Algorithms for Prevention and Management of *Clostridium difficile* Infections in Long-term Care Facilities

- A1 Early Recognition and Testing
- A2 Contact Precautions
- A3 Room Placement
- A3.1 Identifying Lower Risk Roommates
- A4 Environmental Cleaning and Disinfection
- A5 Social and Activity Precautions

**Definitions and commonly used acronyms**

ADL: activities of daily living  
CDI: *Clostridium difficile* infection  
HH: hand hygiene  
PPE: personal protective equipment  
PPIs: proton pump inhibitors

**Standard Precautions (SP):** for the care of all residents, all of the time
- Wear gloves, gown, mask or eye protection if you anticipate you may have any contact with body fluids (direct contact, spraying, or splashing) while performing care to the resident

**Contact Precautions (CP):** for the care of residents with CDI symptoms
- Always wear gloves and a gown to provide care to the resident  
- Place resident in a private room, if available  
- Dedicate equipment to individual residents who have CDI whenever possible (e.g., commodes, blood pressure cuffs, and stethoscopes)  
- Clean and disinfect all shared equipment immediately after use and before use with any other resident
A1. Early Recognition and Testing

Resident experiencing new onset of diarrhea

Has the resident had ≥3 unformed stools in a 24 hour period?

Yes

Contact provider, order lab test for CDI. Do not start empiric treatment before collecting sample

Consider creating a standing order for nursing staff to initiate CDI testing

Collect and submit fresh stool sample

Only unformed stools should be collected

Collect specimen in clean, watertight container

Refrigerate (2-8°C; 36-46°F) until testing can be done

While test results are pending:
- Discontinue all non-essential antibiotics
- Discontinue all anti-peristaltic medications
- Initiate fluid replacement if not contraindicated
- Initiate pre-emptive Contact Precautions (gowns, gloves)

Positive

Contact provider regarding treatment (see IDSA Guidelines)

Place resident in appropriate room

Do not perform a "test of cure" or re-test if resident is responding to treatment

Negative

Consider other causes of diarrhea, perform testing for other enteric pathogens

If all testing is negative and symptoms continue

Clinically reassess resident. If PCR was initial testing method, do not re-test for C. diff. If initial C. diff testing method was relatively insensitive (e.g., EIA) and no other cause of diarrhea is found, consider performing additional diagnostic testing for C. diff as clinically indicated

Action Items:
Train staff to recognize CDI symptoms and to submit only unformed stools for CDI testing
Establish policy with lab to reject formed and repeat stools for CDI testing
Know what diagnostic testing method is used by your laboratory

Other considerations:
Contact Precautions
Room placement
Social and activity precautions
Environmental cleaning and disinfection

Please see additional algorithm
Please see toolkit for more information
A2. Contact Precautions

Always use Standard Precautions with every resident, every time

Resident experiencing new onset of diarrhea

Implement Contact Precautions for suspected infectious diarrhea

Does the diarrhea have an infectious cause? **A1**

Yes

Continue Contact Precautions

No, confirmed non-infectious

Discontinue Contact Precautions if appropriate and continue Standard Precautions

When to discontinue Contact Precautions

Assess resident's diarrheal symptoms

True

Discontinue Contact Precautions, continue Standard Precautions

No diarrhea for 48-72 hours?

False

Continue Contact Precautions

• Include Contact Precaution and cleaning symbol on door signs for residents with CDI to alert staff of Contact Precautions and sporicidal disinfection product requirements
• Gloves are always worn when entering resident's room
• Gowns are worn for direct care and any resident or environmental contact
• Change gloves after caring for one resident and before caring for another
• Use single-use, dedicated, or disposable patient care equipment **A4**
  − If not available, clean and disinfect reusable equipment immediately after each use

• Hand hygiene before donning gloves
• Hand hygiene after removing gloves and gown, before leaving room

• Soap and water is preferred
• Alcohol-based hand rubs can be used **except when**:
  − Hands are visibly soiled
  − There has been contact with bodily fluids
  − In an outbreak situation

• Consider continuing Contact Precautions until CDI treatment is complete, even if diarrhea has resolved
• Continue gown and glove use beyond 72 hours for residents who are incontinent or need significant assistance with ADLs, due to the risk of prolonged shedding of *C. difficile* bacteria and spore survival

Action Items:
Provide gowns, gloves, and alcohol-based hand rubs outside resident's room
Assure laundry bin, trash can, and alcohol-based hand rubs are readily accessible inside resident's room

Other Considerations:
Early recognition and testing
Room placement
Social and activity precautions
Environmental cleaning and disinfection

Please see additional algorithm
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A3. Room Placement

Rooming Residents with CDI

Private room, toilet, and shower/bath are recommended and preferred whenever possible

1st Choice

Private (single) room with private bathroom

- Move resident to private (single) room
- Resident should use only the private bathroom while on Contact Precautions

2nd Choice

Private (single) room with shared bathroom

- Move resident to private room
- Resident with active CDI should use a separate toilet (e.g., dedicated commode) while on Contact Precautions

