

ESP

Evidence Synthesis Program

One-to-One Observation: A Systematic Review

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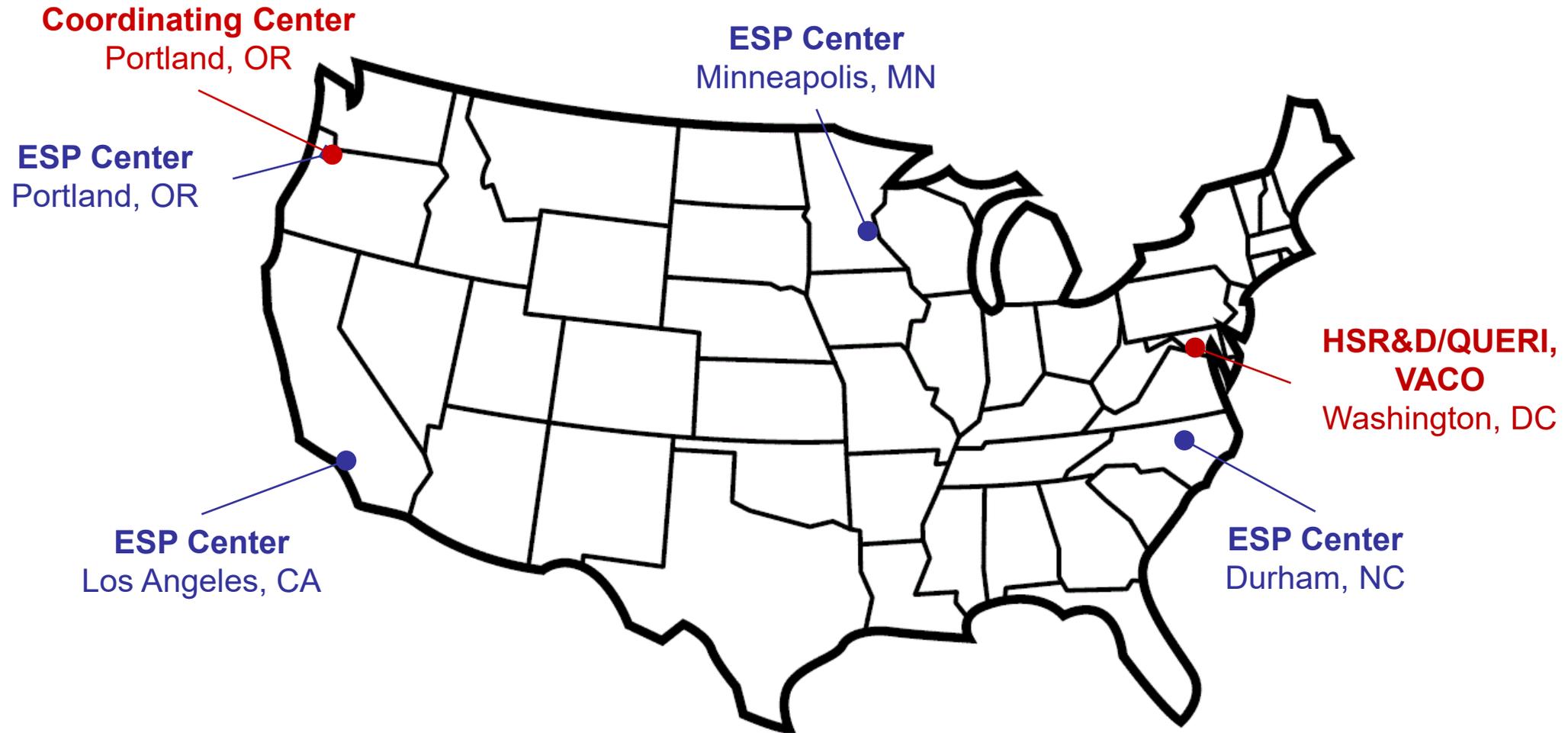
December 19, 2019

- Established in 2007
- Provides tailored, timely, and accurate evidence syntheses of VA-relevant, Veteran-focused healthcare topics. These reports help:
 - Develop clinical policies informed by evidence;
 - Implement effective services and support VA clinical practice guidelines and performance measures; and
 - Set the direction for future research to address gaps in clinical knowledge.
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- ESP Coordinating Center in Portland:
 - Manages national program operations and interfaces with stakeholders
 - Produces rapid products to inform more urgent policy and program decisions

To ensure responsiveness to the needs of decision-makers, the program is governed by a Steering Committee comprised of health system leadership and researchers.

The program solicits nominations for review topics several times a year via the [program website](#).

ESP Center locations



Operational Partners

Operational partners are system-level stakeholders who have requested the report to inform decision-making. They recommend TEP members; assure VA relevance; help develop and approve final project scope and timeframe for completion; provide feedback on draft report; and provide consultation on strategies for report dissemination.

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Technical Expert Panel (TEP)

To ensure robust, scientifically relevant work, the TEP guides topic refinement; provides input on key questions and eligibility criteria, advising on substantive issues or possibly overlooked areas of research; assures VA relevance; and provides feedback on work in progress.

