Tracking System of Surgical Instrument Sets (SIS) through Development of Enterprise Resources Management System (ERMS) in Central Sterile Supplies Department (CSSD) in NTWC

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Fairness • Innovation • Respect • Safety • Teamwork
People FIRST

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in-charge of

Central Sterile Supplies Department

New Territories West

新界西·醫院聯網
New Territories West Cluster

CSSD Mission

To provide central quality disinfection and sterilization services for clinical areas

Scope of Services in CSSD TMH

- Sterile Dressing Packets
- Sterile Ward Procedure Sets
- Sterile Theatre Linen Packs
- Sterile Instrument Packets

To reprocess user-owned reusable medical devices

Scope of Services in CSSD TMH

To provide central disinfection services of medical equipment and device

To monitor, control and reprocess reuse Single Use Medical Device

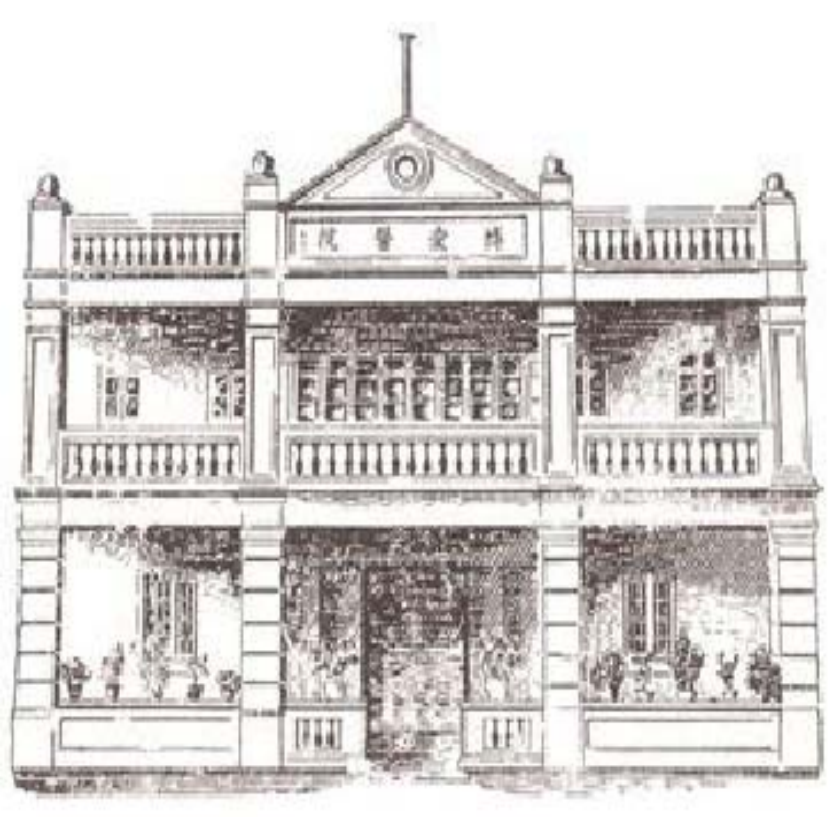
Scope of Services in CSSD TMH

To sterilize pharmaceutical items

New Territories West

CSSD of Tuen Mun Hospital does not provide Theatre Sterile Supplies Services to Operating Theatre (OT)

Pok Oi Hospital was established in 1919 & re-developed in 2007



CSSD POH provides traditional sterile products same as CSSD TMH

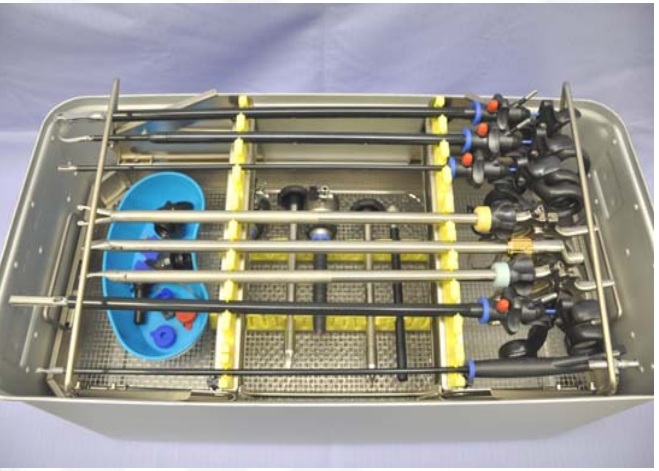





In 2007, new CSSD POH has to provide theatre sterile supplies services to operating theatres

