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**7. Funding Source (if applicable)**

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**8. Manuscript Title**

Does a complexity science-based intervention improve implementation of a supervised walking program for hospitalized Veterans? Evidence from a stepped-wedged cluster randomized trial

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**9. Abstract (500 words maximum)**

**Background.** The timely translation of evidence-based programs into real-world clinical settings is a persistent challenge due to the complexity of factors related to context and team function (i.e., team communication, coordination, problem solving). This challenge is felt acutely in inpatient settings where environmental factors and coordination challenges related to team-based care prevent uptake of evidence-based mobility programs despite evidence that they may help older adults avoid disability as a result of being hospitalized. Promising strategies like CONNECT, a complexity-science based intervention to improve team function, are needed to promote successful implementation.

**Methods.** We conducted a stepped wedge cluster randomized trial using a convergent mixed methods design among Veterans Affairs Medical Centers (VAMCs) (n=8) adopting STRIDE in diverse geographic regions of the United States. All VAMCs received implementation support according to the Replicating Effective Programs (REP) framework. Four sites were randomized to also receive CONNECT. We hypothesized STRIDE reach, or the proportion of hospitalized patients during eligible hospitalizations with a walk, and fidelity, or the proportion of mobile patients that had a minimum of two supervised walks or one walk of greater than 5 minutes, would be greater at VAMCs randomized to receive CONNECT. Team function was measured via the Team Development Measure and the Working Relationship Scale in a survey ((PRE n = 353; POST n = 294) and informed qualitative data collection analysis of semi-structured interviews (n=121) with front-line clinical stakeholders (n=92).

Results. At VAMCs randomized to CONNECT, program reach was higher (mean 13% vs 3%), but daily fidelity to walks was lower (mean 25.7% vs 37.5%). We did not observe improvements in team function domains or communication among REP+CONNECT sites compared to REP sites. Qualitative findings via a thematic analysis highlight the influence of team characteristics and contextual factors, including team cohesion and role clarity, on site-level of reach and fidelity.

Conclusion. CONNECT may support reach of STRIDE but was not sufficient to enhance fidelity. There was no observed relationship between being randomly assigned to receive CONNECT and team function. These findings suggest that complexity-science based training may not be sufficient to overcome structural barriers related to capacity for implementation.

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**10. Key Words (must list at least 1 up to 6 maximum)**

- 1 : older adults
- 2 : Veterans
- 3 : implementation science
- 4 : inpatient mobility
- 5 : mixed methods

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**11. Key Implementation theories or frameworks used in this manuscript**

Replicating Effective Programs Framework and Complexity Science Principles

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**2. Thank You!**

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