Preventing *C. difficile* outbreaks in long-term care

June 4, 1 PM ET / 10 AM PT

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Explore ways to prevent C. diff in your facility

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McKnight's WEBINAR

Preventing *C. difficile* outbreaks in long-term care

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Today's Objectives

Understand the Landscape:
Healthcare-Associated Infections in Long-Term Care

Understand the Pathogen:
The Risk of *Clostridium difficile (C. diff)* in Long-Term Care

Learn Prevention Strategies:
How to Prevent the Spread of *C. diff* in Long-Term Care

Learn about *C. diff* in the Environment:
How to Stop the Spread of *C. diff* in the Environment

Get Tips and Tools:
How to Implement a Successful *C. diff* Prevention Program

Part 1

The Landscape

Healthcare-Associated
Infections in Long-Term Care

HAIs in Long-Term Care Put Resident Lives at Risk

- Up to 3 million infections each year[1]
- 350-400,000 deaths from infections each year[2]
- Infections one of the most frequent causes of transfer from long-term care facilities to acute-care hospitals and 30-day hospital readmissions[3]

  - Infections cause up to **200,000 hospital admissions** per year[4]

  - Residents hospitalized for infection have a **40% death rate**[4]

Half of Healthcare-Associated Infections can be prevented if infection control practices are improved.[5]

Sources: http://www.cdc.gov/longtermcare; 2. APIC Infection Preventionist's Guide to Long-Term Care; 3. http://www.health.gov/hai/pdfs/hai-action-plan-ltcf.pdf; 4. http://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/downloads/r55soma.pdf'; 5. Umscheid, Craig A et al. "Estimating the Proportion of Healthcare-Associated Infections That Are Reasonably Preventable and the Related Mortality and Costs." Infection control and hospital epidemiology: the official journal of the Society of Hospital Epidemiologists of America 32.2 (2011): 101–114.

LTC Conditions Increase Risk of HAIs

Why so many HAIs in LTC?

- Nearly all LTC residents are 65+ years old, 37% are 85 or older, and likely to have:
  - Weakened immune defense capabilities
  - Higher rates of chronic disease (e.g., Type II diabetes)
  - Symptoms that may not be as obvious, delaying diagnosis/treatment

- LTC facilities are at high risk of HAIs due to:
  - Frequent communal contact (social activities, group dining)
  - Common air circulation
  - Shared resident care equipment
  - Frequent resident transfer to/from acute care
  - Inadequate staffing levels for assistance & supervision

Sources: CMS Nursing Home Data Compendium; APIC Infection Preventionist's Guide to Long Term Care

Infection Control in LTCFs Is Regulated

- CMS[1] regulates infection control practices in long-term care facilities through F-Tag 441[2]
- Facilities must:

✓**Maintain an Infection Control Program**: Ongoing surveillance, recognition, investigation and control of infections

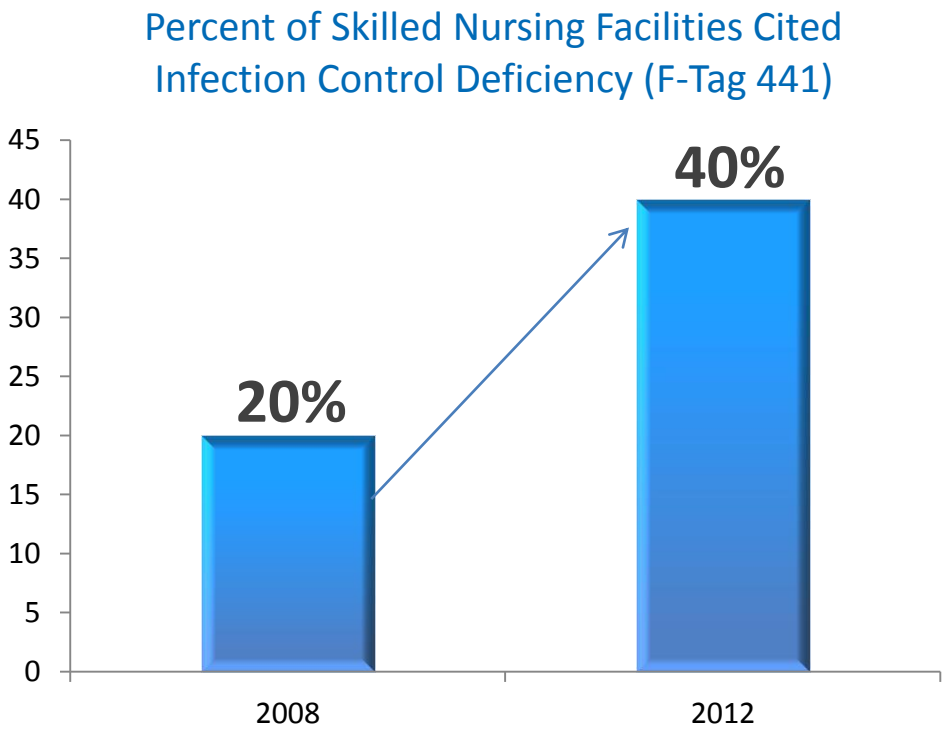
✓**Prevent Spread of Infection**: Practices to reduce the spread of infection and control outbreaks such as following specific transmission-based precautions for infected or colonized residents, and practicing proper hand hygiene and environmental disinfection procedures

