



MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

Use of Electronic Best Practice Advisory (BPA) to Reduce Inappropriate Testing for *Clostridium difficile* Infection (CDI) at a Tertiary Care Center

John P Mills, MD; Robert Chang, MD; Krishna Rao, MD, MS; Christopher Zimmerman, PharmD; Carey Dombeki, MPH, CIC; Hee-Won Yoon, MPH; Laraine Washer, MD

BACKGROUND

- *Clostridium difficile* assays are unable to differentiate between active infection and asymptomatic carriage.
- Failure to account for non-infectious causes of diarrhea in hospitalized patients may contribute to overdiagnosis of CDI, leading to unnecessary treatment & increased cost of care

METHODS

A BPA was instituted in a tertiary academic medical center in the electronic ordering system (Epic) on July 17th 2017 alerting providers ordering *C. difficile* testing (2-step GDH + toxin arbitrated by NAAT) if their patient had received any of the following in the preceding 48 hours:

- laxatives
- oral contrast
- initiation of tube feeds

Reevaluation of diarrhea was recommended 48 hours after stopping laxatives, receipt of oral contrast, or initiation of tube feeds in stable patients.

BPA override was available for the following scenarios:

- high clinical suspicion
- concern for severe disease, diagnosis cannot be delayed
- ileus
- worsened diarrhea on chronic tube feeds
- worsened diarrhea on chronic laxatives

All positive CDI cases that occurred after BPA fire were reviewed for delay in diagnosis.

Rates of CDI testing and CDI test positivity before and after BPA implementation were compared by chi-square test. Multiple single patient BPAs within 48 hours were considered a single cluster.

CONCLUSIONS

- A BPA averted 32% of attempted *C. difficile* tests in patients with alternative etiologies for diarrhea
- Overall CDI testing rate decreased & proportion of positive tests increased after BPA introduction
- Two cases of delayed CDI diagnosis were identified; neither was associated with an adverse outcome.

RESULTS

Figure 1: Total Number BPAs & Overrides in 2017

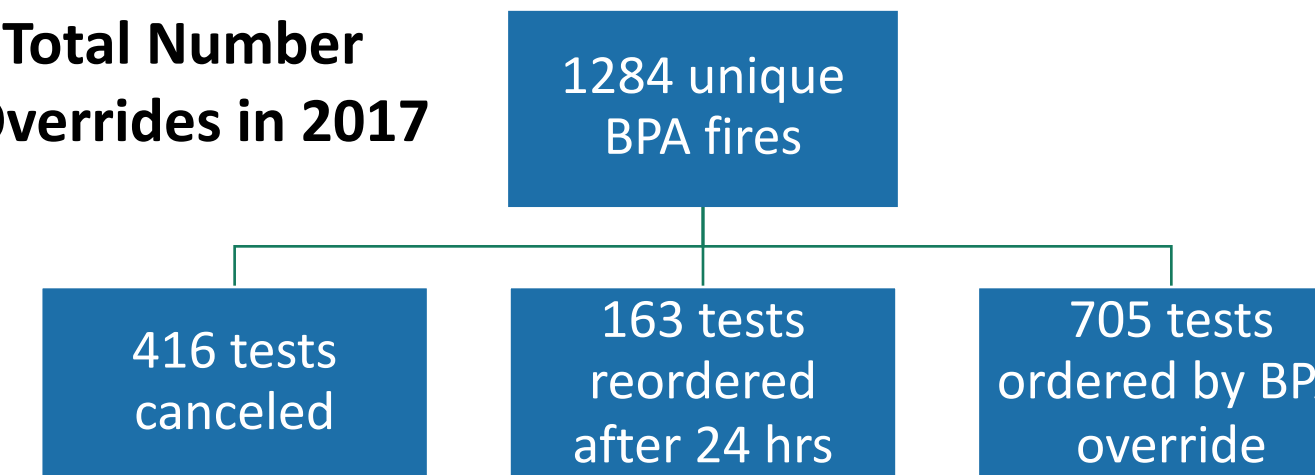


Table 1: Impact of BPA on *C. difficile* testing rate

	Jan – June 2017	July - Dec 2017	P value
Rate of CDI tests per 10,000 patient-days	191.6	165.9	<0.001
Proportion of positive CDI tests	8.4%	10.6%	0.006

