



## PROJECT OVERVIEW

The Joint Commission deems falls with major injury (e.g., fracture, subdural hemorrhage) sentinel events requiring a comprehensive systematic analysis to identify causal factors and an action plan. Reimagining our fall RCA process, using Lean Six Sigma, was essential in developing a **centralized electronic tool, which reduced RCA completion times by 72% and major injury falls by 29%**. This intervention allowed us to create a **scalable model for proactive harm prevention**.

### LEARNING OBJECTIVES

1. Describe how to simplify sentinel fall RCAs into a structured electronic process that reduces RCA completion time and accelerates process improvement.
2. Identify strategies for leveraging close to real-time data analysis to drive hospital-wide improvements in fall prevention and quality management.

### PROBLEM / ISSUE

- In 2023, the Hospital of the University of Pennsylvania (HUP) saw a **24% increase in patient falls with major injuries** after opening a new patient tower and acquiring a remote campus.
- The existing RCA process was **inefficient**, with **duplicated efforts, inconsistent learning sharing** due to peer protection limits, and localized fixes **failing to address hospital-wide issues**.
- Leadership raised concerns about the process's ability to prevent recurring falls, highlighting the absence of standardization and delayed data aggregation, despite HUP's previously low fall rates.

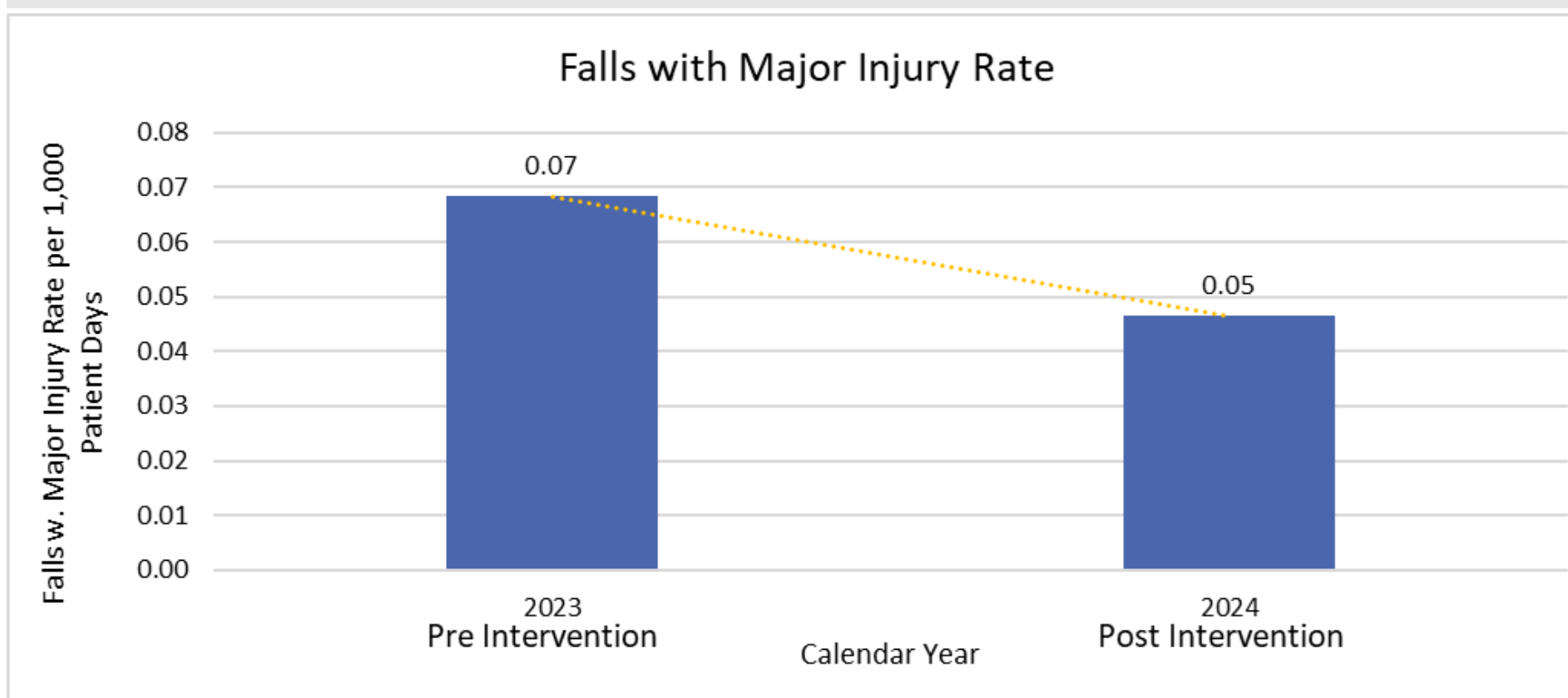
### GOAL

- Redesign the sentinel fall RCA process to be efficient, standardized, and effective in preventing future harm.
- Develop a peer-protected method to share best practices and learnings.
- Create an escalation pathway for addressing complex multidisciplinary systems opportunities.

