Preventing Clostridium *difficile* Infections: Toolkit®

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EXECUTIVE SUMMARY

Leadership and Culture

*Clostridium difficile* infections (CDIs) are one of the fastest growing healthcare associated infections (HAI), affecting patients in acute care, community and long-term care settings. In order to successfully prevent CDIs, a multidisciplinary and collaborative team approach is essential. An effective *C. difficile* prevention program requires collaboration across departments which includes engaged executive leadership, infection prevention, antimicrobial stewardship, epidemiology, clinical providers, pharmacy, nursing, environmental services, transport services, laboratory and quality personnel.
Interventions

- Gain consensus on bundle elements that all stakeholders agree to implement.
- Design processes to ensure a high level of compliance and reliability with the implementation of each selected bundle element.
- Actively monitor compliance with the process steps and share CDI-related best practices and data (e.g. hand hygiene, environmental cleaning) in all patient care unit(s).

This toolkit is comprised of best practices and evidence which are recommended to be used by members of the health care team. Each section contains crucial interventions with links to additional online resources that can be used at any stage of implementation to effectively combat this infection.

Background

*C. difficile* is responsible for half a million infections and 29,000 U.S. deaths each year. While 50 percent of CDI occur in those younger than 65, infections in the elderly are particularly devastating with a mortality rate of 90 percent. It is estimated that costs associated with CDI increased by estimates of up to $4.8 billion annually.

*Clostridium difficile* is a spore forming bacteria spread by the fecal-oral route and resistant to heat and many standard cleaning agents. Transmission in health-care facilities usually occurs as a result of environmental surface contamination and hand carriage by staff members and infected patients of these spores. After colonizing the colon, *Clostridium difficile* releases two protein endotoxins, A and B, which result in illness, ranging from mild diarrhea to life-threatening inflammation of the colon. A balanced and healthy intestinal flora normally bars colonization. This resistance is weakened by exposure to antibiotics.

Illness from *C. difficile* most commonly affects older adults in hospitals or in long term care facilities and typically occurs after use of antibiotic medication. Several factors may have contributed to the rise in CDI incidence in recent years. The most important primary risk factors include:

- Advanced age (greater than 65)
- Prolonged duration of hospital stay
- Antimicrobial therapy
- Gastric acid suppression--proton pump inhibitors (PPIs)
- Immunosuppressed or immunocompromised status
- Kidney disease

2. **Antibiotic use is the most important risk factor for CDI.** Particular classes of antibiotics are more frequently associated with CDI including fluoroquinolones, clindamycin, broad spectrum penicillins cephalosporins, carbapenems, but all antimicrobials can lead to CDI.
The high prevalence of CDI emphasizes the need for improved diagnostic testing, meticulous adherence to infection prevention guidelines and environmental services standards, and implementation of robust antimicrobial stewardship programs. Implementing evidence-based interventions and increasing public awareness is necessary to reduce the incidence of C. difficile.

**CDI Prevention Toolkit and Bundle**

**Goals, Definitions and Measures**

**Goal:** To reduce the occurrence of healthcare facility-onset Clostridium difficile infections by 40% by September 23, 2016.

**Goal:** All Washington hospitals and health systems will have an Antimicrobial Stewardship Program (ASP) by May 31, 2017 through achievement of WSHA’s 3 ASP Tiers.

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Outcome</th>
<th>Numerator</th>
<th>Denominator</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDI incidence</td>
<td>From CDC NHSN measure, the number of hospital-onset CDI Laboratory-identified events per 10,000 patient days.</td>
<td>Total number of hospital onset lab-confirmed C-Diff cases.</td>
<td>Total number of patient days, minus NICU, nursery, and well-baby units.</td>
</tr>
</tbody>
</table>

**Exclusions**

- Well baby nurseries, Neonatal intensive care units (NICUs)

**Healthcare Facility-Onset (HO):** LabID Event collected >3 days after admission to facility (i.e., on or after day 4)

**Community-Onset (CO):** LabID Event collected as an outpatient or an inpatient ≤3 days after admission to the facility (i.e., days 1, 2, or 3 of admission, where day of admission = day 1)

**Community-Onset Healthcare Facility-Associated (CO-HCFA):** CO LabID Event collected from a patient who was discharged from the facility ≤4 weeks prior to date stool specimen collected (Graph from CDC toolkit)
<table>
<thead>
<tr>
<th>Measurement</th>
<th>Process</th>
<th>Numerator</th>
<th>Denominator</th>
</tr>
</thead>
</table>
| HH in Contact Enteric Precaution rooms | For patients in Contact Enteric Precautions, percent compliance with recommended guidelines for hand hygiene using *soap and water*. | **Hand Hygiene Performed**  
Total number of observed opportunities for hand hygiene in which hand hygiene was performed with *soap and water* for patients in Contact Enteric Precautions. | **Hand Hygiene Indicated**  
Total number of observed opportunities for hand hygiene with *soap and water* by a HCW for patients in Contact Enteric Precautions. |
<table>
<thead>
<tr>
<th>Measurement</th>
<th>Process</th>
<th>Numerator</th>
<th>Denominator</th>
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</thead>
</table>
| PPE in Contact Enteric Precaution rooms | For patients in Contact Enteric Precautions, percent adherence to PPE requirements, i.e. Gown and Gloves Use as Part of Contact Enteric Precautions. | **PPE/Gown and Gloves Used**  
Total number of observed contacts between a HCW and a patient or inanimate objects on Transmission-based Contact Enteric Precautions for which gown and gloves had been donned appropriately prior to the contact. | **PPE/Gown and Gloves Indicated**  
Total number of observed contacts between a HCW and a patient on Transmission-based Contact Enteric Precautions or inanimate objects and gown and gloves were indicated. |
| **Measurement** | **Goal** | **Reduction Target** | **WSHA ASP Tiers** |
| Daily and terminal cleaning of Contact Enteric Precaution rooms | For patients in Contact Enteric Precautions, achieve 95% adherence to environmental cleaning (daily and terminal) protocols. | Total number of observed opportunities in which adherence with an environmental cleaning protocol was performed, using checklist, observations, fluorescent gel, cultures or ATP, for patients in Contact Enteric Precautions. | Total number of opportunities for adherence with an environmental cleaning protocol were indicated for patients in Contact Enteric Precautions. |
### Core Strategies for CDI Prevention

Core strategies are supported by high levels of scientific evidence with demonstrated feasibility and should always be in place.

1. **Implement a Robust Antimicrobial Stewardship Program (ASP) through WSHA’s 3 Tiers**

   An Antimicrobial Stewardship Program (ASP) is a systematic approach to developing coordinated interventions to reduce overuse and inappropriate selection of antibiotics, and to achieve optimal outcomes for patients in cost-efficient ways. Through both monitoring and, when necessary, altering current antimicrobial prescribing practices, antimicrobial stewardship has been shown to improve patient care, reduce antimicrobial use, reduce antimicrobial resistance, and reduce pharmacy, and overall hospital operating costs. Targeted classes of antibiotics for ASP include fluoroquinolones, clindamycin, broad spectrum beta-lactam/beta-lactamase inhibitor combinations, cephalosporins, carbapenems and those of long duration.

