Reducing Hospital Acquired Infection
What’s Your Part?

Hospital Epidemiology
Ext 1-2224
Objectives

• Identify prevention strategies for HAI/MDROs and HCW exposure
• Recall the financial impact to institution for HAI
• Recognize difference in Standard Precautions and Transmission Based Precautions
• Hand Hygiene Practices & Requirements
• Recognize proper application of PPE and removal
• Recognize the MDRO code abbreviations and select the appropriate transmission based precautions to initiate.
Healthcare Acquired Infections (HAI)

Healthcare-associated infections (HAIs)—infections patients can get while receiving medical treatment in a healthcare facility—are a major, yet often preventable, threat to patient safety.

*Any infection occurring in the patient because of coming into the hospital/clinics*
# Reportable Hospital Acquired Infections (HAIs) for Patients

Cost hospitals and healthcare institutions more than $6.7 billion each year for

**12 extra** hospital days on an average.

## Cost of Hospital Acquired Infections

<table>
<thead>
<tr>
<th>INFECTIONS</th>
<th>LOS</th>
<th>COST</th>
<th>Percentage of Infection by Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSI (Surgical Site Infection)</td>
<td>7.3 days</td>
<td>$20,785</td>
<td>20%</td>
</tr>
<tr>
<td>CLABSI - Central Line Associated Bloodstream (8th leading cause of death)</td>
<td>5-20 days</td>
<td>$45,814</td>
<td>11%</td>
</tr>
<tr>
<td>CAUTI (Catheter Associated Urinary Tract Infection)</td>
<td>1.0 days</td>
<td>$896</td>
<td>36%</td>
</tr>
<tr>
<td>VAP (Ventilator Associated Pneumonia)</td>
<td></td>
<td>$40,144</td>
<td>11%</td>
</tr>
</tbody>
</table>

NPSG 7

JAMA Internal Medicine, Published online Sept. 2, 2013
The Foundation of Infection Prevention- 2 Types of Precautions

• **Standard Precautions**
  – Foundation of infection prevention
  – Component of the blood borne pathogen exposure control plan

• **Transmission Based Precautions**
  – Implemented for known or suspected infection with the potential to be spread from patient to patient
Standard Precautions include Practices for:

- Hand Hygiene
- PPE
- Environmental Control
- Respiratory hygiene/cough etiquette
- Sharps Safety
- Patient resuscitation
- Textiles and Laundry

*Standard precautions are the foundation for preventing transmission of infectious diseases. They apply to all patients and across all health care settings (eg, hospitals, ambulatory surgery centers, free-standing specialty care sites, interventional sites).
Patient
All patients regardless of diagnosis or infection status

Organism

Health Care Worker
Hands

Environmental surfaces
Infectious agent
Reservoir
Susceptible host
Portal of entry
Portal of exit
Mode of transmission
Hand Hygiene

Most common mode of transmission of pathogens is via hands!

- Clean hands are the single most important factor in preventing the spread of pathogens and antibiotic resistance in healthcare settings.
- Hand hygiene reduces the incidence of healthcare associated infections.

NPSG 07.01.01
What Is Hand Hygiene?
Hand hygiene refers to the act of cleansing hands with water or liquids and includes the use of water, soaps, antiseptics, or other substances, including alcohol-based hand rubs.

Accountability?
Healthcare personnel are being held accountable for their hand hygiene practices to prevent transmission of HAIs, and healthcare institutions are facing increasing regulation and hand hygiene mandates while being challenged with economic consequences of failing to meet those mandates.
Hand Hygiene

Does wearing gloves replace hand hygiene?

*Wearing gloves does not replace hand hygiene.*

Studies have found a 15-17% rate of colonization from methicillin-resistant Staphylococcus aureus (MRSA)-positive patients to healthcare personnel’s hands after removal of gloves.

According to the Centers for Disease Control and Prevention, more than *900,000 healthcare-associated infections* occur in U.S. acute care hospitals every year. It is well documented that effective hand hygiene helps reduce the spread of infections. *Despite this evidence, Health Care Providers practice hand hygiene less than half of the times they should.*
Joint Commission NPSG.07.01.01

- Before patient contact and after contact with patient’s skin
- Before donning gloves and after removing gloves
- When hands will be moving from a contaminated body site to a clean body site during patient care.
- When visibly dirty, contaminated or soiled.

