

Reduction in Length of Stay (LOS) for Heart Failure & Shock Patients (DRG 127) Admitted To A Medium-Sized Hospital



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About the Organization

- Medium-sized acute care hospital
- Client of Juran Health Care

The Project Team

- Director of quality (leader)
- VP of clinical operations (co-champion)
- Chief nursing officer (co-champion)
- Clinical and support personnel representing nursing, physicians, case management, and finance

The Problem

- A medium-sized acute care hospital sought to decrease the amount of time that DRG 127 patients (heart failure & shock) spent in care.
- The hospital's average length of stay (ALOS) was 5.18 days, 1.08 days longer than the geometric mean length of stay, 4.1 days.
- In a one-year period the hospital saw 491 patients admitted to its DRG 127 division. Only 280, just 57%, were discharged in less than 98 hours (4.1 days).
- The process sigma at this rate was 1.68.
- This inefficiency resulted in an increased risk for negative patient outcomes due to delays in delivery of care, as well as an increase in the overall cost of care.



Project Goals

- Increase percentage of patients with DRG 127 (heart failure & shock) who are discharged in less than 4.1 days to 95% in six months, for a process sigma level of 3.18.
- Decrease length of stay for inpatients in the DRG 127 unit from 5.18 to less than 4.1 days.
- Increase percentage of patients leaving the hospital in under 4.1 days from a very average 57% to an exemplary 95%.



Root Cause Analysis

- Initially, the Juran-facilitated team identified 18 hypothetical root causes.
- Following extensive data analysis, 7 root causes revealed themselves as the vital few driving the extended stay time:
 - Congestive heart failure (CHF) standard orders not used (no parameters)
 - Delay between discharge order to time patient leaves floor
 - Patient stay included a weekend
 - Patient becomes deconditioned because of lack of activity
 - Practices were not based on Gold Standards
 - Patients held after meeting InterQual discharge criteria
 - Inpatient holding process was not being standardized



Addressing Root Causes

For each of the vital few root causes, Juran defined a possible solution strategy ...

- **CHF standard orders** – Reduce variation in practices by developing order set and interdisciplinary pathway and educating physicians and hospital staff in their use.
- **Delay in DC order to leave floor** – Develop better communication process in relationship to anticipated discharge date/needs starting at day one of admission.
- **Weekend stay** – Develop staffing/resources plan to support CHF standard orders and pathway, including scripting to facilitate use and discharge, improving team-based communication and handoff for weekend stays. Standardize use of interdisciplinary pathway-based contingency DC orders.

Addressing Root Causes

For each of the vital few root causes, Juran defined a possible solution strategy (continued) ...

- **Patient deconditioning** – Develop plan for activity and trigger for when a physical therapy evaluation is needed based on lack of progression of activity status.
- **Lack of Gold Standards** – Create Gold Standards via Standard Orders and clinical pathway.
- **InterQual criteria** – Use QMCs to address when discharge InterQual criteria are met.
- **Patient holding** – Develop ways to get patients out of the ED faster; improve and expedite care for patients who are held.

Return on Investment

- The pilot project successfully reduced the average length of stay at the hospital by nearly 50%, from 5.18 days on average to just 2.6.
- 91% of patients were discharged in 4.1 days or less, an increase of 34% from the original figure of 57%.
- Sustainability is what counts. After the pilot program ran its course, the improvement of statistics in the DRG 127 unit remained outstanding.
- To this day, over 80% of all inpatients leave before the 98-hour mark. At an average of 3.6 days the baseline of stay remains well below the Centers of Medicare & Medicaid geometric mean average of 4.1 days.



