



Safe Practices Lead to Infection Prevention

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Objectives

- Define the basics of Standard Precautions
- Identify some of the leading risks pertaining to healthcare-associated infections and resident safety during medication administration and the use of injection equipment
- Know the strategies to prevent transmission of *Clostridium difficile*
- Understand the need for antibiotic stewardship programs in long-term care facilities

Infection Prevention

“To ensure the protection of those who might be vulnerable to acquiring an infection both in the general community and while receiving care due to health problems, in a range of settings.”

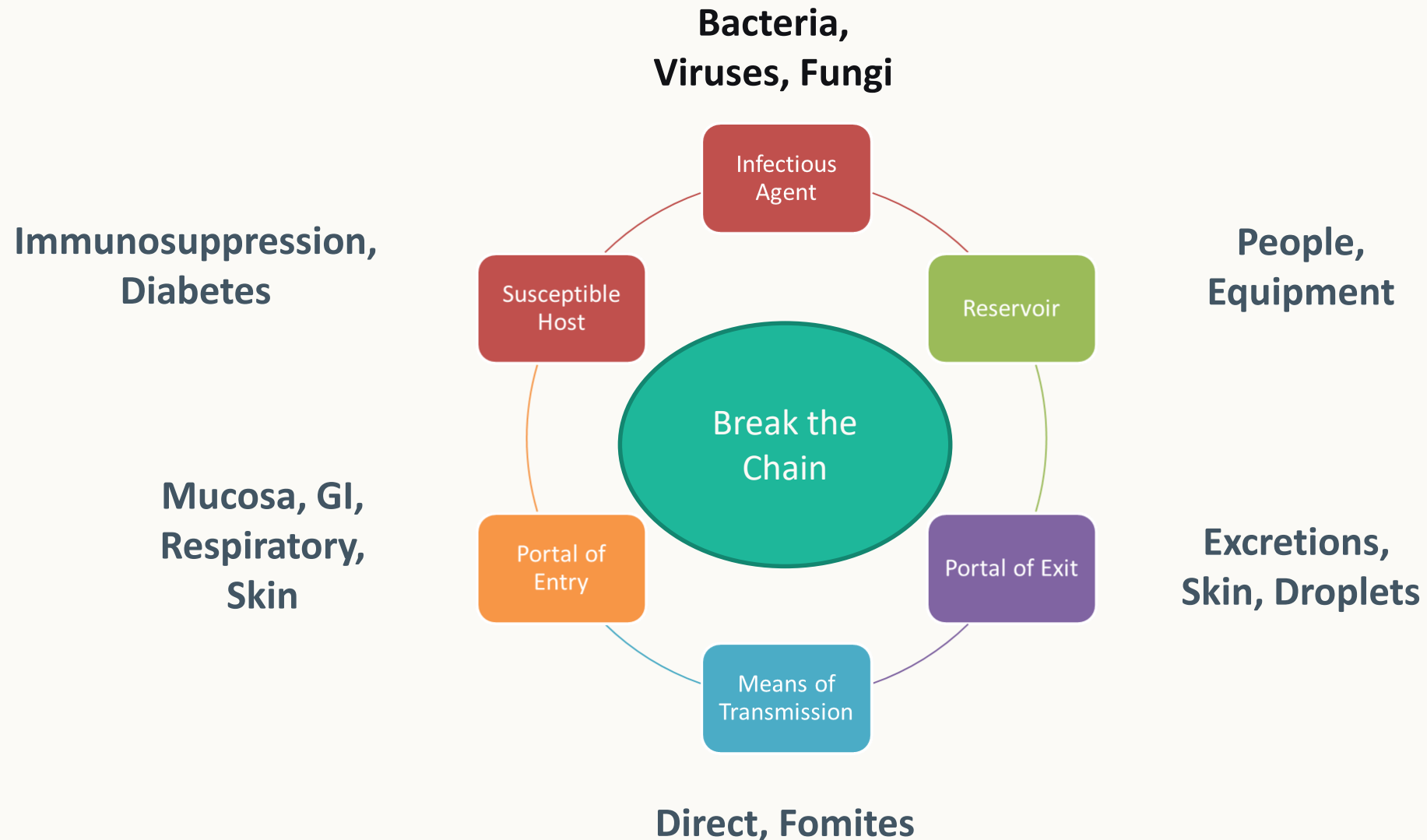
- World Health Organization

Healthcare-Associated Infections

- Patients in the United States acquire an estimated 722,000 healthcare-associated infections each year.
- That's about one infection for every 25 patients.
- About 75,000 of those patients died during their hospitalizations.
- **Most healthcare-associated infections are preventable through good hand hygiene.**

