Utah Department of Health & Human Services

Clostridioides difficile (C. diff)

Disease plan

Quick links

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Questions about this disease plan?

Contact the Utah Department of Health and Human Services Office of Communicable Disease: 801-538-6191.

Critical clinician information

Clinical evidence

Clostridioides difficile (*C. diff*), formerly known as Clostridium difficile, is a bacterium that can cause diarrhea and colitis. *C. diff* infections (CDI) can cause serious illness and be life-threatening. However, sometimes *C. diff* can be present in the gastrointestinal tract of people who are not sick and require no treatment. This is called colonization.

Signs and symptoms of CDI

- Watery diarrhea (3 or more loose stools per day for 2 days or more)
- Fever
- Loss of appetite
- Nausea
- Abdominal pain/tenderness

Possible complications of CDI

- Pseudomembranous colitis (PMC)
- Toxic megacolon
- Sepsis
- Perforations of the colon
- Death

Period of communicability

- The period of communicability is unknown and variable, but, since there is evidence that the *C. diff* organism continues to be shed in the stool beyond symptom resolution, many facilities continue contact precautions for the duration of the stay.[1]

Incubation period

- The incubation period is not well defined, but research suggests an incubation period of about 7 days with a median of 2 to 3 days.[1]

Mode of transmission

- *C. diff* is shed in stool and primarily spread by the fecal-oral route or via rectal thermometer use.
- *C. diff* bacteria produce spores that can survive and persist for as long as 5 months on environmental surfaces and medical equipment. Therefore, contaminated hands of healthcare personnel can contribute to *C. diff* transmission in healthcare facilities.

Laboratory testing

Type of lab test

Various methods used to detect *C. diff*:

- Polymerase chain reaction (PCR) and molecular tests (FDA-approved) assays which test for the gene encoding toxin B) are highly specific and sensitive.
- Toxigenic culture was previously considered the gold-standard, but has a slow turn-around time and is less sensitive than PCR and molecular tests.
- Antigen detection of *C. diff* is non-specific, but is often used with PCR testing for toxin detection in a two-step algorithm.
- Toxin testing for *C. diff.*

Timing of specimen collection and testing:

- Ideally, *C. diff* testing should be performed within 2 hours after collection or the samples should be refrigerated until they can be tested. This is because *C. diff* toxin degrades at room temperature in as short as 2 hours.
- The sudden onset of 3 or more diarrheal stools in a patient (who is not receiving laxatives) within a 24-hour period provides sufficient grounds to alert a facility to collect a stool sample for *C. diff* testing.[2]

Type of specimens

- Unformed or liquid stools are suitable for *C. diff* testing.
- In general, hard and formed stool samples are not suitable for *C. diff* testing and should be rejected and excluded from testing.
- Most *C. diff* tests require fresh, unpreserved stool. However, some contemporary PCR testing methods, such as the *GI FilmArray*®, use stool preserved in Cary Blair transport media.

Treatment recommendations

Type of treatment

- Preferred antibiotic treatment for primary CDI are vancomycin or fidaxomicin. Metronidazole is not FDA approved for CDI, but may be used for mild cases. Repeat testing is not recommended once symptoms have resolved as some patients remain colonized.
- CDI recurs in about 20% of antibiotic-treated patients. Stool transplant, which is the transfer of stool from a healthy donor to the colon of the recipient, appears to be an effective long-term treatment for patients with recurrent CDIs.[3]

Time-period to treat

- Antibiotics used to treat CDI should be given orally and continued for at least 10 days.

Prevention

- People who have taken antibiotics in the past 30 days are 7-10 times more likely to get a CDI.[4]
- Broad spectrum antibiotics, such as fluoroquinolones, carbapenems, and 3rd or 4th generation cephalosporins, are especially linked to CDI risk.[5]
- Antimicrobial stewardship programs that optimize antibiotic prescribing can reduce CDI rates.[5]

Infection control procedures

Case management

- Healthcare workers should wear gloves and a gown for all encounters with *C. diff* patients. Gloves are important because hand sanitizer does not kill *C. diff* and handwashing might not be enough by itself to eliminate all *C. diff* spores from hands.
- Perform hand hygiene when you take off your gloves.[6] Vigorous handwashing with soap and water is more effective at removing *C. diff* spores than alcohol-based hand rub.
- The CDC recommends isolation in a private room using contact precautions in addition to standard precautions for the duration of the illness.[7] Cohorting multiple CDI patients in a shared room is not recommended as this may cause recovering patients to become reinfected due to the ongoing exposure to infectious persons.[8] Many facilities continue isolation for several days following symptom resolution or until patient discharge because *C. diff*-infected patients continue to shed organism for a number of days following resolution of diarrhea.[3]
- Healthcare workers and food handlers with CDI are considered high-risk for spreading the disease and should be excluded from work for at least 24-48 hours after symptoms resolve.

