



Blind Spots in Healthcare- Associated *C. diff* Prevention: What's still tripping us up?

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Doe Kley is an Infection Prevention Fellow within Clorox Healthcare's Clinical and Scientific Affairs team and is passionate about proving practical infection prevention solutions for healthcare professionals. Her role focuses on providing consultative services and developing practice tools using her 25 years of clinical expertise in acute care infection prevention from working in large healthcare systems, including Intermountain Healthcare in Utah and Kaiser Permanente in California.

Doe Kley is a registered nurse with an undergraduate degree in Microbiology, and a Master of Public Health from the University of Nevada . She taught an infection control course for the Ohio State University (OSU) from 2019-2022, and she recently was awarded "Community Educator of the Year" through Sigma Theta Tau international nursing honor society. Doe is dual-board certified in infection prevention and epidemiology in both acute and long-term care. She is also certified to train EVS through Association for the Healthcare Environment (AHE). Doe is an active member of AHE, the Association for Professionals in Infection Control & Epidemiology (APIC), the Association of periOperative Registered Nurses (AORN), and the Society for Healthcare Epidemiology of America (SHEA). She served on the Certification Board of Infection Control and Epidemiology (CBIC) from 2020-2024 and is an active member of the Advisory Council for the Pearce Foundation Environmental Services Optimization Playbook (EvSOP).

Session Description

Despite sustained focus and decades of guidance, *Clostridioides difficile* remains the most common healthcare-associated infection and an ongoing challenge for hospitals. Many organizations have achieved meaningful reductions, yet “breakthrough” transmission persists - often driven not by lack of effort, but by overlooked operational blind spots.

This session examines where *C. diff* prevention programs may still be faltering and why doing more of the same may no longer be enough. Drawing on evolving epidemiology, frontline workflow realities, and real-world IPC–EVS intersections, this webinar will highlight prevention gaps that have surfaced outside traditional playbooks. While environmental cleaning and disinfection will be explored in depth, the discussion will also address complementary blind spots, including but not limited to delayed identification and isolation, communication failures, diagnostic stewardship, and care transitions.

Participants will leave with practical, actionable strategies that emphasize universal controls, early interventions, and reliable execution across care transitions - closing gaps that matter for reducing hospital-onset *C. diff* infections.

Learning Objectives

1. Illustrate the changing epidemiology of *C. diff*.

2. Identify common blind spots in healthcare-associated *C. diff* prevention.

3. Describe practical, evidence-informed strategies with a focus on environmental cleaning.

Please get your mobile device ready for polling





Introduction



We got distracted...



Our attention has shifted from *C. difficile* to other HAIs (e.g., *Candida auris*, CLASBI, CAUTI).

However, ***C. diff* remains the most common HAI.**

Doing more of the same thing will not get us where we strive to be.



In the past year, do you feel you have given more attention to pathogens or HAI types than to C. difficile?

**“With the NHSN rebaseline, we
are now over the *C. diff*
benchmark!”**

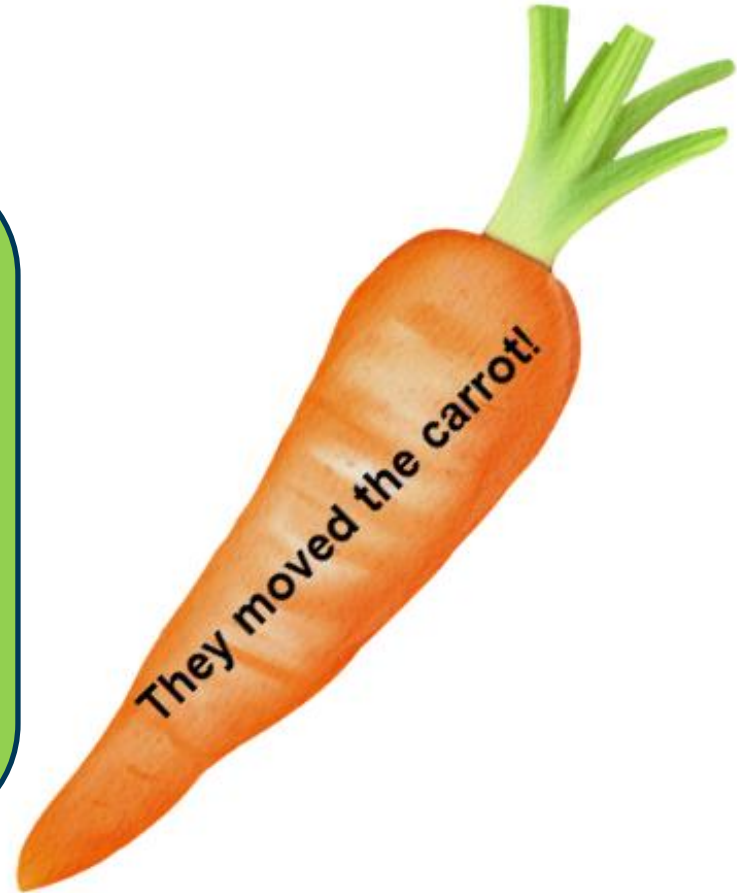
-Anonymous

They Moved the Carrot

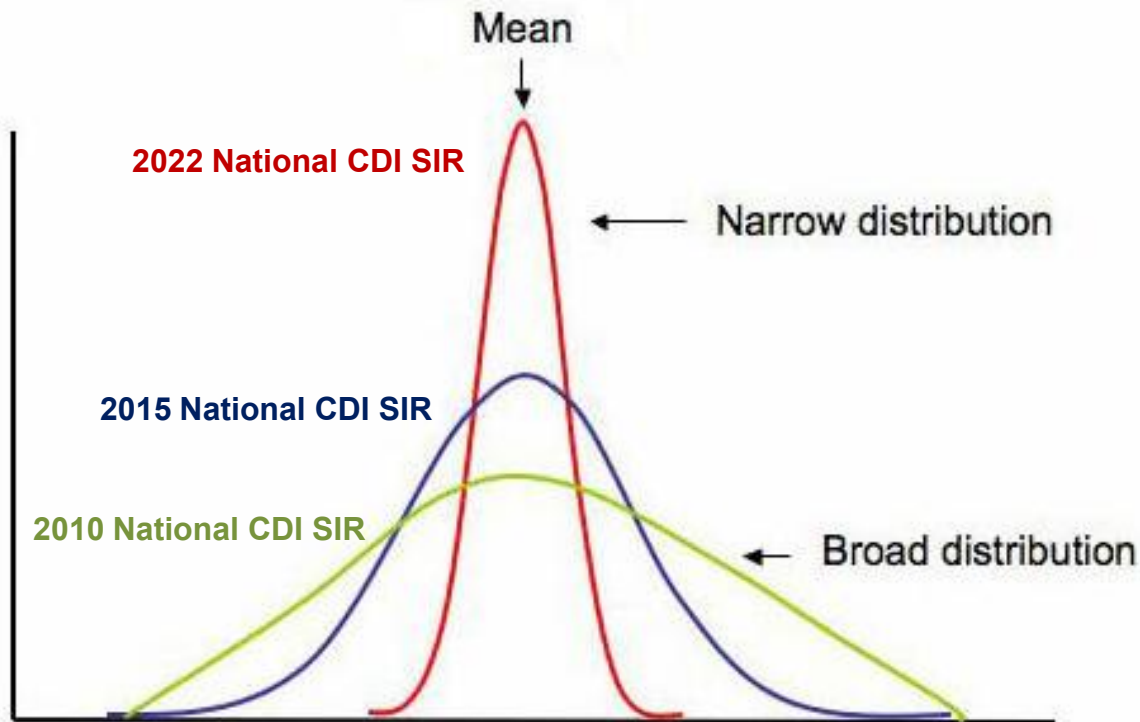
As national CDI rates decline, the performance curve tightens.

Small differences now have a BIG impact on the SIR!

****New baseline goes into effect
Fall 2026****



Narrowing of the performance curve





**Have you gone into the
NHSN portal and run your
C. diff numbers against the
NEW baseline?**



From Emergence to Endemic



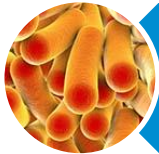
General Overview: What is *C. diff*?



Gram positive, anaerobic spore-forming bacterium; not all strains produce toxins.



Leading cause of antibiotic-associated diarrhea and colitis.



Transmission: Direct/Indirect Contact (environmental contamination and hands).



Survives on environment surfaces for months to years

References:

- 1) National Library of Medicine. StatPearls: Clostridioides difficile infection, 2024 [Internet]. [Cited 2026 Apr 6]. Available from [NIH](#).
- 2) Centers for Disease Control & Prevention. About *C. diff*, Dec 2024 [Internet]. [cited 2026 Apr 7]. Available from [CDC](#).



A bit (or is it “bite”?) more on transmission...

