First Do No Harm: The Dangers of Hospital Acquired Infections and the Methods of Prevention

Kevin Smith, MD
Ayat Abuihmoud, MS, CIC
Dominique Wright, MPH
Let’s Start with a Video

Hospital Acquired Infections (HAIs)

- An infection that occurs as a result of the care a patient receives in a health-care environment
- The majority of these infections are preventable
- Loyola Medicine has committed to Zero Harm
Did you know?

- Approximately 2 million patients experience a HAI in the US annually
- Nearly 90,000 people die from a HAI
- Each HAI costs Loyola Hospital $64,000
- Hand hygiene rates in hospitals are often less than 50%
- The Center for Medicare and Medicaid Services (CMS) cares about HAIs because they are preventable, deadly, and costly
Five HAIs that are reported to NHSN (National Healthcare Safety Network) and affect hospital reimbursement:

1. CAUTI (catheter associated urinary tract infection)
2. CLABSI (central line associated bloodstream infection)
3. Colorectal SSI (surgical site infection)
4. MRSA Bacteremia Hospital Onset
5. Clostridium Difficile Hospital Onset
# Infection Prevention & Control Dashboard

<table>
<thead>
<tr>
<th>Hospital Acquired Infections (HAI)</th>
<th>LUMC</th>
<th>Time Period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td>Central Line Associated Blood Stream Infection SIR</td>
<td>0.68</td>
<td>0.0</td>
</tr>
<tr>
<td>Catheter Associated UTI Infection SIR</td>
<td>0.57</td>
<td>0.0</td>
</tr>
<tr>
<td>Clostridium Difficile SIR</td>
<td>0.44</td>
<td>0.4</td>
</tr>
<tr>
<td>MRSA Bacteremia SIR</td>
<td>0.92</td>
<td>0.0</td>
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<tr>
<td>Surgical Site Infection: Colon SIR</td>
<td>1.55</td>
<td>1.0</td>
</tr>
<tr>
<td>Composite HAI Standardized Infection Ratio (SIR)</td>
<td>0.54</td>
<td>0.33</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other SSI</th>
<th>LUMC</th>
<th>Time Period</th>
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<tbody>
<tr>
<td></td>
<td></td>
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</tr>
<tr>
<td>SSI Abdominal Hysterectomy SIR</td>
<td>1.10</td>
<td>TBD</td>
</tr>
<tr>
<td>SSI Knee SIR</td>
<td>0.00</td>
<td>TBD</td>
</tr>
<tr>
<td>SSI CABG SIR</td>
<td>1.72</td>
<td>TBD</td>
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<table>
<thead>
<tr>
<th>Hand Hygiene</th>
<th>LUMC</th>
<th>Time Period</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital-Wide</td>
<td>87%</td>
<td>90%</td>
</tr>
<tr>
<td>Housekeeping</td>
<td>57%</td>
<td>90%</td>
</tr>
<tr>
<td>Medical Student</td>
<td>88%</td>
<td>90%</td>
</tr>
<tr>
<td>Nurse</td>
<td>90%</td>
<td>90%</td>
</tr>
<tr>
<td>Patient Care Technician</td>
<td>79%</td>
<td>90%</td>
</tr>
<tr>
<td>Physician</td>
<td>88%</td>
<td>90%</td>
</tr>
<tr>
<td>Transport</td>
<td>69%</td>
<td>90%</td>
</tr>
</tbody>
</table>
The Role of Infection Prevention

- Infection Control surveillance
- Mandatory reporting to Health Dept
- Mandatory reporting to NHSN
- Daily rounding on units and data collection
- Hand hygiene compliance
- Create and reinforce infection control policies
- Implementing evidence based best practices and bundles
Infection Prevention Bundles

- **CAUTI Bundle:**
  - Daily review of necessity
  - De-cath protocol and maintenance
  - Aseptic technique
  - Hand hygiene

- **CLABSI Bundle:**
  - Daily review of line necessity
  - Aseptic technique for insertion & mandatory RN participation
  - Hand hygiene
  - Chlorhexidine skin antisepsis
  - Site selection (subclavian preferred site, femoral least preferred)
Infection Prevention Bundles

**Clostridium Difficile (C.diff) Reduction Bundle**
- Reinforce need to send stools early during the first 3 days of admission
- Encourage better adherence to isolation precaution (Contact Plus)

**MRSA Reduction Bundle**
- MRSA Screening for all ICU admissions (IL Law)
- Thorough skin assessment on admission for presence of signs of infections and culture as indicated
- Targeted MRSA decolonization protocol with; Mupirocin bid x 5 days and daily CHG baths for all ICU patients
Hand Hygiene

- Hand hygiene is the most important strategy in preventing infection to yourself and others.