We all must adhere to Hand Hygiene guidelines.
Beginning Jan. 1, 2018, any observation by surveyors of an individual failure to perform hand hygiene in the process of direct patient care will be cited as a deficiency resulting in a Requirement for Improvement (RFI) under the Infection Prevention and Control chapter for all accreditation programs, according to a statement on the Joint Commission website.
Washing with Soap and Water

• Wet hands with water, apply soap, rub hands together (vigorously rub all surfaces) for 15 seconds
• Rinse and dry with disposable towel
• Use towel to turn off faucet
• Skin Care: Use hospital-approved lotion to prevent skin breakdown
• Fingernails: Keep natural nails short with well groomed cuticles. Nail polish must be in good repair. Artificial nails are not to be worn by care givers because of the risk of infection to staff and patients
Alcohol Based Hand Sanitizer

- Hospital approved alcohol based hand sanitizer (foam/gel) is an acceptable form of hand hygiene if hands are not visibly dirty.
- May be used 8-10 times consecutively before soap and water is required.
- Apply to palm of one hand & Rub hands together covering all surfaces of both hands until dry.
- **ATTENTION:** When caring for patients with *Clostridium difficile*, other spore forming bacteria or norovirus wash hands with soap and water.

Do not use alcohol based foam!
Summary

• While a hand hygiene program alone cannot absolutely control disease transmission, it remains the *cornerstone of all effective prevention programs* and the foundation upon which other practices are designed.

• In this context, hand hygiene continues to offer one of the *simplest and most effective solutions to help prevent infections*, maximize patient safety, and improve healthcare outcomes across the continuum of care.
Transmission Based Precautions

Implemented for known/suspected infections with the potential to be spread from patient to patient.

Joint Commission

Implement evidence based practices to prevent health care associated infections due to Multi-drug resistant organisms (MDROs) in acute care hospitals.
MDRO Evidence Based Practices Include:

- Hand Hygiene
- Prompt Identification of colonized patients upon readmission (MDRO Code)
- Transmission Based Precautions
- Environmental hygiene
MDRO Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Transmission Based Precaution</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIS</td>
<td>Expanded Precaution</td>
</tr>
<tr>
<td>VRS</td>
<td>Expanded Precaution</td>
</tr>
<tr>
<td>ESB</td>
<td>Contact Precaution</td>
</tr>
<tr>
<td>CRE</td>
<td>Expanded Precaution</td>
</tr>
<tr>
<td>MDR</td>
<td>Contact Precaution</td>
</tr>
<tr>
<td>CF</td>
<td>Contact Precaution</td>
</tr>
</tbody>
</table>

MDRO codes are only applied and removed by Hospital Epidemiology. Policy tech and Epidemiology website have policies to guide you in your practice.
Multi-drug Resistant Organisms

- Patients who are identified as previously or currently positive with an organism that is problematic in the healthcare setting have their patient label “coded” with a **MDRO code** specific to the organism.

<table>
<thead>
<tr>
<th>Dummy, Patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOB 12/1/46</td>
</tr>
<tr>
<td>EMRN: ############</td>
</tr>
<tr>
<td>Acct #: 1111111</td>
</tr>
<tr>
<td>SI</td>
</tr>
<tr>
<td>11/2/05 Location: XX</td>
</tr>
<tr>
<td>XXXX</td>
</tr>
<tr>
<td>* ###############</td>
</tr>
</tbody>
</table>

- It may also be found in the “MDRO” code” field in IDX, Healthquest and Powerchart.
- Inpatients, outpatients, HCWs, faculty and students are coded in the same manner.
MDRO Code: location on banner bar
MDRO codes = TBP practice
Transmission Based Precautions

**EXTRA MEASURES need to be taken to prevent**
the spread of microorganisms in addition to use of
Standard Precautions.

**STOP THE SPREAD OF GERMS!**
**FOLLOW THESE SIMPLE RULES!**
Examples of How Germs are Spread by Contact

• Contact Precautions
  – Direct: person to person contact
    • Hand to hand
    • Hand to patient’s skin
  – Indirect: objects to hand contact
    • Bed and Linens
    • Light switch & plumbing fixtures
    • Door knobs/plates/handles
    • TV remote
Contact Precautions

ALL VISITORS: REPORT TO THE NURSES STATION

- **Hands:** Wash before entering room, upon exit & as necessary.
- **Gown:** Wear to enter & inside room.
- **Gloves:** Wear to enter & inside room.
- **Mask:** Not required.
- **Room/Door:** May remain open.
ENTERIC Precautions