CDC-HAIs

Chain of Transmission



Standard Precautions

Standard Precautions

- The **minimum infection prevention measures** that apply to all resident care, regardless of suspected or confirmed infection status of the resident
- **Evidence-based practices** designed to protect healthcare personnel and prevent the spread of infections among residents

CDC-2007 Isolation

Standard Precautions Include:

- Hand hygiene
- Use of personal protective equipment (PPE)
- Safe handling of potentially contaminated equipment or surfaces in the patient environment
- Respiratory hygiene/cough etiquette
- Safe injection practices

CDC-2007 Isolation

Do you perform hand hygiene when you should?



You should perform hand hygiene...

- Before
 - having contact with residents
 - **putting on gloves**
 - inserting an invasive device
 - manipulating an invasive device

WHO

You should perform hand hygiene...

- After
 - having contact with a resident's skin
 - having contact with body fluids/excretions, non-intact skin, wound dressings, contaminated items
 - having contact with inanimate objects near a resident
 - **removing gloves**

WHO

So, what's stopping you?

- Skin irritation/dryness
- Sink location/accessibility
- Lack of hand rub/soap
- Too busy
- Resident needs a priority
- Don't think it's important



Are you a good role model?

- Research has shown that the actions of clinicians influence the behavior of others.
- Show your colleagues that hand hygiene is an important part of quality care.



Your residents watch you too!



- Your actions send a powerful message.
- Show your residents that you are serious about their health.

What about my fingernails?

- Keep natural fingernails short, no longer than $\frac{1}{4}$ inch.
- Do not wear artificial nails when having direct contact with high-risk residents.
- Refer to your facility specific policy.

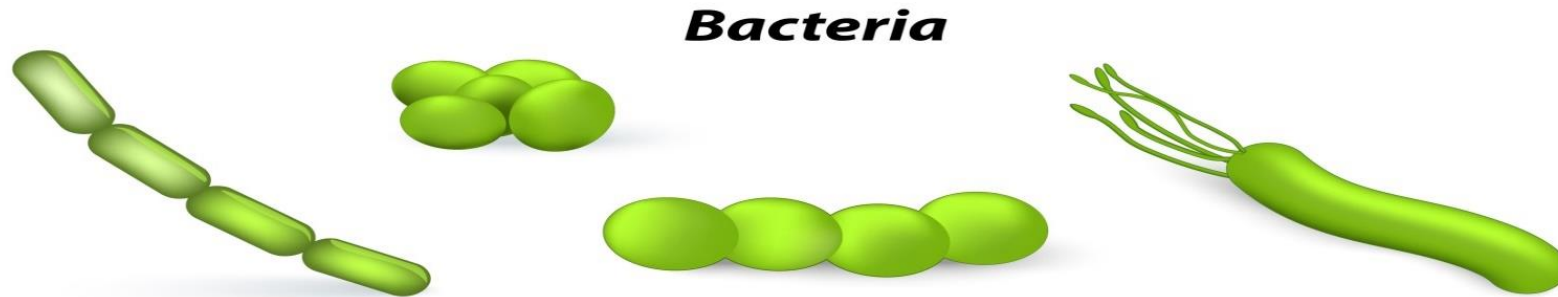
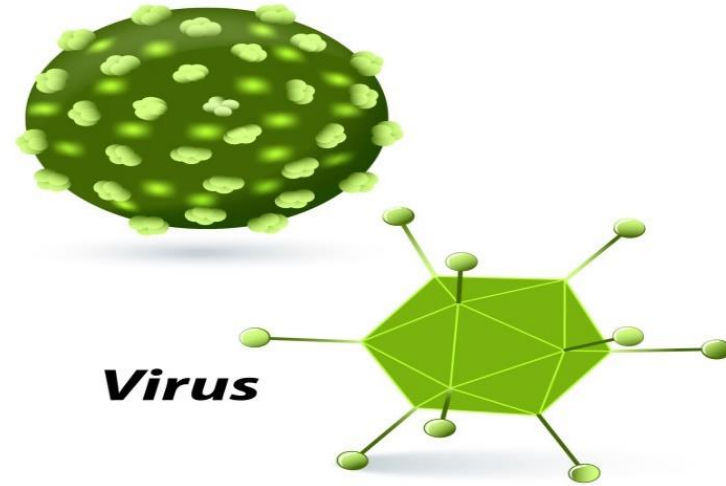
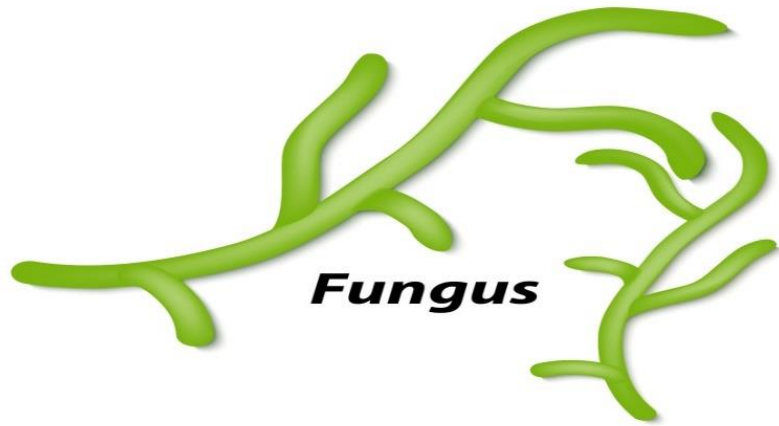


