

# Effects of Implementation of the STRIDE Hospital Mobility Program

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**Function QUERI**  
Optimizing Function and Independence  
Quality Enhancement Research Initiative

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# Adaptations

- **Adaptations** are intentional changes of an evidence-based intervention or program [for testing in a real-world context]
- Why adapt? One size rarely fits all in health care
- Adaptations can enhance “fit” between an evidence-based intervention and between context and population
- Maximizing fit can enhance successful completion of pragmatic trials, improve outcomes including sustainment, in implementation studies
- **Fidelity** is a key consideration in adapting

# Immobility during Hospitalization

Hospitalized adults spend only 3-4% of their time walking in the hospital despite the fact that less than 5% have orders for bedrest



Culture of immobility



Negative physical effects



Adverse outcomes



# Evidence for Hospital Walking Programs

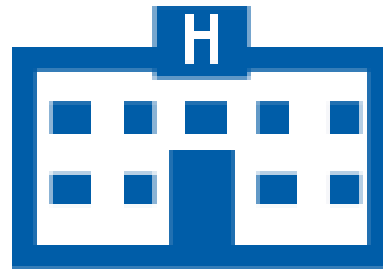
- In a single center clinical demonstration program, participants in STRIDE were less likely to be discharged to a skilled nursing facility compared to similar older adults who did not participate<sup>1</sup>
- 3 RCTs demonstrating daily ambulation can improve function and walking ability at discharge<sup>2,3</sup> and prevent loss of community mobility one month after hospital discharge<sup>4</sup>
- **Walking programs** are a potentially valuable tool to improve hospital practices around mobility but are not widely available

# Evidence Gap

There was little evidence on **hospital walking program's** effectiveness under routine practice conditions or their implementation across health systems.

## Primary Study Objective:

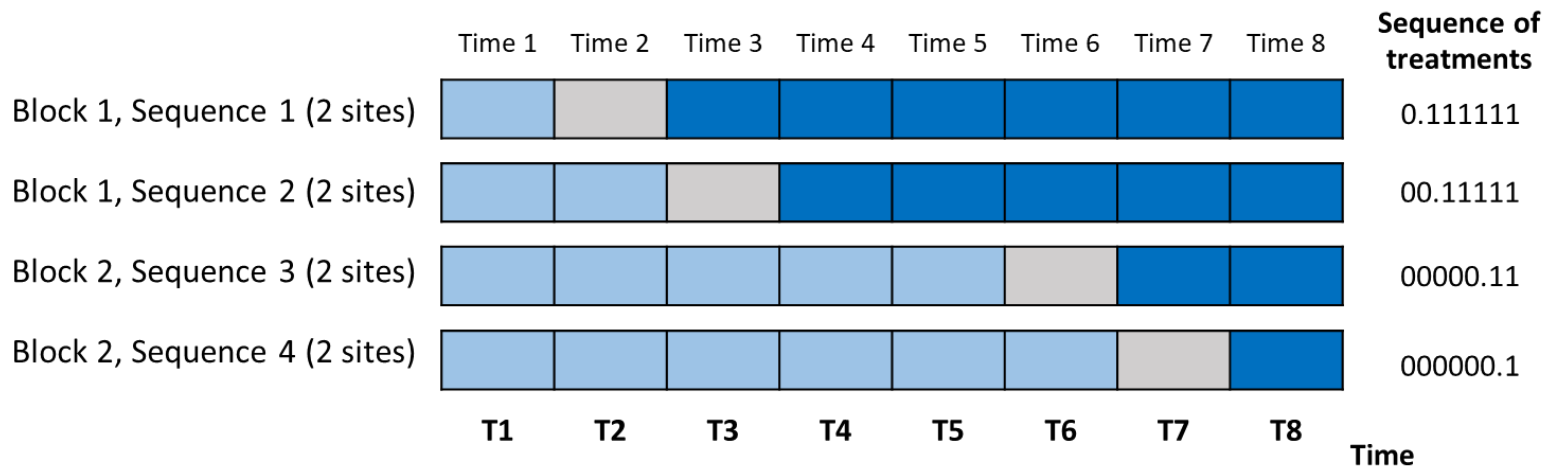
Examine the effects of STRIDE implementation on discharge to skilled nursing facility (primary outcome), hospital length of stay, and inpatient falls