   A hospital’s multi-disciplinary team should review the 3 Tiers of a strong ASP set forth by WSHA and achieve all 3 Tiers by May 31, 2017. Tier 1 is Basic, Tier 2 is Intermediate and Tier 3 is Advanced as described in detail below. Hospitals through their implementation strategies may have processes in place across the Tiers while advancing this work.
Interventions

- Providers, pharmacists and front-line clinicians play a key role in ASP through collaboration and participation in the statewide ASP initiative, achievement of established tier elements and finding innovative strategies for more judicious use of antibiotics.
- Provide education to prescribing clinicians regarding appropriate selection, dose, timing and duration of antibiotics.
- Institute antimicrobial time-outs for treatment review.
- Limit antibiotic use through pre-authorization and formulary controls which helps prevent unnecessary duplicate coverage.
- Leverage technology through use of “hard stops” when inappropriate to prescribe targeted classes of antibiotics.
- Focus efforts on reducing use of certain antibiotics that have a higher risk associated with CDI, for example, cephalosporins, clindamycin and fluoroquinolones.
- Include efforts to reduce prescribing of proton pump inhibitors to decrease CDI risk.
- Evaluate the use of antimicrobials in patients with CDI and provide feedback to medical staff and hospital leadership.

3.


2. Early Rapid Testing and Diagnosis
The diagnosis of *C. difficile* is based on the history of recent antibiotic administration and diarrhea. Watery diarrhea or loose stools are the best specimen for the diagnosis of *C. difficile* associated diarrhea. Please refer to Bristol Stool Chart (use types 6-7). To test appropriately and not over or under diagnose CDI, it is important to understand the distinction between a potential carrier and true CDI disease by paying close attention to key risk factors in the patient’s history. Other comorbidities, laxatives, tube feedings and other medications can cause non-*C. difficile* diarrhea.

**Carrier**—individuals may shed *C. difficile* in their stool but do not have diarrhea. Studies reveal up to 20-30% of hospitalized patients may be carriers. These individuals may spread spores into the environment at lower concentrations than patients with diarrhea.

*C. difficile* diarrhea—clinically significant diarrhea is defined as 3 loose stools in a 24 hour period, 2 hours to 2 months after use of antibiotics and frequently including abdominal cramps and pain. *C. difficile* is associated with 25-30% of antibiotic-diarrhea related cases.

**Testing Strategy—Best Practices and Recommendations**

<table>
<thead>
<tr>
<th>Test</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>Utilization</th>
</tr>
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<tbody>
<tr>
<td>PCR (Polymerase Chain Reaction) or NAAT (Nucleic Acid Amplification Test)</td>
<td>High (90%)</td>
<td>High (95%)</td>
<td>Tests presence of gene, not presence of disease. Does not distinguish between CDI and colonization. Can over diagnose CDI.</td>
</tr>
<tr>
<td>Toxin EIA tests (Enzyme Immunoassay)</td>
<td>Low (70-80%)</td>
<td>High (% not available)</td>
<td>Tests presence of fully form toxins A/B—inferior specificity.</td>
</tr>
<tr>
<td>GDH (glutamate dehydrogenase)</td>
<td>High (96-100%)</td>
<td>Low (% not available)</td>
<td>Screening test for bacterial cell wall. Does not distinguish between pathogenic (toxin-producing) and non-pathogenic strains.</td>
</tr>
</tbody>
</table>

**Interventions**

- Test only patients with clinically significant diarrhea which is ≥3 unformed, loose stools in 24 hours (*Bristol Stool Chart*-use types 6-7). Routine screening for *C. difficile* in hospitalized patients without diarrhea is not recommended.
- If patient has ≥ 3 unformed stools in 24 hours, in or out of the hospital at any time, send single fresh sample to lab. Diagnosis does not require ≥ 3 unformed stools in 24 hours in hospital. **Review history pre-admit.**
- Use a nurse driven protocol to trigger *C. difficile* testing, such as a diarrhea decision tree.
- The PCR test is superior to enzyme immunoassay (EIA) for detection of toxins A and B. EIA as a stand-alone test is discouraged.
- It is clinically reasonable to use NAAT or PCR testing alone, although this practice may over diagnose. There are alternative methods to consider, using various algorithms to describe the process.
Some hospitals incorporate a multi-step process by first testing the stool for GDH and toxins and then conducting PCR analysis, with evidence supporting that almost all patients with clinically active CDI are positive for both. Consider below representative examples of testing algorithms.

**GDH based Clostridium difficile Testing Algorithm**

1. **Stool sample from symptomatic patient**
2. **Screen with GDH (glutamate dehydrogenase)**
   - **C. difficile negative**
   - **Toxin A/B EIA tests (Enzyme Immunoassay)**
     - **PCR (Polymerase Chain Reaction) or NAAT (Nucleic Acid Amplification Test)**
       - **Non-toxigenic C. difficile carriage**
       - **Toxigenic C. difficile carriage**
     - **Toxigenic C. difficile carriage and/or infection**
       - **Cross Infection risk**
         - Isolation precautions
         - Clinical correlation for treatment decision
Do not retest unless there is a strong clinical suspicion after the first test. Yield for retesting after one week is very low in general. Do not repeat testing during the same episode of diarrhea for confirmed CDI patients (e.g., electronic flag).

Clinical judgment is **always** required in conjunction with test results to diagnose CDI accurately.

Implement an alert system to immediately notify the Infection Prevention team and patient provider of any newly identified cases from the lab.

Implement hard stops to prevent testing of solid stools and repeat testing of a patient. Ensure the lab will reject such samples.

Do not test for cure, as most patients who are clinically cured with treatment will continue to have *C. difficile* in their stool for weeks.

Ensure timely communication of CDI test results to the patient care unit, facility, provider, infection prevention, patient and family.

3. Contact Enteric Precautions and Isolation

Because *C. difficile* is spread via direct human to human contact or through environmental surfaces (e.g. remote control, stethoscope, IV poles), it is critical that isolation and Contact Enteric Precautions for patients with CDI are implemented to break the chain of infection. Presumptive isolation and Contact Enteric Precautions are recommended for patients with suspicious diarrhea on admission or acquired during in-patient stay, while awaiting test results. Asymptomatic patients are not placed in Isolation or Precautions – even if they are colonized with *C. difficile*.

**Interventions**

- Use a nurse driven protocol to trigger Contact Enteric Precautions, such as a diarrhea decision tree, for patients with loose stools or who are symptomatic.
- Place patients with suspected or active CDI in private rooms if available, with a bathroom or bedside commode solely for use by patient.
- Give isolation preferences to patients with bowel incontinence if room availability is limited.
- Use visual cues as reminders to assist with compliance, for example indicating the patient is under Contact Enteric Precautions in the electronic medical record and signage on the patient’s door.
- Ensure guidelines for Contact Enteric Precautions are in place, understood and followed by clinicians, hospital staff, patients, families and visitors.
- Ensure adequate supplies for adherence to Isolation and Contact Enteric Precautions are readily available outside of patient room and responsibility is assigned for restocking supplies.
- Ensure health care team perform hand hygiene and don gloves and gown prior to entering patient’s room and reinforce the proper use of full-barrier precautions.
- Use dedicated disposable equipment for patient with CDI, for example, stethoscope, thermometer, bedside commode.
- Patient transport or movement outside of the room is avoided unless medically necessary.
- Continue these precautions until diarrhea ceases.
- Consider re-isolation and re-implementation of Contact Enteric Precautions on readmission of patient with recent prior diagnosis of CDI.


