identify medicine patients at high risk of CDI on admission. Further research is needed to determine whether this tool can reduce primary CDI incidence and healthcare costs.

Table 1. Five-Point CDI Clinical Risk Tool and Predicted Risk.

5-Point CDI Clinical Risk Tool	Points
Age group	
70 and under (reference)	0
Over 70	1
Modified Horn's Index	
Low (reference)	0
Moderate	1
Major	2
Extreme	3
Antibiotic within previous 3 months	
No (reference)	0
Yes	1
Total	/5

Predicted CDI Risk based on 5-point Tool			
Total Points	Model-Predicted Risk	True Positive (%)	False Positive (%)
0	0.0038	100.0	100.0
1	0.0109	100.0	100.0
2	0.0303	91.7	57.9
3	0.0816	74.5	31.8
4	0.2016	36.7	5.7
5	0.4180	5.7	0.6

Figure 1. Receiver operating characteristic (ROC) curve for CDI risk prediction model

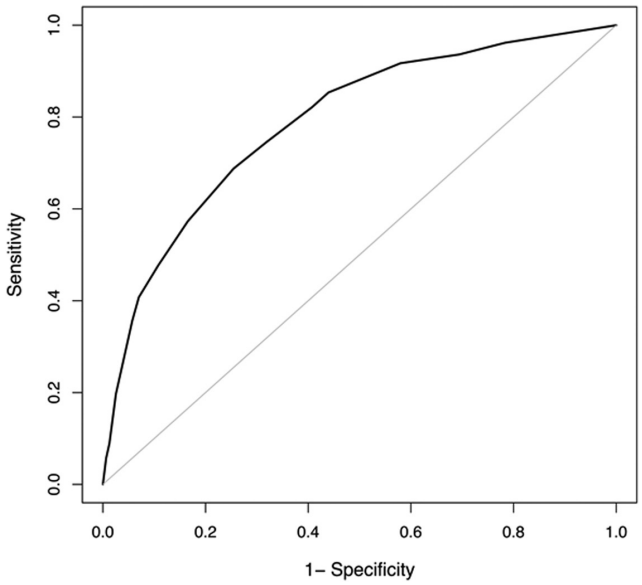
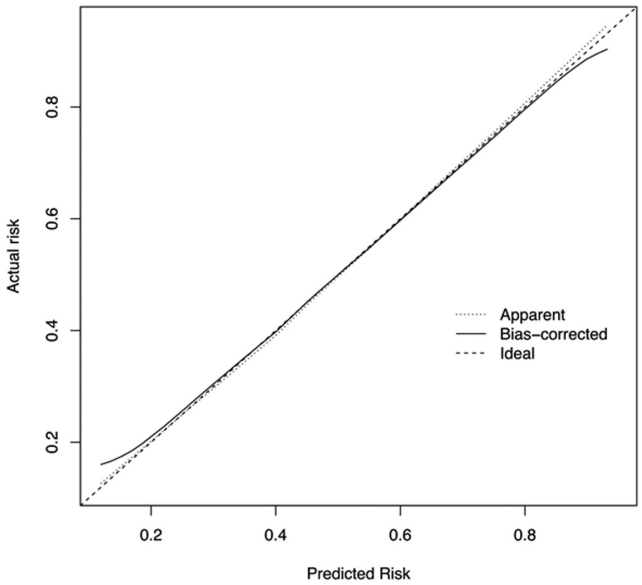


Figure 2. CDI risk prediction model calibration plot. *Clostridium difficile* infection risk prediction model calibration plot showing agreement between observed and predicted risks. Dashed line shows perfect agreement; lines above the dashed line indicate the predicted risks are lower than the actual risk.



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

494. Use of a Clinical Prediction Tool to Predict *Clostridium difficile* Infection

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Session: 59. Healthcare Epidemiology: Updates in *C. difficile*
Thursday, October 4, 2018: 12:30 PM

Background. *Clostridium difficile* is a pathogen that may be a component of normal microbiota. In 2011, there were an estimated 453,000 cases of CDI in the United States and 29,300 deaths. Diagnosis of CDI is of often accomplished through nucleic acid amplification testing (NAAT) for *C. difficile* toxin genes, which carries a risk of false-positive results. In 1996, Katz et al. created a screen for CDI that was positive if the patient had significant diarrhea and either abdominal pain or prior antibiotic usage. Today, we believe that this tool is worth revisiting with increased incidence of CDI and improved testing methods. Our aim is to determine the current usefulness of the Katz et al. 1996 clinical decision tool for CDI.

