



Graduate Medical Education



Infection Prevention at Inova



When to Perform Hand Hygiene



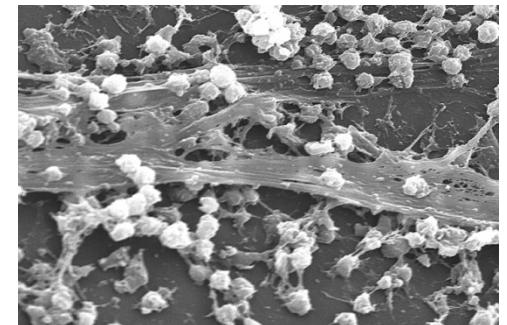
- Hand hygiene should be performed *before*:
 - Eating, drinking or applying cosmetics
 - Handling medications or preparing food
 - Patient contact
 - Donning PPE
- Hand hygiene should be performed *after*:
 - Eating, sneezing coughing
 - Using the restroom
 - Patient contact or contact with contaminated items or surfaces
 - Removing gloves and PPE
- Hands should be washed with *soap and water*:
 - When they are visibly soiled
 - Before and after caring for a patient that are infected with *C. difficile* or *Bacillus anthracis*

Central Line-Associated BSI (CLABSI)

- 90% of all bloodstream infections are associated with CVLs
- 400,000 CLABSIs occur per year in U.S.
- CLABSIs are associated with:
 - Increased morbidity
 - Mortality rates of 10% to 20%
 - Prolonged hospitalization (mean of 7 days) and increased medical costs from \$3,700-\$29,000 per episode.

Risk Factors for CLABSI

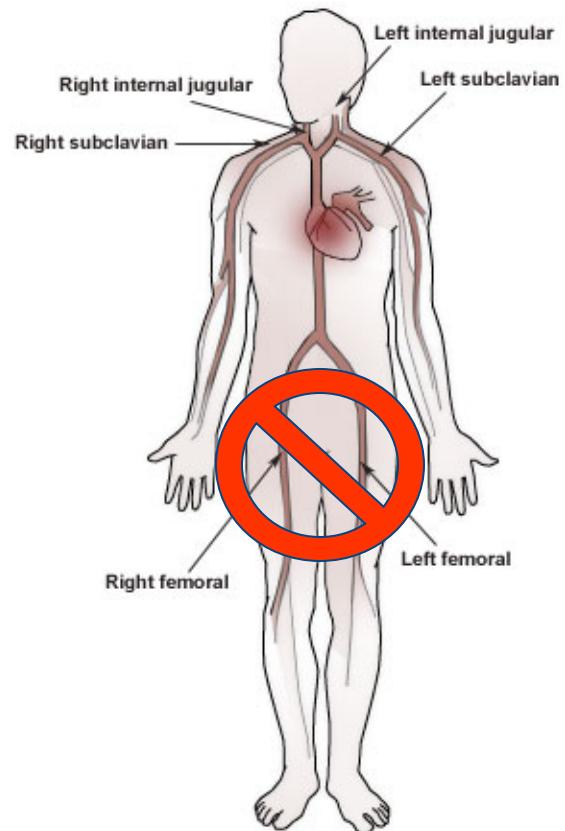
- Extended duration of indwelling catheterization
- Extra/Intra luminal and hub biofilm formation.
- Prolonged hospitalization before catheterization.
- Femoral or internal jugular catheterization.
- Multi-lumens vs. single lumen



Electron microscopic picture of *Staphylococcus* biofilm

CLABSI Prevention

- Hand Hygiene with soap and water or waterless alcohol gel before line insertion or manipulation.
- Carefully select insertion site with least infection risk:
 - The subclavian site has lowest risk of infection.
 - The femoral sites have the highest risk of infection.



CLABSI Prevention

- During insertion, operator must wear sterile gloves and gown, cap, mask, and large drape must cover the patient.
- Unless contraindicated;
 - use Chlorhexidine-based antiseptic for skin preparation
 - long-acting antiseptic dressing on patients \geq 2 months of age.
- Daily review of catheter necessity.
- Disinfect hubs prior to entry by robustly cleaning the hub with an alcohol swab.



