



Enhancing Operating Room Efficiency at Shaukat Khanum Memorial Cancer Hospital & Research Centre Peshawar

Kiran Ali¹, Zahid Hussain¹, Dr. Irfan Kabir¹, Dr. Irfan ul Islam², Mr. Sami Ullah², Dr. Haroon Hafeez², Dr Khawaja Shehryar Nasir²



Joint Commission International
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¹ Quality Assurance Executive, Shaukat Khanum Memorial Cancer Hospital and Research Centre, Peshawar
¹ Assistant Director QPSD, Shaukat Khanum Memorial Cancer Hospital and Research Centre, Peshawar
¹ Consultant Surgical Oncology, Shaukat Khanum Memorial Cancer Hospital and Research Centre, Peshawar
² Consultant Surgical Oncology, Shaukat Khanum Memorial Cancer Hospital and Research Centre, Peshawar

² Nursing Manager, Shaukat Khanum Memorial Cancer Hospital and Research Centre, Peshawar
² Director QPSD, Shaukat Khanum Memorial Cancer Hospital and Research Centre, Pakistan
² Associate Director, Shaukat Khanum Memorial Cancer Hospital and Research Centre, Pakistan

INTRODUCTION

The operating room is a complex and an expensive department of the hospital, the cost of running a single operating room is approximately Rs 191,429 per day. Inefficiencies in the scheduling and use of the operating rooms, leads to suboptimal utilization, operational delays, and increased costs. The hospital leadership needs to enhance the OR's efficiency to reduce costs, improve throughput and reduce delays for patients scheduled for surgery.

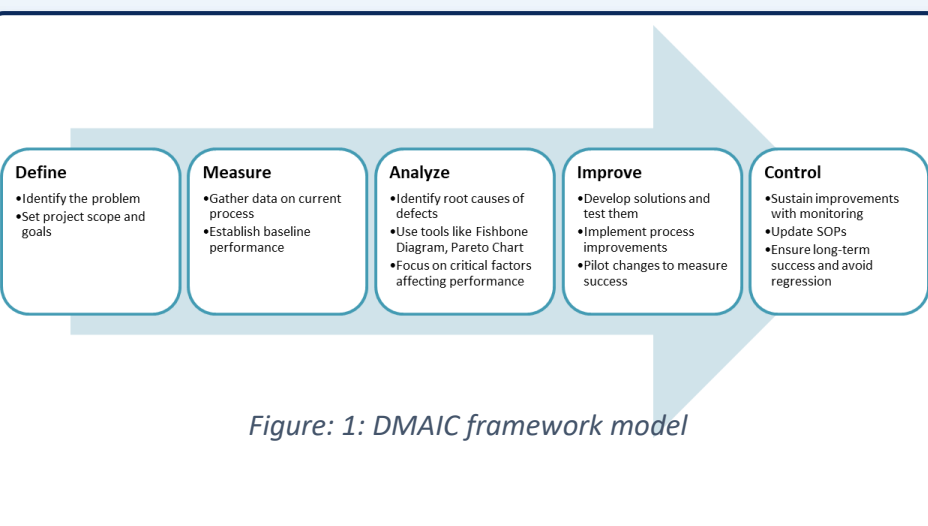
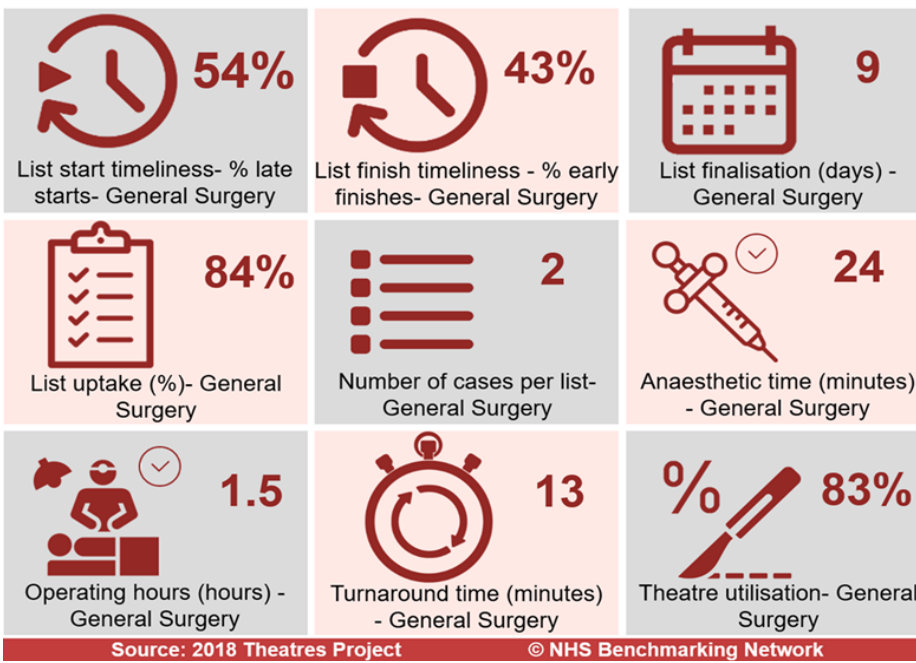
OBJECTIVES

