

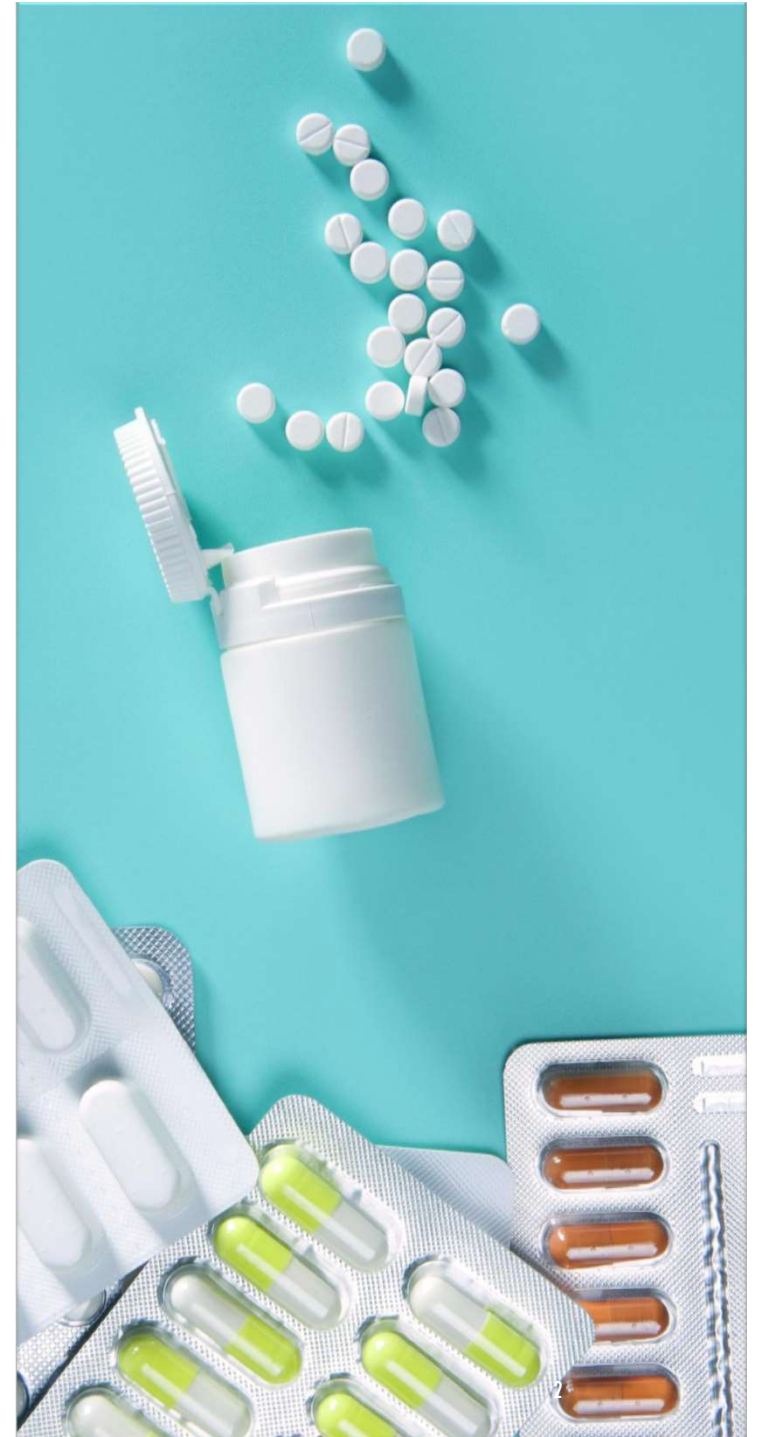
MANAGING HIGH TOUCH AREAS IN THE CENTRAL STERILE SERVICES DEPARTMENT

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INTRODUCTION

- Historically hospitals were cleaned for aesthetic reasons*¹
- The increase in infections and deaths related to healthcare associated organisms, some of which are Multi-Drug Resistant Organisms (MDROs)
- Increased global concern that the hospital environment plays a role in the transmission of clinically relevant antimicrobial resistant Healthcare Associated Infections (HAIs).

*¹Dancer SJ., 2014. Controlling Hospital-Acquired Infections



WHAT CAUSES HAIs?

