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Laxative Use Does Not Preclude Diagnosis or Reduce Disease Severity in *Clostridiodes difficile* Infection

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(See the Editorial Commentary by Rock and Maragakis on pages 1479–80.)

Background. To optimize utility of laboratory testing for *Clostridiodes difficile* infection (CDI), the 2017 Infectious Diseases Society of America–Society for Healthcare Epidemiology of America (IDSA-SHEA) clinical practice guidelines recommend excluding patients from stool testing for *C. difficile* if they have received laxatives within the preceding 48 hours. Sparse data support this recommendation.

Methods. Patients with new-onset diarrhea (≥3 bowel movements in any 24-hour period in the 48 hours before stool collection) and a positive stool *C. difficile* nucleic acid amplification test were enrolled. Laxative use within 48 hours before stool testing, severity of illness (defined by 4 distinct scoring methods), and clinical outcomes were recorded.

Results. 209 patients with CDI were studied, 65 of whom had received laxatives. There were no significant differences in the proportion of patients meeting severe CDI criteria by 4 severity scoring methods in patients receiving versus not receiving laxatives (66.2% vs 56.3%, respectively; $P = .224$) by IDSA-SHEA, the primary scoring system. Similar rates of serious outcomes attributable to CDI, including death, intensive care unit admission, and colectomy, were observed in the laxative and no laxative groups.

Conclusions. Our study found similar rates of severe CDI and serious CDI-attributable clinical outcomes in CDI-diagnosed patients who did or did not receive laxatives. Precluding recent laxative users from CDI testing, as proposed by the IDSA-SHEA guideline, carries a potential for harm due to delayed diagnosis and treatment.

Keywords. *Clostridiodes difficile* infection; *Clostridiodes difficile* colonization; laxative; diarrhea.

In the United States, *Clostridiodes difficile* is estimated to cause approximately 500 000 infections and 30 000 deaths annually [1]. *Clostridiodes difficile* infection (CDI) diagnosis rates continue to be at historic highs, partly due to inappropriate specimens sent for *C. difficile* testing and the use of highly sensitive assays such as nucleic acid amplification tests (NAATs) [2]. NAATs can detect asymptomatic *C. difficile* colonization, which may be present in as many as 22% of hospitalized inpatients [3]. Diarrhea is also common, observed in 12.4–32.9% of inpatients; yet, CDI is the cause in less than 7.4% of cases [4, 5]. Public reporting of hospital CDI rates and implementation of pay-for-performance measures have further increased pressure to control and prevent CDI and distinguish asymptomatic colonization from true infection.

To increase the relevance of a positive test, the 2017 Infectious Diseases Society of America–Society for Healthcare Epidemiology of America (IDSA-SHEA) clinical practice guidelines emphasize testing only patients likely to have true CDI. The guidelines recommend that laboratories reject formed specimens, that testing only be sent for patients with at least 3 episodes of loose stool in a 24-hour period, and that patients be excluded from stool testing if a laxative was given within the preceding 48 hours [6]. Evidence cited to support the laxative-use restriction consists only of observations that many patients tested for CDI have recently received laxatives. Specifically, the guidelines refer to a study that found that 19% of a cohort who tested positive for *C. difficile* had also received laxatives within 48 hours prior to diagnosis, but the impact of laxative use on CDI diagnosis was not examined [7]. Moreover, the guidelines do not define meaningful laxative use (eg, total number of doses) nor allow room for clinical judgment when other features signal infection.

Still, many institutions have adopted the recommendation to exclude patients receiving laxatives from *C. difficile* testing [8, 9]. Out of concern that this restriction may delay or miss diagnoses, this study was performed to test the a priori primary hypothesis that among patients with NAAT-positive *C. difficile*, clinical outcomes and severity of illness do not differ between those who have or have not received laxatives.