Hastings et al. Ann Intern Med 2023

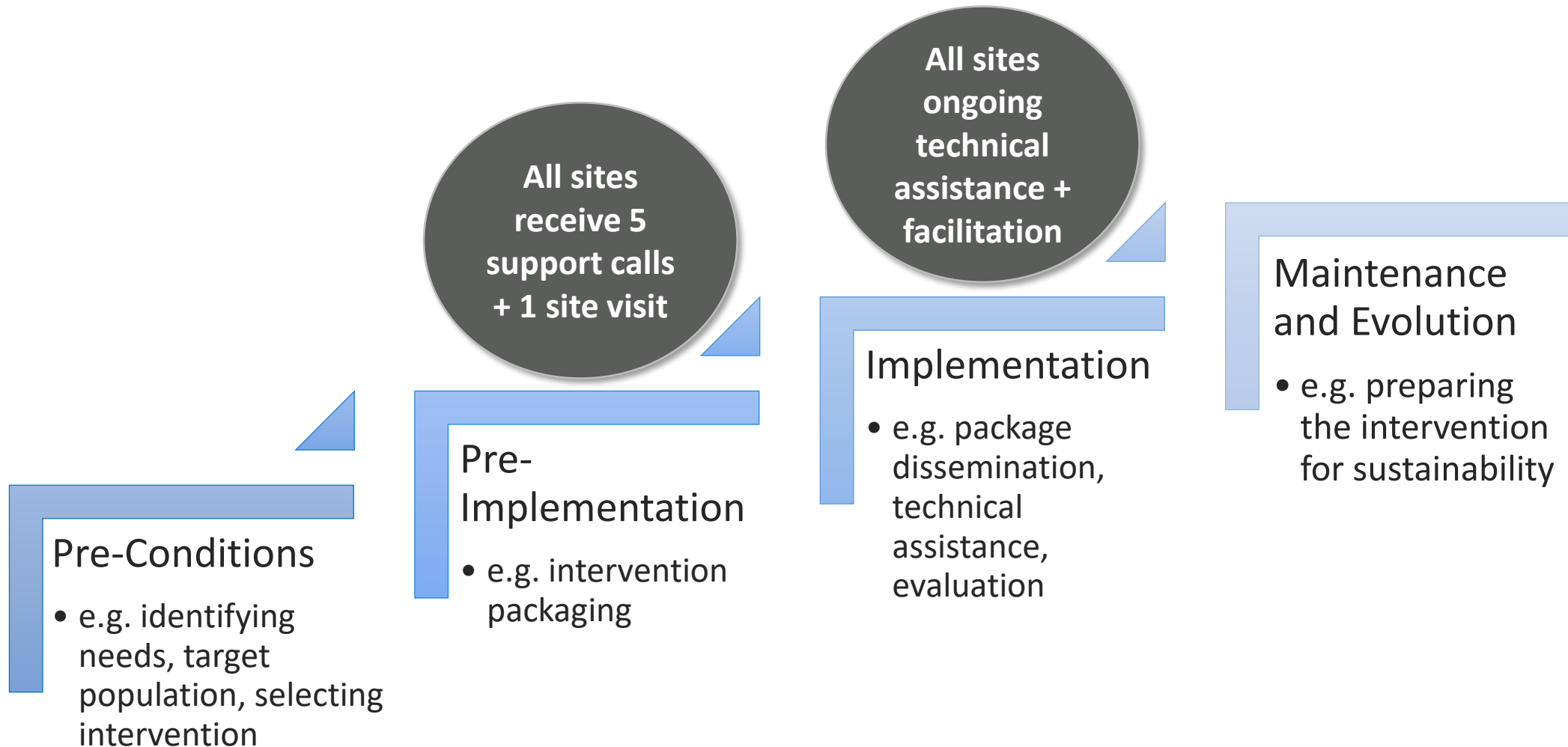
# Study Design

- Stepped-wedge cluster randomized trial
- Hybrid effectiveness-implementation study
- **8 hospitals** randomized to an implementation schedule
- Research team provided implementation support; hospitals responsible for training, patient referrals, clinical delivery



