2018 UPDATE
INFECTION PREVENTION and CONTROL

ISOLATION PRECAUTIONS
&
BLOODBORNE PATHOGENS

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WORKING IN HEALTHCARE...
...can be more dangerous than you think.

13,700,000 healthcare workers

11% of the U.S. workforce in 2010

- 9.1 million employees are outside of hospitals, with less health and safety support
- Hospitals reported 258,200 injuries/illnesses, highest of any sector
- Private healthcare incident rate = 1.5x general industry average
- Private hospitals injuries/illnesses rate = almost double the national average
- Private nursing homes injuries/illnesses rate = more than 2.2x the national average
Employees in the healthcare industry are more likely to be injured on the job than workers in:

- Construction
- Transportation
- Mining
- Utilities

**Healthcare Workers**

- 3X more likely to incur a workplace illness
- More than 1.6X more likely to be injured at work than the national average
- 13.7% of ALL workplace illnesses were suffered by healthcare workers

**92,000 Illnesses**

**716,800 Injuries**

- 9.3% more likely to suffer a skin condition from exposure than the national average
- Healthcare respiratory conditions are almost 2X the national average
- 15% of ALL workplace injuries were suffered by healthcare employees

UL LLC © 2013
Figure 2. Injuries and Illnesses Resulting in Days Away from Work, 2011

<table>
<thead>
<tr>
<th>Industry</th>
<th>Cases per 10,000 full-time employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>157.5</td>
</tr>
<tr>
<td>Construction</td>
<td>147.4</td>
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<tr>
<td>Manufacturing</td>
<td>111.8</td>
</tr>
<tr>
<td>Private industry (U.S. average)</td>
<td>105.2</td>
</tr>
<tr>
<td>Professional and business services</td>
<td>54.5</td>
</tr>
</tbody>
</table>

Data source: Bureau of Labor Statistics
Figure 1. Injury and Illness Rates by Industry, 1989–2011²

- Hospitals
- Manufacturing
- Construction
- U.S. average (all private industry)

Cases per 100 full-time employees

Year:
- 1989
- 1991
- 1993
- 1995
- 1997
- 1999
- 2001
- 2003
- 2005
- 2007
- 2009
- 2011

Facts About Hospital Worker Safety
September 2013
U.S. Department of Labor
www.osha.gov
Infections in the NEWS...
Dangerous infections now spreading outside hospitals

In U.S., hospital-acquired infections run rampant

The infections at York Hospital, explained

A USA TODAY review finds that deadly CRE bacteria are showing up in hospitals and other health care facilities across the country and there is virtually nothing to stop these "superbugs" at this point.
Welcome to FLU SEASON 2017-18!
Weekly Influenza Activity Estimates Reported by State & Territorial Epidemiologists*
Week ending December 23, 2017 - Week 51

* This map indicates geographic spread & does not measure the severity of influenza activity
Percentage of Visits for Influenza-like Illness (ILI) Reported by the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), Weekly National Summary, 2017-2018 and Selected Previous Seasons
Influenza Positive Tests Reported to CDC by U.S. Public Health Laboratories, National Summary, 2017-2018 Season
Laboratory-Confirmed Influenza Hospitalizations

Preliminary cumulative rates as of Dec 23, 2017

Age Selection

- Overall
- All Age Groups
- 0–4 yr
- 5–17 yr
- 18–49 yr
- 50–64 yr
- 65+ yr
Cover your Cough

Stop the spread of germs that can make you and others sick!

Cover your mouth and nose with a tissue when you cough or sneeze. Put your used tissue in the waste basket.

If you don’t have a tissue, cough or sneeze into your upper sleeve or elbow, not your hands.

You may be asked to put on a facemask to protect others.

Wash hands often with soap and warm water for 20 seconds. If soap and water are not available, use an alcohol-based hand rub.
Visitor Restrictions

During flu season, help us protect our patients, their families and our employees. Please follow these guidelines when visiting:

No children under 14 years old should come to the hospital unless they need medical care. If you feel you have special circumstances, please talk to one of our nursing supervisors.

All visitors should be healthy. Do not visit if you feel sick or have symptoms of a cold, flu or another illness.

Cover your cough. Please request a mask if you are coughing frequently. Otherwise, when you sneeze or cough, cover your nose and mouth with a tissue, then throw the tissue in the trash, or cough or sneeze into your sleeve.

