# *Severity Of Clostridioides difficile Infection Based On Toxin Analysis, Use of Acid Suppressant Medications and Antibiotics*

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## Background

- ***Clostridioides difficile*** **(C. *difficile*) infection (CDI) is a major health problem in the United States and despite updated guidelines, the laboratory diagnosis remains vexed.**
- **A multistep algorithm is recommended to diagnose CDI that includes antigen, toxin and toxin gene Nucleic Acid Amplification (NAAT) assays.**
- **This study was done to assess severity of CDI based on toxin B and NAAT statuses.**
- **We analyzed if prior use of antibiotics and PPI/H2B (Proton Pump Inhibitors and H2 blockers) affected severity of CDI as an exploratory objective.**

## Methodology

- **Retrospective analysis of all adult patients admitted to our tertiary care center with diarrhea and a positive C. difficile antigen test from 01/2017-12/2017 was performed (Figure 1)**
- **Patient demographics, laboratory data, medications including antibiotics, PPI/H2blocker, probiotics, clinical characteristics of CDI, history of chemotherapy and transplant were analyzed.**
- **Severity of CDI was based on IDSA guidelines**
- **Fischer's exact was used for statistical analysis.**

## Results

- **The mean age at diagnosis was 55.96 years.**
- **Toxin B was detected in 34% (57/168) patients and Toxin NAAT positive in 66% (111/168) patients.**
- **57% of CDI was health care onset compared to 43% with community onset.**
- **42% (72/168) were classified as severe out of which 40.2% (29) were toxin B positive, and 59.8% (43) were NAAT positive.**
- **There were no significant differences in severity of CDI based on toxin B and NAAT status (50.9% vs 38.4%, p=0.14).**
- **46% of cases from community vs 39.6% from hospitals were classified as severe CDI (p=0.415).**
- **72% of cases had antibiotic use in the last 30 days.**
- **Use of antibiotics was significantly associated with severe CDI (82% vs 64%, p=0.015).**
- **62.5% (105) patients had history of PPI/H2B use and severity was not significantly associated with its use (p=0.872).**


Figure 1

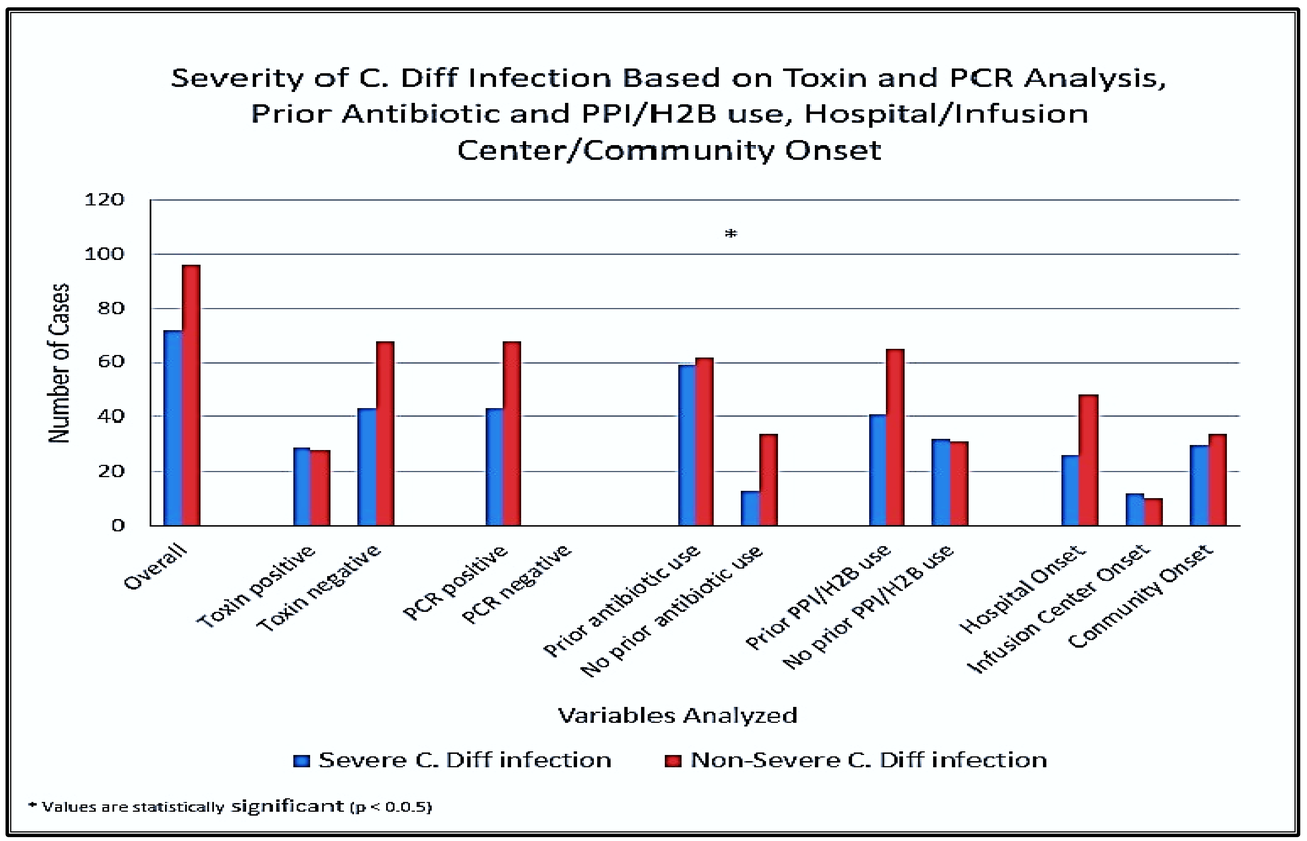


Figure 2

## Discussion

- **Our study shows that the presence of toxin did not significantly impact the clinical severity of CDI.**
- **The use of antibiotics did not affect the presence of toxin although the total number of CDI cases with previous antibiotic exposure was high.**
- **Patients who had recent antibiotic exposure were more likely to have severe clinical presentation. From an antibiotic stewardship stand point, this is a significant finding.**
- **More toxin positive cases were health care onset, but the effect was not pronounced.**
- **CDI with a health care onset did not have significantly worse severity than community onset.**
- **Our cohort has a higher prevalence of patients on active chemotherapy than previously studied.**
- **Severity of CDI did not significantly depend on exposure to PPI/H2B.**

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