ALL VISITORS: REPORT TO THE NURSES STATION

- Hands: Wash before entering room, upon exit & as necessary soap & water (NO alcohol hand hygiene).
- Gown: Wear to enter & inside room.
- Gloves: Wear to enter & inside room.
- Mask: Not required.
- Room/Door: May remain open.
- Cleaning: Hypochlorite (diluted bleach, 1:10) solution required.
Airborne Precautions

ALL VISITORS: REPORT TO THE NURSES STATION

- Hands: Wash before entering room, upon exit & as necessary.
- Gown: Not required.
- Gloves: Not required.
- Mask: Wear N-95 mask to enter & inside the room.
- Room/Door: Must remain closed at all times.
Droplet Precautions

ALL VISITORS: REPORT TO THE NURSES STATION

- **Hands:** Wash before entering room, upon exit & as necessary.
- **Gown:** Not required.
- **Gloves:** Not required.
- **Mask:** Wear to enter & inside the room.
- **Room/Door:** May remain open.
Personal protective equipment (PPE)

PPE (gloves, gowns, masks, face shields, goggles) - Part of Standard Precautions & Transmission Based Precautions.

The HCW chooses the items that the task will require to protect themselves.

• Being able to put on and take off protective apparel correctly helps ensure that they work the way they should.
• Taking off PPE apparel ranks among the most critical of topics in infection prevention.

ALL slides on PPE are OSHA.
How to Don a Gown

• Select appropriate type and size
• Opening is in the back
• Secure at neck and waist
• If gown is too small, use two gowns
• Gown #1 ties in front
• Gown #2 ties in back
How to Don a Mask

• Place over nose, mouth and chin
• Fit flexible nose piece over nose bridge
• Secure on head with ties or elastic
• Adjust to fit

Secured over the nose and under chin
Tied at the back of neck
Tied at the crown
How to Don a Particulate Respirator

• Select a fit tested respirator
• Place over nose, mouth and chin
• Fit flexible nose piece over nose bridge
• Secure on head with elastic
• Adjust to fit
• Perform a fit check –
  • Inhale – respirator should collapse
  • Exhale – check for leakage around face
Eye Protection

• Position goggles over eyes and secure to the head using the ear pieces or headband
• Position face shield over face and secure on brow with headband
• Adjust to fit comfortably
How to Don Gloves

• Don gloves last
• Select correct type and size
• Insert hands into gloves
• Extend gloves over gown cuff
How to Safely Use PPE

- Keep gloved hands away from face
- Avoid touching or adjusting other PPE
- Remove gloves if they become torn; perform hand hygiene before donning new gloves
- Limit surfaces and items touched
Removing Contaminated PPE- Safely

“Contaminated” and “Clean” Areas of PPE

Contaminated – outside front
Areas of PPE that have or are likely to have been in contact with body sites, materials, or environmental surfaces where the infectious organism may reside

Clean – inside, outside back, ties on head and back
Areas of PPE that are not likely to have been in contact with the infectious organism
Sequence for Removing PPE

1. Gloves
2. Hand Hygiene
3. Face shield or goggles
4. Gown
5. At doorway, before leaving patient room
6. *Airborne Precaution PPE is removed in the anteroom.
7. Mask or respirator
8. Remove respirator outside room, after door has been closed
How to Remove Gloves (1)

1. Grasp outside edge near wrist
2. Peel away from hand, turning glove inside-out
3. Hold in opposite gloved hand
How to Remove Gloves (2)

1. Slide un gloved finger under the wrist of the remaining glove
2. Peel off from inside, creating a bag for both gloves
3. Discard
Remove Goggles or Face Shield

1. Grasp ear or head pieces with ungloved hands
2. Lift away from face
3. Place in designated receptacle for reprocessing or disposal
Removing Isolation Gown

1. Unfasten ties
2. Peel gown away from neck and shoulder
3. Turn contaminated outside toward the inside
4. Fold or roll into a bundle
5. Discard
Removing a Mask/Respirator

1. Untie the bottom, then top, tie
2. Remove from face
3. Discard
4. Why should surgical masks be handled by the ties when being removed?