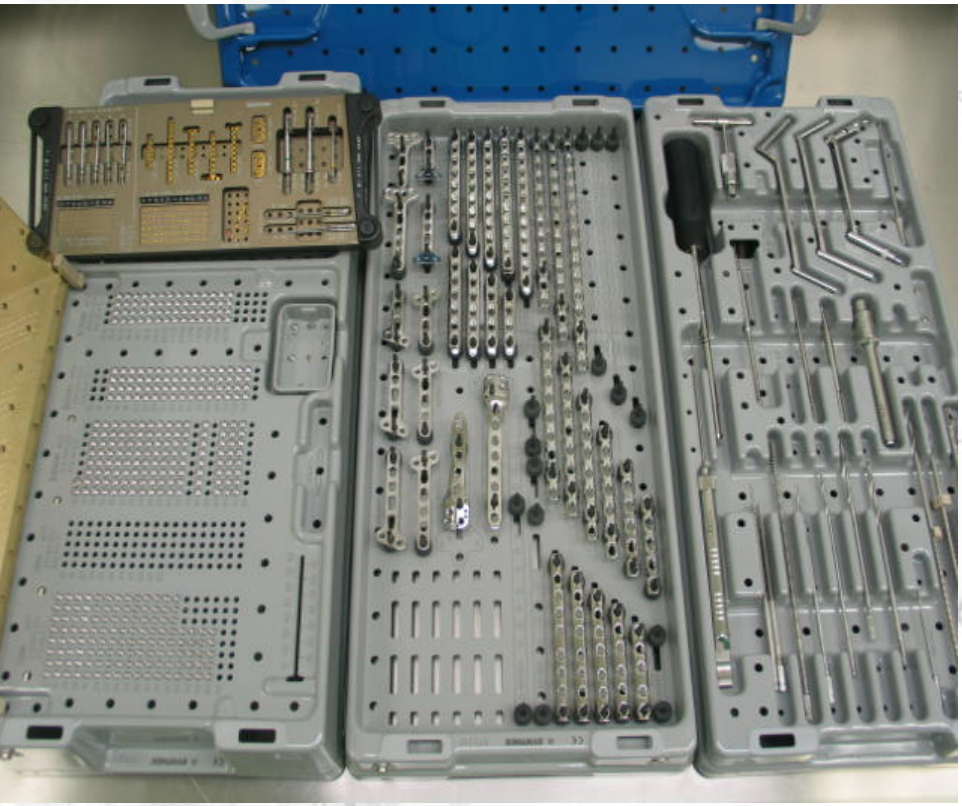
Scope of Services in CSSD POH

To reprocess operating theatre surgical instruments



Scope of Services in CSSD POH

To reprocess complicated & expensive surgical implant



How to re-develop CSSD POH?

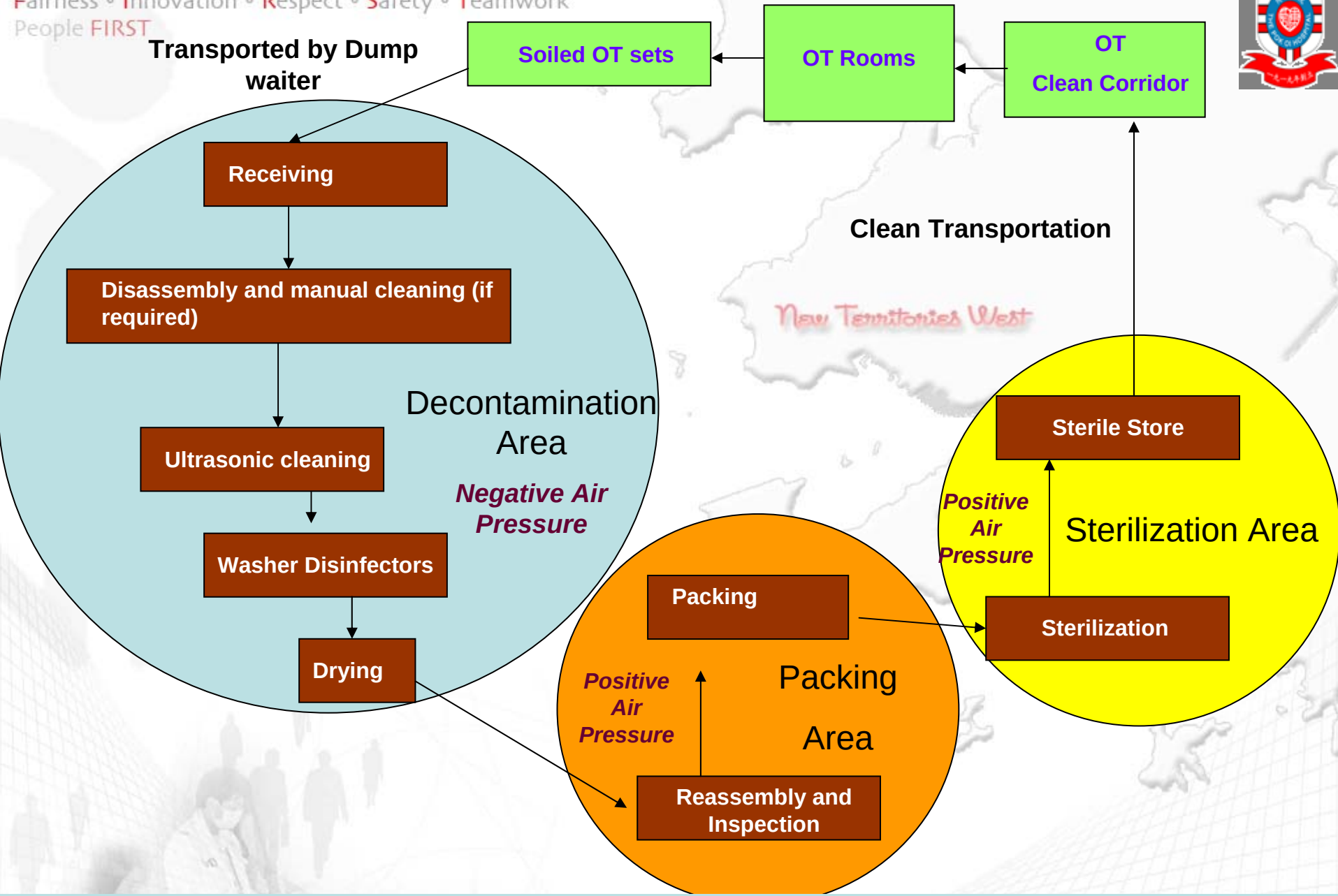
- Without theatre sterile supplies service experience, how can we develop the staff competency in the service?
- How can we sustain the service with only one nurse and supporting staffs (Clerk, GSA & TSA) working in CSSD POH in 2007?
- How can we assure patient safety?
- How can we enhance operational efficiency and effectiveness?

