



PROJECT IMPROVEMENT IN REDUCING THE OPERATING ROOM NURSING STAFF'S PREPARATION TIME FOR ROBOTIC ASSISTED OPERATION

Lee Jui-Ting*^{1,2} , Wu Yi-Jen²,Lee Shine-Yu²,Jao Hui-Chuan²,Wu Chin-Chih²,Lin Chiu-Tzu²

1.School of Business, Executive MBA Program in Information Management,Taiwan

2.Chang Gung Memorial Hospital, Linkou ,Taiwan

P281

INTRODUCTION

Since the introduction of Robotic equipment in 2006, the acceptance of Robotic surgery has been increasing. There are many traditional surgeries converted to Robotic surgery from open approach. Robotic surgical equipment is expensive, complex. In order to prepare for Robotic surgeries day by day, nursing staffs have to clean and sterilize the equipment in accordance with the principles of surgical equipment sterilization. Due to the complicated preparation, extended interval between surgeries and prolong waiting time for patients will be expected. Furthermore, the disruption of the surgery would happen if the preparation is not completed, which would also cause the longer time of patient under anesthesia. It has been reported that incomplete pre-operative preparation and prolonged pre-operative preparation would result in delayed surgery, increased staff burden, higher labor and medical costs, and the anxiety from patient’s family.

AIM

1. Reduce more than 50% of the Robotic surgery preparation time.
2. Increase the knowledge of the surgical nursing staff in preparation more than 90%.

RESULTS

Table 1: Questionnaire of Robotic surgical preparation		(N=17)
Content	Before improvement Correctness (%)	After improvement Correctness (%)
1. Fundamentals of Robotic surgical System	58.8	100.0
2. Surgical method for each specialty of Robotic surgery	58.8	100.0
3. Preparation process of Robotic surgery	58.8	100.0
4. Preparation of instruments and consumables for each specialty of Robotic surgery	11.7	93.3
5. Preparation of equipment for each specialty of Robotic surgery	29.4	93.3
6. Valued and non-valued materials for each specialty of Robotic surgery	17.6	100.0
7. The operation of the screen interface of the Robotic surgical system	58.8	100.0
Average score	42.0	98.1

Table 2: Time of surgical preparation		(N=17)
Content	Before improvement Time (min.)	After improvement Time (min.)
1. To the supply team to receive specialist instruments and dispensing materials	50.0	15.0
2. Prepare basic priced and non-priced materials in the operating room	41.0	6.0
3. Prepare Robotic arm devices according to each specialty procedure to confirm package integrity 、expiration date and type	20.0	1.0
4.Establish aseptic work area and assist in laying Robotic equipment with aseptic sets	15.0	15.0
Average total time spent	126.0	37.8

METHOD

The “Awareness of Robotic Surgical Preparation Survey” was applied based on relevant literature. There were 17 N4 nursing staffs enrolled in this study. The "Robotic Surgical Equipment Preparation Time Survey" was used to measure the preparation time of the 17 nursing staffs without interfering the surgery using a chronograph. The data collection was conducted by the investigator alone, so there was no the problems of inter-rater reliability.

Improvements were made as follows

- *Designing the Robotic surgical Care Preparation Process
- *Reorganization of specialty procedures into Robotic surgical kits
- *Create a loaner strip for specialty procedures
- *Provide advanced in-service education on the Robotic

CONCLUSIONS

It is necessary for the OR nurse to have a clear understanding of the surgical process in order to provide accurate and complete surgical care and work with the medical team to complete a Robotic procedure. In the aspect of the results of nursing staff's knowledge of Robotic surgery preparation before and after the improvement, the results showed that the nursing staff's knowledge of Robotic surgery preparation increased from 42.0% to 98.1% (Table 1). The results showed that the average time required for equipment preparation was reduced from 126.0 minutes to 37 minutes (Table 2). Owing to the reduction of the surgical preparation time, the overall anesthesia and surgery time was reduced and the surgery was performed smoothly. Furthermore, the quality of care and the safety of patients were also increased.

ACKNOWLEDGEMENT

Thanks to all the Robotic surgery team in the operating room of Chang Gung Memorial Hospital, Linkou

REFERENCES

王琦、吳素蘭、賀倫惠、張雅玲、吳寶璇(2020)-以[載具機器人]改善手術室護理人員執行術前器材包盤準備時間-*長庚護理*，31(4)，531-546。doi:1 10.6386/CGN.202012_31(4).0007

吳井于、洪晴偉、呂芝慧(2018)手術器械清潔流程與品質監控-*蒙總護理*，35(4)，381-388。doi:10.6142/VGHN.201812_35(4).0006

林均德(2016)鏡內視鏡之再處理及管理機制-*蒙總護理*，33(4)，372-376。doi: 10.6142/VGHN.33.4.372

洪心怡、施智源。(2017)。達文西手術器材清潔及確效之挑戰-*感染控制雜誌*，27(4)，190-193。

黃玉玲、王方、張瓊分、林慧玲。(2018)。提昇手術室護理師對機器人手術器材管理成效-*新臺北護理期刊*，20(2)，89-99。doi:10.6540/NTJN.201809_20(2).0008

燕翔(2019)重新定義大學手術全期護理教育-以[手術室護理暨實作]課程為例-*長庚科技學刊*，(30)，49-59。doi:10.6192/CGUST.201906_(30).5

Søndergaard,S.F.,Frederiksen,K.,Sørensen,E.E.,Lorentzen,V.(2019).A Realistic Evaluation of Danish Perioperative Nurses' DocumentationPractices. *AORN journal*, 110(5),500-509.

Yoshikawa, T., Kimura, E., Akama, E., Nakao, H., Yorozyua, T., & Ishihara, K. (2019). Prediction of the service life of surgical instru- ments from the surgical instrument management system log radio using frequency identification. *BMC Health Services Research*, 19(1) doi:10.1186/s12913-019-4540-0

Zhu, X., Yuan, L., Li, T., & Cheng, P. (2019). Errors in packaging surgical instruments based on a surgical instrument tracking system: an observational study. *BMC health services research*, 19(1), 176. doi:10.1186/s12913-019-4007-3

CONTACT INFORMATION

jessicalee@cgmh.org.tw