- Every year millions of people globally are affected by avoidable HAIs¹.
- Patient risks for HAI include:
 - Immune-compromised, underlying medical conditions
 - Increased number of invasive devices
 - Prolonged hospitalisation
 - Extensive antimicrobial use
 - Risk related procedures
 - Insufficient application of standard and isolation precautions

¹WHO Decontamination and Reprocessing of Medical Devices for Health-care Facilities

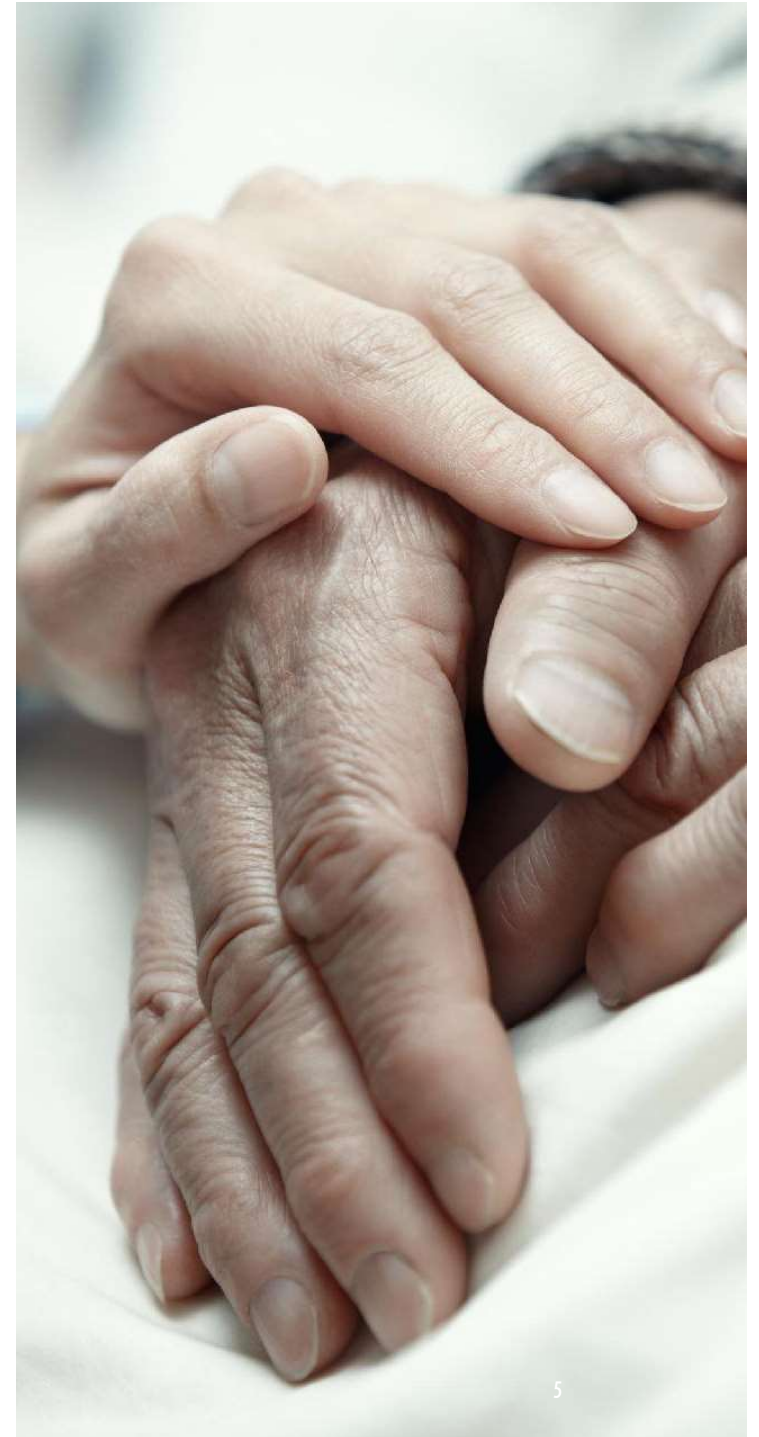
WHAT CAUSES HAIs?