- Failure to assist patients with hand hygiene before they eat
- Contaminated thermometers (rectal or oral)
- Inoculation during oral care, oral suctioning, feeding tube management, and intubation

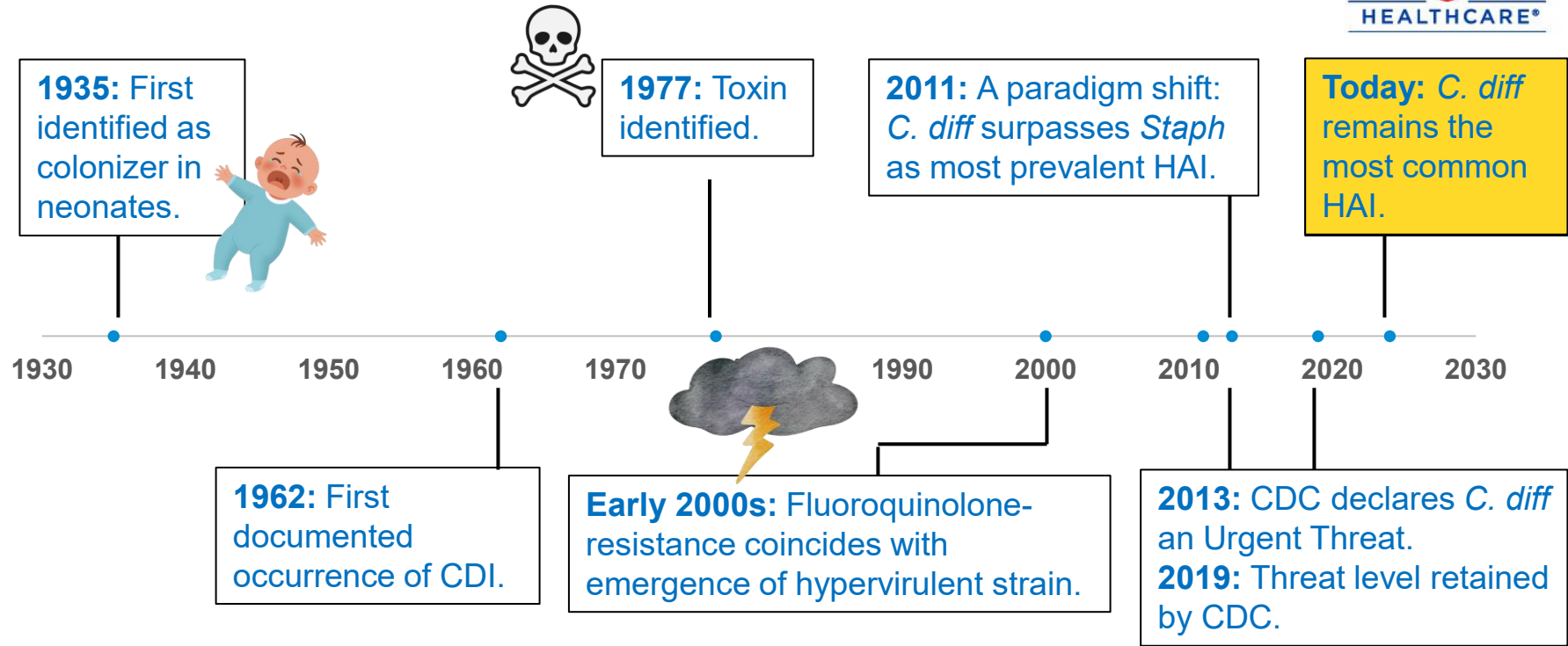
A nice way of saying “eating poop”



References:

1. National Library of Medicine. StatPearls: Clostridioides difficile infection, 2024 [Internet]. [Cited 2026 Apr 6]. Available from [NIH](#)
2. McDonald CL, Gerding DN, Johnson S, Bakken JS, Carroll KC, Coffin SE, et al. Clinical Practice Guidelines for Clostridium difficile Infection in Adults and Children: 2017 Update by the Infectious Disease Society of America (IDSA) and Society for Healthcare Epidemiologists of America (SHEA). Clin Infect Dis. 2018;19;66(7).

C. diff Timeline



References:

1. Tickler IA, Goering RV, Tenover FC. History and Evolution of the Hypervirulent *Clostridioides difficile* Ribotype 027 Lineage. *Microorganisms*. 2025;13(10), 2376.
2. Di Bella S, Sanson G, Monticelli J, Zerbato V, Principe L, Giuffrè M, Pipitone G, Luzzati R. *Clostridioides difficile* infection: history, epidemiology, risk factors, prevention, clinical manifestations, treatment, and future options. *Clinical microbiology reviews*. 2024; 37(2), e0013523. <https://doi.org/10.1128/cmr.00135-23>.



Who is at Risk for Acquiring *C. diff*?



50% of hospitalized patients receive antibiotics during their stay.²



Recent (e.g., **within the last 3 months**) stay in healthcare settings, such as hospitals or nursing homes, also increases their risk.

65+

More than 70% of deaths in patients with *C. diff* infection occur in people aged 65 or older.²

Reference:

1. Centers for Disease Control & Prevention. Clostridioides difficile for Healthcare Professionals, nd [Internet].[cited 2026 Apr 8]. Available from [CDC](#).
2. Centers for Disease Control & Prevention. Antibiotic Use and Stewardship in the US, 2025 Update: Progress and Opportunities, Feb 2026 [Internet].[cited 2026 Apr 21]. Available from [CDC](#).



The Impact of *C. diff* Infections (CDI)



C. diff infection is estimated to cause almost **half a million** infections in the United States each year.¹



Up to **1 in 3** will experience recurrent *C. diff*.
45-65% of these multiple recurrence.²



One in 8 people aged 65 or older diagnosed with a healthcare-associated *C. diff* infection dies within a month.¹

References:

1. Centers for Disease Control & Prevention. Clostridioides difficile for Healthcare Professionals, nd [Internet]. [cited 2026 Apr 8]. Available from [CDC](https://www.cdc.gov/hcp/clostridioides-difficile/).
2. Soon JH, Sun Kim Y. Recurrent *C. diff* Infection: Risk Factors, Treatment, and Prevention. Gut Liver. 2018;13(1):16-24. doi: 10:5009/gnl18071

Current Status



CDC 2024 HAI Progress Report Raw Data for Acute Care Hospitals		
HAI Type	# of Events in 2024	% decrease 2023 to 2024
<i>C. difficile</i>	31,595	11%
Ventilator-associated Events (VAE)	26,509	2%
CLABSI	18,165	9%
CAUTI	15,347	10%
MRSA blood stream	7,605	7%

2011 National *C. diff* SIR = 0.93

60%
decrease

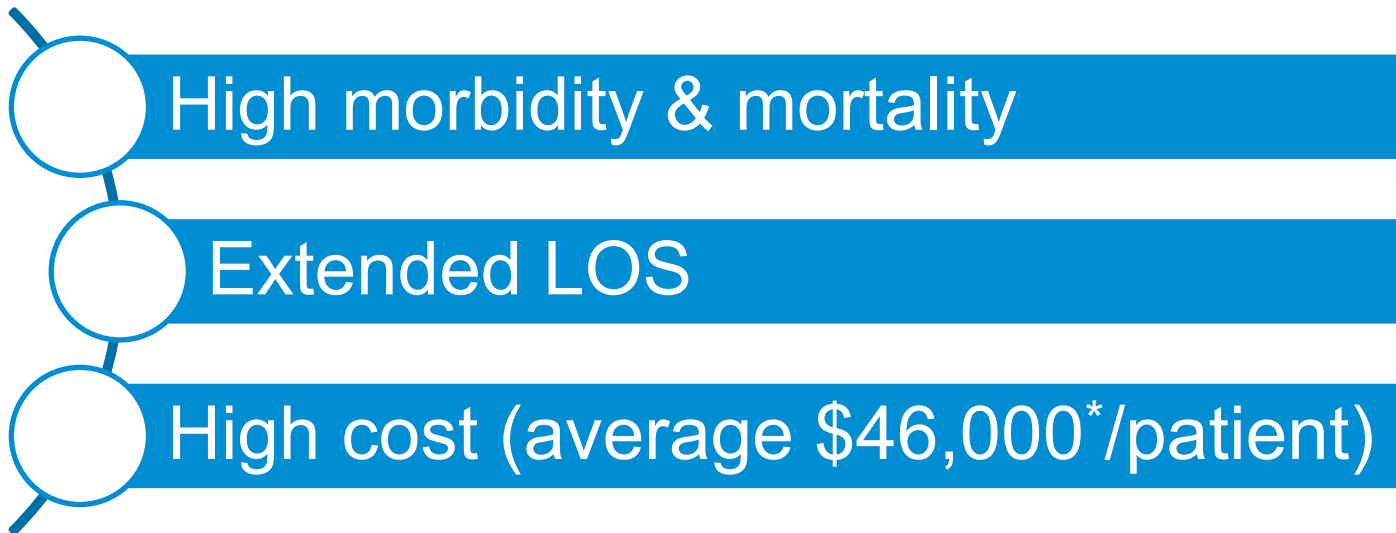
2024 National *C. diff* SIR = 0.38

SIR=Standardized Infection Ratio

Epidemiological Importance of *C. diff*



C. diff remains the **most common** HAI in the US!



*Inflation-adjusted to 2026 dollars

References:

1. Centers for Disease Control & Prevention. *C. diff*: Facts for Clinicians, Mar 2024 [Internet]. [cited 2026 Apr 7]. Available from [CDC](https://www.cdc.gov/media/releases/2024/s0307-cdiff-facts.html).
2. Zhang, et al. Cost of hospital management of *Clostridium difficile* infection in United States—a meta-analysis and modelling study. *BMC Infect Dis* **16**, 447 (2016). <https://doi.org/10.1186/s12879-016-1786-6>



C. diff: An Urgent Threat

Urgent Threats

These germs are public health threats that require urgent and aggressive action:



