Journal of Dental Public Health
Volume 6, Issue 2, Page No: 31-36
Available Online at: **https://tjphd.com/**

ISSN: 3108-6349

Original Article

Executive Leadership–Driven Building Reallocation: A Mixed-Methods Quality Improvement Study for Patient Flow, Teamwork, and Safety

Asma Dokhi Al Hamazani[1*], Khalid Abdullah Al Hudaithi[1], Nahla Abdelkader Habiballa[1], Ahmad Mohammed Kheir[1], Asma Abdullah Al Abdulsalam[1]

[1]Prince Sultan Military Medical City, Riyadh, Saudi Arabia.

ABSTRACT

A single-center mixed-methods quality improvement study was conducted at Prince Sultan Military Medical City. A multidisciplinary steering structure implemented phased specialty-based building transfers, centralized patient placement, staff communication and training, and real-time performance monitoring. Quantitative measures included flow failures, average length of stay, patient turnover ratio, time from bed request to assignment, and system downtime. Pre- and post-intervention trends were assessed descriptively using run charts and linear trend analysis. Qualitative data included staff, patient, and management feedback. The number of flow failures decreased from 107 in April 2025 and 109 in May 2025 to 7 in August, 5 in September, and 9 in October 2025. The percentage of patients placed in an incorrect area/ward decreased from 3% in April and May to 0% from August through October. Average length of stay decreased from 9.7 days in May to 6.2 days in September, with a median of 7.5 days, meeting the target of ≤8.1 days. The patient turnover ratio had a median of 0.99 and reached ≥1 in August and September. No reported system downtime events occurred during the documented building reallocation period. Executive leadership–driven specialty-based building reallocation was associated with substantial improvements in patient placement accuracy, length of stay, and operational coordination. The findings support structural alignment, multidisciplinary governance, and continuous performance monitoring as practical strategies for improving quality and safety without major infrastructure expansion.

Keywords: Healthcare leadership, Patient flow, Bed management, Hospital infrastructure, Quality improvement, Patient safety

Introduction

Healthcare quality and patient safety depend not only on clinical expertise but also on how services, people, and physical resources are organized. Fragmented placement of related specialties across multiple hospital buildings can delay clinical decision-making, complicate multidisciplinary rounds, increase unnecessary patient transfers, and contribute to patients being admitted to locations that do not match their clinical needs. In complex tertiary hospitals, these structural inefficiencies can create flow failures and reduce the effectiveness of available bed capacity.

At Prince Sultan Military Medical City (PSMMC), patients from similar specialty services were distributed across multiple physical locations. This contributed to prolonged boarding, inappropriate patient placement, delayed clinical rounds, reduced interdisciplinary communication, inefficient bed utilization, and variability in patient experience. The initiative was therefore designed as a system-level transformation rather than a logistical relocation exercise. The project followed a quality improvement reporting approach consistent with SQUIRE 2.0 principles [1].

HOW TO CITE THIS ARTICLE: Al Hamazani AD, Al Hudaithi KA, Habiballa NA, Kheir AM, Al Abdulsalam AA. Executive Leadership–Driven Building Reallocation: A Mixed-Methods Quality Improvement Study for Patient Flow, Teamwork, and Safety. J Dent Public Health. 2026;6(2):31-6. https://doi.org/10.51847/V4nu4OPioO

Corresponding author: Asma Dokhi Al Hamazani
E-mail ✉ aalhamazani@psmmc.med.sa
Received: 16/03/2026
Accepted: 19/07/2026

Evidence from healthcare leadership research indicates that effective leadership is associated with improved patient safety culture, communication, teamwork, quality of care, and patient satisfaction. Systematic reviews have also reported positive relationships between leadership and patient safety outcomes, although the effects are influenced by organizational context and implementation strategies [2-4].

The rationale for this project was that co-locating services by specialty under visible executive governance could improve the principle of "right patient, right place, right time," streamline clinical workflows, reduce unnecessary movement, strengthen communication, and improve accountability. Executive leadership was expected to provide the authority and coordination required to remove cross-departmental barriers and sustain the redesign.

Aims of the study

The primary aim was to enhance patient care, operational efficiency, teamwork, and patient safety through executive leadership–driven reallocation of hospital buildings according to medical specialties.

The specific objectives were to:

reduce wrong patient allocation and flow failures to 0%;

reduce patient boarding times by 30%;

reduce average length of stay to ≤8.1 days;

achieve a patient turnover ratio of ≥1;

reduce the time from bed request to bed assignment to ≤15 minutes;

reduce the time from bed assignment to ward transfer to ≤60 minutes;

improve patient satisfaction and interprofessional collaboration; and

maintain system downtime at ≤1 reported event during the reallocation period.