Solution for Re-development of CSSD POH

1. To develop a computerized tracking system in CSSD
2. To install one database in hospital server serving both CSSD TMH & CSSD POH
3. To standardize of all SIS with barcode system
4. To integrate CSSD and OT work flow so as to enhance efficiency and effectiveness
5. To develop training profile in the computerized system

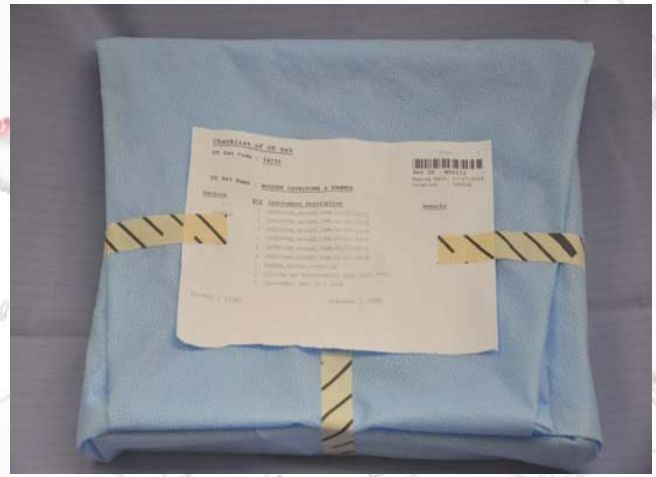
Objective for Re-development of CSSD POH

1. To assure patient safety with electronic tracking system.
2. To develop traceability of OT instrument especially for the emergence of Creutzfeldt–Jakob Disease (CJD) or product batch recall.
3. To enhance operational efficiency
4. To train supporting staffs' competency in handling OT instrument set.
5. To prepare for hospital accreditation



Workflow for CSSD in Reprocessing of OT Surgical Instrument

Standardization of OT Surgical Instrument Set (SIS)



Standardization of SIS

Container System for SIS

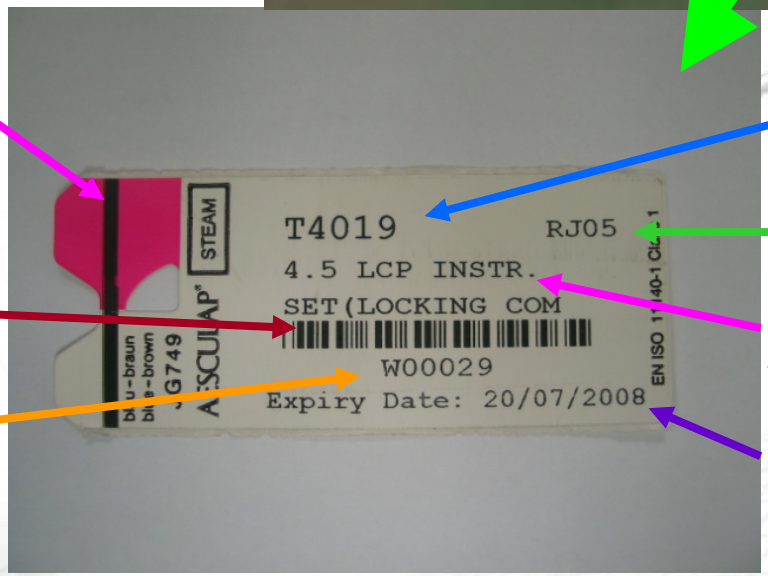
Unique Container ID

Set ID

Plastic Seal Lock

Chemical Indicator

(Turn black = sterilized)



Set Code

Location Code

Set ID Barcode

Set Name

Unique Set ID

Expiry Date

Standardization of SIS Requirement for each type of operation

Ex: Laparoscopic Cholecystectomy +/- open surgery

SIS requirement:

Extra Surgical lap.

