Evaluation of surgical instrument and medical device decontamination and sterilisation practice in Healthcare Facilities

Hakizimana B[1], Mocke M[1]

1Academic Unit for infection prevention and control, Faculty of Medicine and Health sciences, Stellenbosch University, PO Box 19063, Tygerberg 7505, Cape Town, South Africa.

Introduction

- People come to healthcare facilities to be cured from disease and injuries[1].
- Healthcare facilities are places with a high incidence of disease-causing micro-organisms - easily spread from patient to patient by the staff, equipment and other materials used for patient care[1].

Introduction (cont'd)

- Task of the healthcare facilities to cure diseases and to prevent transmission of diseases from one patient to the other[1].
- An important measure against spreading of diseases is the requirement that all medical supplies (instruments, swabs, drapes etc- to open wounds or touching inner fluids of the body, are free of any viable micro-organisms.
- **They have to be sterile[1]**.

Introduction (cont'd)

- Some of these materials are sterilized at the factory and are designed for single use.
- However, many instruments and materials used for medical interventions are very expensive and are re-usable[1].
- A **high-quality reprocessing cycle** is necessary to treat the materials so that they can be reused again[1,3].

Background

- Effective **cleaning and disinfection/sterilization** using a properly validated washer-disinfector/sterilizer will protect patients and staff from infection;
- Prolong the life of the equipment;
- Ensure the quality of the diagnostic/therapeutic procedure[2,3].

Aim of the study

- To evaluate how dirty items were handled and cleaned,
- how clean items were inspected, wrapped, sterilized and
- how was validation carried out.
- An audit of the CSSD facility was also conducted.

Place of the study

- Tygerberg hospital - an academic tertiary referral hospital, located in Parow, Cape Town.
- officially opened in 1976
- the largest hospital in the Western Cape and the second largest hospital in South Africa.

Tygerberg Academic Hospital

Place of study (cont'd)

- Teaching hospital in conjunction with the University of Stellenbosch's Medicine and Health Sciences Faculty.
- At present, 1 310 beds are in use.
- The CSSD of TBH was officially opened on 6th Nov 2009 and it serves 30 operating theatres and other clinical units.

Methods

- This study was conducted during the **period 27 May to 18 July 2013** as part of the Intermediate course module in Decontamination and Sterilisation for Postgraduate Diploma in Infection Prevention and Control.

Methods (cont'd)

