Place and Role of Disinfection and Sterilization in Health Care Systems
• TSSU vs CSSD

• Safe Work in TSSU and CSSD

• Will outsourcing of Sterile Services be the consequence of lack of educated staff?

• Personal skills vs. automated processes
1. Decontamination should start at point of use
   - decontamination efficiency
   - risk during transport to decontamination location
   - health care worker safety
   - quality control

1. Cleaning, disinfection or sterilization
   - OP department, wards, laboratories, clinics, etc

1. Professional decontamination staff

1. Efficient use of medical devices for decontamination
Safe Work in TSSU and CSSD

1. Safe work flow of medical devices in a CSSD
   - Through the soiled goods area
   - Through the first barrier
   - Through the clean goods area
   - Through the sterile goods area

2. Safe work flow of medical devices through the TSSU

3. Safe work flow of medical devices through DISINFECTION ROOMS on OR-level
4. Personal hygiene
   - Personal hygiene
   - Hand Hygiene
   - Correct routines in the
     infected goods area
     soiled goods area
     clean goods area
     sterile goods area
   - Rules for lunch break etc.
   - Regular health control
   - Documented health record
5. General hygiene and cleaning
   - Colour code system
   - Cleaning – low and high infection risk
     floors, tables, furniture etc.
     disinfectors and sterilizers
     wash basins, toilets etc
   - Care and storage of cleaning equipment
   - Handling of:
     chemicals and solutions
     reusable, laundry and normal waste
     hazardous waste and sharps
6. Procedures

- Washer disinfectors, separate dryers and correct loading of their accessories
- Flusher disinfectors, their holders and correct loading of their receptacles
- Chemical disinfection and boilers
- Sterilizers, loading equipment and correct loading of baskets etc.
Outsourcing Sterile Services

A threat or an opportunity?
What is a Super CSSD?
• **System solution**
  – Complete CSSD capacity servicing multiple health care facilities
  – Disinfection equipment
    • Large automated Washer Disinfector
    • Smaller automated Washer Disinfector
    • Ultra sonic washer
    • Automatic loading/unloading function
  – Sterilizer function
    • Large capacity
    • Double door system
    • Automatic loading/unloading function
  – Clean Steam Generator
• **System solution**
  – Water treatment plant
  – Production and distribution function
  – Computerized Management and Traceability System
  – Increase service and maintenance function
    • Service agreement
    • Validation and routine checks
    • Guaranteed ”up-time”
    • Training
• Example
  – Leeds & Bradford
• Example
  - Manual precleaning and disinfection
• Example
  – Disinfection and AGS system
Example
  - Packaging area
Outsourcing Sterile Services

- **Example**
  - Sterilizers with automatic loading
• Example
  - Sterilizers with automatic unloader
• **Example**
  - Sterile store
• **Function**
  
  – Sterilization “factory”

  – Have high quality/standard in the decontamination function

  – Improve the decontamination functions as soon as possible

  – Quality assure the sterilization function

  – Improve the decontamination processes by improving education, management and to conform to standards
• **Consequence**
  - Less staff in hospital required
  - Less or no need of NVQ
  - No need of medical training
  - Quality assure by vendor
  - Probably cheaper for hospital
  - Cost effectiveness
Outsourcing Sterile Services

- Fiction or future
  - Already operational units in e.g. UK, France, US and SEA
  - Additional units planned and under construction
  - Not applicable to all countries
• **Conclusions**
  – An obvious trend toward quality control
  – Cost effectiveness
  – Distribution

• "Big is beautiful"
Personal Skill vs Automated Processes

- If manual decontamination is applied the quality is the result of the individual skill of the healthcare worker
  - How is this process qualified
  - How are healthcare workers trained
If automatic decontamination is applied the process should be validated according to e.g. ISO/EN 15883 and 17665

- Healthcare workers must be trained on how to use the equipment and its accessories
- Validation ensures Quality Control
To optimize the throughput in e.g. a CSSD, staff must be trained

- How to use the equipment
- On the intended workflow

- Thus, NVQ must include practical and hands-on sections
### Personal Skill vs Automated Processes

#### Soiled area
- **Total process**: 119.3 days
- **Trolleys**: 119.3 days
  - **Instrument trays**
    - **Goods waiting to be processed**: 33 days
    - **Instrument tray unloading**: 0 days
    - **Instrument tray registration-reading**: 3 days
    - **Waiting for wash cart to be completed**: 11 days
    - **Wash cart registration**: 0 days
    - **Wash cart transportation**: 1 day
    - **Wash cart loading**: 1 day
    - **Wash cart waiting for free disinfectant**: 12 days
    - **Wash cart/MIDP process**: 59.8 days
  - **Utensils**: 0 days
  - **Single instruments**: 0 days

#### Clean area
- **Total process**: 93 days
- **Trolleys**: 93 days
  - **Instrument trays**
    - **Instr. tray wash rack unloading**: 1.5 days
    - **Instr. tray wash rack transportation**: 0.6 days
    - **Instr. tray wash rack storage**: 21.4 days
    - **Instrument tray registration processing**: 8.2 days
    - **Instrument tray transport to packaging**: 0.1 day
    - **Instrument tray packaging**: 0.8 days
    - **Loading to sterile rack**: 0.2 days
    - **Waiting for rack to be completed**: 20 days
    - **Manual loading of automated loader**: 1.5 days
    - **Washing for load to be completed**: 16.5 days
    - **Scanning of lines 2 racks, 20 packages**: 1.3 days
    - **Waiting for sterilizer to be available**: 20.2 days
    - **Sterilizer loaded, door closed**: 1.4 days
  - **Utensils**: 0 days
  - **Single Instruments**: 0 days
  - **Rack return**: 85.5 days
    - **Empty wash rack transport**: 0.4 days
    - **Empty wash rack loading to conveyor**: 0.6 days
  - **Sterile zone**: 82.8 days
    - **Sterilization process**: 65.7 days
      - **Sterilization**: 65.7 days
      - **Sterilization process average**: 65.7 days
    - **Unloading**: 0 days
      - **N-1 unload of aut. unloader - Rack**: 0 days
    - **Rack return**: 0 days
      - **Empty rack transport**: 0.4 days
      - **Empty rack loading to conveyor**: 0.6 days
    - **Sterile storage**: 11.5 days
      - **Cooling period**: 11.5 days
      - **Load registration**: 0 days
      - **Goods unload**: 0 days
      - **Package inspection**: 0 days
      - **Goods handed over to user**: 0 days

#### Sterile area
- **Total process**: 79.6 days
- **The User**: 0 days
  - **Goods collection**: 0 days
  - **Loading trolleys**: 0 days
  - **Trolley transportation**: 0 days
Personal Skill vs Automated Processes

• Example
  – Automated disinfectors with automatic loading system
Personal Skill vs Automated Processes

- **Example**
  - Automated sterilizers with automatic tracking system
• Example
  – Automated sterilizers with automatic unloading system
• Decontamination process should start at point of use

• CSSD function is an important role in the health care system

• Efficiency and quality control will be focused in the future

• Automated processes is the only option to fulfil international standards
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