CARBAPENEM-RESISTANT
ACINETOBACTER



CANDIDA AURIS



CLOSTRIDIODES DIFFICILE



CARBAPENEM-RESISTANT
ENTEROBACTERIACEAE



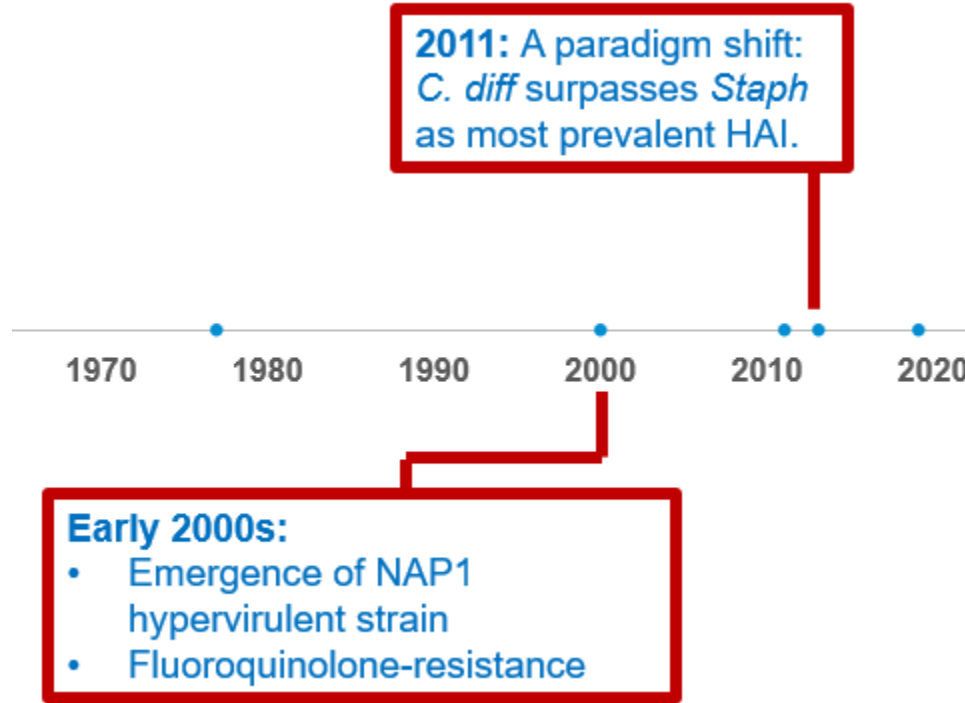
DRUG-RESISTANT
NEISSERIA GONORRHOEAE



References:

1. Centers for Disease Control & Prevention. 2013 AR Threats Report [Internet]. [cited 2026 Apr 8]. Available from [CDC](#).
2. Centers for Disease Control & Prevention. 2019 AR Threats Report [Internet]. [cited 2026 Feb 12]. Available from [CDC](#).

Evolving Epidemiology



References:

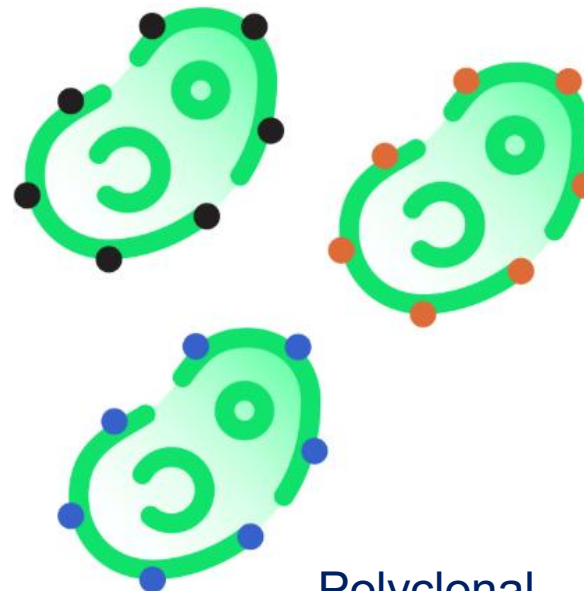
1. Tickler IA, Goering RV, Tenover FC. History and Evolution of the Hypervirulent *Clostridioides difficile* Ribotype 027 Lineage. *Microorganisms*. 2025;13(10), 2376.
2. Di Bella S, Sanson G, Monticelli J, Zerbato V, Principe L, Giuffrè M, Pipitone G, Luzzati R. *Clostridioides difficile* infection: history, epidemiology, risk factors, prevention, clinical manifestations, treatment, and future options. *Clinical microbiology reviews*. 2024; 37(2), e0013523. <https://doi.org/10.1128/cmr.00135-23>.



Evolving Epidemiology



Monoclonal
(hypervirulent NAP1/BI/027)



Polyclonal
(including community strains)

References:

1. Turner NA, Grambow SC, Woods CW, Fowler VG, Moehring RW, Anderson DJ, et al. Epidemiologic Trends in *Clostridioides difficile* Infections in a Regional Community Hospital Network. *JAMA Netw Open*. 2019; 2(10):e1914149
2. Gupta A, Khanna S. Community-acquired *Clostridium difficile* infection: an increasing public health threat. *Infect Drug Resist*. 2014 Mar 17; 7:63-72. Doi: 10.2147/IDR.S46780

Emerging Infections Program Healthcare-Associated Infections–Community Interface Report *Clostridioides difficile* Infection Surveillance, 2023

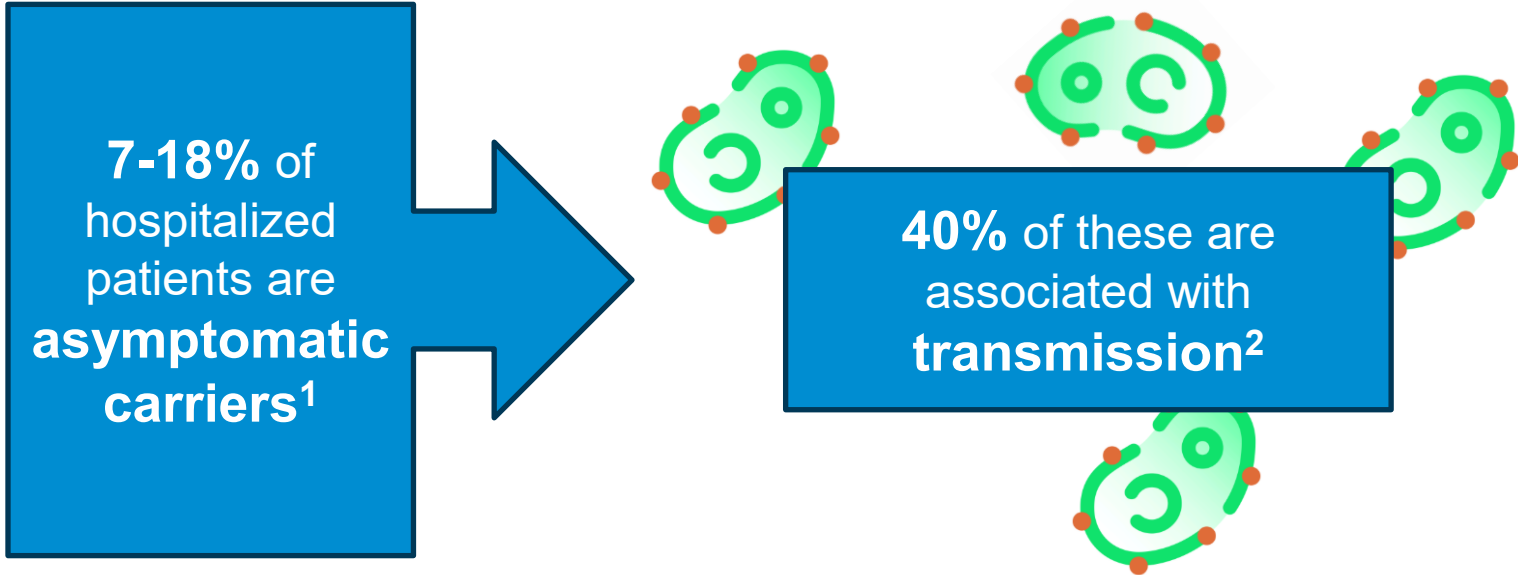
Summary

Surveillance data from 2023 represent the thirteenth year of population-based surveillance for CDI conducted in 10 Emerging Infections Program sites. The crude overall incidence rate of CDI in 2023 was 117.2 cases per 100,000 persons, similar to the overall incidence rate of 116.1 cases per 100,000 persons in 2022. These estimates do not account for potential changes in diagnostic testing practices over time. The incidence of community-associated CDI cases (62.3 cases per 100,000 persons) was higher compared with healthcare-associated cases (54.9 cases per 100,000 persons). The incidence rate of CDI increased with age and was higher in women than in men and highest in persons who were Native Hawaiian/Other Pacific Islander or White, compared to persons of other racial/ethnic groups.

