

# “The importance of Logistics in the CSSD”

Wim Renders

- In the past: focus on the sterilization process because of the conviction that a device which was sterilized would be and remain sterile
- Due to new insights, new diseases and triggers of diseases, from the 90's, the accent shifted to cleaning and disinfection
- A marginal phenomenon in and around sterilization still is the logistical process although it is an integral part of the decontamination cycle



Transport



Sterile  
Storage



Sterilization



Packaging



Use



Transport



Cleaning/  
Disinfection



Inspection &  
Tray Assembly



- Purpose of the logistical process:
  - Delivery on time
  - To maintain the sterility of the sterile medical devices until they are used!
- Our responsibility does not stop at the exit doors of the CSSD







## Room for improvement

1. Stacking of sterile medical devices in the OR











## Room for improvement

1. Stacking of sterile medical devices in the OR
2. Sets are opened and set out in advance







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## **Time-dependent contamination of opened sterile operating-room trays.**

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### **Abstract**

**BACKGROUND:** There are no clear guidelines for how long a sterile operating-room tray can be exposed to the open environment before the contamination risk becomes unacceptable. The purpose of this study was to determine the time until first contamination and the rate of time-dependent contamination of sterile trays that had been opened in a controlled operating-room environment. We also examined the effect of operating-room traffic on the contamination rate.

**METHODS:** Forty-five sterile trays were opened in a positive-air-flow operating room. The trays were randomly assigned to three groups. All trays were opened with use of sterile technique and were exposed for four hours. Culture specimens were obtained immediately after opening and every thirty minutes thereafter during the study period. Group 1 consisted of fifteen trays that were opened and left uncovered in a locked operating room (i.e., one with no traffic). Group 2 was identical to Group 1 with the addition of single-person traffic flowing in and out of the operating room from a nonsterile corridor every ten minutes. Group 3 included fifteen trays that were opened, immediately covered with a sterile surgical towel, and then left uncovered in a locked operating room (i.e., one with no traffic).

**RESULTS:** Three of the thirty uncovered trays (one left in the operating room with traffic and two left in the room with no traffic) were found to be contaminated immediately after opening. After those three trays were eliminated, the contamination rates recorded for the twenty-seven uncovered trays were 4% (one tray) at thirty minutes, 15% (four) at one hour, 22% (six) at two hours, 26% (seven) at three hours, and 30% (eight) at four hours. There was no difference in survival time ( $p = 0.47$ ) or contamination rate ( $p = 0.69$ ) between the uncovered trays in the room with traffic and those in the room without traffic. The covered trays were not contaminated during the testing period. The survival time for those trays was significantly longer ( $p = 0.03$ ) and the contamination rate was significantly lower ( $p = 0.02$ ) than those for the uncovered trays.

**CONCLUSIONS:** Culture positivity correlated directly with the duration of open exposure of the uncovered operating-room trays. Light traffic in the operating room appeared to have no impact on the contamination risk. Coverage of surgical trays with a sterile towel significantly reduced the contamination risk.

Problems are not only situated outside the CSSD. The department too has to pay more attention to the correct handling of medical devices