Small set

Basic Surgical lap

Stand by OT Set:

Surgical Major Set

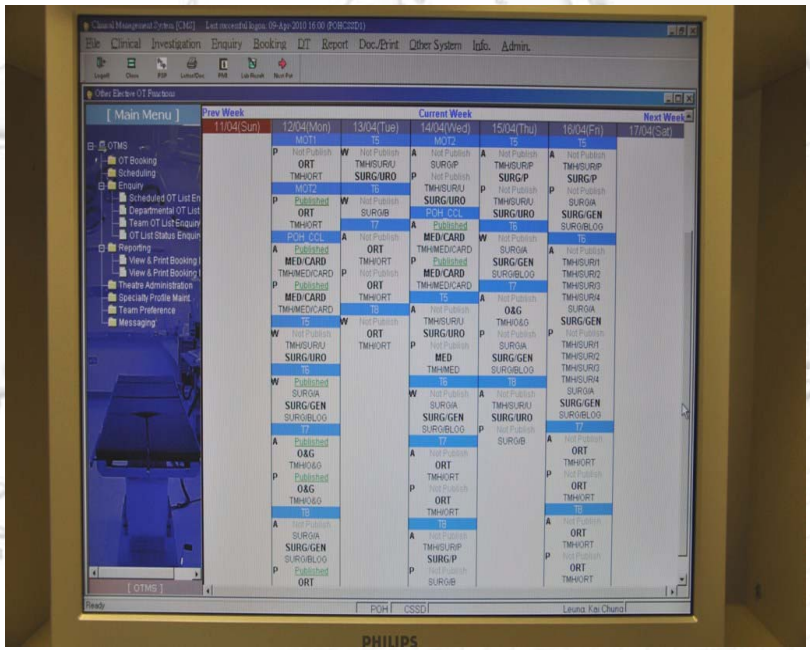
Major Utensil

Doctor preference for particular instrument can also be entertained

Scheduling Surgical Operation

- One date before, the scheduled operation data extracted from Operation Theatre Management System (OTMS) will be entered into ERMS at 15:30

- Data including
  - Patient name & ID
  - Type of operation
  - Sequence of operation
  - Theater number



Scheduling Surgical Operation

- System will then generate a report with the total SIS requirement to see whether there are sufficient SIS to support the operation schedule
- Any insufficient of SIS, CSSD will discuss with OT colleagues for further arrangement
- Based on the report, CSSD can easily rearrange the production plan to ensure availability of SIS

Premedication Call – call patient to OT

Pre-medication Call from OT

(1) Activate sound alert in 2 designated computers in CSSD

(2) Generate a Pre-medication Form with operation details & the required SIS

Response to Premed Call

- System assigns suitable SIS based on first in first out principle
- CSSD staff takes the assigned SIS according to the location code printed in the Pre-medication Form