Materials and Methods

Study design and setting

This was a single-center, mixed-methods quality improvement study conducted at PSMMC, a tertiary military healthcare facility serving a diverse patient population. The project involved strategic reallocation of inpatient services into specialty-based buildings. The study design combined quantitative operational measures with qualitative feedback from staff, patients, and leadership.

Executive leadership and governance

The project was sponsored by executive leadership and led operationally by the Director of Bed Management. Core governance included executive nursing, continuous quality improvement and patient safety, information and communication technology, engineering services, infection control, and relevant clinical and administrative stakeholders. Executive leadership defined strategic priorities, removed operational barriers, facilitated cross-departmental coordination, monitored performance dashboards, and ensured accountability.

Intervention

The intervention consisted of six coordinated components:

Formation of a multidisciplinary governance committee to define specialty scopes, admission criteria, infrastructure requirements, and implementation timelines.

Sequential building transfers using a phased approach to minimize disruption. Obstetrics and gynecology were relocated first, followed by consolidation of medical departments, centralization of surgical departments, and reallocation of pediatric services.

Centralized patient locations so that patients receiving related specialty care were co-located, facilitating streamlined rounds, faster decision-making, improved communication, and reduced transport delays.

Staff engagement and communication through town halls, cross-department briefings, workflow training, updated bed management protocols, and clear escalation pathways.

Real-time monitoring of patient flow failures, boarding time, length of stay, transfer intervals, and other operational indicators.

Continuous feedback through staff surveys, patient satisfaction surveys, focus groups, and leadership debriefing.

Outcome, process, and balancing measures

Table 1. Measures with their definitions/indicators and targets.

Measure	Definition/Indicator	Target
Flow failures	Patients placed in an incorrect location/ward for their required care	0%
Average length of stay	Average number of hospital days for discharged patients	≤8.1 days
Patient turnover ratio	Admissions relative to discharges during the measurement period	≥1
Bed request to assignment	Average time from bed request to confirmed bed assignment	≤15 minutes
Bed assignment to ward transfer	Time from bed assignment to inpatient ward transfer	≤60 minutes
System downtime	Reported hospital system downtime events during reallocation	≤1 event

Data collection and analysis

Quantitative data were collected before, during, and after implementation from hospital operational and bed management records. Categorical variables were summarized using frequencies and percentages, whereas continuous variables were summarized using medians where appropriate. Run charts were used to examine temporal variation and linear trend analysis was planned to assess changes over time. The source project used Microsoft Excel for statistical calculations.

Qualitative data were derived from staff feedback, patient experience reports, focus groups, and leadership debriefing. These data were reviewed thematically to identify common experiences, operational challenges, and perceived effects of the intervention.

To strengthen attribution, the project incorporated repeated measurement over time, trend analysis, ongoing monitoring, and, where feasible, comparison with services not undergoing relocation. Because this was a quality improvement initiative using complete operational data rather than a sampled experimental cohort, the emphasis was on observed system performance and sustainability rather than population inference.

Ethical considerations

The project was approved by the Executive Director of PSMMC. Patient confidentiality was maintained, and the implementation strategy emphasized clear communication, respect for patient rights, and minimization of disruption during service transitions.

Results and Discussion

Patient placement and flow failures

A marked reduction in incorrect patient placement was observed during the implementation period. The total number of flow failures was 107 in April 2025 and 109 in May 2025, followed by progressive reductions to 67 in June, 40 in July, 7 in August, 5 in September, and 9 in October. The median number of flow failures across the documented period was 40.

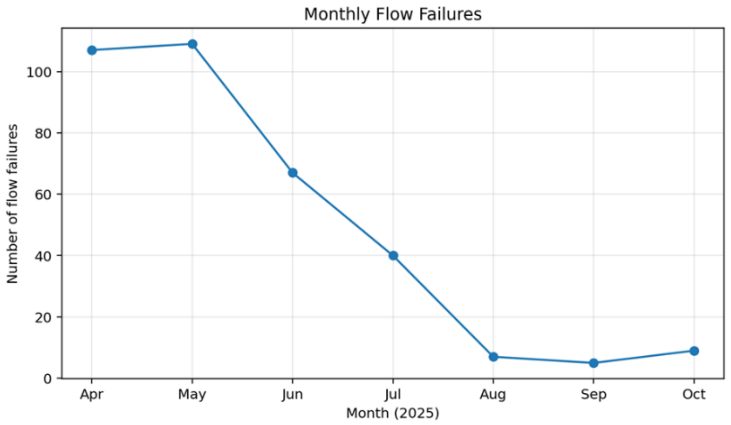

Figure 1. Monthly flow failures from April to October 2025.

The percentage of patients placed in an incorrect area or ward was 3% in April and May, 2% in June, 1% in July, and 0% from August through October. Thus, the project achieved the target of 0% wrong patient placement during the later documented post-intervention period.