- Facility related factors:
 - Poor compliance or non-adherence to Infection Control measures
 - Poor infrastructure
 - Inadequate environmental hygiene
 - Lack of equipment
 - Overcrowding
 - Understaffing
 - Inadequate knowledge and experience in procedures
 - Lack of national guidelines and procedures

BURDEN OF HAIs

- The burden of HAIs*₁ creates additional pain and suffering for the patient and family
- Additional financial costs, prolonged hospital stay, increased antimicrobial resistance, disability and sometimes death.
- Financial loss for healthcare facilities range in excess of US\$ 6.5 and €7 billion annually.
- Affects the economy of the country.
- No data is available for South Africa

*1WHO Healthcare Associated Infections



CSSD CORE RESPONSIBILITY

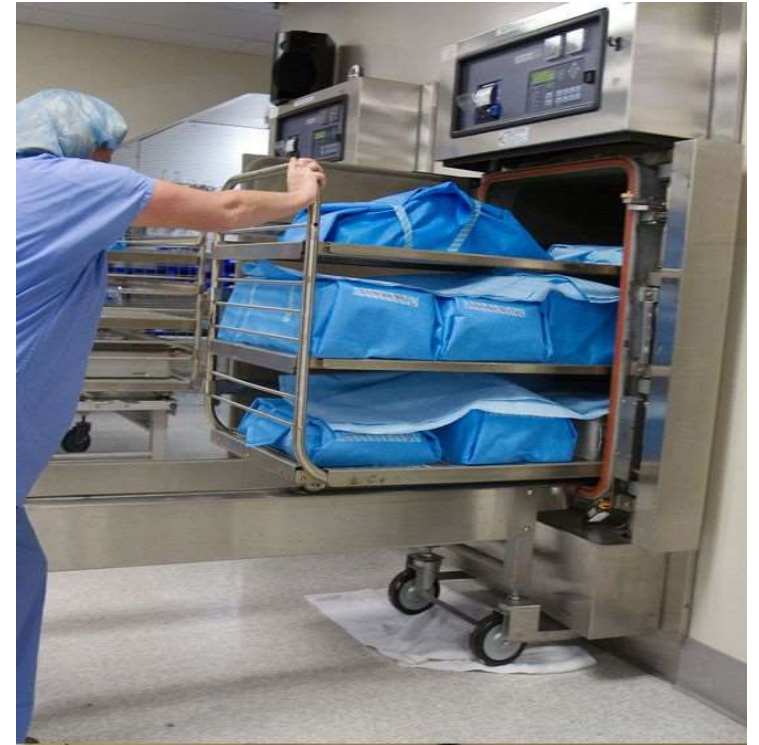
- Central to the functioning of the entire hospital
- Provides items required to deliver quality & safe patient care.
- Responsible for non-sterile and sterile supplies and instruments.
- Comply with policies and procedures to prevent cross infection.



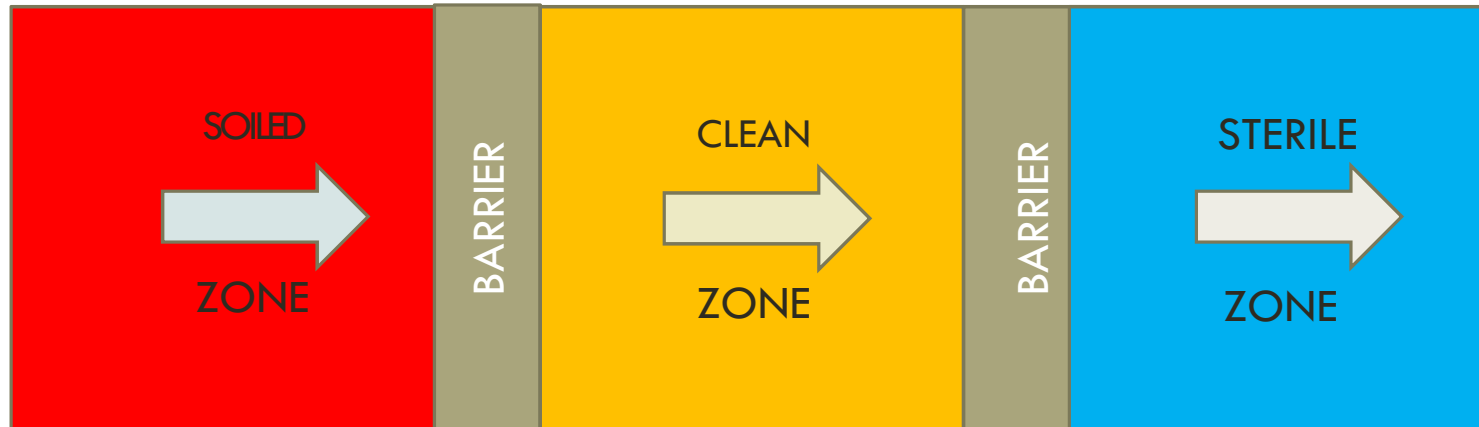
**IS ENVIRONMENTAL CONTAMINATION OF
INANIMATE SURFACES SCEPTICISM OR
CONVICTION?**