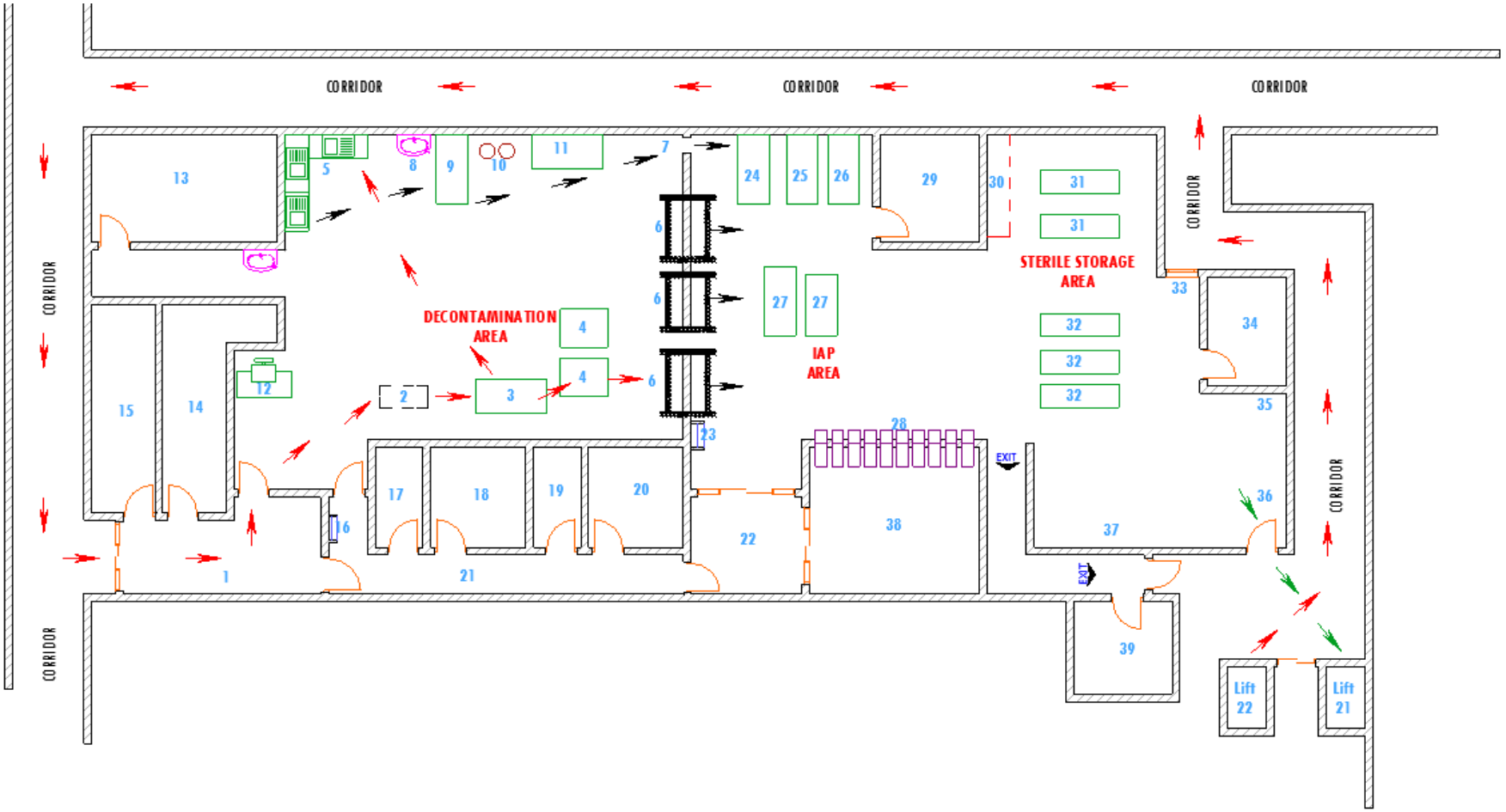
- **Descriptive survey**, whereby an audit tool and other observational tools for capturing the required information were developed and used to collect information.
- CSSD and endoscope units were visited.
- Inventory of CSSD equipment, wraps, instruments, detergents/disinfectants was conducted and analysed.

