

HEALTHCARE-ASSOCIATED INFECTIONS (HAI)

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Learning Objectives

1. Define healthcare-associated infections
2. Identify common healthcare-associated infections, their methods of transmission and preventative measures
3. Know state and federal initiatives

Definition: Healthcare-Associated Infection

A localized or systemic condition resulting from an adverse reaction to the presence of an infectious agent(s) or its toxin(s) with no evidence that the infection was present or incubating at the time of admission to the healthcare setting.

—Centers for Disease Control and Prevention, National Healthcare Safety Network

Key Definitional Points

1. Localized or systemic condition
2. Infectious agent(s) or toxin(s)
3. Not present or incubating at admission

Impact of HAI

Morbidity: 1.7 Million infections annually

- 1 infection every 18.6 seconds

Mortality: 99,000 attributable deaths annually

- More than all auto accidents and homicides combined

Cost: 28 – 33 Billion dollars annually

- Enough to buy 191,823 houses at the average home cost in the South

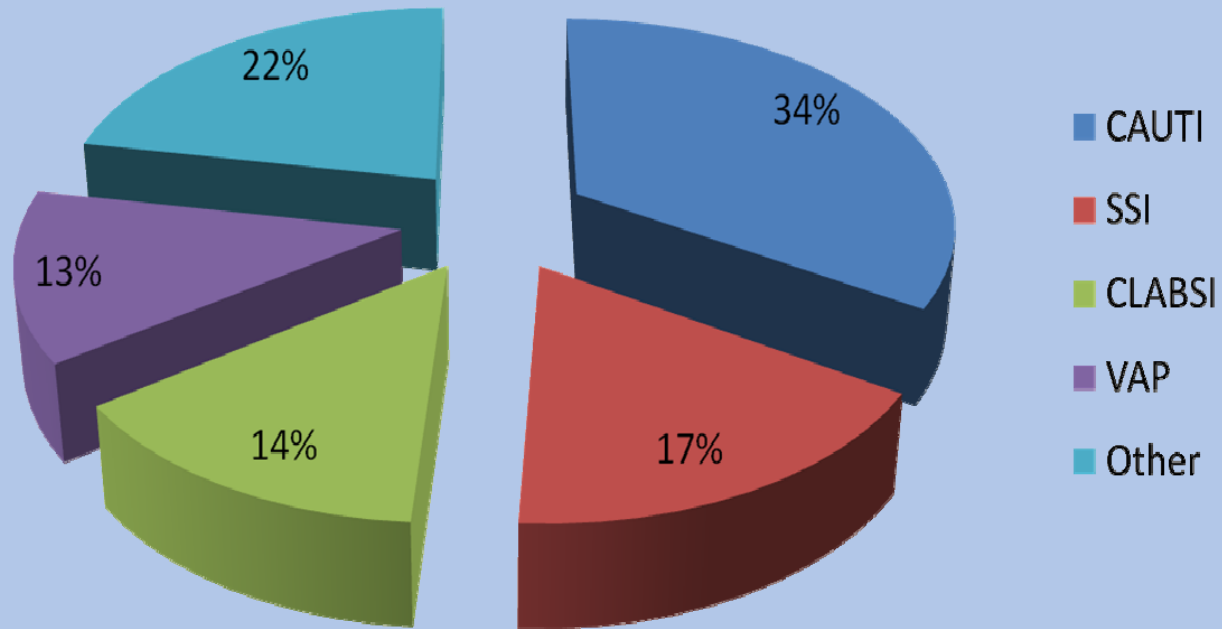
Pathogens associated with HAI

Pathogen	TOTAL	CLABSI	CAUTI	SSI	VAP
Coagulase-negative staphylococci	1	1	7	2	9
Staphylococcus aureus	2	4	8	1	1
Enterococcus species	3	2	3	3	10
Candida species	4	3	2	8	7
Escherichia coli	5	8	1	4	6
Pseudomonas aeruginosa	6	7	4	5	2
Klebsiella pneumoniae	7	5	5	7	5
Enterobacter species	8	6	6	6	3
Acinetobacter baumannii	9	9	9	10	4
Klebsiella oxytoca	10	10	10	9	8