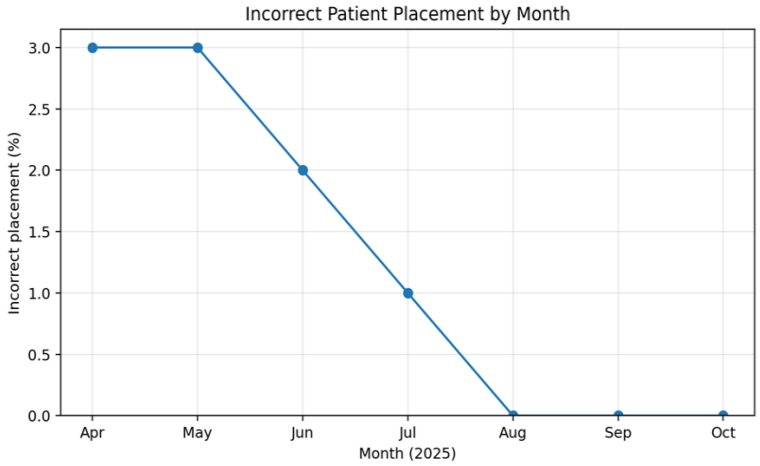

Figure 2. Percentage of patients placed in an incorrect area or ward.

Table 2. Frequencies of flow failures and incorrect placements

Month	Flow failures (number)	Incorrect placement (%)
April 2025	107	3%
May 2025	109	3%
June 2025	67	2%
July 2025	40	1%
August 2025	7	0%
September 2025	5	0%
October 2025	9	0%

Average length of stay

Average length of stay decreased across the documented period, from 9.7 days in May 2025 to 9.4 days in June, 7.5 days in July, 6.9 days in August, and 6.2 days in September. The median length of stay was 7.5 days, which was below the project target of ≤8.1 days. This represents an approximate 36.1% reduction from May to September based on the observed monthly values.

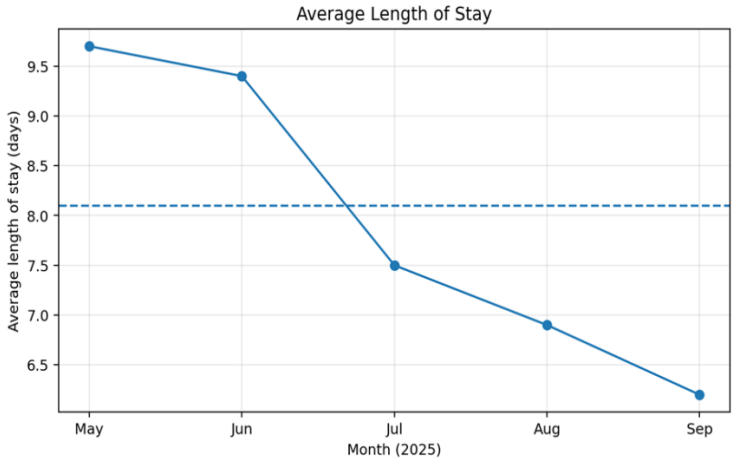

Figure 3. Average length of stay from May to September 2025. The dashed line indicates the project target of ≤8.1 days.

Table 3. Average lengths of stay for each month

Month	Average length of stay (days)
May 2025	9.7
June 2025	9.4

July 2025	7.5
August 2025	6.9
September 2025	6.2

Patient turnover ratio

The patient turnover ratio was 1.10 in April 2025, 0.96 in May, 0.95 in June, 0.91 in July, 1.02 in August, and 1.01 in September. The median ratio was 0.99. The target of ≥1 was achieved in April, August, and September, demonstrating improvement in turnover performance during the later phase of the intervention.

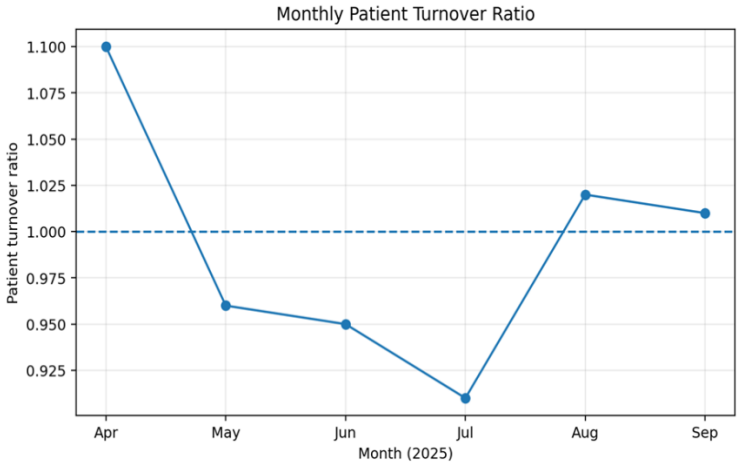

Figure 4. Monthly patient turnover ratio from April to September 2025. The dashed line indicates the target ratio of ≥1.