✓**Properly Handle Linens**: Proper linen storage, handling, processing, and transporting to minimize contamination

Sources: 1. The Centers for Medicare & Medicaid Services; 2. (F441) 42CFR 483.65 Infection Control regulation; APIC Infection Preventionist's Guide to Long-Term Care

F-Tag Citations Are Rising

F-Tag citations are on the rise, emphasizing the need for better infection prevention practices



Source: http://www.mcknights.com/providers-can-cheer-widespread-quality-improvement-but-infection-control-poses-a-challenge-ahca-report/article/314544/?DCMP=EMC-MCK_Daily

Increasing Focus on Quality Measures

Policymakers are redesigning payment systems to tie financial incentives to outcomes, leading to increased focus on quality measures

Pressure from Hospital Readmission Penalties[1]

Affordable Care Act is penalizing hospitals for excessive readmissions.
Hospitals are less likely to refer patients to facilities with high rates of infection.

Consumer Access to CMS Quality Ratings

CMS' 5-Star Quality ratings help consumers evaluate nursing homes based on criteria such as health inspections and staffing.

Trade Associations Introducing Quality Initiatives

The American Health Care Association has an initiative to reduce hospital readmissions and increase customer satisfaction in long-term care.

Sources: 1. http://seniorhousingnews.com/2013/04/14/like-hospitals-skilled-nursing-facilities-could-face-readmission-penalties; 2. http://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/CertificationandComplianc/FSQRS.html; 3. http://www.ahcancal.org/quality_improvement/qualityinitiative/Pages/default.aspx

Part 2

The Pathogen

The Risk of *C. diff* in Long-Term Care

Part 2: The Pathogen

C. diff: What Is It?

- Spore-forming[1] bacteria that cause serious intestinal infections
- Spores resist the acidity of the stomach and can inhabit and grow in the human gastrointestinal tract (GIT)
- Antibiotics can kill good bacteria and give *C. diff* room to grow in the GIT
- *C. diff* can cause a variety of symptoms, from diarrhea to more serious, life-threatening intestinal diseases
- *C. diff* spores are highly resistant to cleaning and disinfection measures

1. A spore is the dormant stage some bacteria will enter when environmental conditions cause stress to the organism or no longer support its continued growth. 2. An inflammatory condition of the colon consisting of a characteristic membrane with adherent plaques associated with severe symptoms including profuse watery diarrhea and abdominal pain. 3. A life-threatening complication of intestinal conditions, characterized by a dilated colon with severe colitis and systemic symptoms such as fever, abdominal pain, or shock)

Sources: APIC Guide to Preventing *Clostridium difficile* Infections. Prevent and Manage Infections Safely: *C. difficile* STAFF FACT SHEET, Advancing Excellence in America's Nursing Homes. http://www.cdc.gov/HAI/organisms/cdiff/Cdiff_excerpt.html

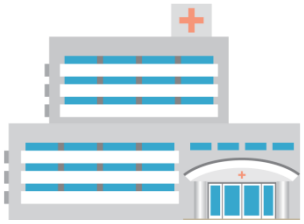
Part 2: The Pathogen

Where Is It Found?

