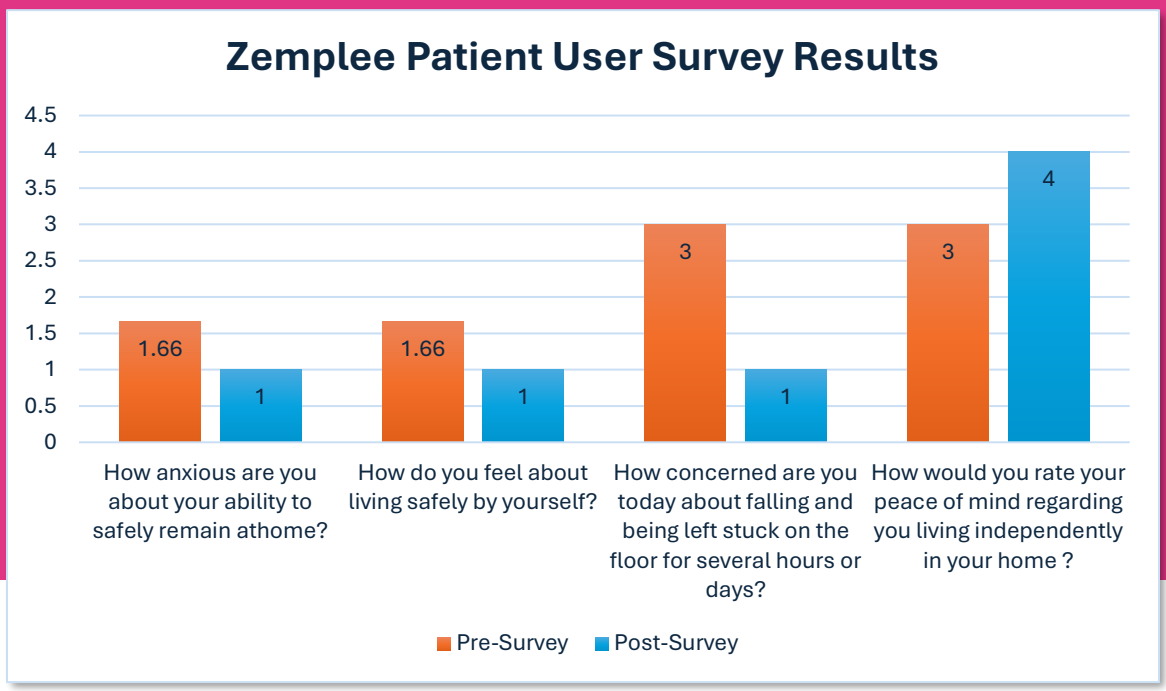

Figure 3: Initial and post study surveys of long-term insurance members who utilized Zemplee.

Subjectively, the Care Coordinators from Friends Life Care provided feedback on the impact of Zemplee over the study period. They reported that Zemplee added an, "additional layer of watchfulness" and that, "The data from Zemplee provides reassuring feedback on daily function as well as timely alerts to changes in daily patterns. The use of Zemplee has been helpful to developing a more comprehensive assessment of level of independence and in delaying the need for in-home care." The families also reported, "that layer of extra security and monitoring makes them feel at ease." One Care Coordinator even commented that they, "would highly recommend this service and would use for my own loved ones when and if the time comes," demonstrating the powerful carryover of the Zemplee platform.

Perhaps most revealing were the remarks from insurance professionals involved in the study, who acknowledged that earlier implementation of Zemplee might have prevented even more transitions to higher levels of care. These findings affirm that passive AI can support more timely, informed decision-making by caregivers and families, leading to earlier interventions and avoidance of hospital-related complications.