Environmental cleaning and disinfection

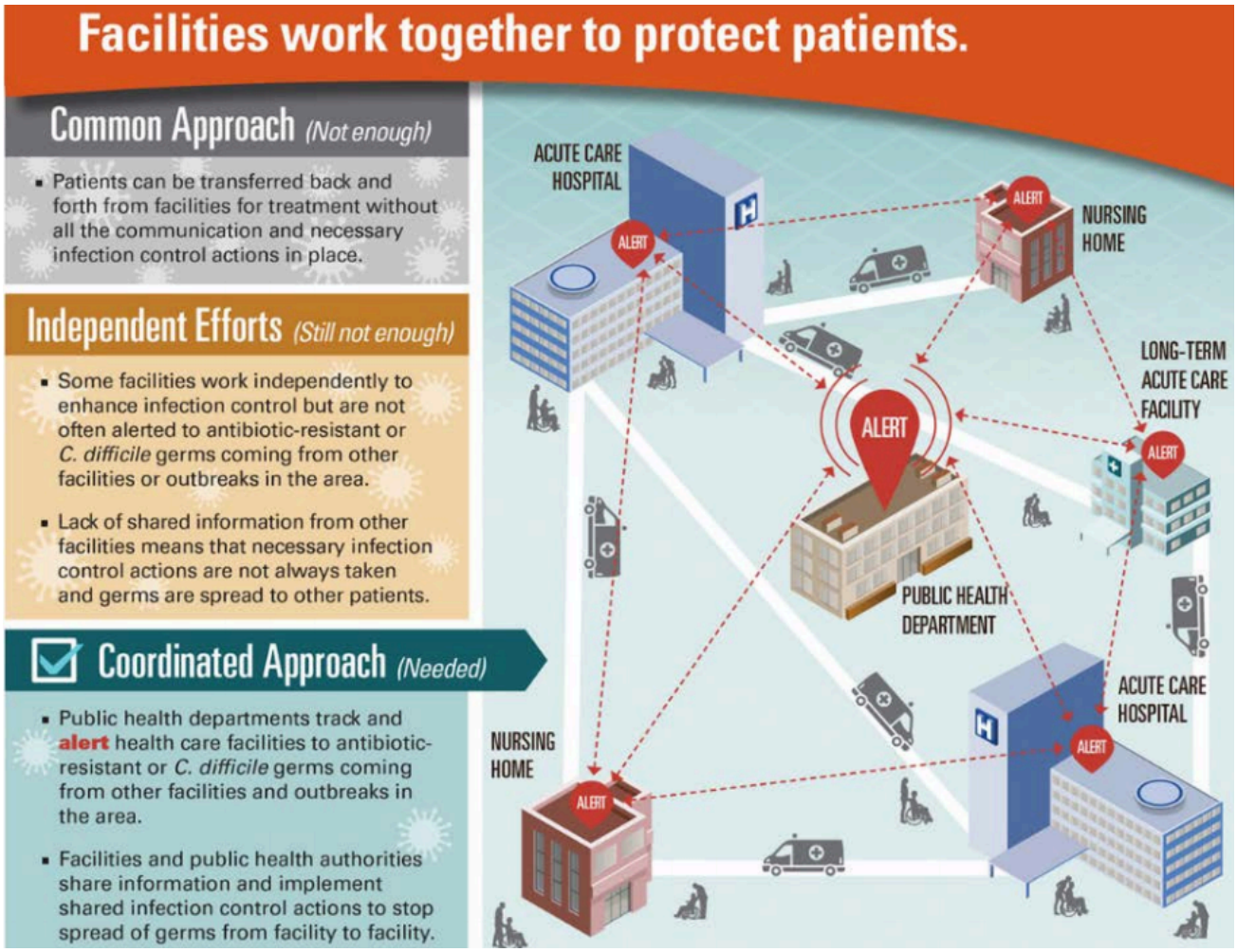
- *C. diff* spores can last in the environment for up to 5 months. High-touch surfaces and bathrooms should be cleaned daily and when soiled. Shared patient equipment should be cleaned and disinfected between each use.
- Patient rooms should be thoroughly cleaned and disinfected before you discontinue contact precautions or upon patient discharge and before new occupancy (terminal cleaning) with EPA-approved List K cleaning products effective against *C. diff* spores;CDC environmental checklist for monitoring terminal cleaning.
- Guidelines for environmental infection control in healthcare facilities say you should launder linens according to CDC and CMS regulations (minimum temperature of 160℉ for at least 25 minutes). Chlorine bleach may be added for enhanced safety. In community settings to prevent spread, CDI patients should be instructed to thoroughly rinse clothing or linens visibly soiled with stool prior to washing and to use the hottest wash setting available.

