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**Table 2.** Chi-square crosstabulation of Epidemiologic class *Clostridioides difficile* incident (CDI) case counts observed and expected pre- and interpandemic. Note: the turquoise-colored text is the expected chi-square case counts while the black text is the observed case counts.

<b>C. difficile Incident Cases by Period and EPI Classification</b>			
Epi Classification	Year		Total
	2018-2019	2020-2021	
HCFO	635	507	1142
	659	483	1142
CA	404	367	771
	445	326	771
CO-HCFA	1160	738	1898
	1095	803	1898
Total	2199	1612	3811
	2199	1612	3811

$$\chi^2=20.010 \cdot df=2 \cdot \text{Cramer's } V=0.072 \cdot p=0.000$$

**Methods.** Using logistic regression, we examined changes in epi class, prior antibiotic use, and basic demographics. We used crosstabulation chi-square analysis to determine proportional differences in case characteristics, pre- and interpandemic. All analyses were conducted using R version 4.2.2.

**Table 3.** Three independent logistic regression models to determine if epidemiologic case classification is dependent on period of CDI case (Model: Interpandemic = HCFO, Interpandemic = HCFO-LTCF (HCFO-Hospital Ref.), Interpandemic = CA, Interpandemic = CO-HCFA).

Epidemiologic Class	OR	95% CI	P-Value
HCFO	1.13	0.71, -0.05	0.09
HCFO-HOSP	Ref.	Ref.	Ref.
HCFO-LTCF	0.74	1.43, 0.04	0.04*
CA	0.76	-0.41, -1.1	<0.001*
CO-HCFA	1.31	1.16, 0.30	<0.001*

Note: \*p-value<.05 is significant

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#### 694. Impact of COVID-19 Pandemic on *Clostridioides difficile* Infection Rates and Risk Factors in Maryland

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**Background.** While many Healthcare Associated Infection (HAI) rates increased during the pandemic, inpatient *C. difficile* infection (CDI) rates declined. We compared pre-pandemic (2018-2019) to interpandemic (2020-2021) data, using Maryland's population-based surveillance data collected through the Emerging Infections Program's CDI HAIC project, to quantify the impact of COVID-19 on decreases in CDI within different epidemiologic classes (epi classes): HCFO, CO-HCFA, CA (Tables 1 & 2).

**Table 1.** Epidemiologic class definitions for *Clostridioides difficile* incident (CDI) case classifications determined by the Emerging Infection Program's HAIC project.

Epidemiologic Class	Definition
<b>Healthcare Facility Onset (HCFO)</b>	specimen collected either in a LTCF (HCFO-LTCF) or >3 days after admission to an acute-care hospital (HCFO-Hospital)
<b>Community Onset-Healthcare Facility Associated (CO-HCFA)</b>	specimen collected as an outpatient or ≤3 days of admission to an acute-care hospital AND prior acute care or long-term care stay ≤12 weeks of collection
<b>Community associated (CA)</b>	specimen collected in an outpatient setting or ≤3 days of hospital admission AND no known inpatient stays ≤12 weeks prior

**Results.** Between 2018-2021, we identified 3,822 CDI cases: 1,142 HCFO; 771 CO-HCFA; and 1,898 CA and 11 with incomplete data. Interpandemic cases were 24% less likely to be CA and 31% more likely to be CO-HCFA (Table 3,  $p < 0.001$ ) than pre-pandemic cases. Though cases were 13% more likely to be classified HCFO, this increase was not significant between periods (Table 3,  $p=0.09$ ). However, differences were identified between HCFO-LTCF and HCFO-Hospital where HCFO-LTCF cases were 26% less likely interpandemic than HCFO-Hospital cases (Table 4,  $p < 0.05$ ; Table 3,  $p=0.04$ ; respectively). Antibiotic use ≤12 weeks prior to collection did not change significantly (Table 5,  $p=0.7$ ). All-cause hospital admission was 27% less likely interpandemic ( $p < 0.05$ ). Though our catchment area is predominately White, Black/African American case counts increased while case counts in all other races declined and no differences were observed between sexes (Table 6,  $p < 0.001$ ; Table 7,  $p=0.3$ ; respectively).

