Objectives

• Discuss the impact recent outbreaks of HAIs in outpatient settings
• Review common causes of HAIs in outpatient settings
• Discuss evidence based strategies to reduce contamination in the outpatient settings and also available resources to support the IPC program
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Healthcare Settings

Healthcare has transformed....

- Hospitals
- Dialysis Facilities
- Ambulatory Facilities
- Long-term Care
Current CDC Hot Topics in Infection Prevention and Control
- Better and Rapid Detection and Prevention
- Role of the Environment in Transmission
- Microbiome and Patient Immunity
- Antibiotic Stewardship
- Advanced Microbiology Tools
- Modeling Techniques to Predict Transmission

Current Outbreaks
- E. coli-Chipotle
- Norovirus-Schools
- Salmonella-Pork
- CRE-Endoscopes
- Salmonella-Cucumbers

Nontuberculosis Mycobacterium (NTM)
- NTM do not cause TB
- Slow growing
- Found in surface water, tap water, and soil
- Opportunistic
- Healthcare Exposure:
  - Immunocompromised patients
  - Breaches in normal host defenses
  - Novel exposure pathways
**Current Known Exposure Points**

- **LASIK Surgery**
  - Consumer grade humidifier contaminated
  - Laser device manufacturer specified between 40-50% relative humidity

- **Open-Chest Heart Surgery**
  - Possible water sources
  - Heater-Cooler unit used for Heart-Lung Machine

- **Fans**

- **FDA Safety Communication Issued**

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**Safe Injection Practices**

- **BREAKING NEWS**
  - Aseptic technique for the preparation and administration of parenteral medications
    - Use a sterile, single-use, disposable needle and syringe for each injection
    - Prevention of contamination of injection equipment, medication and patient care equipment
    - Whenever possible, use single-dose vials over multiple-dose vials, especially when medications will be administered to multiple patients.

**Key Injection Safety Recommendations**

- Use aseptic technique when preparing and administering medications
- Choose the area (e.g., room) of the medication vial or solution
- Never administer medications from the same syringe to multiple patients, even if the needle is changed or the injection is administered through an intervening length of intravenous tubing
- Do not use fluid infusion or administration sets (e.g., intravenous tubing) for more than one patient
- Dedicate multidose vials to a single patient whenever possible. If multidose vials will be used for more than one patient, they should be restricted to a centralized medication area and should not enter the immediate patient treatment area (e.g., operating room, patient room, cubicle)
- Dispose of used syringes and needles at the point of use in a sharps container that is disposable, puncture-resistant, and leak-proof
- Adhere to federal and state requirements for protection of HCP from exposure to bloodborne pathogens.
Pathogens of Particular Concern

- Norovirus
- CRE/ESBL
- Clastrium difficile
- MRSA
- NDM-1

How Does Transmission Occur?

- Contaminated Hands
- Contaminated Skin
- Contaminated Environmental Surfaces

Transmission of Infectious Disease

- Infectious Agent
- Susceptible Host
- Reservoir
- Portal of Entry
- Portal of Exit

Chain of Infection

Lessons Learned from EVD

CDC Core Recommendations

Key Administrative Recommendations
Key Education and Training Recommendations

- Provide job- or task-specific infection prevention education and training to all HCP.
- Training should focus on principles of both HCP safety and patient safety.
- Training should be provided upon orientation and repeated regularly (e.g., annually).
- Competencies should be documented initially and repeatedly, as appropriate for the specific HCP positions.

Key Hand Hygiene Recommendations

- Key situations where hand hygiene should be performed include:
  - Before touching a patient, even if gloves will be worn.
  - Before exiting the patient's care area after touching the patient or the patient's immediate environment.
  - After contact with blood, body fluids or secretions, or wound dressings.
  - Prior to performing an aseptic task (e.g., placing an IV, preparing an injection).
  - If hands will be moving from a contaminated-body site to a clean-body site during patient care.
  - After glove removal.

- Use soap and water when hands are visibly soiled (e.g., blood, body fluids), or after caring for patients with known or suspected infectious diarrhea (e.g., Clostridium difficile, norovirus). Otherwise, the preferred method of hand decontamination is with an alcohol-based hand rub.

