Diagnosis of C. difficile infection is imperfect and various algorithms have been proposed. While PCR is sensitive for detecting toxin-carrying C. difficile, it leads to overdiagnoses resulting in antibiotic overuse and potentially unnecessary healthcare costs.

Methods. We performed a study of C. difficile cases after changing the testing protocol from reflexive vs. physician-requested PCR in cases of indeterminate EIA testing (antigen +, toxin –). The study was conducted among inpatient adults at four large hospitals in the southern California area and evaluated two 6-month periods: pre-intervention (September 5, 2016–March 5, 2017) and post-intervention (3/6/2017–9/6/2017). Only the first C. difficile test during a period per patient was evaluated. Primary outcome was change in number of C. difficile diagnoses. Secondary outcomes included adverse events (missed cases of C. difficile) and cost savings (accounting for PCR, isolation, and treatment costs).

Results. A total of 500 EIA indeterminate C. difficile test results were evaluated, 281 pre- and 219 post-intervention. There were no statistically significant differences in demographics, laboratorv values (WBC, Cr), or hospital site between the study periods. A PCR was performed in 99.6% (280/281; one not performed due to an inhibitor) and 66% (144/219) in the pre- vs. post-intervention periods (P < 0.01); the PCR was positive in 65% (n = 182 and n = 94, respectively) in both periods. The change in testing strategy resulted in a 49% reduction in PCR testing and 48% fewer C. difficile cases. There were no differences between study periods in 30-day readmissions for all-cause (P = 0.96), GI-related illness (P = 0.93) or C. difficile (P = 0.47), nor in new or recurrent C. difficile cases (P > 0.99). No patient without a PCR and not treated was later diagnosed with C. difficile infection. Each reflexive PCR avoided led to a cost savings of $4,384/patient.

Conclusion. Diagnostic stewardship is an emerging area that can potentially reduce overdiagnosis and overtreatment of a variety of infectious diseases. Our study showed that changing C. difficile PCR testing among EIA-indeterminate cases from reflexive to requiring a physician order resulted in valuable cost savings without associated adverse events.

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2344. Evaluation of a Best Practice Alert (BPA) to Reduce Inappropriate Testing for Clostridium difficile Infection (CDI) Within a Multi-Hospital System
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Background. Hospital-acquired CDI contribute to significant morbidity, mortality, and cost burden in hospitalized patients. Clinical practice guidelines recommend strict testing criteria when employing nucleic acid amplification testing alone as to not test asymptomatic carriers. A BPA within the electronic medical record (EMR) may assist with this screening.

Methods. At our 9-hospital system, we created a BPA to help identify patients who may not meet criteria for CDI testing. Initial BPA (January 2018) asked if patient had 3 or more stools (yes/no) and if laxatives were administered in the last 48 hours (yes/no). An expanded BPA was updated to pull medication administration records for use of laxatives in the prior 48 hours (August 2018) and notified providers of recent C. difficile testing in the past 7 days (January 2019). C. difficile orders from March 2017 (historical), March 2018 (intervention 1), and March 2019 (intervention 2) were evaluated to assess impact of these interventions.

Results. C. difficile testing in March 2017 (historical), 31,299 (intervention 1), and 91,960 (intervention 2) patient-days were evaluated. Rates of C. difficile orders and infections are reported in the table. Ratio of positive C. difficile specimens to tested specimens were similar between the historical arm (51 of 402; 12.7%) and both intervention (42 of 271; 15.5%) and intervention 2 (45 of 316; 14.2%) arms (P = 0.3 and P = 0.5, respectively). Intervention 1 and intervention 2 arms were similar in all metrics. Statistical analysis was performed using Stata, v14.2.

Conclusion. Implementation of a decision support tool to assist with C. difficile testing significantly decreased order rates in both the initial and expanded BPA intervention arms. Compared with historical rates, incidence of CDI decreased in both intervention arms though these were not statistically significant. Similarly, ratio of positive specimens to specimens tested increased in both intervention arms, though not significant, indicating a treatment impact on patient selection. To improve appropriate CDI testing, further oversight and/or education is needed to accompany implementation of an EMR decision support tool, such as BPAs.