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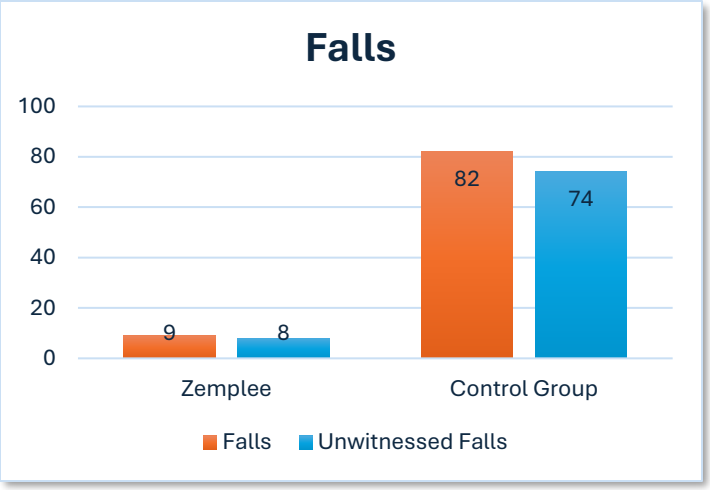
Elevating Resident Safety in Assisted Living: The St. John's Study

The second study took place at St. John's Lutheran Community in Albert Lea, Minnesota, within its assisted living setting. St. John's is a faith-based senior living campus located in Albert Lea, MN, offering a continuum of care including independent living, assisted living, memory care, skilled nursing, rehabilitation, and short-term stays across two nearby campuses. Zemplee was offered to residents on a voluntary basis, and both Zemplee users and non-users resided on the same floors and were cared for by the same team, ensuring consistency in caregiver interaction.



Falls in study group vs control group

The outcomes were striking. An exhaustive review of every fall report was reviewed as part of this study and the results were undeniable – Zemplee dramatically reduced the number of falls for participants using the AI monitoring system. During the six-month observation period, residents using Zemplee experienced only nine total falls, compared to 82 in the control group—a ninefold reduction. Falls with injury occurred exclusively in the control group, and the only fall-related hospitalization also came from that cohort. Unwitnessed falls, a major risk factor for delayed care and complications, were eight times more prevalent among residents not using Zemplee.

The impact of Zemplee is even more striking when viewed in light of the participants' clinical complexity. Because enrollment was voluntary, families were more likely to choose Zemplee for residents with known safety risks and chronic conditions. This resulted in the Zemplee group carrying 9 to 10 times the rates of anxiety, depression, and Alzheimer's or dementia diagnoses compared to their peers. Moreover, the incidence of fall-related diagnostic

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codes—including “history of falls” (Z91.81) and “repeated falls” (R29.6)—was also 9 to 10 times higher in the Zemplee group. Yet despite this elevated risk, outcomes were significantly better, illustrating the power of proactive AI-enabled monitoring. (See Figure 4)