1. Infected individuals in:

- Healthcare facilities
  - Long Term Care
  - Acute Care
- The Community

Infected individuals



Healthcare facilities

Acute Care

2. Contaminated items

- Bed pans
- Bed rails
- Wheelchairs

Contaminated items

3. Environmental surfaces

- Light switches
- Door knobs
- Sink/faucet
- Toilet

Environmental surfaces

How Is It Transmitted?

- *C. diff* infection patients shed *C. diff* spores through feces
- Any surface, device or material that becomes contaminated with feces can become a reservoir for *C. diff* spores
- *C. diff* can spread from person to person on contaminated equipment and the hands of healthcare providers and visitors

Who Is At Risk?

The risk of contracting *C. diff* increases in people with:

- Advanced age
- Long-term antibiotic use
- Prior gastrointestinal surgery
- Underlying illness
- Weakened immune systems
- Long stays in healthcare settings

What Are the Symptoms?

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

Symptoms

TIP

TIP: How to distinguish *C. diff* vs. Norovirus

- *C. diff:* watery diarrhea multiple times per day
- Norovirus: nausea/vomiting and diarrhea

Source: http://www.cdc.gov/HAI/organisms/cdiff/Cdiff_faqs_HCP.html

Part 2: The Pathogen

LTC Population More Vulnerable to *C. diff*

Prevalence

- *C. diff* infections are linked to 14,000 deaths in the US each year[1]
- More than 90% of *C. diff*-related deaths occur in people 65 and older[2]
- 75% of *C. diff* infections occur in nursing home patients or individuals with recent outpatient treatment[3]

Costs

- Cost per case of CDI estimated to range from $5,042 to $7,179 [4]
- *C. diff* infections cost at least $1 billion in extra health care costs annually[5]

Sources:
1. Centers for Disease Control and Prevention (CDC). "Antibiotic resistance threats in the United States, 2013." Atlanta: CDC, 23 Apr. 2013. 26 Nov. 2013. http://www.cdc.gov/drugresistance/threat-report-2013/pdf/ar-threats-2013-508.pdf; 2. McDonald, L. C.; et al; Vital signs: preventing Clostridium difficile infections. Morb Mortal Wkly Rep 2012; 61:157-62; 3. http://www.cdc.gov/VitalSigns/Hai/StoppingCdifficile/; 4. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6109a3.htm
5. http://www.cdc.gov/VitalSigns/Hai/StoppingCdifficile/

Part 3

Prevention

Preventing the Spread of *C. diff* in Long-Term Care

7 Simple Steps

Key steps to preventing the spread of *C. difficile* in healthcare settings:

Source: APIC Guide to Preventing *Clostridium difficile* Infections

Step 1 – Antibiotic Stewardship

Antibiotic Stewardship:

Ask if antibiotics are necessary, prescribe and use antibiotics carefully.

Unnecessary antibiotic use raises the risk of *C. diff* infections.

Source: APIC Guide to Preventing *Clostridium difficile* Infections

Test

If a patient gets diarrhea while on antibiotics or within a few months of taking them, order a *C. diff* test.

 Source: APIC Guide to Preventing *Clostridium difficile* Infections

Isolation Precautions

Residents who have tested positive for *C. diff* or who are exhibiting symptoms (e.g., diarrhea) should be isolated immediately while you wait for test results. Where isolation is not possible, i.e., outbreak conditions, “cohort” residents and assign dedicated staff.

 Source: APIC Guide to Preventing *Clostridium difficile* Infections

Step 4 – Hand Hygiene

Hand hygiene

Proper hand hygiene by all personnel prior to, during and following resident interaction.

Note: Remember that alcohol-based hand sanitizers are not effective against C. diff spores, so hand washing using soap and water is critical.

