

24TH
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BRUSSELS
18-21 OCTOBER
2023



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

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KOREA**

Where is **SOUTH KOREA** ?



Seoul National University Hospital

1885



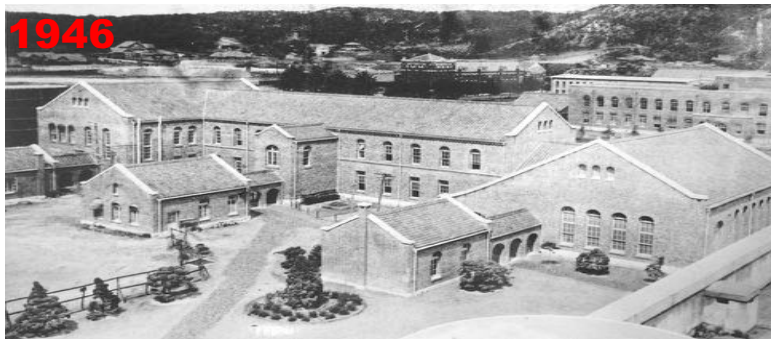
Jejungwon, the first western national hospital

1907



Daehan Hospital

1946



SNU College of Medicine

1978



Seoul National University Hospital

Seoul National University Hospital



Seoul National University Hospital



Children Hospital



Seoul National University Bundang Hospital



Gangnam Health Outpatient Center



Sheikh Khalifa Specialty Hospital (UAE)

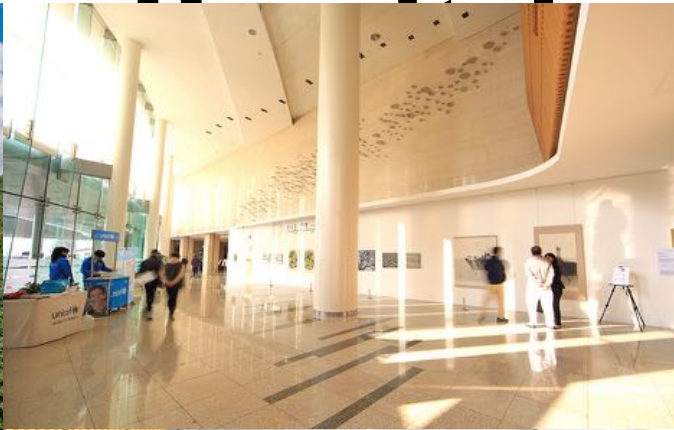


Boramae Hospital

24th
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Seoul National University Bundang



