



Clostridium Difficile Infection

The human digestive tract is home to an estimated 500 to 1,000 different species of microorganisms, most of which are harmless, or even helpful, and live in harmony. However, if something upsets the balance, such as treatment with antibiotics or cancer chemotherapy, then certain harmful organisms can multiply out of control and cause illness. *Clostridium difficile* infection, or CDI for short, is an example of this. It is caused when the *Clostridium difficile* – commonly referred to as *C. difficile*, or *C. diff* – bacterium grows out of control.

CDI is the most common cause of infectious diarrhea in hospitals and long-term care facilities. In fact, patients often develop the infection after going to the hospital or other health care setting to receive treatment for another ailment. This is because the *C. diff* bacterium and its spores are found in high amounts in feces of infected people, who can then spread the infection to surfaces, such as food or other objects, if they don't wash their hands properly after using the toilet, and if proper cleaning protocols are not in place in health care facilities. A person might not have any symptoms and still be able to spread *C. diff* bacteria. Others could become infected if they touch these contaminated surfaces, then do not wash their hands thoroughly, and subsequently ingest the bacteria or spores.

Symptoms

When the gut's beneficial bowel bacteria are disrupted, the *C. diff* bacterium can multiply and produce toxins that damage the bowel, causing inflammation. Colitis is a term that describes inflammation of the colon, so you might hear the term *Clostridium difficile* colitis to describe this inflammation, which is different from ulcerative colitis, a type of inflammatory bowel disease.

The symptoms of CDI include liquid diarrhea, dehydration, fever, appetite loss, and abdominal pain or tenderness, which are often severe, causing major distress and pain. In very serious cases, *C. diff* infection can even result in death.

Causes and Contributing Factors

A person might harbour *C. diff* bacteria in their gut but not

become sick, because the beneficial bacteria in their intestine keep it in check. However, there are a few risk factors that, when present, can increase the chance of contracting *C. diff* infection. These include:

- being older than 65 years of age,
- taking antibiotics, especially over a prolonged period of time,
- having a severe underlying illness,
- being in an immune-compromised state,
- receiving chemotherapy to treat cancer,
- taking proton pump inhibitors (Dexilant®, Losec®, Nexium®, Pantoloc®, Pariet®, Prevacid®, Tecta®) to reduce stomach acid,
- having had a previous episode of CDI, and
- having a prolonged hospital or care home stay, because you have an increased risk of being exposed to the bacterium.

Diagnosis

Physicians will often suspect CDI if their patients experience diarrhea after a stay in the hospital, especially if they have recently taken antibiotics. However, there are stool analysis tests that can detect toxins produced by CDI and provide a definite diagnosis.

Recurrent CDI

A recurrent case of CDI is the return of symptoms, with lab confirmation of *C. diff* infection, after successful treatment for a previous bout of CDI. Most recurrences happen within 1-8 weeks. In other words, recurrence means experiencing more than one episode after the previous episode has been treated. This is a major challenge, as recurrent CDI can be a large burden to patients and society.

Unfortunately, *C. diff* is a resourceful bacterium. It forms spores that are resistant to antibiotics and to many alcohol-based cleaning agents, which allows the bacterium and its spores to last on surfaces for months. Each episode of CDI increases the likelihood of a further recurrent episode. Many patients can experience multiple occurrences over the course of

their stay in a health care facility or have to return repeatedly to a hospital because it recurs. Approximately one in four patients who experience one episode of *C. diff* will have a recurrence. Of this group, about 45% will experience another episode, and of those patients, 60% will experience further bouts of the infection.

Prevention and Management

The most commonly used treatments for *C. diff* are antibiotics. Unfortunately, for a number of reasons, there are still limitations with these standard treatments. Since *C. diff* is often resistant to many types of antibiotics, researchers have been looking for more effective treatments. One promising option is fecal transplant, which works by fixing the balance of microorganisms in the gut. Newer treatments are also under development.

There are many types of antibiotics available, some of which move throughout the blood stream, and some that target certain areas of the body. Vancomycin is an antibiotic that physicians have used to treat CDI for decades because it primarily targets the gut. However, this extensive use of vancomycin has led to some *C. difficile* strains being resistant to the antibiotic. A newer antibiotic, fidaxomicin (Dificid®), also works primarily in the gut, but it targets the *C. diff* bacterium effectively while preserving normal gut flora. Dificid® is more effective than other antibiotics in preventing recurrences.

Despite the efforts hospitals go through to combat rates of CDI, many are still experiencing outbreaks. Some hospitals have incorporated novel technology to help clean rooms, such as ultraviolet lights that kill bacteria left after conventional cleaning, while others have greatly enhanced infection control measures that include diligent hand washing programs. However, effective treatment for CDI remains an important element in managing the challenges associated with *C. diff* infections in the hospital.

The most important aspect of the infection is the profound impact it has on a patient's quality of life. In addition to the painful physical effects and lifestyle consequences, *C. diff* might also have a significant emotional impact. It can be as uncomfortable to discuss as it is to manage.

Outlook

If you or someone you know is suffering from *Clostridium difficile* infection, there are resources available to help ease the situation. Speak to your health care provider about available treatments, including those that are newer, to understand which option is optimal for your situation.



ABOUT US

As the Canadian leader in providing trusted, evidence-based information on all areas of the gastrointestinal (GI) tract, the Gastrointestinal Society is committed to improving the lives of people with GI and liver conditions, supporting research, advocating for appropriate patient access to health care, and promoting gastrointestinal and liver health.

The *Inside Tract*®, our quarterly newsletter, provides the latest news on digestive and liver research, disease and disorder treatments (e.g., medications, nutrition), and a whole lot more. If you have any kind of digestive problem, then you will want this timely, informative publication.



Please subscribe today!

The GI Society, in partnership with the Canadian Society of Intestinal Research, produced this pamphlet under the guidance of affiliated health care professionals. This document is not intended to replace the knowledge, diagnosis, or care of your physician. © GI Society 2019. All rights reserved.

SUBSCRIPTION/DONATION FORM

Purchase Information

- I enclose a donation of \$_____ (Eligible for a tax receipt)
 I enclose a \$20 annual subscription fee (\$30 outside Canada)

Total \$ _____

Name (Mr./Mrs./Ms./Dr./Other _____ Please circle one)

Company Name (Optional)

Street Address

City, Province, Postal Code

Daytime Phone

Email

- Patient Friend/Family Member Professional

Diagnosis/Area of Interest (This optional information helps us to determine which topics might be of interest to you and is kept strictly confidential. We never sell our lists.)

Would you like more information? Please list your topics.

Payment: Visa Mastercard Cheque Enclosed*

Credit Card Number

Expiry Date

*Make cheque payable to the **GI Society**.

Gastrointestinal Society
231-3665 Kingsway
Vancouver, BC V5R 5W2
Phone: 604-873-4876

Toll-free: 1-866-600-4875
Fax: 1-855-875-4429
Email: info@badgut.org
Website: www.badgut.org

Charitable Registration Number: 817065352RR0001