Improvement of patients safety through the development of surgical instruments tracking system with RFID technology

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INTRODUCTION

Surgical instruments are reused after being cleaned and sterilized. However, if a tracking system is not equipped, the usage history is not managed, so it is impossible to identify the cause and take appropriate measures when an infection problem occurs. In addition, since it is difficult to grasp the progress of cleaning and sterilization of surgical instruments, if surgical instruments are insufficient compared to the number of surgical cases, preparation for surgery may be delayed, which may cause many problems. In conclusion, through the development of a surgical instrument tracking system, it complies with international guidelines, prevents potential transmission of infection and enables appropriate follow-up measures in case of problems, promotes patient safety.

AIM

- Problem analysis

(1) The standardized surgical instrument reprocessing process (request, cleaning, packaging, sterilization, release) is not computerized.

(2) The use history of surgical instruments is unknown.

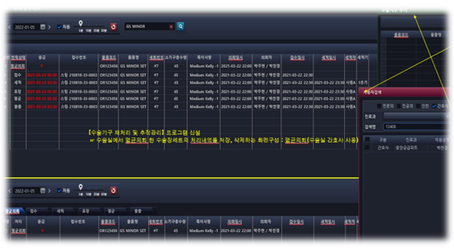
- Key Indicators and Goals

(1) Reduce the average number of errors per month from 10.3 cases per month to 4 cases per month when surgical instruments used in the operating room are requested to be sterilized by the central supply part in the three departments of GS, CVC and HYBRID, which are subject to the task.

(2) Improved job satisfaction of operating room nurses using the tracking system from 51.05 to 80 points.

METHOD

(1) Development and use of surgical instrument tracking program.



(2) Development and installation of RFID equipment linked with surgical instrument tracking program

RESULTS

(1) Reduction in sterilization request errors (current level of 10.3 cases per month → reduced to 2.1 cases, 18.4% exceeded the previous target)

(2) Improvement in nurse satisfaction (current level 51.05 points → 80.25 points improvement, achievement of exceeding 0.25 points compared to the previous goal)

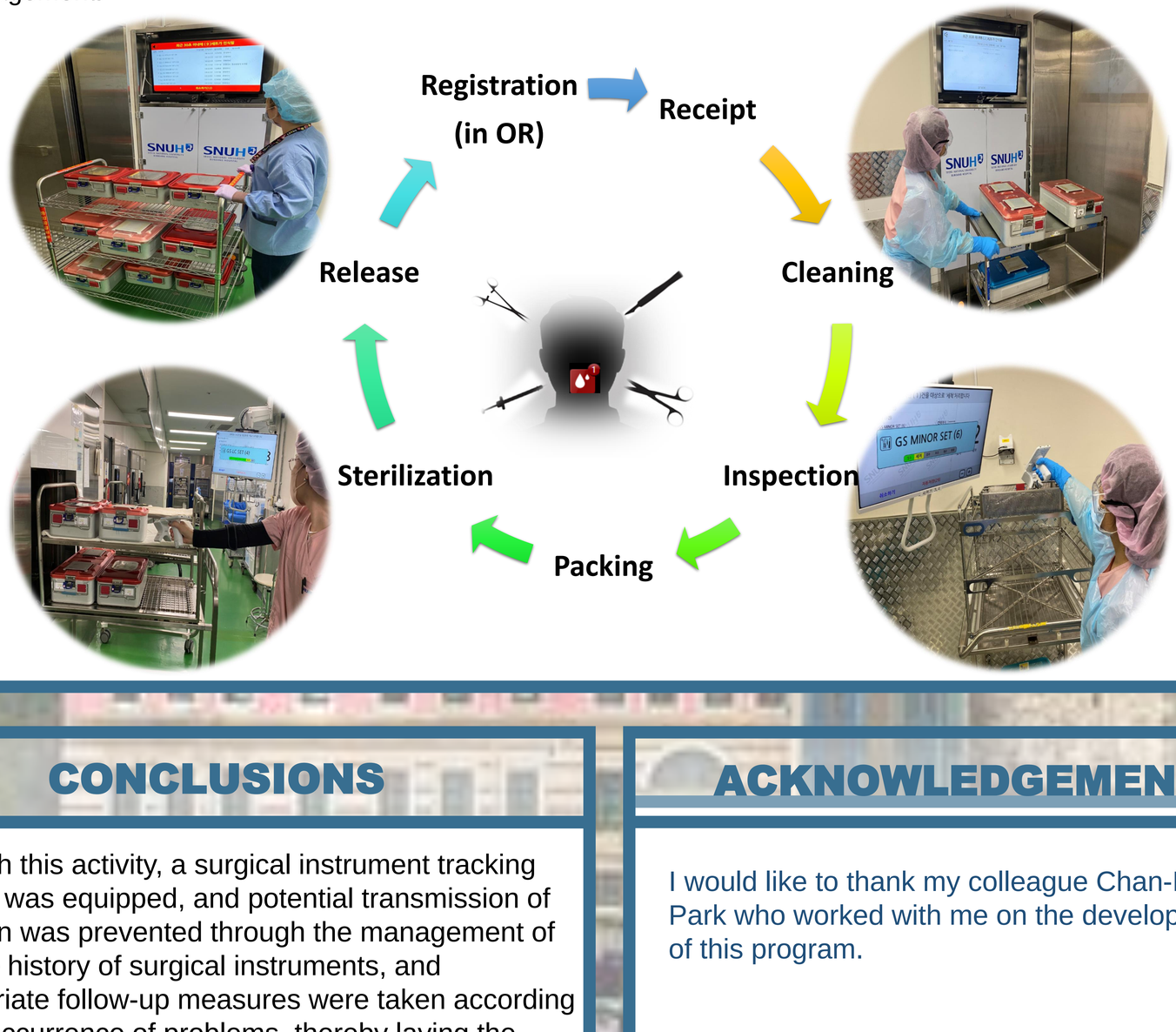
(3) It is possible to manage the use history of surgical instruments, so that appropriate measures can be taken when problems occur in the surgical instruments or sterilization process.

(4) It is possible to check the reprocessing status and inventory of surgical instruments, so it can be used for preparing and managing surgical instruments necessary for surgery.

(5) The validity period of all surgical instruments can be checked in real time, so it can be used for surgical instrument management.

(6) It is possible to check the work status of cleaning and sterilization equipment and personnel in the central supply part, so it can be used to improve work efficiency.

(7) It is possible to check the frequency of use of surgical instruments, so it can be used for surgical instruments management.



CONCLUSIONS

Through this activity, a surgical instrument tracking system was equipped, and potential transmission of infection was prevented through the management of the use history of surgical instruments, and appropriate follow-up measures were taken according to the occurrence of problems, thereby laying the foundation for enhancing patient safety. In addition, it is now possible to use it for management work that can maximize work efficiency through real-time status checking of equipment and personnel. The lack of quantitative evaluation tools to show the effect of the system construction is a feature of this activity, but the part that can be used for various QI activities in the operating room and central supply department based on data obtained through the surgical instrument tracking system is encouraging.

ACKNOWLEDGEMENT

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REFERENCES

I referenced and benchmarked Seoul National University Hospital and several hospitals in Europe that had developed and used a surgical instrument tracking system using barcodes.

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