4. Compliance with recommended guidelines for Hand Hygiene

   a) Soap and Water
*C. difficile* spores are “sticky” by virtue of their outer layer and frequently contaminate the skin and clothing of HCWs during removal of gowns and gloves. *C. difficile* spores are resistant to alcohol-based sanitizers resulting in antibacterial soap and water after interacting with patients being the preferred, most effective process for infection prevention.

**Interventions**

- Perform meticulous hand hygiene on the basis of recommended guidelines before and after patient contact.
- Engage patients, families and visitors in hand hygiene by explaining importance and teaching of effective techniques.
- Patients should wash their hands after using the bathroom and before eating. Promote the use of soap and water with hand hygiene, but if patient is unable to access a handwashing sink in room, alcohol-based hand gel is an acceptable alternative.
- Establish a method for monitoring hand hygiene compliance and provide real-time feedback, coaching and education to staff, patients, families and visitors.

5. **Strict Cleaning and Disinfection of Equipment and Environment with on-going Evaluation and Monitoring**

The hospital environment is a significant contributor to the onset of health care associated CDI as *C. difficile* spores can survive on surfaces for as long as 5 months. *C. difficile* spores were identified in 49 per cent of in-patient rooms occupied by those diagnosed with *C. difficile* and in 29 percent of asymptomatic carrier rooms.

**Interventions**

- Build collaborative relationships between Environmental Services (EVS), Infection Prevention and hospital leadership.
- Educate EVS staff about CDI, including pathophysiology and symptoms, and describe what the health care team is doing to prevent infection and the critical role of EVS in infection prevention.
- Educate EVS staff frequently and ensure team understands:
  - Where and when specific cleaning solutions should be used;
  - The frequency of cleaning required; and
  - The amount of contact time for effectiveness.
- Perform environmental decontamination or rooms of patients with CDI using sodium hypochlorite diluted 1:10 with water or other Environmental Protection Agency (EPA) registered sporicidal cleaning agent.
- Consider the use of audible timers to ensure effective contact time with the appropriate cleaning solution.
- Create cleaning protocols and job aides for Environmental Services Staff to increase reliability.
• Develop checklists to use when training in and evaluating cleaning practices.
• Directly observe room cleaning and provide immediate feedback, recommendations and recognition to Environmental Services Staff.
• Evaluate and define equipment and disinfection procedures to ensure staff effectively understand assignments and can fulfill cleaning responsibilities (for example, “who”, “what”, “how”, “when”).
• Ensure cleaning materials are readily available to impact cleaning needs.
• Utilize a recognizable sign or visual cue to communicate that a piece of equipment has been cleaned e.g. sticker or paper sign.
• To prevent privacy curtain contamination, consider some method of covering high touch areas such as plastic, disposable shields. To clean privacy curtains, change and launder as needed at time of discharge.
• Evaluate effectiveness of environmental cleaning through direct observation, swab cultures, agar slide cultures, fluorescent markers or ATP (adenosine triphosphate) bioluminescence.
• Include terminal room cleaning test results as standing agenda items on Infection Prevention and Board Quality Committee agendas.

Note: Improvement in cleaning practices through appropriate resources, education, quality assurance monitoring, and feedback can break the cycle of transmitting dangerous bacteria between the patients and their environment.

6. Educate about CDI: Patients and Families

The hospital environment is a significant contributor to the onset of health care associated CDI as *C. difficile* spores can survive on surfaces for as long as 5 months. *C. difficile* spores were identified in 49 per cent of in-patient rooms occupied by those diagnosed with *C. difficile* and
in 29 percent of asymptomatic carrier rooms. An Environmental Protection Agency (EPA) registered sporicidal cleaning agent should be utilized for routine surface disinfection.

**Interventions**

- Educate the patient about CDI, including symptoms, and describe what the health care team is doing to prevent infection and what the patient can do to prevent infection.
- Instruct patients and families about the importance of hand hygiene and personal hygiene using antibacterial soap.
- Provide patients with “Frequently Asked Questions about *Clostridium difficile*”.


**7. Educate about CDI: Leadership, Clinicians, Environmental Services Staff**

An effective *C. difficile* prevention program requires an educated health care team to understand and implement the science and best practices.

**Interventions**

- Educate health care team about CDI, including risk factors, route of transmission, patient treatment, prevention measures (ASP, hand hygiene, contact precautions) and individual job responsibilities.
- When a patient has CDI, communicate the CDI status when transferring the patient to another healthcare unit or facility so appropriate precautions can be implemented at the accepting unit or facility.

**Supplemental Strategies for CDI Prevention**

These additional approaches for prevention of CDI should be used in hospitals with rates that have not been reduced through implementation of core strategies. When the CDI rate remains higher than the facility’s goal, a CDI risk assessment should be performed to evaluate adequacy of adherence to contact precautions, hand hygiene and environmental and equipment cleaning.

1. **Extend Contact Enteric Precautions until Discharge**

Because *Clostridium difficile*-infected patients continue to shed organism for a number of days following cessation of diarrhea, some institutions routinely continue isolation until discharge.

**Interventions**

- Patients with loose stools (e.g. ≥3 unformed stools in 24 hours) are preemptively placed in Isolation Precautions pending testing results.
• Implement universal glove use on units and in areas with endemic rates or ongoing transmission of CDI.
• Isolation Precautions are continued for the duration of the current hospitalization for confirmed CDI patients, even if diarrhea resolves.
• Frequency and/or scope of monitoring compliance with Isolation Precautions is increased.

2. Enhanced and optimized testing for CDI

If there is evidence of ongoing transmission of *C. difficile* or rates are not decreasing, consider how previously unrecognized patients would be best identified through enhanced testing processes.

**Interventions**

• Although none are currently marketed, there is a great deal of interest in more sensitive and specific (and simpler) tests for *C. difficile* disease. Consider future alternative technologies. Possibilities include direct detection of the toxins associated with disease (that wouldn’t require cell culture), detection of *C. difficile* DNA using molecular methods (PCR, DNA hybridization), and, further in the future, detection of an immunological response in a patient that is consistent with CDI. Other tests are likely in development.

3. Consider use of Ultraviolet Light (UV) disinfection and aerosolized Hydrogen Peroxide

Due to the concern of environmental contamination with *C. difficile*, enhanced “no touch” disinfection procedures that are not solely dependent on EVS staff practices are being considered such as Ultraviolet light or fogging with hydrogen peroxide vapor or mist. Both of these processes can only be used for terminal cleaning, when patient rooms are empty, and must be preceded by adequate room cleaning to ensure physical removal of organic material or debris from surfaces. Studies have evaluated the impact of UV light disinfection in patient rooms by culturing surfaces before and after exposure to UV light, demonstrating UV light was shown to significantly reduce positive *C. difficile* cultures from hospital rooms.

**Interventions**

• Educate EVS staff how these new technologies are complementary to the required manual cleaning methods and assist in disinfecting complex environments with multiple surfaces.
• Ensure education for EVS staff includes basic concepts of UV disinfection, safety essentials, room preparation, and use of the device.
• Consider using UV light disinfection in the areas which care for the most vulnerable patient populations, such as isolation rooms, ICU, oncology and operating rooms.

Transitions of Care
To promote effective communication and infection prevention during transitions of care, it is essential the patient’s history, diagnosis, risk factors and treatment be shared with the accepting unit or facility prior to transfer.