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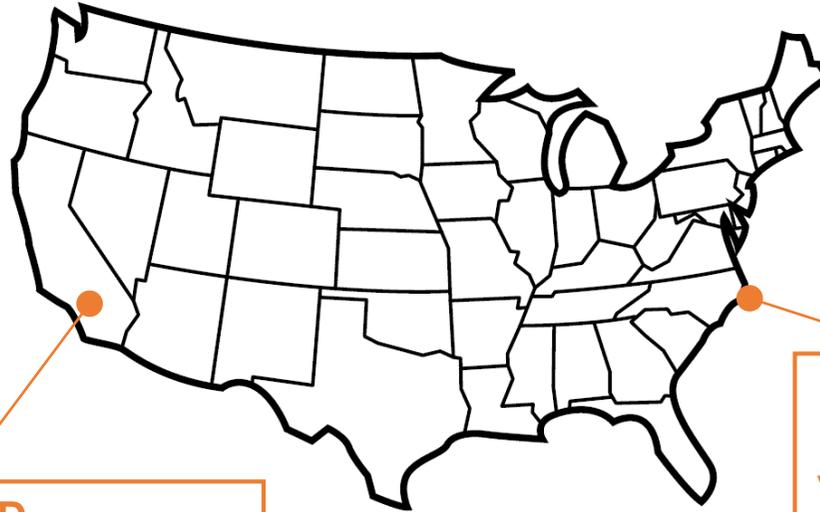
This report is based on research conducted by the Evidence Synthesis Program (ESP) Center located at the **West Los Angeles VA Medical Center, Los Angeles, CA**, funded by the Department of Veterans Affairs, Veterans Health Administration, Health Services Research and Development. The findings and conclusions in this document are those of the author(s) who are responsible for its contents; the findings and conclusions do not necessarily represent the views of the Department of Veterans Affairs or the United States government. Therefore, no statement in this article should be construed as an official position of the Department of Veterans Affairs. No investigators have any affiliations or financial involvement (e.g., employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties) that conflict with material presented in the report.

One-to-One Observation: A Systematic Review

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Full-length report available on ESP website:

<http://www.hsrd.research.va.gov/publications/esp/reports.cfm>



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- Preventing adverse events in hospitalized patients is a priority goal of patient safety programs.
- In-facility falls and in-facility suicide are 2 priority conditions that are thought to be preventable.
- One-to-one sitters or constant observation is an intervention that has long been used, rooted in tradition: staff that are immediately at hand can help prevent a fall or redirect a patient from engaging in a harmful act.
- One-to-one sitters is a costly intervention, and evidence that it is effective is uncertain; hence, VA policymakers asked for an up-to-date review to inform policy and practice.

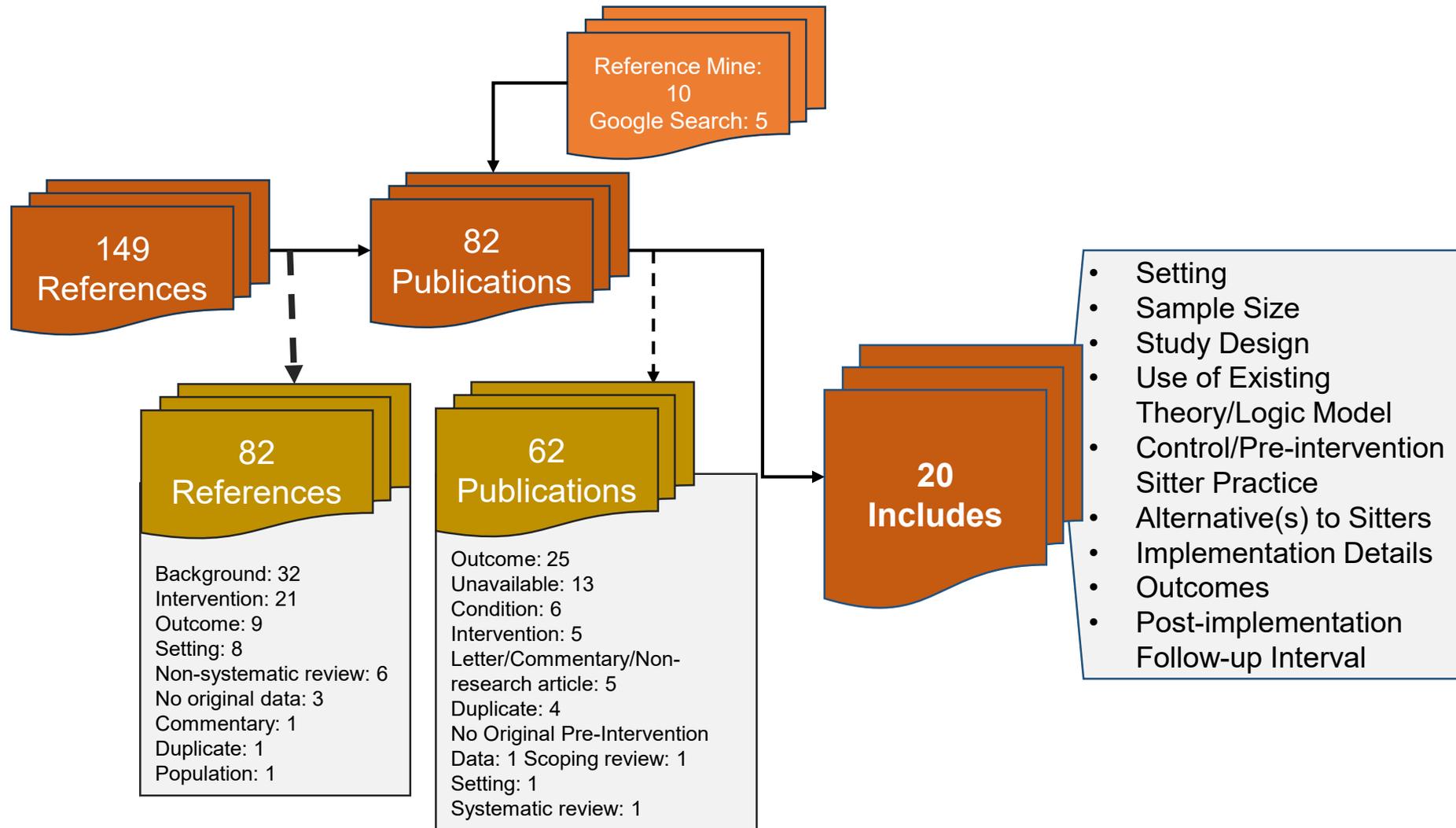
KQ1. What is the effectiveness of patient sitters (one-to-one observation, patient safety companions, etc.) for reducing falls?