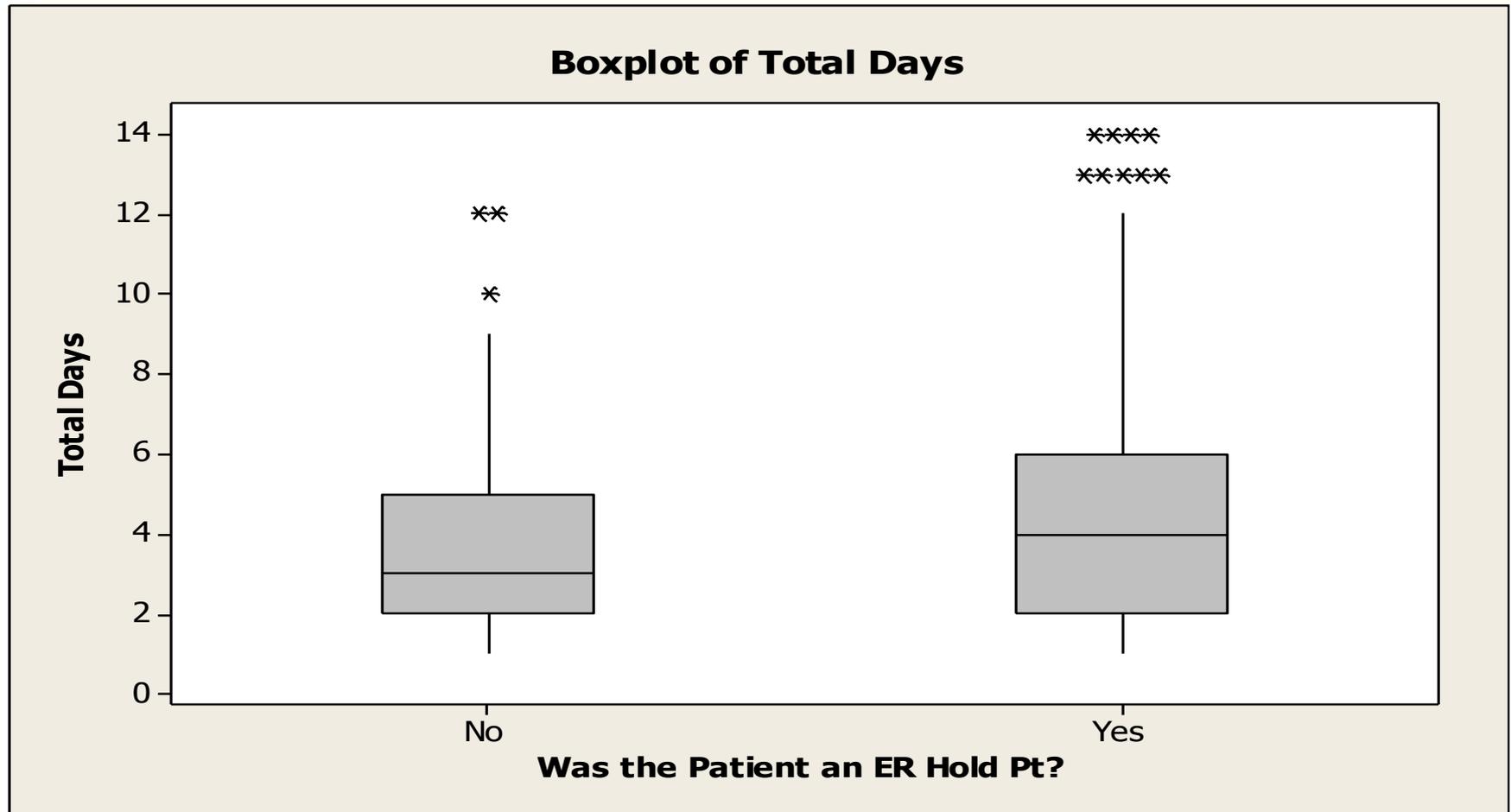
Monitoring and Evaluating Over Time

The control plan to sustain improvements and gains over the long term included the following key elements:

- Control subjects—length of stay, readmission rate, and proven Xs
- Measurements—sensor, frequency, sample size
- Actions—criteria for taking action, responsibilities

