Prevention of Hospital Acquired Infections

National Patient Safety Goal #7
Hospital Acquired Infections

Course Objectives

At the end of this course the learner should be able to:

- Recognize 3 basic principles of infection prevention
- Define Multi-Drug Resistant Organisms (MDRO)
- Identify 2 MDRO’s seen at the hospital
- Describe which patients require MRSA screening within 24 hours of admission to the hospital
- Describe the 5 elements of the Central Line Associated Bloodstream Infection Prevention Bundle
- Recognize 2 methods to prevent Surgical Site Infections
- Describe 3 prevention measures of the VAP bundle
- Describe 3 prevention measures of the CAUTI bundle
- Identify where you can find infection prevention information, policies and procedures
Hospital Acquired Infections

Remember

- The "Check Your Knowledge" questions are NOT scored; go ahead and guess.
- The Post Test is scored and a final grade given.

100% is needed to pass the Prevention of Hospital Acquired Infections: National Patient Safety Goal #7 module.
Check Your Knowledge

**True or False:** The prevention of hospital acquired infections is a key *National Patient Safety Goal.*

**True**

**False**

**Incorrect,** prevention of hospital acquired infections is the #7 *National Patient Safety Goal.*
Infection Prevention

Click on each of the boxes to find 4 ways to prevent the spread of infections:

**Hand Hygiene** is the *si*
spread of germs.

- Use alcohol gel or
or contact with the

**Use Standard Precaut**

- Perform hand hyg

- Use the correct *pe*
gown, *mask, and i*
blood or body fluic

**Respiratory Etiquette**

- *Cover that cough-*
to transport

- Teach patients/pa

- Have tissues avail

**Note:** Symtomatic

**Clean the environment**

**Remember:** for healthc
allowed in the patient ce

Eat in designated areas
are not allowed.
Infection Prevention

Click on each of the boxes to find 4 ways to prevent the spread of infections:

**Hand Hygiene** is the *single most important* method to prevent the spread of germs.

- Use alcohol gel or soap and water before and after patient contact or contact with the patient’s environment

**Use Standard Precautions** for all patient care:

- Perform hand hygiene (wash hands)
- Use the correct personal protective equipment (PPE) - gloves, gown, mask, and face shield - based on the potential exposure to blood or body fluids and have tissues and hand sanitizer available

**Respiratory Etiquette/Hygiene** for all:

- *Cover that cough* - place a surgical mask on coughing patients prior to transport
- Teach patients/parents/visitors to *cover their cough*
- Have tissues available and hand sanitizer

*Note:* Symptomatic visitors/staff are *not allowed* in the inpatient units.

**Clean the environment** using a hospital-approved disinfectant.

**Remember:** for healthcare worker safety, eating and drinking is not allowed in the patient care areas.

Eat in designated areas e.g., lounge, where patients and their specimens are not allowed.
Hospital Acquired Infections

Prevention of Central Line Associated Blood Stream Infections (CLABSI)

The use of the Central Line Bundle has shown to decrease the incidence of CLABSI.

The central line bundle is a group of evidence-based practices which have been shown to decrease central line associated blood stream infections when all elements are performed.

The following actions are included in the bundle and are required:

- follow hand hygiene protocols before central line insertion, whenever accessing the line, or performing dressing changes

  **Central Line Insertion**

  - use maximum barrier precautions (large drape, gown, mask, gloves, cap)
  - use 2% chlorhexidine solution for skin antisepsis
  - select optimal site for the catheter

  **Charting**

  - do daily review and documentation of the need for the line, with prompt removal if line if it is not needed
Ventilator Associated Pneumonia (VAP) Bundle

There are 7 key parts to the VAP bundle.