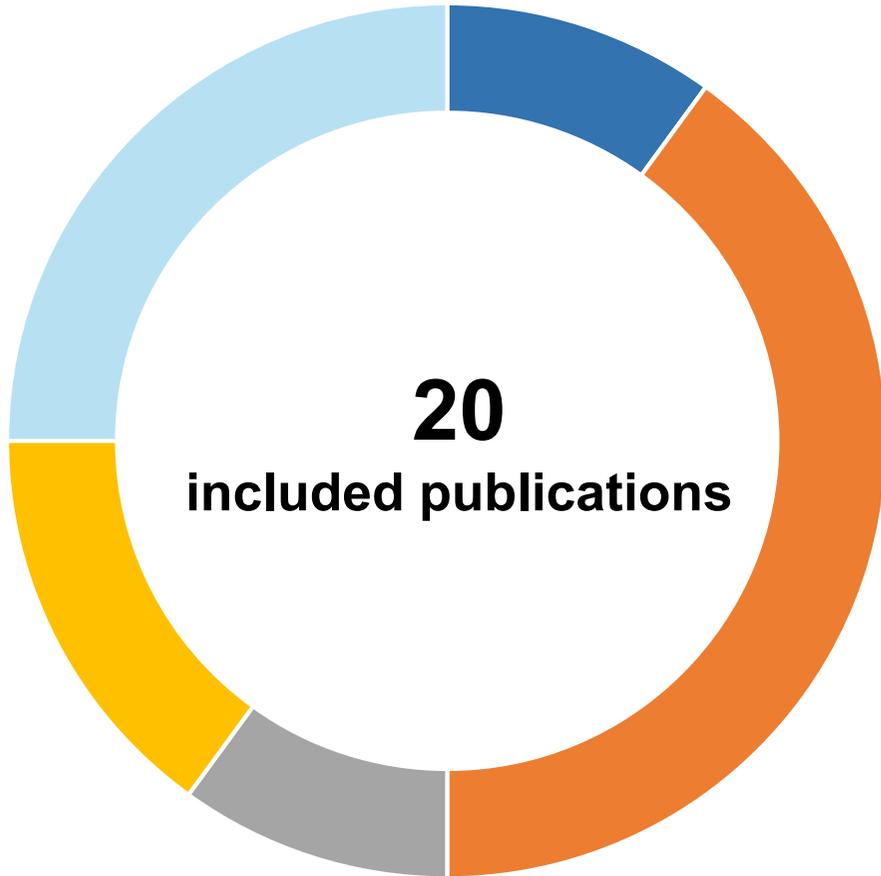
KQ2. What is the effectiveness of patient sitters (one-to-one observation, patient safety companions, etc.) for reducing suicide or self-harm?

KQ3. What is the effectiveness of patient sitters (one-to-one observation, patient safety companions, etc.) for reducing wandering?

KQ4. What is the cost-effectiveness of one-to-one observations compared to usual care for patients at risk of falls, suicide, or wandering?