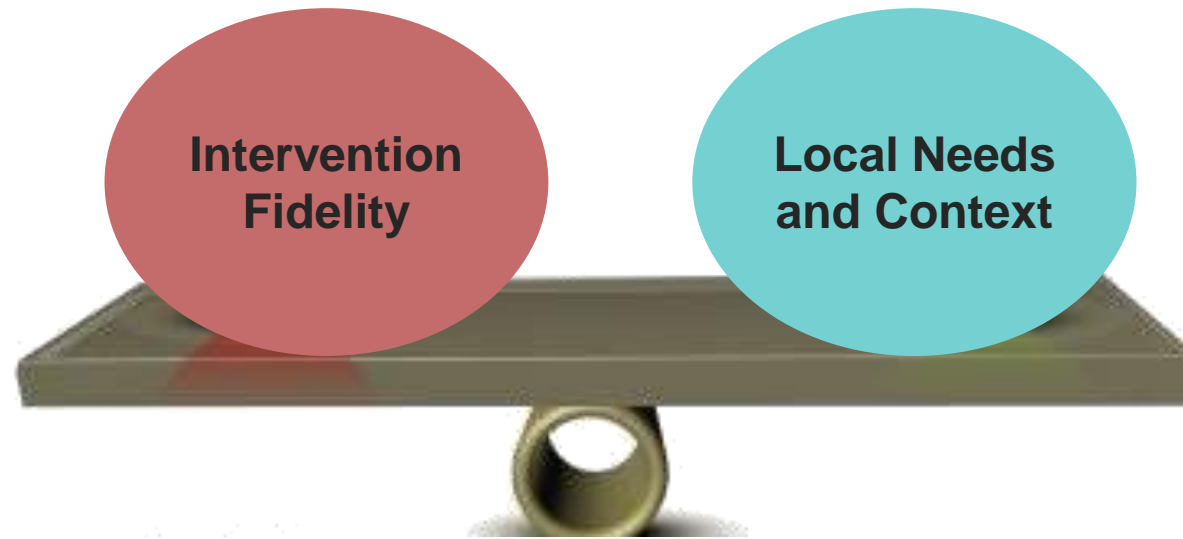
	Pre-implementation (control) – sites receive implementation strategies
	Pause
	Post-implementation
0	Control condition
.	Pause condition
1	Intervention condition
T1	Time period 1 etc. Each time period equals 90 days

# Implementation Framework: Replicating Effective Programs





# Implementation Framework: Replicating Effective Programs



Tailoring clinical programs to achieve balance between **fidelity** and **adaptation** for local conditions

# Clinical Intervention:



**Objective:** To optimize the physical function of older Veterans by increasing the amount of time spent walking during their hospitalization

## Core Program Components

- 1 Proactive**
  - No baseline functional deficits required
- 2 Early enrollment**
  - Ideally **within 24 hours** of admission
- 3 Supervised walking**
  - Up to **20 minutes per day** until discharge
- 4 Dedicated STRIDE staff**
  - To perform pre/post evaluations and daily walks
  - Can come from various service lines

# Methods

- **Inclusion criteria:**
  - $\geq 60$  years of age at admission
  - Admitted for **2 or more** business days
  - Admitted to and discharged from a **medical service**
- **Exclusion criteria**
  - Institutional care or nursing home dwelling at time of admission
  - Patients who were transferred in from or discharged to another hospital setting
- Outcomes of discharge to a SNF (vs. discharge to home), LOS (count data), and inpatient falls ( $\geq 1$  falls vs. 0)
- Generalized linear mixed models were fit to account for clustering of patients within hospitals, included fixed effects for treatment and time and patient-level covariates