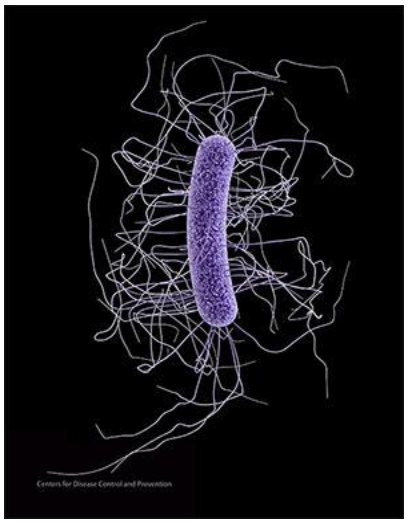
Why is *C. diff* important to public health?

CDIs are the most common healthcare-associated infection. In the US, CDIs account for more than 200,000 hospitalizations, 12,000 deaths, and 1 billion dollars in additional healthcare costs each year. More than 80% of CDI deaths occur in people aged 65 or older.[9] Most CDI cases occur after the person takes broad spectrum antibiotics, and often during or soon after an inpatient stay in a healthcare facility or nursing home. Broad spectrum antibiotics kill much of the existing bacteria in the gut which allows the *C. diff* bacteria to thrive and cause infection. Recent studies conducted by the Centers for Disease Control and Prevention (CDC) have shown that a 30% decrease in broad spectrum antibiotic use could reduce the CDI rate by more than 25% in hospitalized patients.[10] Since 2011, healthcare-associated CDI rates have declined but community-associated cases have not.[9] Improved focus on antimicrobial stewardship has likely contributed to decreased CDIs in healthcare settings.

Use of gloves followed by hand hygiene has been identified as the most important action to prevent spread of CDI in health care settings. Communication of patients' CDI status between facilities is essential upon transferring patients with active CDI between healthcare facilities. In addition to calling in a verbal report, the sending facility should give the receiving facility documentation of the CDI diagnosis and appropriate precautions, using the Utah Infection Control Transfer Form. Medical transport staff should also be appropriately instructed regarding infectious status and necessary precautions. Healthcare facilities should also alert public health if there is a CDI facility outbreak or when education or resources are needed. Communicating patient CDI status upon patient transfer is critical to prevent transmission of *C. diff* between healthcare facilities.

Figure 1. Outline of an interconnected facility approach to CDI prevention and containment that highlights the central role of public health[11]





Disease and epidemiology

Clinical description

CDI typically presents with symptoms of nausea, watery diarrhea, malaise, fever, and abdominal pain. In fact, 3 or more diarrheal stools within a 24-hour period should provide high suspicion for CDI in a person who is not receiving laxatives and provide a facility alert for patient testing.[2] Dehydration is a common complication especially among elderly and immunocompromised hospitalized patients. Furthermore, secondary and more serious disease complications of CDI include, but are not limited to: pseudomembranous colitis (PMC), toxic megacolon, sepsis, perforations of the colon, and even death.[7]