Selection of Studies





Studies that added sitters as an intervention to existing care without sitters



Studies that included Nurse Assessment and Decision Tools



Studies that included Video Monitoring of Patients



Studies with Miscellaneous Sitter Reduction Interventions



Studies that have designation of Physical Space for Higher Risk Patients, such as a "Close Observation" Unit

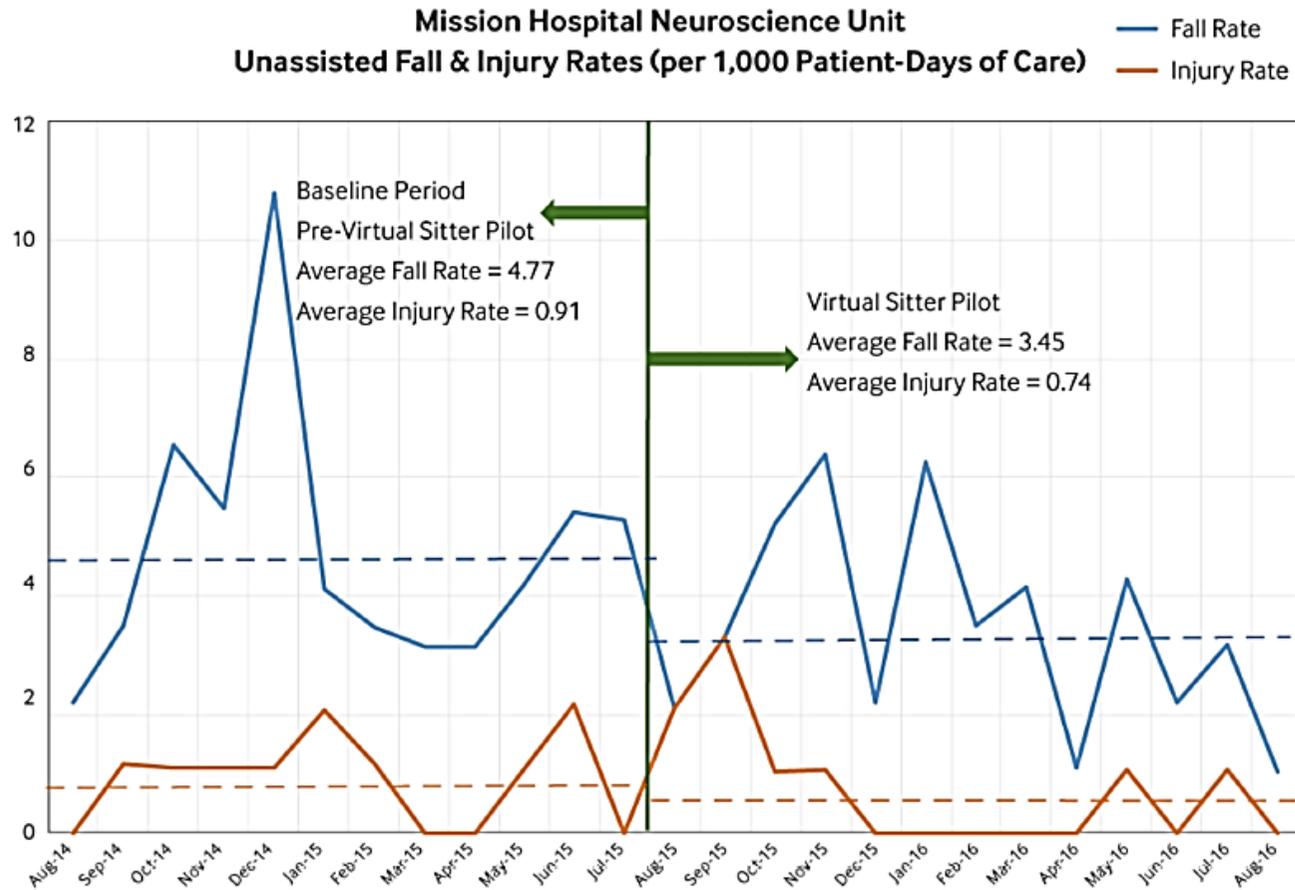
Two studies that added sitters as an intervention to reduce falls:

- Were from Australia
- Used volunteer sitters called “companion-observers.”
- Both had baseline fall rates four times USA rates.
- Both included close-observation units.
- Results were mixed for both.

Giles LC, Bolch D, Rouvray R, McErlean B, Whitehead CH, Phillips PA, et al. Can volunteer companions prevent falls among inpatients? A feasibility study using a pre-post comparative design. *BMC geriatrics*. 2006;6:11.

Donoghue J, Graham J, Mitten-Lewis S, Murphy M, Gibbs J. A volunteer companion-observer intervention reduces falls on an acute aged care ward. *Int J Health Care Qual Assur Inc Leadersh Health Serv*. 2005;18(1):24-31.