HOW CLEAN IS CLEAN?

HOW CLEAN IS YOUR CSSD?



GENERAL LAYOUT OF CSSD



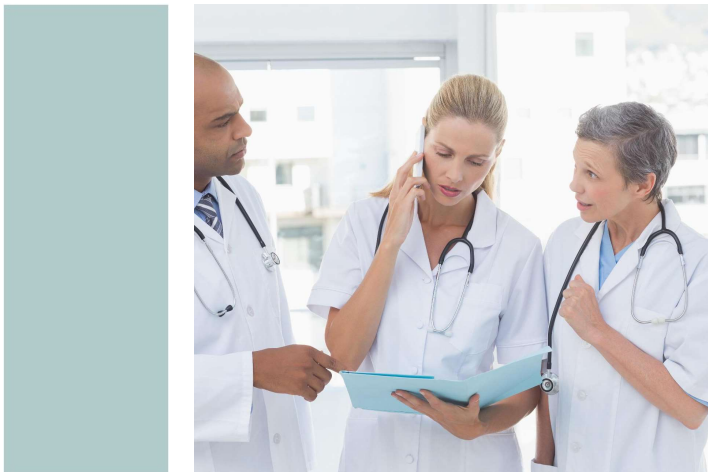
SOILED ZONE

SOURCE OF MICROBIAL CONTAMINATION
AND SPREAD

HIGH TOUCH SURFACES

- Equipment or surfaces that are constantly touched are referred to as “high-touch surfaces/objects”^{*1}
- The pathogens contaminating these surfaces are then transferred onto the hands of healthcare personnel.
- Transmission cycle of micro-organisms maybe clockwise from the patient/equipment, to the hands of healthcare personnel, to the environment, or counter clockwise.
- These organisms, some of which are pathogenic are able to survive on inanimate surfaces for several months in favourable environmental conditions

• ^{*1} *Infection Control and Hospital Epidemiology* 2010; 31(8):850-853



HIGH TOUCH SURFACES

- Call bells, light switches
- Flat surfaces and work table tops
- Shelving
- Trolleys
- Autoclave handles/key pads
- Access doors – door handles, push plates
- Computers, Telephones
- Sinks/taps
- Hand wash basins/taps*¹

• *1 AORN, Inc; 2014:255-276

ENVIRONMENTAL CONTAMINATION

- Gaps in environmental cleaning and
- Hand hygiene practices
- Glove usage
- Create further microbial transmission and environmental contamination



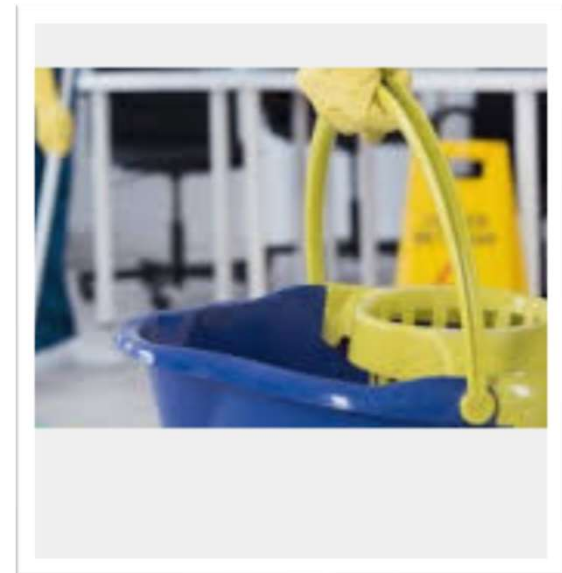
ENVIRONMENTAL CLEANING

- Separate cleaning equipment for separate zones
- Clean from top to bottom
- Work from clean to dirty