3rd Choice

Shared room with shared bathroom

Cohort with resident with active C. diff diarrhea

- Perform HH and change PPE between each resident
- Keep a minimum 3 foot barrier between living spaces
- Use privacy curtain or tape on floor to emphasize separation
- Resident(s) with active CDI should use a separate toilet (e.g., dedicated commode) while either resident in the room is on Contact Precautions

No resident meets criteria

Move to room with another resident with active diarrhea

Move to room with a resident at lower risk for CDI

Use commode liners whenever possible. Immediately clean and disinfect commode/toilet and arm rests/grab bars after each use

Bathing residents with CDI

- Always have residents with active CDI use a shower and avoid use of bath tubs
  - Clean and disinfect shower/tub area immediately after every resident use
- Preferably, resident(s) with active CDI shower after residents without active CDI

Other Considerations:
- Early recognition and testing
- Contact Precautions
- Social and activity precautions
- Environmental cleaning and disinfection

Please see additional algorithm
Please see toolkit for more information
Primary considerations

Not currently taking antibiotics (1st choice)
  or has not taken antibiotics in previous 4 weeks (2nd choice)
  or has not taken antibiotics in previous 12 weeks (3rd choice)

No history of prior CDI (1st choice)
  or has no CDI in previous 4 weeks (2nd choice)
  or has no CDI in previous 12 weeks (3rd choice)

Secondary considerations

• Not currently on proton pump inhibitors (PPIs)
• No GI/bowel condition comorbidities (diverticular disease, inflammatory bowel disease, Crohn's, peptic ulcer disease)
• No PEG/PEJ tube (no tube feeds)
• Not severely immunocompromised (cancer, chemotherapy, or solid organ transplant)
• Not bedbound/heavily dependent on healthcare workers for ADLs
A4. Environmental Cleaning and Disinfection

Resident(s) with CDI

Select proper cleaning and disinfection products. Always follow manufacturer's instructions regarding proper storage, shelf life, contact time, dilution, application, and surface appropriateness

Clean first: Use a hospital-grade, EPA-registered cleaner to mechanically remove visible debris

Disinfect second: Must use a hospital-grade product with a sporicidal claim or a 10% bleach solution

Every Shift

High-Touch Areas:
- Door handles
- Bed rails
- Chairs
- Call buttons
- Toilet seats
- Grab bars
- Light switches
- Telephones
- TV remotes
- Sink/FAUCET
- Toilet flush handle

Horizontal Surfaces:
- Bedside tables
- Tray tables
- Counters
- Floors

Dedicated Equipment:
- Thermometers
- Stethoscopes
- Blood pressure cuffs
- Oximeters
- Glucometers

Terminal

Target all areas of the room, including all daily areas, plus:
- Bed frames
- Curtains
- Walls
- Mattresses
- Pillows
- Other furniture

Bathroom

- Use commode liners whenever possible; if not using, empty commode in resident's toilet (never in the sink)
- Immediately clean and disinfect commode/toilet (including seat, flush handle, arm rests/grab handles) after each use and/or emptying
- Use a separate cloth for cleaning only the commode/toilet
- Always clean bathroom last, and clean from least contaminated (e.g., doorknobs, light switches, handrails) to most contaminated (e.g., sink handles, seat, flush handle)

- Always clean from clean to dirty and from high to low
- Microfiber cloths are preferred over cotton cloths
- Cloths should not be pre-soaked or re-dipped in an open bucket system
- Discard facility items that cannot be disinfected (bag personal items)
- Clean rooms of residents with active CDI last
- Change cleaning solution, mop, bucket, and cloths after cleaning each room

Action Items:
Train Environmental Service staff on importance of cleaning and disinfection and the transmission of disease
Establish responsibility for different elements of environmental cleaning and disinfection
Provide Environmental Service staff with high-touch cards for reference
Include cleaning symbol on door signs for residents with CDI to alert Environmental Services staff of rooms requiring sporicidal disinfection products

Please see additional algorithm
Please see toolkit for more information
Resident(s) with CDI

Consider social and activity restrictions

Is resident continent or can diarrhea be contained with incontinence products?

Yes

Resident has mental and physical ability to follow instructions and perform appropriate HH (or can be assisted by staff)?

No

Consider restricting activities, keeping resident in room unless medically necessary

No

Consider letting resident enter common areas and participate in social activities

Yes

Ensure resident has clean clothing, a clean, dry incontinence product (if worn), and washes hands with soap and water prior to leaving room

In case of accident(s):  
- Clean/disinfect any bodily fluid accidents immediately \(A4\)  
- Return resident to room  
- Shower/bathe resident as needed \(A3\)  
- Change clothes/incontinence products as needed

No

Staff assist resident with HH and resident has clean clothes prior to moving. Staff should wear clean PPE prior to assisting resident with transport

Receiving unit or facility should be notified of CDI status and staff should wear PPE

Action Items:  
Ensure a facility transfer form exists for transferring residents between facilities

Other Considerations:  
Early recognition and testing  
Room placement  
Environmental cleaning and disinfection

Please see additional algorithm

Please see toolkit for more information