Key Disinfection Recommendations

- Establish policies and procedures for routine cleaning and disinfection of environmental surfaces in ambulatory care settings.
  - Focus on those surfaces in proximity to the patient and those that are frequently touched.
  - Select EPA-registered disinfectants or detergents/disinfectants with label claims for use in healthcare.
  - Follow manufacturer’s recommendations for use of cleaners and EPA-registered disinfectants (e.g., amount, dilution, contact time, safe use, and disposal).
Key Disinfection Recommendations for Environmental Surfaces

Establish policies and procedures for routine cleaning and disinfection of environmental surfaces in ambulatory care settings

- Focus on those surfaces in proximity to the patient and those that are frequently touched

Select EPA-registered disinfectants or detergents/disinfectants with label claims for use in healthcare

Follow manufacturer’s recommendations for use of cleaners and EPA-registered disinfectants (e.g., amount, dilution, contact time, safe use, and disposal)

All about Terminology

Critical items (e.g., surgical instruments) are objects that enter sterile tissue or the vascular system and must be sterile prior to use.

Semi-critical items (e.g., endoscopes used for upper endoscopy and colonoscopy) contact mucous membranes or non-intact skin and require, at a minimum, high-level disinfection prior to reuse.

Noncritical items (e.g., blood pressure cuffs) are those that may come in contact with intact skin but not mucous membranes and should undergo low- or intermediate-level disinfection depending on the nature and degree of contamination.

Environmental surfaces (e.g., floors, walls) are those that generally do not contact the patient during delivery of care. Cleaning may be all that is needed for the management of these surfaces, but if disinfection is indicated, intermittent disinfection is appropriate.

Key Recommendations for Disinfection and Sterilization of Medical Equipment

Facilities should ensure that reusable medical equipment (e.g., blood glucose meters and other point-of-care devices, surgical instruments, endoscopes) is cleaned and reprocessed appropriately prior to use on another patient

Reusable medical equipment must be cleaned and reprocessed (disinfection or sterilization) and maintained according to the manufacturer’s instructions. If the manufacturer does not provide such instructions, the device may not be suitable for multi-patient use.

Assign responsibilities for reprocessing of medical equipment to HCP with appropriate training

- Ensure that all HCP are informed of the importance of reprocessing and the procedures used for the handling and reprocessing of medical equipment
- Provide adequate training and supervision to HCP
- Document procedures for reprocessing of medical equipment to ensure consistent performance
- Assign HCP access to and wear appropriate PPE when handling and reprocessing contaminated patient equipment
Key Recommendations for Cough Etiquette and Respiratory Hygiene

Implement measures to contain respiratory secretions in patients and accompanying individuals who have signs and symptoms of a respiratory infection, beginning at point of entry to the facility and continuing throughout the duration of the visit.

- Cover their mouths/noses when coughing or sneezing
- Use and dispose of tissues
- Perform hand hygiene after hands have been in contact with respiratory secretions
- Provide tissues and no-touch receptacles for disposal of tissues
- Provide resources for performing hand hygiene in or near waiting areas
- Offer masks to coughing patients and other symptomatic persons upon entry to the facility
- Provide space and encourage persons with symptoms of respiratory infections to sit as far away from one another as possible. Facilities may wish to place these patients in a separate area while waiting for care.

Educate HCP on the importance of infection prevention measures to contain respiratory secretions to prevent the spread of respiratory pathogens when examining and caring for patients with signs and symptoms of a respiratory infection.

WHO Save Lives: Clean Your Hands: http://www.who.int/gpsc/5may/background/5moments/en

The Inanimate Environment Can Facilitate Transmission

NADONA Infection Prevention and Control Webinar Series
Equipment

- Patient care equipment that touches intact skin: handle in a manner that prevents skin and mucous membrane exposure, contamination of clothing and transfer of microorganisms to other patients or environments
- Ensure that reusable equipment is properly disinfected prior to use on another patient (pulse ox, glucometer, scissors, stethoscopes, tape measures, pens)
- Non-Patient care equipment should also be disinfected (Phones, Keyboards)
- Beware of GLUCOMETERS!!!

Sources of contamination

- Inanimate objects
- Hands!