Response to Pre-medication Call

Verification of SIS against Pre-medication Form

Response to Pre-medication Call

Within 3 minutes

CSSD → **OT**

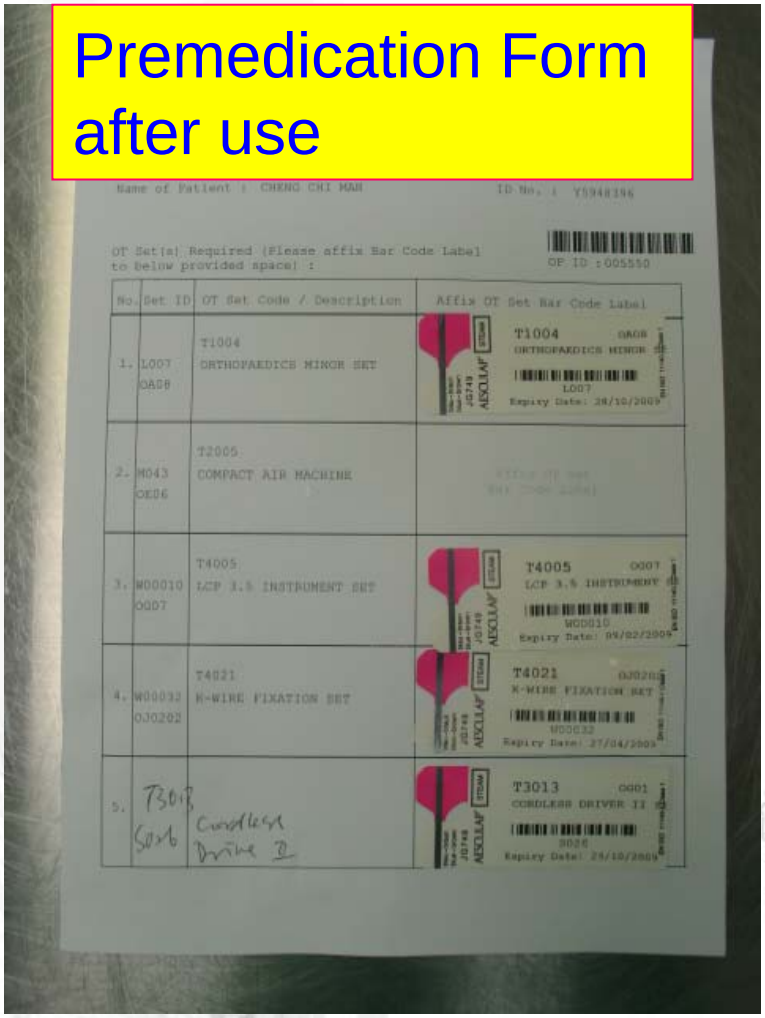
Delivery SIS to OT through inside lift

Placed in OT designated area

Decontamination Area

Soiled Return from OT to Decontamination Area

Decontamination Area



Scan barcode of SIS ID & operation ID into Tracking System

SIS barcode label was stuck onto the Pre-medication form

