

Expand the scope of IT to increase the equipment supply efficiency of the supply center

Tsuei-Ying Liao¹, Shieh-Chieh Chen², Chia-Chen Lee³, Hui-Juan Yang⁴, Zhan-Chen Zhu⁵
Central Supply Room, ²Department of Financial, E-DA Hospital, Kaohsiung City, Taiwan

Introduction

Complete preoperative preparation is closely related to the safety of patients during surgery and the quality of care (Zhang et al., 2016; Luo et al., 2018). According to the 2020 Taiwan Patient-safety Reporting system annual report statistics, a total of 2,105 surgical errors occurred, and "preoperative preparation" accounted for 72.4% of the errors (MOHW, 2020), of which surgical instruments accounted for 46%. 68% occurred during surgery and 32% during the preparation phase, 10% of the incidents led to a delay of over 15 min, and delays were caused by communication errors, accounting for 4.1% (Wubben et al., 2010). The majority of the high-risk hazards are expected to be controlled by the use of IT support (Guédon et al., 2016)

Methods

1. Create a case car and apply for a single package of equipment for the patient's intraoperative needs.
2. Plan to print a single application details sticker.
3. Revise the surgical instrument supply process-dedicated handling system.
4. Establish a dynamic query system for operating room equipment.
5. Establish a dynamic central monitoring system for sterilization.
6. Set up obvious signs on the special vehicle for single-package equipment delivery.

Results

The case car supply time was from 14.9 to 10.4 minutes ; the intraoperative device supply time was from 4.1 to 2.9 minutes (figure1) and the overall improvement rate reached more than 30%.

The number of delays in the supply of surgical instruments dropped from 89 per week before improvement to 3 per week (figure2). In addition, the latest tracking of the supply results in June 2022 shows that the case car supply time is 8.1 minutes (figure1); the average supply time for each package of surgical instruments required is 2.77 minutes, and the supply of surgical instruments is delayed by 1 piece (figure2).

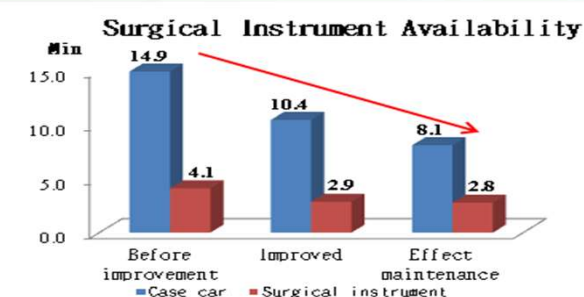


Figure 1. Surgical Instrument Availability

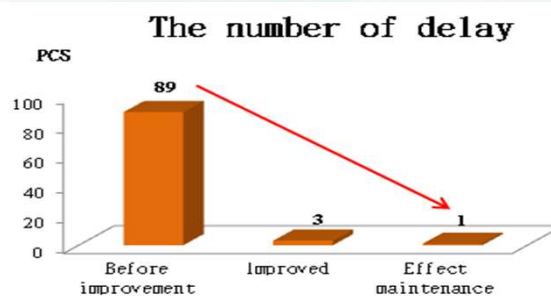


Figure 2. The number of delays

Conclusion

Employee satisfaction increased from 3.9 points to 4.2 points, and the number of phone calls dropped from an average of 256.8 per day to 71.8 calls, a drop of 72.0%. Reduce the impact of unclear language, poor communication, and bad tone on the phone. The implementation of the dedicated processing method also makes the work of the unit personnel smooth without interruption. On average, employees can save about 55.6 hours of working time a week, which can make the work of preparing equipment more efficient and reduce work pressure during peak hours. There are zero medical safety incidents caused by delayed supply of surgical instruments, which makes the supply of surgical instruments more accurate and efficient, and improves the safety of surgical patients.