

Clostridioides difficile

Reducing the risk of infection by targeted surface disinfection

What is *Clostridioides difficile*?

Clostridioides difficile belongs to the family *Clostridiaceae*. It is an anaerobic, spore-forming, Gram-positive bacterium. Colonisation with *C. difficile* is 20-40% among hospitalized patients. Most remain asymptomatic. However, some patients can develop serious infections. In fact, *C. difficile* is the most frequent cause of nosocomial and antibiotic-associated diarrhoea.

C. difficile particularly challenges the hygiene management, as it can form resistant permanent forms, so called spores. To prevent outbreaks and infections it is therefore imperative to carefully plan a surface hygiene and use disinfectants with sporicidal activity.

How is *C. difficile* transmitted?

C. difficile is transmitted via the fecal-oral route, either directly or indirectly:

What are the symptoms of an infection with *C. difficile*?

C. difficile infection involves sudden diarrhoea with characteristically foul-smelling stool. A distinction is made between infections and severe infections.

Mild to moderate progression:

- watery diarrhoea
- lower abdominal pain
- sickness
- fever

Severe progression:

- pseudomembranous colitis
- possible complications: toxic megacolon, intestinal perforation, sepsis

Transmission path	Carrier
Direct transmission 	Hands, e.g. of medical and nursing staff.
Indirect transmission 	Colonised surfaces (e.g. light switches, bedside tables, bedframes, washbasins, toilets). When touching the surfaces, the microorganisms get on the hands and are then transmitted to other persons (cross contamination).

Surface disinfection in case of *C. difficile*

What requirements need to be considered when disinfecting surfaces?

Direct patient surroundings are often contaminated with *C. difficile* spores – even near patients without manifested infection. Symptomatic patients excrete large numbers of bacteria and spores with the watery stool, which can then contaminate the environment.

Surfaces that are particularly often touched by patients and staff present an especially high risk of infection. In general, hygiene measures to contain *C. difficile* should be defined in a facility-specific hygiene plan. Depending on the risk assessment, it is advisable to carry out the following surface hygiene measures:



Endemic setting:

- Rooms with *C. difficile*-infected patients → Daily wipe-disinfection (focus on high-touch surfaces, e. g. bedframes, bedside tables, and bathroom)
- Visibly contaminated areas → Targeted disinfection
- After patient discharge → Terminal disinfection (all accessible surfaces, bathroom and floor); Reprocessing of the patient bed (including mattress) and bedside table

Outbreak setting:

- Additional disinfection of corridors and hand rails as well as side rooms on the affected ward

TIP

Patients with *C. difficile* infection excrete high numbers of bacteria and spores with their stool. The bacterium's vegetative form can survive for 15 minutes on surfaces only. Spores, however, can remain infectious for up to five months. Hence, when disinfecting surfaces, specified exposure times need to be observed.

What needs to be considered when selecting the surface disinfectant?

Surface disinfectants should have bactericidal and sporicidal activities to inactivate both *C. difficile* and its spores. Preferred active ingredients to achieve an effective surface disinfection are oxidants such as peracetic acid or sodium hypochlorite as well as aldehydes.

Sources:

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