Wash your hands frequently.

Kettering Health Network.

Thank you for your understanding and cooperation!
“I have the test results on whether you’re contagious.”
1996 CDC ISOLATION GUIDELINES

STANDARD PRECAUTIONS

Reduce risk to HCP & patients of transmissible infectious agents.

Apply to any healthcare encounter:
- blood
- body fluids
- secretions
- excretions (except sweat)
- nonintact skin
- mucous membranes
The Centers for Disease Control & Prevention says

“the most common mode of transmission of pathogens is via the hands”
Take The Time To Wash Your Hands

0 Seconds

5 Seconds

10 Seconds

15 Seconds

Seconds Count – Save A Life
Use of Alcohol foam: use enough to cover your hands well.
Ability of Hand Hygiene Agents to Reduce Bacteria on Hands

%  log
99.9  3.0
99.0  2.0
90.0  1.0
0.0   0.0

Time After Disinfection

0  60  180 minutes

Bacterial Reduction

Alcohol-based handrub (70% Isopropanol)
Antimicrobial soap (4% Chlorhexidine)
Plain soap

Baseline

Effect of Alcohol-Based Handrubs on Skin Condition

Self-reported skin score

- Dry
- Healthy

Baseline | 2 weeks
---- | ----
[Bar chart showing comparison between Alcohol rub and Soap and water]

Epidermal water content

- Dry
- Healthy

Baseline | 2 weeks
---- | ----
[Line graph showing comparison between Alcohol rub and Soap and water]

~ Alcohol-based handrub is less damaging to the skin ~

Dozens of studies indicate, hand hygiene is only achieved 50% of the time.

November 2016 KMC Gemba Walk showed 58% Hand Hygiene Compliance.
HAI s are:

1. 4\textsuperscript{th} leading cause of death in America.
2. Cost the US healthcare system between $30 – 40 billion dollars each year.
3. Every year, an estimated 2,000,000 patients get a hospital-related infection.
4. 90,000 people die from their infection.
5. The HAI problem is closely related to Hand Hygiene.
NATIONAL AND STATE HEALTHCARE ASSOCIATED INFECTIONS PROGRESS REPORT

THIS REPORT IS BASED ON 2014 DATA, PUBLISHED IN 2016
Healthcare-associated infections (HAIs) are infections patients can get while receiving medical treatment in a healthcare facility. Working toward the elimination of HAIs is a CDC priority. The standardized infection ratio (SIR) is a summary statistic that can be used to track HAI prevention progress over time; lower SIRs are better. The infection data are reported to CDC’s National Healthcare Safety Network (NHSN). HAI data for nearly all U.S. hospitals are published on the Hospital Compare website. This report is based on 2014 data, published in 2016.

**CLABSI**s
- **50% LOWER COMPARSED TO NAT’L BASELINE**
- **Central Line-Associated Bloodstream Infections**
  - When a tube is placed in a large vein and not put in correctly or kept clean, it can become a way for germs to enter the body and cause deadly infections in the blood.
  - U.S. hospitals reported a significant decrease in CLABSI between 2013 and 2014.
  - Among the 2,442 hospitals in U.S. with enough data to calculate an SIR, 10% had an SIR significantly higher (worse) than 0.50, the value of the national SIR.

**CAUTI**s
- **0% NO CHANGE COMPARED TO NAT’L BASELINE**
- **Catheter-Associated Urinary Tract Infections**
  - When a urinary catheter is not put in correctly, not kept clean, or left in a patient for too long, germs can travel through the catheter and infect the bladder and kidneys.
  - U.S. hospitals reported a significant decrease in CAUTI between 2013 and 2014.
  - Among the 2,880 U.S. hospitals with enough data to calculate an SIR, 12% had an SIR significantly higher (worse) than 1.00, the value of the national SIR.

**MRSA** Bacteremia
- **13% LOWER COMPARSED TO NAT’L BASELINE**
- **Laboratory Identified Hospital-Onset Bloodstream Infections**
  - Methicillin-resistant *Staphylococcus aureus* (MRSA) is bacteria usually spread by contaminated hands. In a healthcare setting, such as a hospital, MRSA can cause serious bloodstream infections.
  - U.S. hospitals reported a significant decrease in MRSA bacteremia between 2013 and 2014.
  - Among the 2,042 U.S. hospitals with enough data to calculate an SIR, 6% had an SIR significantly higher (worse) than 0.87, the value of the national SIR.