Reference:

1. Centers for Disease Control & Prevention. EID Program Healthcare-Associated Infections-Community Interface Report: *Clostridioides difficile* Infection Surveillance 2023 [Internet]. [cited 2026 Mar 18]. Available from [CDC](#)

Asymptomatic Carriage and Transmission Incidence

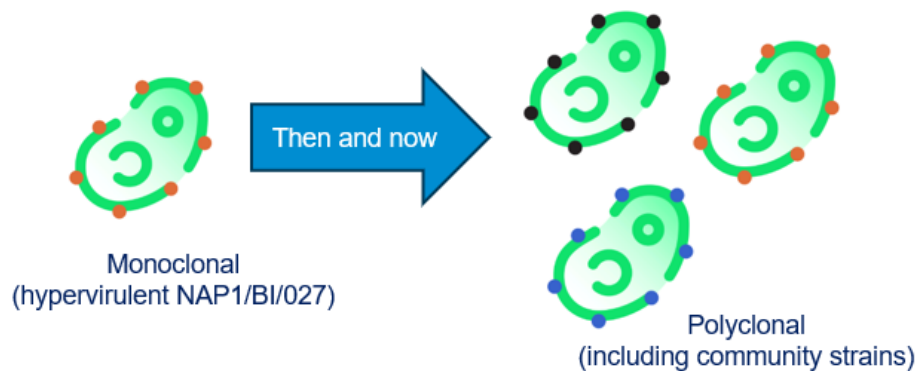


7-18% of
hospitalized
patients are
**asymptomatic
carriers¹**

40% of these are
associated with
transmission²

References:

1. Guh AY. *Clostridioides difficile: Epidemiologic Risks and Decolonization Strategies*. FDA/CDC Public Workshop, 2022
2. Baker SJC, Maciejewski J, Usuanlele MT, Gilchrist J, Sharma DR, Bulir D, et al. Investigating in-hospital transmission of *Clostridioides difficile* from asymptomatic patients. *J Assoc Med Microbiol Infect Dis Can*. 2025 Jul 17;10(3):228-238



Key Takeaways

- Many strains make it harder to control.
- The data becomes “noisier.”
- Rates $\neq$ IP failure

References:

1. Turner NA, Grambow SC, Woods CW, Fowler VG, Moehring RW, Anderson DJ, et al. Epidemiologic Trends in *Clostridioides difficile* Infections in a Regional Community Hospital Network. *JAMA Netw Open*. 2019; 2(10):e1914149
2. Gupta A, Khanna S. Community-acquired *Clostridium difficile* infection: an increasing public health threat. *Infect Drug Resist*. 2014 Mar 17; 7:63-72. Doi: 10.2147/IDR.S46780

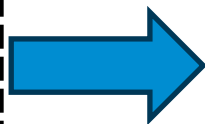
What about screening at admission?

Open Forum Infect Dis. 2025 Jan 29;12(Suppl 1):ofae631.429.

P-225. Effect of isolating *Clostridioides difficile* asymptomatic carriers on the incidence of healthcare-associated *C. difficile* infections: a systematic review and meta-analysis

[Veronica Zanichelli](#)¹, [Jacqueline Wong](#)², [Zahra Sohani](#)³, [Nick Daneman](#)⁴, [Charles Frenette](#)⁵, [Todd C Lee](#)⁶,
[Dominik Mertz](#)⁷, [Emily McDonald](#)⁸, [Kevin Brown](#)⁹, [Jennifer M Grant](#)¹⁰, [Louis-Patrick Haraoui](#)¹¹, [Jennie](#)
[Johnstone](#)¹², [Kevin Katz](#)¹³, [Robyn S Lee](#)¹⁴, [Jerome A Leis](#)¹⁵, [Beate Sander](#)¹⁶, [Titus Wong](#)¹⁷, [Vivian Loo](#)¹⁸, [Yves](#)
[Longtin](#)^{19,1,2,3}

Screening and isolating *C. difficile* carriers resulted in a
72% decrease in HO-CDI incidence in adult patients



Consider using a
sporicidal disinfectant
for ***all* discharge cleans.**

Reference: Zanichelli V, Wong J, Sohani Z, Daneman N, Frenette C, Lee TC, et al. P-225. Effect of isolating *Clostridioides difficile* asymptomatic carriers on the incidence of healthcare-associated *C. difficile* infections: a systematic review and meta-analysis. *Open Forum Infect Dis.* 2025 Jan 29;12(Suppl 1):ofae631.429. doi: 10.1093/ofid/ofae631.429. PMID: PMC11776551.



Does your facility screen new admissions for C. difficile?

Universal Controls

Antimicrobial Stewardship



Rigorous Hand Hygiene Practices



Sporicidal Cleaning & Disinfection



Are we ready to “C. diff-erently”?



Source: Canva

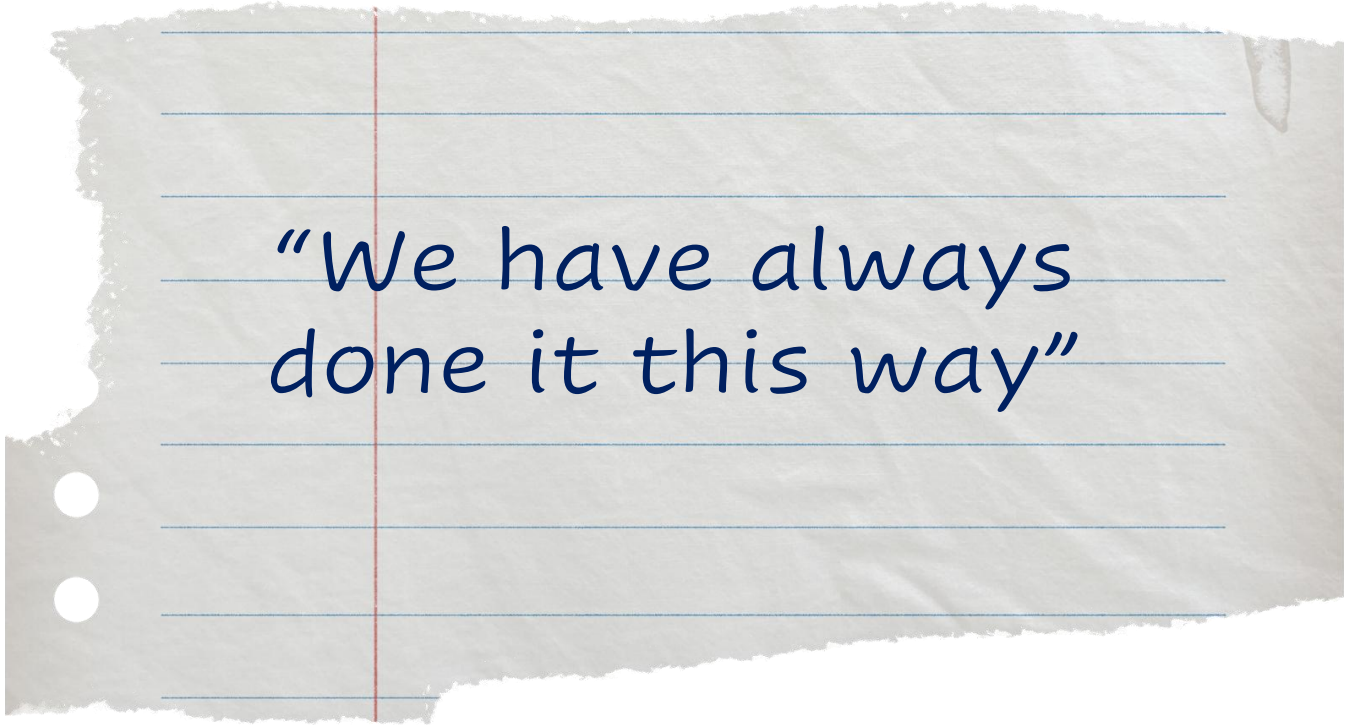




Uncovering IPC Blind Spots and Closing the Gaps



The most dangerous sentence to IPs



"We have always
done it this way"

Hand Hygiene



Hand Hygiene: Cognitive Prompt



Temporary vinyl floor signage at threshold of *C. diff* isolation room

Blind Spot: Patient Hand Hygiene



A nice way of saying “eating poop”



References:

1. National Library of Medicine. StatPearls: Clostridioides difficile infection, 2024 [Internet]. [Cited 2026 Apr 6]. Available from [NIH](#)
2. McDonald CL, Gerding DN, Johnson S, Bakken JS, Carroll KC, Coffin SE, et al. Clinical Practice Guidelines for Clostridium difficile Infection in Adults and Children: 2017 Update by the Infectious Disease Society of America (IDSA) and Society for Healthcare Epidemiologists of America (SHEA). Clin Infect Dis. 2018;19;66(7).

Rapid Identification & Isolation



Rapid Identification & Isolation: Considerations



- ☐ Isolate at **1st unexplained loose stool**
- ☐ Collect on **3rd unexplained loose stool** in a 24hr period

Pro Tip: Loose stools do not need to be consecutive!

- ☐ Ensure **PPE** is donned/doffed properly
- ☐ **Limit transport** to medical necessity
- ☐ Isolate for **duration of stay**

Pro Tip: Do not perform test-of-cure

- ☐ **Develop workflows** for various disciplines entering *C. diff* patient rooms

References:

1. Gilboa M, Hourli-Levi E, Cohen C, Tal I, Rubin C, Feld-Simon O. Environmental shedding of toxigenic *Clostridioides difficile* by asymptomatic carriers: a prospective observational study. *Clin Microb and Infect.* 2020; 26, 1052-1057
2. Cohen SH, Gerding DN, Johnson S, Kelly CP, Loo VG, McDonald LC, et al. Clinical Practice Guidelines for Clostridium difficile Infection in Adults: 2010 Update by the Society for Healthcare Epidemiology of America (SHEA) and the Infectious Diseases Society of America (IDSA). *ICHE.* 2010; 31(5), 431-455.