Source: APIC Guide to Preventing *Clostridium difficile* Infections

Personal Protective Equipment (PPE)

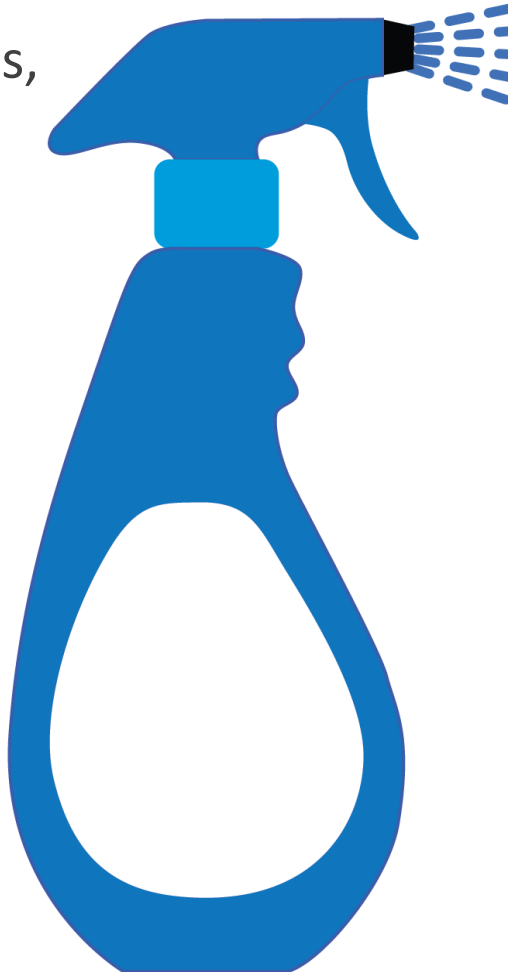
Always wear gloves and gowns when treating *C. difficile* patients.

 Source: APIC Guide to Preventing *Clostridium difficile* Infections

Step 6 – Disinfect

Environmental Disinfection

Clean the facility, especially *C. diff* rooms, with bleach or another EPA-registered spore-killing disinfectant.

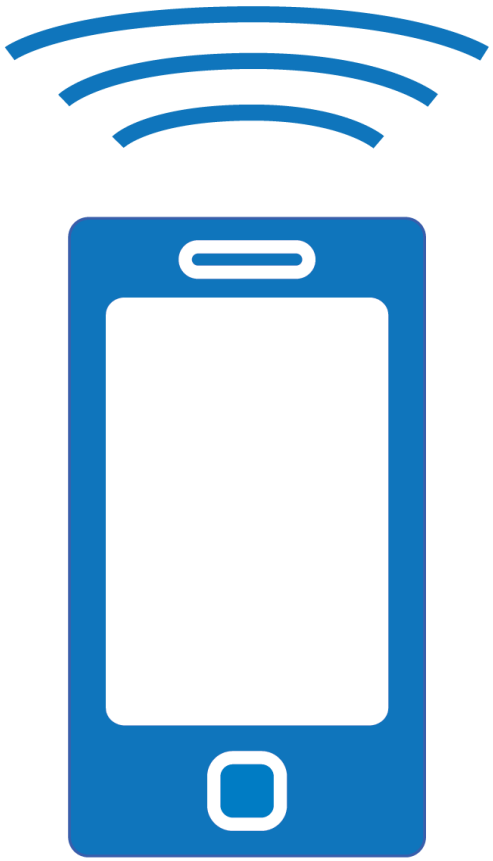


Source: APIC Guide to Preventing *Clostridium difficile* Infections

Step 7 – Alert

Alert

When a *C. diff* patient transfers, notify the new facility of the infection.



Source: APIC Guide to Preventing *Clostridium difficile* Infections

Part 4

The Environment

Stopping the Spread of *C. diff* in the LTC Environment

Part 4: The Environment

The Environment is Critical in Transmission

- Surface contamination plays a key role in transmission of pathogens

- Almost 80% of infectious diseases are transmitted via touch*

Direct: Healthcare worker hands to patient
Indirect: Healthcare worker hands to surface to patient

*Tierno, P. The Secret Life of Germs. New York, NY, USA: Atria Books, 2001.