**SSI**s
- **SURGICAL SITE INFECTIONS**
- **See pages 3-5 for additional procedures**
  - When germs get into an area where surgery is or was performed, patients can get a surgical site infection. Sometimes these infections involve only the skin. Other SSIs can involve tissues under the skin, organs, or implanted material.
  - **SSI: Abdominal Hysterectomy**
    - U.S. hospitals reported no significant change in SSIs related to abdominal hysterectomy surgery between 2013 and 2014.
    - Among the 794 U.S. hospitals with enough data to calculate an SIR, 6% had an SIR significantly higher (worse) than 0.83, the value of the national SIR.
  - **SSI: Colon Surgery**
    - U.S. hospitals reported a significant increase in SSIs related to colon surgery between 2013 and 2014.
    - Among the 2,051 U.S. hospitals with enough data to calculate an SIR, 8% had an SIR significantly higher (worse) than 0.98, the value of the national SIR.

**C. difficile** Infections
- **8% LOWER COMPARSED TO NAT’L BASELINE**
- **Laboratory Identified Hospital-Onset C. difficile Infections**
  - When a person takes antibiotics, good bacteria that protect against infection are destroyed for several months. During this time, patients can get sick from *Clostridium difficile* (*C. difficile)*, bacteria that cause potentially deadly diarrhea, which can be spread in healthcare settings.
  - U.S. hospitals reported a significant increase in *C. difficile* infections between 2013 and 2014.
  - Among the 3,554 U.S. hospitals with enough data to calculate an SIR, 11% had an SIR significantly higher (worse) than 0.92, the value of the national SIR.

*Statistically significant*
ACUTE CARE HOSPITALS

Healthcare-associated infections (HAIs) are infections patients can get while receiving medical treatment in a healthcare facility. Working toward the elimination of HAIs is a CDC priority. The standardized infection ratio (SIR) is a summary statistic that can be used to track HAI prevention progress over time; lower SIRs are better. The infection data are reported to CDC’s National Healthcare Safety Network (NHSN). HAI data for nearly all U.S. hospitals are published on the Hospital Compare website. This report is based on 2014 data, published in 2016.

**CLABSIs**

**CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS**

When a tube is placed in a large vein and not put in correctly or kept clean, it can become a way for germs to enter the body and cause deadly infections in the blood.

- Ohio hospitals reported no significant change in CLABSIs between 2013 and 2014.
- Among the 91 hospitals in Ohio with enough data to calculate an SIR, 6% had an SIR significantly higher (worse) than 0.50, the value of the national SIR.

**CAUTIs**

**CATHETER-ASSOCIATED URINARY TRACT INFECTIONS**

When a urinary catheter is not put in correctly, not kept clean, or left in a patient for too long, germs can travel through the catheter and infect the bladder and kidneys.

- Ohio hospitals reported no significant change in CAUTIs between 2013 and 2014.
- Among the 110 hospitals in Ohio with enough data to calculate an SIR, 10% had an SIR significantly higher (worse) than 1.00, the value of the national SIR.

**MRSA Bacteremia**

**LABORATORY IDENTIFIED HOSPITAL-ONSET BLOODSTREAM INFECTIONS**

Methicillin-resistant *Staphylococcus aureus* (MRSA) is bacteria usually spread by contaminated hands. In a healthcare setting, such as a hospital, MRSA can cause serious bloodstream infections.

- Ohio hospitals reported no significant change in MRSA bacteremia between 2013 and 2014.
- Among the 89 hospitals in Ohio with enough data to calculate an SIR, 7% had an SIR significantly higher (worse) than 0.87, the value of the national SIR.

**SSIs**

**SURGICAL SITE INFECTIONS**

When germs get into an area where surgery is or was performed, patients can get a surgical site infection. Sometimes these infections involve only the skin. Other SSIs can involve tissues under the skin, organs, or implanted material.

**SSI: Abdominal Hysterectomy**

- Ohio hospitals reported no significant change in SSIs related to abdominal hysterectomy surgery between 2013 and 2014.
- Among the 36 hospitals in Ohio with enough data to calculate an SIR, 11% had an SIR significantly higher (worse) than 0.83, the value of the national SIR.