ENVIRONMENTAL CLEANING

- Daily damp dusting of all horizontal surfaces
- Use detergent disinfectant
- Single use disposable cloths
- Terminal cleaning to be done at end of shift
- Cleaning checklist
- Validation of cleaning



METHODS TO ASSESS CLEANING

- Various methods are available to assess cleaning*
 - Direct observation
 - Visual inspection
 - Fluorescent marking system
 - Aerobic colony count by sampling environmental surfaces
 - Adenosine triphosphate (ATP) bioluminescence assays
- The latter two are easy however costly and delay in obtaining results
- Limitations to the above

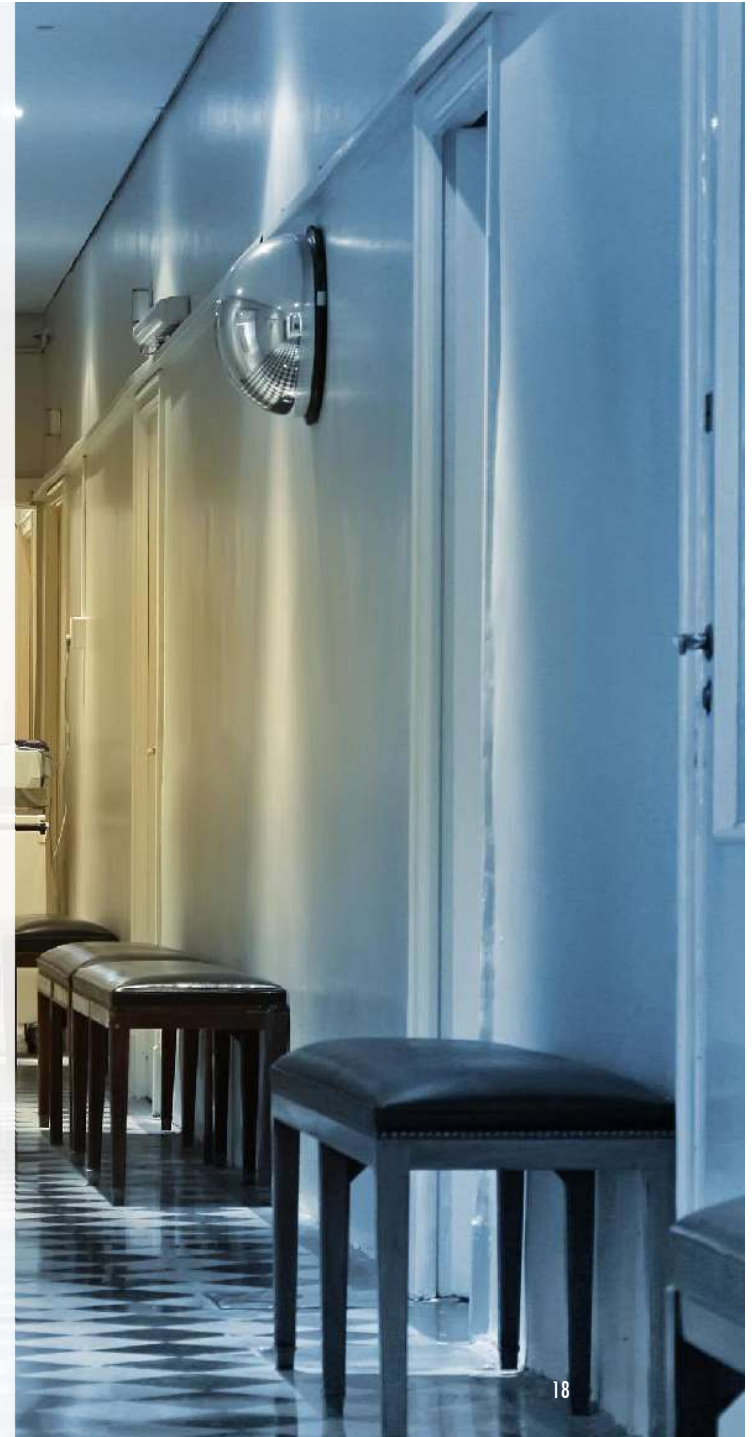
*1 infection control and hospital epidemiology december 2011, vol. 32, no. 12



METHODS TO EVALUATE CLEANING

- Traditional environmental rounds to monitor cleaning
 - Visual inspection and direct observation is inadequate.
 - Only dirt, grime and debris can be seen.
- CDC*₁ recommends hospitals develop programs to objectively evaluate and improve thoroughness of environmental cleaning.