CDC-2007 Isolation

But I didn't touch the resident...



Abstract: The Risk of Hand and Glove Contamination after Contact with a VRE (+) Patient Environment. Hayden M, ICAAC, 2001, Chicago, IL



“Dress for the Occasion”



If you anticipate the chance of being splashed, splattered, or contaminated in any way by the job you are about to perform...

PPE is required.

CDC-2007 Isolation

Using Gloves Correctly

- Do not wear the same gloves for more than one resident.
- Do not reuse or wash gloves.
- **Gloves are not a replacement for hand hygiene.**

CDC-2007 Isolation

Laundry Services

- Use Standard Precautions and minimal agitation for handling contaminated linen and hold it away from your clothing/body during transport.
- Bag/Contain contaminated linen where it's collected.
- Transport/Store clean linens by methods that ensure cleanliness.



CDC-2007 Isolation



Good Cough Etiquette

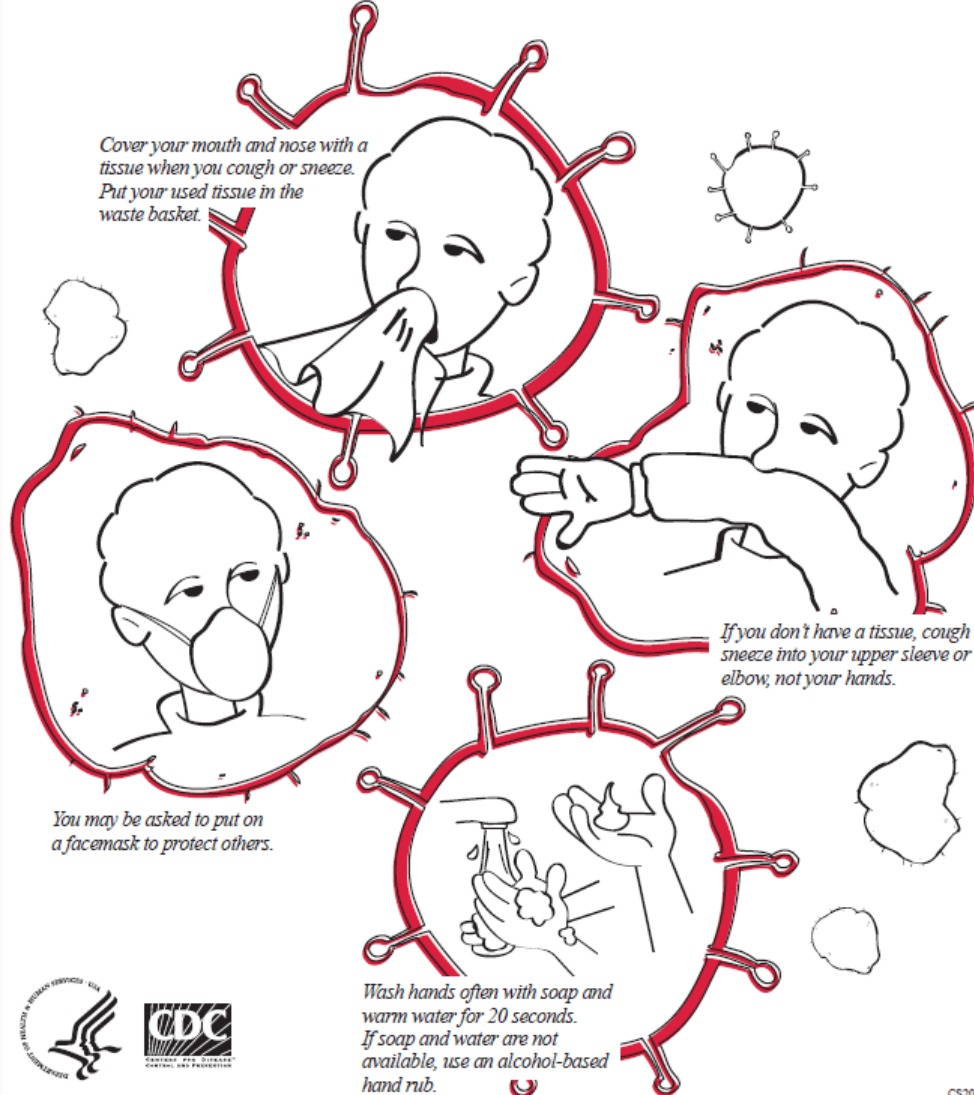
- Cover your mouth and nose with a tissue when you cough or sneeze.
- Put your used tissue in the waste basket.
- If you don't have a tissue, cough or sneeze into your upper sleeve or elbow, not your hands. Perform hand hygiene
- Put on a facemask to protect others.

CDC-Influenza

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.



CS208322

Medication Administration Safety



Medication Administration Safety

- Perform hand hygiene
- Check expiration dates
- Use aseptic technique prior to each entry
- Never store or carry medications in personal clothing or pockets

APIC

Single Needle/Single Syringe/Single Patient

- **Needles, cannulae, and syringes are sterile, single-use items.**
- Never administer medications from a syringe to multiple residents, even if the needle or cannula on the syringe is changed.



APIC

Single-Dose/Single-Resident Use Vials



- Use single-dose vials whenever possible
- Do not administer to multiple residents