# STRIDE Effects

Outcome	Pre-STRIDE Estimated Mean or Proportion; [95% CI] (N=6722)	Post-STRIDE Estimated Mean or Proportion; [95% CI] (N=6141)	Estimated Difference Post vs. Pre; [95% CI] p-value
Discharge to SNF [Primary]	0.13; [0.09, 0.19]	0.08; [0.06, 0.13]	OR=0.6 [0.5, 0.8] p<0.001
Inpatient fall, (yes/no)	0.015; [0.008, 0.029]	0.013; [0.006, 0.024]	OR=0.8 [0.5, 1.1] p=0.52
Length of stay (days)	6.6; [6.2, 7.1]	6.7; [6.3, 7.1]	IRR=1.0 [0.9, 1.1] p=0.78

In this SW-CRT involving 8 sites and 12,863 hospitalizations, implementation of the STRIDE hospital walking program appeared to **prevent some discharges to nursing homes**, with no change in hospital length of stay or inpatient falls. Provides evidence of positive impact of hospital mobility programs delivered under **routine practice conditions**.

# FRAME to classify modifications to STRIDE

## WHEN did modifications occur?

- Pre-implementation: 14
- Implementation: 5
- Post-implementation: 6

## Were adaptations **PLANNED**?

- Yes: 15
- No: 10

## WHO participated in the decision to modify?

*Unable to determine role of decision-maker*

## What was the **GOAL**?

- Increase reach or engagement: 3
- Improve feasibility: 16
- Improve fit with recipients: 2
- Improve effectiveness/outcomes: 4

## WHAT was modified?

- Content: 6
- Contextual: 19
- Training and Evaluation: 0
- Implementation and Scale-up activities: 0

## At what **LEVEL of DELIVERY** was modification made?

- Target intervention group: 8
- Individual practitioner: 2
- Clinic/unit level: 15

## **CONTEXTUAL** modifications were made to which of the following?

- Format: 12
- Setting: 0
- Personnel: 2
- Population: 5

## What is the **NATURE** of the content modification?

- Adding elements: 3
- Changes in packaging or materials: 2
- Removing/skipping elements: 2

## **FIDELITY** consistent?

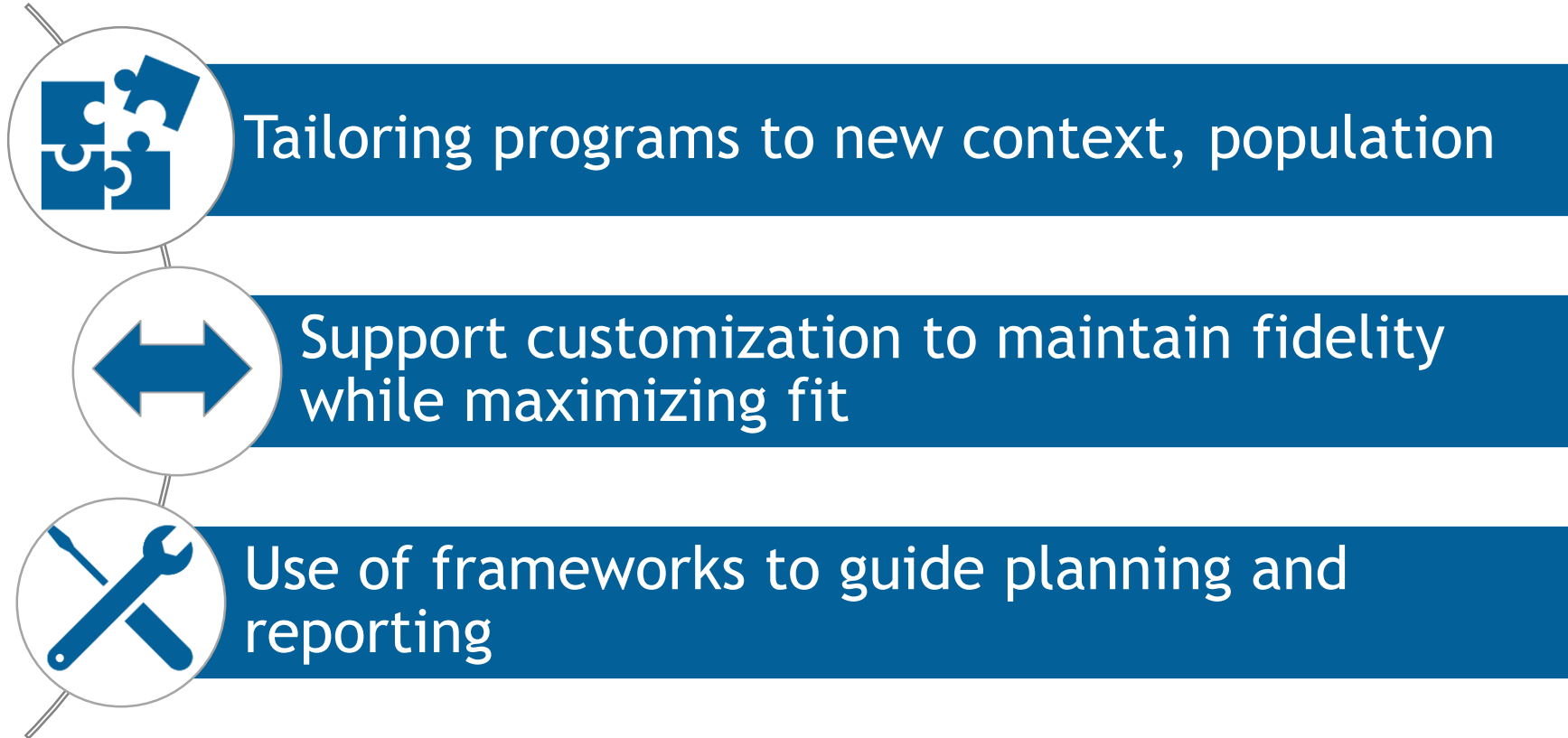
- Fidelity consistent: 21
- Fidelity inconsistent: 3
- Unknown: 1

