Cleaning, Disinfection, and Sterilization, and Care of the Environment

Last Updated 2015

Basics of Infection Prevention
Healthcare-Associated Infections Program
Center for Health Care Quality
California Department of Public Health

Objectives

- Describe basic principles of cleaning, disinfection, and sterilization
- Describe how to monitor cleaning, disinfection, and sterilization processes
- Describe the relationship between the healthcare environment and infection prevention
- Identify key systems and practices that contribute to infection prevention
- Identify practices to reduce the risk of environmentally-related healthcare-associated infections (HAI)

Part I

CLEANING, DISINFECTION, AND STERILIZATION

Terminology

- Cleaning: removal of debris (e.g., dirt, food, blood, saliva); reduces the amount of organic matter that contributes to proliferation of bacteria and viruses
- Disinfection: removes most organisms present on surfaces that can cause infection or disease
- Sterilization: Killing or removal of all organisms

Cleaning, Disinfection, and Sterilization in Healthcare Settings

- Practice standards are based on Spaulding's Classification system
  - Healthcare devices and equipment designated as:
    - Critical
    - Semi-critical
    - Non-critical
- Categories define level of reprocessing required

Critical Items

- Require sterilization
- Includes items that enter sterile tissue or the vascular system
- Examples: surgical instruments and accessories, biopsy forceps, cardiac and urinary catheters, implants, needles

Semi-Critical Items

- Require minimum high level disinfection or sterilization
- Includes items in contact with non-intact skin or mucous membranes
- Cleaning process must precede high-level disinfection
- Examples: respiratory therapy equipment, anesthesia equipment, flexible and larnygoscopes, bronchoscopes, GI endoscopes, cystocopes, vaginal ultrasonic probes

Non-Critical Items

- Require intermediate-level or low-level disinfection
- Includes items in contact only with intact skin
- Examples: blood pressure cuffs, stethoscopes, durable mobile patient equipment

Environmental Cleaning and Disinfection

- Patient environment can facilitate transmission of bacteria and viruses
  - By direct contact
  - On hands of healthcare personnel
- Contaminated surfaces increase potential for transmission of bacteria and viruses between patients
- Items categorized as non-critical need intermediate or low disinfection - or require cleaning only

Policy Considerations

- Include, in policy, surfaces and equipment that can reasonably be expected to be contaminated by bacteria (high touch surfaces)
- Define responsibility and frequency for cleaning and disinfecting patient care equipment and surfaces