OR in Seoul National University Bundang

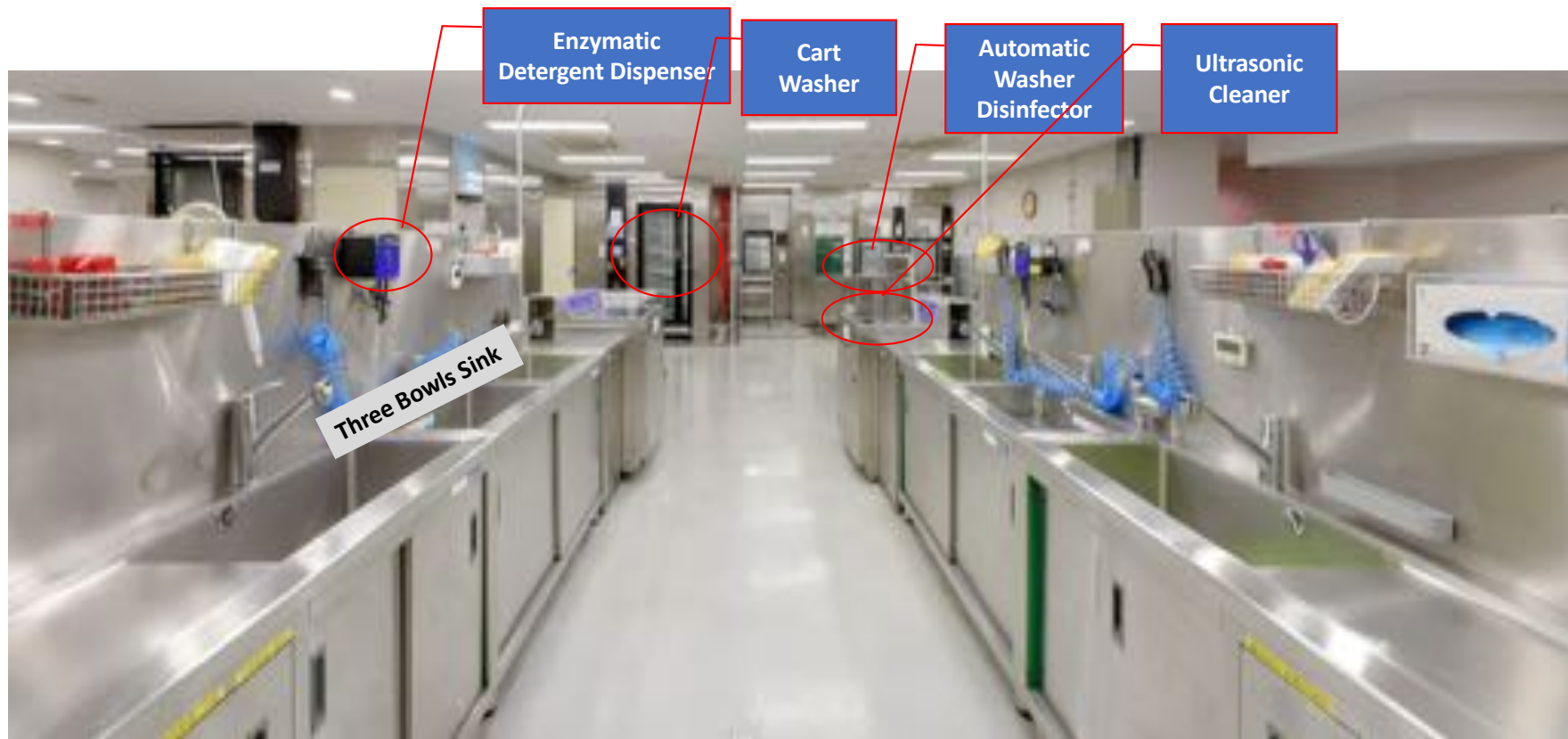


CSSD in Seoul National University Bundang Hospital

Hospital beds	Outpatients / day	Operating rooms	Surgeries / day	RN	Assistant
1,300	7,500	39	180	11	46

Steam Sterilizer	E.O gas Sterilizer	Hydrogen Peroxide Sterilizer	Cart Washer	Automatic Washer Disinfector	Ultrasonic Cleaner	Manual Sink Line
11	9	3	2	9	11	9

Decontamination Area



Packaging and Sterilization Area



What ? Why ?



1

Necessity of activity

- 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, and furthermore, improves the convenience of managing surgical instruments, manpower and equipment from the central supply department.

2

Problem analysis and goals

- 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.

3

Improvement activities

- Development and use of surgical instrument tracking program.
- Development and installation of RFID equipment linked with surgical instrument tracking program.

4

Effect of improvement activities

- Key indicator evaluation summary

- (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)

5

Conclusion and future management plan

- In addition, it can be used for management work that can maximize work efficiency through real-time grasp of the current status of surgical instruments, equipment, and personnel.
- Although there is a lack of quantitative evaluation tools to show the effect of the system construction, it is encouraging that the data accumulated through the surgical instrument tracking system can be used for various QI activities in the operating room and central supply department.
- The remaining task is to expand the application of the system to all surgical instruments in the future.
- Based on the data currently being collected, we will continue to develop the program in the future and prepare a foothold to support the efficient work system of the operating room and central supply department.



