

6. Clostridium difficile-associated disease (CDAD)

(Notifiable)

Description: *Clostridium difficile* produces a diarrhoeal disease that varies in severity from asymptomatic colonisation to severe diarrhoea and complicating colitis. It has become a common cause of hospital acquired infections. *C. difficile*-associated disease (CDAD) is nearly always associated with, and triggered by, the use of antibiotics in elderly or debilitated hospitalised patients. Its public health importance lies in the scale of illness, the severity of disease, the emergence of strains producing more damaging toxins and in the disruption produced in hospitals and nursing homes. HPSC has published extensive national expert guidance on the management of [CDAD](#).

Annual Numbers: About 1,500 cases per year.

Seasonal Distribution: There is no defined seasonal pattern of incidence.

Causative Agent: *C. difficile* induces tissue damage through the toxins that it produces. These toxins are enterotoxins (toxin A and toxin B).

Reservoir: The human gastrointestinal tract. It is part of the normal gut flora of children under two (asymptomatic colonisation *C. difficile* can be present in up to 80% of healthy newborns and infants). Asymptomatic carriage is seen in about 3% of healthy adults and up to one-quarter of hospital patients. Spores can survive for extended periods in the environment.

Transmission:

Primary: person to person is a highly significant method of transmission. Transmission is by the faecal oral route and environmental contamination. Hospital equipment such as commodes, bedrails, and bedpans are the areas most likely to be contaminated.

Transmission to healthcare staff, although reported, is rare. Transmission is very unlikely from an asymptomatic carrier. *C. difficile* has moderate outbreak potential when transmitted from person to person.

Outbreak Potential: *C. difficile* has moderate to high outbreak potential, particularly in healthcare settings.

Incubation period: The important epidemiological period for *C. difficile* is the period between initiation of antibiotics and development of diarrhoea and this is typically between 5 and 10 days after commencement of antibiotic therapy but may be prolonged up to ten weeks after.

Period of communicability: This can be difficult to determine as asymptomatic patients and those who have been successfully treated may shed the organism in their stools.

Epidemiology: Infection is particularly associated with antibiotic (especially broad spectrum antibiotics) use, which disrupts the normal flora of the gut rendering it susceptible to colonisation by and proliferation of *C. difficile*. Risk factors include recent antibiotic administration, advancing age, recent gastrointestinal surgery or procedures, immunosuppressive therapy and concurrent illness. Clusters and outbreaks have only been described in hospital and nursing homes.

Exposure-prone groups: Hospital patients, residents in institutions, healthcare workers and those on broad-spectrum antibiotics.

Clinical Features: Typical features include diarrhoea, fever, loss of appetite, nausea, abdominal pain/tenderness. In most patients, the illness is mild and they usually make a full recovery. However elderly patients may become seriously ill with dehydration as a consequence of the diarrhoea. Prior antibiotic therapy, significant diarrhoea (> three partially formed or watery stools per 24 hour period), and abdominal pain have been shown to be independent predictors for toxin-producing *C. difficile*. CDAD tends to present as diarrhoea, abdominal cramps, fever and leucocytosis. Pseudomembranous colitis (PMC) is the most severe complication producing a pan-colitis characterised by fever, pain and decreased gut motility often with only mild diarrhoea. It is important to note that severe disease may present as abdominal pain and distension without diarrhoea.

CDAD is mainly associated with healthcare settings – recent broad spectrum antibiotic use often precedes illness

Clinical Management of Cases: Most cases will be identified in hospital/long stay institution and the two most important interventions will be application of enteric and standard precautions to prevent further cases.

- If infection occurs in a hospitalised patient, isolation or cohorting of affected patients is required.
- If safe to do so, all current antibiotics should be discontinued. If continuation of antibiotic therapy is clinically indicated, transfer to one with a lower likelihood of inducing CDAD may be possible. Normally this should be in consultation with a Consultant Microbiologist or Infectious Disease Physician.
- Antidiarrhoeal or antimotility agents are not indicated. Obtain medical microbiological advice on alternative antibiotic treatment - currently metronidazole or vancomycin (in pregnancy or those intolerant of metronidazole) are the antibiotics of choice. Severe, complicated disease may require colectomy. Determine if case is in a risk category.

The case should be notified to the local Department of Public Health. It is important to determine if the case is aware of similar cases suggesting the possibility of an outbreak. Determine if case is in a risk category.

Public Health Management of Cases: Public Health action may be required for cases in community institutions which do not have ready access to a clinical microbiologist. As in a hospital setting, the priorities will be instituting of enteric and standard precautions to prevent onward transmission. Determine if cases are potentially linked.

Management of Contacts: Monitor susceptible contacts (elderly, those on antibiotics)

Exclusion: Until 48hr after first normal stool. There is no need to exclude asymptomatic carriers from nursing homes once hygiene levels are acceptable. Repeat testing when clinical features have resolved (for microbiological clearance) is not appropriate.

Microbiological Clearance: Not required.

Notifiable: to the local [Medical Officer of Health](#).