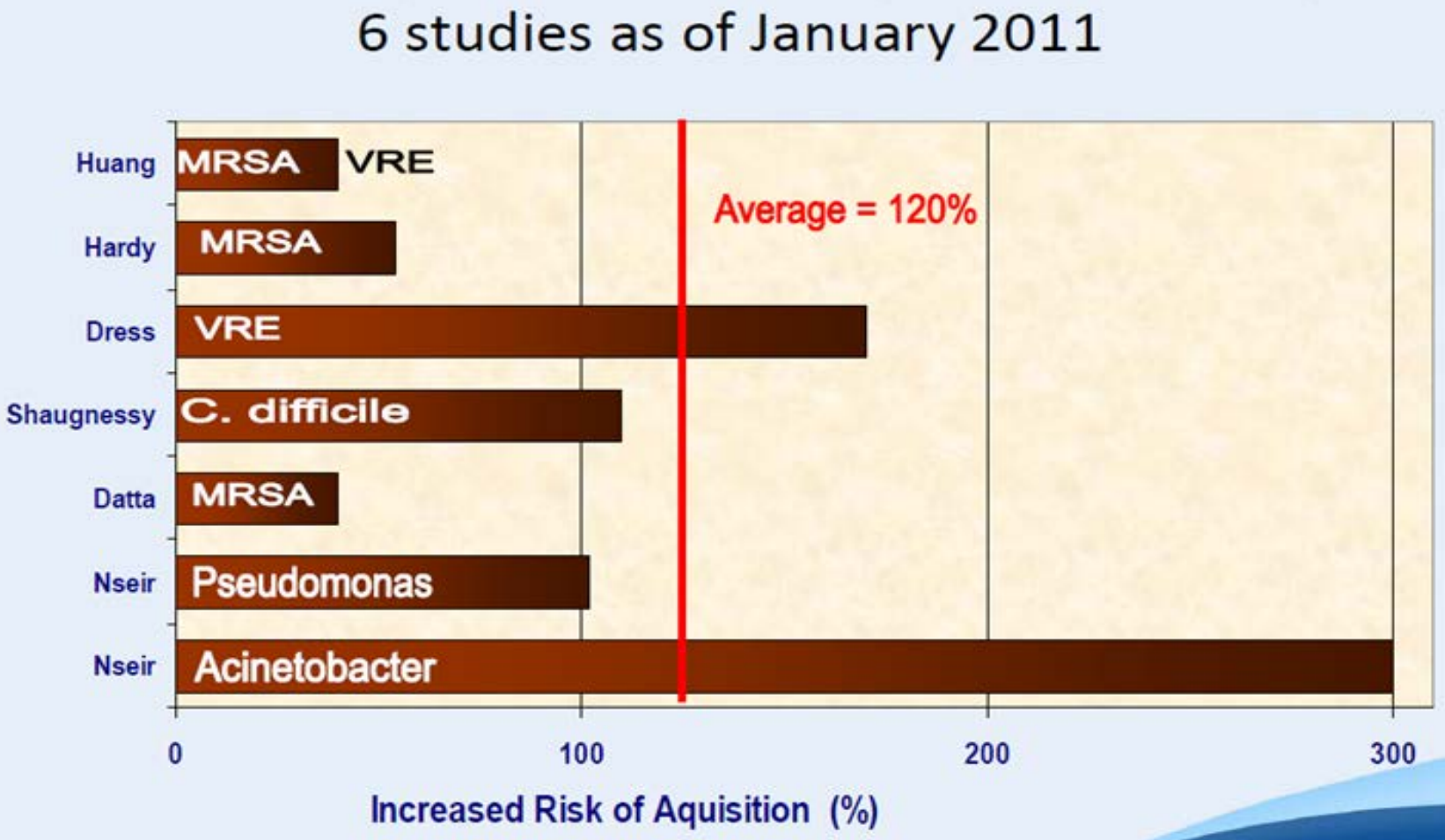
Policy Considerations - 2

- Monitor compliance with policy
- Ensure staff are able to answer: “How do you know whether this item has been cleaned and disinfected?”
- Cleaned and disinfected items should be labeled with date and time

High Touch Surfaces in Patient Rooms

- Considered non-critical
- Must be cleaned *then* disinfected on a regular basis
  - Examples:
    - Bedrail
    - Call bell
    - Light switches
    - Doorknobs
    - TV remote
    - IV pump
    - Toilet, commode chair
    - IV poles
    - Computer keyboard
    - Telephone
    - Over bed table
    - Respiratory and other bedside equipment
    - Chairs

Increased Acquisition Risk from Prior Infected Room Occupant



·Carling PC, Bartley JM. Am J Infect Control 2010;38 S41-50.

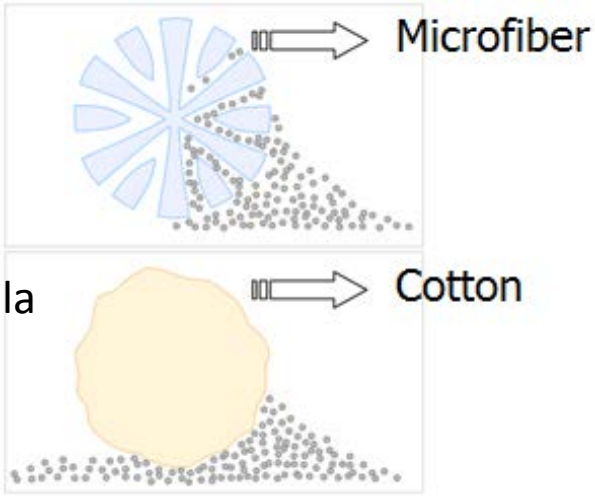
Items Requiring Cleaning Only

- Floors, walls, and windows
- Chairs and other furniture used by individuals who are clothed
- Private offices and other non-public, non-patient care areas
- Bed curtains should be changed when soiled and with terminal cleaning

Clarify in policy what needs to be cleaned and not necessarily disinfected

Use Microfiber for Cleaning

- Densely constructed synthetic strands ~1/16th the diameter of a human hair
- Attracts dust and cleans ~50% better than comparable cotton
- Easier to use, lighter, designed for repeat usage



HICPAC Disinfection & Sterilization Guideline 2008, Rutala

Monitor Environmental Cleaning Processes

- Bioluminescence (outcome measure)
  - Monitors for light emissions produced in organism is present
  - Results are difficult to interpret because it is unknown whether organism remains viable and thus transmissible
  - Expensive

Monitor Environmental Cleaning Processes - 2

- Fluorescence (process measure)
  - Monitors for chemical markers that fluoresce with ultraviolet light if not removed during cleaning
- Culturing
  - Use only during some outbreak investigations
- Visual inspection
  - Make routine rounds and provide feedback to frontline staff

Linens

- All linen handled as if contaminated with blood or body fluids (standard precautions)
  - Bag linen at point of use
  - Wear PPE when sorting and agitate minimally
- Laundry equipment must be maintained to prevent microbial contamination (manufacturer's instructions for use must be followed)

Linens - 2

- New laundry technologies allow linen washing without requirements for hot water and chlorines
  - Hot water: 160°F x 25 minutes
  - Cold water: 71-77°F with 125ppm chlorine bleach rinse or equivalent detergent
  - Detergents not required to have stated antimicrobial claims
    - Manufactures instructions for use must be followed