METHODS

Hospital inpatients at Beth Israel Deaconess Medical Center (Boston, Massachusetts) were enrolled between 21 June 2016 and 6 July 2018. During this time period, there were no

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restrictions on provider ordering of *C. difficile* testing for patients receiving laxatives, although our microbiology laboratory would routinely reject formed stool specimens. Eligible patients were 18 years or older with a positive clinical stool *C. difficile* NAAT result, were initiating CDI therapy, and had acute diarrhea, defined as (1) documentation of 3 or more unformed bowel movements during any 24 hours in the 48 hours before stool collection or (2) persistent diarrhea in the 48 hours before stool collection per medical notes. In the majority of cases definition "1" was applied. Patients were excluded if they had chronic diarrhea, if there was any doubt about the presence of diarrhea, if the specimen volume was insufficient or older than 72 hours, if they had received CDI treatment for more than 48 hours prior to stool collection, or if they had a colostomy [10]. During the study period, the *C. difficile* testing method at our institution was NAAT. In order to collect toxin data for research purposes, enrolled patients also had stool tested for *C. difficile* toxins A and B with an ultrasensitive quantitative single molecule array (Simoa) immunoassay, which can separately detect and quantify *C. difficile* toxins A and B over a 5-log range of concentrations with a clinical cutoff of 20 pg/mL in diluted stool samples [10].

Data Collection

Clinical outcomes and laboratory findings were gathered through chart review and patient phone calls. Outcomes assessed during the 40 days after diagnosis included the following: CDI recurrence (diarrhea that resolved for 48 hours off CDI therapy, but recurred and was documented as recurrence in provider notes) or severe outcomes including intensive care unit (ICU) admission, colectomy, and death. Two independent physicians who were unaware of laxative status determined whether severe outcomes were attributable to CDI, with discrepancies adjudicated by a third physician reviewer. Comorbidities were evaluated using the Charlson comorbidity index and immunocompromised status was defined as in Figure 1 [11]. Laboratory characteristics including peak white blood cell count (WBC), peak creatinine, and albumin nadir were recorded within 5 days preceding and 2 days following stool collection. If performed within 1 week of diagnosis, colonoscopy or flexible sigmoidoscopy reports were reviewed for the finding of pseudomembranes. The presence of colitis or ileus on abdominal imaging (abdominal X-ray or computed tomography) was noted if obtained within 48 hours of CDI diagnosis. Temperature of 38.0°C or higher, systolic blood pressure lower than 100 mm Hg, and peak lactate values were recorded within 24 hours of diagnosis. Abdominal tenderness was considered present if documented in a physician-administered physical examination the day prior to or the day of specimen collection. Receipt of antibiotics (within 48 hours) or laxatives (specific agents and number of doses within 24-, 48-, and 72-hour windows) prior to CDI diagnosis were determined from the electronic medication administration record.

Definition of Severe *Clostridiodes difficile* Infection

A severe CDI outcome was defined as any one of the following outcomes attributable to CDI: ICU admission, colectomy, or death. Severity of CDI was assessed using 4 severity scores: IDSA-SHEA, European Society of Microbiology and Infectious Diseases (ESCMID), Zar, and Belmares (Figure 2) [6, 11–14].

Statistical Analysis

Descriptive statistics included median and interquartile range (IQR) for continuous variables and frequency and percentages for categorical variables. Continuous and discrete variables were compared between groups using the Mann-Whitney *U* test and the chi-square or Fisher's exact test, respectively. Results were considered statistically significant when $P < .05$. All statistical analyses were performed using SPSS 23.0 software (IBM Corporation). Additional details are described in the Supplementary Materials.

RESULTS

Of a total of 209 patients, 65 (31.1%) received at least 1 dose of laxative (LAX-48 group) and 144 (68.9%) patients received no laxatives (NO-LAX-48 group) within 48 hours prior to

Patients were considered immunocompromised if they met any one of the following criteria:
Active hematologic malignancy
Malignancy requiring chemotherapy within the last 3 months
Prior stem cell transplant (allogeneic, autologous, or cord blood)
Prior solid organ transplant, on maintenance immunosuppressive medication
Chronic administration (>14 days total) of high dose steroids
(mean prednisone dose ≥20mg/day or equivalent within previous 3 months)
Inflammatory bowel disease receiving immunosuppressing medications (including immunomodulators, glucocorticoids, or biologic therapies
Congenital or acquired immunodeficiency disorder (if HIV/AIDS, CD4 <200)
Asplenia
Receipt of other agents known to suppress the immune system for any indication in the last 12 months

Figure 1. Criteria for immunocompromise. Abbreviation: HIV, human immunodeficiency virus.