- To optimize operating room utilization through effective elective surgery scheduling and resource allocation.
- To reduce same-day cancellations and late starts of elective surgical procedures.
- To minimize operating room session underruns and improve utilization of available operating time.
- To strengthen interdepartmental coordination to improve patient throughput and overall operating room efficiency.

METHODS

Lean Six Sigma DMAIC methodology was applied to improve operating room efficiency. Monthly KPI data were compared across baseline, implementation, and post-implementation phases. Eight KPIs were monitored, including theatre utilization, late starts, underruns, cancellations, and patient throughput. Fishbone root-cause analysis identified key process, people, equipment, measurement, and communication issues. Improvement strategies included scheduling optimization, enhanced communication, MIS-based monitoring, staff education, and continuous feedback. Median KPI values and run charts were used to assess improvement and sustainability.

NHSBN Theatres Benchmarking findings 2018



- Root causes for each KPI was analyzed
- Fishbone diagram (figure 2) used for systemic analysis
- Changes were implemented at SKM Peshawar as given in figure 3

Root Cause Analysis Using Fishbone Diagram (derived from pre data analysis)

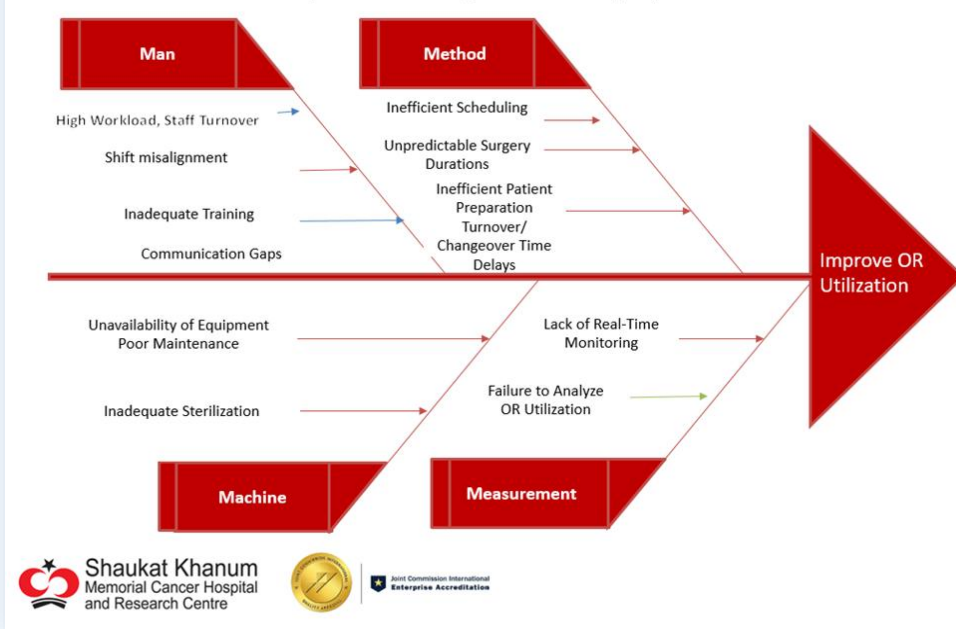


Figure 2: Root cause using fishbone diagram

RESULTS

Elective theatre utilization improved from a median of 85% during the baseline period to 90% following implementation, with post-implementation utilization ranging from 85% to 96%. Significant improvement across all KPI's.