## What were the **REASONS**?

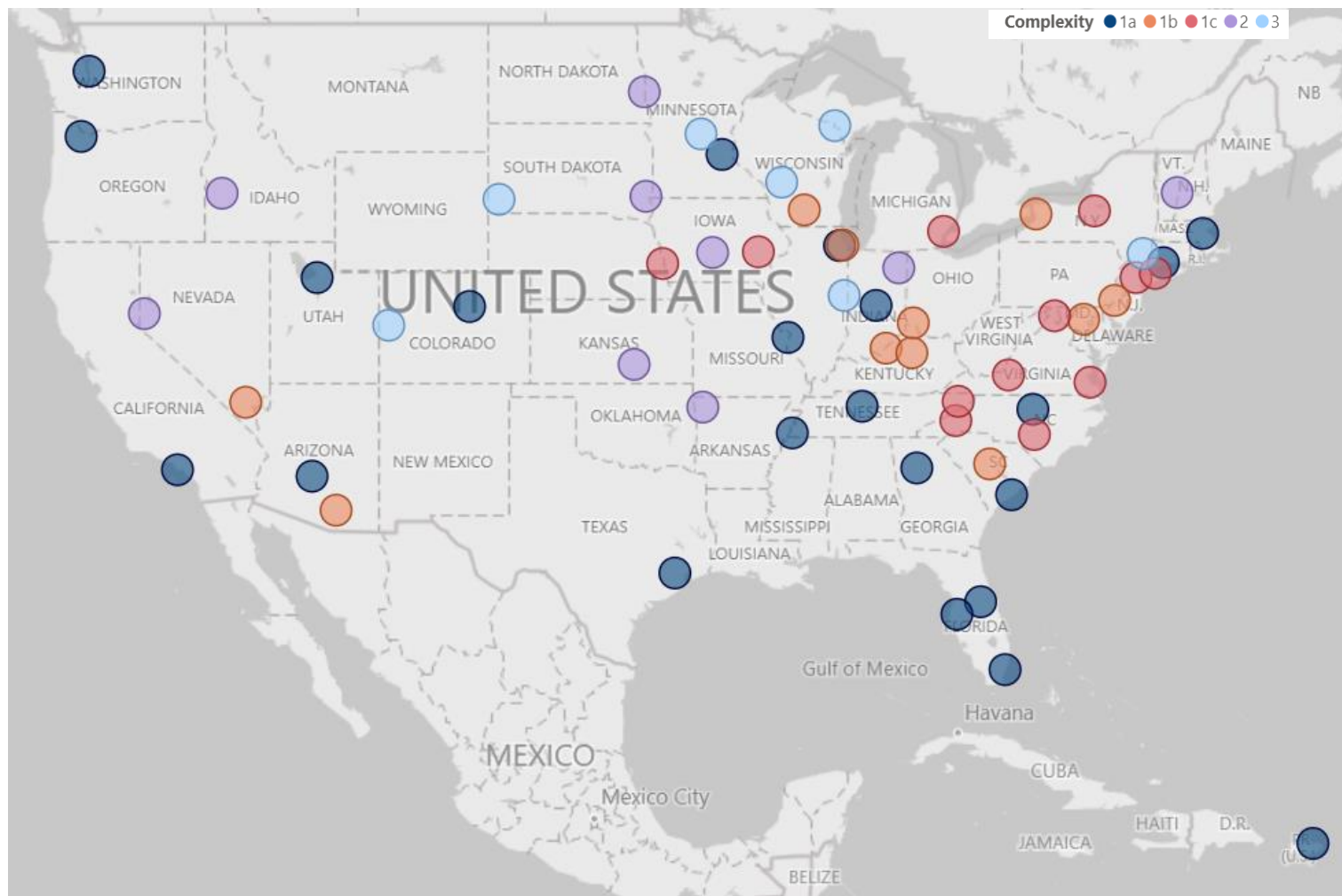
*(May include more than one category)*

- Sociopolitical: 1
- Organization/Setting: 17
- Provider: 2
- Recipient: 5

# Adaptations in Advancing Real-World Evidence



# STRIDE Programs





# Questions?





# Publications



**Implementing a Mandated Program Across a Regional Health Care System: A Rapid Qualitative Assessment to Evaluate Early Implementation Strategies.** *Qual Manag Health Care.* 2019



**Self-Organization of Interprofessional Staff to Improve Mobility of Hospitalized Patients with STRIDE: A Complexity Science-Informed Qualitative Study.** *J Gen Intern Med.* 2022



**Adapting to CONNECT:** modifying a nursing home-based team-building intervention to improve hospital care team interactions, functioning, and implementation readiness. *BMC Health Serv Res.* 2022



**COVID-19 vaccination intention and activation among health care system employees: A mixed methods study.** *Vaccine.* 2022



**Effects of Implementation of a Supervised Walking Program in Veterans Affairs Hospitals: A Stepped-Wedge, Cluster Randomized Trial.** *Ann Intern Med.* 2023

# Publications



**Implementation of a stepped wedge cluster randomized trial to evaluate a hospital mobility program.**

*Trials.* 2020