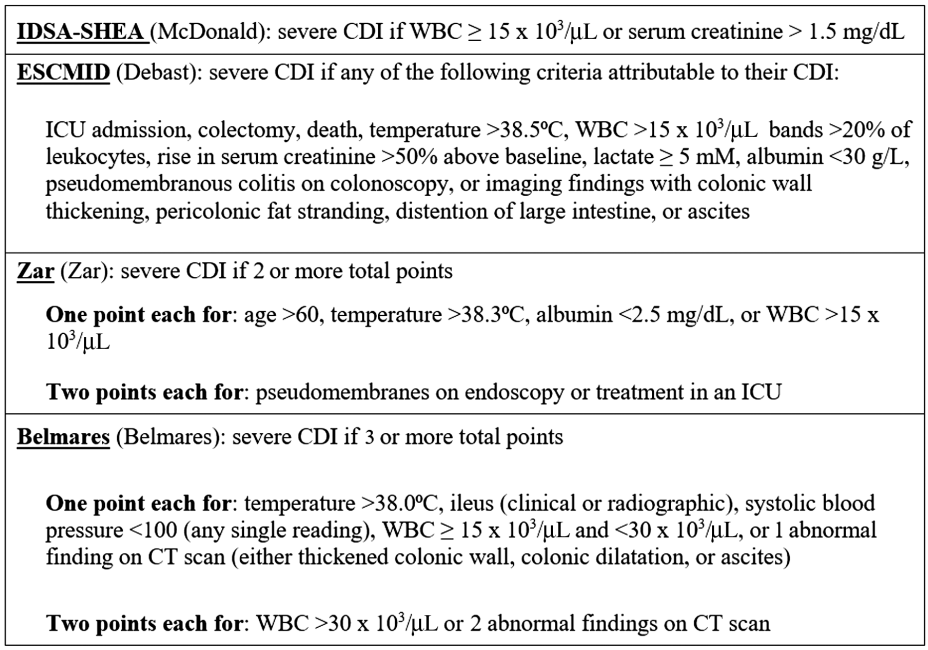

Figure 2. Criteria for severe CDI by scoring system. ESCMID [12], IDSA-SHEA [6], and Zar [13] scores were assessed according to our protocol-defined time frames as described in the figure, whereas Belmares [14] specified a 3-day time interval from the time of CDI diagnosis. Abbreviations: CDI, *Clostridiodes difficile* infection; CT, computed tomography; ESCMID, European Society of Microbiology and Infectious Diseases; ISDA-SHEA, Infectious Diseases Society of America–Society for Healthcare Epidemiology of America; WBC, white blood cell count.

collection of the stool sample used for CDI diagnosis. Table 1 displays demographic and clinical characteristics, illustrating that the groups were demographically similar in baseline age, race, hospital unit at diagnosis, and immunocompromised host status (Table 1). Clinical parameters including peak WBC, lactate, fever, hypotension, and acute kidney injury did not differ significantly between the groups. In addition to acute diarrhea, most patients (82% of LAX-48 and 75% of NO-LAX-48) had at least 1 other clinical feature consistent with infection: fever, WBC of 15 × 10^3/mL or greater, hypotension, or abdominal tenderness. Nearly half of LAX-48 patients (47.7%) and over one-third of NO-LAX-48 patients (36.4%) exhibited a peak WBC of 15 × 10^3/mL or higher; this difference was not statistically significant. Radiographic findings of colitis and colonoscopic findings of pseudomembranes were not different between the groups; however, imaging and endoscopy were not performed for all patients. Antibiotic receipt within the preceding 48 hours was common in both groups, with a similar distribution by antibiotic class (Supplementary Table 1).

