EP029

STAFF BEHAVIOURS INFLUENCE ON LEAN AND THEORY OF CONSTRAINTS IN HOSPITAL-WIDE PATIENT FLOW: SYSTEMATIC REVIEW

MINISTRY OF HEALTH MALAYSIA
INSTITUTE FOR HEALTH BEHAVIOURAL RESEARCH

Mohd Najib Bin Khamil[1], Leny Suzana Binti Suddin[2], Khalid Bin Ibrahim[3]

[1]Hospital Tanjong Karang, KM 8, Jalan Sungai Terap 5, 45500 Tanjong Karang, Selangor, Malaysia,
[2] Universiti Teknologi MARA, Sungai Buloh Campus, 47000 Jalan Hospital, Sungai Buloh, Selangor, Malaysia
[3]Universiti Teknologi MARA, Sungai Buloh Campus, 47000 Jalan Hospital, Sungai Buloh, Selangor, Malaysia



Introduction

- Hospital-wide patient flow remains a critical challenge in the hospitals globally which leads to overcrowding, prolonged wait times, and bed shortages.
- Improving patient flow has thus become a priority with Lean is widely applied and, to a lesser extent Theory of Constraint (TOC) in healthcare settings to optimise patient flow. However, success is not universal, and some implementation only showed modest improvement or failed to sustain it.
- In healthcare, all staff play a critical role in shaping the process changes, given their influence over daily workflows. Their involvement in optimising patient flow is crucial determinant of success in designing, implementing, and sustaining the workflow changes. However, the role of staff's behaviour has not been collectively reviewed.
- Thus, this study aimed to do a systematic synthesis between process improvement strategies and staff behavioural dynamics to further understand its relations and becomes a practical guidance for health administrators.

Objectives

- To systematically review how staff behavioural determinants influence the implementation of Lean and TOC initiatives in improving patient flow outcomes, specifically length of stay, waiting times, throughput rates, and to identify the common behavioural themes associated with it.

Methodology

- A systematic literature review according to PRISMA guidelines was conducted. Six databases and grey literature sources published between 2010 and 2026 were searched to identify English language studies applying Lean or TOC in hospital settings.
- Two independent reviewers screened and assessed each study with discussions to resolve differences if any. Data were synthesized using a thematic synthesis approach.

Results

- Out of 1362 studies identified, 16 studies met the inclusion criteria and were synthesized.
- Two dominant behavioural determinants emerged.
  1. Active multi-level leadership engagement.
  2. Interdepartmental collaborative behaviours.
- Direct causal attribution to these determinants remains limited due to the predominantly qualitative nature of the included studies.

Discussion

- This review showed the importance of integrating Lean and TOC improvement strategies with staff behavioural dynamic to achieve higher probability of successful implementation.
- The first determinant is an active, visible, and sustained multi-level leadership commitment. It plays a critical role in encouraging continuous staff engagement. This commitment is characterised by a combination of visible, task-oriented, and relationship-oriented leadership behaviours. Visible leadership, in particular, is essential for the effective implementation of improvement strategies.
- It highlight the priority of the organisation and reinforces the importance of the proposed changes among the staff who are more likely to understand the value of the initiative and focus their efforts towards it.
- The second determinant is interdepartmental collaborative behaviour. Effective collaboration across departments enhances role clarity among staff and facilitates coordinated efforts in sustaining the implementation of improvement strategies.
- This collaboration reduces silos and promotes a shared understanding of responsibilities. Therefore behavioural intervention is needed in future patient flow improvement strategies which may lead to successful implementation.

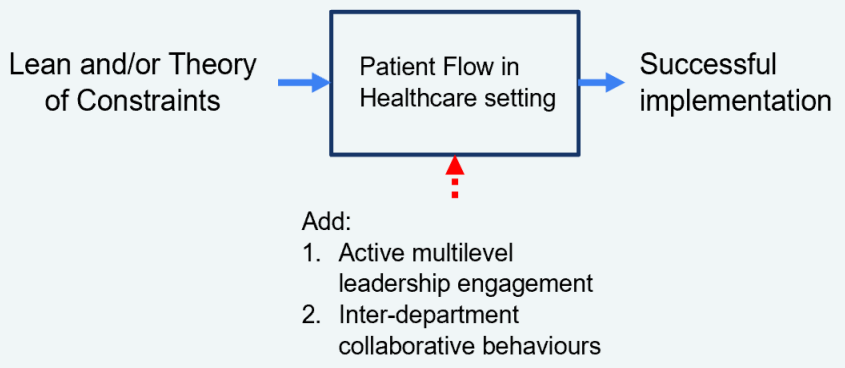


Fig 1: Flow chart of future improvement strategies.

Conclusion

- Staff behavioural determinants are central to the successful implementation of Lean and TOC initiative for improving patient flow.
- Future improvements efforts and strategies should integrate active multi-level leadership commitment and interdepartmental collaborative behaviour alongside process redesign strategies.

Acknowledgement

- The authors sincerely acknowledge the Ministry of Health, Malaysia and Universiti Teknologi MARA for their support. This study received no external funding.

References

1. Manning, L., & Islam, M. S. (2023). A systematic review to identify the challenges to achieving effective patient flow in public hospitals. International Journal of Health Planning and Management, 38(3), 805-828. https://doi.org/10.1002/hpm.3626
2. Tlapa, D., Zepeda-Lugo, C. A., Tortorella, G. L., Baez-Lopez, Y. A., Limon-Romero, J., Alvarado-Iniesta, A., & Rodriguez-Borbon, M. I. (2020). Effects of Lean Healthcare on Patient Flow: A Systematic Review. Value in health: the journal of the International Society for Pharmacoeconomics and Outcomes Research, 23(2), 260–273. https://doi.org/10.1016/j.jval.2019.11.002
3. Tortorella, G., van Dun, D. H., & de Almeida, A. G. (2019). Leadership behaviors during lean healthcare implementation: A review and longitudinal study. Journal of Manufacturing Technology Management. https://doi.org/10.1108/JMTM-02-2019-0070