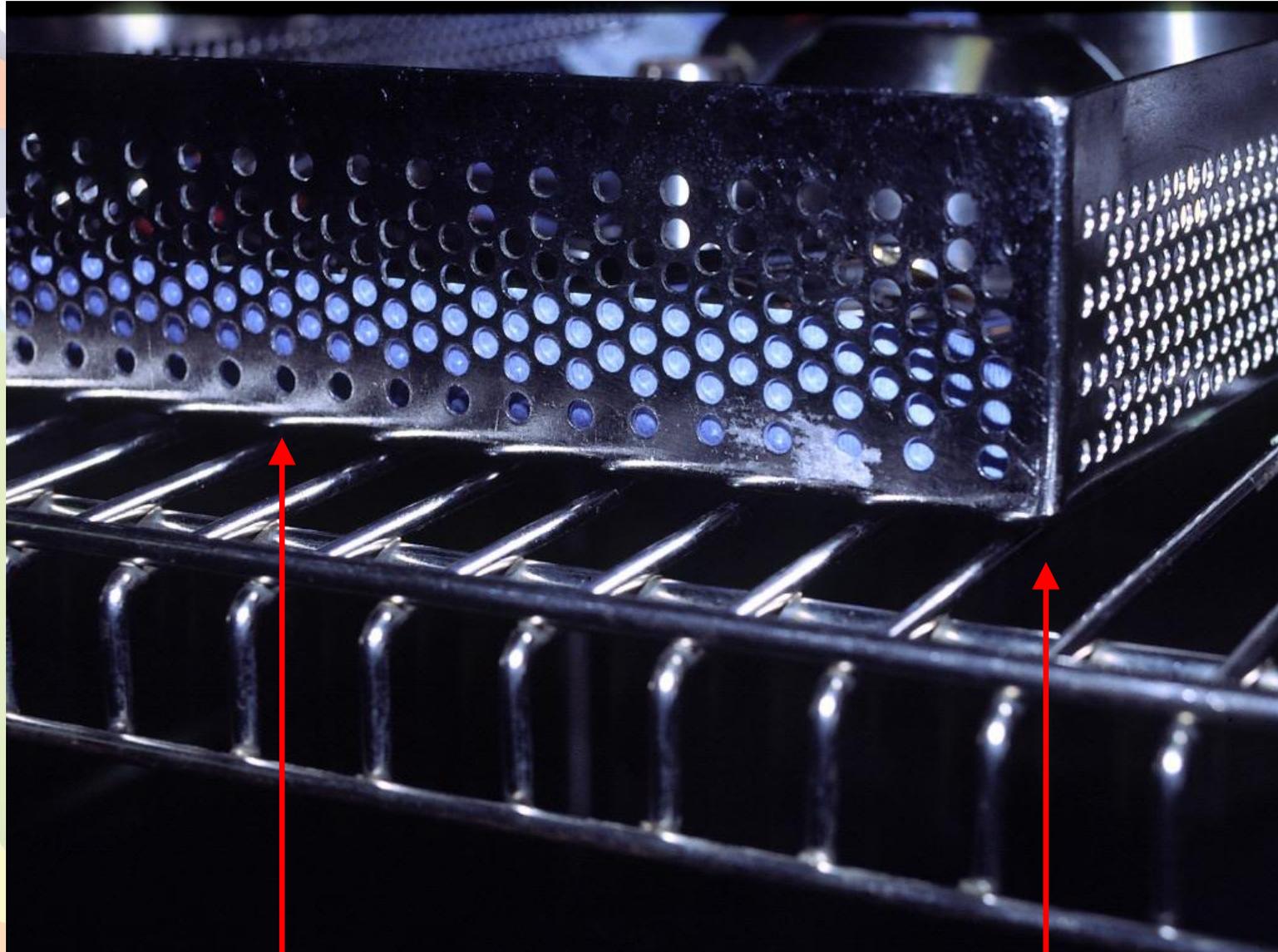
Cartoon 15 - Logistics in Sterile Storage



Logistics in Sterile Storage





















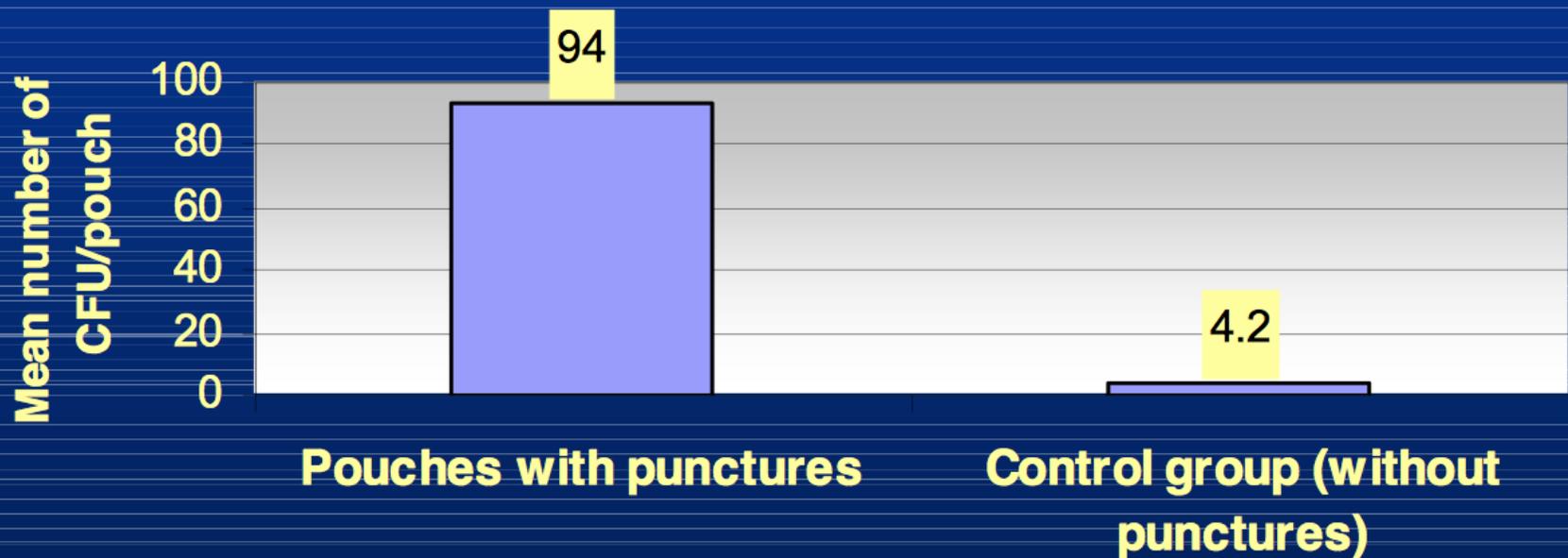
- Our packaging problem under control: 20 used sets checked: no damaged packaging found
- In 2 other Belgian hospitals by checks in the OR: 15% damaged packaging found
- Nowadays trend in Europe: 1 layer of SMS (outside) in combination with a layer of non-woven (inside)