Cleaning, Disinfection, and Sterilization of Medical Instruments and Devices

- Disinfection or sterilization cannot be achieved without cleaning first
  - Organic material dilutes disinfectants
  - Bioburden must be reduced for processes to be effective
- Clean all medical instruments and devices by:
  - Removing visible soil
  - Disconnecting or separating instrument parts
  - Avoiding organic material drying on equipment by rinsing or soaking in an enzymatic solution

Personal Protection

When cleaning soiled medical instruments, wear:

- Long-sleeved impervious gowns
- Eyewear
- Mask or mask with face shield
- Gloves
- Cap
- Chemical goggles (when mixing or changing solution)

Disinfection

- Eliminates or kills most bacteria, many virus types, some fungi (not prions)
- Cannot be accomplished without first cleaning
- Time-dependent process
- Levels of disinfection: high, intermediate, or low
- Hospitals must use EPA-approved product for desired levels of disinfection
  - Product must have a tuberculocidal label claim at minimum

Disinfection - 2

- Follow manufacturer's recommendations to achieve disinfection and to avoid medical device damage
  - Use correct dilution; more is not better
  - Use correct contact time
  - Use correct temperature

Disinfection - 3

- Understand employee and environmental safety issues
  - Do not exceed exposure limits
  - Know permissible exposure levels
  - Assess compatibility with gloves, basins, other products

EPA Registration of Disinfectants

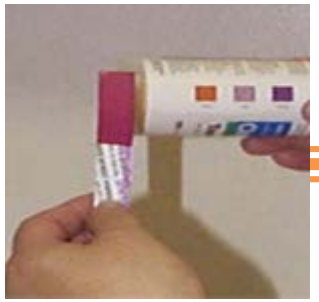
- Labeled as high, intermediate, or low level
- May include degrees of approval
  - Limited approval (e.g., kills Hepatitis B and HIV, but not approved for spores)
- Select disinfectant based on purpose of disinfectant (e.g., environmental versus medical device disinfection)

Search EPA website by product name (www.**epa**.gov/oppad001/chem**reg**index.htm)

High-Level Disinfection

- EPA-approved products for high-level disinfection include gluteraldehyde, ortho-phthaldehyde (OPA), peracetic acid, hydrogen peroxide
- Ensure achievement of temperature requirements

High-Level Disinfection - 2



- Test product prior to each use
  - Can get diluted with frequent use
  - Follow facility policy
  - Test strips expire; monitor dates
- Change product as indicated by test and as manufacturer requires
- Maintain log records
- Ensure competency of staff

Endoscopes and Bronchoscopes

- An estimated 14.4 million gastrointestinal endoscopic procedures are performed annually in the U.S., including 500,000 ERCPs [1]
- Since 2013, there have been 69 infections with CRE related to duodenoscopes
  - –13 deaths may have been partially attributable to the infection that developed after exposure to the scope[2]

[1] ASGE, FDA, March 5, 2015

[2] CDC 2014, 2015 Communications

Endoscopes and Bronchoscopes - 2

- Professional organization guidelines require
  - –Minimum high-level disinfection
  - –Competency of personnel performing process
- Outbreaks associated with failure to comply with guidelines for disinfection and sterilization

Endoscopy -Associated Infections

- More healthcare-associated outbreaks are associated with endoscopes than any other medical device
- Scopes acquire high levels of contamination with use (bioburden) due to high bacteria levels in areas explored

Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008
(https://www.cdc.gov/hai/pdfs/disinfection_nov_2008.pdf)

Bronchoscopy-Associated Infections

Evidence of transmission of pathogens from inadequately processed bronchoscopes including:

- Mycobacteria resistant to many disinfectants
- Pseudomonas aeruginosa (problematic MDRO)

Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008
(https://www.cdc.gov/hai/pdfs/disinfection_nov_2008.pdf)

Endoscope Re-Processing

Perform steps in order. Do not skip steps!

1. Clean
   - Remove debris and tissue which can impede the disinfection process
   - Flush all lumens (water & enzymatic cleaner)
2. High-level disinfection
   - Perfuse through all channels with disinfectant

Endoscope Re-Processing - 2

Perform steps in order. Do not skip steps!