Studies of Alternatives to Sitters: Videomonitoring



Source: Mission Hospital

NEJM Catalyst (catalyst.nejm.org) © Massachusetts Medical Society

Studies of Alternatives to Sitters: Videomonitoring

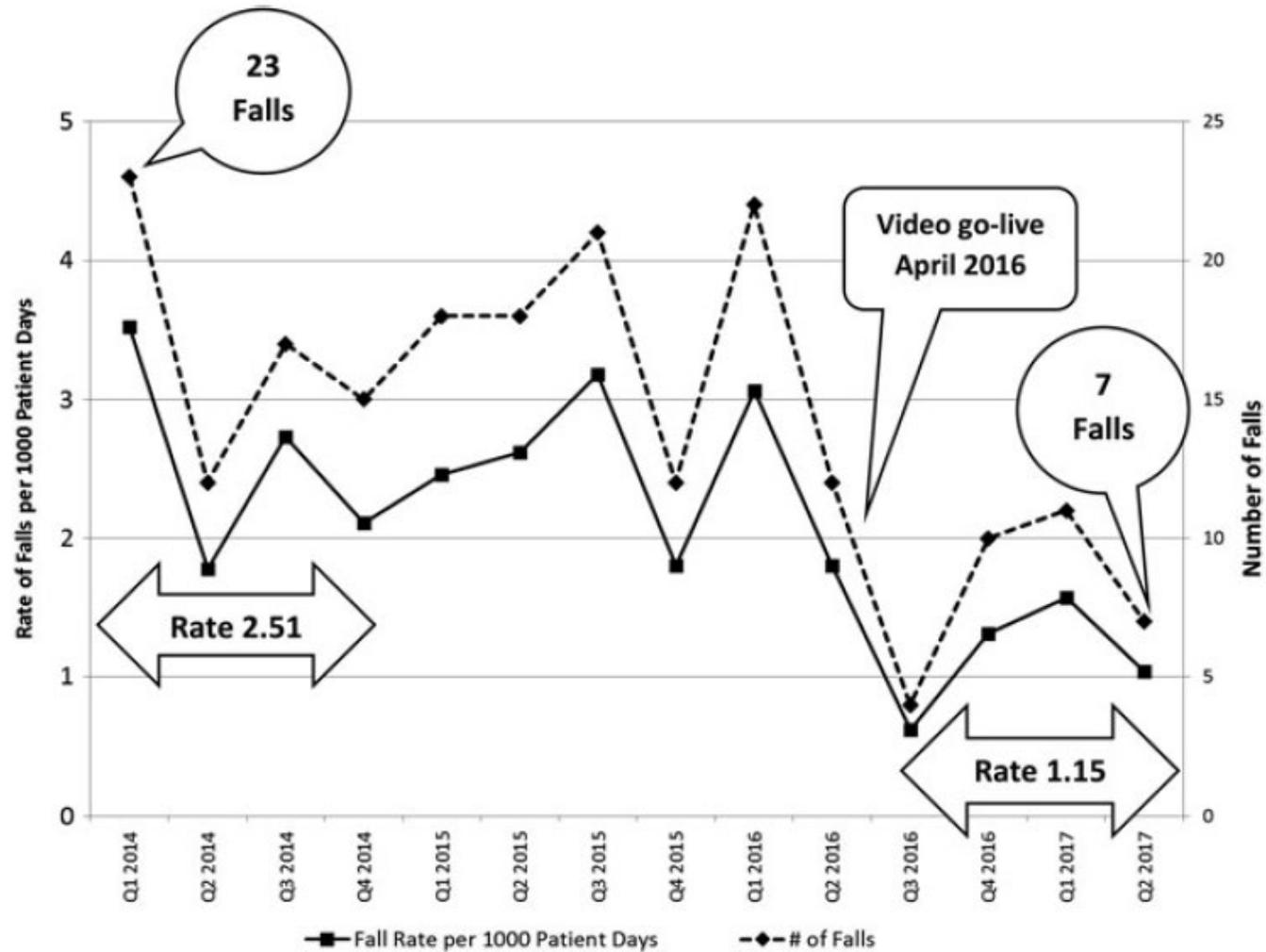


Figure. Patient fall reduction graph.

Spano-Szekely L, Winkler A, Waters C, Dealmeida S, Brandt K, Williamson M, et al. Individualized Fall Prevention Program in an Acute Care Setting: An Evidence-Based Practice Improvement. Journal of nursing care quality. 2018.