Registration Program in EMR



Container RFID TAG



Disposable RFID TAG





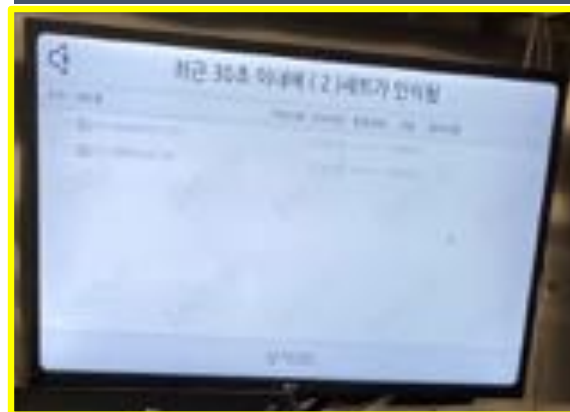
CSSD Entrance (connected to OR)



RFID Antena



Received set list



Instruments list & Information

영구번호	Stream	용량	2022-11-02 18:14
세트명	CVC OHS SET	세면주	3
소기구 수량	148	의뢰자	이민준
구분	150003	시행장	수술실감염관리부
발주일자	2022-11-02 09:25	검정일자	2022-11-02 14:14
요청방법	인터넷		
tooth Kop Zeal NH Zeal set -2			

Retractor	QHS, Scissors, Mays, Curved, Long	1
Retractor, Color camera	1 QHS, Scissors, Metzenbaum, Sharp, Medium	1
Retractor, Army nose	2 QHS, Scissors, Metzenbaum, Gold, Medium	1
Retractor, 2 prong, Sharp	2 QHS, Scissors, Metzenbaum, Medium	2
Retractor, Vain	2 QHS, Scissors, Medium	1
CLAMP		
QHS, Clamp, Needle holder, Vain, No.7	QHS, Scissors, Mays, Straight, Medium	1
QHS, Clamp, Needle holder, Vain, No.8		
QHS, Clamp, Needle holder, Gold, No.7	5 QHS, Forceps, Grasper, Long	4
QHS, Clamp, Needle holder, Gold, Wire, No.7	1 QHS, Forceps, Grasper, Medium	4
QHS, Clamp, RT angle, Long	2 QHS, Forceps, Cooney, Medium	2
QHS, Clamp, Allis, Long	2 QHS, Forceps, Grasper, Medium	2
QHS, Clamp, Tuff	6 QHS, Forceps, Grasper, Long	2
QHS, Clamp, Kocher, Curved, Long	2 QHS, Forceps, Rusterli, Long	2
QHS, Clamp, Chair drain, Curved	1 QHS, Forceps, Tooth	2
QHS, Clamp, Kelly, Curved, Long	10 Scalpel handle, No.3	2
QHS, Clamp, Tonsil Action	2 Scalpel handle, No.3, Long	1
CVC, Clamp, RT angle, Medium	2 Scalpel handle, No.7	2
QHS, Clamp, Molar, Medium	2 QHS, Suction, Cooley, Cardiotomy	2
Clamp, Hemostat, Straight, Medium	5 QHS, Suction, Cooley, Cooley	2
QHS, Clamp, Kelly Curved, Medium	10 QHS, Suction, Andrews, Chest, Mini	2
QHS, Clamp, One Curved	10 Elevator, Hegar(No. 3-6)	1
QHS, Clamp, Malleable, Curved	5 Elevator, Hegar(No. 5-6)	1
QHS, Clamp, Hattmann Malleable, Curved	15 Elevator, Hegar(No. 7-8)	1
QHS, Clamp, Towel, Blunt		
QHS, Clamp, Evisectome		
QHS, Clamp, Hickey		
QHS, Clamp, Sennelager		
Clamp, Sponge fix, Straight		
SCISSORS		
QHS, Scissors, Vain, RT angled		
QHS, Scissors, Metzenbaum, Pink, Long		
QHS, Scissors, Metzenbaum, Long		