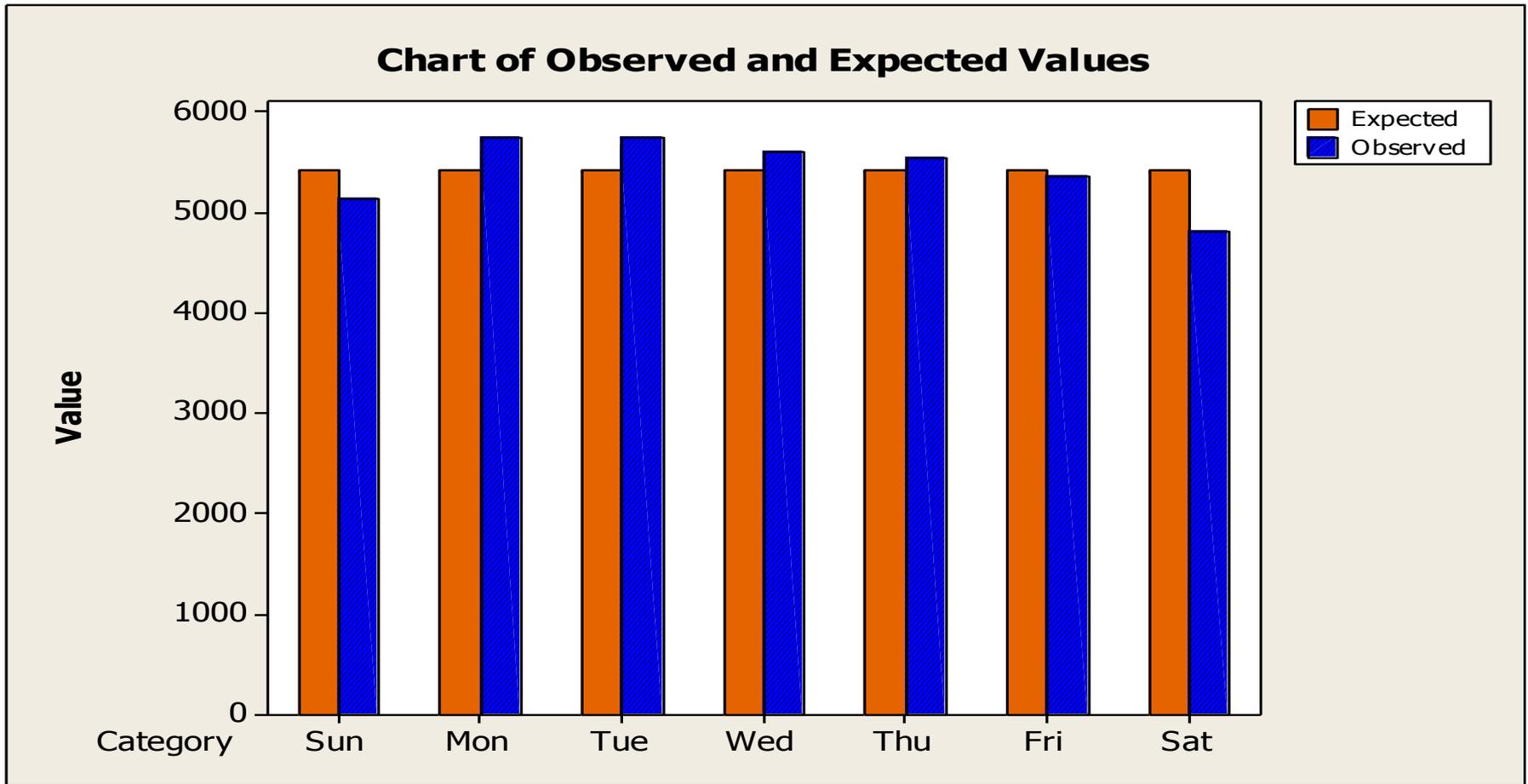
Most control subjects were monitored every two weeks, with criteria for action based on performance relative to specifications and statistical process control charts.