- Do not combine remaining contents for later use
- Discard vials or solutions labeled with "single patient use" or "single use" or "preservative free" after use on a single resident

APIC

Multi-Dose Injectable Vials

- Use a sterile needle/cannula and syringe to access a multi-dose vial every time.
- Multi-dose vials contain antimicrobial preservatives so they have a
 - 28 days beyond-use date, unless otherwise specified by the manufacturer.
- Still, single resident use if possible
- Access and store multi-dose vials away from the resident care areas if they are used for more than one resident.
- Store multi-dose vials according to manufacturer's recommendations
- Discard if sterility is compromised

APIC



Injection Safety Guidelines From CDC

- Follow proper infection control practices and maintain aseptic technique during the preparation and administration of injected medications (e.g., perform hand hygiene).
- Never administer medications from the same syringe to more than one patient, even if the needle is changed.
- Never enter a vial with a used syringe or needle.
- Do not use medications packaged as single-dose or single-use for more than one patient.

- Do not use bags of intravenous solution as a common source of supply for more than one patient.
- Limit the use of multi-dose vials and dedicate them to a single patient whenever possible.
- Always use facemasks when injecting material or inserting a catheter into the epidural or subdural space.



Adapted from: Guideline for isolation precautions: preventing transmission of infectious agents in health care settings 2007. Atlanta, GA: US Department of Health and Human Services, CDC; 2007. Available at: <http://www.cdc.gov/hicpac/pdf/isolation/isolation2007.pdf>



**ONE NEEDLE,
ONE SYRINGE,
ONLY ONE TIME.**



Safe Injection Practices Coalition

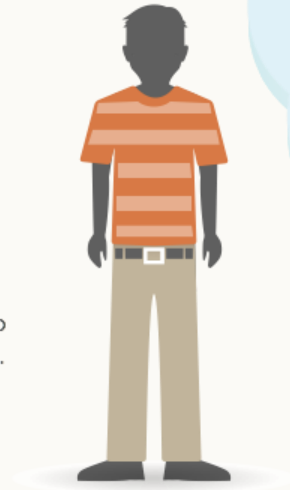
www.ONEandONLYcampaign.org

SINGLE-DOSE OR MULTI-DOSE?