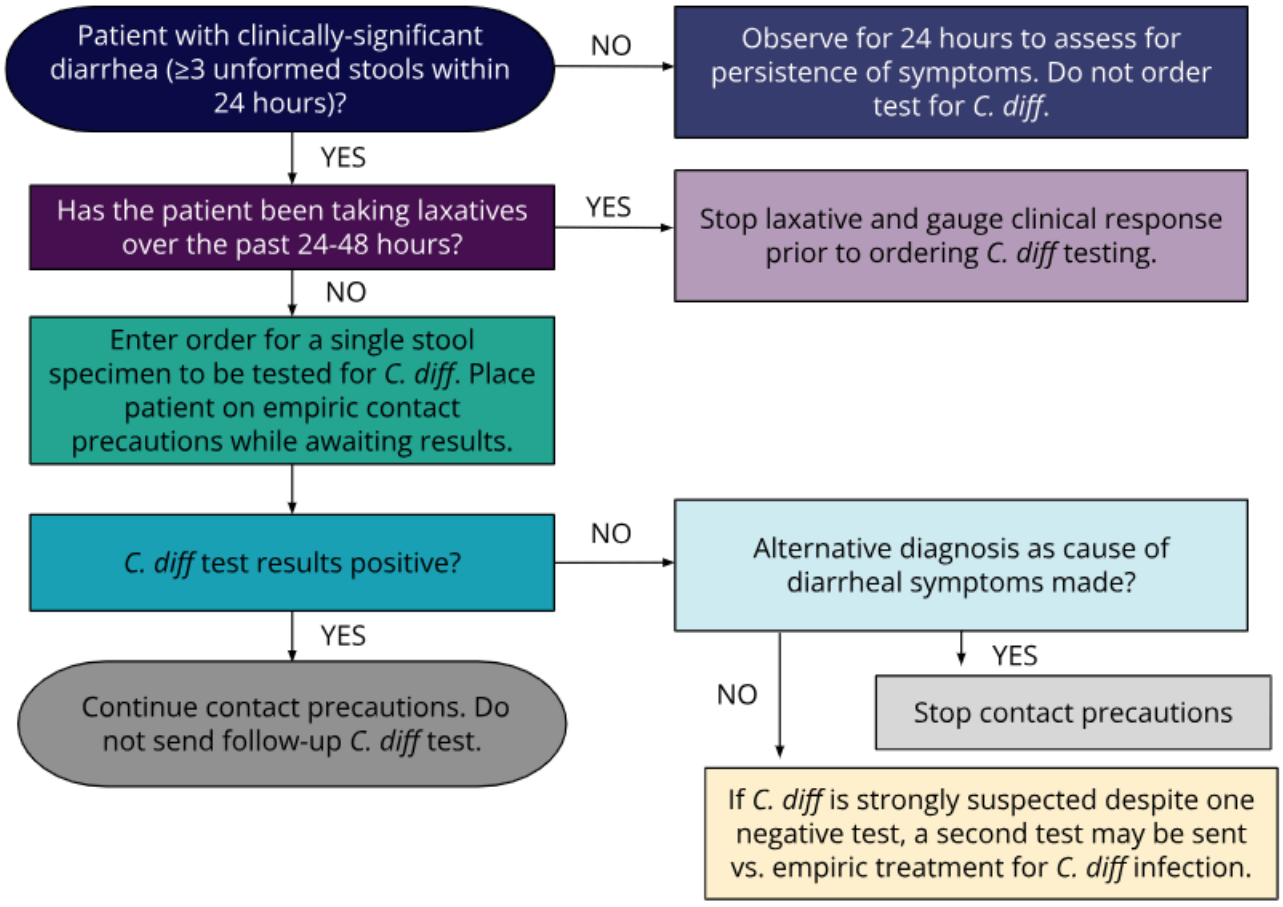
Causative agent

C. diff bacteria are anaerobic gram positive bacilli that produce spores. Spores can survive for several months on surfaces and are difficult to kill. C. *diff* bacteria are shed in stool and take hold and multiply in the colons of patients whose normal bowel flora has been disrupted by recent antibiotic treatment, producing toxins. The two toxins (A and B) are responsible for the diarrheal symptoms and sequelae attributed to CDI. This bacterium is recognized as the most common cause of healthcare-associated gastroenteritis.[7]

Differential diagnosis for inpatient care

CDI accounts for only 15-25% of antibiotic-associated diarrhea and there are many other organisms, such as *Salmonella* spp., *Shigella* spp., *Campylobacter* spp., norovirus, and rotavirus that can cause similar symptoms. It is important to consider other differential diagnoses as well as the patient history and clinical presentation before you order testing. To this end, many facilities have produced diagnostic stewardship protocols which include considering factors such as: ruling out other causes of diarrhea; laxative-use; and deviations from what is considered 'normal' stool consistency for the patient. An example of a diagnostic stewardship algorithm for CDI is shown in the flowchart in Figure 2.

