

Infections in the intensive care unit

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EPIDEMIOLOGY

■ Contributing factors

- Patients in ICUs have more chronic comorbid illnesses and more severe acute physiologic derangements.
- The high frequency of indwelling catheters among ICU patients
- The use and maintenance of these catheters necessitate frequent contact with health care workers, which predispose patients to colonization and infection with nosocomial pathogens.
- Multidrug-resistant pathogens such as methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant enterococci (VRE) are being isolated with increasing frequency in ICUs

EPIDEMIOLOGY

- A multicenter, prospective cohort surveillance study of 46 hospitals in Central and South America, India, Morocco, and Turkey.
- Rates of device-associated infection were determined between 2002 and 2005; an overall rate of 14.7 percent or 22.5 infections per 1000 ICU days was found.
- Specific devices:
 - Ventilator associated pneumonia (VAP); 24.1 cases/1000 ventilator days (range 10.0-52.7)
 - CVC-related bloodstream infections; 12.5/1000 catheter days (7.8-18.5)
 - Catheter-associated urinary tract infections; 8.9/1000 catheter days (1.7-12.8)

CATHETER-ASSOCIATED UTI

- UTI is the most common nosocomial infection (> 40% of all nosocomial infections)
- CAUTIs are the second most common cause of nosocomial bloodstream infection, which have an attributable mortality
- Risk factors
 - The major risk factor is an indwelling urinary catheter
 - The risk increases directly with the duration of catheterization.
 - The daily incidence of catheter-associated bacteriuria is approximately 5%
 - After catheters have been in place for 1 week, bacteriuria or candiduria develop in 25%; after 30 days, the great majority of patients will have bacteriuria.

CATHETER-ASSOCIATED UTI

- **Other important risk factors for CAUTI**
 - Patients with other sites of active infection
 - Long hospital stay
 - Malnutrition
 - Female sex
 - Abnormal serum creatinine
 - Improper catheter care (particularly placement of the drainage tube above the level of the bladder)