C. diff Can Be Spread Easily

C. diff can:

- Contaminate the healthcare environment
- Colonize patients
- Be picked up and transmitted to others via healthcare workers' hands
- Inoculate hosts with only a small dose
- Resist nonsporicidal disinfectants used on environmental surfaces (i.e., quaternary ammonium compounds that are not EPA-registered to kill *C. difficile* spores)

C. diff Is Persistent in the Environment

- *C. diff* can remain virulent after environmental exposure
- *C. diff* spores can survive on hard surfaces in the healthcare environment for up to 5 months
- This gives *C. diff* a good chance to be transmitted via environmental

Sources: Kramer, A, Schwebke, I, and Kampf, G. "How Long Do Nosocomial Pathogens Persist on Inanimate Surfaces? A Systematic Review." BMC infectious diseases 6 (2006): 130.; http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1564025/

Not All Environmental Cleaners Kill *C. diff* Spores

Increasing Resistance to Disinfectants

Organism	Example	Active Ingredient
Bacterial spores	***C. difficile* spores**	
Mycobacteria	TB	
Small non-enveloped viruses	Norovirus	
Fungi	*Candida albicans*	
Gram Negative bacteria	Klebsiella	
Large non-enveloped viruses	Adenoviruses	
Gram Positive bacteria	Staph (MRSA)	
Enveloped viruses	Influenza	

Quaternary Ammonium

Quat/Alcohol

Accelerated Hydrogen Peroxide

Hydrogen Peroxide with Peracetic Acid

Bleach

Source: Understanding the Physiology of Healthcare Pathogens for Environmental Disinfection, Infection Control Today, Vol. 16, No. 2 February 2012
Based on comparison of Federal EPA master labels as of April 2014.

Bleach Is Proven to Kill *C. diff* Spores

- *C. diff* spores are resistant to most disinfectants, sanitizers and cleaning agents, including alcohol-based hand sanitizers
- Look for sodium hypochlorite (bleach) or another disinfectant EPA-registered to kill *C. diff* spores
- Multiple studies have shown that products containing a **1:10 dilution of bleach (aka sodium hypochlorite)** are an effective disinfectant against *C. diff* spores on environmental surfaces

Cleaning in LTCFs

1. Sterilization:
   Destruction of all viable forms of microorganisms, including spores

2. Disinfection:
   Killing of pathogens
   (though spores not killed by all disinfectants)

3. Cleaning:
   Physical removal of visible soil from surfaces

Source: APIC Text – Chapter 52 – Long Term Care

Part 4: The Environment

General Cleaning Concepts

- Work from the cleanest to dirtiest surfaces and from highest to lowest
- Pay special attention to high-touch surfaces (e.g., door handles)
- Ensure shared patient equipment (e.g., glucometers) are cleaned and disinfected before and after use
- Develop consistent cleaning schedules
- Label cleaning products with manufacturer's info if using a diluted cleaning solution (dilution, expiration date, etc.)
- Follow manufacturer's label instructions
- Change, dispose or reprocess cleaning equipment frequently
- Damp dust or mop to decrease aerosolization of dust
- Empty and completely rinse containers before refilling