1. **Elevate head of bed**, per physician (MD) / neonatal nurse practitioner (NNP) order, to reduce risk of aspiration of gastric contents (*unless contraindicated*).
   - 1. *Pediatrics* (children > 1 year) elevate >30-45 degrees
   - 2. *Infants* > 15-30 degrees

2. **Daily evaluation** of sedation titration and extubation readiness to be documented by the physician/NP/PA

3. **Peptic ulcer disease prophylaxis** as ordered by the physician/NP/PA

4. **Oral hygiene** as per unit standards of care program every 4 hours and prn

5. **Strict infection control measures**: hand hygiene, gloves and other personal protective equipment (PPE)
VAP Bundle Continued

6. **Appropriate ventilator and endotrachal tube care** including:
   
   1. Inline suctioning
   2. Heated wire ventilator circuits to decrease condensation
   3. Assess condensation every 4 hours, prn and prior to repositioning
   4. Decrease number of ventilator disconnects
   5. There are separate suction tube/canister apparatus for oral care and endotracheal tube

7. **Deep vein thrombosis (DVT) prophylaxis**, as appropriate for the age and condition of the child
Catheter Associated UTI (CAUTI) Bundle

The CAUTI bundle has 7 key steps. They include:

1. **Assess the need for catheterization** - use indwelling catheters only when medically necessary
   - For operative patients, remove catheter as soon as possible, preferably within 24 hours

2. **Use aseptic insertion technique** with appropriate hand hygiene, sterile gloves and use of sterile equipment
   - Use a foley catheter insertion tray
   - Perform hand hygiene with antimicrobial solution e.g., alcohol hand rub or chlorhexidine hand wash, immediately before and after insertion or any manipulation of the catheter or site

3. **Properly secure catheters after insertion** to prevent movement and urethral traction

4. **Continuously maintain a sterile closed drainage system.** *Do not* disconnect the catheter and drainage system unless there is an MD order to have the catheter irrigated
Catheter Associated UTI (CAUTI) Bundle Continued

5. **Avoid prolonged catheterization of patient** - assess the need for an indwelling catheter on a daily basis
   - Research shows that patients are at a much higher risk of a CAUTI when a foley catheter remains in place longer than 6 days

6. **Keep good hygiene at the catheter** - urethral interface by providing routine perineal care

7. **Keep drainage bag below level of bladder at all times**
   - Reflux (*urine going back into the bladder*) of urine is linked to infection, so drainage bags should be positioned low to prevent backflow
Check Your Knowledge

**True or False:** Limiting number of staff in an operating room and keeping the door closed are 2 *preoperative* ways to reduce surgical site infections (SSI).

**Incorrect**, limiting number of staff in the room and keeping the operating room door closed are 2 *INTRAoperative* ways to reduce surgical site infections (SSI).

Close window
Prevention of Surgical Site Infections (SSI)

Prevention of SSI is another important goal.

Infection prevention begins in the *preoperative* period, during surgery or *intraoperative* period and following surgery, the *postoperative* period.

The following evidence-based practices have been shown to decrease SSI’s *preoperatively*:

- Control blood glucose during the perioperative period i.e., before, during and after surgery

- Use the correct prophylactic antibiotics within 1 hour of "cut time"

- Use clippers instead of razors if hair removal is needed

- Make sure that patients bathe or shower using an antimicrobial agent e.g., chlorhexidine gluconate (CHG), the night before or morning of surgery. *Exception*: premature infants.

- Use only hospital-approved antiseptic agent for skin preparation
Prevention of Surgical Site Infections (SSI) cont.

**Intraoperatively**

- *Control traffic*– limit number of personnel in room and keep door closed

**Postoperatively**

- *Protect a closed incision* for 24-48 postoperatively with a sterile dressing

- *Wear gloves for dressing changes* - sterile gloves required for certain patient populations e.g., CV surgery, immunocompromised patients.

- *Wash hand* before and after dressing changes, and any contact with the surgical site
Multi-Drug Resistant Organisms (MDRO’s)

Over time, germs can grow stronger than the medicines used to fight them.

- Germs are called MDRO when they become resistant (not killed by) many of the antibiotics (drugs) usually used to treat them.

- Examples of MDRO’s include:
  - Methicillin Resistant Staph Aureus - MRSA
  - Vancomycin Resistant Enterococcus - VRE
  - Clostridium difficile – C. diff
Since January 1, 2009, California law requires certain patients be screened for MRSA within 24 hours of admission to the hospital.

They include patients:

- discharged from another acute care facility within the past 30 days
- admitted to an ICU
- get inpatient dialysis
- transferred from a skilled nursing facility

Patients and their families are told about positive test results by a doctor.

The patient’s nurse will give educational information about MRSA, and how to prevent giving it to others, to the patient and family.

Chart in the medical records that the patient and family were told about the MRSA status and that education was done.
Isolation Signs

**Contact Precautions** are used to reduce the transmission of MDRO’s. Click on the pictures to learn more about contact precautions and the isolation signs used to tell you the patient is infected.