Figure 2. Example of diagnostic stewardship algorithm for CDI[12-13]



If *C. difficile* test results are negative and an alternative diagnosis is made, stop contact precautions (if appropriate), and follow recommendations for alternative diagnosis.[3,14]

Laboratory identification

Diagnosing CDI (reliably differentiating between infection and colonization) remains an important clinical challenge. Molecular tests (nucleic acid amplification tests [NAATS]) are commonly used to test for CDI and do not differentiate between colonization and infection. Such tests have the potential to misdiagnose patients. Therefore, testing algorithms have been developed to increase the likelihood of a correct diagnosis (see Figure 2).

Laboratory testing for *C. diff* should be limited to unformed or liquid diarrheal stools. Formed stools should be rejected. In addition, because the toxin degrades at room temperature within 2 hours of sample collection which leads to false-negative results, stools for toxin testing should be tested promptly or refrigerated until testing can be performed.

Selecting laboratory testing methods that are both sensitive and specific is important since positive identification of *C. diff* bacteria or its associated toxins plays a central role in detecting cases of CDI. Coupled with patient clinical presentation, several different methods are currently

used by laboratories to screen for CDI in diarrheal stools. Table 1 outlines current testing methods along with advantages and disadvantages.

Table 1. Summary of common laboratory testing methods for *C. diff* testing

Testing method	Sensitivity	Specificity	Advantages and disadvantages
Molecular tests: FDA-approved PCR assays (test for the gene encoding toxin B)	Very high	High	• Simple • Fast turnaround time (typically 1-2 hours) • High sensitivity and high specificity— *few false-negative and -positive results* • Detects the gene encoding toxin B, but not the production of toxin
Stool culture for *C. diff*	Very high	Low	• Labor-intensive and slow turnaround time (48-96 hours)—*less clinically useful for routine testing* • High sensitivity—*few false negative results* • Low specificity—*false positive results due to nontoxigenic strains*
"Toxigenic" culture—isolates are screened for toxin production	Very high	Very high	• Highly labor-intensive and slow turnaround time (48-96 hours)—*less clinically useful for routine testing* • High sensitivity—*few false negative results* • Historical gold-standard—*against which other test methods are compared in clinical trials of performance*
Antigen detection for *C. diff* (latex agglutination or immune-chromatographic assay)	High/ moderate	Very low*	• Simple • Rapid turnaround time (<1 hour) • Very low specificity—*high rate of false positive results**
Toxin testing for *C. diff* testing: Tissue culture cytotoxicity assay[4]	High	High	• High complexity (requires technical expertise to perform) • Costly • Slow turnaround time (24-48 hours)—*less clinically useful for routine testing* • Detects toxin B only
Toxin testing for *C. diff* testing: Enzyme immunoassay (EIA) (detects toxin A, toxin B, or both A and B)**	Low	High	• Rapid turnaround time (<1 hour) • Low cost • Simple • Low sensitivity—*high rate of false negative results***

*Specificity can be improved by combining this test with another method such as toxin detection, PCR, or toxigenic culture in a two-step testing algorithm.
**Due to concerns over toxin A-negative, B-positive strains causing disease, most laboratories employ a toxin B-only or A and B assay.[7]

Treatment

Recent studies recommend that CDI be treated with vancomycin or fidaxomicin orally for at least 10 days. If access to these medications is limited due to cost or other barriers, metronidazole may be considered as an alternative initial therapy for non-severe CDI. Stool transplant, which is the transfer of stool (fecal microbiota transplantation (FMT)) from a healthy donor to the colon of the recipient, appears to be an effective long-term treatment for patients who have recurrent CDI. CDI returns in about 20% of antibiotic-treated patients.[3] FMT should now be strongly considered in such patients based on several recent clinical trials. Although asymptomatic individuals colonized with *C. diff* bacteria can still pose an infection risk to others, they should not be formally treated.

Case fatality

A 2011 study conducted by the CDC sets U.S. case fatality rates around 6.5%.[15-16] Each year, almost 30,000 patients die within 30 days of their primary diagnosis, with 80% of these deaths occurring in elderly patients 65 years and older. It is important to note that this data reflects overall mortality following a CDI, regardless of the cause, and is likely influenced by a variety of other factors.[15-16]

Reservoir

C. diff bacteria are found everywhere in the environment. Humans and animals can serve as a reservoir of this organism.

Transmission

Primary transmission of *C. diff* bacteria is via the fecal-oral route. Additionally, because *C. diff* spores persist on hard environmental surfaces for several months and can survive the acidity of the stomach, significant patient-to-patient transmission can occur via healthcare workers. Isolates can also be directly inoculated into the digestive tract via gastrostomy tube (G-tube) feedings or by rectal thermometer use.