## Variation and Performance Improvement

1. **Data and Feedback**

Accurate and timely data on CDI prevention performance is invaluable to educate the healthcare team and motivate change where needed. It is beneficial to understand CDI data by unit and to address those outliers. Benchmarking also improves the meaningfulness of data feedback and is essential to sustain improved performance in a non-punitive environment.

2. **Conduct Root Cause Analysis of Hospital Acquired CDI Case and determine if potentially preventable CDI**

In order to prevent CDI, a process is needed to define contributing factors leading to an infection, investigate the causes and develop actions for preventing future infections. Root Cause Analysis (RCA) is a process by which a team formally investigates to understand what, how and why it happened. An RCA will determine if the hospital acquired CDI case was potentially preventable by asking if all the recommended bundle elements were implemented.

The fishbone diagram is one of several tools that are available to identify findings and then develop solutions. Below is a helpful reference from the Association for Professionals in Infection Control and Epidemiology to guide the analysis of a CDI infection and identify opportunities for improvement.


## Summary of CDI Prevention Strategies
<table>
<thead>
<tr>
<th>C. difficile Prevention and Reduction</th>
<th>Core Strategies</th>
<th>Supplemental Strategies</th>
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</thead>
<tbody>
<tr>
<td>• Implement a robust Antimicrobial Stewardship Program (ASP)</td>
<td>• Contact precautions beyond duration of diarrhea up until discharge from hospital</td>
<td></td>
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<tr>
<td>• Early Rapid Testing and Diagnosis</td>
<td>• Presumptive isolation and contact precautions pending testing results</td>
<td></td>
</tr>
<tr>
<td>• Immediate isolation and contact precautions upon recognition of diarrhea</td>
<td>• Soap and water rather than hand sanitizers – innovative methods used for monitoring hand hygiene</td>
<td></td>
</tr>
<tr>
<td>• Effective hand hygiene using soap and water</td>
<td>• Universal gloving on units with high CDI rates</td>
<td></td>
</tr>
<tr>
<td>• Strict cleaning/disinfection with bleach product/hypochlorite based solution for daily and terminal cleaning of equipment and environment</td>
<td>• Test new methods for monitoring environmental cleaning</td>
<td></td>
</tr>
<tr>
<td>• Education about CDI reduction: Healthcare personnel, environmental services, administration, and patients/families</td>
<td>• Implementing new testing methods (e.g., PCR testing)</td>
<td></td>
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<tr>
<td></td>
<td>• Partner with receiving facilities (Skilled Nursing) to reduce CDI</td>
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</tbody>
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Safety Action Bundle:  
Clostridium Difficile Infection (CDI)

Background

- *C. difficile infection* is a significant cause of infectious disease death in the United States. CDI was estimated to have caused almost half a million infections in the United States in 2011. Approximately 83,000 of the patients who developed *C. difficile* experienced at least one recurrence and 29,000 died within 30 days of the initial diagnosis.
- High antibiotic utilization, frequent use of health care services and increased age impact risk of contracting *C. difficile*. While 50 percent of infections happen in people younger than 65, infections occurring in the elderly are particularly devastating with a mortality rate of 90 percent.
- The average total cost for a single inpatient CDI is more than $35,000, and the estimated annual cost burden for the healthcare system exceeds $3 billion.

Aim

To reduce the incidence of CDI by 40% by September 23, 2016.

*Hospitals in top quartile (zero) should focus on maintenance and hardwiring.*

Measures

*Outcome:* Laboratory Identified (LabID) CDI per Centers for Disease Control and Prevention (CDC)

*Process:* Days of therapy for select antibiotics per 1000 patient days

*Submit:* NHSN and Hospital Compare
<table>
<thead>
<tr>
<th>Strategy</th>
<th>Description</th>
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</table>
| **Patient and Family Engagement** | □ Educate patient and family on proper hand hygiene, Contact Enteric Precautions and the spread of CDI, underscoring their responsibilities and how they can help remind staff to follow guidelines.  
□ Provide patients with a hand sanitizer and emphasize its use after toileting and prior to eating, unless hands are visibly soiled requiring soap and water.  
□ Encourage and support patient and family participation in care planning and decision making by providing tools like the Centers for Disease Control (CDC) “Frequently Asked Questions about *Clostridium difficile*”.¹  
□ Patients on Contact Enteric Precautions should stay in their hospital rooms as much as possible, with the exception of necessary treatments and tests. They should not go to common areas, such as the gift shop or cafeteria.  
□ When an infection occurs, interview patient and family to understand why this might have occurred, e.g. recent antibiotic use, recent hospitalization, other ill family members. |
| **Leadership** | □ Identify a multidisciplinary team that includes senior and unit-level leadership, health care providers, infectious disease and prevention, pharmacy, laboratory, environmental services, materials management and information technology personnel.  
□ Set aims, goals and timelines for practice changes and performance.  
□ Educate care providers on risk factors for CDI, transmission, patient outcomes, treatment, management of multi-drug resistant organisms, and prevention, to include hand hygiene, contact enteric precautions, environmental cleaning, and antimicrobial stewardship.  
□ Ensure personal protective equipment is readily available for Contact Enteric Precautions. |
| **Early, rapid, identification and diagnosis of CDI** | □ Establish rules for when testing for *C. difficile* should occur, for example 3 or more loose stools in 24 hours.  
□ Only stools from patients with diarrhea should be tested for *C. difficile*.  
□ Utilize a diagnostic test that will enhance the sensitivity and specificity of diagnosing CDI.  
□ Implement a laboratory-based alert system to provide immediate notification to the Infection Prevention team about newly diagnosed CDI patients, including weekends and holidays. Ensure unit leadership is aware.  
□ Repeat testing should be discouraged and testing for cure should not be done. |

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<th>Strategy</th>
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</table>
| **Prevention of CDI by reducing transmission to other patients** | - Place patients with known or suspected CDI in a private room or cohort with another patient with documented CDI. If room availability is limited, give isolation preference to patients with bowel incontinence.  
- Medical equipment should be dedicated to the patient’s room, and other equipment should be thoroughly cleaned by assigned staff after use in a patient with CDI.  
- Use Contact Enteric Precautions when caring for patients who are suspected of having, or are confirmed to have CDI.  
- Meticulous hand hygiene and barrier precautions, including gloves and gowns, should be used by all health-care workers and visitors before and after entering the room of any patient with known or suspected CDI.  
- Gloves are considered best practice with soap and water hand washing before donning and after removal.  
- Perform routine daily cleaning of high-touch surfaces of infected patients and consider terminal cleaning using a bleach solution diluted 1:10 with water.  
- Consider use of Ultraviolet light disinfection and/or  
- When a patient has CDI, communicate the CDI status when transferring patient within units/departments in the facility, including transport, and if transferred to another healthcare facility so appropriate precautions can be implemented at the accepting unit and/or facility.  
- Consider use of the CDC’s “Inter-Facility Infection Control Transfer Form” during transfers. |
| **Reduce occurrence of CDI through Antimicrobial Stewardship** | - Antimicrobial stewardship is recommended to reduce the risk of CDI by optimizing use of high-risk antimicrobials.  
- Establish a physician-supervised multidisciplinary committee which meets regularly and assign dedicated staff to antimicrobial stewardship.  
- Ensure an antimicrobial stewardship policy and procedure is in place.  
- Educate prescribing clinicians regarding the appropriate selection, dose, timing and duration of therapy with antimicrobials.  
- Provide annual training for staff on antimicrobial stewardship.  
- Ensure a local antibiogram is available for use.  
- Provide real-time review and feedback processes to encourage appropriate use of antimicrobials. Clindamycin, cephalosporins and fluoroquinolones pose the greatest risk for CDI, as well as broad spectrum antibiotics and longer duration of antibiotics.  
- Collect antibiotic use data to understand areas of improvement. |

