

# Clostridioides difficile infection (CDI) increased in individuals diagnosed with prior colorectal adenomas

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## Introduction

- *Clostridioides difficile* infection (CDI) is increased in patients with colorectal cancer (CRC)
- No one has investigated if *CDI* is also higher in individuals with prior history of colorectal adenomas seen on colonoscopy.

## Methods

- We conducted a hospital-based case-control study composed of patients with diarrhea admitted to the University of Michigan from 3/2016 to 12/2017 and tested for CDI.
- We abstracted prior colonoscopy reports and pathology reports from medical records.
- Patients who had undergone colonoscopy were included in this analysis.
- Logistic regression models were used to derive odds ratios (ORs) and 95% confidence intervals (95% CI).
- We analyzed the association between a history of colorectal adenoma diagnosis and *CDI*.

## Results

Figure 1. Flowchart of study design

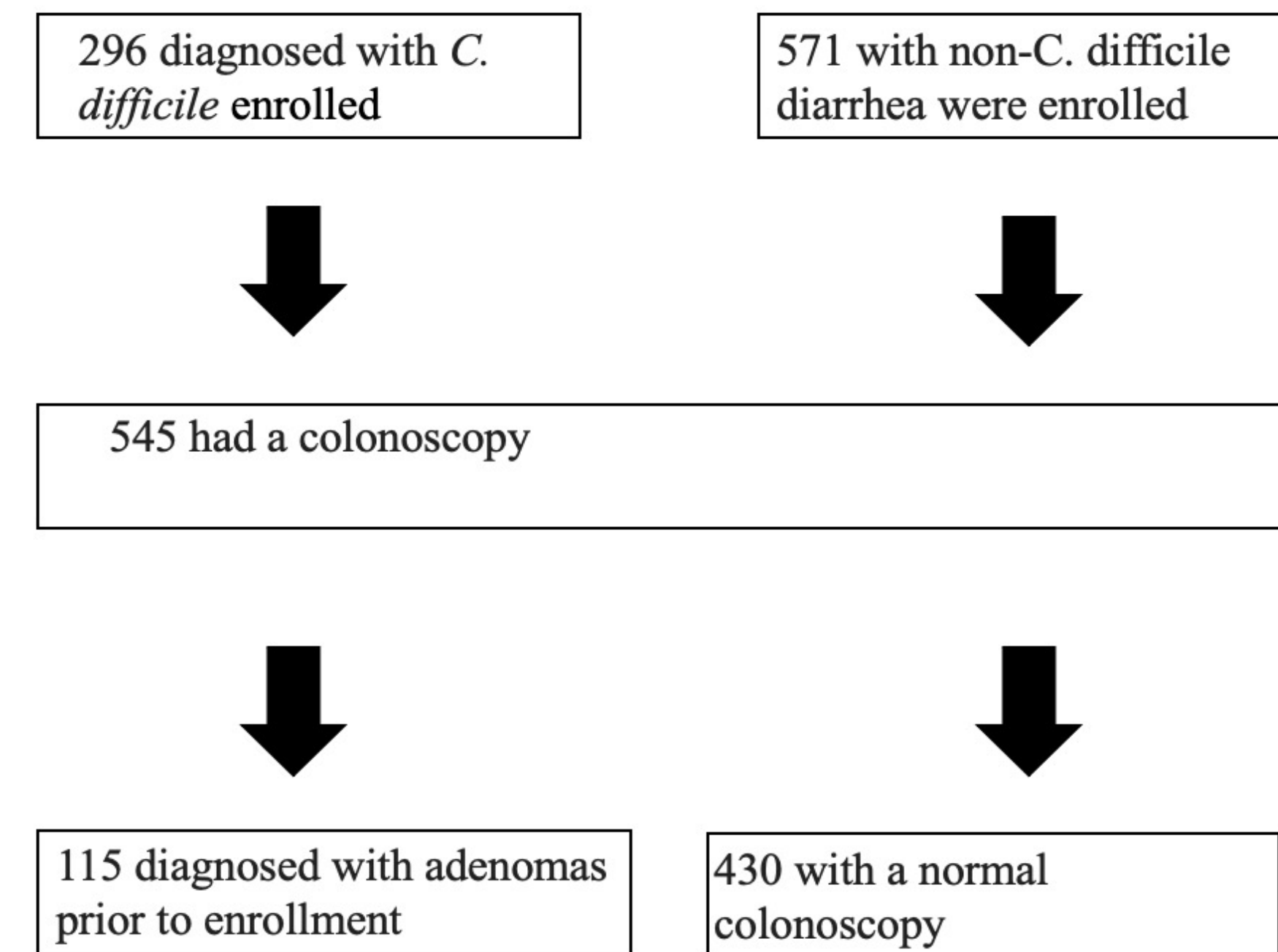


Table 1. Baseline characteristics of subjects enrolled into CDI study by CDI diagnosis

Characteristic	Non-CDI diarrhea N = 371 <sup>1</sup>	CDI diarrhea N = 174 <sup>1</sup>	p-value <sup>2</sup>
Age	53 (37, 64)	55 (37, 67)	0.3
Non-Hispanic Caucasian	302 (81%)	144 (83%)	0.7
History of adenoma	67 (18%)	48 (28%)	0.01
Gender			0.14
F	225 (61%)	94 (54%)	
M	146 (39%)	80 (46%)	
Obesity	33 (8.9%)	21 (12%)	0.15
IBD	156 (42%)	58 (33%)	0.003
DM	38 (10%)	39 (22%)	<0.001
Smoking			
Current	26 (8.8%)	18 (12%)	0.4
Former	106 (36%)	59 (39%)	
Never	161 (54%)	75 (49%)	

<sup>1</sup> n (%)

<sup>2</sup> Pearson's Chi-squared test; Fisher's exact test

Figure 2. Risk factors of CDI estimated with multivariate logistic regression. Model was adjusted for diabetes mellitus (DM), obesity, gender, history of adenoma, and age.

