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WHITE PAPER · REAL-WORLD EVIDENCE

From Engagement to Impact

How digital mobility monitoring drives gait speed improvement and reduces fall risk

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RE From Engagement to Impact: How Digital Mobility Monitoring Drives Gait Speed Improvement and Reduces Fall Risk

The more patients engage, the more they improve

OneStep is proud to share the most comprehensive study to date on the impact of introducing mobility insights on real-world outcomes.

5,000+	6	100+	2023–25
Patients monitored	Leading healthcare organizations	Facilities	Years of real-world data

The results show that higher utilization of OneStep is strongly correlated with improved mobility. They are in line with parallel OneStep studies suggesting that OneStep helps prevent about 25% of falls, through improvement in functional mobility among other factors.

Why patients improve

Engagement

Motion feedback engages patients and family members. Similar studies suggest up to 45% higher adherence when patients see their OneStep Walk Score.

Better referrals

Clinicians use OneStep to decide who needs extra attention, and what kind: more accurate referral in and out of therapy, and care-level adjustments.

Functional recommendations

Guidance tied to each patient's functional status, such as walking aids and prescription adjustments.

THE VALUE OF A FALL PREVENTED

Falls are among the largest drivers of uncompensated cost in post-acute care and senior living. **Better gait speed means lower fall risk, and fewer ED visits and hospitalizations.** Organizations that maximize platform use are not simply collecting data; they are enabling faster functional recovery and a lower-risk patient population.

To learn how OneStep can drive improved outcomes, staff efficiency and reimbursement in your organization, contact us at hello@onestep.co or through our contact form.

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From Engagement to Impact:

How Digital Mobility Monitoring Drives Gait Speed Improvement and Reduces Fall Risk

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ABSTRACT

Background. In the transition to value-based care, gait speed has emerged as a "sixth vital sign" that predicts hospitalization, functional independence and total cost of care.[1,2] Whether engagement with digital mobility monitoring translates into measurable functional improvement in routine care is not well characterized.

Objective. To assess whether greater patient engagement with the OneStep platform is associated with greater improvement in gait speed.

Methods. Retrospective analysis of mobility data collected through OneStep between 2023 and 2025 in more than 5,000 patients across six healthcare organizations and over 100 facilities. Patient-quarters were included when they contained at least two validated assessments spanning at least 14 days; organizations were included when they had at least 10 active patients per month, complete quarters, and at least three qualifying quarters. Engagement was defined as mean measurements per patient per quarter, and the outcome as the monthly rate of change in gait speed. Associations were examined at the organization-quarter level using descriptive trend analysis.

Results. Fifty-one organization-quarters from six organizations were analyzed. Within organizations, quarters with higher engagement showed greater monthly gait-speed improvement, a pattern observed across organizations with differing patient populations, baseline performance and clinical settings.

Conclusions. Sustained engagement with digital mobility monitoring was associated with greater gait-speed improvement, suggesting that engagement is not merely an operational goal but a clinical strategy for improving mobility and reducing risk.

KEY POINTS

Question	Is greater engagement with digital mobility monitoring associated with greater gait-speed improvement in routine care?
Findings	Across 51 organization-quarters from six healthcare organizations (more than 5,000 patients, 2023–2025), quarters with more measurements per patient showed greater monthly gait-speed improvement within organizations.
Meaning	Patient engagement with mobility monitoring may be an actionable lever for functional improvement; patient-level studies are needed to establish causality.

KEYWORDS gait speed · digital health · patient engagement · remote monitoring · fall risk · value-based care · real-world evidence

1 Introduction

Gait speed is one of the most powerful indicators of health in older adults.[1,2] The scientific literature consistently shows that even modest improvements in gait velocity, on the order of 0.10 m/s, are associated with reduced mortality risk, a lower incidence of falls, and decreased hospitalization and healthcare utilization.[2,3]

Because of its strong relationship with clinical outcomes and cost, gait speed is increasingly used to inform care planning, risk stratification and value-based decision-making. Digital platforms now make it possible to measure gait repeatedly outside the clinic, but the extent to which engagement with such monitoring is itself associated with functional change remains an open question.

This analysis addresses that question directly: does greater engagement with digital mobility monitoring

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translate into measurable improvement in gait speed?

2 Methods

2.1 Study design and data source

We conducted a retrospective analysis of mobility data collected through the OneStep platform between 2023 and 2025. To ensure clinical relevance and minimize noise, we applied a conservative eligibility framework designed to reflect real-world care delivery rather than idealized trial conditions.

2.2 Eligibility criteria

Eligibility was defined at two levels (Table 1). At the patient level, criteria ensured that longitudinal change rather than day-to-day fluctuation was captured. At the organization level, criteria ensured stability and generalizability of quarterly estimates.

Table 1. Eligibility criteria.