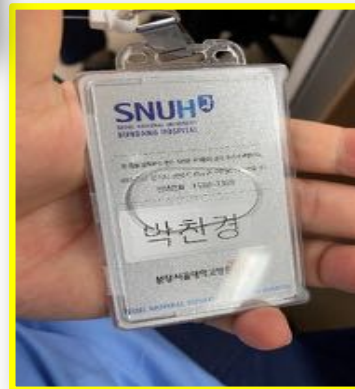
Staff is tagging set and ID card



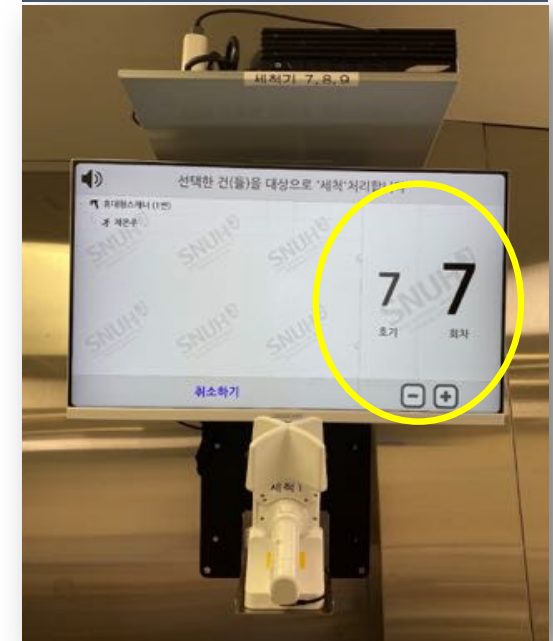
RFID Antena (portable)