Susceptibility

People of all ages are at risk for CDI, however, adults older than age 65 and immunocompromised patients are at elevated risk for severe disease complications and death. Other important host-specific CDI risk factors include prolonged hospitalization, other co-morbidities and extensive antimicrobial use.

Incubation period

The incubation period is not well-defined, however, research suggests a median incubation period of 2 to 3 days given optimal conditions for bacterial proliferation.[3]

Period of communicability

The period of communicability is unknown and variable, but there is evidence that the *C. diff* organism continues to be shed in the stool even after symptoms resolve. Therefore, many facilities continue contact precautions for the rest of the stay.[1]

Epidemiology

The epidemiology of *C. diff* infection is a complex interplay of host-specific factors, previous patient antibiotic exposure, and facility factors (healthcare workers' compliance to PPE-use and hand washing, terminal environmental cleaning, and organism virulence factors).

Asymptomatic colonization of *C. diff* occurs in around 3% of healthy adults and occurs in up to 50% of infants under the age 1. However, evidence suggests that CDI results from infection with *C. diff* bacteria acquired during a hospital stay as opposed to endogenous spread from asymptomatic colonization.[2]

Healthcare workers who have CDI can return to work 48 hours after diarrhea stops. Food handlers with CDI are also considered high-risk for spreading the disease and should be excluded from work for at least 48 hours after symptoms stop.[3]

Public health control measures

Public health responsibility

Although decreasing CDIs is a shared responsibility among facilities and healthcare providers, public health can play a central role. The following is a list of public health strategies to reduce CDIs:

- Facilitate communication between acute care, long-term care, and nursing homes, (encourage the use of transfer forms to communicate *C. diff* disease status upon patient transfer to the receiving facility). Refer to the Utah Infection Control Transfer Form.
- Identify facilities with high disease burdens of CDI using the National Health and Safety Network (NHSN) data and standards, including the Targeted Assessment for Prevent (TAP) strategy; and offer assistance with targeted prevention activities.
- Assist facilities in identification and investigation of outbreaks or clusters of CDI.

- Provide education to the general public, clinicians, and healthcare personnel about CDI prevention.
- Provide terminal cleaning/disinfection guidelines and hand hygiene support to facilities experiencing outbreaks.
- Use the infection control assessment and response (ICAR) standardized tool to conduct on-site proactive and responsive infection control assessments in facilities.
- Encourage facilities to implement core elements of antimicrobial stewardship.[17]

Prevention

Appropriate use of antibiotics can reduce CDI by as much as 77% in healthcare facilities.[2] Using correct personal protective equipment (PPE) combined with hand washing and environmental cleaning practices are important control measures to prevent *C. diff* bacteria from spreading in facilities.

Chemoprophylaxis

None.

Vaccine

None.

Isolation and work restriction

Isolation: CDI-diagnosed hospitalized patients or care facility residents should be placed in isolation under contact precautions in separate rooms for the duration of their diarrheal symptoms/illness which is generally considered that of a resolved case (the patient has had no diarrhea for at least 48 hours and has had a formed or normal stool).[3] Current evidence links cohorting patients with CDI at increased risk of symptomatic recurrence, and, therefore, discourages shared rooming of cases. In addition, because *C. diff* spores can persist in the environment for as long as 5 months, rooms occupied by CDI patients should be terminally cleaned according to the CDC environmental checklist for monitoring terminal cleaning with the List K disinfection/cleaning products.

Symptomatic contacts should be referred for medical evaluation and testing, as appropriate. Food handlers and healthcare workers with CDI should be excluded from work for at least 48 hours after their symptoms resolve.

Work restriction: High-risk contacts such as food handlers and healthcare workers should be monitored closely for symptoms during an outbreak and should not work if they are symptomatic.

Workers may return to work 48 hours after their CDI symptoms resolve or once an infectious cause has been ruled out.

Case investigation

Reporting

CDI cases are reportable to infection control within facilities to make sure isolation precautions and containment are started. Additionally, although CDI cases are reportable to public health in Utah as surveillance events by facilities reporting via electronic laboratory reporting (ELR), only outbreaks and not individual cases are investigated by public health.