High Touch Surfaces

- Bed Rails
- Light Switches
- Doorknobs
- Blood Pressure Cuffs
- Stethoscopes
- X-ray Machine Handles
- Cardiac Monitor Knobs
- Stretchers
- Wheelchairs
- Telephones
- IV Poles
- Dynamaps
- Utility Carts
- Faucet Handles
Standard Precautions

Standard Precautions for all Healthcare Workers in All Healthcare Settings

- Hand Hygiene
- Proper Use of Personal Protective Equipment
  - Gowns
  - Mask
  - Gloves
  - Eye Protection
- Safe Injection Practices
- Safe Handling of Patient Care Equipment
  - Cleaning, disinfection, sterilization
  - Respiratory Hygiene / Cough Etiquette


Staff Competencies

- Staff should be assessed at least yearly and upon hire for competencies in the following categories (Note: not all categories will be applicable to all staff):
  - Gloving and hand hygiene (all staff) – includes recognition of appropriate situations for glove and hand hygiene, proper use and removal of gloves, and proper hand hygiene technique.
  - Catheter dressing change technique – includes correct performance of hand hygiene, and use of gloves, and correct use of antiseptics (proper application and allow drying, etc).
  - Vascular access technique – includes correct performance of hand hygiene and use of gloves, catheter site and port/vascular access antisepsis, and aseptic technique.
  - Safe injection/safe medication practices – includes proper technique for parenteral medication preparation, handling, administration and storage (e.g. not in patient station, etc.), use of aseptic technique, proper hand hygiene before and after injection, and proper cleansing of medication injection ports and medication vial diaphragms. Should also include proper use and handling of single use vials and bags.
Keeping it Simple: Approach to HAI Prevention and Research

- Need for complete implementation of practices known to prevent HAIs
- Need for ongoing research to identify new strategies to prevent the remaining HAIs

Antibiotic Stewardship

- Traditional Approach
- Regional Approach
  - Acute Care Hospital
  - Long Term Acute Care Hospitals
  - Nursing Homes

Correlations with CDAD

- Antibiotic exposure is the single most important risk factor for the development of *Clostridium difficile* associated disease (CDAD).
  - Up to 85% of patients with CDAD have antibiotic exposure in the 28 days before infection¹
Improvement is Possible

Antibiotic Rx for Hospitals
Proceed with Caution

If 30% of hospital audits show high risk antibiotic use, proceed with caution.

If treatment fails, it may lead to 26% of nosocomial (hospital-acquired) infections.

Then it might have to be treated with more potent antibiotics, which may cause further harm.

Combining infection control actions with every patient can prevent infections in healthcare.

Protect every patient every time.

Actions to prevent antibiotic-resistant infections in healthcare.

Prevent infections from colonised and after surgery.

Prevent bacteria from spreading.

Prevent antibiotic use.

Prevent infection from colonised and after surgery.

Prevent bacteria from spreading.

Prevent antibiotic use.

Source: US Centers for Disease Control and Prevention
NADONA Infection Prevention and Control Webinar Series.
Antibiotics are the only drug where use in one patient can impact the effectiveness in another.

Antibiotics are a shared resource, (and becoming a scarce resource).

If everyone does not use antibiotics well, we will all suffer the consequences.

Antibiotics are a shared resource, (and becoming a scarce resource).

Using antibiotics properly is analogous to developing and maintaining good roads.

Using antibiotics properly is analogous to developing and maintaining good roads.

Facilities work together to protect patients.

Current Approach (Not enough)

Independent Efforts (Not enough)

Coordinated Approach (Recommended)

Public health departments and local health care facilities are encouraged to develop common and coordinated approaches to antibiotic stewardship and infection prevention and control.
Antibiotic Stewardship

Targeted Assessment for Prevention Strategy (TAP) Program from CDC

Moving Testimony to Importance of HAI Prevention: HHS Partnering to Heal
Future Directions

- NHSN Expansion beyond Acute Care
- Medical Devices
- Environmental Infection Control
- Post Acute Care Healthcare settings
- Sepsis
- Preparedness and Response

References


CDC Guidelines for environmental infection control in healthcare facilities. MMWR 2003;52(RR 10):1-42. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5210a1.htm


Resources

- www.ahrq.gov
- www.cdc.gov/hai
- www.hhs.gov
- www.epa.gov
- www.fda.gov
- www.apic.org
- www.ahe.org
Questions and Answers

• Whose infection will you prevent when you return to your institution?

• How will you approach HAI prevention differently in LTCFs?

• Contact Information:
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