



# Preventing Clostridium difficile Transmission in Hospitals: Family Members Adherence to Infection Control Knowledge

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## Samples of Literatures Reviewed

### BACKGROUND

\* *C. difficile* is an opportunistic, gram-positive, anaerobic, spore-forming bacillus whose effects clinically can be self-limiting diarrhea to a life-threatening toxic megacolon and peritonitis.

\* *C. difficile* is one of the most widespread hospital acquired infections in Canada, the United States, and Europe leading to long hospital stays and high mortality.

\* Despite widespread knowledge that consistent adherence to contact isolation precautions is a cornerstone of CDI prevention, recent studies continue to demonstrate poor healthcare worker (HCW) compliance with these basic yet crucial infection prevention interventions.

\* Hand hygiene has been shown to be the most important risk factor in hospitals acquired infections

### METHODS

\* A systemic review was conducted from various journals using PubMed and Cochrane Library databases.

\* Key terms were used to select 30 articles that meet the criteria of this study from 2015 to 2018. The articles were categorized according to research type.

\* Each article was analyzed following the principles of systematic review.

Author/Study	Objective/Sample Size	Methods/ Design	Outcome
Seibert G, Ewers T, Barker AK, Slavick A, Wright MO, Stevens L, Safdar N (2018): What do visitors know and how do they feel about contact precautions	CDI is a major hospital-acquired infection that can result in death, and while the CDC has guidelines for health care workers, but no recommendation are specific to visitor use of PPE. Sample size: 31 visitors of CDI patients	Over a 3-month period, visitors of adult inpatients were given a qualitative, open-ended, interviewer-administered survey.	90% of visitors were family members who perceived low risk was approximately half of the reasons for non compliance  Most visitors felt there was adequate access to PPE, and HCW behavior may encourage compliance
Balsells, E., Filipescu, T., Kyaw, M.H., Wiuff, C., Campbell, Nair, H. (2016): Infection prevention and control of Clostridium difficile: a global review of guidelines, strategies, and recommendations	C. Difficile is the leading cause of healthcare-associated infections, and professionals should be aware of most current guidance. Sample size:28 acute care hospitals in North America, the Western Pacific, and Europe.	Identification of publicly available national or organizational guidelines related to CDI infections between 2000 and 2015 using Google search engine	Antimicrobial stewardship was universally recognized as essential, and strong recommendations were effective environment cleaning, use of PPE, surveillance, and education.
Ragusa, R., Giorgianni, G. Lupo, L., Sciacca, A., Rametia, S., La Verde, M., Mulè, S., Marranzano, M. (2018): Healthcare-associated Clostridium difficile infection: role of correct hand hygiene in cross-infection control.	The epidemiology of CDI in a teaching hospital in Southern Italy during two-year-surveillance period, and an evaluation of the percentage of adherence to official hand washing procedures, by hospital care personnel, to determine whether any correlation does exist. Sample size: 854 CD patients with clinical symptoms of diarrhea. Approximately 400 Hand Hygiene (HH) opportunities were observed	All stools samples were tested with a two-step algorithm for detecting toxigenic CD. Compliance of hand washing procedures described in World Health Organization (WHO) guidelines, while delivering routine care. The incidence rate of CDI cases per area with its compliance rate to hand washing procedure was then assessed.	Proper handwashing of health-care workers appears to be a key intervention in interrupting CD cross infections regardless of age and type of department in which the patient is admitted.
Shaughnessy, M. K., Bobr, A., Kuskowski, M. A., Johnston, B. D., Sadowsky, M. J., Khoruts, A., & Johnson, J. R. (2016): Environmental Contamination in Households of Patients with Recurrent Clostridium difficile Infection	Although <i>C. difficile</i> spores persist in the hospital environment and cause infection, little is known about their potential presence or importance in the household environment. Sample Size: 8 peri-fecal microbiota transplantation (FMT) and 8 control households underwent surveillance of the household environment and the human and animal residents.	Three household groups (peri-FMT, post-FMT, and control) were compared	Peri-FMT households had a significantly higher prevalence of <i>C. difficile</i> contamination (100%) than did control or post-FMT households (38% each) and had significantly more <i>C. difficile</i> -positive sites per household than did control households.

### RESULTS

\* Universally, antimicrobial stewardships is recognized as essential, as was effective environmental cleaning, surveillance, and education.

\* Lack of full compliance due to lack of appropriate hand hygiene prior to entering a patient's room.

\* Knowledge gaps in characteristics of *C. difficile* identification, diagnosis, and treatment were issues worldwide

### CONCLUSIONS

\* *Clostridium difficile* is a highly contagious organism that must be identified quickly to prevent the spread of infection. Meticulous hand hygiene is necessary to avoid spreading or re-infecting.

\* Antibiotic therapy, proton pump inhibitor treatment, previous hospitalization and CDI were identified as risk factors for CDI.

\* Further research study is needed to assess whether education and knowledge affect compliance rate of infection control protocol.

\* Empowering family members that have direct contact with patients can contribute to preventing the spread of infection. It has been noted that continue education can be the key factor in adherence to precaution to prevent spread of infection.