CONTACT **PLUS** PRECAUTIONS



Use hand degermer before entering patient room.



Use soap and water to wash hands for 15 seconds after all patient care.



Wear gloves while in patient's room. Discard gloves in patient's room before leaving.



Wear a gown while in patient's room. Discard gown in the patient's room before leaving.



Use bleach wipes for routine cleaning of patient equipment and high touch surfaces.



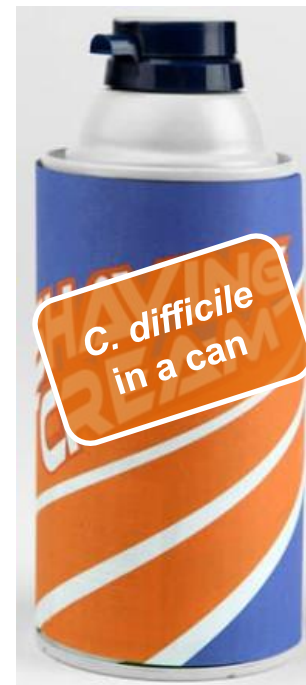
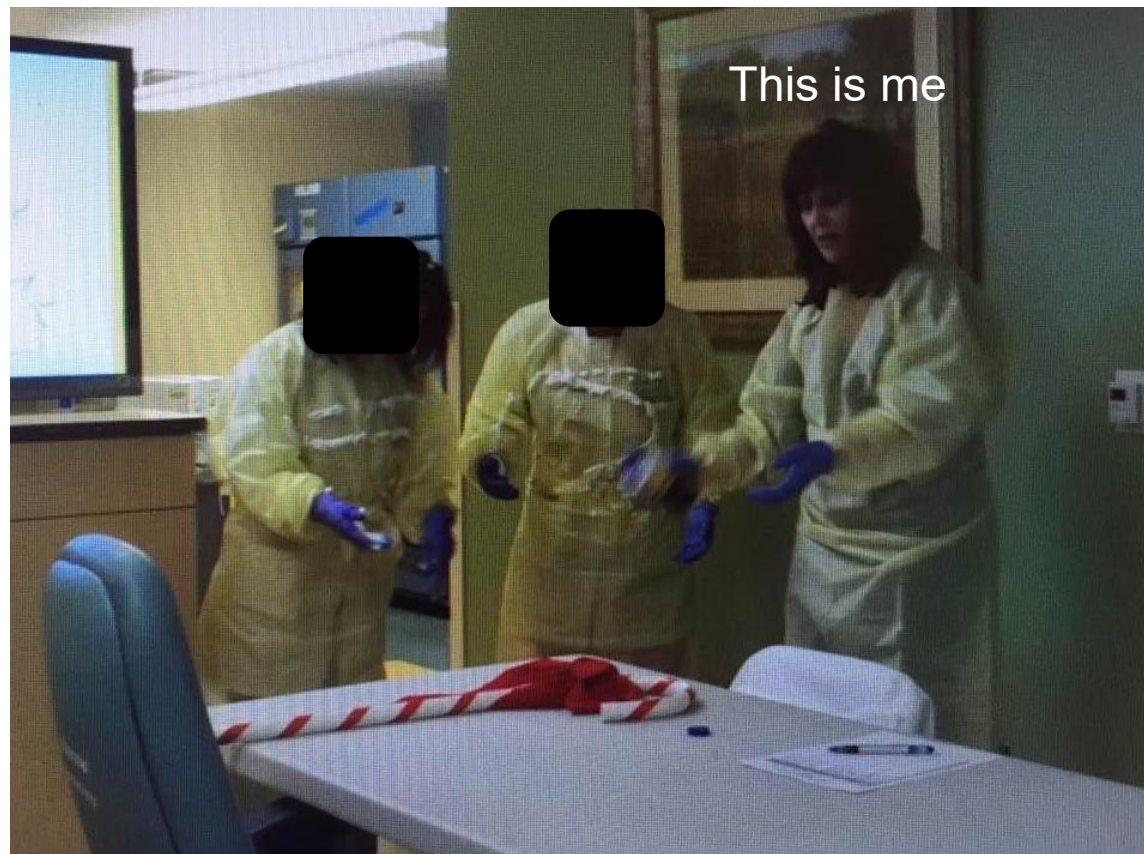
Proper PPE Donning/Doffing: Leveraging AI



AI “mirror” on a portable tablet

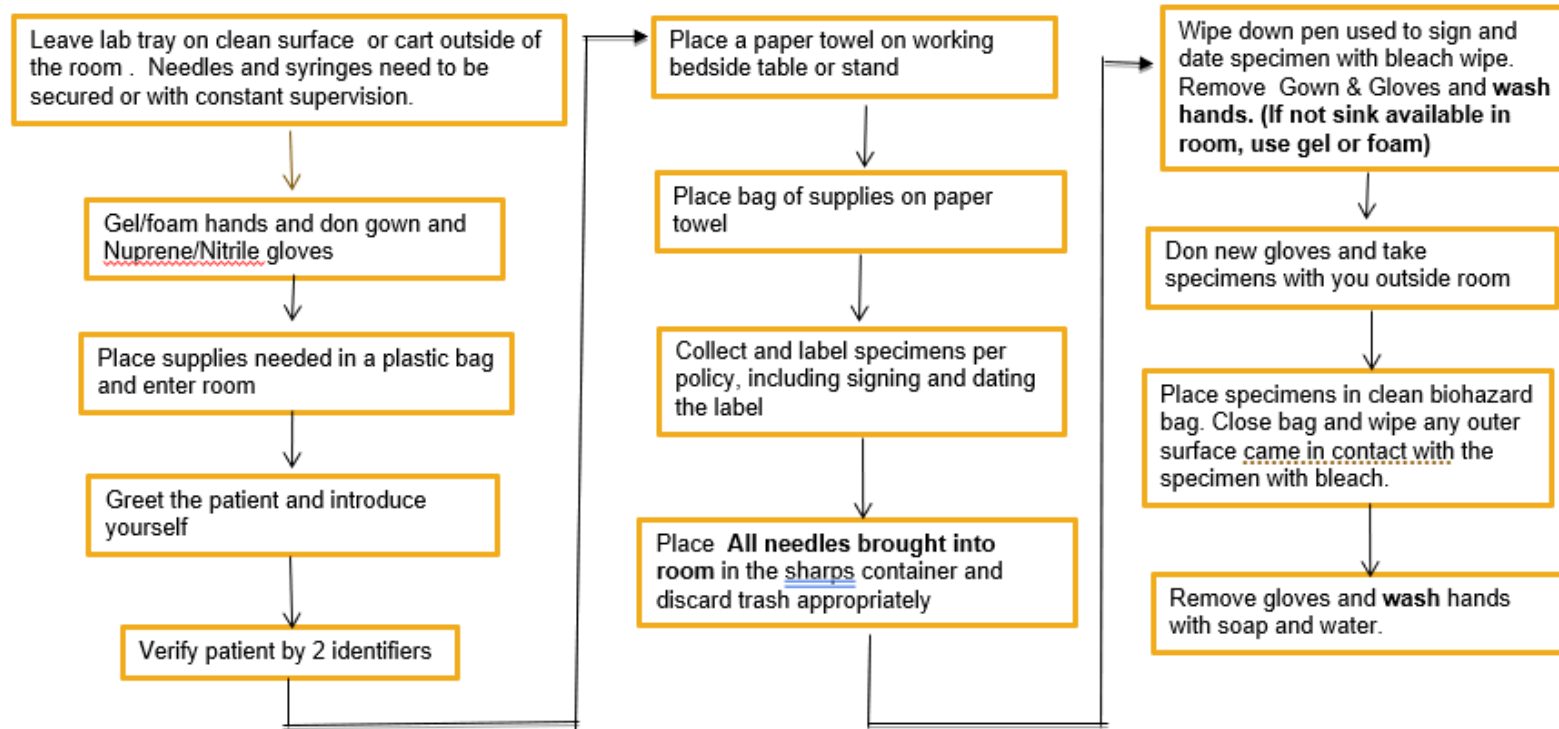


Pro Tip: PPE Donning/Doffing Training



Pro Tip: *C. diff* Workflows

Lab Draws for Enhanced Contact Precaution Rooms



Diagnostic Stewardship



Diagnostic Stewardship: A Decision Algorithm

STOP!

Explained loose stool (Do not test!)

In the prior 24hr did the patient have:

- Colon or small bowel surgery
- New tube feed start
- Bowel prep
- Enema
- Laxative
- Stool softeners
- Cation exchange resins (e.g., kaexalte, etc)
- Gastrografin

PROCEED

Unexplained loose stool (isolate on 1st loose, collect on 3rd)

Many medications and conditions can cause loose stools, but the following would be considered unexplained loose stools:

- Administration of antibiotics
- Crohn's Disease
- Diverticulitis
- Irritable bowel syndrome
- Presence of colostomy
- GI Bleed
- >24hr since any of the explained loose stool conditions.

Diagnostic Stewardship: Diarrhea Defined

Bristol Stool Chart	
Type 1	 Separate hard lumps, like nuts (hard to pass)
Type 2	 Sausage-shaped but lumpy
Type 3	 Like a sausage but with cracks on its surface
Type 4	 Like a sausage or snake, smooth and soft
Type 5	 Soft blobs with clear-cut edges (passed easily)
Type 6	 Fluffy pieces with ragged edges, a mushy stool
Type 7	 Watery, no solid pieces. Entirely Liquid



- Takes the shape of the container.
- “Poopsicle Test”: Does the stick stand or fall?
- No “fishing: specimen from toilet: specimen should not be mixed with urine.