Methods of Transmission



Methods of Transmission



Prevention Measures

#1 MOST EFFECTIVE METHOD: HANDWASHING



Prevention of CLABSI

1. Avoid femoral vein for central venous access in adults
2. Use maximal sterile barrier precautions during insertion
3. Use a chlorhexidine-based antiseptic for skin preparation in patients older than 2 months

Prevention of CAUTI

1. Consider other methods for management, including condom catheters and in-and-out catheterization
2. Maintain a sterile, continuously closed drainage system
3. Do not use silver-coated or other antibacterial catheters

Prevention of SSI

1. Administer antimicrobial prophylaxis in accordance with evidence-based standards and guidelines
2. Do not remove hair at the operation site unless it will seriously interfere with the surgery; don't use razors
3. Control blood glucose level during the immediate postoperative period for patients undergoing cardiac surgery

Prevention of VAP

1. Perform regular antiseptic oral care in accordance with product guidelines
2. Ensure that all patients, except with medical contraindications, are maintained in a semi-recumbent position
3. Implement policy and practice for disinfection, sterilization and care of respiratory equipment

Prevention of MRSA Infection

1. Promote compliance with CDC and WHO hand hygiene guidelines
2. Use contact precautions with patients who have been MRSA colonized or infected
3. Implement active surveillance when there is evidence of ongoing transmission

Prevention of CDAD

1. Use bleach-based products for environmental decontamination
2. Place symptomatic patients on contact precautions until tests are confirmed
3. Routinely comply with hand hygiene, disposable glove and gown use when handling infected patients

The Federal Response

- **US Department of Health and Human Services**
 - HHS Action Plan
- **Centers for Disease Control and Prevention**
 - NHSN
 - Substantive support to states
- **American Recovery and Reinvestment Act**
 - Financial stimulus for HAI activities
- **Centers for Medicare and Medicaid Services**
 - FY 2011 Inpatient Prospective Payment System Rule

Public Health Response

- Development of a five year state plan to respond to HAI within North Carolina
- Established infrastructure within the Division of Public Health
- Initiating active surveillance of selected healthcare-associated infections
- Collaboration with partners to coordinate HAI prevention activities

State HAI Targets

- Central line-associated bloodstream infections (CLABSI)
 - 75% reduction in the standardized infection ratio
 - 50% reduction in the laboratory detected bacteremia rate
 - 100% compliance with central line prevention bundle
- Catheter-associated urinary tract infections (CAUTI)
 - 50-75% reduction in the rate of bloodstream infections secondary to urinary tract infections
 - 25% reduction in the symptomatic UTI rate
 - 50% reduction in the catheter utilization ratio

North Carolina Future Projections

- **FY 2011 legislation proposed to mandate the reporting of select healthcare-associated infections**
 - Device associated through CDC
 - Outbreaks through local health department
- **Voluntary reporting until such time as state mandate becomes effective**
- **Continued work with partners to promote reductions in healthcare-associated infections**

**Nationwide Epidemic of Septicemia Caused by
Contaminated Intravenous Products:
Mechanisms of Intrinsic Contamination**

**DONALD C. MACKEL,* DENNIS G. MAKI, ROGER L. ANDERSON,
FRANK S. RHAME, AND JOHN V. BENNETT**

**JOURNAL OF CLINICAL MICROBIOLOGY, Dec. 1975,
p. 486-497
Vol. 2, No. 6**

Richmond Times-Dispatch
June 12, 1999

**92 FOOD-ILLNESS CASES TRACED TO
RESTAURANT
HENRICO SAYS HEALTH AGENCY
OVERWHELMED**

**New Hanover Community Health Center
Latest Facility To Expose Patients To Risk Of
Blood-Borne Illness**

Chicago, Medical Malpractice
October 25, 2009

Investigation of an Acute Intestinal Illness

Guilford County DPH

Hotel C 16-18 March 2009

Introduction to Public Health Nursing

NC General Statute

Proposed change to read as follows...

“A medical facility, in which there is a patient reasonably suspected of having a communicable disease or condition declared by the Commission to be reported, shall report information specified by the Commission to a public health agency specified by the Commission”.

NC Healthcare-Associated Infections Program

FOR FURTHER INQUIRY OR COPIES OF
THIS PRESENTATION

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