3. Rinse all channels
   - Use sterile or filtered water
   - Follow with alcohol rinse
4. Dry
   - Force air through all channels
5. Store
   - Hang vertically in a closed cabinet to promote drying and avoid recontamination

Factors Leading to Outbreaks from Endoscope and Bronchoscope Contamination

- Contaminated water supply
- Contaminated brushes for cleaning scope lumens
- Improper manual cleaning prior to disinfection
- Biofilm inside automatic washer
- Improper use of automatic washer
- Contaminated or expired disinfection reagent
- Inability or neglect to clean the suction channel
- Mechanical or design issues related to the endoscope/bronchoscope

CDC Interim Guidelines for Reprocessing Duodenoscopes

Used for retrograde cholangiopancreatography (ERCP) procedures

- Inspect and manually clean the elevator mechanism
  - Perform in open/raised and closed/lowered positions
- Ensure that all channels of the scope and elevator mechanism are thoroughly dried before storage

Interim Protocol for Healthcare Facilities Regarding Surveillance for Bacterial Contamination of Duodenoscopes after Reprocessing
(https://www.cdc.gov/hai/pdfs/cre/interim-duodenoscope-surveillance-Protocol.pdf)

CDC Interim Guidelines for Reprocessing Duodenoscopes - 2

- Use of ERCP scope culturing to ensure effectiveness of reprocessing
  - See CDC suggested algorithm
  - Take remedial action if a scope is culture-positive for high concern organisms or if unacceptable colony counts of low-concern organisms

Interim Protocol for Healthcare Facilities Regarding Surveillance for Bacterial Contamination of Duodenoscopes after Reprocessing
(https://www.cdc.gov/hai/pdfs/cre/interim-duodenoscope-surveillance-Protocol.pdf)

Environmental Disinfectants

Phenolics

- Gold Standard in healthcare
- Toxicity concerns prohibit use in nurseries, NICU
- Does not kill spores

Quaternary ammonium compounds

- Approved for specific pathogens
- Affected by water hardness
- Affected by bioburden
- PPE use required (estrogen-like effect with contact, use gloves)

Correct dilution and wet contact time are critical to effectiveness

Residues of Quaternary Ammonium Compounds di-n-Alkyl (https://www.federalregister.gov/documents/2007/09/06/E7-17634/residues-of-quaternary-ammonium-compounds-di-n-alkyl-c8

Environmental Disinfectants - 2

Iodophors

- Can be used in food preparation areas
- Inactivated by organic materials (e.g., blood)
- Can stain surfaces

Chlorine (Bleach)

- Inactivated by organic materials (e.g., blood)
- Kills spores (e.g., *C.difficile*)
- Corrosive
- Highly toxic (deadly) if combined with ammonia

Environmental Disinfectants - 3

Disinfectant spray/fog techniques for antimicrobial control in hospital rooms

- Unsatisfactory method of decontaminating air and surfaces
- Not recommended for general infection control in routine patient-care areas