Decontamination Area

Checking the soiled instrument against computer image

Decontamination Area

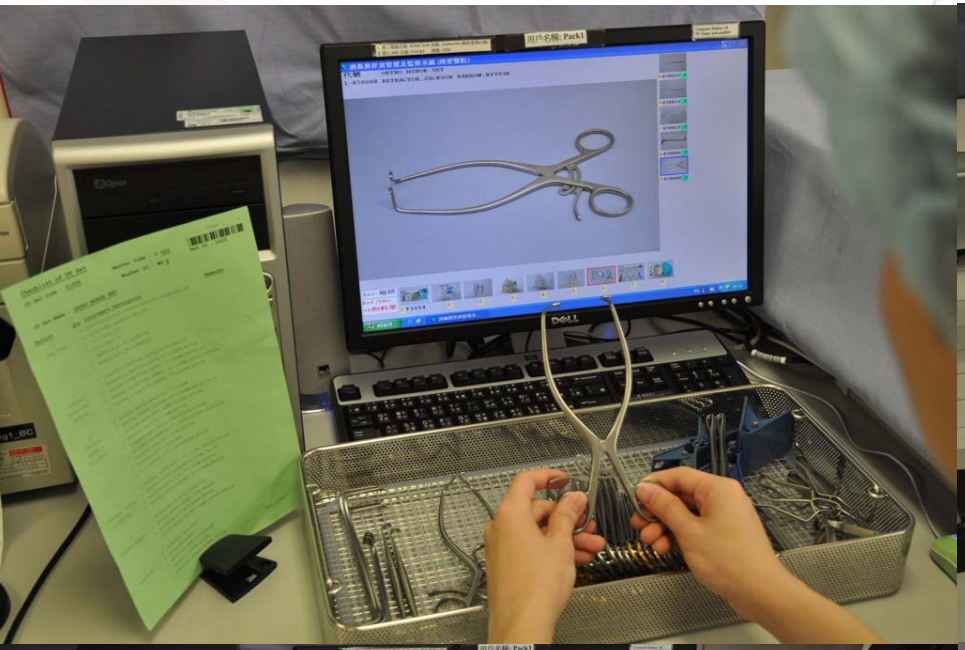
Machine wash for general instruments

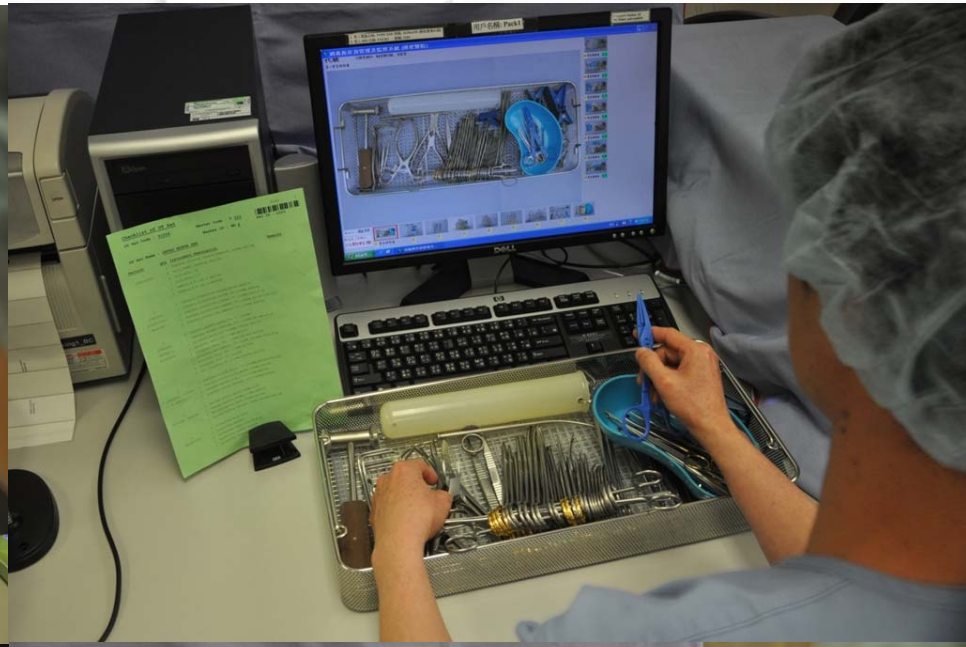
Manual wash for delicate & fine instruments

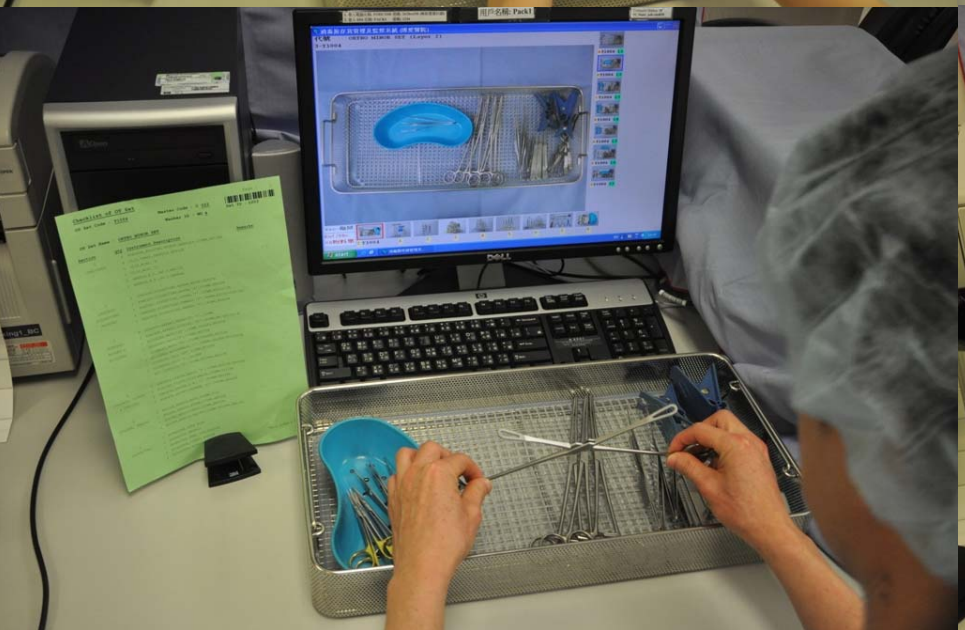
Packing & Assembly Area

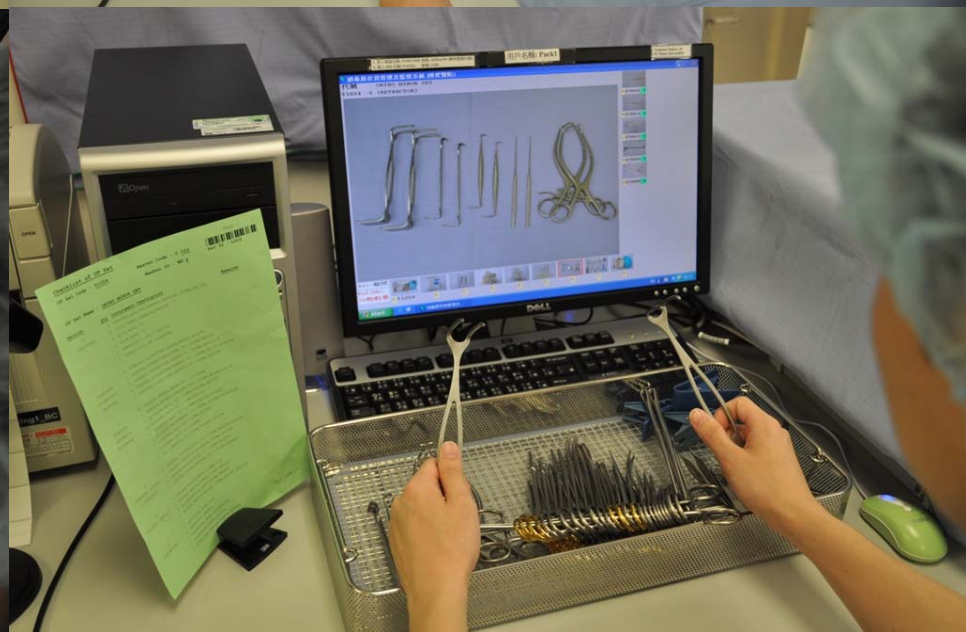
Printing a checklist for Inspection & Assembly