 Source: APIC Text – Chapter 52 – Long Term Care

Room-Cleaning Protocols

Provide EVS staff checklists to ensure proper cleaning and disinfecting

Sample Checklist

Date _____ Room _____

Time _____

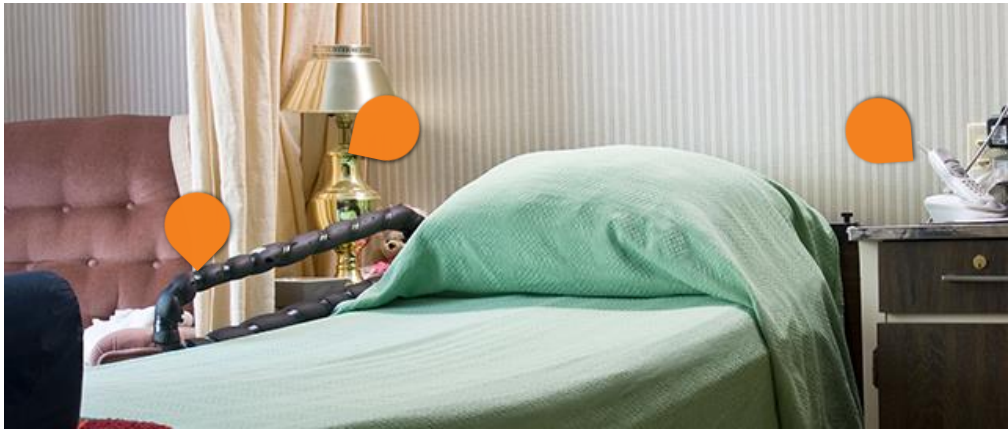
Steps	Detail	Yes	No	N/A
At start, perform hand hygiene.	Wash hands in accordance with your facility's protocol			
Step 1 | Prepare for isolation cleaning.	Check door to ensure Precaution sign is present			
	Don PPE per your facility's guidelines			
	Perform hand hygiene			
Step 2 | Collect trash and soiled linens.	Remove soiled linens			
	Collect trash and place in garbage bag			
Step 3 | High dust.	Light recesses and vents			
	Curtain tracks and TV surfaces			
	Dispose of high duster head			
Step 4 | Clean and disinfect room. Disinfect all surfaces with Clorox Healthcare™ Bleach Germicidal Wipes.	Doorknobs/handles			
	Door surface			
	Mattress			
	Bed side rails			
	Bed frame call button			
	Phone			
	Overbed table and drawer			
	TV remotes			
	Countertop			
	Light switches			
	Furniture			
	Arms of patient chair			
	Seat of patient chair			
	Windowsills			
	Bedside commode			
	Medical equipment (e.g., IV controls)			
	All other miscellaneous horizontal surfaces			
Step 5 | Clean and disinfect bathroom (starting with highest surfaces first).	Mirror			
	Lights			
	Sink			
	Faucets (at sink)			
	Bathroom handrails			
	Tub/shower			
	Toilet level/flush			
	Toilet horizontal surface/seat			
Step 6 | Mop room and prepare to exit.	Dust-mop tile			
	Wet-mop tile			
	Visually inspect room and ensure all surfaces have been cleaned and disinfected			
	Disinfect cleaning equipment, like mop handles, before returning to cart			
	Remove PPE and dispose of in trash or laundry bag			
	Perform hand hygiene			
	Make bed			
	Replace hand sanitizer and paper towels if needed			

High-Touch Environmental Surfaces

Use bleach or another EPA-registered *C. diff* disinfecting product to clean and disinfect surfaces in the long-term care environment:

Resident Rooms:

- Bed rails
- Call box/button
- Doorknob
- Light switch
- Medical equipment
- Phone
- Room sink



Bathrooms:

- Doorknob
- Faucets
- Hand rails
- Light switch
- Shower/tub and fixtures
- Sink area
- Toilet flush handle
- Toilet seat

*See manufacturer's label for surface compatibility.
Source: APIC Guide to Preventing *Clostridium difficile*

Part 5

Getting Started

Tips and Tools for Implementing a Successful *C. diff* Prevention Program

Success Drivers

Five key drivers will help you achieve a successful day-to-day environmental *C. diff* and general infection prevention program:

1. Teamwork
   C. diff prevention is a team effort, involving nursing and environmental services

2. Education and Training
   Understanding roles, responsibilities and protocols

3. Evaluating Competency
   Testing knowledge and understanding

4. Ensuring Proper Disinfection
   What to use and how to use products for effective disinfection

5. Ongoing Surveillance
   Measuring your staff's cleaning effectiveness

Teamwork

Partnership is critical for the success of a *C. diff* surface disinfection program

Nursing + EVS = Success

1. Align on the problem
2. Gain leadership approval
3. Draft a plan
4. Agree on a disinfectant
5. Measure baseline data
6. Set common goals
7. Work as a team to get results

Education and Training

Educate and train your staff:

1. Educate your staff about *C. diff*

2. Communicate and prioritize key roles

3. Set clear objectives

4. Provide specific training tools

Evaluating Competency

Checking competency promotes ongoing improvement. For new hires and annually:

1. Demonstrate:
Show staff proper cleaning procedures

2. Test:
Conduct written quizzes to test understanding

3. Observe:
Spot check employees while they are cleaning

Ensuring Proper Disinfection – **What to Use**

Bleach, or another EPA-registered sporicidal disinfectant, must be used to kill *C. diff* spores on environmental surfaces.

