Title:
Preventing Clostridium Difficile Transmission in Hospitals: Family Members Adherence to Infection Control

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ACCEPTED

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Clinical, Students, Researchers

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Clostridium difficile, Family teaching and Infection control

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Abstract Summary:
Despite widespread knowledge that consistent adherence to contact isolation precautions is a cornerstone of Clostridium difficile Infection (CDI) prevention, recent studies continue to demonstrate poor compliance with these basic yet crucial infection prevention interventions, although hygiene has been shown to be the most important risk factor in hospitals acquired infections.

Content Outline:

1. Introduction
   
1. C. difficile is the most widespread hospital acquired infection in Canada, the United States, and Europe

1. Proper hygiene has been shown to be the most important risk factor in hospitals acquired infections.

1. Body
   
1. Main Point #1: Healthcare workers and family members of patients that have been infected with C.difficile can play a role in spreading the infection to others in the community as they have direct contact with the infected patient.

1. Supporting point #1: C. difficile infection is considered largely preventable if optimal infection control practices are consistently and regularly adhered to.

1. a) recent studies continue to demonstrate poor compliance with these basic yet crucial infection prevention interventions

III. Conclusion

1. Antimicrobial was universally recognized as essential, with effective environment cleaning, use of PPE, surveillance, and education.

1. Major barriers identified were knowledge gaps in characteristics of C. difficile identification, diagnosis, treatment, and prevention, hand hygiene.
Abstract Text:

Background: *Clostridium 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. Aside from methicillin-resistant *Staphylococcus aureus* infection (MRSA), *C. difficile* is the most widespread hospital acquired infection in Canada, the United States, and Europe (Ragusa, R., Giorgianni, G., Lupo, L., Sciacca, A., Rametta, S., La Verde, M., Mulè, S., Marranzano, M., 2018) leading to long hospital stay and high mortality. Recurrence of CDI is also common, with 20 to 35% of patients having a first recurrence and 45% of these individuals subsequently having a second recurrence. (Yanke, E., Zellmer, C., Van Hoof, S., Moriarty, H., Carayon, P., Safdar, N., 2015) Some patients experience numerous recurrences, which ultimately may lead to fecal microbiota transplantation (FMT). Carriage of *C. difficile* by household pets, notably dogs and cats, was also found to be common. (Loo, V. G., Brassard, P., & Miller, M. A., 2016) *C. difficile* infection is considered largely preventable if optimal infection control practices are consistently and regularly adhered to. (Shaughnessy, M. K., Bobr, A., Kuskowski, M. A., Johnston, B. D., Sadowsky, M. J., Khoruts, A., & Johnson, J. R., 2016) However, there is significant variability across institutions regarding adherence to and implementation of *C. difficile* infection prevention practices. (Balsells, E, Filipescu, T, Kyaw, M.H., Wiuff, C, Campbell, H, Nair, H., 2016) Despite widespread knowledge that consistent adherence to contact isolation precautions is a cornerstone of CDI prevention, recent studies continue to demonstrate poor compliance with these basic yet crucial infection prevention interventions, although hygiene has been shown to be the most important risk factor in hospitals acquired infections. This review is on *C. difficile* infection and the importance of family members adherence to infection control using current literatures.

Method: Using CINAHL, COCHRANE and PubMed datasets, current related articles from 2015-2019 were searched based on method, sample size, types research type and evidenced based as evidenced in table 1.

Results: The results showed that despite signage and readily available supply, only 42% visitors were fully compliant in one survey result. Antimicrobial was universally recognized as essential, with effective environment cleaning, use of PPE, surveillance, and education. In addition, lack of appropriate hand hygiene prior to room entry was the most common reason for lack of full compliance. Appropriate hand hygiene could be performed inside patient rooms, but complete visibility into patient rooms was not always possible. Major barriers identified were knowledge gaps in characteristics of *C. difficile* identification, diagnosis, treatment, and prevention, hand hygiene and use of contact precautions was inconsistent. However, placement of easily visible sinks in a surgical transplant unit was associated with improved adherence to handwashing. A co-horting method resulted in an increase in the rate of reinfection, which despite standard environmental disinfection techniques, is probably caused by the persistence of spores in the environment. It was shown that co-horting as a single intervention did not show any reduction in the spread of CDI, and it seems to be useful as a component of a multifaceted intervention. Finally, it was recommended that the implementation of the CDAT (CD Action Team) led to
significant improvement in (BM) documentation, use of proton pump inhibitors, and antibiotic selection for non-CD infections.

**Discussion & Conclusion:** Family members of immunocompromised patients that have been infected with *C. difficile* can play a role in spreading the infection to others in the community as they have direct contact with the infected patient. However, an active team on *C. Difficile* control is needed in order to adhere to the hospital policy and ensure that all visitors and family members are aware of the rationale for effective Washington of hands as they enter and leave the patients. This policy may be the most effective variable in combating the spread of *D. Difficile* in healthcare institutions as recommended in current literatures.

**Implication for Practice:** This review has examined the knowledge of family members of immunocompromised patients related to *C. difficile* as well as areas of knowledge deficits among family members. It has shown the gap, that education deficit and a team that oversees that handwashing adherence is adhered may be the most effective factor that would reduce the spread of this deadly pathogens, which may finally decrease the prevalence of hospital acquired infection in the healthcare facilities.