**SSI: Colon Surgery**

- Ohio hospitals reported no significant change in SSIs related to colon surgery between 2013 and 2014.
- Among the 92 hospitals in Ohio with enough data to calculate an SIR, 3% had an SIR significantly higher (worse) than 0.98, the value of the national SIR.

**C. difficile Infections**

**LABORATORY IDENTIFIED HOSPITAL-ONSET C. DIFFICILE INFECTIONS**

When a person takes antibiotics, good bacteria that protect against infection are destroyed for several months. During this time, patients can get sick from *Clostridium difficile* (C. difficile), bacteria that cause potentially deadly diarrhea, which can be spread in healthcare settings.

- Ohio hospitals reported no significant change in C. difficile infections between 2013 and 2014.
- Among the 131 hospitals in Ohio with enough data to calculate an SIR, 15% had an SIR significantly higher (worse) than 0.92, the value of the national SIR.

*Statistically significant*
Personal protective equipment

Work practice controls

Engineering controls

Housekeeping controls
PERSONAL PROTECTIVE EQUIPMENT

gloves
gowns
masks
goggles
face shields
shoe covers
hair covers
CPR resuscitator masks
Gowns

• Gowns are single use only.
• Dispose of in appropriate container.
• To remove, grasp around top and pull off turning inside out as it is removed so your clothing doesn’t become contaminated.
Gloves

• Are single-use only.
• Must fit properly and cover wrist.
• Change gloves and wash hands if going from a dirty to a clean activity.
• Remove by grasping at wrist and turn inside out.
• Discard in regular trash, or in biohazard trash (red bag) if appropriate.
• Wash hands after gloves are removed.
WORK PRACTICE
CONTROLS

Handle sharps with care

Practice good hygiene
- avoid splashing potentially infectious fluids
- keep food/beverages away from patient areas
- wash hands frequently
- change white coat or scrubs if soiled
ENGINEERING CONTROLS

...are designed to eliminate hazards at the source.
Sharps Safety

- Use sharps containers.
- Do not overfill containers.
- Do not recap needles.
- Use forceps to remove needle from syringe.
- Do not bend, break, cut or manipulate sharps.
- Never handle broken glass--use forceps, or a dust pan and broom…
HOUSEKEEPING CONTROLS

• Do not push trash down in to container with your hands or feet.
• Do not over fill trash containers.
• Hold trash away from your body when transporting.
• Discard all infectious waste in biohazard containers.
• Decontaminate work surfaces with an appropriate disinfectant.
I was infected courtesy of a lapse in concentration.
Risk of Infection following exposure:

**HBV (30%)**
- Percutaneous: 1-43%
- Mucocutaneous: 1-6%

**HCV (3%)**
- Percutaneous: 0.3-1.8%
- Mucocutaneous: unknown (very small)

**HIV (0.3%)**
- Percutaneous: 0.3%
- Mucocutaneous: < 0.1%
Document the Injury…

- Report immediately for evaluation and testing to: Employee Health or Emergency Department
- EARLY PEP most effective!
PEP Recommended:

**HBV**
- If source HBsAg+ and HCP HBsAb <10 mIU/mL
- use of HBIG and/or HBV vaccine

**HCV**
- followup HCV testing
- No current recommendations for prophylaxis with immune globulin or antiviral agents

**HIV**
- 4 weeks antiretroviral drug protocol
- consider possible HIV resistance of source
PEP FOLLOWUP

HCP to report:
  • Any PEP medication side effects
  • Signs or symptoms of possible acute HIV infection within 12 weeks of exposure

Recommended laboratory testing:
  • Anti-HIV at baseline, 6 weeks, 3 months, and 6 months (for all HIV-exposed HCP)
  • CBC, renal & hepatic panels at baseline and 2 weeks to monitor for toxicity
TRANSMISSION BASED PRECAUTIONS
This Personal Protective Equipment thing is starting to get out of hand....
VISITORS: For your safety, we strongly recommend that you wear an isolation mask in the room. If you need assistance, please check with a patient care provider before entering the room.

Clean hands before and after patient care.

- Staff & Visitors: Mask when entering room.
- Patient: Mask when out of room.

- Use dedicated or disposable equipment when possible.
- Gown & Glove if contact with secretions likely. Eye protection as appropriate.
Droplet Transmission

Droplets are generated by talking, coughing, and sneezing.