NOT ALL VIALS ARE CREATED EQUAL.

Dozens of recent outbreaks have been associated with reuse of single-dose vials and misuse of multiple-dose vials. As a result of these incidents, patients have suffered significant harms, including death. CDC and the One & Only Campaign urge healthcare providers to recognize the differences between single-dose and multiple-dose vials and to understand appropriate use of each container type.

This information can literally save a life.



ONEANDONLYCAMPAIGN.ORG

SAFETY STEPS

FOLLOW THESE INJECTION SAFETY STEPS FOR SUCCESS!

BEFORE THE PROCEDURE

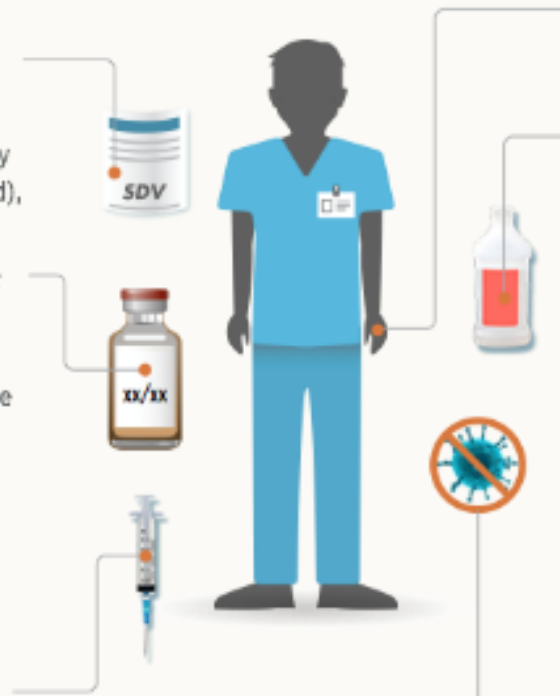
Carefully **read the label** of the vial of medication.

- If it says single-dose and it has already been accessed (e.g. needle-punctured), **throw it away**.
- If it says multiple-dose, **double-check the expiration date** and the beyond-use date if it was previously opened, and visually inspect to ensure no visible contamination.
- When in doubt, throw it out.

DURING THE PROCEDURE

Use aseptic technique.

- Use a new needle and syringe for every injection.



- Be sure to clean your hands immediately before handling any medication.
- Disinfect the medication vial by rubbing the diaphragm with alcohol.
- Draw up all medications in a clean medication preparation area.

AFTER THE PROCEDURE

Discard all used needles and syringes and SDVs after the procedure is over.

MDVs should be discarded when:

- the beyond-use date has been reached
- doses are drawn in a patient treatment area
- any time vial sterility is in question

FAQs Regarding Safe Practices for Medical Injections:

[www.oneandonlycampaign.org/
content/healthcare-professional-faqs](http://www.oneandonlycampaign.org/content/healthcare-professional-faqs)

ONEANDONLYCAMPAIGN.ORG

Sharps Safety

- Activate safety devices
- Discard used sharps immediately
- Use a secured puncture-resistant sharps containers
- Avoid recapping needles



Bacterial or Viral Infection

- Both can both cause the same symptoms
- May need a laboratory culture to distinguish between bacterial and viral pathogen
- **Antibiotics cannot cure viral infections!**