Packing & Assembly Area



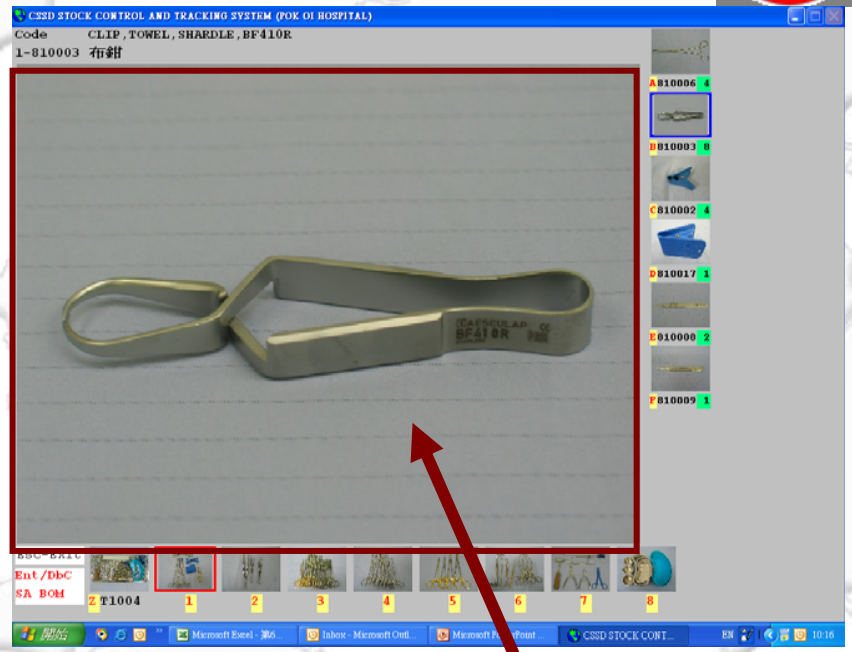






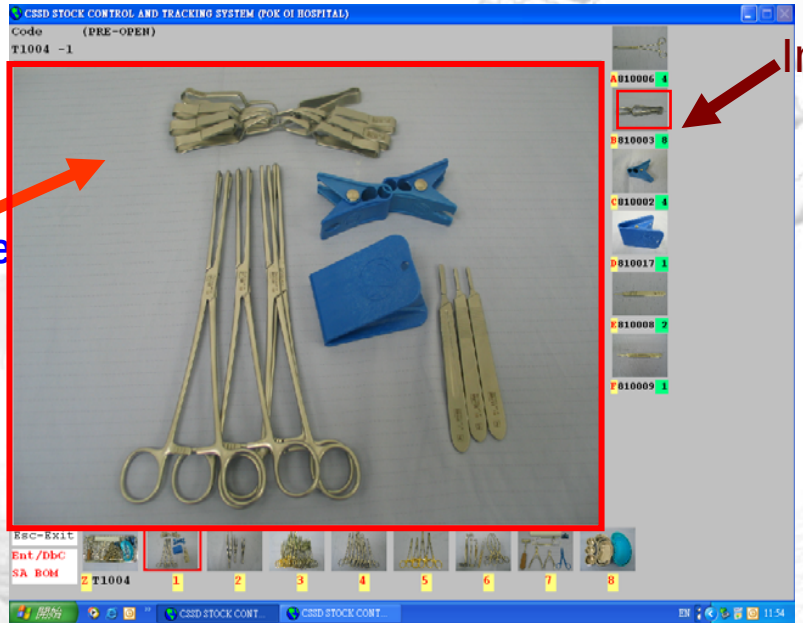
Different level of instrument images for training & assembly