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3 [http://www.cdc.gov/hai/pdfs/toolkits/InfectionControlTransferFormExample1.pdf](http://www.cdc.gov/hai/pdfs/toolkits/InfectionControlTransferFormExample1.pdf)  
<table>
<thead>
<tr>
<th>Strategy</th>
<th>Description</th>
</tr>
</thead>
</table>
| Treatment of CDI         | - If a patient has a strong pre-test suspicion for CDI, empiric therapy for CDI should be considered regardless of the laboratory testing result, as the negative predictive values for CDI are insufficiently high to exclude disease in these patients.  
- Any inciting antimicrobial agent(s) should be discontinued, if possible. |
| Performance and Variation| - Know your CDI data by unit and address outliers. Investigate any CDI that does occur and determine whether all elements of the bundle were met or not.  
- Present your performance compared to others to the board and other key stakeholder groups.  
- Conduct Root Cause Analysis of CDI case and determine if potentially preventable. |

### Moving Towards Zero

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Description</th>
</tr>
</thead>
</table>
| Daily Monitoring of C. Diff | - Create a unit-specific checklist based on cleaning protocols and perform observations to monitor disinfecting practices.  
- Monitor adherence to isolation precautions and hand hygiene practices.  
- Collect CDI days by clinical provider to identify potential opportunities. |

### Hardwiring

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Description</th>
</tr>
</thead>
</table>
| Culture  | - Promote a blame-free environment where individuals are able to report errors or near misses without fear of reprimand or punishment.  
- Engage environmental service workers to partner closely with infection prevention to reduce CDI.  
- Encourage collaboration across ranks and disciplines to seek solutions for patient safety problems.  
- Promote transparency of results from display on units to the board and public. |

### Key Resources


2. “Frequently Asked Questions about Clostridium difficile”  
ANTIMICROBIAL STEWARDSHIP PROGRAM

Department: Infection Control

Policy Number:

Effective Date:
01/06/2015

Revision Date:
01/07/2015

Reviewer: John Lynch

POLICY PURPOSE
This policy will provide a framework and scope of practice for the hospital antimicrobial stewardship program (ASP).

POLICY
Antimicrobial stewardship encompasses a broad array of interventions including antimicrobial use surveillance, monitoring of antimicrobial cost, adverse events, education, design of health information technology (HIT) tools and participation on the Pharmacy and Therapeutics Committee. These efforts are aimed at maximizing the utility and safe use of antimicrobials, minimizing inappropriate and unnecessary use, and preventing the development of antimicrobial drug resistance.

The key and necessary elements of the program include:

1. The participation of a physician with accountability and training in infectious diseases and/or antimicrobial stewardship with time allotted for work in this area
2. The participation of a pharmacist with accountability and training in infectious diseases and/or antimicrobial stewardship with time allotted for work in this area
3. The team actively engages in outreach, education and support of clinical pharmacists, trainees, nurses, physicians and other members of the care teams in the use of antimicrobials
4. The team utilizes standardized surveillance methods to monitor antimicrobial drug use and has a method for providing feedback to teams and individuals involved in the prescription and administration of these drugs
5. The ASP is an active participant in quality improvement initiatives and education around antimicrobial use
6. The team is an active participant in the Pharmacy and Therapeutics Committee
7. The ASP is actively involved in the development of order sets that support the appropriate and/or best use of antimicrobials for specific conditions.
As part of the Infection Control team, the ASP reports to the Medical Director of Infection Control and to the HMC Infection Control Committee.

REFERENCES
Policy Statement on Antimicrobial Stewardship by the Society for Healthcare Epidemiology of America (SHEA), the Infectious Diseases Society of America (IDSA), and the Pediatric Infectious Diseases Society (PIDS). Infection Control and Hospital Epidemiology, Vol. 33, No. 4, April 2012. (http://www.jstor.org/stable/10.1086/665010)

IDSA and SHEA Guidelines for Developing an Institutional Program to Enhance Antimicrobial Stewardship. Clinical Infectious Diseases, 2007:44. (http://cid.oxfordjournals.org/content/44/2/159.full.pdf+html)

REVIEW / REVISION DATES
01/07/2014

Signature:
John Lynch, MD, MPH
Medical Director
Infection Control/Antimicrobial Stewardship
<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>Separate hard lumps, like nuts (hard to pass)</td>
</tr>
<tr>
<td>Type 2</td>
<td>Sausage-shaped but lumpy</td>
</tr>
<tr>
<td>Type 3</td>
<td>Like a sausage but with cracks on the surface</td>
</tr>
<tr>
<td>Type 4</td>
<td>Like a sausage or snake, smooth and soft</td>
</tr>
<tr>
<td>Type 5</td>
<td>Soft blobs with clear-cut edges</td>
</tr>
<tr>
<td>Type 6</td>
<td>Fluffy pieces with ragged edges, a mushy stool</td>
</tr>
<tr>
<td>Type 7</td>
<td>Watery, no solid pieces. Entirely Liquid</td>
</tr>
</tbody>
</table>
Tool 4: Diarrhea Decision Tree Example—“Testable Stool” or Enteric Precautions Algorithm Based on Kadlec Regional Medical Center Example

Contact Enteric Precautions and Isolation Algorithm

First Loose Stool (Bristol Chart 6 or 7)  
**Or**  
Report of Diarrhea Preadmission

It is not necessary to isolate a patient who is receiving bowel prep

Initiate Contact Enteric Precautions and Isolation

3 Testable stools in 24 hours?

Yes  
Laxatives or stool softeners in last 24 hours which may be cause of diarrhea?  
No  

Notify Provider

Monitor for s/s of active infection*  
**Maintain Enteric Isolation** until provider DC’s order.

Yes  
Testing Ordered by Provider  
No

Collect loose stool only

Positive  
GDH (+), Toxin (-), PCR (+)  
**Or**  
GDH (+), Toxin (+)

Negative  
GDH (-), Toxin (-)  
**Or**  
GDH (+), Toxin (-), PCR (-)

Maintain Enteric Isolation

Notify provider for further directions *  
**Maintain Enteric Isolation until infectious etiology ruled out**

Contact Unit IP to DC Contact Enteric Precautions and Isolation

Maintain Enteric Isolation until no testable stool in a 24-hour period. After 24 hours contact IP to DC Enteric Precautions.

*Signs and symptoms of infection might include: elevated WBC, abdominal pain, abdominal cramping, fever, etc.
Contact Enteric Precautions

Display sign outside the door. Remove sign after room is cleaned.

Common Conditions:
- Acute diarrhea with unknown etiology
- Clostridium difficile [C. difficile]
- Norovirus
- Rotavirus

Duties:
- Family and visitors should not enter the room.

Diseases/Infections:
- No special precautions.Kitchenware sterilized in dishwasher.

