

**TITLE:** *CLOSTRIDIUM DIFFICILE* INFECTION IN PATIENTS WITH DIARRHEA IN A CHILDREN'S HOSPITAL, FORTALEZA, CEARÁ

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**ABSTRACT:**

*Clostridium difficile* is a strictly anaerobic, spore-forming, toxin-producing Gram positive bacillus. Currently, it is the main cause of nosocomial diarrhea associated with antibiotic use. The incidence of *C. difficile* infection (CDI) is increasing, even in populations previously thought to be at low risk, including children. Children are susceptible to both community-associated and hospital acquired infections, and CDI is a complicating factor in several pediatric diseases. Considering the pathogenicity of *C. difficile* and the importance of this infection in hospitalized patients, this study aimed to determine the incidence and the phenotypical and genotypical characterization of strains of *C. difficile* isolated from children patients (18 months to 16 years of age) at Albert Sabin Children's Hospital, Fortaleza, Ceará. During the 18 month period (Jan/2015 to Dec/2016) 32 diarrheic fecal samples were collected. Toxins A/B were detected from feces through a commercial ELISA detection kit. Then, the samples were cultivated on ceftiofime-cycloserine-fructose agar (CCFA) and incubated anaerobically. Isolates were submitted to phenotypical identification, detection of toxin genes and fragment of *tpi* gene (definitive identification) by conventional PCR. Out of 32 samples, 31% (10/32) were positive for either one or both of the performed tests: detection of toxin A/B and/or culture of *C. difficile*. *C. difficile* was recovered from three samples (30% - 3/10). The *tpi*, *tcdA* and *tcdB* genes were detected in all of the isolates. The binding domain of the binary toxin (*cdtB*) was not detected as well as no deletions were observed in the *tcdC* gene of the analysed isolates. Genotyping of the strains is in process through molecular PFGE analysis. This work describes the incidence of CDI in children patients highlighting the importance of studying this bacterium for understanding the epidemiological situation of this infection and its spread among Brazilian hospitals.

**Keywords:** CDI, Children patients, *Clostridium difficile*, Diarrhea.

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