Median Simoa toxin A + B levels did not differ significantly: 167.3 (IQR, 8.5–13 627) pg/mL for LAX-48 versus 214.4 (IQR, 6.7–15 671) pg/mL for NO-LAX-48 (P = .667). The proportion of patients with toxin A + B levels greater than 20 pg/mL also did not differ between the 2 groups (67.2% LAX-48 versus 63.4% NO-LAX-48; P = .639). Eleven of 65 (16.9%) LAX-48 patients and 19 of 144 (13.2%) NO-LAX-48 patients were positive for the BI/NAP1/027 strain (P = .524).

There were no statistically significant differences in severity of illness between the LAX-48 and NO-LAX-48 groups for each of the 4 severity grading systems (Table 2). The majority of patients in both groups met criteria for severe CDI by IDSA-SHEA (66.2% LAX-48 vs 56.3% NO-LAX-48; P = .224) and ESCMID (61.5% LAX-48 vs 60.4% NO-LAX-48; P = 1). Clinical outcomes were also compared; rates of death within 40 days (including CDI-attributable deaths) and ICU admission within 40 days (including CDI-attributable ICU admissions) were not different. One patient in each group required a colectomy due to severe CDI. A composite measure of severe outcomes also failed to show a difference between groups.

Time to resolution of diarrhea was not significantly different, with a median time to resolution of 8 days versus 5 days in the LAX-48 and NO-LAX-48 groups, respectively (P = .074). However, a significantly longer length of hospital stay was observed following CDI diagnosis in the LAX-48 group (median, 8 days vs 5 days for the NO-LAX-48 group; P = .031). When analyzed using 24- or 72-hour time windows for laxative administration prior to CDI diagnosis, findings mirrored those of the 48-hour group, except for a marginally significantly longer

Table 1. Demographic and Clinical Characteristics of Patients Receiving Laxatives (LAX-48) or Not Receiving Laxatives (NO-LAX-48) Within 48 Hours Prior to *Clostridiodes difficile* Infection Diagnosis

	LAX-48 (n = 65)		NO-LAX-48 (n = 144)		
Patient Characteristics	n[a]	%	n[a]	%	*P*
Male (%)	34	52.3	64	44.4	.299
Median (IQR) age, years	61 (47–70)		66 (54–77)		.944
Race					.390
White	48	73.8	97	67.4	
African American	9	13.8	20	13.9	
Asian	2	3.1	8	5.6	
Hispanic	2	3.1	11	7.6	
Pacific Islander	1	1.5	6	4.2	
Unknown	3	4.6	2	1.4	
Hospital unit at diagnosis					.610
ICU	8	12.3	16	11.1	
Medical/surgical	50	76.9	102	70.8	
Oncology	6	9.2	23	16.0	
ED	1	1.5	3	2.1	
ICU stay within 1 week prior to diagnosis	16	24.6	25	17.4	.260
Major surgery within 1 week prior to diagnosis	9	13.8	9	6.3	.107
Immunocompromised	18	27.7	51	35.4	.341
Charlson comorbidity index, median (IQR)	3 (1–4)		2 (1–4)		.053
History of prior CDI	13	20.0	44	30.6	.132
Number of prior CDI episodes					.300
1	10	15.4	26	18.1	
2	2	3.1	11	7.6	
≥3	1	1.5	7	4.9	
Stool consistency					.716
Liquid	36	55.4	86 (n = 143)	60.1	
Semiformed	28	43.1	56 (n = 143)	39.2	
Formed[b]	1	1.5	1 (n = 143)	0.7	
Abdominal tenderness	10	15.4	28	19.4	.564
Temperature ≥38.0°C within 24 hours of diagnosis	12	18.5	33	22.9	.586
Systolic BP <100 mm Hg within 24 hours of diagnosis	29	44.6	57	39.6	.545
Renal replacement therapy at baseline	7	10.8	9	6.3	.270
AKI (peak Cr ≥1.5× baseline)	6 (n = 60)	10.0	14 (n = 141)	9.9	1.000
Median (IQR) WBC peak –5 days to +2 days of diagnosis, × 10^3/mL	14.5 (7–18.7)		12 (8–19.7) (n = 143)		.277
WBC ≥15 × 10^3/mL	31	47.7	52 (n = 143)	36.4	.130
Median (IQR) albumin nadir –5 days to +2 days of diagnosis, g/dL	3.0 (2.5–3.3) (n = 45)		3.2 (2.7–3.6) (n = 121)		.045
Median (IQR) lactate peak within 24 hours, mmol/L	1.6 (1.2–1.8) (n = 11)		1.6 (1.2–2.4) (n = 74)		.808
Colitis on imaging	7 (n = 21)	33.3	42 (n = 78)	53.8	.140
Colonoscopy or flexible sigmoidoscopy with pseudomembranes	0 (n = 5)	0.0	1 (n = 5)	20.0	1.000
BI/NAP1/027 strain	11	16.9	19	13.2	.524
Received antibiotics within 48 hours prior to diagnosis	40	61.5	77	53.5	.296