1. Lift the bottom elastic over your head first
2. Then lift off the top elastic
3. Discard
Expanded PPE in certain areas of the World
Sharps safety

- Never recap needles
- Use safety devices whenever possible and never alter safety mechanism of a safety device
- Report all device failures
- Place ALL sharp items (needles, vacutainers, glass) into the appropriate rigid, puncture-resistant container for transport or disposal
Environmental Hygiene: Commonly Touched Surfaces in Patient’s room
Environmental Hygiene

• Routinely clean and disinfect the environment and other frequently touched surfaces
• Use the hospital approved disinfectant for your area/department
• **Allow the disinfectant to have contact for the amount of time recommended by the manufacturer**—Read the label if in doubt
• Clean up blood and body substance spills promptly
• Small spills (<500 ml) – Department/Unit responsibility
• Large spills (>500 ml) – Environmental Services responsibility

INFECTION CONTROL, NPSG (MDROs), & OSHA BBP
Super Sani – Purple
- 2mins Contact Time
- Effective against #30 Microorganisms

Bleach - Orange Wipes
- 4mins Contact Time
- Effective against #50 Microorganisms

Alcohol Free
- 3mins Contact Time
- Effective Against #40 Microorganism
Patient Care Equipment

- **Cleaned and disinfected between patient use** with appropriate hospital approved germicidal (including clinic tables, blood pressure cuffs, etc).

- Disinfect equipment **before it leaves the patient’s room**.
  - If it **cannot** be disinfected before it leaves the patient room, cover with a red biohazard bag and move to the area where it can be cleaned then disinfected.
  - Cleaned then disinfected equipment shall be **stored in the clean storage room** or covered with a clear plastic bag.
Fast Facts

Here are a few facts you may not want to know – but need to know:

Telephone: 25,127 germs per square inch
Desktop: 20,961 germs per square inch
Keyboard: 3,295 germs per square inch
Computer mouse: 1,676 germs per square inch
Toilet seat: 49 germs per square inch

Ownership of cleaning workspace.
ATP readings taken from:
Phones, Mobile work stations
Computer Mouse devices
Patient Equipment:
Stethoscopes:
The bell is cleaned with an alcohol wipe after every patient contact. If a patient is on TBP, the precaution cart should have “single patient use” stethoscope dedicated for their care.
Linen

• Handle all used linen as *contaminated*, wearing gown and gloves

• Place all laundry into moisture resistant, blue laundry bags

• Transport bag to laundry chute in a manner as not to contaminate the environment – **Do NOT Drag on the Floor**

• Secure bag before placing in laundry chute
Biomedical Waste

• Includes:
  – Blood and blood products, excretions, secretions, and other body substances which contain *free* liquids and cannot be or are not directly discarded into a municipal sewer system.
  • Such as saturated/dripping dressings
    – Sharps, syringes, scalpels
• Place in the appropriate red, plastic bag or box with the Biohazard Symbol. Sort waste into general and biomedical at the point of waste generation
• Cost of Waste Disposal
  – General $ 0.04 per pound
  – Biomedical $ 0.25 per pound

OSHA & BBP
Respiratory Etiquette

- Flu season: Oct thru March.
- Use tissues and dispose immediately after use.
- Do not sneeze/cough into hands – use elbow or tissue
- Perform hand hygiene after touching face.
- Use mask if necessary in public areas.

OSHA & BBP
Healthcare Workers
Risk of Exposure

Blood borne Pathogens-Occupational exposure to blood and all body substances secretions, excretions (except sweat), regardless of whether it contains visible blood

Usually by:

- Needle sticks or other sharps injury
- Mucosal contact (eyes, inside nose and/or mouth)
- Non-intact skin exposure
Blood Borne Pathogen Exposure

• Healthcare workers most at risk for exposure to:
  – Hepatitis B (HBV)
  – Hepatitis C (HCV)
  – Human Immunodeficiency Virus (HIV)

• Mechanisms of exposure include:
  – Contaminated needle sticks or cuts from other sharp instruments
  – Eye, nose, mouth, or non-intact skin contact with blood or other potentially infectious material

• Exposure risk is determined by **YOUR tasks/duties performed**-The Blood borne Pathogen Exposure Control Plan located in the Infection Control Manual

Health
Employee Health & Wellness

Employee Health & Wellness, Human Resources provides surveillance services to employees of Augusta University and Health System, contracted employees, and volunteers with the goal of preventing occupational injury and disease through recognition and management of risk, and to monitor compliance with all health, safety and environmental regulations for AU Health System.