## ***Investigation of an increase in surgical site infections among Orthopaedic and Ophthalmology patients***



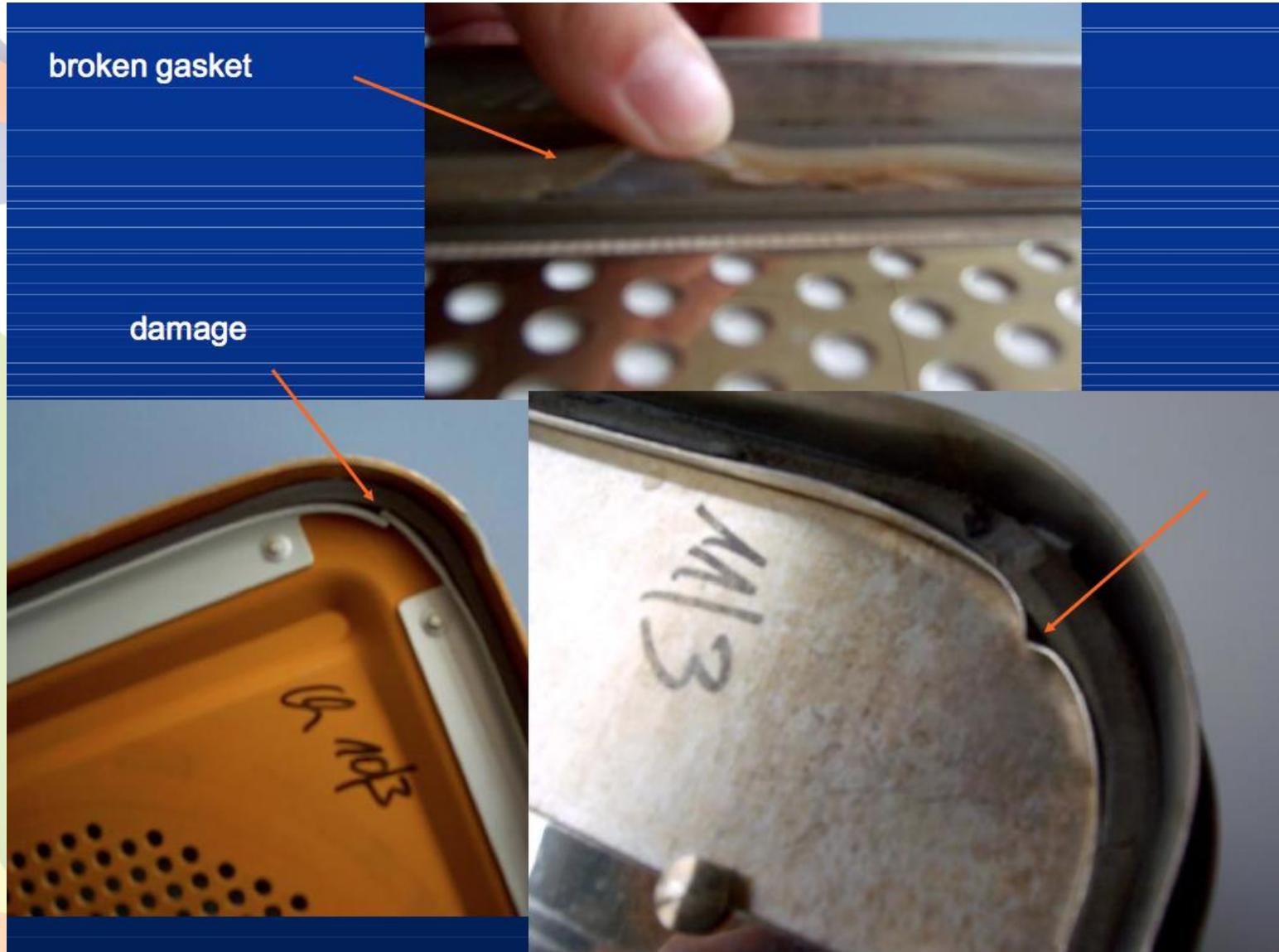
## Effect of punctures on recontamination (25 pouches per group)