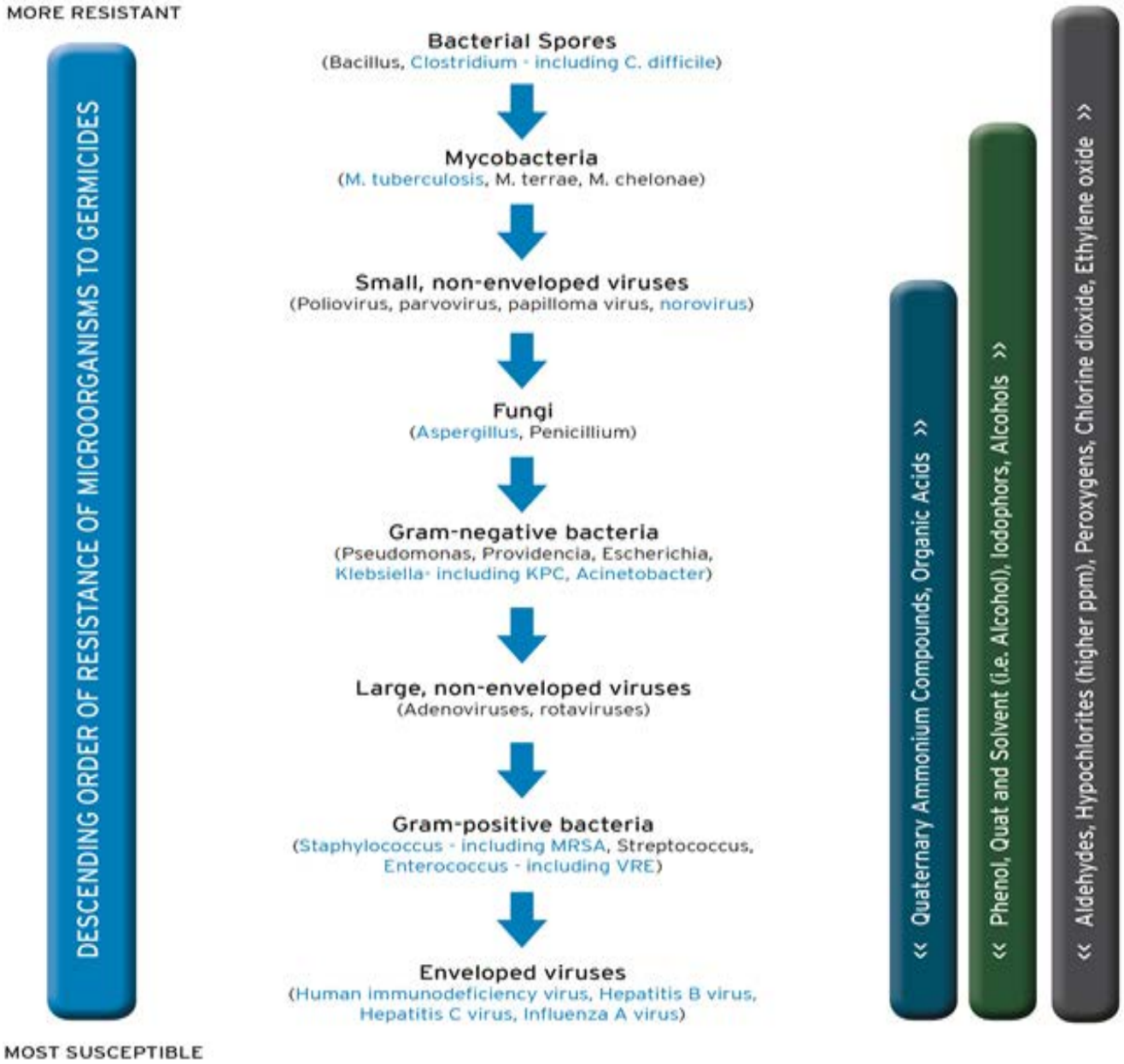
Environmental Disinfectants - 4

Ultraviolet Radiation

- Dependent on strength and duration of exposure to light, line of sight, how well microorganism can withstand UV
- Limited to destruction of airborne organisms, inactivation of microorganisms on surfaces, and water purification

HICPAC Disinfection & Sterilization Guideline 2008

Susceptibility of Organisms to Specific Disinfectant Types



Graphic used with permission from Ecolab - 2015

Adapted from: McDonnell G. Antisepsis, disinfection and sterilization: types, action and resistance. Washington, DC: ASM Press 2007.

ECOLAB
Everywhere It Matters.

Sterilization

Achieved by:

- Steam
- Dry Heat
- Ethylene Oxide
- Peracetic Acid
- Plasma Gas (vaporized hydrogen peroxide)
- Glutaraldehyde (using higher concentrations and exposure times than for high-level disinfection)

Steam Sterilization by Autoclave

- Achieves rapid heating and penetration
  - Short exposure times (<20 minutes) but temperature must be maintained throughout
  - No toxicity to workers
  - Inexpensive
  - Can damage delicate instruments

Steam Sterilization by Autoclave - 2

- Items to be sterilized must be:
  - Clean and free of protein or other organic material
  - Packaged so that the steam can penetrate
- Autoclave must be loaded correctly

Rapid Cycle or Flash Sterilization

- Unwrapped steam sterilization
- Should only be used when **absolutely** necessary
  - **Do not flash whole trays of instruments**
  - Items must be used immediately
  - Avoid flash sterilization by keeping adequate supply of frequently dropped items

Rapid Cycle or Flash Sterilization -2

- Maintain records or “flash logs”
  - Include all implants
  - Requires same monitoring processes as routine steam sterilization in hospital
  - Use to support need for additional instruments

Monitoring Sterilization

- Mechanical indicators
  - Gauges, displays, printouts
  - Indicates if device working properly
  - Not indicator of sterility
- Chemical indicators
  - Change color with timed exposure to heat, steam
  - Not indicator of sterility
  - Used to show items have gone through sterilization process

Monitoring Sterilization - 2

- Biological indicators
  - Indicator of sterility
  - Demonstrates bacterial spores on test strips or in vials/containers have all been killed
  - Results can be available in 1 hour

Storage of Sterile Items

- Protect sterility until ready to use
  - Store to protect packages from dust, moisture, falling on floor
  - Transport only covered, dry packages
  - Handle to protect package integrity
    - Refrain from crushing packages or rubber-banding them for storage
    - Wrap sharp points in gauze

Storage of Sterile Items - 2

- Rotate sterile items: first in, first out
- Store and label for effective recall system
- Expiration date versus event-related sterilization
  - Needs a program flex from L&C

Part II

CARE OF THE ENVIRONMENT

Role of Hospital Surfaces in HAI

- 20-40% of HAI due to cross-infection via HCW hands
  - Pathogens survive for prolonged periods on surfaces
- Surface contamination plays an important role in transmission
  - Well-established for MRSA and VRE
  - New evidence for norovirus, *C.difficile*, and Acinetobacter spp.
- Extent of patient-to-patient transmission found to be proportional to the level of environmental contamination

Weber DJ, et al., Role of hospital surfaces in the transmission of emerging health care-associated pathogens: norovirus, Clostridium difficile, and Acinetobacter species. Am J Infect Control. 2010 Jun;38(5 Suppl 1):S25-33.