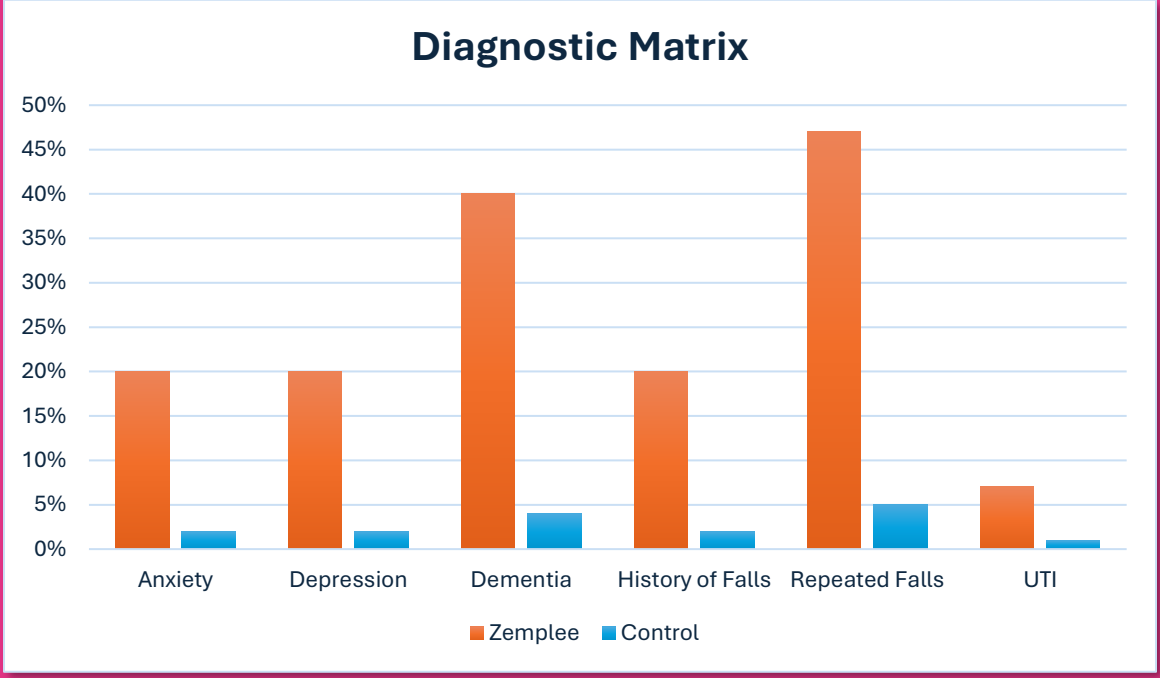

Figure 4: Diagnostic matrix comparison of rates of key diagnoses for the Zemplee study group versus the control group.

One of the most meaningful clinical outcomes observed during the study was in the detection and treatment of urinary tract infections. Although comprehensive research on UTI prevalence in assisted living is sparse, existing data from long-term care settings suggest they represent 20% to 30% of all infections. Zemplee’s passive monitoring capabilities—such as tracking bathroom activity and overnight mobility—enabled caregivers to pick up on subtle signs that would otherwise go unnoticed. As a result, the Zemplee group saw seven times the number of UTIs identified, diagnosed, and treated compared to the control group (see Figure 4). This not only allowed for quicker, more effective treatment, but also helped avoid the mislabeling of UTI symptoms as dementia or psychiatric disturbances, ultimately improving quality of life for participants.

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Conclusion: A Proven Layer of Intelligence for Home and Senior Living Care

Across both studies, Zemplee delivered measurable improvements in care quality, safety, and cost. In both home and assisted living settings, the platform enabled early recognition of medical conditions, decreased hospital time, and dramatically reduced falls—even among higher-risk populations. These studies demonstrate that whether in home care or senior living, Zemplee provides unparalleled access to the newest vital sign—activity—offering a groundbreaking layer of behavioral insight that enhances oversight, supports clinical decision-making, and empowers residents to achieve their highest possible quality of life.

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Zemplee is an AI-powered remote monitoring platform designed to enhance aging in place by using passive, privacy-preserving sensors and machine learning to detect changes in health, behavior, and safety in real time. Built with input from geriatric care experts and validated through independent clinical studies, Zemplee enables providers, families, and care teams to identify early signs of decline and intervene proactively—without cameras, wearables, or disruption to daily life. Used across senior living, home health, and transitional care environments, Zemplee supports better care decisions, lowers hospitalization risk, and improves quality of life for older adults through continuous, intelligent monitoring

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Gravity Consulting is a national advisory firm specializing in post-acute care strategy, operational optimization, and evidence-based solutions for senior living, home health, and rehabilitation providers. Led by Melissa Brown, a seasoned executive and nationally recognized researcher, Gravity brings decades of expertise in clinical programming, regulatory compliance, value-based care models, and system transformation. Gravity has partnered with providers across the continuum—from senior living to home health—to deliver innovative, data-informed strategies that improve care outcomes and financial sustainability. The firm is uniquely positioned to bridge operations, analytics, and care delivery to meet the evolving demands of modern aging services.

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