- Numerous clinical studies have reported that as part of a bundled prevention program, routine use of sodium hypochlorite disinfecting products have resulted in reduced *C. diff* rates

- Check the label to confirm the product is EPA-registered to kill *C. diff* spores. Currently, no quaternary ammonium or alcohol-based disinfectants are EPA-registered to kill *C. diff* spores

Example

EPA-Registered Clorox solutions to Kill *C. diff* Spores

Clorox Healthcare® Bleach Germicidal Wipes

- EPA-registered to kill 51 microorganisms, including:
  - *C. difficile* spores in 3 minutes*
  - Representatives of ESKAPE pathogens in 30 seconds
  - Norovirus in 1 minute
  - TB in 3 minutes
- 1:10 bleach dilution
- Premixed and ready to use, ensuring proper concentration every time
- No pre-cleaning required

Clorox Healthcare® Bleach Germicidal Cleaners

- EPA-registered to kill 41 microorganisms, including:
  - *C. difficile* spores in 5 minutes*
  - Representatives of ESKAPE pathogens in 1 minute
  - Norovirus in 1 minute
- 1:10 bleach dilution
- Premixed and ready to use, ensuring proper concentration every time
- No pre-cleaning required

* Use as directed on precleaned hard, nonporous surfaces.

Ensuring Proper Disinfection – **How to Use**

Provide staff with clear, simple directions for use in both English and Spanish.

Bilingual directions-for-use cards and videos

Ensuring Proper Disinfection – **Compliance**

Choose disinfecting products with less variation

Risk	Closed-Bucket[1]	Open-Bucket[2]
Improper Dilution	None	Possible
Improperly Measured/Mixed	None	Possible (unless using premixed liquid)
Wipe Incompatible with Liquid	Non-issue	Possible (requires managing)
Need additional applications if wet-contact time not met	Possible	Possible
Double-/Re-Dipping of Wipe	None	Possible
Risk of Splashing	None	Yes
Potential to Reintroduce Microorganisms Back into Environment After Equipment Laundry Process	None	Yes

1. For example, ready-to-use wipes
2. For example, using dilutable products in a bucket

Ensuring Proper Disinfection – Compliance

To drive compliance, if you decide to use bleach, proactively address any concerns about bleach

1. Addressing residue
   - Simply salt
   - Can be removed with a clean cloth or towel

2. Addressing odor
   - Studies show low concern from staff or patients
   - Assure staff of no negative health impacts, if used as directed