Abbreviations: AKI, acute kidney injury; BP, blood pressure; CDI, *Clostridiodes difficile* infection; Cr, creatinine; ED, emergency department; ICU, intensive care unit; IQR, interquartile range; WBC, white blood count.

[a]Unless otherwise noted in parentheses for variables where not all patients had data obtained.
[b]Considered as formed by our researchers, but previously categorized as unformed when accepted for testing by the microbiology lab.

length of time to resolution of diarrhea in the LAX-24 group compared with the NO-LAX-24 group (median, 8 vs 5 days; *P* = .042) (Supplementary Tables 2 and 3).

Table 3 characterizes the types of laxatives administered to the LAX-48 cohort. Table 4 displays the distribution of total number of laxative doses received by patients in the cohort.

DISCUSSION

Highly sensitive NAAT testing for *C. difficile* may detect patients who are colonized with *C. difficile* but who have an alternative explanation for diarrhea. In order to improve test performance, the 2017 IDSA-SHEA guidelines recommend against testing for CDI if a patient has received a laxative within the preceding 48

Table 2. Severity of Illness and Clinical Outcomes in Patients Who Did Receive Laxatives (LAX-48) or Did Not Receive Laxatives (NO-LAX-48) Within 48 Hours Prior to *Clostridiodes difficile* Infection Diagnosis

Outcomes	LAX-48 (n = 65)		NO-LAX-48 (n = 144)		*P*
	n[a]	%	n[a]	%	
Severe CDI by IDSA-SHEA [6]	43	66.2	81	56.3	.224
Severe CDI by ESCMID [12]	40	61.5	87	60.4	1.000
Severe CDI by Zar et al [13]	33	50.8	67	46.5	.654
Severe CDI by Belmares et al [14]	8	12.3	22	15.3	.673
Composite of severe attributable outcomes: ICU admission, colectomy, or death within 40 days of diagnosis	7	10.8	13	9.0	.800
Death within 40 days	3	4.6	12	8.3	.401
CDI contributing or primary cause	1	1.5	4	2.8	.659
ICU stay within 40 days	11	16.9	26	18.1	1.000
CDI contributing or primary cause	7	10.8	13	9.0	.744
Colectomy	1	1.5	1	0.7	.526
CDI recurrence within 40 days	2	3.1	8	5.6	.728
Median (IQR) length of hospital admission after CDI diagnosis, days	8 (4–16)		5 (3–11)		.031
Median (IQR) days to resolution of diarrhea	8 (3–15) (n = 52)		5 (3–12) (n = 117)		.074

Abbreviations: CDI, *Clostridiodes difficile* infection; ESCMID, European Society of Microbiology and Infectious Diseases; ICU, intensive care unit; IDSA, Infectious Diseases Society of America; IQR, interquartile range; SHEA, Society for Healthcare Epidemiology of America.
[a]Unless otherwise noted in parentheses for variables where not all patients had data obtained.