Acute care hospitals, inpatient rehabilitation hospitals, and long-term acute care hospitals (LTACH) are required to report CDI cases through NHSN using the Laboratory-identified (LabID) Event reporting option within the MDRO/CDI module of the patient safety component. Facility-level CDI data in NHSN can be accessed by Utah DHHS as allowable by Utah state code.[18] This population level data can be used for targeted public health intervention for facilities with high rates of CDI.

Case definition

Clinical description

CDI generally presents with symptoms of watery diarrhea, with 3 or more diarrheal stools within a 24-hour period [in the absence of other clinically significant causes of diarrhea; and in the absence of laxative and stool softener use and tube feedings].[2]

Laboratory criteria

Identification of *C. diff* toxin (via probe, amplification test, or culture) or antigen by EIA or culture or by two-step testing algorithm.

Table 2. Criteria for reporting a case to public health authorities

Criterion	Confirmed
Clinical evidence	
3 or more diarrheal (watery or unformed) stools in 24-hour period	N
Absence of laxative-use	N
Absence of enteral feeding	N
Absence of stool softeners	N
Absence of other clinically–significant causes of diarrhea (not CDI)	N
Laboratory evidence	
Positive *C. diff* test in patients >1 year of age*	N

Criteria to distinguish a new case	
Not counted as a new case if occurred within 14 days of initial case [positive lab test]	N

N = All "N" criteria in the same column are NECESSARY to classify a case.

* = *C. diff* testing should not be performed in children <1 year without first consulting with a GI or ID specialist.

Case classification

A CDI case can be classified as confirmed in a patient who has symptoms of watery diarrhea, with 3 or more diarrheal stools within a 24-hour period [in the absence of other clinically significant causes of diarrhea; and in the absence of laxative and stool softener-use and tube feedings]; AND a positive *C. diff* laboratory test [via probe; amplification test; culture; EIA antigen; or by two-step testing algorithm].

Working on the assumption that facilities exercise principles of diagnostic stewardship when they order *C. diff* tests, only confirmed CDI cases are tracked by surveillance. However, assignment of suspect or probable cases of CDI in individuals may be relevant in potential outbreak situations where laboratory confirmatory testing was either not performed or not available in the index patient(s).

NHSN case classifications for enrolled reporting facilities

NHSN CDI LabID event reporting for acute care settings follows standard definitions used specifically from the MDRO/CDI module of the NHSN Patient safety component.

In acute care settings reporting to NHSN, confirmed CDI LabID events are subsequently classified as

- Incident **OR**
- Recurrent

According to criteria outlined in the NHSN MDRO/CDI module.

Additionally, CDI LabID events in acute care settings can be further stratified as:

- Community-onset (CO) **OR**
- Community-onset healthcare facility-associated (CO-HCFA) **OR**
- Healthcare facility-onset (HO)

NHSN LabID event reporting for long-term care facilities follows standard definitions used specifically from the MDRO/CDI module of the NHSN Long-term care facility component.

CDI LabID events for long-term care facilities (LTCFs) are further stratified as:

- Community-onset (CO) **OR**
- Long-term care facility-onset (LO) **OR**
- Acute care transfer-long-term care facility-onset (ACT-LO)

- This data allows cases to be classified according to standard definitions and comparisons to be made against benchmark standards.

Case investigation process

Since CDI is endemic in healthcare settings and many factors impact CDI rates, individual cases are usually not investigated after you initiate contact precautions unless an outbreak is suspected or rates deviate significantly from benchmark standards.

Outbreaks

Since CDI rates are dependent on the patient population and community-associated cases fluctuate, there are no set published guidelines for facility outbreak criteria. Some facilities have set their own outbreak criteria and other jurisdictions have developed special criteria to define outbreaks based on bed numbers (2 and 3 cases for smaller and larger units respectively within 7 days or less).[19] However, outbreak investigations should be considered in any cases where there are any significant increases from what is considered normal facility/unit rates against benchmark standards. Although ongoing prospective surveillance and monitoring of CDI rates rests upon facilities, public health can provide assistance through an ICAR, terminal cleaning recommendations, and facility visits in potential outbreak situations. The Council for Outbreak Response: Healthcare-Associated Infections and Antimicrobial Resistant-Pathogens (CORHA) recommends thresholds for investigation and reporting of CDIs displayed in Table 3.