Environment of Care (EOC) –Many disciplines

- Facilities engineering
- Employee health
- Bio-medical
- Surgery
- Clinical engineering
- Physicians/nurses
- Safety
- Security
- Environmental services
- Administration
- Linen/laundry
- Human resources
- Construction
- Sterile processing
- Materials management
- Ad hoc EOC committee members often include quality, licensing, risk management, admitting, patient safety, and dietary/food departments

EOC Contributions to Infection Prevention

- Appropriate use of cleaners and disinfectants
- Maintain medical equipment
- Maintain water quality
  - Hemodialysis
  - Facility-wide
- Construction and renovation
- Maintain ventilation standards
  - Airborne infectious isolation rooms
  - Operating rooms
- Support worker safety
- Manage water intrusion, flood response, mold remediation

Environmental Assessment

- Tour all areas at least annually
- Tour clinical areas twice a year
- Opportunity for multidisciplinary, multifunctional, multipurpose inspection
  - Life Safety
  - Environmental Services effectiveness
  - Infection Control issues
  - Clinical Issues
  - Patient Safety
  - Utility Management
- Required for accreditation by The Joint Commission

Environmental Assessment - 2

Look for:

- Use of only federal Environmental Protection Agency (EPA)-registered hospital-approved disinfectants *
- Disinfectants readily available where equipment disinfection is being performed and used per manufacturers directions (e.g., contact time)
- Standard and transmission-based precautions followed as appropriate
- Regular cleaning and dusting (high and low)
- Environmental services carts kept clean and locked when unattended

*www.epa.gov/pesticide-registration/selected-epa-registered-disinfectants

Environmental Assessment - 3

Sharps containers

- Place appropriately (i.e., not too high, not directly under glove box or electrical outlet)
- Secure
- Change when ¾ full
- Replace regularly
- User friendly
- Safety devices accessed prior to disposal

Environmental Assessment - 4

Medical (biohazardous) waste

- Contain in covered, leak-proof container with biohazard symbol
- Store separately from other waste, in red bags
- May contain sharps containers, pharmaceutical waste, pathology waste
- Do not store on-site for longer than 7 days
  - 90 days if stored at 0°C, temperature; log required
  - High heat treatment prior to disposal or incineration
- Rooms where biohazardous materials are contained or stored must have signage

Environmental Assessment - 5

Hand hygiene areas

- Adequate in number and evidence of use
- Have soap/antimicrobial soap, paper towels, trash cans
- Alcohol hand rub at or near appropriate room entrances and in patient rooms
- Placement of alcohol-based hand rubs dispensers in compliance with fire code
  - See National Fire Protection Association (www.nfpa.org) or American Society for Healthcare Engineering (www.ashe.org)
  - Seek assistance from facilities engineering or safety officer

Environmental Assessment - 6

Medical equipment reprocessing

- Involves cleaning, decontamination, disinfection, and sterilization
- Staff training, competency, and certification
- Quality control (e.g., biological indicators, test strip, time logs)
- Appropriate area to reprocess equipment
- Separate areas for cleaning and decontamination, packaging, sterilization, storage of sterile supplies
  - Air flow from clean to soiled areas
  - Temperature and humidity per regulations

Heating, Ventilation, and Air Conditioning (HVAC)

Filtration

- Describes removal of particles from air
- Minimum efficiency reporting value(MERV)

Pressure Relationships (positive or negative)

- Describes the movement of air between the room and the corridor

Room type	ACH/hr	Pressure
Operating Room	15	Positive
Airborne isolation	12	Negative
Patient room	6	Negative

Heating, Ventilation, and Air Conditioning (HVAC) - 2

Air Changes

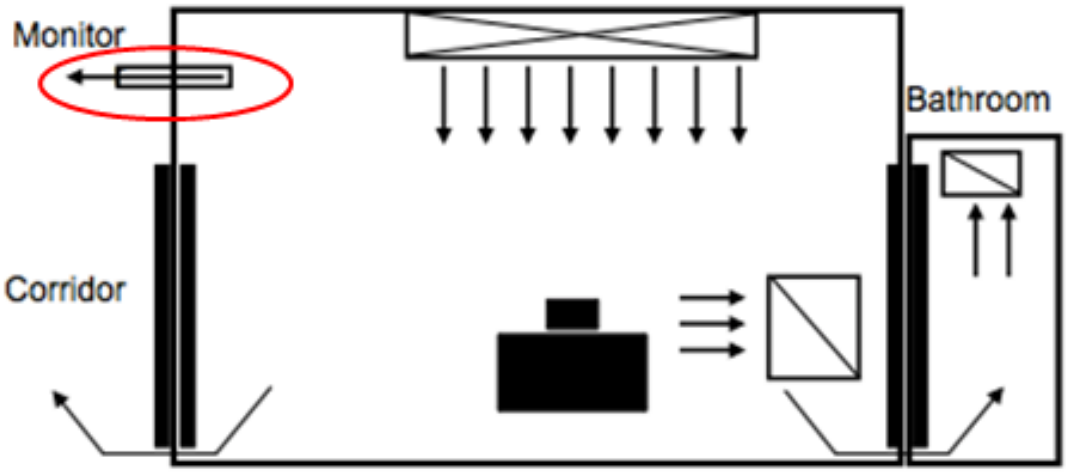
- Describes movement of air to dilute air contaminants
- Air can either be moved and filtered in the room or exhausted to the outside
- Requirements for air changes per hour (ACH) differ by room type and use