Studies of Alternatives to Sitters: Nurse Assessment and Decision Tools

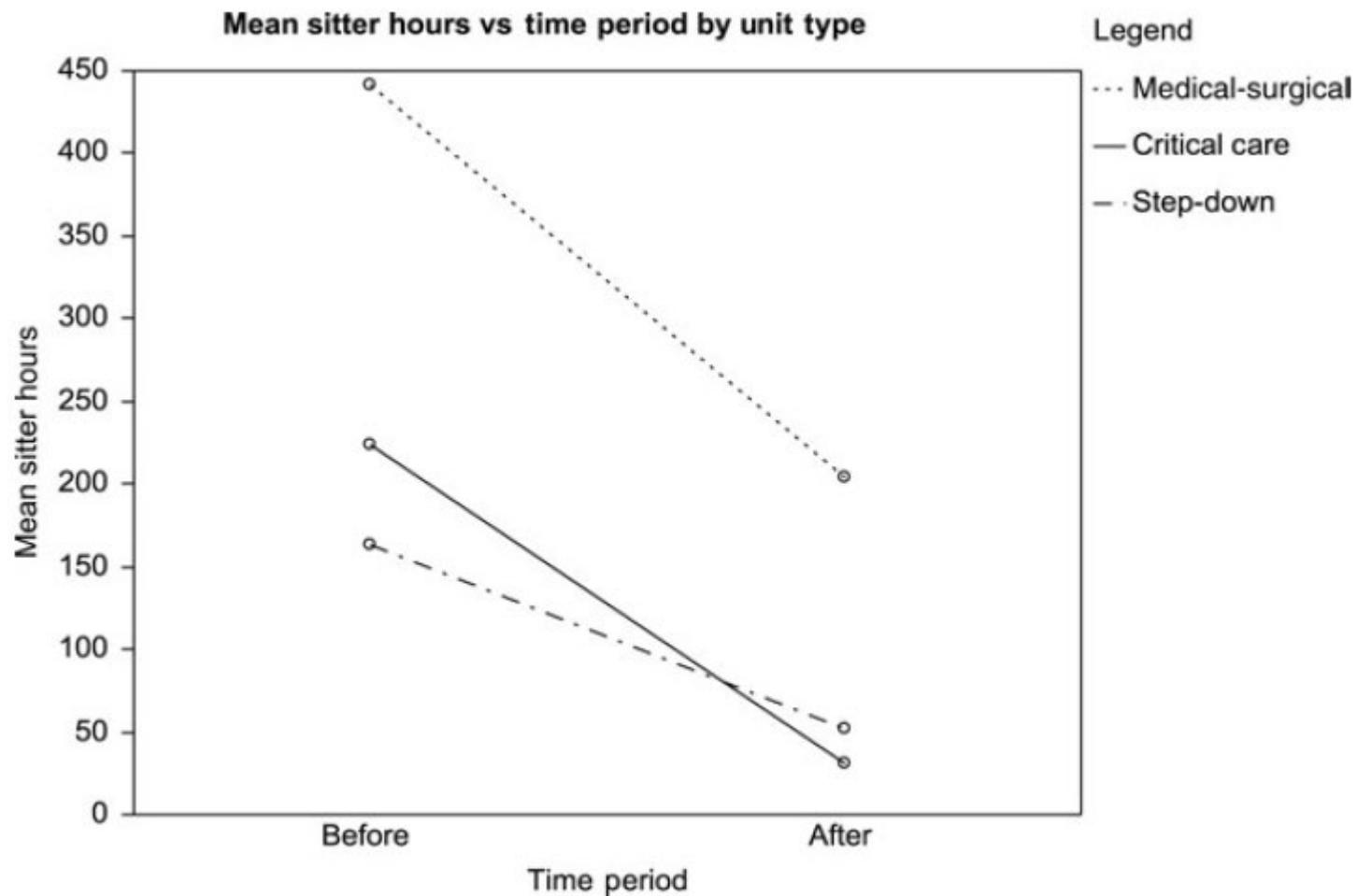
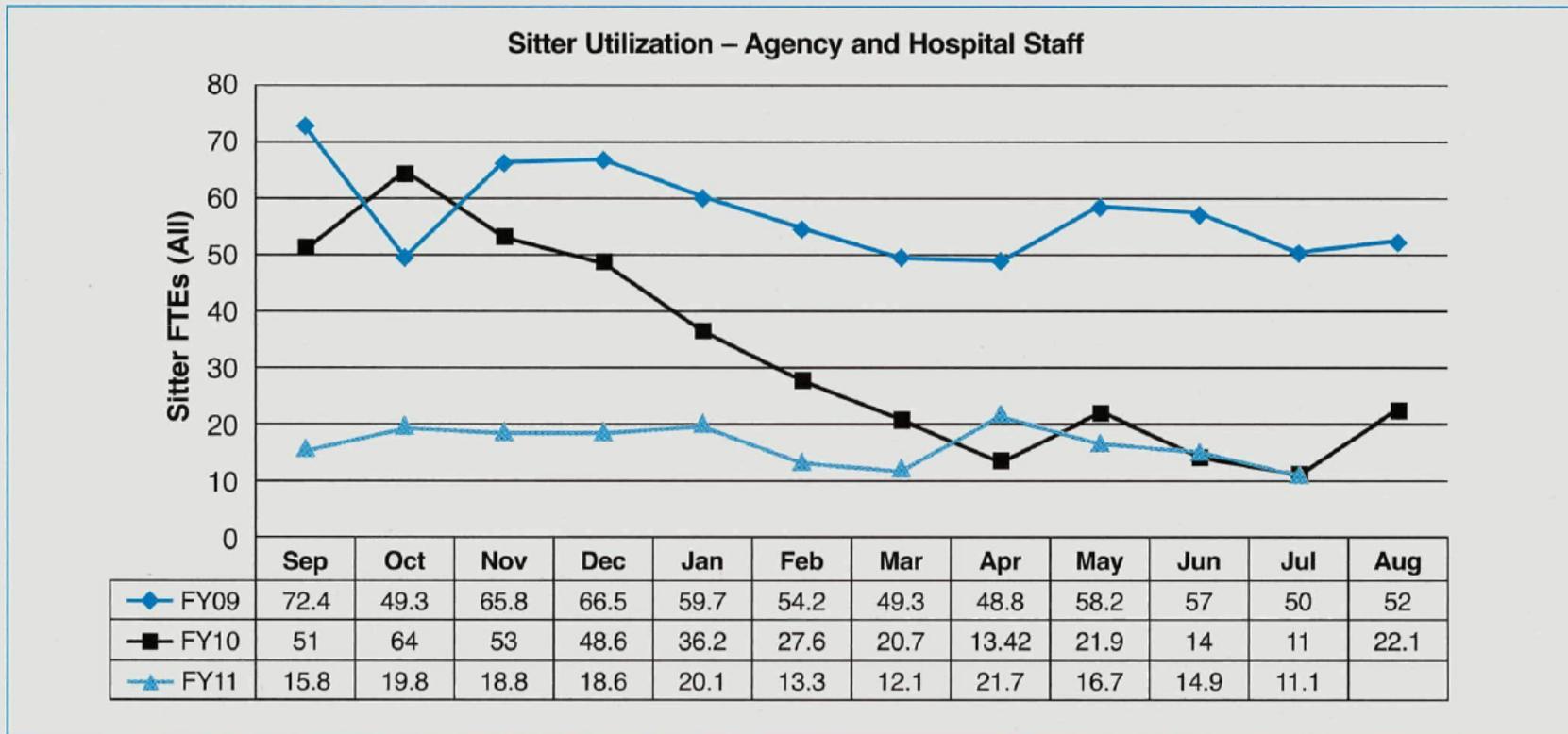