Microorganisms in droplets (10um) are propelled a short distance through the air and deposited on conjunctiva, nose, and mouth mucosa.
AIRBORNE PRECAUTIONS
(In addition to Standard Precautions)

VISITORS: For safety reasons, we strongly recommend you wear an isolation mask in the room. If you need assistance, please check with a patient care provider before entering the room.

Clean hands before and after patient care.

- Non-immune Staff: PAPR/N-95 respirator to enter room.
- Visitors: Isolation mask to enter room.
- Patient: Mask when out of room.

Negative Pressure Room with Door Closed.
Airborne Transmission

• Microbes eg, AFB in small droplet nuclei (<5um) or dust particles.
• Dispersed widely by air currents and remain suspended for prolonged periods of time.
• Requires special PPE respiratory protection.
• Requires special air handling and ventilation: negative pressure room or portable HEPA filter
Tuberculosis in the United States

National Tuberculosis Surveillance System
Highlights from 2016
Reported Tuberculosis (TB) Cases
United States, 1982–2016*

*As of June 21, 2017.
TB Case Rates* by Age Group, United States, 1993–2016

*Cases per 100,000 population; as of June 21, 2017.
TB Case Rates,* United States, 2016

*Cases per 100,000; as of June 21, 2017.
DC, District of Columbia; NYC, New York City (excluded from New York state)
Number of TB Cases Among U.S.-Born versus Non-U.S.–Born Persons, United States, 1993–2016*

As of June 21, 2017.

*As of June 21, 2017.
TB Case Rates Among U.S.-Born versus Non-U.S.–Born Persons, United States, 1993–2016*

*As of June 21, 2017.
CONTACT PRECAUTIONS
(In addition to Standard Precautions)

VISITORS: For safety reasons, we strongly recommend that you wear gown & gloves in the room. If you need assistance, please check with a patient care provider before entering the room.

Clean hands before and after patient care.

Gown and gloves when entering beyond view only zone in room.

- Use dedicated or disposable equipment when possible.
- Clean and disinfect shared equipment.
Contact Transmission

Direct:
Between body surfaces resulting in transfer of microorganisms

Indirect:
Between a susceptible host and a contaminated intermediate object
Colonized or Infected: What is the Difference?

- People who carry bacteria without evidence of infection (fever, increased white blood cell count) are colonized.
- If an infection develops, it is usually from bacteria that colonize patients.
- Bacteria that colonize patients can be transmitted from one patient to another by the hands of healthcare workers.

* Bacteria can be transmitted even if the patient is not infected.
Why is *Staph aureus* so important?

2nd most common cause of HAIs reported to NHSN
- CNS (15%), *Staph aureus* (14%)

Most common cause of SSIs (30%) and VAPs (24%)

MRSA first identified in the 1960s in hospitalized patients

MRSA has become a predominant cause of *S. aureus* infections in both healthcare and community settings
- Primarily due to transmission of relatively few ancestral clones rather than the de novo development of methicillin- resistance among susceptible strains

Recent estimates:
- 49-65% of *S. aureus* HAIs reported to NHSN are caused by MRSA
- 86% of all invasive MRSA infections are healthcare-associated

Why is the Emergence of MRSA so important?

• MRSA treatment options limited
  - increased morbidity & mortality
• Antibiotic misuse can spread resistance
  - prevalent MRSA >> more vancomycin use >> more vancomycin resistance (VRE and VRSA) >> more linezolid/daptomycin use >> more resistance
• Preventing MRSA infections reduces all *S. aureus* infections
• MRSA is a marker for ability to contain transmission of important pathogens
• Programs that prevent MRSA transmission will likely reduce patient-to-patient transmission of other epidemiologically important healthcare pathogens

The Inanimate Environment Can Facilitate Transmission

~ Contaminated surfaces increase cross-transmission ~

Recovery of VRE from Hands and Environmental Surfaces

- Up to 41% of healthcare worker’s hands sampled (after patient care and before hand hygiene) were positive for VRE\(^1\)

- VRE were recovered from a number of environmental surfaces in patient rooms

- VRE survived on a countertop for up to 7 days\(^2\)


NEUTROPENIC PRECAUTIONS
(In addition to Standard Precautions)

VISITORS: For the patient's safety, we strongly recommend that you wear an isolation mask if you have cold-like symptoms. If you need assistance, please check with a patient care provider before entering the room.

