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# Healthcare-Associated Infections Across the Spectrum of Care

Susan E. Coffin, MD, MPH  
UPENN School of Medicine, Department of Pediatrics  
Medical Director, Infection Prevention and Control  
Children's Hospital of Philadelphia



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# Part 4: Risks of Healthcare-Associated Infections in Ambulatory Care Settings



# Objectives

1. Understand the burden and spectrum of healthcare-associated infections across the spectrum of care.
2. Review the epidemiology of the most common hospital-associated infections.
3. Examine how to prevent common causes of healthcare-associated infections in long-term care facilities.
4. Identify the risk for healthcare-associated infections in ambulatory care settings.

# Ambulatory Care Sites

- Specialty sites providing complex care provided outside of inpatient setting
  - Dialysis centers
  - Oncology day hospitals
- Traditional ambulatory care sites providing care to increasingly complex patients
  - Primary care clinics
    - average patients makes 3 visits/yr
  - Ambulatory surgical facilities
    - 75% of surgeries are done as outpatient surgery

# Prevention of HAI in Ambulatory Care Sites

- Critical importance of adherence to standard precautions
- Need to maintain healthcare environment
- Prevention of surgical site infections (SSI)

# Standard Precautions

- To be used while providing care to ALL patients in ALL settings
- Assumes blood and body fluid of ANY patient could be infectious
- Decisions about personal protective equipment (PPE) use determined by type of clinical interaction with patient

# PPE for Standard Precautions

- **Gloves** – Use when touching blood, body fluids, secretions, excretions, contaminated items; for touching mucus membranes and nonintact skin
- **Gowns** – Use when contact of clothing/ exposed skin with blood/body fluids, secretions, or excretions is anticipated
- **Mask and goggles or a face shield** – Use for activities likely to generate splashes or sprays of blood, body fluids, secretions, or excretions

# When to Use What?

- Coughing child with runny nose
  - Mask and gloves
- Post-operative patient with drainage from surgical wound
  - Gloves
- Drawing blood on oncology patient
  - Gloves



# Maintaining Healthcare Environment

- Contamination of environment
  - Patient, visitor, HCW contact
  - Suboptimal control of patients' secretions
  - Increased carriage of antibiotic-resistant organisms
- Challenges to environmental hygiene
  - Home vs. healthcare facility
  - Partnerships between teams of healthcare workers

# Environmental Cleaning

- Focus upon high-touch and multi-patient use objects
  - Toys in pediatric clinic, examination table
  - Thermometers, pulse oximeters, blood pressure cuffs
- Importance of regular assessment of adequacy of environmental cleaning
  - Regular observations and refresher education

# Burden of Surgical Site Infections

- **Burden**
  - ~300,000 SSIs/yr (inpatient SSI + outpatient SSI)
  - ~75% of surgeries are day surgeries
- **Outcomes**
  - 2-11 times higher risk of death
  - 75% of deaths among patients with SSI are directly attributable to SSI
  - Long-term disabilities
- **Cost**
  - \$3000-\$29,000/SSI (based on procedure & pathogen)
  - Up to \$10 billion annually

# SSI - Mechanisms of Infection

- Inoculation of wound at time of surgical procedure
  - Patient's skin flora
  - Contamination of wound by inadequately sterilized device
    - Equipment, prosthesis
- Post-operative inoculation of wound
  - Maintenance of dressing
- Seeding from a distant focus of infection

# Preventive Actions - SSI

Strategy	Target	Intervention
<b>Prevent transmission from patients/staff</b>	Control surgical personnel and environment	Hand hygiene Restrict traffic around sterile field
<b>Minimize risk by reducing exposure</b>	Decrease burden of organisms on patient  Ensure sterility of equipment/devices	Preoperative bath  Appropriate skin preparation  Sterilization
<b>Prevent microbial contamination and invasion</b>	Protect surgical wound	Antibiotic prophylaxis  Appropriate wound care

# Additional Modifiable Risk Factors

- Excessive OR traffic
- Improper glucose control
- Inadequate intraoperative oxygen levels

# Summary

- Patients in all healthcare settings are at considerable risk for HAI.
- Current knowledge and evidence-based guidelines can protect patients from many HAI if implemented and consistently followed.
- Basic principles unite most HAI prevention strategies:
  - Prevent transmission from HCW and staff.
  - Minimize risk of HAI by limiting exposure to devices/procedures
  - Prevent microbial contamination and invasion