OT Set Picture



Individual Instrument Picture

Instrument Section Picture



Packing & Assembly Area

Counter check SIS by checker

Sterilization Area

Loading the SIS into sterilizer

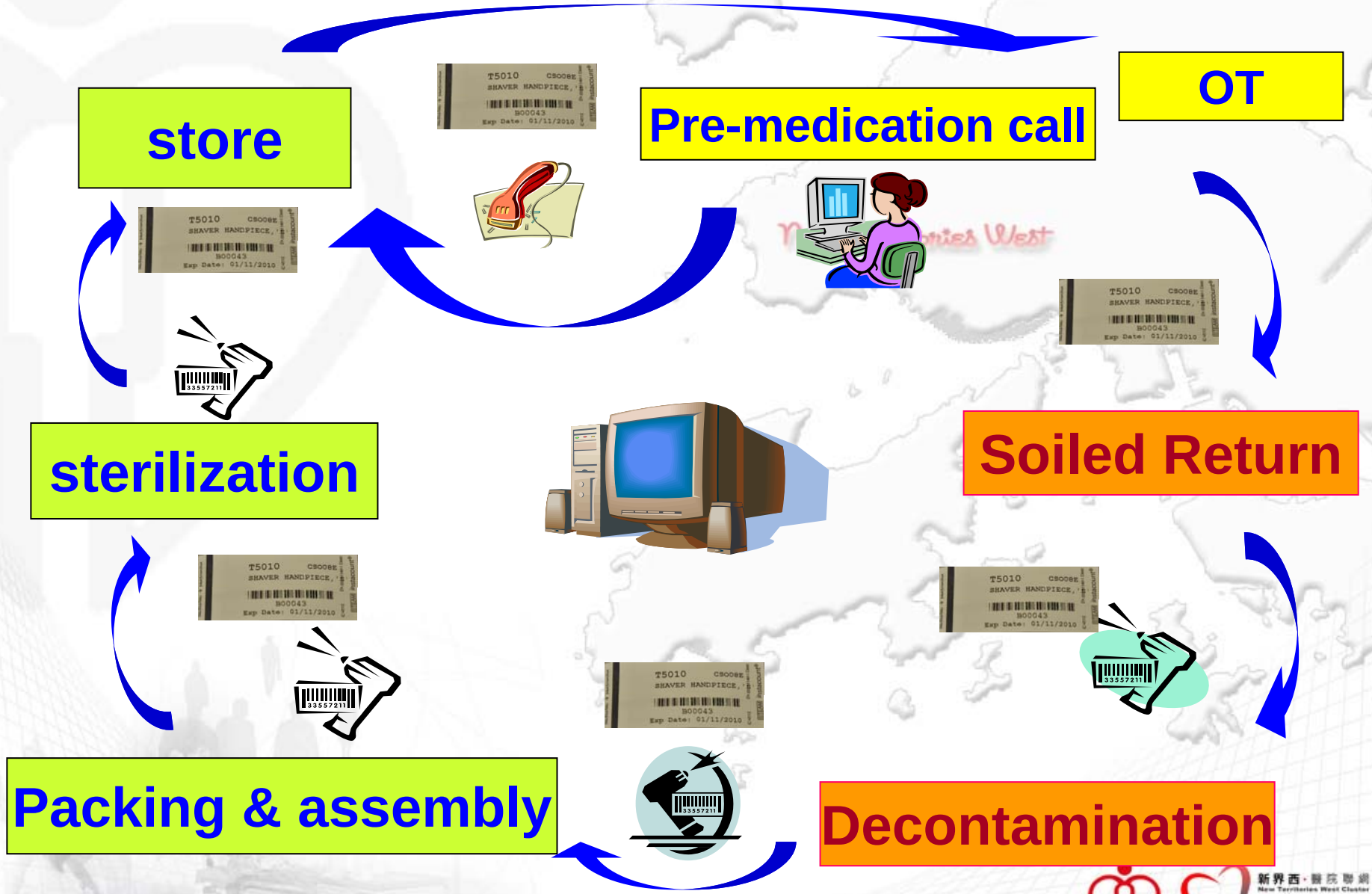
Sterilization Area

After sterilization, the barcode label is scanned

Sterile Store

OT instruments are stored in its designated location of rack in Sterile Store

Tracking SIS throughout its Workflow



Result Contributed by Tracking System (1)

1. There was no error in delivery and re-assembly of SIS.
2. Patient safety could be assured through product traceability which met with the hospital accreditation standard.
3. Utilization of OT instrument could be optimized through operation scheduling.
4. SIS could be delivered to OT within 3 minutes upon pre-medication call.
5. Communication between CSSD & OT was enhanced

Result Contributed by Tracking System (2)

6. Supporting staff could take up the role of nursing staff for re-assembly and checking SIS.
7. Nursing staff could focused on extended role in CSSD:-
   (a)Overall administration and management of CSSD
   (b)Assurance of quality standard in reprocessing of medical device in CSSD
   (c)Training and development of supporting staff

Other Function of ERMS

- **Procurement and Material Management**
  - Procurement planning and stock re-ordering
  - Stock keeping
- **Production Plan and Control**
  - Stock stocking and Verification
- **Monthly Consumption/Expenditure Report**
  - Automatically generate the above reports to dept. i/c through e-mail
- **Annual Budget Preparation**
  - Estimation of Annual Budget by Department
- **Topping Up Function**
  - System will record the topping-up quantity using scanner

Conclusion

- Assure patient safety through surgical Instrument traceability and product batch recall
- Assure operational efficiency of CSSD
- Meet with the standard of hospital accreditation
- Highly recommended development of corporate system to standardize CSSD practice in all HA hospitals

Thank you

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