Table 3. Recommended thresholds for investigation and reporting of a possible *Clostridioides difficile* infection (CDI) outbreak from the Council for Outbreak Response: Healthcare-Associated Infections and Antimicrobial Resistant-Pathogens (CORHA).[19]

Threshold	Acute-care hospitals	Long-term acute-care hospitals	Critical access hospitals	Nursing homes
For facility to conduct additional investigation	≥3 patients with facility-onset* *C. difficile* (determined by a positive laboratory test†) in the facility within a 4-week period	≥3 patients with facility-onset* *C. difficile* (determined by a positive laboratory test†) in the facility within a 4-week period of time	≥2 patients with facility-onset* *C. difficile* (determined by a positive laboratory test†) in the facility within a 4-week period	≥2 residents with facility-onset* *C. difficile* (determined by a positive laboratory test†) in the facility within a 4-week period

For reporting to public health	≥3 patients with facility-onset* CDI‡ in the facility within a 4-week period	≥3 patients with facility-onset* CDI‡ in the facility within a 4-week period	≥2 patients with facility-onset* CDI‡ in the facility within a 4-week period	≥3 residents with facility-onset* CDI‡ in the facility within a 4-week period

*Facility-onset: Specimen obtained on facility day 4 or later (admission date = day 1).
†Positive laboratory test: Any molecular, antigen, culture, or other test for *C. difficile*.
‡CDI: Positive laboratory test AND symptoms (diarrhea or 3 loose feces over 24 hours) **AND** no laxative use for at least 48 hours before specimen collection AND no other known cause for diarrhea.

Identifying case contacts

In general, contact tracing is not done for individual cases. However, in the event of an outbreak, symptomatic contacts should be referred for medical evaluation and testing, if appropriate. High-risk contacts such as food handlers and healthcare workers should be followed closely in outbreak situations.

Case contact management

Not applicable.

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Version control

Updated January 2024: Plan updated to include the name change from *clostridium difficile* to *clostridioides difficile*. Plan updated to include changes to the critical clinician information, disease and epidemiology, public health control measures, case investigation, and the electronic laboratory reporting processing rules.
Updated July 2018: Original plan written and approved.

EpiTrax minimum/required fields by tab

N/A—Electronically reportable only

Electronic laboratory reporting processing rules

*C. diff** rules for entering laboratory test results

The following rules describe how laboratory results reported to public health should be added to new or existing events in EpiTrax. These rules have been developed for the automated processing of electronic laboratory reports, although they also apply to manual data entry.

Test-specific rules

Test specific rules describe what test type and test result combinations are allowed to create new morbidity events in EpiTrax, and what test type and test result combinations are allowed to update existing events (morbidity or contact) in EpiTrax.

Table 4.

Test type	Test result	Create a new event	Update an existing event
Antigen by EIA/ELISA**	Positive	Yes	Yes
	Negative	No	Yes
	Equivocal	No	Yes
Culture	Positive	Yes	Yes
	Negative	No	Yes
	Equivocal	Yes	Yes
PCR/amplification	Positive	Yes	Yes
	Negative	No	Yes
	Equivocal	No	Yes
Toxin assay	Positive	Yes	Yes
	Negative	No	Yes
	Equivocal	No	Yes

*A positive *C. diff* result will create a surveillance event. *C. diff* is only reportable electronically and does not participate in workflow.

**Enzyme-linked immunosorbent assay (ELISA)

Whitelist rules

Whitelist rules describe how long an existing event can have new laboratory data appended to it. If a laboratory result falls outside the whitelist rules for an existing event, it should not be added to that event, and should be evaluated to determine if a new event (CMR) should be created.

***C. diff* morbidity whitelist rule:** If the specimen collection date of the laboratory result is 14 days or less after the collection date of the last positive laboratory result, the laboratory result should be added to the morbidity event.

***C. diff* contact whitelist rule:** None.

Graylist rule

We often receive laboratory results through ELR that cannot create cases, but can be useful if a case is created in the future. These laboratory results go to the graylist. The graylist rule describes how long an existing event can have an old laboratory result appended to it.

C. diff Graylist Rule: If the specimen collection date of the laboratory result is 30 days before to 7 days after the event date of the morbidity event, the laboratory result should be added to the morbidity event.

Other electronic laboratory processing rules

If an existing event has a state case status of "not a case," ELR will never add additional test results to that case. New labs will be evaluated to determine if a new CMR should be created.