Table 4. Patient turnover ratio for each month

Month	Patient turnover ratio
April 2025	1.10
May 2025	0.96
June 2025	0.95
July 2025	0.91
August 2025	1.02
September 2025	1.01

Process and balancing measures

The median time from bed request to bed assignment was reported as 8 minutes 16 seconds. No system downtime events were reported during the documented building reallocation period. The available source graph for time from bed assignment to ward transfer documented the target of ≤60 minutes but did not provide readable monthly numeric values; therefore, no unsupported numerical estimate is reported here.

Qualitative findings indicated improved bed coordination, stronger interprofessional collaboration, reduced resistance to change, and faster resolution of operational barriers. Executive leadership visibility was perceived to support staff compliance and facilitate cross-departmental coordination.

This combined analysis of the building reallocation project demonstrates that executive leadership–driven structural redesign can be associated with measurable improvements in patient flow and safety. The most prominent finding was the reduction in flow failures from more than 100 monthly events at baseline to single-digit numbers during the later implementation period, accompanied by achievement of 0% incorrect patient placement from August through October 2025. The decrease in average length of stay to a median below the project target further suggests that specialty-based co-location may improve operational efficiency.

The intervention was not limited to physical relocation. Its likely effectiveness depended on the combination of structural redesign, executive sponsorship, multidisciplinary governance, standardized specialty scopes, communication, staff preparation, and continuous monitoring. This interpretation is consistent with the broader literature indicating that leadership can influence patient safety culture, teamwork, communication, and quality of care [2-4].

The results also highlight the importance of bed management as a system-level function. Centralizing patients according to specialty may reduce unnecessary movement and enable clinical teams to conduct rounds more efficiently. Co-location can improve communication by bringing related professionals and services into closer operational proximity. However, the project cannot isolate the independent effect of physical relocation from concurrent changes in governance, training, communication, and monitoring.

A notable strength of the initiative was the use of multiple measures, including outcome, process, and balancing indicators. The absence of reported system downtime during the documented reallocation period suggests that the intervention did not produce a measurable adverse effect on hospital information systems. The mixed-methods design also allowed operational data to be interpreted alongside stakeholder feedback.

The project has several limitations. First, it was conducted in a single tertiary military hospital, limiting generalizability. Second, several organizational changes occurred simultaneously, creating potential confounding. Third, the available data are aggregated operational measures and do not establish causality. Fourth, patient satisfaction findings were described qualitatively, but detailed numerical scores were not available in the supplied data. Fifth, some targets and measures had incomplete monthly numerical reporting, particularly transfer time after bed assignment. Finally, long-term sustainability beyond the documented period requires continued evaluation.

Despite these limitations, the project provides practical evidence that hospital infrastructure should be considered a strategic component of quality improvement. Future studies should use longer interrupted time-series designs, formal adjustment for case mix and confounding, patient-reported outcomes, cost analyses, and sustainability assessments. Replication in different hospital settings would also help determine which components of the model are most transferable.

Conclusion

Executive leadership–driven building reallocation at PSMMC was associated with major improvements in patient placement accuracy, a reduction in average length of stay, and improved operational coordination. Flow failures decreased substantially, and the target of 0% incorrect patient placement was achieved during the later documented period. The intervention combined specialty-based co-location with multidisciplinary governance, staff engagement, communication, and continuous performance monitoring.

These findings suggest that infrastructure allocation is not merely a logistical issue but a strategic quality and safety intervention. Hospitals seeking to improve patient flow may benefit from aligning physical space with specialty-based clinical operations while ensuring visible executive sponsorship and robust multidisciplinary governance.

Acknowledgments: None

Conflict of Interest: None

Financial Support: None

Ethics Statement: None

References

1. Ogrinc G, Davies L, Goodman D, Batalden P, Davidoff F, Stevens D. SQUIRE 2.0 (Standards for QUality Improvement Reporting Excellence): revised publication guidelines from a detailed consensus process. BMJ Qual Saf. 2016;25(12):986-92. doi:10.1136/bmjqs-2015-004411
2. Lee SE, Hyunjie L, Sang S. Nurse managers' leadership, patient safety, and quality of care: A systematic review. West J Nurs Res. 2023;45(2):176-85. doi:10.1177/01939459221114079
3. Singh A, Yeravdekar R, Jadhav S. Investigating the influence of selected leadership styles on patient safety and quality of care: A systematic review and meta-analysis. BMJ Lead. 2024;8(3):208-14. doi:10.1136/leader-2023-000846
4. Althobaiti FM. The effects of leadership on patient safety culture in health care: A systematic review. BMC Nurs. 2026;25:125. doi:10.1186/s12912-025-04263-7