**Table 4.** Chi-square crosstabulation of HCFO Epidemiologic class *Clostridioides difficile* incident (CDI) case counts observed and expected pre- and interpandemic to determine where within HCFO classification between periods declines in CDI were more observed. Note: Not all HCFO designated cases are included ONLY those that were in a LTCF or Hospital 3 days prior to CDI collection date. Also, the turquoise-colored text is the expected chi-square case counts while the black text is the observed case counts.

<b>C. difficile Incident Cases by Period and EPI Classification</b>			
Healthcare Facility Onset (HCFO)	Year		Total
	2018-2019	2020-2021	
HOSPITAL	239	201	440
	255	185	440
LTCF	321	206	527
	305	222	527
Total	560	407	967
	560	407	967

$$\chi^2=4.010 \cdot df=1 \cdot p=0.066 \cdot p=0.045$$

**Table 5.** Chi-square crosstabulation comparing CDI case counts with Antibiotic Use 12 weeks prior to C. difficile culture collection date pre-pandemic and inter-pandemic. Note: the turquoise-colored text is the expected chi-square case counts while the black text is the observed case counts.

### Antibiotic Use in the 12 Weeks prior to C. difficile Incident and Year

Antibiotic Use	Year		Total
	2018-2019	2020-2021	
No	1568 1563	1136 1141	2704 2704
Yes	641 646	477 472	1118 1118
<b>Total</b>	2209 2209	1613 1613	3822 3822

$$\chi^2=0.113 \cdot df=1 \cdot \phi=0.006 \cdot p=0.737$$

**Table 6.** Chi-square crosstabulation comparing CDI case counts of Race pre-pandemic and inter-pandemic. Maryland's CDI cases are predominately White/Caucasian with the Black/African American group as the second highest racial group for our surveillance site. Comparing these two groups between these time periods is important to identify the total decline of C- DI cases inter-pandemic. Further investigations should be conducted to better understand why this minority group's CDI case counts increased during the COVID-19 Pandemic while all others declined. Note: the turquoise-colored text is the expected chi-square case counts while the black text is the observed case counts.

### C. difficile Incident Cases by Race & Year

Race	Year		Total
	2018-2019	2020-2021	
Other Race	620 475	201 346	821 821
White/Caucasian	1409 1508	1200 1101	2609 2609
Black/African American	180 227	212 165	392 392
<b>Total</b>	2209 2209	1613 1613	3822 3822

$$\chi^2=143.748 \cdot df=2 \cdot \text{Cramer's } V=0.194 \cdot p=0.000$$

**Conclusion.** Overall CDI case counts declined during the COVID-19 pandemic across all epi classes. The rate of decline of CA was greater than the decrease in CO-HCFA cases. HCFO-LTCF cases declined more than HCFO-Hospital cases. Unexplained case rate differences between races raise health equity concerns needing exploration. Further investigation may determine whether changes in healthcare seeking behavior, changes in infection prevention methods in LTCFs, local COVID-19 restrictions, or other factors may have impacted CDI rates.

**Table 7.** Chi-square crosstabulation comparing CDI case counts of Sex pre-pandemic and inter-pandemic. Note: the turquoise-colored text is the expected chi-square case counts while the black text is the observed case counts.

### C. difficile Incident Cases by Period and Sex

Sex	Year		Total
	2018-2019	2020-2021	
Male	883 898	671 656	1554 1554
Female	1326 1311	942 957	2268 2268
<b>Total</b>	2209 2209	1613 1613	3822 3822

$$\chi^2=0.956 \cdot df=1 \cdot \phi=0.016 \cdot p=0.328$$

**Disclosures.** All Authors: No reported disclosures