**Supporting teams to optimize function and independence in Veterans: a multi-study program and mixed methods protocol.** *Implement Sci.* 2018



**Intensification of Implementation Strategies: Developing a Model of Foundational and Enhanced Implementation Approaches to Support National Adoption and Scale-up.** *Gerontologist.* 2023



**Assisted early mobility for hospitalized older veterans: preliminary data from the STRIDE program.** *J Am Geriatr Soc.* 2014



**Early Mobility in the Hospital: Lessons Learned from the STRIDE Program.** *Geriatrics.* 2018

# Publications



**Mobilizing Hospitals to Mobilize Patients.** *J Am Geriatr Soc.* 2020



**Walking All over COVID-19: The Rapid Development of *STRIDE in Your Room*, an Innovative Approach to Enhance a Hospital-Based Walking Program during the Pandemic.** *Geriatrics* 2021



**Evaluation of strategies to support implementation of a hospital walking program: protocol for a type III effectiveness-implementation hybrid trial.** *Implement Sci Commun.* 2024



**The Business Case for Hospital Mobility Programs in the Veteran Health Care System: Results from Multi-Hospital Implementation of the STRIDE Program.** *Health Serv Res.* 2024



**Enhancing team communication to improve implementation of a supervised walking program for hospitalized veterans: Evidence from a multi-site trial in the Veterans Health Administration.** *PM R.* 2024

# QUERI Publications



**Site-initiated adaptations in the implementation of an evidence-based inpatient walking program. *J Am Geriatr Soc.* 2024**