According to the CDC

Hand hygiene is a great way to prevent infections. However, studies show that on average, healthcare providers clean their hands less than half of the times they should. This contributes to the spread of healthcare-associated infections that affect 1 in 25 hospital patients on any given day.

May 5, 2017 – Clean Hands count for Safe Healthcare
[https://www.cdc.gov/handhygiene/providers/index.html](https://www.cdc.gov/handhygiene/providers/index.html)
Accessed 04/16/2018
Hand Hygiene

Your 5 Moments for Hand Hygiene

1. Before touching a patient
2. Before clean/aseptic procedure
3. After body fluid exposure risk
4. After touching a patient
5. After touching patient surroundings

AND Before and after using PPE
Hand Hygiene

- **Washing with soap and water:**
  - Use when hands are visibly soiled
  - Wet hands and apply soap
  - Rub soap for 15 – 20 seconds
  - Rinse hands and turn off faucet with paper towel

- **Alcohol hand gel/foam:**
  - Use only if hands are not visibly soiled
  - 1-2 pumps and cover all surfaces of the hands
  - Rub for 15-20 seconds
Personal Protective Equipment (PPE)

- Isolation mask (procedure mask)
- Goggles
- Facemask with eye shield
- Gowns (fluid resistant gowns)
- Gloves
- N-95 Respirators (duckbill)
- Powered Air Purifying Respirator (PAPR)
Other Important Points

- Hand hygiene compliance is directly related to HAIs
  - As hand hygiene rates increase, HAI rates decrease
  - There is no upper limit to the benefit of hand hygiene – moving from very good to excellent hand hygiene rates continue to reduce HAI rates
- C diff spores will only be killed by washing with soap and water for at least 20 seconds
  - Soap and water alone still will not remove all the spores, which is why also need appropriate PPE use
Standard Precaution

Measures that must be applied during every patient care, likely to have contact to any potentially infected material or body fluids, blood and OPIM.

- Wash Hands
- Barrier Precaution
  - Wear gloves
  - Wear a gown if soiling of clothes may occur
  - Wear a mask and eye shield when splashes to the face may occur
- Sharp Disposal
- Handling & Disposal of contaminated material
Isolation Precautions

- Precautions additional to Standard Precautions
- Used to protect staff and other patients from specific, transmissible pathogens
- Staff and visitors must adhere to isolation precautions

CONTACT PRECAUTIONS
VISITORS PLEASE REPORT TO THE NURSING STATION BEFORE ENTERING ROOM

AIRBORNE PRECAUTIONS
VISITORS PLEASE REPORT TO THE NURSING STATION BEFORE ENTERING ROOM

CONTACT PLUS

DROPLET PRECAUTIONS
VISITORS PLEASE REPORT TO THE NURSING STATION BEFORE ENTERING ROOM
Contact Plus Isolation

- C.diff (Clostridium Difficile)
- R/O C.diff
- Norovirus
- Sapovirus
- Rotavirus

Note: May use alcohol-based hand gel prior to donning gowns and gloves.
Wash hands with **soap and water** after contact with patient and environment.
Your Role in Infection Prevention

- We all play a role in preventing infections
  - Performing appropriate hand hygiene and utilization of PPE
  - Reminding your team about the presence of Foleys and central lines
  - Just in Time Coaching to encourage appropriate hand hygiene and PPE compliance
Case Scenario

Ms. Nesbitt’s diarrhea is improving with proper treatment of her C diff colitis. However, when you return to pre-round the next day, you find that Ms. Ford and Mr. Lim now have developed diarrhea. Later that morning, Mr. Lim develops fever, tachycardia, and hypotension. A RRT is called and he is transferred to the MICU.

1) What happened?
2) How did it happen?
Infection Prevention & Control Team

- Jorge Parada MD, MPH, FACP, FIDSA, FSHEA
- Ayat Abuihmoud MS, CIC
- Purisima (Connie) Linchangco MD, MPH, CIC
- Herminia (Emie) Pua BSN, RN, CIC
- Sylvia Suarez-Ponce BS, RN
- Dominique Wright MPH, BS
- Ashley Boldyga, BSHSM