Length of Stay (LOS) for ER Hold Patients



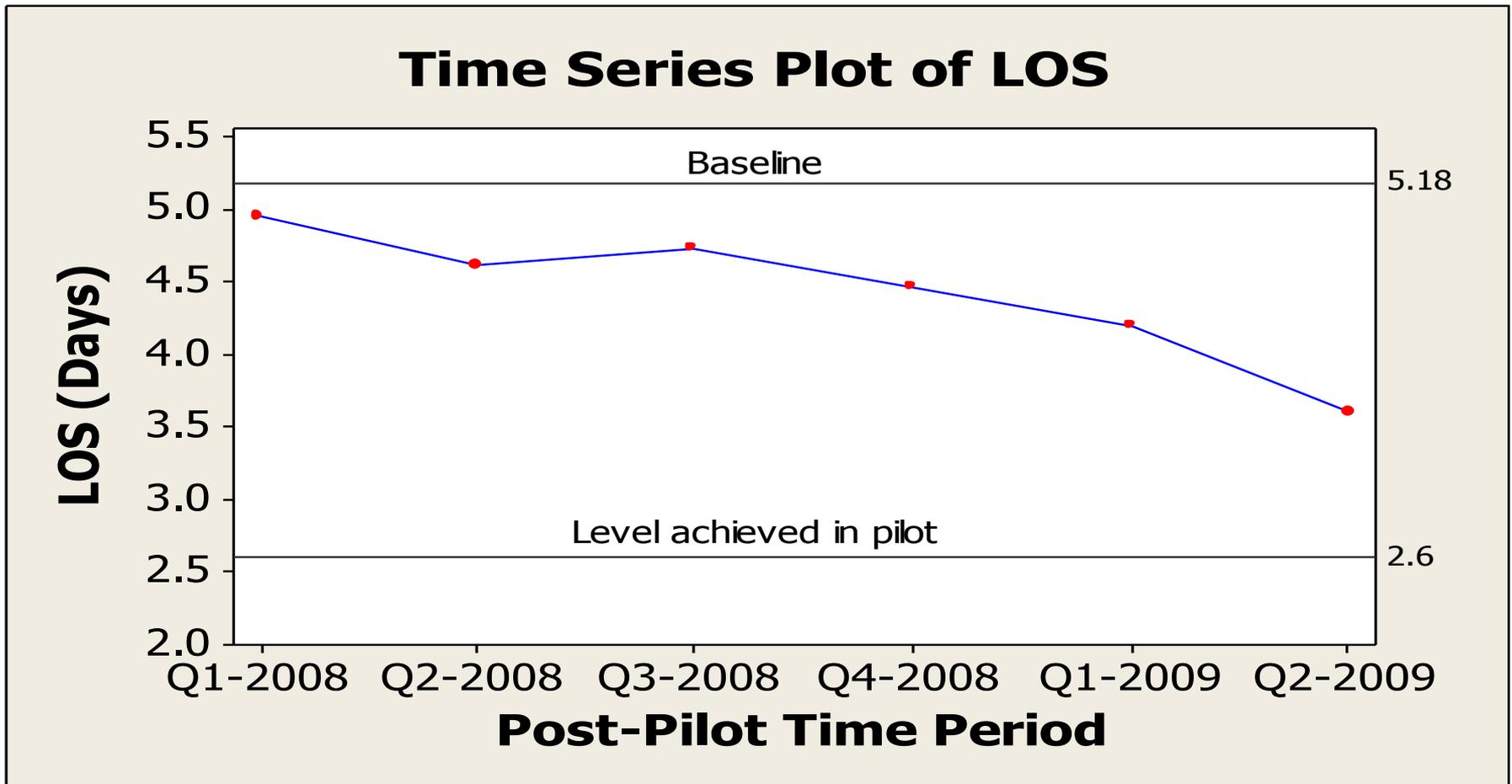
Practical conclusion: Patients held in emergency department have a longer LOS than patients that go immediately to an inpatient floor.

CHF-Related Tests by Day of Week



Practical conclusion: The frequency of CHF-related tests is dependent on day of week. Orders for tests occur less frequently on Saturday and Sunday, and more often on Monday and Tuesday.

Reduction in Average Length of Stay (LOS)



To date, the average length of stay has been reduced 31%, from 5.18 days to 3.6 days, and continues to drop towards the level shown possible in the pilot.



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