Equipment and Supplies:
- Use dedicated or disposable equipment when available.
- Clean and disinfect reusable equipment in between use.

Personal Protective Equipment:
- USE SOAP AND WATER TO WASH HANDS WHEN LEAVING ROOM
- Put on in this order:
  1. Wash or gel hands
  2. Gown
  3. Mask (if needed)
  4. Eye cover (if needed)
  5. Gloves

- Take off in this order:
  1. Gloves
  2. Eye cover (if used)
  3. Mask (if used)
  4. Gown
  5. Wash with soap and water (even if gloves used)

Private Room:
- If not available, room with patient that has the same organism but no other infection

Room Cleaning:
- Thorough cleaning for enteric precautions with the addition of chlorhexidine-iodine solution
- Clean and disinfect with chlorine-based disinfectant as per hospital policy

Transport:
- Essential transport only. Place patient in clean gown. Clean and disinfect transport vehicle. Alert receiving department regarding patient's isolation precaution status
- Discontinue precautions as per hospital policy or Infection Preventionist instructions

Tool 6: Contact Enteric Precautions for Inside CDI Patient Room Signage Example

Attention Staff and Visitors Before Leaving the Room

Everyone Must
- Remove Gloves
- Remove Gown

- Wash Hands with Soap & Water for 15 seconds
- Do not Use Hand Sanitizer
- Do not Touch Surfaces in the Room after Washing Hands

Staff and Environmental Services:
- Clean Equipment and Environmental Surfaces with Bleach
### Infection Prevention Standard & Transmission-based Precautions Compliance Checklist

**Observer:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Unit</th>
<th>Km #</th>
<th>Caregiver Observed</th>
<th>Hand Hygiene?</th>
<th>Compliant with Post assessed Contact Enteric Precautions?</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
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<td>ME</td>
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</table>

*Based on Precautions: St. Joseph Medical Center Compliance Checklist*
Tool 8: WHO 5 Moments for Hand Hygiene


Hand Hygiene:
The World Health Organization outlined five key moments in the course of patient care that healthcare workers need to be mindful of in their infection prevention efforts. These should be combined with effective hand washing. This tool provides a printable poster (page 1) and a monitoring tool (tab 2). This is provided to assist the IP in their efforts to improve hand hygiene at the local level.

CDC Hand Hygiene Posters
- Clean Hands Save Lives
- Kill Bacteria?
- Hand Hygiene After Sampling Group (exo-virus-based manual in all group members)
- Hand Hygiene Screen Saver (ESM)
- Hand Hygiene Screen Saver (CDC)
# Tool 9: Hand Hygiene Compliance Monitoring Checklist Examples

(Kadlec Regional Medical Center and St. Luke’s Rehabilitation Institute).


<table>
<thead>
<tr>
<th>Hand Hygiene Observation and Contributing Factor Form</th>
<th>Date of Observation</th>
<th>Contributed by</th>
<th>Role (one only)</th>
<th>Observer</th>
<th>Coach</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

**Contributing Factors**

1. Dispenser location is not in path of person or is obstructed or hidden
2. Dispenser is empty
3. Equipment shared or disposal area (use of equipment shared between patients i.e. vital sign machine, portable x-ray, etc)
4. Equipment shared or disposal area (use of equipment shared between patients i.e. vital sign machine, portable x-ray, etc)
5. Equipment shared or disposal area (use of equipment shared between patients i.e. vital sign machine, portable x-ray, etc)
6. Equipment shared or disposal area (use of equipment shared between patients i.e. vital sign machine, portable x-ray, etc)
7. Equipment shared or disposal area (use of equipment shared between patients i.e. vital sign machine, portable x-ray, etc)
8. Equipment shared or disposal area (use of equipment shared between patients i.e. vital sign machine, portable x-ray, etc)
9. Equipment shared or disposal area (use of equipment shared between patients i.e. vital sign machine, portable x-ray, etc)
10. Equipment shared or disposal area (use of equipment shared between patients i.e. vital sign machine, portable x-ray, etc)
11. Equipment shared or disposal area (use of equipment shared between patients i.e. vital sign machine, portable x-ray, etc)
12. Equipment shared or disposal area (use of equipment shared between patients i.e. vital sign machine, portable x-ray, etc)
13. Equipment shared or disposal area (use of equipment shared between patients i.e. vital sign machine, portable x-ray, etc)
14. Equipment shared or disposal area (use of equipment shared between patients i.e. vital sign machine, portable x-ray, etc)

15. Admissions or discharge process
16. Isolation area (gown + gloves when required)
17. Lack of immediate feedback to person for hand hygiene compliance
18. Distractions/forgetfulness of knowledge/choice not to wash
19. Perception that if nothing is touched in the patient care area hand hygiene is not necessary
20. Perception of skin irritation or dislike of alcohol-based hand rub
21. Other
St Luke’s Rehab Hand Hygiene Compliance Audit Tool

Unit: ___________________ Month: _______________ Name: ___________________

*Please complete 10 observations on each sheet (if collecting for all units please write next to the number the unit the data is collected for).

General Instructions

In order to assess if staff is complying with the hand hygiene guidelines the Designee will conduct the assigned number of observations on the unit listed, during the assigned time frame listed above. The following elements are collected for each observation: Compliance with hand hygiene (GEL and/or SOAP & WATER), Compliance entering or exiting the room, and job title/position. These observations can include all personnel.

1. Patient care activity requiring hand hygiene interaction observed.
   a. HH Occurred: Yes or No  b. Going: IN or Out  c. Job/Title:

2. Patient care activity requiring hand hygiene interaction observed.
   a. HH Occurred: Yes or No  b. Going: IN or Out  c. Job/Title:

3. Patient care activity requiring hand hygiene interaction observed.
   a. HH Occurred: Yes or No  b. Going: IN or Out  c. Job/Title:

4. Patient care activity requiring hand hygiene interaction observed.
   a. HH Occurred: Yes or No  b. Going: IN or Out  c. Job/Title:

5. Patient care activity requiring hand hygiene interaction observed.
   a. HH Occurred: Yes or No  b. Going: IN or Out  c. Job/Title:

6. Patient care activity requiring hand hygiene interaction observed.
   a. HH Occurred: Yes or No  b. Going: IN or Out  c. Job/Title:

7. Patient care activity requiring hand hygiene interaction observed.
   a. HH Occurred: Yes or No  b. Going: IN or Out  c. Job/Title:

8. Patient care activity requiring hand hygiene interaction observed.
   a. HH Occurred: Yes or No  b. Going: IN or Out  c. Job/Title:

9. Patient care activity requiring hand hygiene interaction observed.
   a. HH Occurred: Yes or No  b. Going: IN or Out  c. Job/Title:

10. Patient care activity requiring hand hygiene interaction observed.
    a. HH Occurred: Yes or No  b. Going: IN or Out  c. Job/Title:
**Environmental Checklist for Daily and Terminal Cleaning: Room Observations**

**Hospital:**

**Date:**

**Initials of ES staff (optional):**

**Room:**

**Mark the monitoring method used:**

- Direct Observation
- Swab Cultures
- Aqur. Slide Cultures
- ATP System

**Instruction - Component**

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Photos</th>
</tr>
</thead>
<tbody>
<tr>
<td>At start, perform hand hygiene. Gloves for all rooms. PPE as required for isolations.</td>
<td></td>
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</tbody>
</table>

**DAILY  Patient Room**

**Disinfect HIGH TOUCH surfaces:**

When moving from high-touch/high-contamination zone to a less-contaminated zone, remove gloves, perform hand hygiene, don new gloves and change to fresh cleaning rag to prevent contamination.