Antibiotics



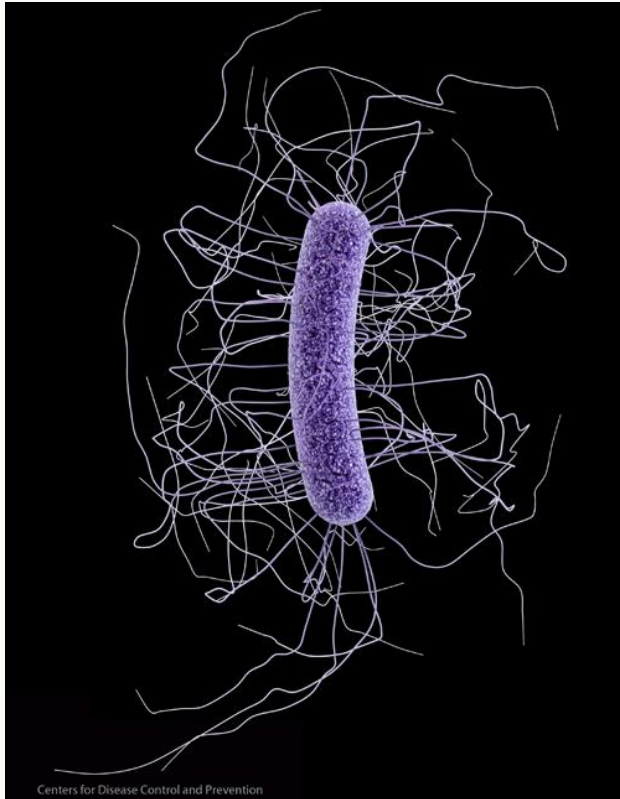
- Antibiotics
 - have been available since the 1940s
 - have been used to treat everything from strep throat to the plague.

Superbugs

- Carbapenem-resistant Enterobacteriaceae (CRE)
- Methicillin-resistant *Staphylococcus aureus* (MRSA)
- ESBL-producing Enterobacteriaceae (extended-spectrum β -lactamases)
- Vancomycin-resistant Enterococcus (VRE)
- Multidrug-resistant *Pseudomonas aeruginosa*
- Multidrug-resistant Acinetobacter



Clostridium difficile



- Gram-positive, rod-shaped, spore-forming bacteria
- Most common bacteria responsible for infections in hospitals
- Causes immense suffering and death
- Caused almost half a million infections in the United States in 2011
- Linked to 14,000 deaths in the United States each year

CDC-HAI

Risk Factors

- Antibiotics
- Proton pump inhibitors
- GI surgery
- Long LOS in healthcare facility
- Underlying illness
- Weakened immune system
- 65 years of age and older

CDC-HAI

Clinical Symptoms

- Watery diarrhea
- Fever
- Loss of appetite
- Nausea
- Abdominal pain/tenderness

CDC-HAI

Complications

- Pseudomembranous colitis
- Toxic megacolon
- Perforations of the colon
- Sepsis
- Death