Figure. Sitter hours pre-/postintervention.

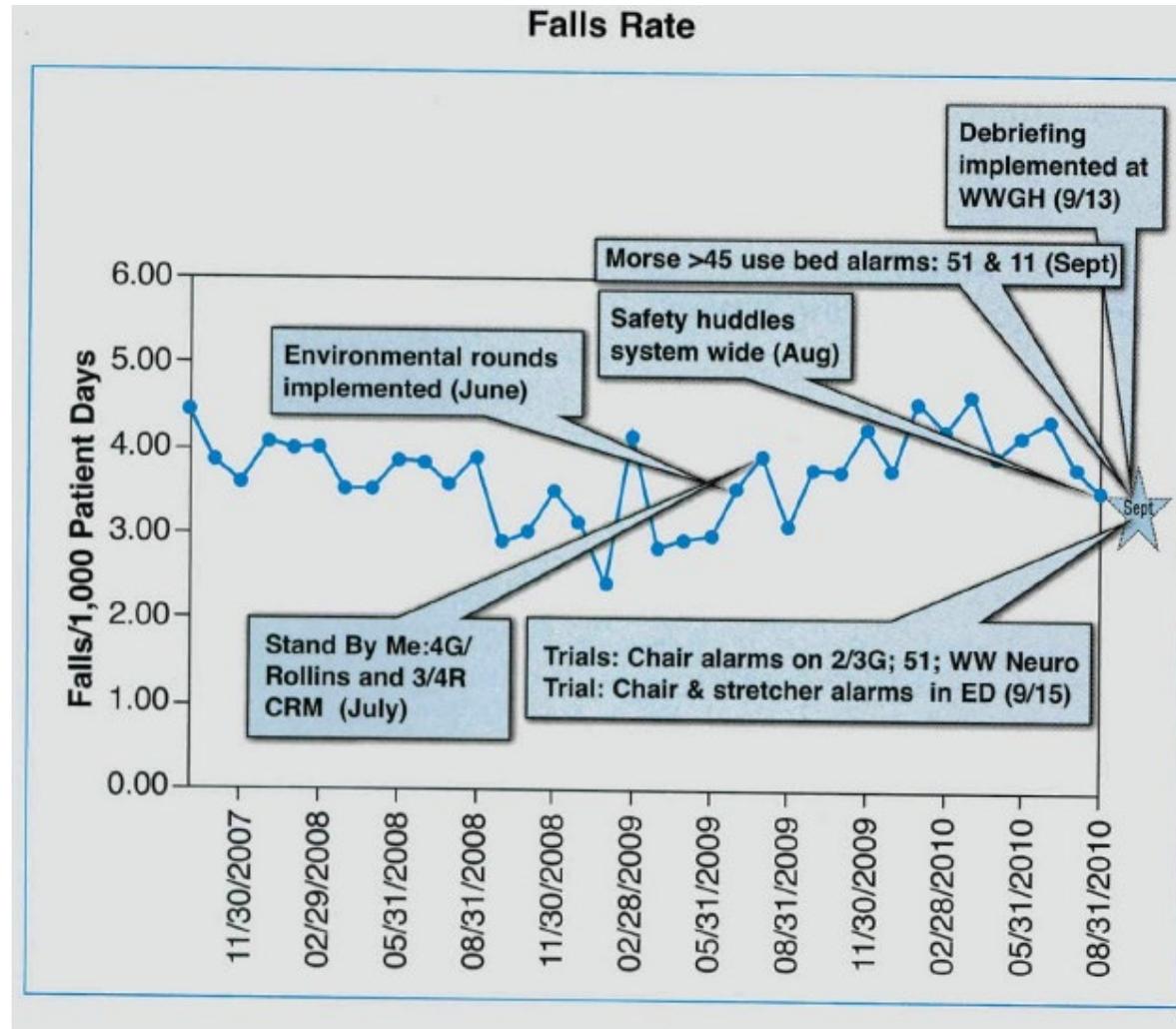
Studies of Alternatives to Sitters: Other Interventions