Catheter-Associated UTI (CAUTI)

- 40% of all hospital-acquired infections
- 12-25% of all hospitalized patients receive a urinary catheter with half not found to have a valid indication
- Cost per CAUTI is \$500-3,000. \$450 million annually
- HA-CAUTI NOT reimbursed by CMS
- Recent US hospital survey showed >50% of physicians did not monitor which patients had catheters and 75% did not monitor duration or discontinuation.

CAUTI Prevention

- Avoid unnecessary urinary catheters
- Insert using aseptic technique
- Use bladder ultrasound to assess urinary retention
- Use the smallest catheter possible to minimize urethral trauma
- Keep the drainage system closed
- Use a securement device to prevent movement and urethral traction
- Maintain unobstructed flow and keep bag below the level of the bladder

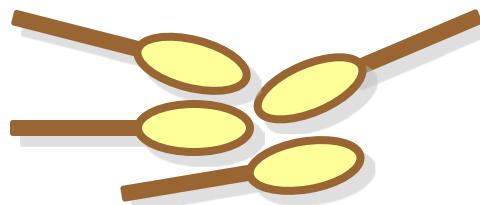
CAUTI Prevention

- Empty bag regularly avoiding touching the spigot on the collection container
- Perform daily meatal care with soap and water
- Don't irrigate unless there is an obstruction
- Determine need for the catheter daily. Approved reasons for a urinary catheter include:
 - Select surgical procedures
 - Strict I/O
 - Urinary retention/obstruction
 - Stage III/IV pressure ulcers for incontinent patients
 - Palliative care

MDRO Facts

C. difficile

- *Clostridium difficile* infection (CDI) can cause symptoms ranging from diarrhea to life-threatening inflammations of the colon. According to CDC, *C difficile* is responsible for tens of thousands of diarrhea cases and at least 5000 deaths each year in the United States.
- Bacterium shows increasing incidence, severity worldwide, the emergence of antimicrobial-resistant (many isolates are now showing resistance to fluoroquinolones) and hyper-virulent strains.



Poor Prescribing Puts Patients at Risk



- Although antibiotics save lives they are not without their own harm
 - They put patients at risk for a *Clostridium difficile* infection
 - Deadly diarrhea that causes at least 250,000 infections and 14,000 deaths each year in hospitalized patients
- Decreasing the use of antibiotics that most often lead to *C. difficile* infection by 30% (this is 5% of overall antibiotic use) could lead to 26% fewer of these deadly diarrheal infections
 - Fluoroquinolones, β -lactams with β -lactamase inhibitors, and extended-spectrum cephalosporins are examples of these “high risk” antibiotics
- Patients getting powerful antibiotics that treat a broad range of infections are up to 3 times more likely to get another infection from an even more resistant bacteria

C. difficile at Inova Health System

- Patient highly suspected of having *C. difficile* should be placed in Contact Special Precautions as soon suspected – even before test results have returned.
- Patients suspected or known *C. difficile* should not leave the room unless medically necessary.
- Patient room and all associated medical equipment must be disinfected with 10% bleach.
- Perform hand hygiene with soap and water.
- Discontinue of contact special precautions after the introduction of an appropriate course of treatment and diarrhea has ceased. Patients who have bowel movements should have formed stools without the use of anti-diarrheals for 48 hours.
- Retesting should not be done on a routine basis.

Antimicrobials with Restrictions or Criteria for Use



Restricted Antimicrobials

- Linezolid
- Daptomycin
- Tigecycline
- Ceftaroline
- Restricted to ordering by certain specialties such as Infectious Diseases or Critical Care
 - Please consider consultation if you feel these antibiotics are required
- Also restricted to certain criteria for use (i.e. tigecycline for MDR gram negatives)
- All prospectively reviewed by stewardship pharmacist and physician
- Voriconazole IV
- Fidaxomicin
- Micafungin

Antibiotics with Criteria for Use

- Ciprofloxacin
- Levofloxacin
- Ceftriaxone
- Aztreonam
- Piperacillin/tazobactam
- Ertapenem
- Meropenem
- Fosfomycin
- Vancomycin
- Not restricted to certain specialties
- Restricted to certain criteria for use only (i.e. fosfomycin for ESBL E.coli cystitis)
- Medications are prospectively reviewed by stewardship pharmacist