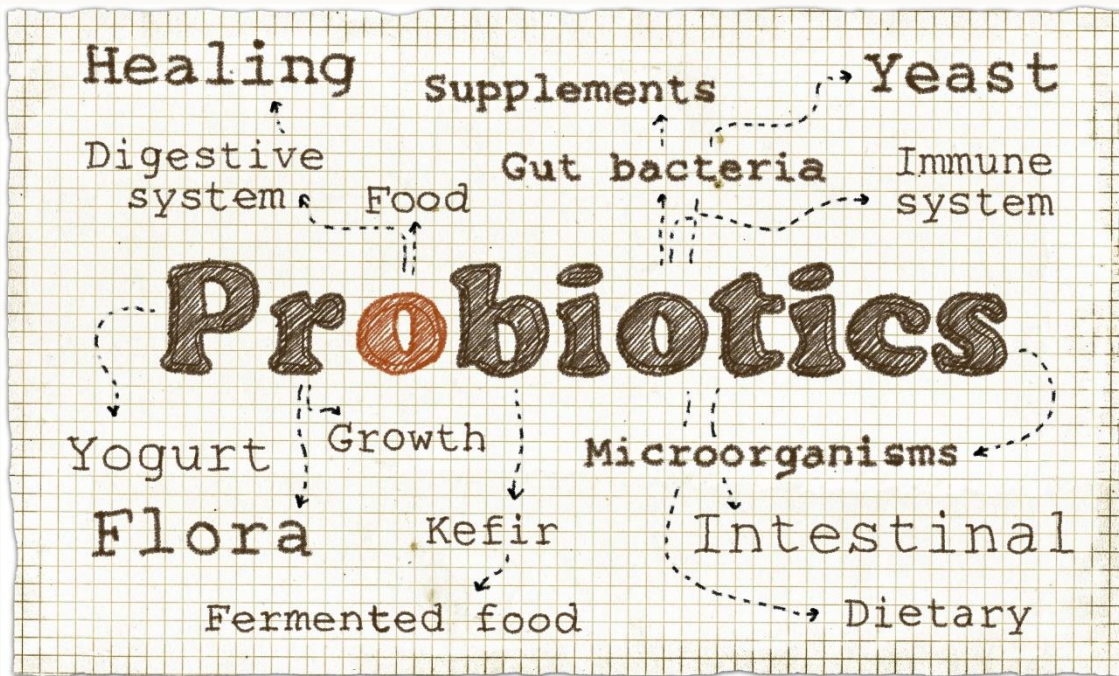
CDC-HAI

Treatment

- 20% of *C. difficile* infections will resolve within 2-3 days of discontinuing the resident's antibiotic.
- Usually treated with antibiotics
- **Repeat *C. difficile* testing not recommended once symptoms resolved, residents may remain colonized.**
- 20% of *C. difficile* infections will reoccur.

CDC-HAI

Probiotics



- A recent CDC study finds:
 - more in-patients receiving probiotics
 - inadequate evidence to support their use in this population
 - more research needed to guide probiotic use in the healthcare setting

Yi SH, et al. (2016)

Fecal Microbiota Transplantation

- Approximately 90% effective
- Infusion of bacterial flora acquired from the feces of a healthy donor into the GI tract of a patient with refractory *C. difficile* infection
- Replaces normal, healthy colonic flora
- FMT pills available in the United States

Drekonja, et al. (2015)
NY Times (2015)

Transmission

- Highly transmissible
- Shed in feces
- Spores are positively charged and will attach to clothing
- Occurs via the fecal-oral route

CDC

Clean and Disinfect

- *C. difficile* spores can survive up to 2 years on inanimate surfaces!
- **EVS is a very important part of the healthcare team to prevent and control the spread of *C. difficile*.**
- Ensure adequate cleaning and disinfection of environmental surfaces and reusable devices
 - Two-step method
 - facility-approved disinfectant
 - **followed by bleach cleaning**
 - Or a facility-approved disinfectant with a sporicidal claim

CDC-HAI

Inter-Facility Transfers

- *C. difficile* germs move with residents/patients from one healthcare facility to another.
- Half of all residents/patients with *C. difficile* have the infection when admitted.
- When a resident/patient transfers, healthcare providers don't always communicate that the resident/patient has or recently had a *C. difficile* infection.

CDC-HAI

Six Steps to Prevention:

1. Prescribe and use antibiotics carefully.
2. Test for *C. difficile* if a resident develops diarrhea after taking antibiotics.
3. Place residents with *C. difficile* in Contact Precautions.
4. Wear gloves and gowns, even during short visits with the resident, and wash hands with soap and water after removing gloves.
5. Clean room surfaces with the facility-approved disinfectant and then a bleach solution, or a facility-approved spore-killing disinfectant if a resident has *C. difficile*.
6. Notify the new facility, when a resident is transferred, if the resident has a *C. difficile* infection.