Methods. We conducted a retrospective cross-sectional chart review at a Midwestern teaching hospital. All patients tested for CDI between June 1, 2016 and May 31, 2017 were initially eligible. Participants were excluded from data collection on the basis of missing information, a previous positive CDI test in the last 8 weeks or age <18 years. Charts were reviewed for age, sex, diarrhea, abdominal pain, antibiotic use, prior positive testing for CDI, and length of hospitalization. Data were analyzed using SAS Software.

Results. Of the initial 432 charts analyzed, 202 (46.8%) had no documented amount of diarrhea and 16 more were missing other data points, leaving 214 of 432 (49.5%) charts that included all data to be used for analysis. Of these 18 of 214 (8.4%) were positive results. The Katz screen was positive in 85 of 214 (40.2%) cases. The sensitivity, specificity, positive predictive value, and negative predictive value, respectively, were 61, 62, 13, and 95.

Conclusion. Katz et al. found a sensitivity, specificity, positive predictive value and negative predictive value of 80, 45, 18 and 94, respectively. The differences between these values and our own may be due to changes in the testing methodology and prevalence of CDI compared with a 1992 study population. The negative predictive value remains a strength. If this screening tool had been applied to our population, there may have been 128 (59.8%) fewer tests, but seven (38.9%) missed positive results.

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

495. Predictors of *C. difficile* Infection and Impact of Primary Prophylaxis Among Asymptomatic *C. difficile* Colonized Patients: A Cross-Sectional Study

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Background. Patients who are colonized with *C. difficile* are at risk of developing *C. difficile* infections (CDI), but factors associated with disease onset are poorly understood. The objectives of this study were to identify predictors of hospital-onset CDI (HO-CDI) among asymptomatic *C. difficile* colonized patients and explore the potential benefit of primary prophylaxis to prevent CDI.

Methods. We performed a retrospective cross-sectional study of *C. difficile* colonized patients admitted to a tertiary academic institution in Quebec City between November 2013 and January 2017. Colonization status was determined upon hospital admission through a systematic screening program by detecting the *TcdB* gene by PCR on a rectal swab. Primary prophylaxis was defined as the preventive use of ≥1 dose of oral vancomycin or metronidazole in a patient without diarrhea. The choice and dosing of prophylaxis were left to the discretion of the treating physician. Univariate and multivariate logistic regression analyses were used to determine independent predictors of HO-CDI.

Results. Of 513 *C. difficile* colonized patients, 39 (7.6%) developed a HO-CDI, with a 30-day attributable mortality of 18%. We found that an increased length of hospital stay (adjusted odds ratio [aOR] per day, 1.03; $P = 0.006$), exposure to multiple classes of systemic antibiotics (aOR per class of antibiotic, 1.45; $P = 0.03$), the use of opioid analgesics (aOR, 2.70; $P = 0.01$) and cirrhosis (aOR, 5.57; $P = 0.007$), were independently associated with an increased risk of HO-CDI in multivariate analysis, whereas the use of laxatives was associated with a lower risk of CDI (aOR, 0.36; $P = 0.01$). Among the antimicrobials, B-lactam with B-lactamase inhibitors (OR, 3.65; $P < 0.001$), first-generation cephalosporins (OR, 2.38; $P = 0.03$), and carbapenems (OR, 2.44; $P = 0.03$) correlated with the greatest risk of HO-CDI. In contrast, patient age, exposure to proton pump inhibitors, and the use of prophylaxis were not significantly associated with occurrence of HO-CDI in this specific population.

Conclusion. This study identifies several variables that are specifically associated with the development of CDI among *C. difficile* colonized patients. Whether modifying these risk factors could help prevent CDI should be further investigated.

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