Room type	ACH/hr	Pressure
Operating Room	15	Positive
Airborne isolation	12	Negative
Patient room	6	Negative

Positive Air Pressure

- Air moves **out** of the room
- Includes: operating rooms, C-section suites, protective environments (e.g., bone marrow transplant unit)

Figure 2. Example of positive-pressure room control for protection from airborne environmental microbes (PE)* + §

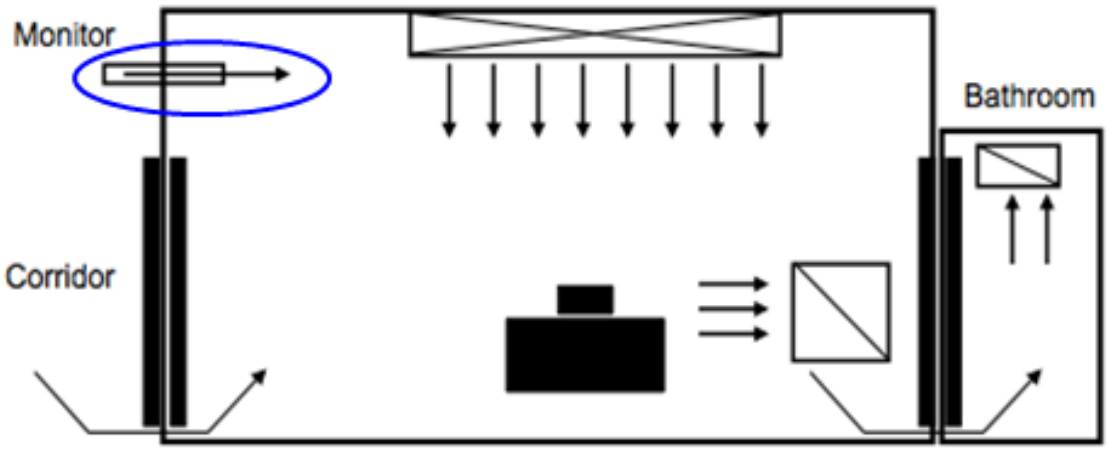


CDC/HICPAC Guidelines for Environmental Infection Control in Healthcare Facilities, 2003.

Negative Air Pressure

- Air moves **into** the room
- Includes: airborne infectious isolation rooms (AIIR), areas where coughing may be induced (e.g., bronchoscopy suite, endoscopy suite, sputum induction room)

Figure 3. Example of negative-pressure room control for airborne infection isolation (AII)* + §¶



CDC/HICPAC Guidelines for Environmental Infection Control in Healthcare Facilities, 2003.

Negative Air Pressure - 2

- Proper effect may be achieved when the equivalent of 12 ACH are being filtered or exhausted to the outside and the overall pressure is negative

CDC/HICPAC Guidelines for Environmental Infection Control in Healthcare Facilities; 2003.

HVAC Maintenance

- Belts, filters, and other moving parts should have scheduled inspection and maintenance
- Monitor for negative pressure daily when airborne infectious isolation rooms are in use
  - Establish policy and procedure
  - Must have component of manual testing if room occupied
  - Document and report to ICC
  - Plan for when readings/results are not within desired range
- All patient care areas scheduled frequent inspections
- Vents, grates, and air ducts should be periodically cleaned

Water Systems and Infection Prevention

- Stagnant water allows formation of biofilms
  - Contain fungi, gram-negative bacteria, legionella, other organisms
  - Infrequently used fixtures are more prone
- Flush and clean sinks, eyewash stations, ice machines regularly
- Do not use tap water to rinse semi-critical devices after disinfection
- Remove aerators from faucets
- Avoid decorative fountains/ waterfalls
- Monitor dialysis fluid and dialysate monthly
  - Pathogen limits are: <200 bacteria/ml for fluid
    < 2000 bacteria/ml dialysate

Flood Response

Policies and procedures should

- Define roles of multidisciplinary response team
  - Environmental services
  - Maintenance/engineering
  - Construction company
  - Consulting disciplines
  - Infection prevention
  - Safety
- Define what constitutes a flood
- Identify first responders, escalation determinants, who reports to local public health, who determines when its safe to go back into affected space

Infection Prevention During Construction

- Provisions must be made for protection of patients during renovations or new construction
  - Generate moderate to high levels of dust
  - Vulnerable patients at infection risk from aerosolized organisms (e.g., aspergillosis)
- Ensure facility-wide awareness of construction process
- Educate patient care staff on risks, mitigation strategies
- Mitigation strategies determined by:
  - Patient risk (as determined by care area)
  - Construction activity level