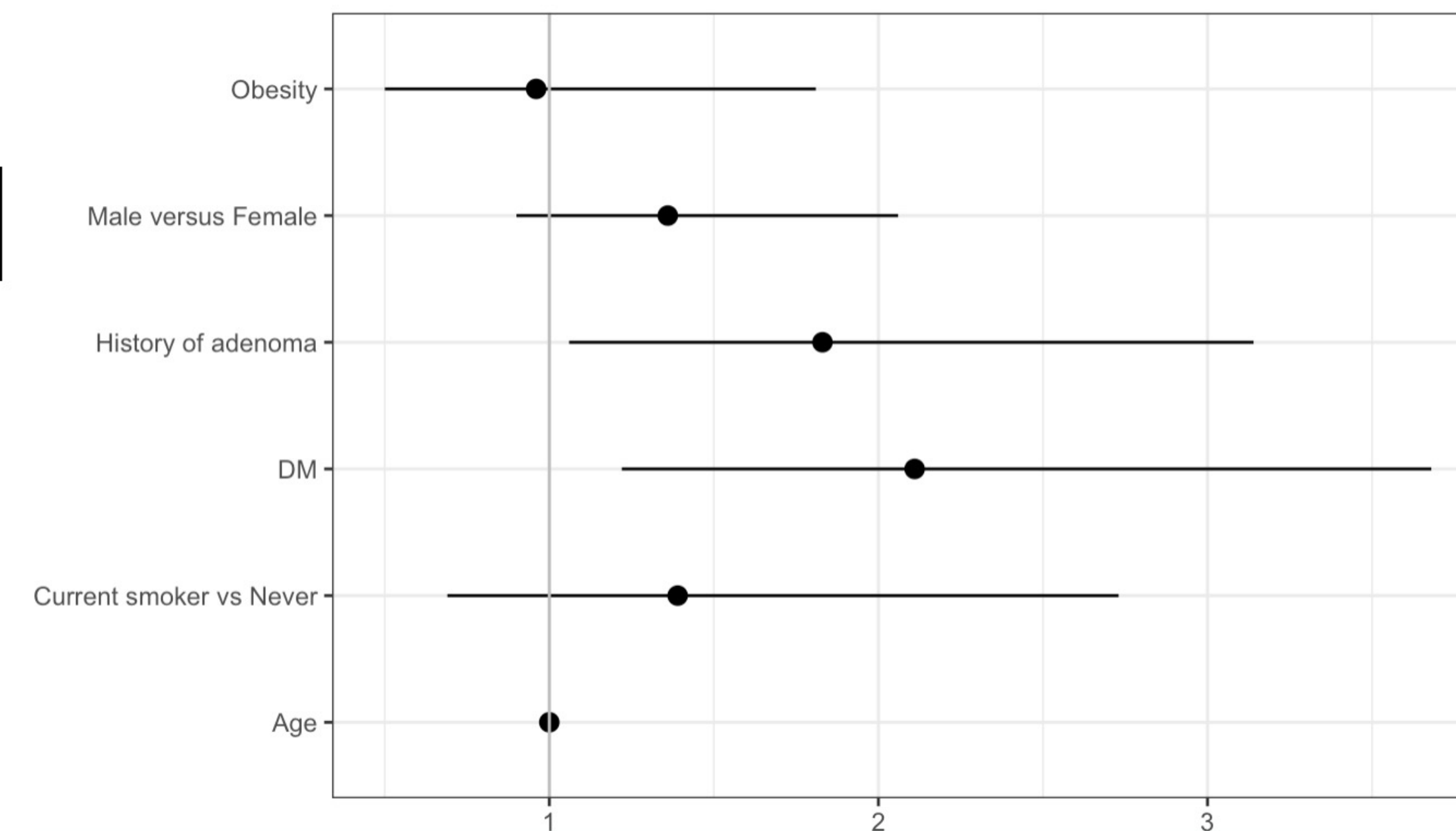


Table 2. Odds ratios and 95 confidence intervals from adjusted logistic regression modeling of bacterial score and risk factors

Characteristic	OR (95% CI) <sup>1</sup>	aOR (95% CI) <sup>1</sup>
History of adenoma	1.73 (1.13, 2.64)	1.83 (1.06, 3.14)
Age	1.01 (1.00, 1.02)	1.00 (0.98, 1.01)
Obesity	1.44 (0.79, 2.55)	0.96 (0.50, 1.81)
Male	1.31 (0.91, 1.89)	1.36 (0.90, 2.06)
DM	2.60 (1.59, 4.25)	2.11 (1.22, 3.68)
Smoking		
Current	1.49 (0.76, 2.86)	1.39 (0.69, 2.73)
Former	1.19 (0.78, 1.82)	1.06 (0.68, 1.66)
Time from colonoscopy	1.00 (1.00, 1.00)	1.00 (1.00, 1.00)

<sup>1</sup> OR = Odds Ratio, CI = Confidence Interval

## Results

- We found an increased risk of *CDI* in individuals with a prior colorectal adenoma (HR 1.64; 95% confidence interval (CI) 1.06-2.54) after adjusting for age, sex, obesity, diabetes and inflammatory bowel disease.

## Conclusions

- This study showed a higher incidence of *CDI* in individuals with a prior history of adenoma.
- We saw an association between history of adenoma and *CDI* but this study did not definitely establish directionality.
- Future studies are needed to confirm this finding and elucidate mechanisms as this relationship could help target prophylactic measures in these individuals to avoid future infection.
- Further studies will have to determine if adenomas predispose to *CDI* or the other way around.

Abbreviations

*Clostridioides difficile* infection (CDI)

Colorectal Cancer (CRC)

## References

1. Drewes, et al. Cancer Discovery 2022; 12(8):1873-1885.
2. Jahani-Sherafat, et al. Gastroenterol Hepatol Bed Bench 2017; 2(4): 358–363.