hours [6], citing a prospective study that included clinical presentation (diarrhea severity) along with *C. difficile* assay results to improve test performance [7]. Of note, that important study did not propose laxative use as an absolute exclusion criterion for CDI testing. Of 150 enrolled patients, 18.7% had received laxatives within 48 hours prior to CDI diagnosis; the authors cautioned that even clinically relevant diarrhea may have another, noninfectious, cause and called for validated criteria for when to test for CDI. Other studies corroborate a rate of laxative use in hospitalized patients as high as 44% within 48 hours prior to *C. difficile* testing [15]. Similarly, we observed that 31.1% of our patients had received at least 1 laxative dose in the 48 hours prior to testing. However, the fact that both CDI and laxatives can cause diarrhea appears to be the basis for the recommendation to exclude patients taking laxatives from *C. difficile* testing, as no compelling data indicate that laxative administration precludes or decreases the risk of CDI. On the contrary, other well-established causes of diarrhea predispose patients to a higher risk of CDI (inflammatory bowel disease, enteral tube feeding, and intensive cancer chemotherapy) [16–18]. Furthermore, laxatives are often utilized in situations independently known to increase the risk of CDI, including surgery and hospitalization [19].

Table 3. Laxatives Received Within 48 Hours of Diagnosis

	Patients (N = 65)	
	n	%
Received bulk laxatives (range: 1–4 doses)	49	75
Colace (1–4)	48	74
Psyllium (1–3)	2	3
Received stimulant laxatives (range: 1–4 doses)	33	51
Senna (1–4)	31	48
Bisacodyl (1)	5	8
Received osmotic laxatives (range: 1–6 doses)	26	40
Polyethylene glycol (1–2)	14	22
Lactulose (1–6)	11	17
Magnesium citrate (1)	1	2
Magnesium oxide (1)	1	2

Other authors have reviewed the association between laxative use and testing for CDI, observing that many patients who were tested for CDI concomitantly received laxatives [7, 15]. Excluding patients receiving laxatives lowers rates of CDI detection [9], but this may simply reflect that reductions in testing will generate fewer diagnoses. Other authors have argued that diarrhea is noninfectious in patients who are *C. difficile* NAAT positive receiving laxatives because clinical illness appears mild or indistinguishable from patients who are *C. difficile* NAAT negative [8, 9]. However, these studies included a substantial cohort (43.7–66.6%) who failed to meet a clinical definition of diarrhea (despite receiving laxatives in many cases) and so were unlikely to have true CDI [8, 9, 20]. One study found that clinical complication rates were not significantly different in patients with cancelled *C. difficile* test orders compared with patients with negative *C. difficile* test results [9]. However, when comparing clinical outcomes, the authors did not differentiate patients with orders cancelled for laxative use from those with orders cancelled for lack of clinical diarrhea. Ahmad et al [21] suggested that rapid resolution of diarrhea after diagnosis in patients with NAAT-positive *C. difficile* receiving laxatives (41% of patients had resolution

Table 4. Distribution of Laxative Doses Received 48 Hours Prior to *Clostridiodes difficile* Infection Diagnosis

	Patients (N = 65)	
No. of Doses	n	%
1	15	23
2	12	18
3	8	12
4	7	11
5	9	14
6	9	14
7	1	2
8	3	5
9	1	2

within 48 hours of starting therapy in their study) indicates that diarrhea is noninfectious. However, it seems reasonable to expect the resolution of diarrhea within several days if appropriate CDI therapy is initiated.

Many institutions have already adopted the recommendation to avoid testing in patients receiving laxatives, some even incorporating test restrictions into electronic ordering systems to enforce guideline adherence [8, 9]. Providers appear to lack awareness of bowel regimen in many cases; only 78% of ordering providers were aware of bowel medications at the time they ordered *C. difficile* testing in 1 study, and as many as 52% of patients continued to receive laxatives for more than 24 hours even after a diagnosis of CDI in another study [21, 22]. Yet, in practice, providers override over 75% of these alerts, doing so deliberately for patients on laxatives in cases involving a stable baseline bowel regimen or presence of risk factors for CDI [8, 22]. The IDSA-SHEA guidelines offer no guidance on reconciling CDI risk factors, signs, or symptoms with the recommended testing restriction and fail to define meaningful laxative use (ie, consideration of baseline bowel regimen, type of laxative and number of doses, or agents with cathartic effects not deployed intentionally for laxative properties, such as oral contrast for computed tomography scans).

