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Healthcare-Associated Infections Across the Spectrum of Care

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Public Health
Learning Modules

Using **Healthy People 2020**
to Improve Population Health



ASSOCIATION FOR PREVENTION TEACHING AND RESEARCH



College of Health Professions
and Social Work
TEMPLE UNIVERSITY*

Module 9: Healthcare-Associated Infections across the Spectrum of Care



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Part 2: Epidemiology of Hospital Associated Infections



Public Health
Learning Modules

Using **Healthy People 2020**
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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.

“The Big Four”

80% of all HAI thought to be one of the “big four”

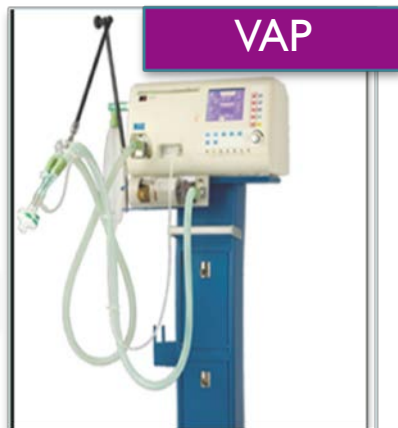
3 of 4 are related to medical devices

CLABSI = central line associated bloodstream infection

VAP = ventilator-associated pneumonia

CAUTI = catheter-associated urinary tract infection

SSI = surgical site infection



Mechanisms of Infection: device-associated infections

How do bacteria enter sterile sites to cause HAI?

CLABSI

- During catheter insertion
- At time of dressing change
- When catheter is being accessed

VAP

- Contamination of ventilator circuit
- Aspiration of oral secretions
- Aspiration of gastric secretions

CAUTI

- During catheter insertion
- Antegrade migration of bacteria during catheter dwell
- Reflux of contaminated urine back into bladder

Microbiology of Infection

CLABSI

- Skin organisms

VAP

- Oral flora

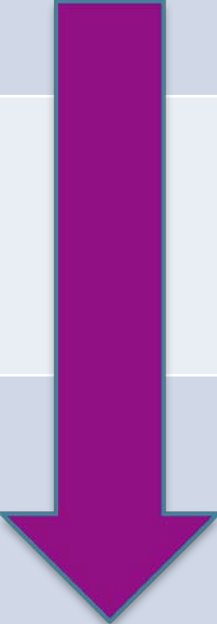
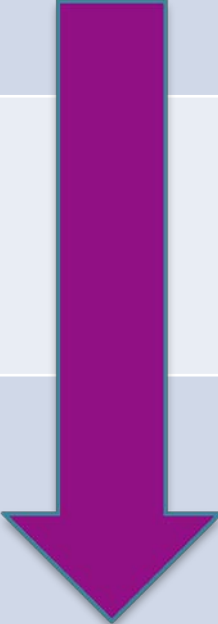
CAUTI

- Enteric organisms

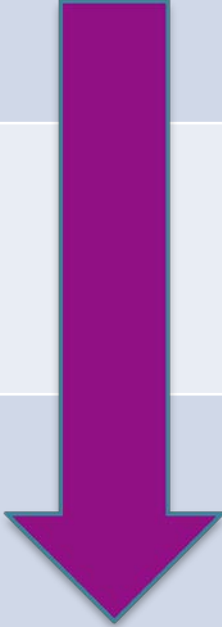
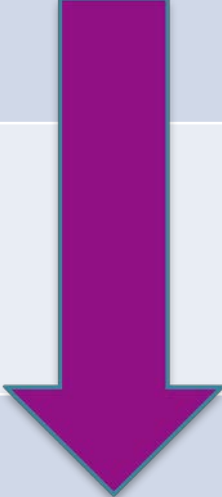
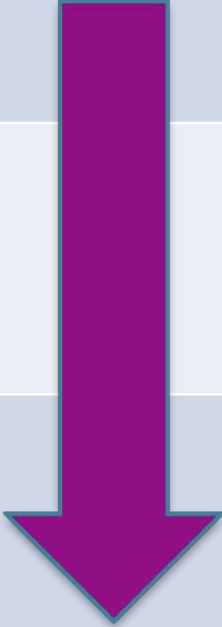
Preventive Actions

Strategy	CLABSI	VAP	CAUTI
Prevent transmission from patients/staff	Hand hygiene	Hand hygiene	Hand hygiene
Minimize risk by reducing exposure	Verify necessity for central line insertion Daily review of need for central line	Consider noninvasive ventilation Weaning protocols	Consider other options for urinary drainage/measurement
Prevent microbial contamination and invasion	Insert catheters using aseptic technique Change dressings in aseptic fashion Minimize line entry	HOB elevation Oral Care Appropriate care of ventilator circuit	Insert catheters using aseptic technique Daily maintenance of catheter entrance site

Potential Impact of Preventive Actions

Strategy	CLABSI	VAP	CAUTI
Prevent transmission from patients/staff			
Minimize risk by reducing exposure			
Prevent microbial contamination and invasion	 65% - 70%		 65% - 70%

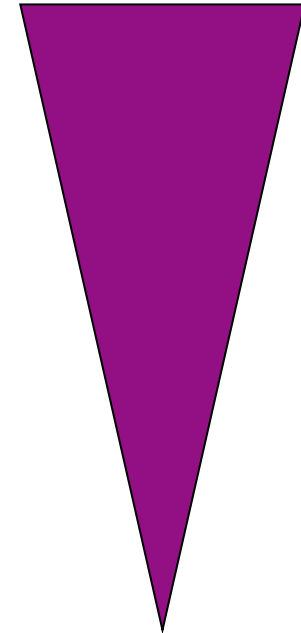
Potential Impact of Preventive Actions

Strategy	CLABSI	VAP	CAUTI
Prevent transmission from patients/staff			
Minimize risk by reducing exposure			
Prevent microbial contamination and invasion			
	65% - 70%	55%	65% - 70%

Preventing Device-associated Infections

- Do not use
- Remove as soon as possible
- Insert in aseptic fashion
- Do not contaminate
- Use antibiotic/antiseptic compounds*

Most Important



Least Important

*to be considered if HAI rate remains high despite implementation of other measures