

Team resource management(TRM) strategy on reducing the rate of emergency department patients staying for more than 48 hours after triaging

Ai-Lun Wu*¹, Shang-Lin Hsieh², Chih-Shang Chi¹, Ming-Kun Huang², Ding-Kuo Chien²
¹Quality Management Center, ²Emergency Medicine, Mackay Memorial Hospital, Taipei, Taiwan

Introduction

This study used **control charts** to monitor the **Taiwan Clinical Performance Indicator(TCPI)**, and found that the rate of **emergency department patients staying for more than 48 hours after triaging** was occasionally unstable (exceeding 2σ). The main reason patients stay in the emergency department for more than 48 hours is the necessity for hospitalization and the wait for available ward beds. For further assessment: unclear information on vacant beds, inefficient allocation of ward beds, varying shift schedules and rules among bed-allocation physicians in different clinical divisions, and limitations based on the gender and specialty of patients, resulting in some vacant beds being unusable. In response to the impact of COVID-19, it is necessary to set up special wards and adjust the hospitalization conditions for emergency patients on a rolling basis, in accordance with current policies.

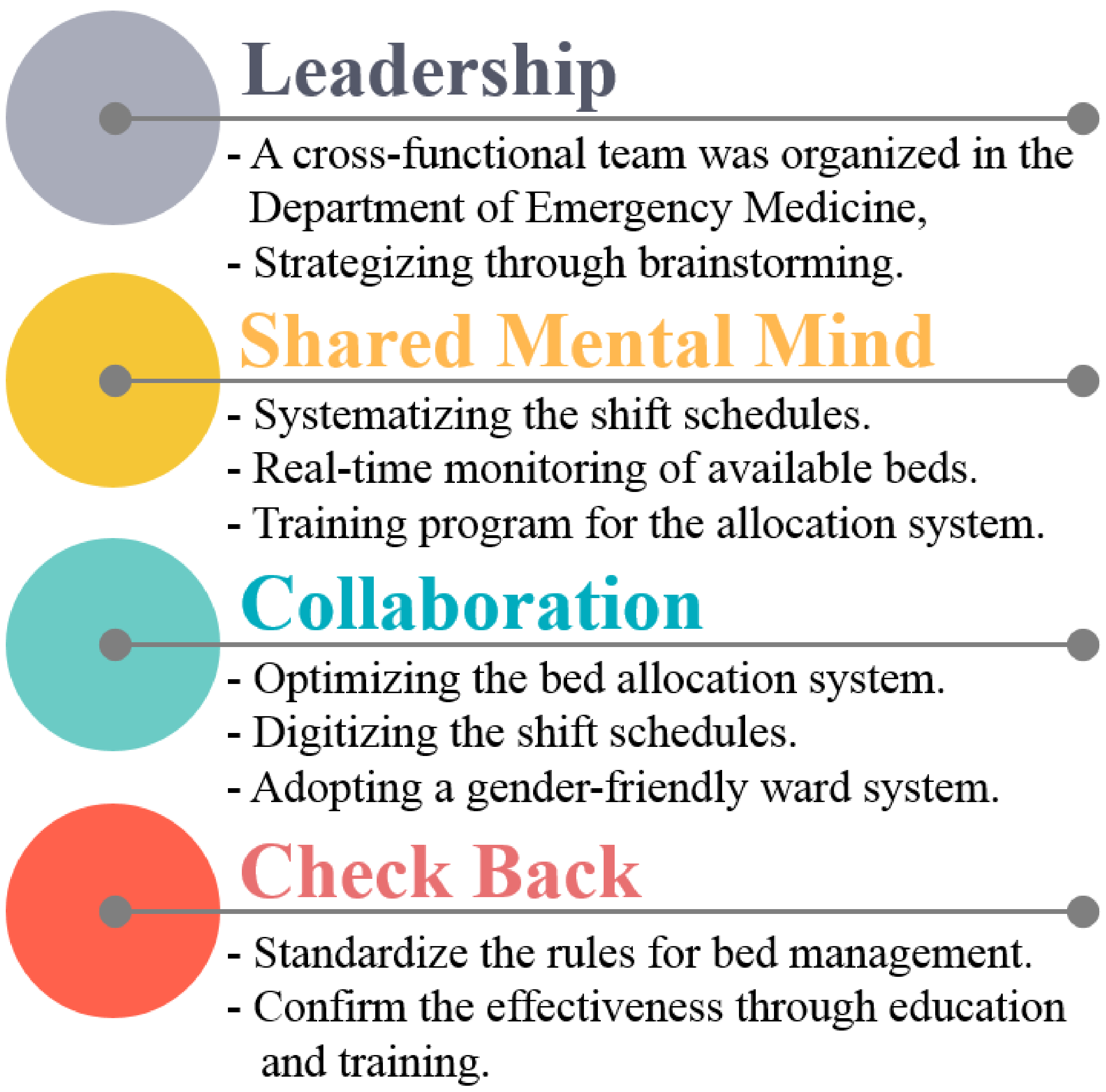
Methods

The **Team Resource Management (TRM) method (Figure 1)** was used to implement an improvement project focused on the emergency department admission process. This project aimed to integrate patient needs with bed availability through information technology. As a result, it led to positive outcomes.

Specific intervention measures include :

- Adopting a gender-friendly ward system, which involves converting health insurance beds, except in psychiatry and obstetrics and gynecology.
- Systematizing and digitizing the shift schedules, which enables the emergency department staff to clearly identify the on-duty physician for bed allocation.
- Optimizing the bed allocation system, which involves several steps. For example, when doctors prescribe an admission certification, the system automatically prompts the list of on-duty physicians for bed allocation and assigns beds. Simultaneously, it tracks the current number of patients waiting for admission in the emergency department and monitors the bed supply status.
- Linking the bed allocation system to the emergency department physician order entry system enables instant checks on bed availability.

Fig.1. Team Resource Management (TRM) Model



Results

Taking 2020 as the intervention point and comparing the periods before (2016-2019) and after (2020-2023) the TRM measures, the average rate of emergency department patients staying over 48 hours decreased from 1.08% to 0.74% (Figure 2). Additionally, our institution's clinical performance indicators have consistently outperformed those of our peers (Figure 2).

Conclusion

As we know, the emergency department is not ideal for prolonged stays. The goal is to promptly admit patients waiting for hospitalization. We optimize bed allocation to ensure that vacant beds are fully utilized by using the TRM method to enhance processes and information systems. Additionally, we apply control charts and peer comparisons to monitor the stability and performance of indicators. This approach has significantly reduced the rate of emergency department patients staying over 48 hours after triaging, resulting in more stable performance that consistently outperforms our peers.