The **Contact Precaution sign** is used for general contact precautions.

When you enter the room remember 4 key things:

1. **Hand Hygiene**: Wash hands with antimicrobial soap or sanitize hands with alcohol gel for **15 seconds** before patient contact, after glove removal and **before** leaving the patient’s room.

2. **Gloves**: Wear gloves when entering room. **Change gloves** after contact with infective material. **Remove gloves before** leaving the patient’s room.

3. **Gown**: Wear a gown if you anticipate that your clothes will have contact with the patient, environmental surfaces or items in the patient’s room. **Remove the gown before** leaving the patient’s environment.

4. **Equipment**: When possible, dedicate the use of noncritical patient care equipment to this patient. **Disinfect all patient care equipment before** removing it from patient’s room.

The **blue “Bubbles and Bleach”** sign is for C. diff and to let everyone know to use the **bleach protocol and handwashing** instead of alcohol gel for hand hygiene.

In addition to the regular Contact Precautions:

- You **must** wear **gown** and **gloves** upon entry into the room
- Keep dedicated equipment and hamper **in the room**
- Put patient in a private room
- When discharged or transferred, housekeeping to clean room per procedure and replace curtains
- **Bubbles and Bleach** sign can be wiped off and reused
Wearing a Portable Air-Purifying Respirator (PAPR)

A properly fitting PAPR must be worn by personnel performing the following high-risk medical procedures on suspected or confirmed aerosol transmissible disease (ATD) that requires Airborne Isolation:

- Sputum induction
- Bronchoscopy
- Tissue handling procedures such as specimen processing and autopsy
- Autopsy, clinical, surgical, and lab procedures that may aerosolize pathogens
- Respiratory care procedures such as intubation, open suctions, and tracheostomy suctions
- Pulmonary function tests

Contact Risk Management for PAPR training.
Putting on Personal Protective Equipment (PPE)

The following animation covers the 5 steps for putting on PPE when going into a room with an isolation patient. **Note:** The animation will loop 2 times.

**Step 1**

*Hand hygiene*

Use either soap & water for 15 seconds or alcohol degremer until dry.
Removing Your Personal Protective Equipment (PPE)

The following animation covers the 5 steps for taking off your PPE when leaving an isolation patient's room. Note: The animation will loop 2 times.

Step 1

Remove gloves.
Peel off one glove. Hold it in the other gloved hand. Peel off second glove over both gloves.
Preventing Infection Program

Preventing Infection brochure in the admission packets

The Preventing Infection brochure provides the patient and/or family with information about steps they can take to control infection:

- hand hygiene practices
- respiratory hygiene practices
- contact precautions according to the patient’s condition

The information needs to be covered with the patient and family on the day patient enters the hospital, or as soon as possible (within 24 – 48 hours).

You need to check the patient's understanding of this information.

Chart in the medical record all patient/parent/family education sessions and how well they understood the information.

In addition to the brochure, additional educational materials are available on the Infection Control website.
Infection Control Website

The Infection Control website provides the staff with current information on many topics.

Some of the topics covered include:

- policies and procedures
- hand hygiene
- preventing surgical site and catheter-associated infections
- resources
- news items
Let's review

- The basic principles of infection prevention are:
  - Perform hand hygiene in accordance with hospital procedure
  - Practice Standard Precautions with all patients
  - Add additional precautions e.g., Contact Isolation for MDROs and C. difficile
  - Teach/practice cough etiquette and ensure that respiratory hygiene is practiced e.g., mask coughing patients during transport
  - Maintain a clean and disinfected environment

- Germs are called multidrug resistant when they are resistant to antibiotics and include MRSA, VRE, and C. difficile

- Use infection prevention bundles to reduce the risk of CABS, SSI, BAP and CAUTI

- California Code of Regulations requires health care workers to wear a Portable Air-Purifying Respirator (PAPR) when doing any highly hazardous or clinical procedure that may aerosolize pathogens from a patient with aerosol transmissible diseases

- The Preventing Infection brochure provides the patient and/or family with information about infection control measures

- For information about isolation and precautions, the Infection Control Manual is available on Micromedex, Skylight, in letters
Question Group: 09 questions

Description:

Questions: 12  Questions Count in Test: 12

1. central line

MultipleChoice
Custom Identifier: none  Extended Feedback: No

Which of the following includes all elements of the central line bundle?

a. Hand hygiene, contact precautions, 2% chlorhexidine for skin antisepsis, appropriate site selection, documentation of daily necessity.

b. Hand hygiene, maximal sterile barrier precautions, 2% chlorhexidine for skin antisepsis, appropriate site selection, documentation of daily necessity.

c. Hand hygiene, maximal sterile barrier precautions, 2% chlorhexidine for skin antisepsis, appropriate site selection, change central line weekly.

d. Hand hygiene, maximal sterile barrier precautions, culture tip when line discontinued, appropriate site selection, documentation of daily necessity.

2. hair removal

TrueFalse
Custom Identifier: none  Extended Feedback: No

If hair must be removed before surgery, use clippers only.

True

Clipping is the correct method to remove hair because it does not cause microabraisions.
3. **hand hygiene before**
   - **TrueFalse**
   - **Use hand hygiene before and after dressing changes and any contact with the surgical site.**
   - **True**  Hand hygiene prevents the spread of infection.
   - **False**  Hand hygiene prevents the spread of infection.

4. **examples of MDROs**
   - **MultipleChoice**
   - **The following are examples of MDRO’s:**
     - **a. MRSA**
     - **b. VRE**
     - **c. C. difficile**
     - **d. All of the above.**
     - **e. A and B**
   - **All of these organisms are MDRO’s.**

5. **prevent HAI - except**
   - **MultipleChoice**
   - **The following are basic strategies to prevent hospital acquired infections throughout the hospital **EXCEPT:****
     - **a. Hand hygiene**
     - **b. Respiratory Etiquette/Hygiene**
     - **c. Wear scrub attire when caring for patients**
     - **d. A clean environment**
   - **Wearing scrub attire strategy is not a basic infection control strategy.**

6. **require hand washing**
   - **MultipleChoice**
   - **Which of the following would require hand hygiene?**
     - **a. Before touching a patient**
     - **b. After emptying a bedpan**
     - **c. Before inspecting an IV dressing**
     - **d. After leaving a patient’s room**
     - **e. All of the above**
   - **All of these actions require hand hygiene.**

7. **etoh gel or soap**
   - **TrueFalse**
   - **Hand hygiene includes alcohol gel or soap and water.**
   - **True**  Both are acceptable methods of hand hygiene.
   - **False**  Both are acceptable methods of hand hygiene.

8. **manual location**
   - **TrueFalse**
   - **Infection Prevention and Control policies, procedures and other information can be found on the Infection Control website on the LPCH intranet.**
   - **True**  The most current and up to date is available on the intranet.
   - **False**  The most current and up to date is available on the intranet.

9. **dedicated equip**
   - **TrueFalse**
   - **Dedicated patient care equipment is only required for patients with VRE.**
<table>
<thead>
<tr>
<th>True</th>
<th>Dedicated patient care equipment is required for all MDRO’s.</th>
</tr>
</thead>
<tbody>
<tr>
<td>False</td>
<td>Dedicated patient care equipment is required for all MDRO’s.</td>
</tr>
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</table>

**10. bubbles sign**

<table>
<thead>
<tr>
<th>True</th>
<th>A Bubbles and Bleach sign is used for patients with <em>C. difficile</em>.</th>
</tr>
</thead>
<tbody>
<tr>
<td>False</td>
<td>The Bubbles and Bleach sign is used to alert staff to use bleach protocol for <em>C. difficile</em> patients.</td>
</tr>
</tbody>
</table>

**11. contact precautions**

<table>
<thead>
<tr>
<th>True</th>
<th>Contact Precautions include the following:</th>
</tr>
</thead>
</table>
| False| a. Gown  
|      | b. Gloves  
|      | c. Booties  
|      | d. All of the above  
|      | e. A and B only |

<table>
<thead>
<tr>
<th>True</th>
<th>Booties are not part of Contact Precautions.</th>
</tr>
</thead>
</table>

**12. standard precautions**

<table>
<thead>
<tr>
<th>True</th>
<th>Standard precautions are used <em>only</em> for patients with MDRO’s.</th>
</tr>
</thead>
<tbody>
<tr>
<td>False</td>
<td>Standard precautions are used for all patients.</td>
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