- Georgia Regents Medical Associates (INFORMATION COMING SOON)

- AU Medical Center
  Healthy You (2017) Online Registration Instructions
  Incentives 2017.doc
  Calendar of Lunch and Learn Events

- Augusta University
  Augusta University Incentives 2017
  Health Sciences Walking Map
  Summerville Walking Map
7. Give the employee the Supervisor’s Accident Investigation Report (below). Instruct the employee to have their Supervisor complete and fax to Employee Health & Wellness, (706) 721-0882.

8. Instruct the employee to follow up with a visit to Occupational Health Services on the next business day.

9. Fax to Employee Health & Wellness, (706) 721-0882, the following forms:
   a. Appendix A or Appendix A-1, pages 1 and 2
   b. Employer’s First Report of Injury or Occupational Disease (WC-1)
   c. Authorization and Consent to Release Medical Information (WC-207)
   d. Worker’s Compensation Acknowledgement Form

Georgia Regents University Employee - Emergency Department
1. Evaluate exposure - if prophylaxis treatment is recommended per CDC guidelines
   a. Complete Appendix A (below) (Policy #4.70.00, page 1 and 2, prescription)
   b. Management of Exposure to Bloodborne Pathogens
      (for pregnant healthcare worker - complete Appendix A-1 (below) (Policy #4.70.00, page 1 and 2))
   c. Administer medication according to prescription
   Please ensure that the employee has enough medication available until the next open business day in Employee Health & Wellness

2. If exposure does not require prophylaxis treatment, please have the employee follow up with Employee Health & Wellness on the next business day. Please give the employee the Post Exposure Information Sheet

3. Have employee complete GRU Employee’s Report of Accident Injury

4. Instruct the employee to contact AMERISYS at (877) 656-7475 to report their claim

5. Instruct the employee to follow up with a visit to Employee Health & Wellness on the next business day

6. Fax to Employee Health & Wellness (706) 721-0882, the GRU Employee’s Report of Accident Injury

Bloodborne Pathogen Post-Exposure Source Individual Testing Consent Form
Source Patient Exposure Lab Form
Bloodborne Pathogen Post-Exposure Source Individual Testing Refusal Form
Protocol Sheet Appendix A
Protocol Sheet Appendix A-1
Campus Accident Report
First report of Injury
Supervisors Accident Report
WC Acknowledgement Form
Employee Health and Wellness

• Handles employee blood borne pathogen exposures.
• During business hours: Call Employee Health and Wellness to receive packet of forms.
• After business hours: go to ED. Always follow up with Employee Health and Wellness.
There is a vaccine to prevent Hepatitis B (a series of 3 shots).

- For more information, call Occupational Health Services at 706-721-3418.
Employee Health and Wellness

- Annual fit testing for N-95 mask
- Used during Airborne Precaution cases with known or suspected TB (Mycobacterium tuberculosis)

Bacteria floats in the air. Transmission from one person to another through airborne particles.
Employees working in High Risk Areas

• ER, Respiratory department, Radiology and Transport team members
• May be required to receive tuberculosis screening every 6 months

Reminder: All employees are tested once a year during your annual employee health and wellness visit.
When TB is suspected:

- Airborne Precautions are employed.
- Evaluation is done promptly.
- Patient is placed in a negative pressure room or given a surgical mask to wear until the negative pressure room is available.

- Diagnostic measures
- Complete history
- Physical exam
- Chest x-ray
- 3 sputum specimens collected for acid fast bacilli smear and culture
Confirmed TB cases

- Patients with known or suspected tuberculosis are placed in a private room with negative pressure and the door remains closed at all times.
- If a room is not available, a portable HEPA machine may be used until a negative pressure room is available.
- Place HEPA filter machine between the door and the patient. The door must remain closed.
- Damp towels should be placed at the bottom of the doors to minimize airflow out of the room.
- \textit{If transportation of patient is necessary, the patient wears a surgical mask.}
- When patient is discharged from the room the machine must run for at least 1 hour.
TB Control Plan

• Work Practice Controls
  - TB screening of patients on admission in all settings
  - Airborne Precautions for suspected/known cases

• Environmental Controls/Engineered Controls
  - Negative pressure patient rooms for suspected/known cases
  - Negative pressure rooms for high risk procedures
  - Portable HEPA units if negative pressure unavailable
  - Ultraviolet light in high risk areas

• Located in the Infection Control Manual
Do the Right thing....
help to prevent infections- we are all in this together!