C-DIAS
Center for Dissemination & Implementation At Stanford

What Can Randomized Implementation Rollout Trials Tell Us?

The Public Health Problem

Decades of research have identified effective treatments for conditions such as addiction, overdose, depression, and schizophrenia. Yet many have not reached their potential because they are not widely adopted, are not delivered as intended, or do not last.

Progress depends on rigorously testing implementation strategies, such as audit and feedback, training, or facilitation, in real-world settings. When sites start a new strategy at different times without balanced, randomized timing, however, it is difficult to determine whether any improvements come from the strategies themselves.

Background

Randomized rollout trials assign sites to implement a new strategy at different times, ensuring all eventually receive the evidence-based treatment. Unlike parallel group designs, communities often prefer this approach because no one is denied an effective treatment. Randomized timing strengthens comparisons within sites and between sites concurrently. However, there has been limited guidance on how to use these designs to answer specific research questions.

What This Article Addresses

This article helps researchers select the appropriate randomized rollout design and statistical approach for evaluating implementation strategies over time.

What They Did *(Methods)*

The authors outlined six randomized rollout trial designs and matched each to research questions involving one, two, or three implementation strategies. For each design, they recommended procedures for assigning sites and analyzing results, and they provided accompanying statistical code in R.

Key Takeaways *(Findings)*

Match the design to the research question.
The specific question, such as whether a single strategy improves over time or how two strategies compare, strongly shapes which design is appropriate.

Balance sites before randomizing start times.
Sites in each start-time group should be balanced on baseline characteristics. Poor balance can introduce bias between early and late starters and hide real differences.

Account for site differences and outside changes over time.
Even with well-balanced sites, statistical models should account for variation across sites and for trends over calendar time, which can otherwise bias estimates of a strategy's effect.

Opportunities for Action

The study findings highlight opportunities for:

Health Systems
- Use a phased rollout when adopting evidence-based practices, and measure implementation outcomes consistently across sites.
- Compare strategies rather than assuming one approach will work everywhere.

Payors
- Fund phased implementation efforts that include shared data collection and evaluation support.
- Randomize rollout timing or strategies so all sites receive services while generating useful evidence.

Researchers
- Start with the precise implementation question, then select the rollout design that matches it.
- Balance sites on key baseline characteristics before randomization, and use mixed-effects models that account for site differences, clustering, and time trends.

Patients & Families
- Ask care organizations how they track service adoption, access, and quality across sites.
- Identify and share barriers such as transportation, stigma, scheduling, and language that limit implementation across communities.

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