ID Card



Automatic Washer NO. & Count



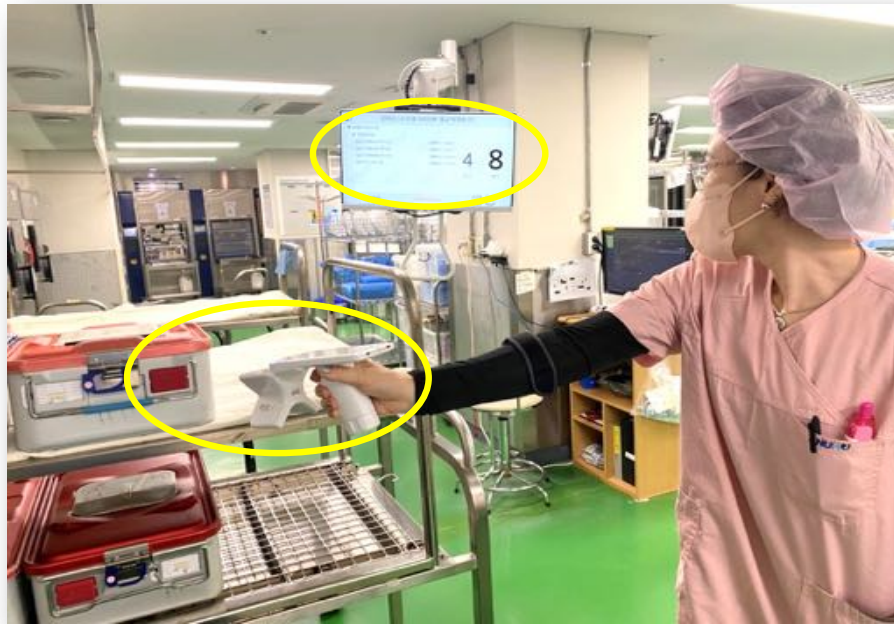


Staff is inspecting the instruments with a list



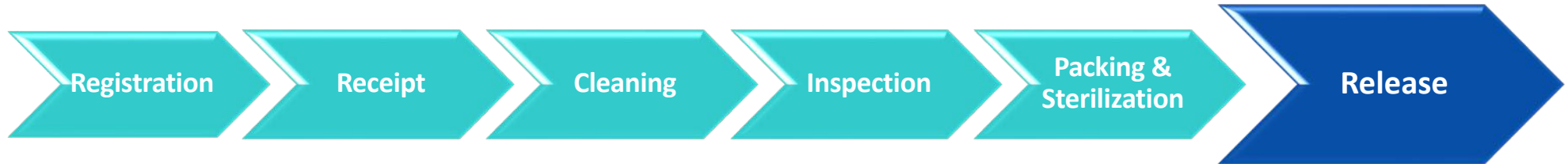


Staff is tagging the set before sterilization



Tagged sets & Sterilizer NO. & count



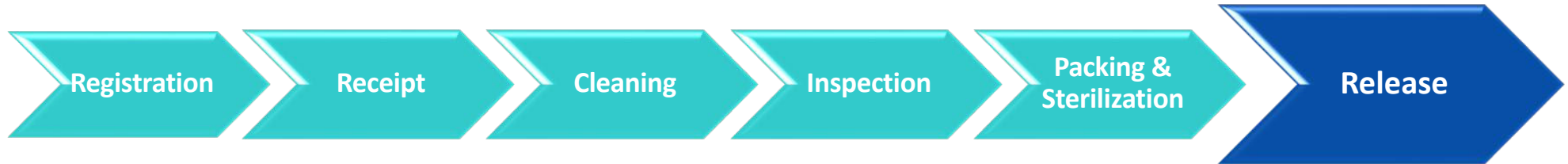


CSSD exit (connected to OR)



Released set list





Surgical Instrument Inventory Program in EMR



이름	수량	상태	위치	입고일	검사일	비고
SC MARCH SET	14	정상	OR4	2023-01-26		
SC MARCH SET	15	정상	OR4	2023-01-26		
SC MARCH SET	16	정상	OR4	2023-01-24		
SC MARCH SET	17	정상	OR4	2023-01-25		
SC MARCH SET	18	정상	OR4	2023-01-26		
SC MARCH SET	19	정상	OR4	2023-01-26		
SC MARCH SET 총	117					
SC MARCH SET	1	정상	OR4	2023-01-24		
SC MARCH SET	1	정상	OR4	2023-01-24		
SC MARCH SET	1	정상	OR4	2023-01-25		
SC MARCH SET	1	정상	OR4	2023-01-26		

Surgical Instrument History Viewer Program in EMR



일련번호	입고일	위치	상태	비고	검사일	비고	수량	비고
2023-11-0147	2023-11-01 17:54	OR4	정상	SC MARCH SET			1	2023
2023-11-0148	2023-11-01 18:48	OR4	정상	SC MARCH SET			16	2023
2023-11-0149	2023-11-01 18:56	OR4	정상	SC MARCH SET			8	2023
2023-11-0149	2023-11-01 18:56	OR4	정상	SC MARCH SET			16	2023
2023-11-0144	2023-11-01 14:29	OR4	정상	SC MARCH SET			8	2023
2023-11-0141	2023-11-01 14:30	OR4	정상	SC MARCH SET			11	2023
2023-11-0141	2023-11-01 13:41	OR4	정상	SC MARCH SET			8	2023
2023-11-0141	2023-11-01 13:51	OR4	정상	SC MARCH SET			2	2023
2023-11-0148	2023-11-01 13:53	OR4	정상	SC MARCH SET			2	2023
2023-11-0141	2023-11-01 13:54	OR4	정상	SC MARCH SET			4	2023
2023-11-0141	2023-11-01 13:46	OR4	정상	SC MARCH SET			16	2023
2023-11-0147	2023-11-01 13:18	OR4	정상	SC MARCH SET			1	2023
2023-11-0144	2023-11-01 13:02	OR4	정상	SC MARCH SET			1	2023
2023-11-0142	2023-11-01 13:04	OR4	정상	SC MARCH SET			14	2023

Frequently Asked Questions & Answers

- 1. Why RFID ? How about a bar code ?**
- 2. How much did it cost to build the system ?**
- 3. Can the RFID tag withstand HEAT, PRESSURE and CHEMICALS ?**
- 4. What do you think about the RFID tag on the surgical instrument ?**
- 5. Any other questions ?**

Please feel free to contact me 😊

THANK YOU !
감사합니다 !



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