Level	Criterion	Rationale
Patient-quarter	≥14 days between first and last measurement within the quarter	Capture longitudinal change rather than daily fluctuation
	≥2 validated assessments within the quarter	Minimum assessment density
Organization	≥10 active patients per month of a quarter	Stability of quarterly estimates
	Full three-month quarter completeness	Comparable observation windows
	≥3 qualifying quarters	Within-organization trend estimation

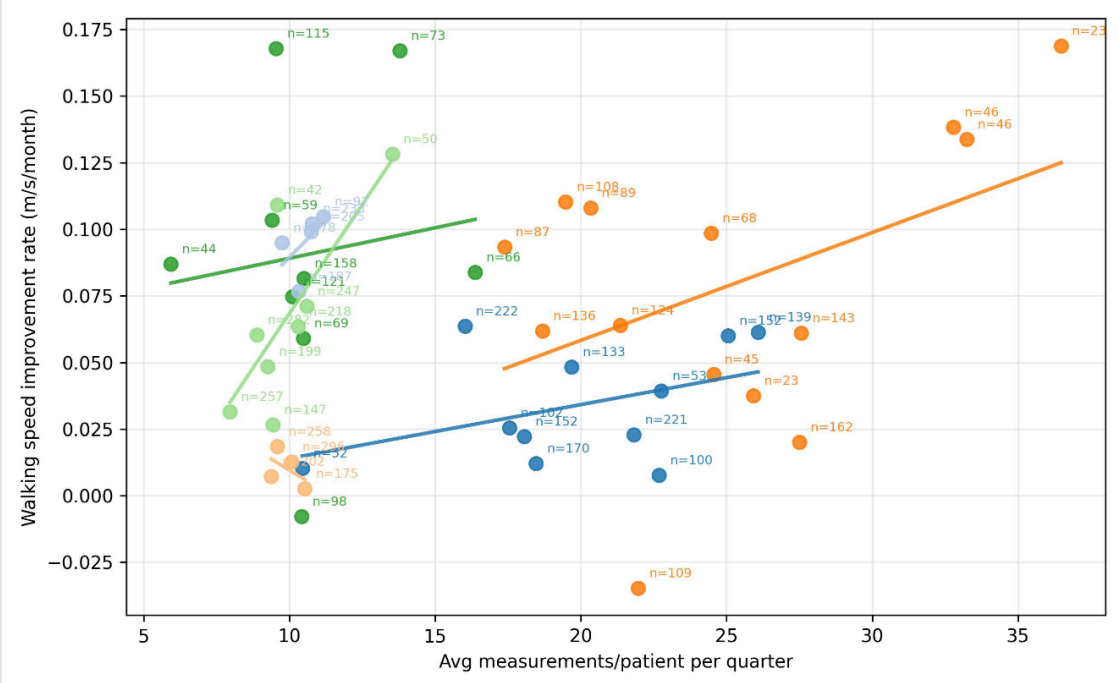


Figure 1. Quarterly patient engagement and gait-speed improvement across organizations. Each point is one organization-quarter; labels (n) give the number of patients contributing data to that point. Engagement is the mean number of measurements per patient per quarter; the outcome is the mean rate of gait-speed improvement (m/s/month). Colors denote organizations (anonymized). Lines show organization-specific linear trends, illustrating within-organization associations between engagement and improvement.

2.3 Measures

Engagement (exposure) was measured as the average number of measurements per patient per quarter, representing the volume of sustained patient interaction with the platform. **Gait speed improvement (outcome)** was calculated as the rate of change in gait speed per month (m/s/month); positive values indicate improvement.

2.4 Statistical analysis

Associations between engagement and gait-speed improvement were assessed at the organization-quarter level using descriptive trend analysis. Organization-specific linear trends were fitted to characterize within-organization associations, accounting for differences in populations and settings between organizations.

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3 Results

Fifty-one organization-quarters from six healthcare organizations met the eligibility criteria (Figure 1). Engagement ranged from approximately 6 to 37 measurements per patient per quarter.

Organization-specific trends indicated that higher engagement was associated with greater monthly gait-speed improvement. Organization-quarters with higher engagement volume showed visibly greater rates of improvement, and positive within-organization trends were observed in five of the six organizations. This pattern was consistent across organizations with differing patient populations, baseline performance levels and clinical settings.

4 Discussion

Gait speed is a foundational measure of mobility, independence and fall risk. The magnitude of improvement observed in higher-engagement quarters aligns closely with thresholds known to be associated with improved clinical outcomes.[3]

These findings suggest that sustained engagement with digital mobility monitoring may amplify the effectiveness of existing clinical care through three mechanisms: reinforcing patient accountability through regular measurement and feedback; providing clinicians with longitudinal visibility into mobility trends; and enabling earlier identification of stalled or declining progress. In this context, digital engagement is not passive data collection but an active component of functional recovery.

4.1 Implications for value-based care

Falls are among the largest drivers of uncompensated cost in post-acute care and senior living. Because improved gait speed is associated with lower fall risk, and lower fall risk with fewer emergency department visits and hospitalizations, interventions that drive gait-speed improvement through engagement may allow organizations to shift from reactive treatment to proactive risk management. Digital tools that promote consistent engagement and functional improvement may therefore play an important role in value-based care strategies.

4.2 Limitations

This analysis has several limitations. First, the design is observational, and associations cannot be interpreted as causal. Second, data were aggregated at the organization-quarter level rather than modeled causally at the patient level. Third, residual confounding by factors such as therapy intensity or case mix is possible. Nonetheless, the consistency of findings across organizations, the conservative eligibility criteria and the alignment with established mobility science strengthen confidence in the results.

5 Conclusion

Across six organizations and three years of real-world data, higher engagement with digital mobility monitoring was associated with faster gait-speed improvement. Organizations that maximize platform use are not simply collecting data; they are enabling faster functional recovery and supporting a lower-risk patient population.

References

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