

Predictors of Clostridium difficile infection and  
predictive impact of probiotic use in a diverse hospital-wide cohort

### Overview

- This study was retrospective cohort study on clostridium difficile infections (CDI) and its predictors in a hospital setting at the University of New Mexico University Hospital.

### Abstract

- The abstract gives pertinent information about CDI, the study, the cohort being studied, and the location of study.
- The abstract gave concise results of the article that were easy to understand and alludes.

### Introduction

- The authors clearly defined CDI, the relevance CDI has to the health care system, and the relevance of this study to UNM hospital.
- The authors did a good job of including current statistics about CDI and how a CDI infection impacts patients in a hospital setting.
- The authors primary objective of the study was clearly stated in the last paragraph of the introduction which set up for more information to be discussed later on in the paper.

### Methods

- The methods were formatted in a way that is easy to read and understand.
- They tell us about the hospital where the study is being conducted, how the data being used were collected (retrospective chart review).
- The authors clearly defined the case definition that was used.
- The cohort being studied is representative of the population.
- Eludes to seasonality of CDI
- Gives a background into the statistical reasoning of the paper
- Includes a section on post-hoc analyses in order to give further information on the comparisons
- Table 1:
  - The authors did a great job of braking down the difference between high, moderate, and low risk antibacterial agents in a clear and concise way.

### Results

- The results section did a great job of breaking down the information into sections therefore making it easier to read and follow.
- Clearly defines what the results of the study were.
- Table 2
  - Great job of organizing the data
  - I like how the authors included the percentages of each subset of data. This made it easier to relate it back to the study population.
- Table 3
  - Made the location of diagnosis easy to understand
  - I like how they authors included confidence intervals rather than just p-values

- Clearly states that patients in the ED had the highest odds of a positive assay and that patients given a moderate and high-risk antibacterial agent along with a probiotic were at much more of an increased risk for CDI than those who were given a low risk antibacterial. Antifungal in addition with a probiotic increased the risk.

### **Discussion**

- The authors clearly state the limitations of the study and discuss why the results seen here cannot be extrapolated.
- The authors summarized the paper well in the last paragraph.
- Gives rise to the role that culture, race, and SES play when discussing CDI.
- The article gave great information of the topic of study, but also allowed for the postulating of further questions that need to be answered.
- Interesting how the use of probiotics increases the risk of CDI

**It is recommended that this article be accepted for publication under the condition that revisions are made**

### **Major Comments**

- The title should give more information on the findings of the paper rather than the basis of the paper
- More information should be included on the use of the assay prior to the new assay being implemented in order to compare the findings and techniques.
- A future directions section needs to be included.
  - Interventions
  - Studies somewhere else
- Generalization of data to other areas and hospitals should be included

### **Minor Comments**

- The wording within the abstract needs to be clearer.
- The supplemental figures should be included within the paper in order to give a visual representation of the data and the findings.
- Separate each breakdown of drugs (low, moderate, high) into classes of drugs and include figures on their impact when prescribed with and without a probiotic in order to give more information on which antibacterial agents pose the highest and lowest risk.

### **Final thoughts**

- More research needs to be done regarding CDI and its connection to probiotics, antibiotics, and hospital locations such as the emergency room (ER) and in-patient services.
- This article essentially says that probiotics are bad depending on the antibiotic but does include any recommendations on how to address the issue.