Figure 2: CDI testing rate by month in 2017

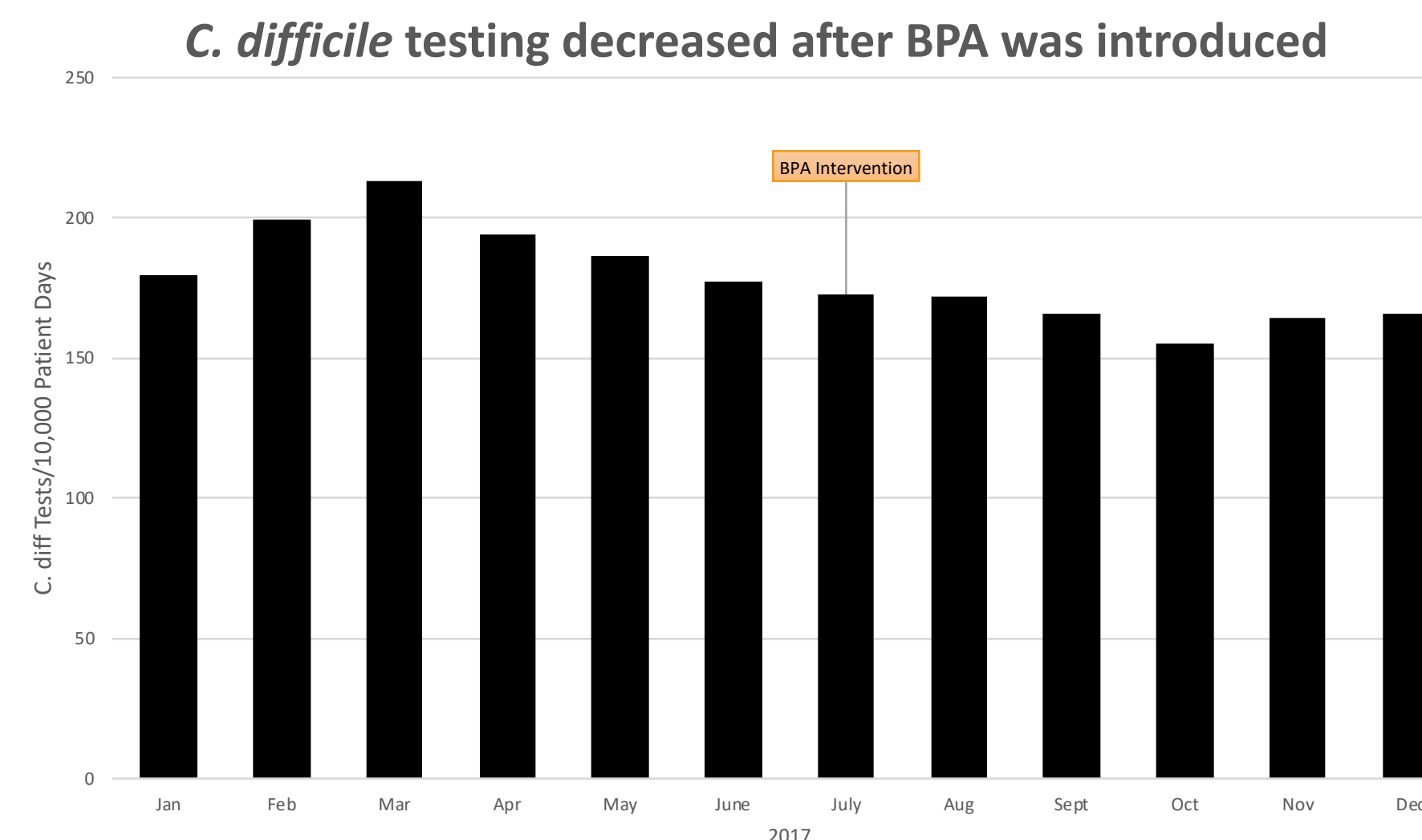


Table 2: Clinician Reasons for BPA Override

High clinical suspicion	380	43.8%
Patient on tube feeds & worsened diarrhea	138	15.9%
Cancel BPA	124	14.3%
Other (document as comments)	76	8.7%
Concern for severe disease & Dx cannot be delayed	56	6.5%
Patient on daily laxatives & worsened diarrhea	51	5.8%
Concern for ileus due to <i>C. difficile</i>	43	5.0%

Figure 3: Total number CDI tests & proportion of positive results in 2017