Results

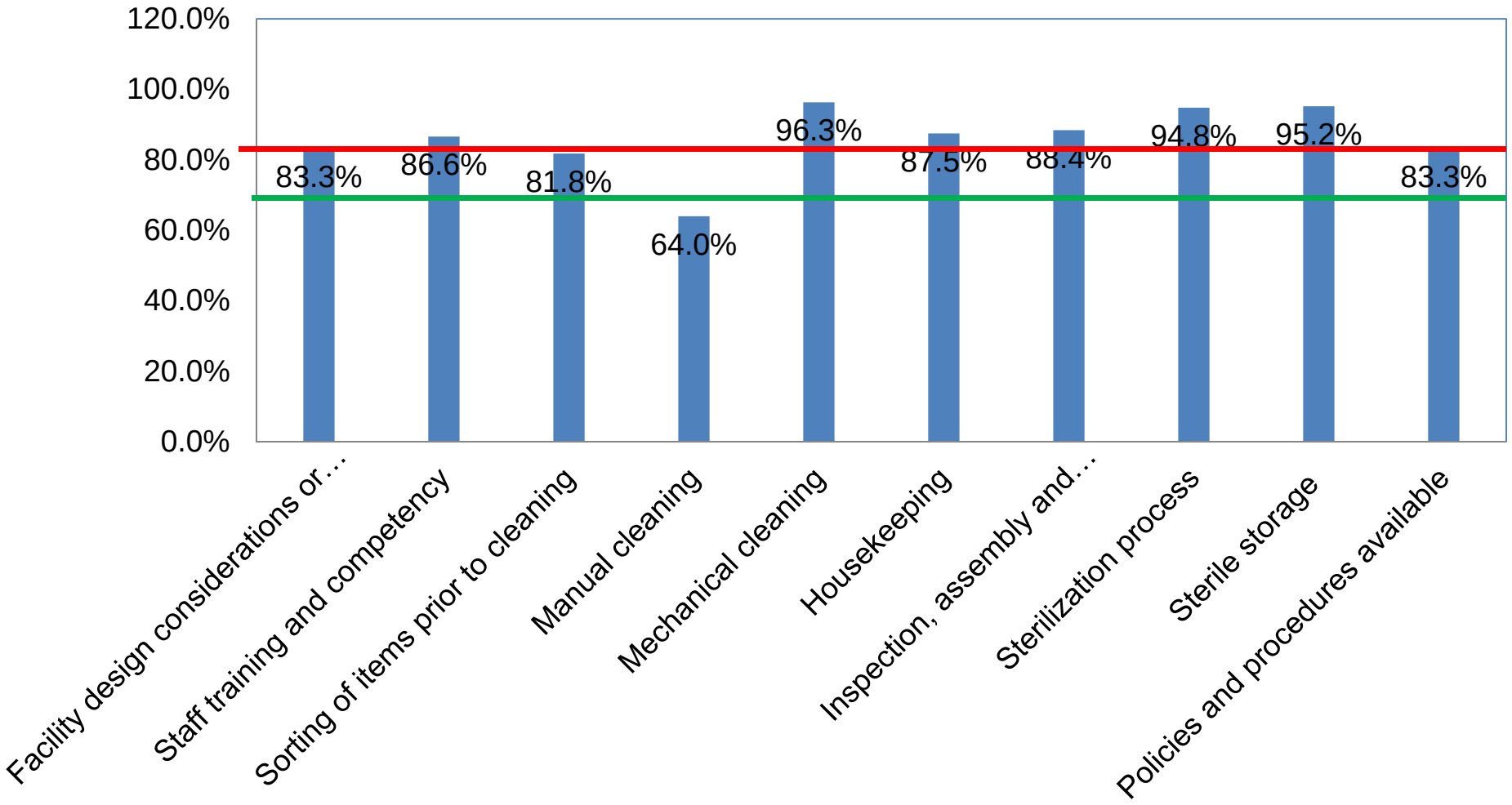
- The work flow in the CSSD - unidirectional from dirty to clean area,
- automated cleaning by washer-disinfectors is the most commonly used method.
- Instruments adequately wrapped and instrument trays validated at each reprocessing stage.
- There were sufficient sterilizers, two of them have own steam generation.

Results (cont'd)

Figure 1: Layout of the CSSD at TBH



Graph 1: CSSD Audit results: TBH, June 2013



Results (cont'd)

Table 1: Hand hygiene practice in decontamination area

Opportunity time for hand washing	Hand washing opportunities	Hand washing performed	%
After manual cleaning	42	25	59.5%
After inspection and checking of dirty instruments	21	4	19%
after removing gloves used for other purpose	25	7	28%
TOTAL	88	36	40.9%

Table 2: Control of instrument trays

Number of instrument control slips evaluated: 333		
Instrument control moment	instrument slips well filled	Percentage
IAP	333	100%
Before use	209	62.7%
After use	138	41.4%
CSSD control on return	333	100%

Summary

- The audit indicated **87.3% compliance**.
- The control of instruments before and after use was not documented in **37.3%** and **59.6%** cases respectively.

Summary (cont'd)

- There was adequate equipment, appropriate and adequate wraps.
- Most of detergents used for cleaning of instruments were out of date.
- The shortage or stock out of most of surgical instruments was also noted.
- The observed endoscope manual cleaning practices were not safe.

Summary (cont'd)

- **Lack of displayed written SOPs** for reusable instruments on wards, endoscope manual reprocessing, and for manual cleaning of instruments observed.

Conclusion

- A good programme of decontamination and sterilization was observed in the CSSD of TBH.
- Most of their activities are carried out according to the international standards (e.g., BS, EN 556; HTM 2030; ISO 11140).
- The results ranked 87.3% compliance

Conclusion (cont'd)

- However, some improvements are still needed such as proper use of detergents, hand hygiene practice, manual cleaning of endoscopes and records keeping.
- Regular staff training, providing of required SOPs, regular monitoring and evaluation of activities should also be tackled to further improve compliance levels in the CSSD.

References

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