



“Rates of *Clostridium difficile* Infections After Utilization of Best Practice Advisory”

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Introduction

- Currently, there are limited treatment guideline recommendations for primary and secondary *Clostridium difficile* (*C. diff*) prophylaxis during concomitant systemic antibiotic use
- In 2017, a best practice advisory (BPA) was created within our electronic medical record to identify patients at high risk for *C. diff* infection that provided prescribers a suggestion to consider *C. diff* prophylaxis
- An improvement to that BPA was made in October 2019, offering options for ordering of *C. diff* prophylaxis within the BPA. The medication options to order are: vancomycin 125 mg orally twice daily or a formulary preferred probiotic twice daily.

Outcome measures

Primary outcome: To determine if the rates of hospital-acquired *C. diff* infections decreased before and after implementation of an EMR best practice advisory for *C. diff* prophylaxis.

Secondary outcomes: Risk factors to *C. diff*, antibiotics more frequently implicated in antibiotic-associated *C. diff* infection, average duration of systemic antibiotic treatment, antibiotics prior to admission, which prophylactic agent had the most desirable outcomes, and assess which prescriber groups utilized prophylaxis the most.

Methods

Study design

- Retrospective chart review.
- Assessment of patients’ charts for: length of stay, department admitted to, antibiotics received, antibiotic duration, prophylactic agent utilized and duration, antibiotics prior to admission, *C. diff* outcome, recent hospitalization, admitted from a congregate setting, and BPA acknowledgement.

Inclusion Criteria

- Age ≥ 18 years old
- Admitted for at least 3 days
- Received at least 3 days of systemic antibiotics

Exclusion Criteria

- Completion of treatment for *C. diff* infection
- Concurrent use of drugs that have activity against *C. diff* documented prior to admission date for hospitalization meeting study inclusion and/or while hospitalized
- Concurrent use of probiotics documented prior to admission date for hospitalization meeting study inclusion
- Absolute Neutrophil Count $< 1000 \times 10^9/L$

Conclusion

- There was a statistically significant difference of hospital-acquired *C. diff* rates before and after the implementation of a BPA.
- Oral vancomycin is more effective than lactobacillus in preventing hospital-acquired *C. diff* infections. Out of the 7 patients that tested positive for *C. diff*, 5 patients were on lactobacillus.
- Cefepime was the antibiotic most often administered to *C. diff* positive patients.
- Levofloxacin, Bactrim, and Cefadroxil administered prior to admission led to positive *C. Diff* outcomes.

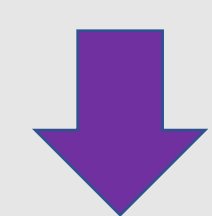
Disclosure

Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities:

- Mattison Davidson: Nothing to disclose
- Kristin Peterson: Nothing to disclose
- Amelia Honey: Nothing to disclose

Results

n = 1179 – total of patient charts reviewed



After exclusion criteria was evaluated, the following for each category was included in the study:

No BPA: n=43
BPA 1: n=71
BPA 2: n=121

Primary Outcome

	No BPA	BPA 1	BPA 2	P-value
Total # of patients receiving prophylaxis	n/a	71	121	0.011
SIR value	1.462	0.461	0.444	0.00536

Secondary Outcomes

	No BPA	BPA 1	BPA 2
Length of Stay (days)	13.4	9.11	7.71
Department (most common)	IM/Surgery/ICU/ID	ICU/IM/ID	IM/ICU/ID
Antibiotics received (more frequently)	Vanco/Pip-Tazo/Levofloxacin	Vanco/Pip-Tazo/Levofloxacin	Vanco/Pip-Tazo/Cefepime
Antibiotic Duration (days)	9.53	7.86	6.76
Prophylactic Agent	n/a	85% lactobacillus	80% lactobacillus
Prophylactic Duration (days)	n/a	5.85	5.14
Antibiotics PTA (more frequently)	Vancomycin	Doxycycline	Bactrim/Levofloxacin/Augmentin
<i>C. diff</i> Positive Outcome	n/a	5%	2%
Recent Hospitalization (%yes)	47%	52%	63%
Resident in a Congregate Setting (%yes)	14%	30%	17%
BPA acknowledgement	n/a	48%	69%