*1 American Journal of Infection Control 41(5) 20-25 May 2013



VISUAL INSPECTION AND DIRECT OBSERVATION IS NO LONGER ADEQUATE



UV MARKINGS & UV LIGHT

*1 HandwashingForLifehealthcare.org



ULTRAVIOLET MARKINGS

- High touch surfaces marked with UV stamps
- Easy and simple to use to evaluate cleaning
- Minimal equipment required
- UV markings used together with performance feedback and education
- Provide significant improvement on surface cleaning*₁.

*₁ *Infection Control and Hospital Epidemiology* 2011, Vol 32, No.12

UV STAMPS

- Selected high touch surfaces are marked using the UV stamp.
- Surfaces stamped are documented on a cleaning checklist
- The high touch surfaces are inspected 24hrs later
- The UV stamp & UV light is used to evaluate whether cleaning has taken place or not
- If the UV stamp is visible, cleaning has not taken place

ULTRAVIOLET INK

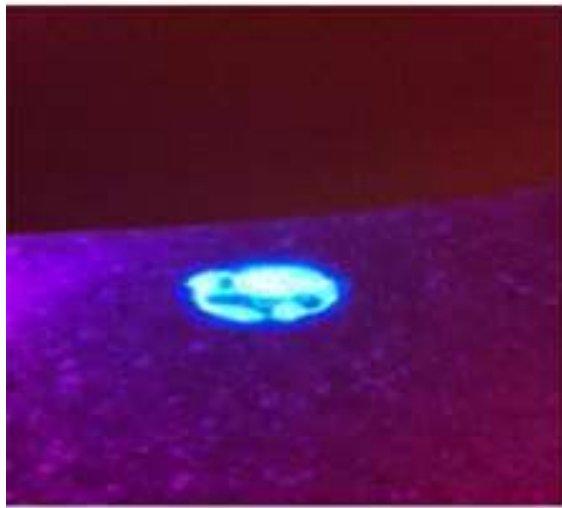
- The UV ink is transparent
- Dries quickly on surfaces
- Resists abrasions
- Is easily removed by manual cleaning and is only visible under a UV light

UV MARKINGS AND UV LIGHT

- UV markings do not provide data on the bacterial load (or organism type) on environmental surfaces, but:
 - They are simple to use and
 - Provides improvement in cleaning and cleaning behaviour

(sensitivity and specificity around 60%)

UV STAMP BEFORE & AFTER CLEANING



Before marked surface was wiped



After marked surface was wiped

A fluorescent marker visible with a UV light on a high touch surface before cleaning (left), and absence of the fluorescent marker after cleaning was performed*₁

*1AMR & IC 2016 (5) 10

ULTRAVIOLET MARKING

- Provides improvement in cleaning and Cleaning behaviour
 - **Australia:** Statistically significant change in cleaning with UV Markers removed increasing from 61.1% to 95.4% in 6 months*₁
 - Improvements in Knowledge and Attitude
 - **USA:** Significant improvement in cleaning practices after providing feedback of results using a UV Marker. At baseline, cleaning was 48% and improved to 77% post-intervention*₂
 - **South Africa:** Study conducted across ICUs in Johannesburg in 2017 and showed an improvement in cleaning compliance using UV markings, however, no significant change in Infection rate.*₃
 - Conducted in ICUs, not CSSDs – more research to be done

*₁Improving Hospital Environmental Hygiene with the use of a targeted-multi-model bundle strategy (2018)23, 107-113

*₂ American Journal of Infection Control 41(2013), s26-s30

*₃ Determining and Developing the Understanding and Practice of Healthcare Professionals' in the Cleaning of High Touch Objects in the Intensive Care Units, Shakiera Sallie, University of the Witwatersrand



THANK YOU