Our investigation compared outcomes and illness severity between patients with and without laxative use in the 48 hours prior to CDI diagnosis. The results are striking; there was no difference in the severity of illness or the rate of attributable adverse outcomes (CDI recurrence, ICU stay, colectomy, and death) between the LAX-48 and NO-LAX-48 groups. The groups did not differ in markers of clinical severity including fever, hypotension, leukocytosis, and colitis on imaging. Most patients in both groups met IDSA-SHEA and ESCMID criteria for classification as severe CDI. Median stool toxin concentrations, time to resolution of diarrhea, and the rates of severe CDI by all 4 severity scoring methods did not differ significantly by laxative status. There was a significant difference in longer length of stay following CDI diagnosis in the LAX-48 group (8 vs 5 days; $P = .031$), possibly indicating that patients on laxatives had even more substantial illness and complicated hospital stays.

If LAX-48 patients had been excluded from testing as recommended by the IDSA-SHEA guidelines, diagnosis of CDI would have been missed in nearly one-third of this cohort, 66.2% of whom met criteria for severe CDI by IDSA-SHEA scoring methods—including 1 death, 1 patient who required a colectomy, and 7 patients who required treatment in an ICU due to CDI. It is likely that some of the other LAX-48 patients would also have suffered additional adverse outcomes due to delayed or missed diagnoses and treatment.

There are several important limitations to this study. This is a single-site study with a relatively small sample size. However, there appears to be a trend, although not significant, towards more severe CDI-related illness in the LAX-48 group, as evidenced by more patients with hypotension, acute kidney injury, and WBC peak of 15×10^3/mL or higher, and who met severe criteria by IDSA-SHEA, ESCMID, and Zar scoring. It is also possible that, during the study period, clinicians had already begun to adopt laxative-related recommendations and were already delaying testing patients on laxatives until they appeared sicker; however, the majority of our cohort was enrolled before the updated IDSA-SHEA guidelines were published [6]. In practice, providers may override the recommendation for test exclusion in patients who have more severe illness or signs consistent with infection [22]. This could render the laxative cohort who underwent testing more likely to have true CDI. Regardless, if the guidelines had been followed, all of the laxative cases with severe outcomes would have had missed or delayed diagnoses.

We also recognize that established severity scoring methods for *C. difficile* are imperfect, but they are used in clinical practice. Lack of specificity in scoring criteria applies to both cohorts, regardless of laxative status, and we observed no significant differences using 4 separate CDI severity scores. We also found no differences in severe CDI-attributable clinical outcomes.

Importantly, we only studied patients with clinically significant diarrhea. It is possible that laxative recipients without confirmed diarrhea but with positive stool NAAT testing may have lower rates of severe CDI or severe CDI-related clinical outcomes. We fully support the IDSA-SHEA recommendation that CDI testing be confined to patients with clinically significant diarrhea. However, our study findings indicate that a history of recent laxative use cannot be used as a surrogate for the absence of CDI.

In conclusion, we found no difference in underlying patient characteristics, clinical presentation of CDI, CDI attributable outcomes, or CDI severity by established society guidelines in patients with clinically significant diarrhea who received laxatives within 48 hours preceding CDI diagnosis compared with patients who did not receive laxatives. There is a need for larger multisite studies to further investigate this issue. *Clostridiodes difficile* infection remains a diagnosis that requires both clinical

and laboratory assessment, and the entire clinical picture must be considered when deciding whether a patient warrants testing and treatment. Our findings lead us to recommend that IDSA-SHEA guidelines to limit CDI testing to those with clinically significant diarrhea be emphasized; conversely, the recommendation to exclude CDI testing in patients who have received laxatives within 48 hours should be re-evaluated.

Supplementary Data

Supplementary materials are available at *Clinical Infectious Diseases* online. Consisting of data provided by the authors to benefit the reader, the posted materials are not copyedited and are the sole responsibility of the authors, so questions or comments should be addressed to the corresponding author.

Notes

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