- **Bed rails/controls**
  - Bed: head to foot, top to bottom
  - Call box/ Telephone (if on bed)

  To prevent cross-contamination, after cleaning bed, remove gloves, perform hand hygiene and don clean gloves. Change to a fresh cleaning rag before continuing.

- **Door Surfaces**
  - Spot clean walls with disinfectant cloth
  - Window sills
  - Countertops
  - Furniture for Visitors (Chair)

- **Clean HIGH TOUCH AREAS last**
  - Arms of patient chairs/sofa
  - Seat of patient chairs/sofa
  - Door knobs/ handles (inner and outer)
  - Bedside table, drawer and handle

[Link to environmental checklist spreadsheet](http://www.wsha.org/wp-content/uploads/07_08_16-Environmental-Checklist.xlsx)
Cleaning of Contact PLUS Precautions Patient Room: Key Points

1. Use approved bleach product or sporicidal for cleaning surfaces, bathrooms, and floors.

2. Perform hand hygiene when entering the room.

3. Change gloves after completing a dirty task or when visibly soiled. Perform hand hygiene after removing gloves.

4. Be sure to wash your hands upon exiting the room. **Alcohol-based hand gel is not effective against C. diff spores.** Based on facility design, a clean sink for hand washing may not be available in the patient room. In these cases, staff may use alcohol-based hand gel upon exit prior to immediately using a clean sink for hand washing with soap and water.

5. Wear appropriate personal protective equipment as directed on the isolation sign—gown and gloves at minimum. Remove personal protective equipment in the room. Do not wear personal protective equipment in the hallway.

6. When cleaning, **always move from clean to dirty, top to bottom.** Use friction and completely cover all surfaces with disinfectant solutions. Strictly adhere to wet/dwell times for specific products used.

7. Dispose of pumice stick and hand pad after each use. Dispose of bowl brush after each use.

8. Remove all curtains prior to doing any cleaning.

9. Inspect mattress and chairs in room and remove from service if torn or ripped per hospital policy.

10. For terminal cleaning, remove and dispose of all paper products from the bathroom, and replace after room is cleaned.

11. Restroom should be cleaned last—just prior to mopping floor.

12. For terminal cleaning, mop floor prior to making bed and hanging fresh curtains.

13. Ensure that wet/contact time is strictly adhered to when bleach or sporicidal product is used. Since white residue remains after cleaning with bleach, areas with residue will be wiped down with disinfectant after bleach dries.

14. Recommended time necessary for effectively cleaning and disinfecting a Contact PLUS Precautions room—up to one hour.

15. EVS staff will remove Contact PLUS Precautions signage once room is cleaned.

16. Process in place to notify EVS of patient with suspect or confirmed C. diff per facility policy—this may be signage, written, electronic, or telephonic notification.

17. Refer to and follow recommended Procedures for daily and terminal cleaning.
What is Clostridium difficile infection?

Clostridium difficile [pronounced Klo-STRID-ee-um dif-uhl-SEEEL], also known as “C. diff” [See-diff], is a germ that can cause diarrhea. Most cases of C. diff infection occur in patients taking antibiotics. The most common symptoms of a C. diff infection include:

- Watery diarrhea
- Fever
- Loss of appetite
- Nausea
- Belly pain and tenderness

Who is most likely to get C. diff infection?

The elderly and people with certain medical problems have the greatest chance of getting C. Diff. C. diff spores can live outside the human body for a very long time and may be found on things in the environment such as bed linens, bed rails, bathroom fixtures, and medical equipment. C. diff infection can spread from person-to-person on contaminated equipment and on the hands of doctors, nurses, other healthcare providers and visitors.

Can C. diff infection be treated?

Yes, there are antibiotics that can be used to treat C. diff. In some severe cases, a person might have to have surgery to remove the infected part of the intestines. This surgery is needed in only 1 or 2 out of every 100 persons with C. diff.

What are some of the things that hospitals are doing to prevent C. diff infections?

To prevent C. diff. infections, doctors, nurses, and other healthcare providers:

- Clean their hands with soap and water or an alcohol-based hand rub before and after caring for every patient. This can prevent C. diff and other germs from being passed from one patient to another on their hands.
- Carefully clean hospital rooms and medical equipment that have been used for patients with C. diff.
- Use Contact Precautions to prevent C. diff from spreading to other patients. Contact Precautions mean:
  - Whenever possible, patients with C. diff will have a single room or share a room only with someone else who also has C. diff.
  - Healthcare providers will put on gloves and wear a gown over their clothing while taking care of patients with C. diff.
  - Visitors may also be asked to wear a gown and gloves.
- Only give patients antibiotics when it is necessary.

What can I do to help prevent C. diff infections?

- Make sure that all doctors, nurses, and other healthcare providers clean their hands with soap and water or an alcohol-based hand rub before and after caring for you. If you do not see your providers clean their hands, please ask them to do so.
- Only take antibiotics as prescribed by your doctor.
- Be sure to clean your own hands often, especially after using the bathroom and before eating.

Can my friends and family get C. diff when they visit me?

C. diff. infection usually does not occur in persons who are not taking antibiotics. Visitors are not likely to get C. diff. Still, to make it safer for visitors, they should:

- Clean their hands before they enter your room and as they leave your room.
- Ask the nurse if they need to wear protective gowns and gloves when they visit you.

What do I need to do when I go home from the hospital?

Once you are back at home, you can return to your normal routine. Often, the diarrhea will be better or completely gone before you go home. This makes giving C. diff to other people much less likely. There are a few things you should do, however, to lower the chances of developing c. diff infection again or of spreading it to others.

- If you are given a prescription to treat C. diff, take the medicine exactly as prescribed by your doctor and pharmacist. Do not take half-doses or stop before you run out.
- Wash your hands often, especially after going to the bathroom and before preparing food.
- People who live with you should wash their hands often as well.
- If you develop more diarrhea after you get home, tell your doctor immediately.
- Your doctor may give you additional instructions.

If you have questions, please ask your doctor or nurse.
5 Minute Safety Huddle Clostridium Difficile (CDI)

Reducing Hospital acquired Clostridium difficile infections is a priority. **Charge nurses will review CDI precautions with staff at change of shift.**

1. Use effective hand hygiene practices
   - Wash hands with soap and water for 15 seconds when exiting room
   - Ensure patient washes hands before eating or taking medications

2. Assure compliance with Contact Enteric Precautions
   - Gown and gloves are required for all persons entering Contact Enteric Precautions rooms.

