Evaluation of Connecticut medical providers concordance with 2017 IDSA/SHEA Clostridioides difficile treatment guidelines in New Haven County, 2018-2019

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INTRO

- Treatment guidelines for Clostridioides difficile Infection (CDI) were updated in 2017 by the IDSA/SHEA.
- Key changes pertain to severity criteria and first-line antibiotic recommendation for vancomycin over metronidazole
- We assessed Connecticut medical providers' concordance (2018-2019) with the 2017 treatment update.
- Effect of guideline concordant care on CDI recurrence risk was also assessed.

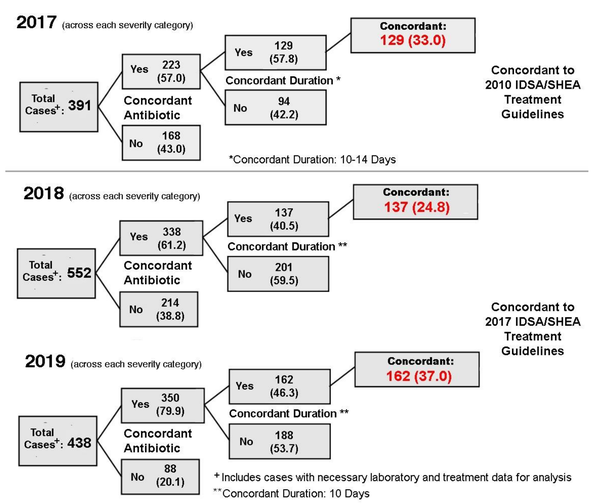
METHODS

1. Prospective, population-based study in New Haven County using data from the CT Emerging Infections Program's (CT-EIP) CDI surveillance
2. Presence of megacolon and/or ileus defined fulminant disease; absence defined non-severe/severe disease.
3. 2018-2019 first-line concordance in adults was defined as receiving vancomycin or fidaxomicin treatment for 10 days.
4. Univariate and multivariate analyses were performed in SAS University on the association between concordance and CDI recurrence

RESULTS

- Of 990 cases, guideline concordant care increased 12.2% from 2018-2019.
- Concordant antibiotic choice increased 18.7% from 2018-2019.
- Recurrence risk was significantly associated with cases ≥ 65 years and highest with those aged 75- 84, but not significantly associated with concordance.

Concordance with selected treatment criteria by year, 2017-2019



Following the 2017 IDSA/SHEA Treatment Guideline Update for Clostridioides difficule Infection, vancomycin use increased 18.4% and metronidazole use decreased 18.7% for first-line treatment from 2018-2019 in New Haven County, CT.

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Description of the Study Population by Year

Characteristic	2017 N = 391 (%)~	2018 N = 552 (%)	2019 N = 438 (%)
Guideline Concordant Care	127 (32.5)	137 (24.8)	162 (37.0)
Recurrent CDI	43 (11.0)	61 (11.1)	46 (10.5)
Female	242 (61.9)	323 (58.5)	259 (59.1)
Age (Mean ± SD)	65.89 ± 19.14	64.14 ± 19.40	64.08 ± 19.37
Age Group			
< 18	7 (1.8)	8 (1.5)	6 (1.4)
18-44	43 (11.0)	81 (14.7)	63 (14.4)
45-64	116 (29.7)	174 (31.5)	132 (30.1)
65-74	79 (20.2)	111 (20.1)	89 (20.3)
75-84	79 (20.2)	95 (17.2)	89 (20.3)
≥ 85	67 (17.1)	83 (15.0)	59 (13.5)
Race/Ethnicity			
NH White	294 (75.2)	379 (68.7)	323 (73.7)
NH Black	41 (10.5)	50 (9.1)	63 (14.4)
Hispanic	32 (8.2)	37 (6.7)	37 (8.5)
NH Other/Unk*	24 (6.1)	86 (15.6)	15 (3.4)
Case Classification+			
Non-severe/Severe	376 (96.2)	538 (97.5)	427 (97.5)
Fulminant	15 (3.8)	14 (2.5)	11 (2.5)
First-line Treatment			
Vancomycin	145 (37.1)	332 (60.1)	344 (78.5)
Metronidazole	223 (57.0)	214 (38.8)	88 (20.1)
Fidaxomicin	7 (1.8)	6 (1.1)	6 (1.4)
Rifampin	1 (0.3)	0 (0.0)	0 (0.0)
Nitazoxanide	3 (0.8)	0 (0.0)	0 (0.0)
Combination/Unk^	12 (3.1)	0 (0.0)	0 (0.0)
Epidemiologic Classification#			
HCFO	54 (13.8)	78 (14.1)	38 (8.7)
CA	197 (50.4)	295 (53.4)	235 (53.7)
CO-HCFA	140 (35.8)	179 (32.4)	165 (37.7)
Any Underlying Condition	89 (22.8)	133 (24.1)	76 (17.4)
Previous Antibiotic Use	98 (25.1)	144 (26.1)	150 (34.3)

*NH Other/Unknown include those who identify as Pacific Islanders, those who identify as American Indian/Alaska Native, those who identify as Asian, and Unknown

~2017 concordance measured with 2010 IDSA/SHEA CDI treatment guidelines

+Per the 2010 IDSA/SHEA treatment guidelines, 2017 non-severe cases are defined as "mild to moderate", severe cases as "severe (uncomplicated)", and fulminant as "severe (complicated).

^Combination/Unknown values: 2017 cases had equal duration of treatment for two or more medications therefore leading to Other/Unknown classification.

#Healthcare facility-onset (HCFO), community-acquired (CA), community onset-healthcare facility-associated (CO-HCFA)

DISCUSSION

- To the best of our knowledge, this is the largest geographic-based prospective surveillance study evaluating prescribing practices for CDI.
- The increase in concordance from 2018-2019 reflected a stark reduction in metronidazole treatment and increase in vancomycin.
- First-line antibiotic usage was not significantly associated with CDI recurrence.

LIMITATIONS

- Treatment dosage, route of administration, frequency of dosing, and serum creatinine level were not include in severity.
- CT-EIP only detects lab-confirmed cases.
- EIP protocol reviews all CA or CO-HCFA cases, but only a 10% sample of HCFO cases.

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