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***Clostridium difficile* - Fact Sheet for Health Care Workers**

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What is *Clostridium difficile*?

Clostridium difficile (kloss-TRID-ee-um diff-ih-SEEL) is a type of bacteria. The bacteria are found in stool (feces) and live in the large bowel, also called the colon (part of the gastrointestinal, or GI, tract).

Some *C. difficile* strains can produce toxins that can cause diarrhea. The bacteria also make spores that can be found wherever fecal contamination has occurred and can be spread in the environment. Spores can survive hot and cold temperatures and contact with many chemicals, including alcohol-based hand sanitizers. When spores enter another person's GI tract, they can produce a *C. difficile* infection.

Infections due to toxin-producing *C. difficile* are referred to as *Clostridium difficile*-associated disease (CDAD).

What to look for (signs and symptoms of *C. difficile*)?

Patients with CDAD typically experience diarrhea, fever, as well as discomfort and bloating in the lower abdomen.

Although many cases present as mild diarrhea, which may resolve without treatment, CDAD can be severe. Untreated diarrhea or late treatment may lead to bleeding or rupture of the bowel, sepsis and/or death.

How is *C. difficile* transmitted?

When a person gets diarrhea from a *C. difficile* infection, the bacteria and spores can be spread to the environment from the stool (feces). The bacteria and spores can be found on toilet fixtures, furniture, personal items, and health care equipment that an infected person uses. The spores of *C. difficile* can survive for years on environmental surfaces. The bacteria and spores can be spread by unwashed hands or contaminated gloves. If another person touches the contaminated objects and then touches his or her face or mouth, *C. difficile* can enter the intestinal tract. This is called the fecal-oral route of infection. Frequent hand washing with soap and water, especially after using the toilet and

before touching food, can greatly reduce the chance of spreading *C. difficile*. Additional measures such as contact precautions and enhanced room cleaning are implemented to reduce the spread of *C. difficile* in the hospital.

How is *C. difficile* detected?

Stool samples will be collected from patients with watery diarrhea to test for *C. difficile*. The laboratory will test the stool for toxin-producing *C. difficile*. As described in the DSM Sample Collection Procedure Manual, liquid or soft stool should be passed directly into a sterile container (i.e. not collected in a bedpan or diaper) with a minimum volume of 5 mL. Up to 3 samples from 1 patient (no more than 1 per day) will be tested. Results will generally be available within 24 hours, but may take up to 5 days. Ideally, a second (or third) sample should not be submitted until the results of the previous test(s) are received. Once a positive result is reported, additional samples should not be submitted. If 3 samples are submitted and are negative, additional samples should not be sent for at least 7 days. Do not submit samples from patients on therapy who are clinically improving. Such "test of cure" samples are not useful and may be misleading as patients may excrete toxin for weeks following therapy despite good clinical response.

Who is at risk?

A healthy GI tract contains many different types of bacteria that do not make people sick. Some people have *C. difficile* among these other bacteria, but in normal conditions in the large bowel, the other bacteria are able to compete with *C. difficile* so that it does not overgrow. Sometimes, the normal bacteria are disrupted, allowing *C. difficile* to overgrow the normal flora. This may happen when taking antibiotics that kill the normal bacteria. The level of normal bacteria is reduced and *C. difficile* is able to grow to high levels. If the *C. difficile* strains present produce toxins, CDAD may occur. It is important to note that many patients experience diarrhea while taking antibiotics that is unrelated to *C. difficile*. This is simply referred to as antibiotic-associated diarrhea (AAD).



Patients: Some patients are at higher risk for developing CDAD. Some risk factors are:

- Current or recent antibiotic therapy
- Age > 65 years
- Hospitalization
- Severe underlying illness

Community: Healthy people living in the community are at low risk for CDAD. Community onset CDAD is often associated with antibiotic therapy.

Health care workers (HCW)/staff: HCW rarely acquire CDAD from patients they look after providing that the appropriate infection prevention and control precautions are followed. Adherence to the appropriate infection prevention and control precautions by HCW is essential to prevent the spread of *C. difficile* to other patients for whom the HCW is providing care.

How is *C. difficile* treated?

When a person develops CDAD, the doctor may suggest that the individual stop taking certain antibiotics. If the symptoms continue, the patient may be prescribed metronidazole (Flagyl®) or vancomycin. Additional therapies are being investigated including probiotics, toxin-binding agents, different antibiotics, and fecal transplants (introduction of harmless bacteria into the GI tract). If diarrheal symptoms return after successful treatment, the patient should contact their doctor immediately. A return of symptoms may be a recurrence of CDAD and may require additional antibiotic treatment. Approximately 1 in 4 people with CDAD have a recurrence of the infection after appropriate antibiotic therapy. The recurrence occurs because the spores remain in the large bowel despite the antibiotic treatment and start growing again and go on to cause disease. The spore form is not killed by the antibiotic therapy for CDAD.

What are the Infection Prevention & Control considerations?

Hand washing with soap and water is the best way for a person to avoid spreading *C. difficile* to other people and also is the best way for an uninfected person to avoid accidentally becoming infected. Alcohol-based hand sanitizers are **not** effective against *C. difficile* spores.

Routine Practices are required for all patient care activities to limit the spread of microorganisms. Key points include:

- Hand hygiene with soap and water before and after contact with every patient
- Good environmental cleaning, including patient equipment
- When gloves are used, they must be changed and hands washed, between procedures and patients

To reduce the risk of *C. difficile* transmission in a health care institution, known *C. difficile*-positive patients are placed on Contact Precautions as directed by Infection Prevention and Control. Refer to the facility's Infection Prevention and Control Manual for details on Routine Practices and Contact Precautions.

A single room is preferred for patients with CDAD.

Gloves should be worn in the patient's room and when handling potentially contaminated objects.

Gowns should be worn if contact with the patient or contaminated surfaces is anticipated or if there is an increased risk of environmental contamination (eg. an incontinent patient).

Special attention to environmental cleaning is required as *C. difficile* bacteria and spores can live in the environment for long periods if cleaning is not performed. Environmental cleaning should be performed twice daily in the patient's room using hospital grade disinfectant. All horizontal surfaces and window coverings must be cleaned upon discharge/transfer and all disposable items must be thrown away.

All equipment for patient care should be dedicated for the individual's use and should be disinfected or autoclaved before use with another patient.

CDAD is reportable to Communicable Diseases Control, Manitoba Health.

Please refer to Manitoba Health Infection Prevention and Control CDAD Guidelines and Management Protocol for more information

(http://www.gov.mb.ca/health/publichealth/cdc/fs/cdad_icg.pdf and <http://www.gov.mb.ca/health/publichealth/cdc/protocol/cdifficile.pdf>)