

ENVIRONMENTAL SERVICES

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ROLE OF THE PHYSICAL ENVIRONMENT

- ▶ The physical environment plays a role in the spread of infection
- ▶ Environmental Services' role is to reduce the spread of infection in the physical environment by properly and thoroughly cleaning and *disinfecting* the physical environment

INPATIENT DAILY CLEANING

- ▶ Top-down, plus circular approach; from cleanest to dirtiest
 - ▶ Patient's room then patient's restroom
- ▶ Ask permission to enter personal space- especially bed rails
- ▶ Frequently touched areas especially important:

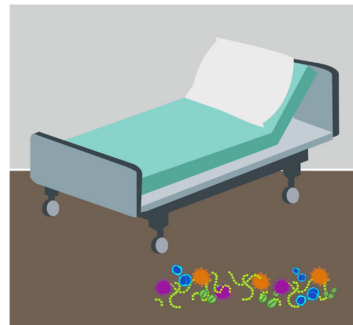
Doorknob(s)	Light switches
Overbed table	Phone
Call button	Faucet handles
Toilet flush handles	Chair arms
- ▶ Mop floor last- start in patient room then mop restroom; OR use separate mops in room and restroom
 - ▶ What about floors

Acknowledgement: Jason Smith; Director UNC Environmental Services



EVALUATION OF HOSPITAL FLOORS AS A POTENTIAL SOURCE OF PATHOGEN DISSEMINATION

- ▶ Effective disinfection of contaminated surfaces is essential to prevent transmission of epidemiologically-important pathogens
- ▶ Efforts to improve disinfection focuses on touched surfaces
- ▶ Although floors contaminated, limited attention because not frequently touched

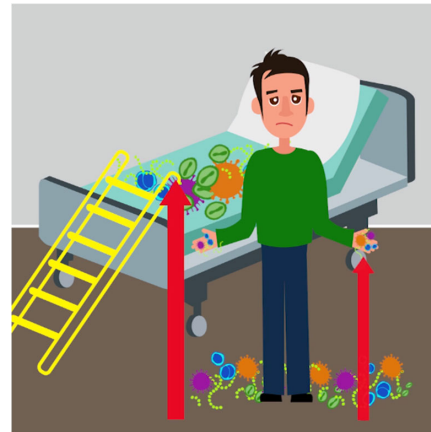


Koganti et al. ICHE 2016. 37:1374; Deshpande et al. AJIC 2017. 45:336.



EVALUATION OF HOSPITAL FLOORS AS A POTENTIAL SOURCE OF PATHOGEN DISSEMINATION

- ▶ Floors are a **potential** source of transmission because often contacted by objects that are then touched by hands (e.g., shoes, socks)
- ▶ Non-slip socks contaminated with MRSA, VRE



Mahida, J Hosp Infect. 2016;94:273

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RECOVERY OF NONPATHOGENIC VIRUSES FROM SURFACES AND PATIENTS ON DAYS 1, 2, AND 3 AFTER INOCULATION OF FLOOR NEAR BED

- ▶ Found that a nonpathogenic virus inoculated onto floors in hospital rooms disseminated rapidly to the footwear and hands of patients and to high-touch surfaces in the room
- ▶ The virus was also frequently found on high-touch surfaces in adjacent rooms and nursing stations
- ▶ Contamination in adjacent rooms and in nursing station(s) suggest HCP contributed to dissemination after acquiring the virus during contact with surfaces or patients
- ▶ Studies needed to determine if floors are source of transmission



Koganti et al. ICHE 2016. 37:1374

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INPATIENT TERMINAL DISCHARGE CLEANING

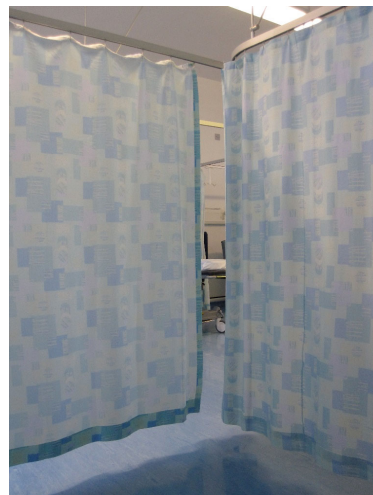
- ▶ Same theory as Daily Cleaning but more intensive
- ▶ High Dust the entire room
- ▶ Spot clean walls
- ▶ Move furniture to mop
- ▶ Spray curtains with AHP to disinfect