### OUTCOMES

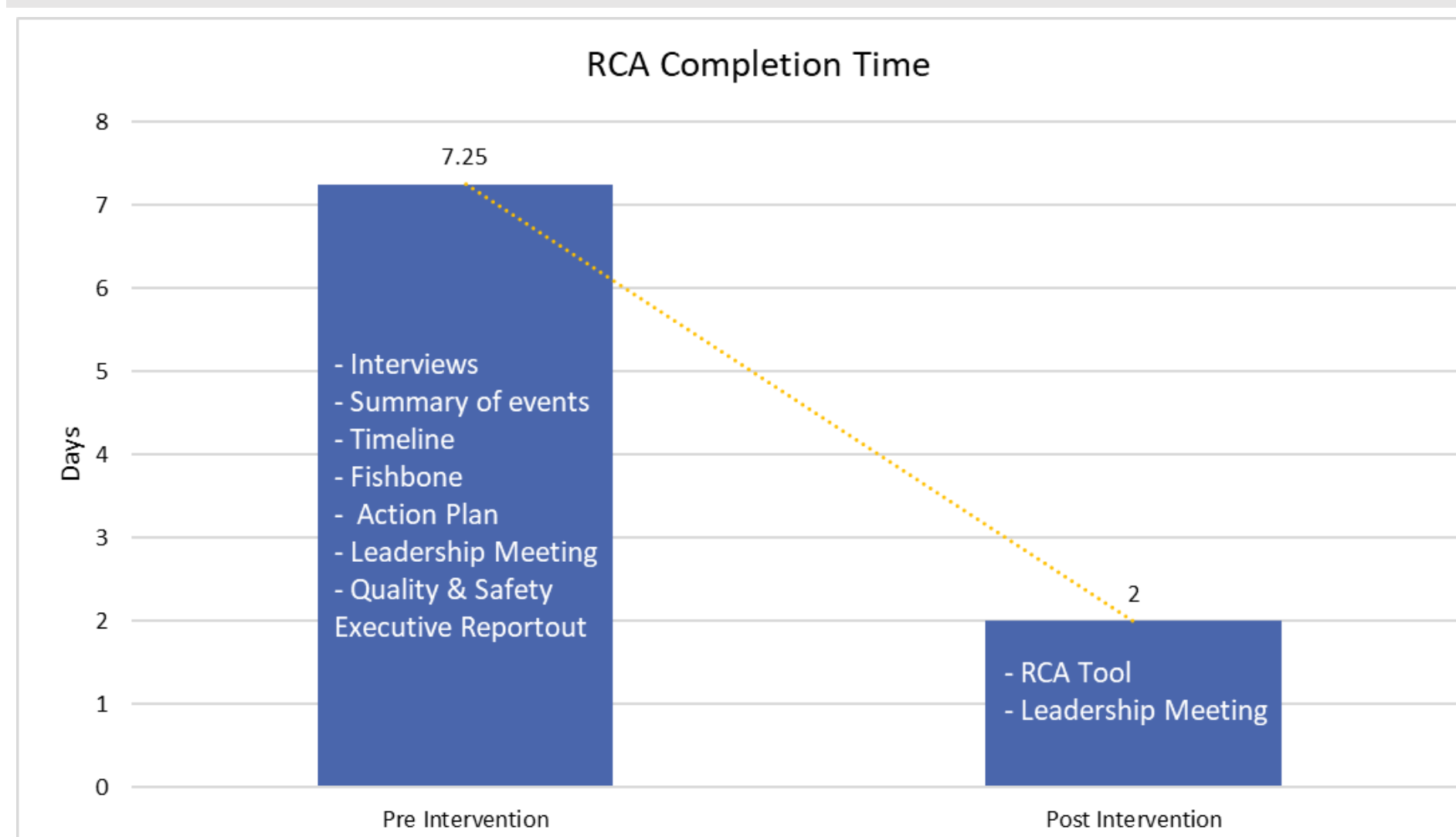
#### 29% Reduction in Falls with Major Injury Rate Post Intervention

Rate: (#Falls w. Major Injury/Patient Days)\*1,000



#### 72% Reduction in RCA Completion Time

Streamlined investigative work reduced the overall RCA process from **7.25 to 2 days**, furthermore, reducing leadership meeting time from **2 hours to 45-minutes**.



Data Source: Internal database, HUP

### INTERVENTIONS

- Applied Lean Six Sigma DMAIC framework to analyze 32 sentinel falls resulting in a master fishbone diagram of contributing factors organized by affinity groups.
- Developed a standardized electronic questionnaire with all components of the formal RCA process embedded with prompts to guide consistent root cause identification.
- Electronic platform designed to aggregate RCA data, yielding real-time data on frequency of contributing causes across fall RCAs.
- Standardized action plans require de-identified case study review with local unit staff and with hospital-wide frontline champion fall prevention committee.
- Routed RCA output to a multidisciplinary expert group leading hospital-wide and interdepartmental countermeasures.

### LESSONS LEARNED

- Simplicity enhances rigor, streamlining the process for improved efficiency & effectiveness.
- Centralized tools reduce variability and promote shared learning across units and within the organization.
- Optimization opportunity: tool developed from inpatient lens; seek input from various care settings (e.g., ambulatory/outpatient).

### KEY TAKEAWAYS

- Identify reoccurring serious/sentinel events that could benefit from a streamlined centralized RCA tool to streamline investigations.
- Standardize debriefs and action plans for consistency.
- Leverage real-time data for proactive, system-wide safety improvements.
- Establish multidisciplinary review teams and executive reporting to maintain momentum and accountability.

#### Reference

Wiegmann, D. A., Wood, L. J., Solomon, D. B., & Shappell, S. A. (2021). Implementing a human factors approach to RCA<sup>2</sup>: Tools, processes and strategies. *Journal Of Healthcare Risk Management: The Journal of The American Society for Healthcare Risk Management*, 41(1), 31–46. {<https://doi.org/10.1002/jhrm.21454>}

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