Diagnostic Stewardship: Toxin Degradation



- Get specimen to the lab ASAP!
- **Toxin degrades** at room temp to undetectable **within 2hr** of collection.



Diagnostic Stewardship: Engage the Lab



Empower the Lab
to **reject**:

- non-loose stools
- compromised specimens
- test-for-cure specimens

Require **IP approval** to
process specimens
submitted on or after day 4





**Does your C. diff
program engage with the
lab beyond simply
performing the test?**

Diagnostic Stewardship: 2-Step Testing



2-Step Testing Results Interpretation		
<i>C. diff</i> Antigen (GDH) or Toxin Gene (NAAT PCR)	<i>C. diff</i> Toxin	Interpretation
+	+	<i>C. diff</i> positive
-	-	<i>C. diff</i> negative
+	-	Indeterminant result (may be colonization)
-	+	Indeterminant result (true CDI unlikely)

References:

1. Di Bella S, Sanson G, Monticelli J, Zerbato V, Principe L, Giuffrè M, Pipitone G, Luzzati R. *Clostridioides difficile* infection: history, epidemiology, risk factors, prevention, clinical manifestations, treatment, and future options. Clinical microbiology reviews. 2024; 37(2), e0013523. <https://doi.org/10.1128/cmr.00135-23>.
2. IDSA/SHEA. Clostridium difficile Infection in Adults and Children, updated Feb 2026 [Internet]. [cited 2026 Apr 13]. Available from [GuidelineCentral](https://www.guidelinecentral.com/guidelines/idsa-shea-clostridium-difficile-infection-in-adults-and-children).



Root Cause Drilldown



C. diff Drill Down Tool

DEMOGRAPHICS

ATTRIBUTION MONTH

(IF PREVIOUS ADMISSION, THIS DATE IS DISCHARGE DATE OF MOST RECENT ADMISSION WITHIN 4 WEEKS)

PATIENTS PHOTO HERE

MRN

LAST NAME

FIRST NAME

AGE

SEX

ADMITTING DIAGNOSIS

DATE/TIME ADMIT

PRIOR ADMISSION DATES IN P

DIAGNOSIS FOR THAT HOSPITAL

DISCHARGE DISPOSITION FOR

STAY



INFECTION PREVENTION REVIEW

1. DATE/TIME OF C DIFF (+)

2. NHSN UNIT OF ATTRIBUTION FOR PUBLIC REPORTING

(SEE CRITERIA AT BOTTOM OF THIS TOOL)

3. UNIT OF C. DIFF ACQUISITION (ACCOUNTABLE UNIT)

(UNIT PATIENT WAS ON 72HR PRIOR TO DIARRHEA ONSET - COUNT BACK FROM 1ST UNEXPLAINED LOOSE STOOL - SEE #3 ABOVE)
(SEE CRITERIA AT BOTTOM OF THIS TOOL)

4. IF COLLECTED BEFORE STOOL #3 WAS IT BECAUSE PT C/O LOOSE STOOLS AT HOME PRIOR TO ADMISSION?

5. DATE/TIME OF 1ST UNEXPLAINED LOOSE STOOL

6. DATE/TIME OF 2ND UNEXPLAINED LOOSE STOOL

7. DATE/TIME OF 3RD UNEXPLAINED LOOSE STOOL

(Any loose or liquid stool documented within 1 hour of the specimen being sent will be considered the third stool)

8. DATE/TIME OF C. DIFF AG/TOXIN ASSAY ORDER RELEASED

NURSING REVIEW

****Ensure that responses reflect**

40. NHSN UNIT OF ATTRIBUTION FOR PUBLIC REPORTING

(SEE CRITERIA AT BOTTOM OF THIS TOOL)

41. UNIT OF C. DIFF ACQUISITION (ACCOUNTABLE UNIT)

(UNIT PT ON 72HR PRIOR TO DIARRHEA ONSET - COUNT BACK FROM 1ST UNEXPLAINED LOOSE STOOL - SEE #3 ABOVE)
(SEE CRITERIA AT BOTTOM OF THIS TOOL)

42. DATE/TIME OF (+) C. DIFF RESULT

43. ANSWER YES OR NO: IS THE CASE ACQUIRED: WAS THE POSITIVE C. DIFF RESULT ON OR AFTER **CALENDAR** DATE OF ADMISSION? IF YES, THE CASE IS HO ACQUIRED.

44. ANSWER EXPLAINED OR UNEXPLAINED THE STOOL UNEXPLAINED BASED ON C. DIFF ALGORITHM.

(NOTE: IF NONE OF THE CRITERIA IN STOP SIGN BELOW MET, THEN THE DIARRHEA IS CONSIDERED UNEXPLAINED)



PHARMACY REVIEW

69. WAS THE PT PUT ON ANTI-DIARRHEAL MED DURING THIS ENCOUNTER (Y/N)?

70. DID PT RECEIVE ORAL OR IV ANTIBIOTICS WITHIN 30 DAYS PRIOR TO POSITIVE C DIFF?

71. IF YES, PLEASE LIST ALL ANTIBIOTICS GIVEN BEFORE C. DIFF DX (DRUG, DOSE, DATES GIVEN, INDICATION)

72. FOR EACH INDICATION, WAS THERE A MATCHING CULTURE (TO HELP DRIVE ANTIBIOTIC SELECTION)?

73. WAS THE ANTIBIOTIC SELECTION(S)



C. diff Drilldown Spreadsheet



			Nursing Process			EVS Process	
Month Identified	Attributable Unit	Hospital or Community Onset	Explained or unexplained loose stool	Isolated on 1st loose stool?	Collected on 3 rd loose stool	Sporicidal used	Average ATP score pass rate for the month (target $\geq 90\%$)
Jan	ICU	HO-CDI	Unexplained	Yes	Yes	Yes	92%
Feb	Med-Surg	HO-CDI	Explained	Yes	Yes	No	72%
Feb	Med-Surg	HO-CDI	Explained	No	No	No	76%
Feb	Med-Surg	HO-CDI	Unexplained	No	No	Yes	74%
Mar	Tele	CO-CDI	Unexplained	Yes	Yes	Yes	95%

****Table is over-simplified for illustrative purposes****

To receive my drilldown tools, send an email to doe.kley@clorox.com



C. diff Drilldown Spreadsheet



			Nursing Process			EVS Process	
Month Identified	Attributable Unit	Hospital or Community Onset	Explained or unexplained loose stool	Isolated on 1st loose stool?	Collected on 3 rd loose stool	Sporicidal used	Average ATP score pass rate for the month (target $\geq 90\%$)
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Feb	Med-Surg	HO-CDI	Explained	No	No	No	76%
Feb	Med-Surg	HO-CDI	Unexplained	No	No	Yes	74%
Mar	Tele	CO-CDI	Unexplained	Yes	Yes	Yes	95%

****Table is over-simplified for illustrative purposes****

To receive my drilldown tools, send an email to doe.kley@clorox.com



A Focus on Cleaning & Disinfection



Blind Spots in Disinfectant Selection



- Use a sporicidal disinfectant from [EPAs List K](#).
- Isolation signage should state which disinfectant to use.
- Include contact time on isolation signage.
- Stock sporicidal disinfecting wipes in isolation carts.
- Audit isolation rooms (right wipe on the wall).
- Nursing should not remove the isolation sign at discharge.



CONTACT **PLUS** PRECAUTIONS



Use hand degermer before entering patient room.



Use soap and water to wash hands for 15 seconds after all patient care.



Wear gloves while in patient's room. *Discard gloves in patient's room before leaving.*



Wear a gown while in patient's room. Discard gown in the patient's room before leaving.



Use bleach wipes for routine cleaning of patient equipment and high touch surfaces. Contact time: 3 min

