The Burden of Illness Associated with Recurrent *Clostridioides difficile* Infection: A Claims-based Analysis

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BACKGROUND

- *Clostridioides difficile* infection (CDI) is a significant public health concern and the leading cause of infection-related healthcare utilizations in adults in the United States[1]
- A considerable proportion of CDI patients suffer from recurrent episodes of CDI[2]

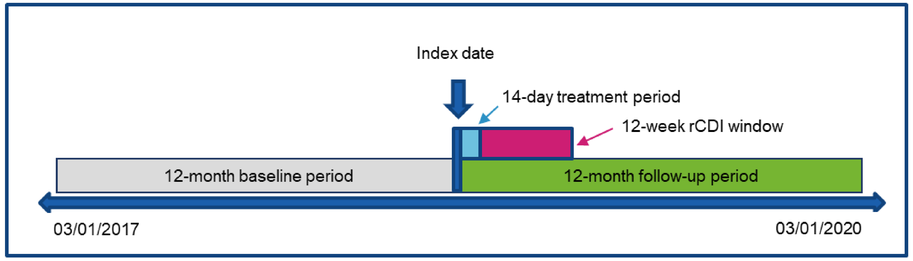
OBJECTIVES

- To describe the impact of CDI on healthcare resource utilization (HCRU) and patient burden
  - Specific aims to achieve the objective were to:
    - Describe the frequency of multiple recurrences in patients with CDI
    - Describe baseline demographic and clinical characteristics of the non-recurrent and recurrent CDI patient population
    - Describe HCRU of non-recurrent and recurrent CDI as measured by all-cause inpatient visits, outpatient visits, emergency department visits, office visits and pharmacy fills over a 12-month period

METHODS

- A retrospective analysis of patients with a CDI diagnosis claim was conducted using the HealthVerity database from March 1st, 2017, to March 1st, 2020
- Inclusion criteria: age ≥ 18 years on the index date, at least one medical CDI claim, continuous enrollment with medical and pharmacy benefits 12 months before and after the first occurrence of CDI diagnosis (index date)
- The initial CDI episode was defined as the first CDI diagnosis code. Any additional CDI claims observed within the 14 days following the index date was considered part of the initial episode
- The initial CDI episode was considered resolved once there was a 14-day period without a CDI-related claim (Figure 1)
- Recurrent CDI (rCDI) episodes were defined as occurring within 12 weeks of the most recent CDI claim
- Patients were stratified by total number of CDI episodes
- Baseline demographics, treatment by episode, and HCRU data were captured

FIGURE 1: Study design



RESULTS

- 5,964 patients with a CDI episode were identified (Table 1). The highest percentage of patients were between 45 and 64 years of age. 61.2% of patients had a claim for ≥1 antibiotic in the 90 days leading up to the index date.
- Oral vancomycin was the predominant treatment used across all episodes (54-67%) (Figure 2). Use of fecal microbiota transplant (FMT) increased with number of CDI episodes. Fidaxomicin use peaked in the third episode.
- After the initial CDI episode, HCRU increased in the 12-month follow-up period for each category in each patient subgroup (Figure 3).

TABLE 1: Baseline demographics and patient characteristics

	All patients N=5,964	1 episode N=2,705	2 episodes N=1,546	3 episodes N=783	4+ episodes N=930
Age (yrs), mean (SD)	56.6 (17.5)	55.2 (17.4)	56.7 (17.4)	56.8 (17.5)	60.5 (17.0)
Age, n (%)					
18-44 years	1444 (24.2)	733 (27.1)	372 (24.1)	180 (23.0)	159 (17.1)
45-64 years	2721 (45.6)	1230 (45.5)	708 (45.8)	368 (47.0)	415 (44.6)
65-84 years	1437 (24.1)	612 (22.6)	367 (23.7)	187 (23.9)	271 (29.1)
≥ 85 years	362 (6.1)	130 (4.8)	99 (6.4)	48 (6.1)	85 (9.1)
Female, n (%)	3919 (65.7)	1798 (66.5)	1006 (65.1)	519 (66.3)	596 (64.1)
CCI score, mean (SD)	1.4 (2.2)	1.4 (2.2)	1.5 (2.2)	1.4 (2.0)	1.5 (2.2)

FIGURE 2: Outpatient prescriptions by CDI episode

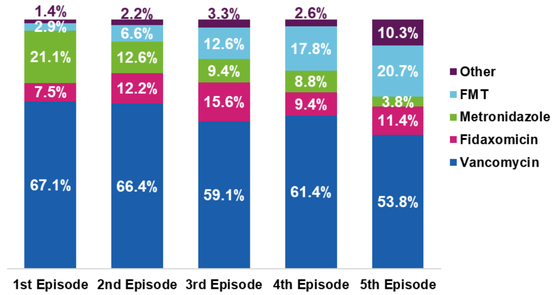
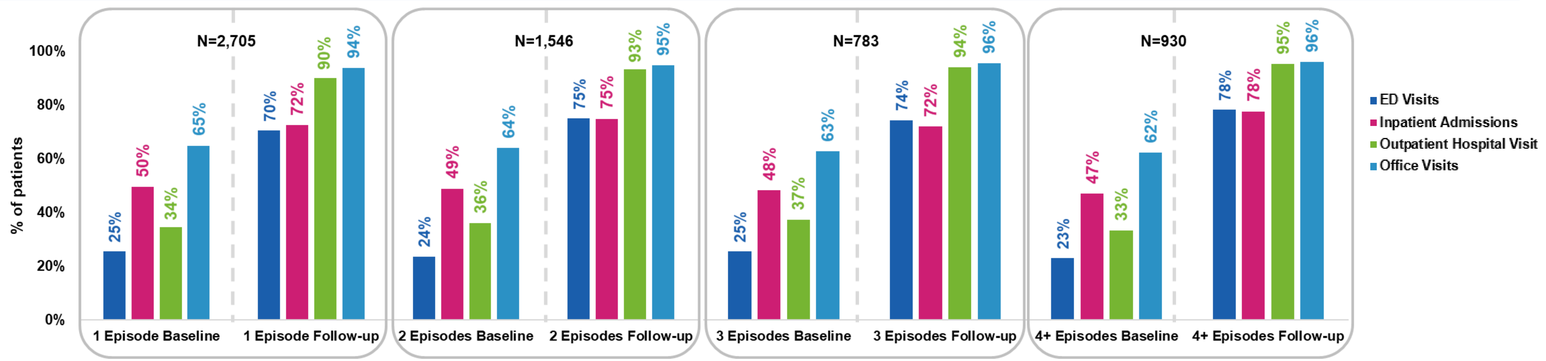


FIGURE 3: All-cause HCRU – baseline vs. follow-up



CONCLUSION

The presence of CDI leads to a considerable increase in HCRU after the initial episode. The increase in HCRU is consistent across patient subgroups with one or more recurrences.

LIMITATIONS

Limitations are that the dataset may not be not generalizable to the broader US population and a longer window of time for rCDI was used compared to the guideline definition to account for the treatment period and potential lag times in retrospective claims data. Additionally, insurance claims are documented and coded for reimbursement purposes, not research. Medical record data was not available to verify claims.

1. McDonald LC, Gerding DN, Johnson S, et al. Clinical Practice Guidelines for Clostridium difficile Infection in Adults and Children: 2017 Update by the Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA). *Clin Infect Dis*. 2018;66(7):e1-e48. 2. Singh T, Bedi P, Bumrah K, Singh J, Rai M, Seelam S. Updates in Treatment of Recurrent Clostridium difficile Infection. *J Clin Med Res*. 2019;11(7):465-471.

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