Figure 1.
Sitter Utilization Trends



NOTE: Hospital staff denotes any staff assigned as a sitter for the shift.

Studies of Alternatives to Sitters: Other Interventions



We used the principles of the Grading of Recommendations Assessment, Development and Evaluation (GRADE) working group plus those advocated by Howick and colleagues to assess the quality of the evidence as follows:

- High: We are very confident that the true effect lies close to that of the estimate of the effect.
- Moderate: We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
- Low: Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect.
- Very Low/Insufficient: We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect.

<http://www.gradeworkinggroup.org>

Howick J, Glasziou P, Aronson JK. The evolution of evidence hierarchies: what can Bradford Hill's 'guidelines for causation' contribute? J R Soc Med. 2009;102(5):186-194.

Certainty of evidence for One-to-One sitters on aims of healthcare

Intervention/Outcome	Study Limitations	Consistency	Directness	Precision	Certainty of Evidence
Adding Sitters to Usual Care					
Preventing falls	Observational studies: High	Inconsistent	Direct	Imprecise	Very Low
Removing Sitters					
Using video monitoring to reduce sitter use and not adversely influence falls	Time Series: Low Pre/post: High	Consistent	Direct	Imprecise	Moderate
Using designated spaces to reduce sitter use and not adversely influence falls	Time Series: High Pre/post: High	Inconsistent	Direct	Imprecise	Very Low
Using nurse assessment and decision tools to reduce sitter use and not adversely influence falls	Time Series: Low Pre/post: High	Inconsistent	Direct	Imprecise	Very Low
Using a multicomponent intervention tailored to meet local needs and challenges to reduce sitter use and not adversely influence falls	Time Series: Low	N/A	Direct	N/A	Low

Interventions that Include Video Monitoring of Patients

Author, Year	Cost Savings
Burtson, 2015	Estimated savings \$772,000 year 1, \$1,720,000 year 2
Cournan, 2018	Net \$40,000 savings in 21-month period for Falls and fall-related injuries. \$186,120 saved on one-to-one sitters in 12 months
Jeffers, 2013	\$2.02 million in deferred cost savings in 1.5 years \$24,225 in first 3 months from 57 prevented falls First quarter deferred staff savings of \$392,000 exceeded original technology investment of \$305,000
Spano-Szekely, 2018	\$84,000 annual savings
Votruba, 2016	24/7 telesitter cost (\$120,000) almost completely offset by combined fall cost avoidance and sitter reduction savings (\$77,200-\$112,700)

Nurse Assessment and Decision Tools

Author, Year	Cost Savings
Spiva, 2012	Decreased from \$536,955 to \$215,132, total cost savings of \$321,822.
Wray, 2014	41.3% (\$533,917) decrease in expenditures (\$1,292,228 to \$758,311)

Miscellaneous Sitter Reduction Interventions

Author, Year	Cost Savings
Adams, 2013	\$1.2 million annual savings; \$400,000 sitter agency savings

Publication Bias

- It is highly likely that unsuccessful alternative interventions are less likely to be published, particularly for the “alternatives to sitters” articles.

Study Quality

- While some of the studies used a time series design sufficient to support causal relationships, most did not.
- Study quality was considered in our overall rating of the certainty of evidence.

Heterogeneity

- Studies’ interventions most often included multiple components, and these were all idiosyncratic—no study tested the same intervention, in all its components, as any other study.
- We attempted to group study interventions into categories of interventions that shared some similarities.

- The key finding of this review is that, despite the strong mechanistic rationale for the use of one-to-one sitters, there is surprisingly little evidence of its effect, with only 2 studies assessing the effect on falls and no studies assessing the effect on wandering or suicide/self-harm.
- Of the alternatives to sitters that have published results, the use of interventions with video monitoring is the most promising, although like any information technology intervention, the success is likely to be highly context-dependent.
- The effect of one-to-one sitters on reducing falls, wandering, or suicide/self-harm has yet to be established. The available data are most compatible with a hypothesis that sitters are at best only modestly effective for fall prevention.

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