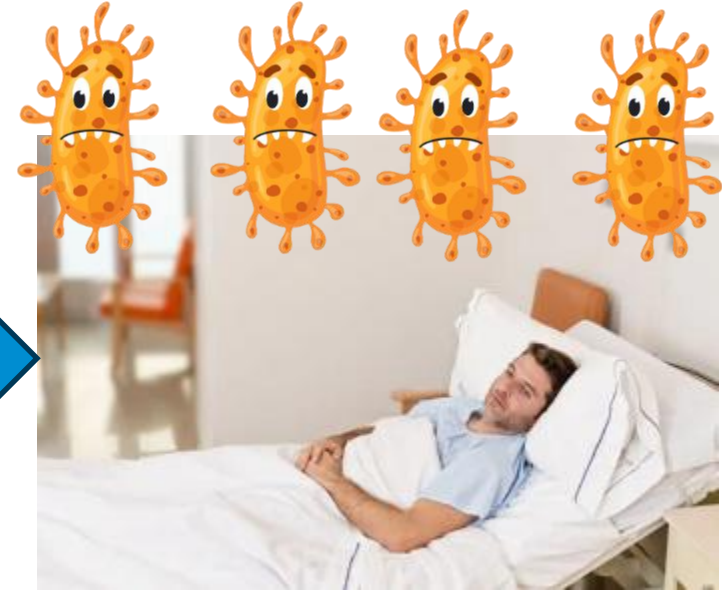


Blind Spot: The Risk to the Next Patient



C. diff patient

4-fold CDI risk
for next patient



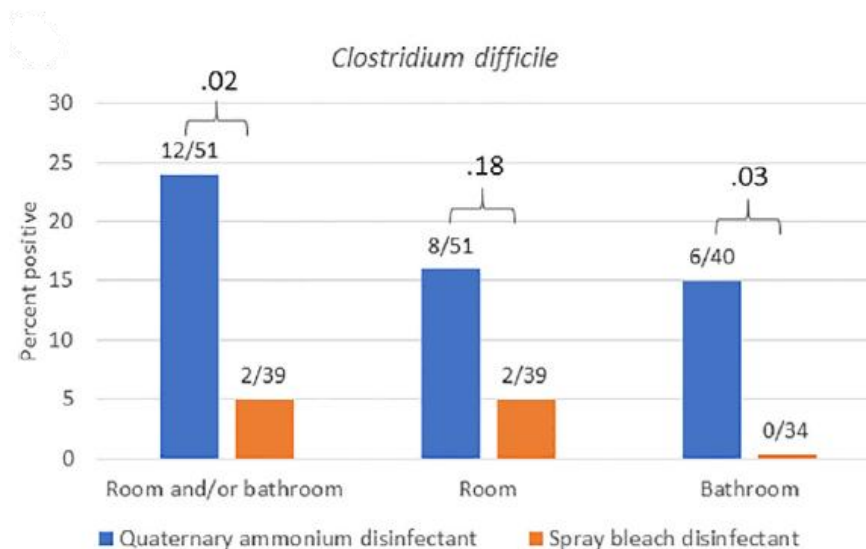
Next patient to occupy the room

Reference: Mitchell B, McDonagh J, Dancer S, Ford S, Sim J, Sultanmuhammed BT. Risk of organism acquisition from prior room occupants: An updated systematic review. *Infect Dis Health*. 2023 Nov;28(4):290-297.



Impact of bleach disinfectant for all discharge cleans

C. diff from surfaces in non-*C. diff* rooms was **reduced from 24% to 5%** when **bleach** was used for all discharge cleans.



Reference: Wong YKN, Alhmidi H, Mana TSC, Cadnum, JL, Jencson AL, Donskey, CJ. Impact of routine use of a spray formulation of bleach on *Clostridium difficile* spore contamination in non-*C. difficile* infection rooms. AJIC. 2019 Jul;47(7):843-845



**Does your facility currently perform
sporicidal disinfection of ALL patient
rooms (not just C. diff isolation rooms) at
discharge?**

Blind Spot: Dilutable Disinfectants

107 automated dispensers tested



49% had correct dilution



51% had too high or too low dilution, or no disinfectant

80 in-use disinfectants tested



61% had correct dilution



39% had too low dilution, no disinfectant, or the wrong disinfectant

Key Findings

- ▶ None of the hospitals reported routine monitoring of disinfectant dispensers
- ▶ 9 of 10 hospitals had 1 or more systems dispensing lower-than-expected disinfectant concentrations
- ▶ 8 hospitals had dispensers that delivered product with no detectable disinfectant
- ▶ Approximately 27% of all automated dispensers delivered product with lower-than expected disinfectant concentrations
- ▶ 14% of all dilution systems contained no detectable disinfectant

Takeaways

- Dispensing machines need oversight and consistent checks for accuracy.
- Consider **ready-to-use disinfectants** as a less error-prone alternative.

C. diff Blind Spots: Cleaning Process

- ❑ Is a **2-step cleaning and disinfection process** in place?¹
- ❑ Are isolation rooms being cleaned **twice daily**?²
- ❑ Is **EVS cleaning equipment being disinfected** (e.g., mop handles, etc) before returned to the EVS cart?
- ❑ Are **clinical staff** using the correct (e.g., sporicidal) disinfecting wipe?
- ❑ Is **mobile/portable medical equipment** being *consistently* cleaned between patients?
- ❑ Are **cleaning responsibilities** outlined?



Common high-touch surfaces around the bed space

References:

1. EPA. Methods and Guidance for Testing the Efficacy of Antimicrobial Products Against Spores of C. diff on Hard Non-Porous Surfaces, Sept 2022 [Internet]. [Cited 2026 Apr 14]. Available from [EPA](#).
2. CDC. HAIs: Environmental Cleaning Procedures, Table 25 [Internet]. [cited 2026 Apr 14]. Available from [CDC](#).

Pro Tip: Cleaning Responsibility Grids



CLEANING RESPONSIBILITY GRID

"Because if it's everyone's responsibility, it's no one's responsibility"

DEPT: _____

WHAT	WHEN	WHO	HOW	
ITEM	CLEANING FREQUENCY	RESPONSIBLE DISCIPLINE	APPROVED DISINFECTANT (& CONTACT TIME)	EQUIPMENT MANUFACTURERS IFU'S
Mobile vital signs machine	After each patient, when visibly soiled, any time in doubt	Nursing assistant	Product X at 1 min	 Cleaning instructions.docx
IV Pump	At discharge	EVS	Product Y at 2 min	 Cleaning instructions.docx

Dept Manager: _____

Date: _____

EVS Manager: _____

Date: _____



Blind Spot: Mobile/Portable Medical Equipment



Clinical staff also have cleaning responsibilities!

- Only **16%** of mobile equipment was cleaned between patients.
- **36%** of the time, this equipment moved *directly* into another patient room.

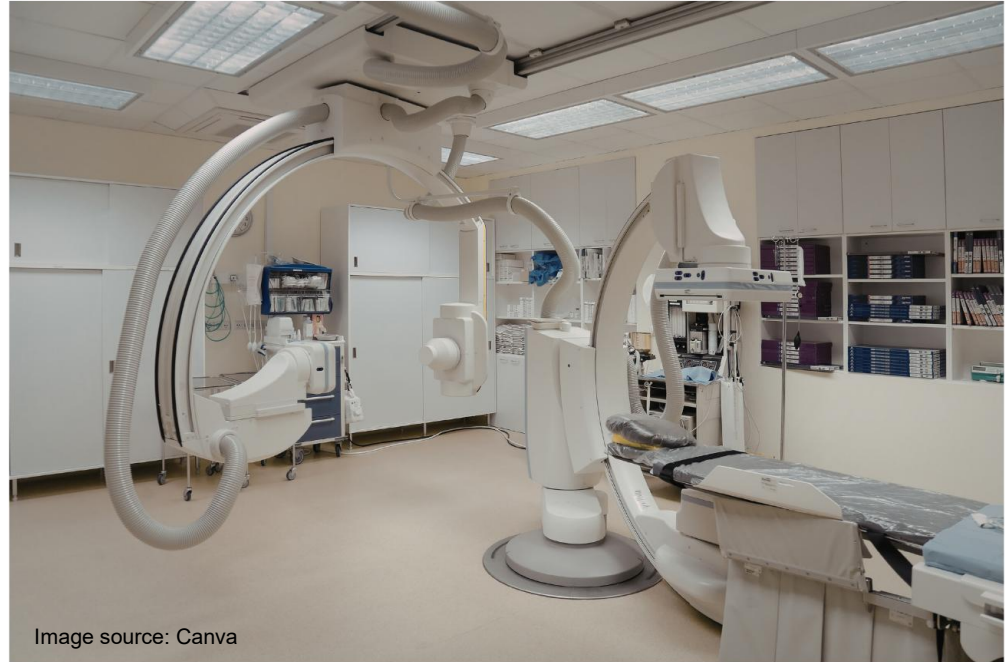


"You touch it or move it, you clean it!"

Blind Spot: Not Enough Focus on Ancillary Areas

Ancillary Depts

- Do they have PPE?
- Is PPE donned/doffed correctly?
- Do they have sporicidal disinfecting wipes readily available?
- Do staff know/adhere to the contact time?
- Do staff know to wash hands with soap and water?
- Where is the nearest sink?
- *directly* into another patient room.



What About Walls in *C. diff* Rooms?



There is **no requirement or reco** beyond the minimum:

- Spot clean as needed
- Clean walls per a set schedule (e.g., weekly, monthly).

Rationale:

- Walls are a **low-touch surface** – low risk for soiling/contamination
- No epi links to walls in the literature.



What about UV as an adjunct?



Study Findings

UV-C and PX-UV did not significantly reduce *C. diff* contamination after bleach cleaning

CFUs showed no significant difference
Floors and chair arms showed the most contaminated sites

Key Takeaways

UV did not improve outcomes when used in conjunction with viricidal bleach

Shadowing and room layout likely limit UV reach in real-world settings.