Risk Categories by Patient Care Areas

Low Risk	Medium Risk	High Risk	Highest Risk
-Office Areas -Dining Hall	-Cardiology -Echocardiography -Endoscopy -Nuclear Medicine -Physical Therapy -Radiology -Respiratory. -Therapy	-CCU -Emergency Dept. -Labor & Delivery -Specimen Labs -Nursery -Outpatient Surg -Pediatrics -Pharmacy -PACU -Surgical Units	-Burn -Cardiac Cath Lab -Sterile Central Supply -ICU -Medical Units -NPIR -Oncology -Operating Room -Any area caring for Immunocompromised patients

Risk Categories by Construction Activity Type

Type A	**Non-Invasive Activities and Inspection** • Removal of ceiling tiles for visual inspection (limit 1 tile per 50 square feet) • Painting (but not sanding) • Wall covering, electrical trim work, minor plumbing, other activities that do not generate dust, require cutting of walls, nor accessing ceilings
Type B	**Small scale, short duration activities that create minimal dust** • Installation of telephone and computer cabling • Access to chase spaces • Cutting walls or ceiling where dust migration can be controlled
Type C	**Work that generates moderate to high levels of dust, requires demolition, or removes fixed building components or assemblies** • Sanding walls for painting or wall covering • Removal of floor coverings, ceiling tiles, and casework • New wall construction • Minor duct work, electrical work above ceilings, major cabling activities • Any activity that cannot be completed within a single work shift
Type D	**Major demolition and construction projects** • Activities that require consecutive work shifts • Require heavy demolition or removal of a complete cabling system • New construction

Class of Mitigation Activities Determined by Construction Type and Patient

Patient Risk Level	Construction Activity Type			
	Type A	Type B	Type C	Type D
Low	I	II	II	III/IV
Medium	I	II	III	IV
High	I	II	III/IV	IV
Highest	II	III/IV	III/IV	IV

Mitigation Activities Required for Construction

Class I	1. Execute work to minimize raising dust from construction operations 2. Immediately replace ceiling tile displaced for visual inspection
Class II	1. Actively work to prevent airborne dust from dispersing into atmosphere 2. Seal unused doors with duct tape 3. Block off and seal air vents 4. Place dust mat at entrance and exit of work area 5. Remove or isolate HVAC system in areas where work is being performed.
Class III	1. Remove or Isolate HVAC system in area where work is being performed to prevent contamination of duct system 2. Before construction begins, complete all critical barriers, i.e. sheetrock, plywood, plastic, to seal area from non work areas –OR- implement control cube method, i.e. cart with plastic covering and sealed connection to work site, vacuuming with HEPA prior to exit 3. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units 4. Before transport, contain construction waste in tightly covered containers 5. Cover transport receptacles or carts. Tape covering unless solid lid.
Class IV	[continued on next page]

Mitigation Activities Required for Construction - 2

Class IV

1. Isolate HVAC where work is being done to prevent contamination of duct system.
2. Complete all critical barriers i.e. sheetrock, plywood, plastic, to seal area from non work area or implement control cube method (cart with plastic covering and sealed connection to work site with HEPA vacuum for vacuuming prior to exit) before construction begins.
3. Maintain negative air pressure within work site utilizing HEPA equipped air filtration units.
4. Seal holes, pipes, conduits, and punctures appropriately.
5. Construct anteroom and require all personnel to pass through this room so they can be vacuumed using a HEPA vacuum cleaner before leaving work site or they can wear cloth or paper coveralls that are removed each time they leave the work site.
6. All personnel entering work site are required to wear shoe covers. Shoe covers must be changed each time the worker exits the work area.
7. Contain construction waste before transport in tightly covered containers.
8. Cover transport receptacles or carts. Tape covering unless solid lid.
9. Do not remove barriers from work area until completed project is inspected by the owner's Safety Department and Infection Control Department and thoroughly cleaned by the owner's Environmental Services Department

Infection Control Risk Assessment (ICRA) for Construction

- Develop risk assessment process to monitor and evaluate renovation and construction projects
- Define responsibilities for assessment, monitoring, enforcement, and evaluation of projects in policy
- Determine who keeps copies and where ICRA will be filed (e.g., safety department)
- Report status to infection control committee

Environmental Assessment of Construction Area

For long-term projects:

- Containment barriers made of fire-rated wallboard supported with stud frame
- All edges of construction area sealed
- Door installed so it opens into the work area
- Daily rounds by construction supervisor

Summary

The IP role is to:

- Know the processes and update the policies
- Know the directors of environmental services, sterile processing, operating room, endoscope services, facilities management
- Know where all sterilization and disinfection is being done (e.g., radiology, outpatient clinics, GI department, emergency room, cardiac cath lab, same day procedures, wound care center, ambulatory surgery)
- Ensue adherence to policies and procedures related to infection prevention for HVAC, water management, and construction

Questions?

For more information,
please contact any
HAI Liaison Team member.

Thank you.