Clean hands before and after patient care.

- Staff & Visitors: Mask, when entering room, if you have cold-like symptoms.
- Patient: Mask when out of room.

No fresh or dried plants/flowers.
CONTACT PRECAUTIONS WITH HANDWASHING

(In addition to Standard Precautions)

VISITORS: For your safety, we strongly recommend that you wear gown and gloves in the room. If you need assistance, please check with a patient care provider before entering the room.

Clean hands before patient care
AND
wash hands with soap and water after patient care.

Gown and gloves when entering beyond view only zone in room.

• Use dedicated or disposable equipment when possible.
• Clean and disinfect shared equipment with approved bleach product.

Kettering Health Network

Revised: 01/01/2012
Estimated Annual U.S. Burden

- 453,000 CDI cases\(^1\)
  - 293,000 healthcare-associated
    - 107,000 hospital-onset
    - 104,000 nursing home-onset
    - 81,000 community-onset, healthcare-facility associated
  - 160,000 community-associated
    - 82% associated with outpatient healthcare exposure

Overall, 94% of CDI cases related to healthcare

- 29,000 deaths
- $4.8 billion in excess healthcare costs\(^2\)

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Estimated U.S. Burden of CDI, According to the Location of Stool Collection and Inpatient Health Care Exposure, 2011.

CO-HCA: Community onset healthcare-associated
NHO: Nursing home onset
HO: Hospital onset

Healthcare Burden

- *C. difficile* most commonly reported pathogen in 2011 multistate prevalence survey of healthcare-associated infections (HAI)¹
  - 12.1% of 452 HAIs caused by CDI
  - Rates of CDI per 1,000 discharges have risen through 2013²

Pathogenesis of CDI

1. CDI spores survive in the environment for long periods of time. Following ingestion, they traverse the acidic environment of the stomach.

2. Spores germinate within the intestine.

3. Altered lower intestine flora (due to antimicrobial use) allows proliferation of *C. difficile* in colon.

4. Toxin A & B Production leads to colon damage +/- pseudomembrane.
Exposure to antibiotics

High Risk:
- Fluoroquinolones
- 3rd and 4th generation cephalosporins, clindamycin, carbapenems

Exposure to *C. difficile* spores

- Spores can remain viable for months
- Contamination is increased in rooms of patients with active CDI
- Hands of patients and personnel are easily contaminated

Gastric acid suppression

- Data, though inconsistent, implicate proton pump inhibitor (PPI) use
- More study is needed to link restriction of PPI use with decreased CDI incidence

Contact Precautions (CP)

- Contamination of the environment is highest prior to treatment\(^1\)

- **Presumptive CP**, while CDI test results are pending, may be used as a special approach whenever indicated by risk assessment\(^2\)

- Patients who have been treated may have asymptomatic shedding\(^3\)

- **Prolonging the duration of CP** until discharge is a special approach based on evidence of continued shedding of spores after diarrhea resolves (especially up to 4 weeks after treatment ends)\(^2\)

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2. Dubberke et al. Infect Control Hosp Epidemiol 2014;
Antimicrobial Stewardship

Exposure to any antimicrobial is the single most important risk factor for *C. difficile* infection (CDI).

- Antibiotic exposure has lasting impact on the microbiome.
  - Risk of CDI is elevated (7-10 fold) during and in the 3 months following antimicrobial therapy\(^1,2\)
  - 85-90% of CDI occurs within 30 days of antimicrobial exposure\(^1\)
- Target high risk antibiotics for CDI prevention
  - Fluoroquinolones\(^3\)
  - 3rd/4th generation cephalosporins, carbapenems\(^2\)

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Stewardship Approach: Feedback

Non-restrictive feedback resulted in statistically significant reductions in incident CDI.

Reductions in CDI attained through antimicrobial stewardship surpassed those attained through infection control measures.

Stewardship Approach: Restriction

Restricting the use of ceftriaxone was associated with reduced rates of CDI.

Fig. 1 Hospital-acquired methicillin-resistant *Staphylococcus aureus* (MRSA), *Clostridium difficile* and extended-spectrum β-lactamase (ESBL)-producing coliform rates following a restrictive antibiotic policy in a district general hospital over 2 years. pt/occ.bds, patient-occupied bed-days; DDDs, defined daily doses.