Adding UV was no better than bleach alone at reducing *C. diff* contamination

Blind Spot: Standardized Cleaning Process



EVS PROTOCOL & CHECKLIST	
Check (✓)	Preparing the Room for Cleaning:
	1. Take any patient belongings that may have been left behind to Nurses station.
	2. Place "Room Closed for Cleaning" sign in entry way (to keep others from entering during cleaning).
	3. Perform hand hygiene and put on PPE (gloves and gown).
	4. Discard non-cleanable items per facility protocol. Examples: a. Disposable pillows (including those in the closet) b. Unused Nursing supplies (e.g., dressings, EKG pads, etc.) c. Paper products (e.g., toilet paper, paper towels, toilet seat covers, etc.) d. Opened boxes of gloves e. Dry erase marker and eraser
	5. Place linens (soiled or clean) and privacy curtain in the linen hamper.
	6. Remove trash, red bag waste and linens from room. Clean and disinfect the receptacles.
	7. Remove gloves and wash hands with soap and water. Put on new gloves.
	8. Reline trash/linen hamper with new bags.
Cleaning & Disinfecting Steps: Two steps are required to clean a C. diff room (even if using a 1-step cleaner disinfectant). Step 1 (cleaning): Use a detergent or any EPA-registered healthcare-grade cleaner disinfectant. Step 2 (disinfection): Use a sporicidal disinfectant (such as bleach). For both steps, clean in a methodical manner. Best Practices: ▶ Clean in a clockwise or counter-clockwise fashion around the room ▶ Clean from high to low ▶ Move from cleaner to dirtier surfaces	
	9. Complete high dusting using a dampened microfiber cloth or ready-to-use disinfecting wipes.
	10. Vertical spaces: a. Clean/Disinfect all items located on the walls (light switches, TV, etc.). b. Spot clean walls, baseboards, doors, windows and ceilings as needed.
	11. Clean/Disinfect all furniture and horizontal surfaces. Examples: chairs, bedside tables, computers on wheels, window sills, etc.
	12. Clean/Disinfect bed area, mattress (top and bottom), bed rails x 4, head and foot board, frame, over-bed table, nurse call device/cords, telephone and cords.
	13. Clean/Disinfect patient equipment to remain in the room, including thermometer, IV pole, IV pump, walker and pulse ox probe.
	14. Clean/Disinfect all cords and monitor wires. Coil neatly to keep off floor.

Check (✓)	Restroom:
	15. Discard any remaining paper products (toilet paper, paper towels, tissue, toilet seat covers).
	16. Clean/Disinfect high-touch surfaces, including lights, soap dispenser, paper towel dispenser, toilet seat cover dispenser, toilet paper roll cover, etc.
	17. Clean/Disinfect all surfaces, including sink, fixtures, storage cubby, grab bars, pull cord, toilet handle, bedpan sprayer arm, shower walls and faucet handles.
	18. Clean/Disinfect commode chair/bucket.
	19. Clean/Disinfect toilet bowl and under rim with toilet brush. Discard toilet brush upon completion.
	20. Mop shower floor.
	21. To prevent <i>Legionella</i> growth, allow hand-held shower head and wand to hang in a downward position to drain any standing water.
	22. Clean mirror with glass cleaner.
	23. Remove all PPE and wash hands with soap and water. Put on new PPE.
Check (✓)	Complete Room Preparation:
	24. Refill soap and hand sanitizer dispensers; replace paper products, bath linens and boxes of gloves.
	25. Hang new privacy and shower curtain.
	26. Make bed.
Check (✓)	Floor Care:
	27. Dust/Mop floor.
	28. Post "Wet Floor" sign.
	29. Mop floor using microfiber mop beginning at far corner of the room, under bed and then moving toward the bathroom and the door.
Check (✓)	Finishing Steps:
	30. Clean/Disinfect reusable EVS equipment that will be brought out of room (mop handle, ladder, etc.).
	31. Remove PPE and wash hands with soap and water before exiting room.
	32. Discard bucket of disinfectant and mop water. Replace mop head.
	33. Perform quality monitoring (e.g., ATP, etc.) per facility policy.
	34. Perform adjunct disinfection (e.g., UV or electrostatic disinfection) per facility policy.

Available at [CloroxPro.com](https://www.cloroxpro.com)





Which EPA List should you use to find EPA-registered sporicidal disinfectants?



**For C. difficile, the EPA
requires a 2-step
cleaning and disinfection
process.**



**Staff often fail to disinfect
mobile and shared
medical equipment
between patients.**



Additional Resources



C. diff Resource List



- ❑ [Strategies to prevent CDI in acute-care hospitals: 2022 Update](#) [SHEA/IDSA/Joint Commission]
- ❑ [Clinical Guidance for *C. diff* Infection Prevention in Acute Care Facilities](#) [CDC]
- ❑ [CDI Implementation Guide: Links to Resources](#) [CDC].
- ❑ [*C. diff* Toolkit for Long-Term Care Facilities, 2024](#) [Minnesota Dept of Health]
- ❑ [APIC Text: *Clostridioides difficile* and Pseudomembranous Colitis](#) [APIC – with subscription]



Pathogen Education Sheet



Clostridioides difficile Pathogen Education Sheet



Overview



The *Clostridioides difficile* ("C. diff") bacterium is the leading cause of antibiotic-associated diarrhea or C. diff Infection (CDI), which can be life-threatening.¹ CDI is associated with increased length of hospital stay, costs, morbidity, and mortality.² Each year in the US, C. diff causes >450,000 infections and 12,000–30,000 deaths.³ Attributable costs of inpatient CDI in 2025 dollars are estimated to be as high as \$23,632⁴ per episode.⁵ Persons at highest risk for CDI are those exposed to antibiotics, had a lengthy healthcare stay, are elderly, or have underlying serious illness.⁶ While it is the most common healthcare-associated infection (HAI), it is increasingly diagnosed within community settings.^{1,7} Early identification and implementation of infection prevention and control measures are crucial for containment.¹ Contaminated surfaces and medical equipment in healthcare facilities can be reservoirs for C. diff spores which can survive for extended periods.¹ Robust cleaning and disinfection using a sporicidal disinfectant from EPA's List K is critical to reduce transmission.¹

About the Pathogen & Infection Control Measures

Infectious Agent (Pathogen)	Agent Type: Bacteria Synonym(s): <i>C. diff</i> Characteristics: Gram-positive toxin-producing spore-forming bacterium; obligate anaerobic bacillus.	Taxonomy: ► Family: <i>Peptostreptococcaceae</i> ► Hypervirulent Strain: NAP1/027 ► Genus: <i>Clostridioides</i> ► Species: <i>difficile</i>
Infectious Characteristics Definitions: ► Infectious dose —number of organisms necessary to cause disease. ► Incubation period —the time from exposure to infection w/symptoms. ► Period of communicability —time when a pathogen can be transmitted from one person to another. ► Mortality rate —the number of deaths due to a disease divided by the total population.	Risk factors: Infectious dose: Incubation period: Communicable period: Signs & symptoms: Duration of illness: Severity of illness and Mortality Rate:	Antibiotic exposure, gastrointestinal surgery/manipulation, long healthcare stays, serious underlying illness, immunocompromising conditions, advanced age. ⁴ Considered to be very low, potentially less than 10 spores. ⁵ Not clearly defined. Until 48hr after diarrhea resolves. ⁸ Watery diarrhea (≥3 loose stools a day for several days), fever, nausea, loss of appetite, and abdominal pain or tenderness. ⁴ Varies. Initial symptoms often improve within days of starting appropriate antibiotic treatment. Complete clearance can take 1–2 weeks. Recurrence is common. ⁴ Ranges from asymptomatic (colonization) to diarrhea and colitis to life-threatening illness. ¹ 30-day mortality rates for hospitalized patients range from 6% to 15%.
Reservoir: where a pathogen normally lives and grows (e.g., humans, water, etc.)	C. diff is a human pathogen shed in the feces of colonized or infected persons. Any surface, device or material that becomes contaminated with feces could serve as a reservoir for the C. diff spores. ⁴	
Mode(s) of Transmission How the Infection Spreads	Oral-fecal route, meaning people get infected by ingesting the bacteria or its spores after touching contaminated surfaces or objects. C. diff spores can be transmitted by unclean hands of healthcare workers. ⁴	
Survival Time on Surfaces	C. diff spores can survive on surfaces for prolonged periods (up to 5 months). ⁴	
Immunization/Prophylaxis/Treatment	There is no vaccine for C. diff, although multiple vaccine candidates are in development. Treatment is typically a 10-day course of appropriate antibiotics (e.g., oral vancomycin or fidaxomicin). For persistent CDI, fecal microbial transplantation (FMT) may be recommended. ^{1,9}	
Infection Control Measures for Healthcare Settings¹	► Isolation Precautions: Contact Precautions, single patient room (ok to cohort CDI patients together), dedicated toilet/patient care equipment. Continue precautions until 48hr after diarrhea has resolved (alternatively, continue for duration of stay). ► PPE: Gown and gloves ► Hand Hygiene: Gel in, wash out	► Patient Transport: Limit to only medically necessary. Clean cover gown on patient. Notify the receiving dept or facility. ► Linens: Handle per routine; Standard Precautions. ► Waste management: per routine ► Other: Bathe patient daily
Cleaning & Disinfection	For all cleaning and disinfection opportunities, follow a 2-step process using an intermediate-level sporicidal disinfectant (EPA List K). Perform occupied room cleaning and disinfection of Contact Precautions rooms twice daily with special attention to high-touch surfaces. Clean and disinfect all shared equipment before use on another patient. Clean and disinfect other areas visited by the patient like radiology, ED, and physical therapy. ^{10,11}	



Other C. diff Tools



- ☐ Drilldown tool
- ☐ Line list
- ☐ C. diff Workflows
- ☐ Cleaning Responsibility Grid
- ☐ C. diff room cleaning protocol/checklist

Email requests to
doe.kley@clorox.com





Closing



Key Takeaways

The epidemiology of *C. diff* has changed.

Small operational delays create big transmission risks.

Environmental cleaning excellence matters.

Practical tools were shared to close the gap.

Questions?



FRAGILE

How do you handle
metronidazole?

Carefully... because it's
Flagyl!



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