Acknowledgement: Jason Smith; Director UNC Environmental Services



PRIVACY CURTAINS

- Cleaned when visible soiled
- After use in contact isolation room
- On some routine basis



DISINFECTANT

- ▶ Accelerated Hydrogen Peroxide, Quaternary Ammonium Compounds, or any of the same category of disinfectants are effective against most pathogens
- ▶ Many facilities still using Quats and microfiber wipers
- ▶ At UNC Hospitals we are now using AHP in Ready-to-Use wipes
 - ▶ Dwell time on label for previous chemical = 10 minutes
 - ▶ Dwell time on label for AHP = 1 minute
 - ▶ HMIS rating: 0 Health, 0 flammability, 0 reactivity
 - ▶ No PPE required to use chemical, but suggested for patient safety
 - ▶ No preparation of wipers, no testing of concentration after mixing

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DISINFECTANT

- ▶ AHP, Quats, etc. not effective against spores (AHP has 1-minute norovirus kill claim)
- ▶ C. Difficile, a spore, must use a stronger disinfectant that has a specific kill claim as a sporicide
- ▶ Most popular choice is Bleach with a 4-minute dwell time
 - ▶ 1:10 bleach to water mixture, or
 - ▶ RTU bleach wipes

Acknowledgement: Jason Smith; Director UNC Environmental Services



ULTRAVIOLET DISINFECTION

- ▶ In addition to the Environmental Cleaning with bleach, UV Disinfection can help reduce the spread of infection
- ▶ Many types of UV Devices on the market including:
 - ▶ Pulsed xenon
 - ▶ Dose-measuring devices
 - ▶ Broad-spectrum UV
 - ▶ Short-wavelength UV-C
- ▶ Pros and Cons to different types

Acknowledgement: Jason Smith; Director UNC Environmental Services



ULTRAVIOLET DISINFECTION

- Open all cabinets
- Raise bed rails
- Leave bed unmade
- Run on far side of bed



Acknowledgement: Jason Smith; Director UNC Environmental Services



ULTRAVIOLET DISINFECTION

- Flip and move call button
- Flip and move telephone (if possible)
- Run on opposite side of bed



Acknowledgement: Jason Smith; Director UNC Environmental Services



ULTRAVIOLET DISINFECTION

- Place in Restroom and run device

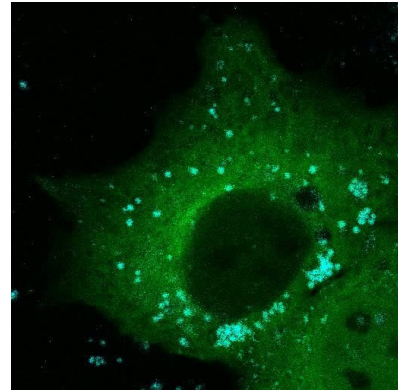


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FLUORESCENT MARKING

- ▶ Measuring effectiveness of cleaning, ensuring that surfaces wiped down
- ▶ Invisible fluorescent marker that can be seen with UV flashlight
- ▶ Mark high touch surfaces:
 - Light Switches
 - Bed Headboard
 - Faucet handles
 - Toilets
 - Soap Dispensers
- ▶ After cleaning, use UV flashlight to check for presence of marker on surfaces



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FEEDBACK/TRAINING/MONITORING

- ▶ Regular feedback and training is essential to the success of the Environmental Services colleague.
- ▶ Monitor individual routinely (weekly/monthly)
- ▶ Training Annually on job-specific topics
- ▶ Feedback of data to other stake holders (IPCC for example)
 - ▶ More frequently as trends emerge with Quality checks



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