### Effect of a 0.55 mm puncture on the microbial barrier



T. Kami





- An integrated logistical concept which encompasses the whole hospital is often lacking
- Logistics has to be based on a general concept which is rolled out throughout the whole hospital
- Integration of all logistical activities

## General problems with logistics

- Staff with low qualifications what makes their training necessary
- Means are not sufficient
- Storage rooms do not meet the requirements
- At the end of the cycle people are too careless: nets on top of each other, pushing the products on the shelves etc.









Ladies,

Please lift the sets  
well when placing!!!

Thank you.

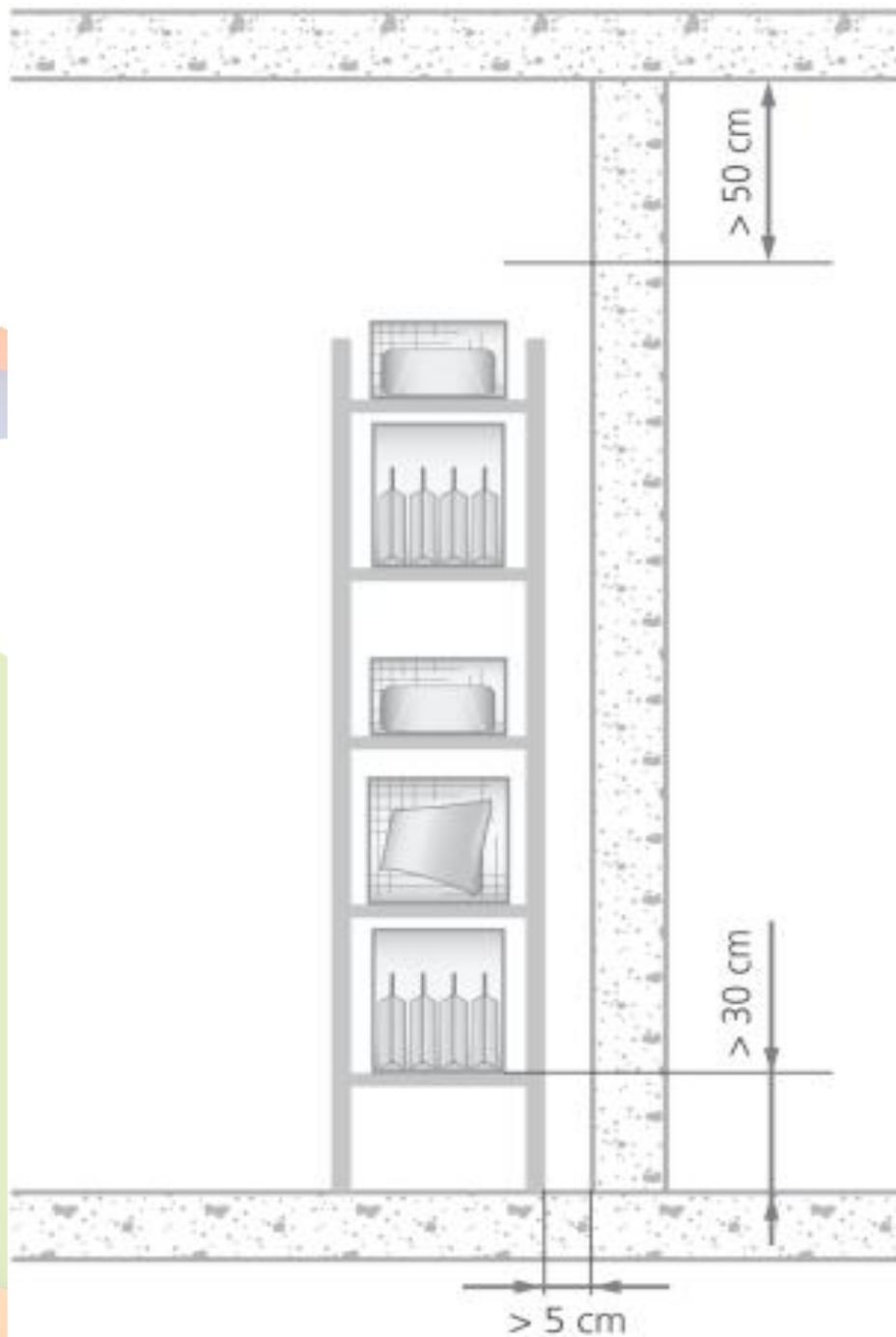
2 basic rules:

1. Sterile material has to be manipulated as little as possible. Baskets are manipulated not the sets

2. In principle: One way traffic from storage to the patient

## Central warehousing in direct enclosing packaging

- In sterile warehouse (only for sterile products), Dutch building norms:  
class 100.000 (ISO 8)
- Access for authorized persons only
- Delivery and return via a goods sluice
- No direct contact with outside air
- No direct exposure to sunlight
- Dust- and draft free, dry, constant temperature, no condensation



Dennhofer

- No open drains and water tap points
- Floors smooth and impermeable
- Walls, floors and ceilings: prevent dust accumulation
- Shelves, cupboards and means of transportation have to be made of material which is easy to clean and have to be clean and dry
- Transport packaging removal in goods sluice
- Relative humidity between 50 and 75% (between 40 and 75% AFS)
- Temperature around  $20^{\circ} \text{C}$ ,  $+ 5^{\circ} \text{C}$  –  $2^{\circ} \text{C}$

# Bouwmaatstaven voor de sterilisatie-afdeling

- in de ruimten voor inpakken, ontladen en opslaan moet de kwaliteit van het eindfilter overeenkomen met minimaal 95% DOP-test (klasse 100.000). De eindfilters worden zo dicht mogelijk bij de uitblaasroosters aangebracht. De filterspecificatie ten behoeve van de mechanische ventilatie van de overige ruimten moet zijn volgens 80% Dustspot;

## RECOMMENDATIONS

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CENTRAL  
STERILISATION  
3

### **Keywords**

- sterilisation
- CSSD
- architecture

# Architecture and Sterilisation Premises

*AFS Working Group\**















## Storage on nursing and treatment units

- In storage cupboards or on dressing trolleys
- Minimum: replenishing once a week

## A. Cupboards

- Dedicated cupboard, preferably closed
- Easy to clean (1 x every 3 months)
- Only for sterile material
- FIFO
- Internal distribution packaging should be replaced
- Clean, dry and dust free







# Dressing trolleys

- Stock: no more than 24h-48h
- Do not take into the room of the patient
- Not in use: in area without increased contamination risk, closed or covered
- Weekly cleaning
- FIFO
- In principle: Never from trolley to storage cupboard



## Treatment trolleys

- For 1 patient
- For 1 treatment
- Cleaning/disinfection after use



## Storage of medical devices in the patient room

- In closed box
- For 24-48 h
- Never put back in the supply of the ward
- Don't use for another patient
- Unused = discarded
- Cleaning: 1 x week

## Transport of sterile medical devices within the institution

- Closed vehicles or containers exclusively for sterile medical devices (cleaning 1/week)
- Dirty: separate closed transport (cleaning after use or at least 1/day)



## Trends in logistics

1. Case cart with most of the products used for 1 surgical intervention
2. Procedure packs: the industry provides both the draping material and the single use devices, sterile, in 1 pack
3. Outsourcing of logistics: the warehouse is outside of the hospital









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Knowledge and motivation

Thank you!