Currently 39% (1,642/4,184) of U.S. hospitals have an antibiotic stewardship program with all 7 core elements.

The national goal is 100% of hospitals by 2020.

http://www.cdc.gov/getsmart/healthcare/evidence.html
**VISITORS:** For your safety, we strongly recommend that you wear an isolation mask, gown and gloves in the room. If you need assistance, please check with a patient care provider before entering the room.

**Clean Hands Before and After Patient Care.**

- **Staff & Visitors:** Gown, gloves & mask to enter room.
- **Patient:** Mask when out of room.

- Use dedicated or disposable equipment when possible.
- Clean and disinfect shared equipment.
- Eye protection as appropriate.

Revised: 09-27-12
CONTACT/AIRBORNE PRECAUTIONS
(In addition to Standard Precautions)

VISITORS: For your safety, we strongly recommend that you wear an isolation mask, gown and gloves in the room. If you need assistance, please check with a patient care provider before entering the room.

Clean Hands Before and After Patient Care

- **Staff:** Gown, gloves & PAPR or N-95 Respirator to enter room.
- **Visitors:** Gown, gloves and isolation mask to enter room.
- **Patient:** Mask when out of room.

- Negative Pressure Room with door closed.
- Use dedicated or disposable equipment when possible.
- Clean and disinfect shared equipment with approved disinfectant.

Kettering Health Network
Revised: 09-27-12
CONTACT/NEUTROPENIC PRECAUTIONS
(In addition to Standard Precautions)

VISITORS: For your safety and the patient’s safety, we strongly recommend that you wear an isolation mask if you have cold-like symptoms and wear gown and gloves in the room. If you need assistance, please check with a patient care provider before entering the room.

Clean Hands Before and After Patient Care.

- **Staff & Visitors:** Gown & gloves when entering room. Add mask if you have cold-like symptoms.
- **Patient:** Mask when out of room.

- No fresh or dried plants/flowers.
- Use dedicated or disposable equipment when possible.
- Clean and disinfect shared equipment.
VISITORS: For your safety and the patient’s safety, we strongly recommend that you wear an isolation mask in the room. If you need assistance, please check with a patient care provider before entering the room.

**Clean Hands Before and After Patient Care.**

- **Staff & Visitors:** Mask to enter room.
- **Patient:** Mask when out of room.

- Use dedicated or disposable equipment when possible.
- Gown and gloves if contact with secretions likely.
- Eye protection as appropriate.
VISITORS: For your safety, we strongly recommend that you wear gown and gloves in the room. If you need assistance, please check with a patient care provider before entering the room.

- Clean hands before patient care
- wash hands with soap and water after patient care.

- Gown and gloves when entering beyond view only zone in room.

- Use dedicated or disposable equipment when possible.
- Clean and disinfect shared equipment with bleach product.
VISITORS: For your safety and the patient's safety, we strongly recommend that you wear an isolation mask if you have cold-like symptoms and wear gown and gloves in the room. If you need assistance, please check with a patient care provider before entering the room.

Clean hands before patient care
AND
wash hands with soap and water after patient care.

- **Staff & Visitors:** Gown and gloves to enter room. Add mask if you have cold-like symptoms.
- **Patient:** Mask when out of room.

- No fresh or dried plants/flowers.
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Revised: 09-27-12
VISITORS: For your safety, we strongly recommend that you wear an isolation mask, gown & gloves in the room. If you need assistance, please check with a patient care provider before entering the room.

Clean hands before patient care
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- **Staff:** Gown, gloves & PAPR or N-95 Respirator to enter room.
- **Visitors:** Gown, gloves & isolation mask to enter room.
- **Patient:** Mask when out of room.

- Negative Pressure Room with door closed.
- Use dedicated or disposable equipment when possible.
- Clean and disinfect shared equipment with bleach product.
The hierarchy of hazard control...

- **Elimination/Substitution**: Eliminates the exposure before it can occur
- **Engineering Controls**: Requires a physical change to the workplace
- **Administrative & Work Practice Controls**: Requires worker or employer to DO something
- **Personal Protective Equipment (including respirators)**: Requires worker to WEAR something
Dial hospital operator 24/7 for Infection Prevention and Control