Example

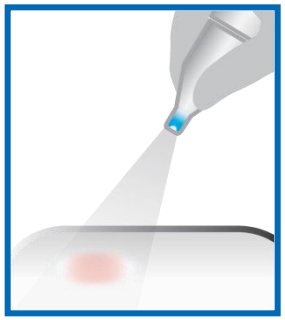
Ongoing Surveillance

Surveillance helps measure your staff's cleaning effectiveness

Observation:
Conduct "spot checks" to observe staff cleaning practices

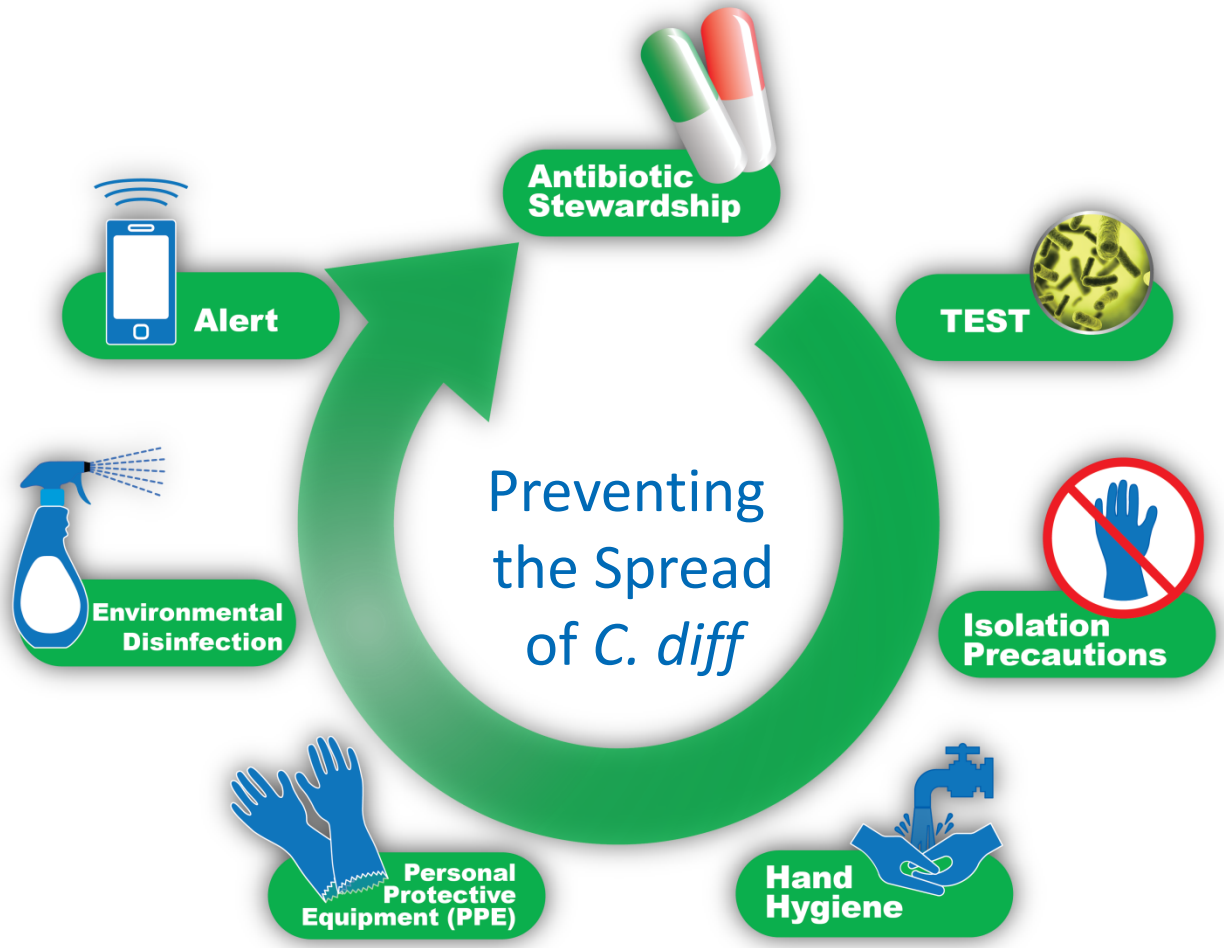
ATP:
Measures organic matter on surface (not germ kill)

Fluorescent marking:
Indicates surfaces that have been wiped/cleaned (but not necessarily disinfected)



Recap:
7 Simple Steps

Key steps to preventing the spread of *C. difficile*–associated infection in healthcare settings:



Source: APIC Guide to Preventing *Clostridium difficile* Infections

Summary

C. diff is a gastrointestinal infection that can cause serious illness and death

Follow the 7 simple steps to prevent *C. diff,* including antibiotic stewardship

Environmental cleaning is a key step in preventing the spread of *C. diff*

An effective *C. diff* surface disinfection program requires:

Teamwork between Nursing and EVS staff
Ongoing training and monitoring

You can prevent the spread of *C. diff*

Thank You

Additional Training Tools to help prevent the spread of C. difficile:
www.cloroxprofessional.com/cdiff

Information on Infection Control solutions for your facility:
www.cloroxprofessional.com/longtermcare

Thank you for attending

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www.mcknights.com/June4webinar

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