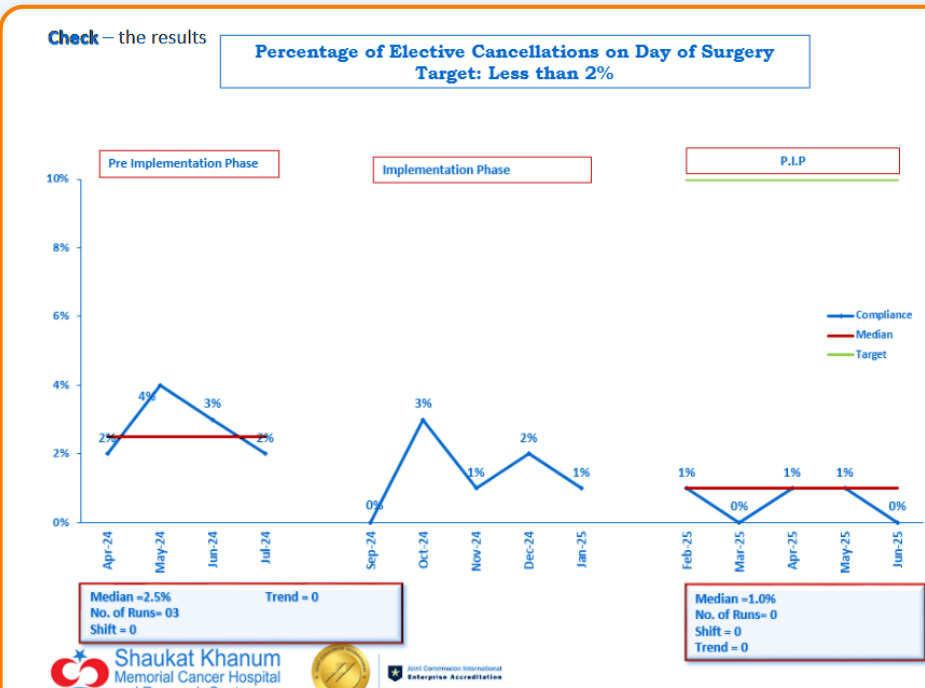
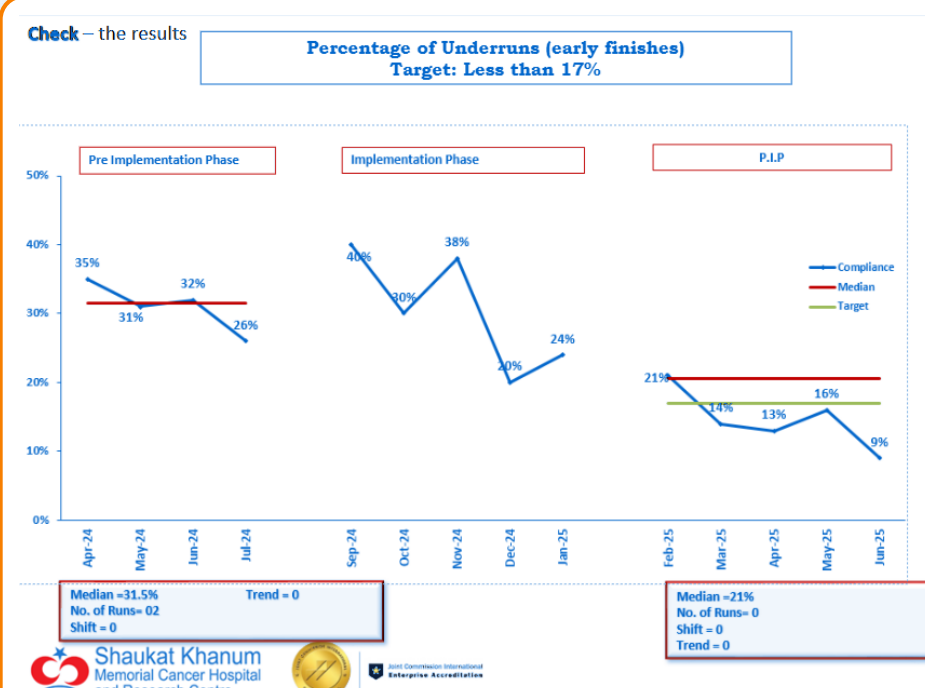
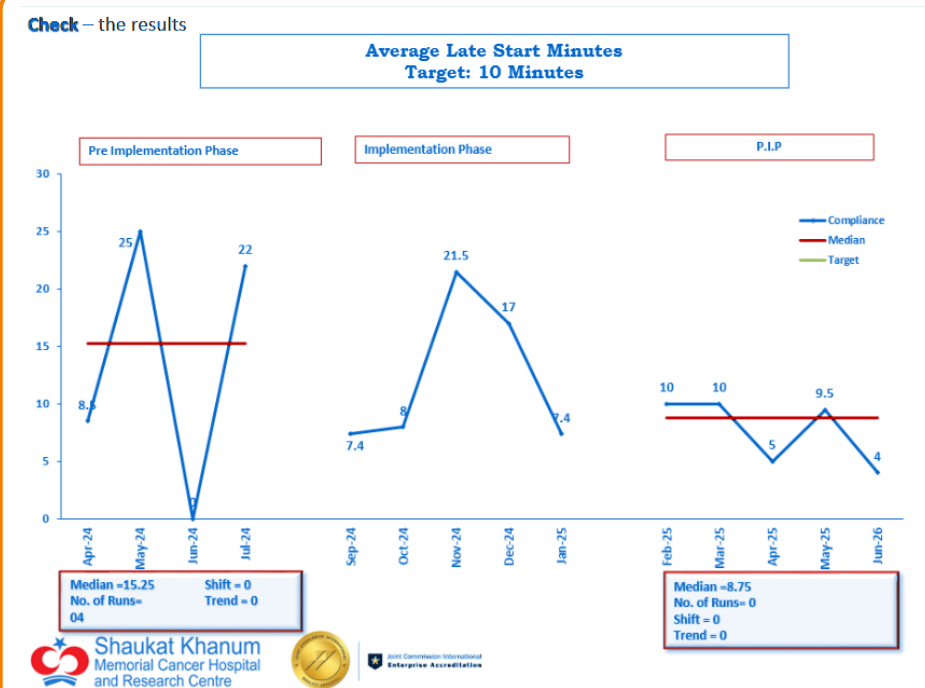


Figure 4: Run charts showing improved efficiency at SKMCH&RC- Peshawar

CONCLUSION

Operating room utilization improved following implementation of the Lean Six Sigma DMAIC approach. Late starts, underruns, and same-day elective cancellations decreased, indicating improved operational efficiency. Patient throughput increased, supporting more effective use of available operating room capacity. Continuous monitoring, multidisciplinary collaboration, and staff engagement are essential to sustain improvements.

REFERENCES

- Agency for Clinical Innovation 2014, Operating Theatre Efficiency Guidelines: A guide to the efficient management of operating theatres in New South Wales hospitals, Agency for Clinical Innovation, Chatswood
- Queensland public hospital operating theatre efficiency: Volume one, Report 2015-16
- Pandit, J, Stubbs, D, Pandit, M 2009, 'Measuring the quantitative performance of surgical operating lists: theoretical modelling of 'productive potential' and 'efficiency'', Anesthesia Journal of the Association of Anesthetists of Great Britain and Ireland, vol. 64, PP 473 – 486