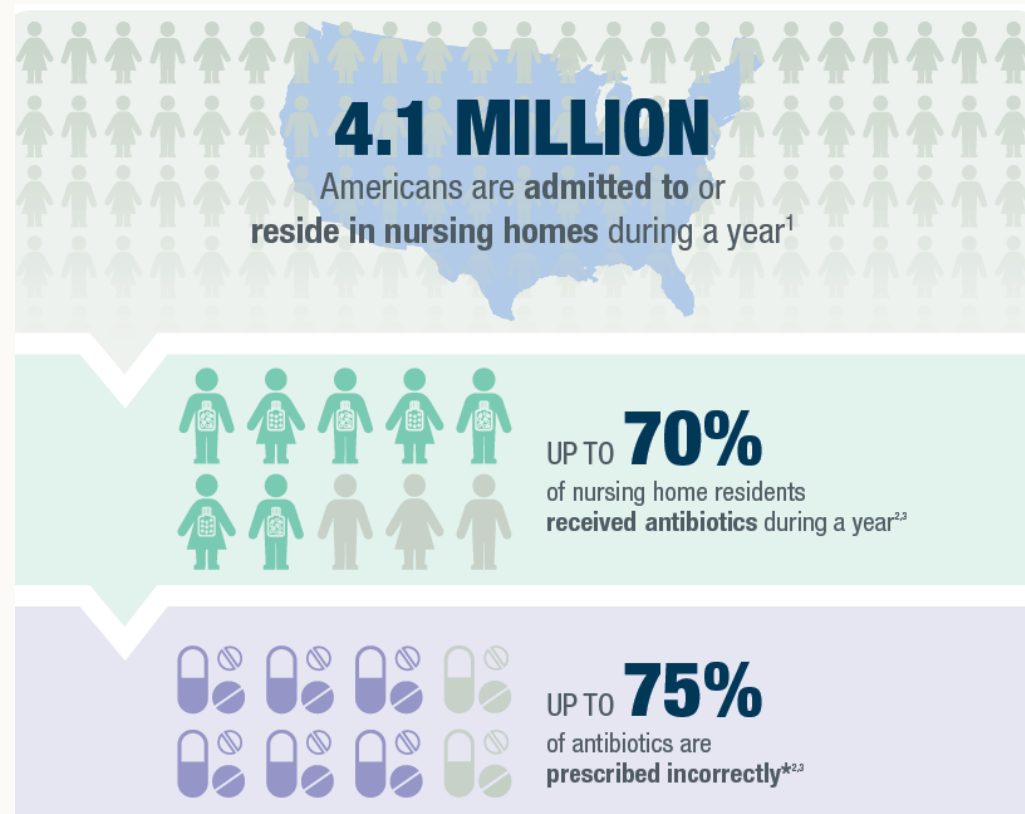
Antibiotic Stewardship

Antibiotic Stewardship

- Improving antibiotic prescribing practices can:
 - reduce *C. difficile* infection rates
 - reduce antibiotic resistance
 - improve individual resident outcomes
 - reduce healthcare costs

CDC-Core Elements

Antibiotic Use in Long-Term Care Facilities



Core Elements of an Antibiotic Stewardship Programs

- Leadership support
 - budgeted human, financial and IT resources
- Accountability
 - a responsible physician leader
- Drug expertise
 - a responsible pharmacist leader
- Actions to support optimal antibiotic use
 - policies
 - specific interventions
 - ATBX “time-out” after 48 hours
 - ATBX for simple infections -UTI, SST

CDC-Core Elements

Core Elements of an Antibiotic Stewardship Programs

- Tracking: Monitoring antibiotic prescribing and resistance patterns
 - antibiogram
 - a profile of the antimicrobial resistance and susceptibility of a particular microorganism
 - varies from facility-to-facility and unit-to-unit
- Reporting information to staff on improving antibiotic use and resistance
 - antibiogram distributed
- Education
 - education for clinicians about resistance and optimal prescribing

CDC-Core Elements

Resources – Infection Criteria

- Infection Control and Hospital Epidemiology: Development of Minimum Criteria for the initiation of antibiotics in residents of LTCF
 - <http://classes.kumc.edu/coa/Education/AMED900/InfectiousDisease-GeneralizedAssess.pdf>
- Surveillance Definitions of Infections in Long-Term Care Facilities: Revisiting the McGeer Criteria
 - <http://www.jstor.org/stable/10.1086/667743>
- PA-PSRS: List of Reportable Infections: Infections reportable through PA-PSRS
 - <http://patientsafetyauthority.org/NewsAndInformation/HealthcareAssociatedInfections/Documents/reportableinfections.pdf>

Resources – Treatment Guidelines

- Infectious Diseases Society of America Guidelines
 - https://www.idsociety.org/Organ_System/
- CDC Get Smart Know When Antibiotics Work: Adult Treatment Recommendations
 - <https://www.cdc.gov/getsmart/community/for-hcp/outpatient-hcp/adult-treatment-rec.html>
- Society for Healthcare Epidemiology of America Position paper: Antimicrobial use in LTCF
 - <https://www.shea-online.org/images/guidelines/Abx-LTCF96.PDF>
- National Institute of Health. Diagnosis and management of urinary tract infections in older adults
 - <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4079031/pdf/nihms593077.pdf>

Conclusions

- Protecting residents and staff from infections and harm is a basic standard of care.
- Standard Precautions should be understood and followed by all members of your care team.
- Clean and disinfect surfaces and devices to help control *C. difficile*.
- Antibiotic stewardship promotes proper use of antibiotics and helps prevent the development of drug resistance.

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What questions do you have?

Thank You!



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