3. Respectfully coach one another when non-compliance with hand hygiene or contact enteric precaution is observed

4. Environmental cleanliness
   - Use **bleach-based** product (**dispatch wipes**) for room and equipment cleaning and disinfectant for suspected or confirmed CDI patients.
   - **Notify housekeeping daily to ensure bleach cleaning performed.**

5. Limit number of supplies stored inpatient rooms and avoid contamination (perform hand hygiene before accessing clean supplies)

6. Shower patient daily as tolerated to decrease skin colonization

7. Provide patient and family education
### Tool 14: Hospital Self Risk Assessment Tool for CDI Prevention


<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Name</th>
<th>Contact Info</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you currently have a well-functioning team focusing on CDI prevention and antimicrobial stewardship?</td>
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<tr>
<td>2. Do you have an effective project manager to run your CDI prevention team?</td>
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<tr>
<td>3. Do you have a committed nurse champion on the CDI prevention team?</td>
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<tr>
<td>4. Do you have a committed physician champion on the CDI prevention team?</td>
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<tr>
<td>5. Do you have a committed pharmacist champion on the antimicrobial stewardship team?</td>
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<tr>
<td>6. Do you have a committed executive leadership champion for environmental services?</td>
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<td>7. Name and contact info of the person for data submission?</td>
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<tr>
<td>8. Name and contact info of the primary contact person for all WSHA communication (webcasts, HEN data updates)</td>
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<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
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<tbody>
<tr>
<td>9. Do you have a process for assessing hand hygiene compliance?</td>
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<tr>
<td>10. Do you have a process for assessing environmental cleaning? (e.g. high touch surfaces, terminal cleans, etc.)</td>
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<tr>
<td>11. Do you have a process for assessing compliance with contact precautions?</td>
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<tr>
<td>12. Do you currently cohort surgical patients with CDI at the end of the day?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>13. Do you currently share CDI-related data (e.g. hand hygiene, environmental cleaning) in all patient care unit(s)?</td>
<td></td>
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</tr>
<tr>
<td>14. Do you currently have an antimicrobial stewardship program in place?</td>
<td></td>
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<tr>
<td>If yes, what tier criteria would your program meet?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(circle) Basic Intermediate Advanced</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>15. Do you currently have a staff member that has specialty training in antimicrobial stewardship?</td>
<td></td>
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<tr>
<td>16. Do you have a process in place to monitor antibiotic usage?</td>
<td></td>
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</tr>
<tr>
<td>17. Have you experienced any of the following barriers to CDI prevention or antimicrobial stewardship?</td>
<td></td>
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</tr>
<tr>
<td>a. Substantial nursing resistance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Substantial physician resistance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Substantial pharmacist resistance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Patient and family requests for inappropriate antibiotics?</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>17. What would be most helpful to advancing the work at your hospital?</td>
<td></td>
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</tbody>
</table>
Tool 15: CDC Facility Assessment Tools (draft) CDI Prevention

In draft form, not yet available. They will be posted here: https://www.cdc.gov/hai/prevent/tap.html

CDI Initial Facility Assessment Tool

Date of Assessment: ____________________

Facility ID: ____________________
Facility Type: ____________________
Other, Please Specify: ____________________
Unit ID (if unit-specific assessment): ____________________
Unit Type: ____________________
Staff administering tool (if applicable): ____________________
Title or role of person completing tool: ____________________
Other, Please Specify: ____________________
Years of experience at facility: (numeric response in years) ____________________

Your facility has been selected for this assessment because National Healthcare Safety Network (NHSN) data indicate an excess number of *Clostridium difficile* Infections (CDI). This initial assessment tool may be used to identify potential gaps in infection prevention and opportunities to improve antibiotic prescribing.

**Notes for the Respondent:**
- This assessment is meant to capture your awareness and perceptions of policies and practices related to CDI prevention at the facility.
- Responses should refer to what is currently in place at the facility/unit (i.e., at the time of the visit/communication).
- We are not here to evaluate you personally but rather to listen to your experiences as a member of the healthcare team. There are no right or wrong answers and your name will not be associated with responses or comments.
- Information will be used solely for the purposes of quality improvement activities to improve patient safety.

Once you have completed this form, there are 3 options for you to SUBMIT:

<table>
<thead>
<tr>
<th>Do you have a Desktop Email Application? (e.g., Outlook, Windows Live Mail)</th>
<th>Do you have a web-based email address? (e.g., Gmail, Yahoo)</th>
<th>Are you having trouble submitting? (e.g., No email application, Firewall is blocking submission)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Click SUBMIT</td>
<td>1) Click SUBMIT</td>
<td>1) Click the PRINT button</td>
</tr>
<tr>
<td>2) Select the top radio button (Desktop Email Application)</td>
<td>2) Select the bottom radio button (Internet Email)</td>
<td>2) Print to a local printer</td>
</tr>
<tr>
<td>3) CLICK OK</td>
<td>3) Copy the email address listed in the text next to the radio button</td>
<td>3) Give completed form to your facility Point of Contact</td>
</tr>
<tr>
<td>This will automatically generate an email with the completed form attached</td>
<td>4) CLICK OK</td>
<td></td>
</tr>
<tr>
<td>5) Save the document to your computer</td>
<td>6) Open your web based email, attach the file, and send to the email address you copied.</td>
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</tbody>
</table>

Pilot CDI Facility Assessment Tool – V 3.0

For Internal Use Only: Survey Number ____________________
### Inter-facility Infection Control Transfer Form

This form must be filled out for transfer to accepting facility with information communicated prior to or with transfer. Please attach copies of latest culture reports with susceptibilities if available.

<table>
<thead>
<tr>
<th>Sending Healthcare Facility:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient/Resident Last Name</td>
<td>First Name</td>
</tr>
<tr>
<td>Name/Address of Sending Facility</td>
<td>Sending Unit</td>
</tr>
<tr>
<td>Sending Facility Contacts</td>
<td>NAME</td>
</tr>
<tr>
<td>Case Manager/Admin/SW</td>
<td>Infection Prevention</td>
</tr>
</tbody>
</table>

**Is the patient currently in isolation?** □ NO □ YES  
**Type of Isolation (check all that apply)** □ Contact □ Droplet □ Airborne □ Other:  

Does patient currently have an infection, colonization OR a history of positive culture of a multidrug-resistant organism (MDRO) or other organism of epidemiological significance?  

- Methicillin-resistant Staphylococcus aureus (MRSA)
- Vancomycin-resistant Enterococcus (VRE)
- Clostridium difficile
- Acinetobacter, multidrug-resistant*  
- E coli, Klebsiella, Proteus etc. w/Extended Spectrum B-Lactamase (ESBL)*  
- Carbapenemase resistant Enterobacteriaceae (CRE)*  
- Other:  

**Does the patient/resident currently have any of the following?**  

- Cough or requires suctioning
g- Diarrhea
g- Vomiting
g- Incontinence of urine or stool
g- Open wounds or wounds requiring dressing change
g- Drainage (source)  

**Is the patient/resident currently on antibiotics?** □ NO □ YES:  

<table>
<thead>
<tr>
<th>Antibiotic and dose</th>
<th>Treatment for:</th>
<th>Start date</th>
<th>Anticipated stop date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

**Vaccine**  

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Date administered (If known)</th>
<th>Lot and Brand (If known)</th>
<th>Year administered (If exact date not known)</th>
<th>Does Patient self report receiving vaccine?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Influenza (seasonal)</td>
<td></td>
<td></td>
<td></td>
<td>□ yes □ no</td>
</tr>
<tr>
<td>Pneumococcal</td>
<td></td>
<td></td>
<td></td>
<td>□ yes □ no</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
<td>□ yes □ no</td>
</tr>
</tbody>
</table>

**Printed Name of Person completing form**  

<table>
<thead>
<tr>
<th>Signature</th>
<th>Date</th>
<th>If information communicated prior to transfer: Name and phone of individual at receiving facility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
REFERENCES


