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## Introduction

- Prospective audit and feedback (PAF) is an established antimicrobial stewardship strategy in critical care settings but not in the surgical population.
- We piloted once-weekly structured face-to-face PAF with the Acute Care Surgery (ACS) service from November 23, 2015 to April 29, 2019 in a university-affiliated community hospital.
- These structured fact-to-face PAF sessions were facilitated by the Antimicrobial Stewardship Program (ASP) pharmacist and attended by the ACS surgeons and the ASP physician. Sessions lasted 10-15 minutes and all patients under the ACS service on systemic antimicrobials were discussed.
- Usual Care at our community hospital comprised of ad-hoc PAF on targeted antimicrobials once or twice weekly with recommendations made to ACS surgeons using written or verbal methods (latter included face-to-face or telephone).
- Outcomes using structured face-to-face PAF compared to ad-hoc PAF (Usual Care) were evaluated.

## Methods

- The structured PAF study period was from August 1, 2017- April 30, 2019 while the ad-hoc PAF study period was from May 1, 2019- January 31, 2021.
- The primary outcome was antimicrobial usage measured in Days of Therapy/1000 patient days (DOT/1000-PD) for all systemic and targeted antimicrobials ordered by the ACS team. Targeted antimicrobials included 3rd generation cephalosporins, piperacillin/tazobactam, carbapenems, fluoroquinolones and clindamycin.
- Secondary outcomes included *C. difficile* infections, length of stay and readmission within 30 days.
- Interrupted time series segmented negative binomial regression analysis was used to evaluate the change in the primary outcome.
- The first two secondary outcomes were analyzed using a logistic regression model while a negative binomial regression model was used to evaluate readmission within 30 days.

## Results

Figure 1: Primary Outcome in DOT/1000-PD

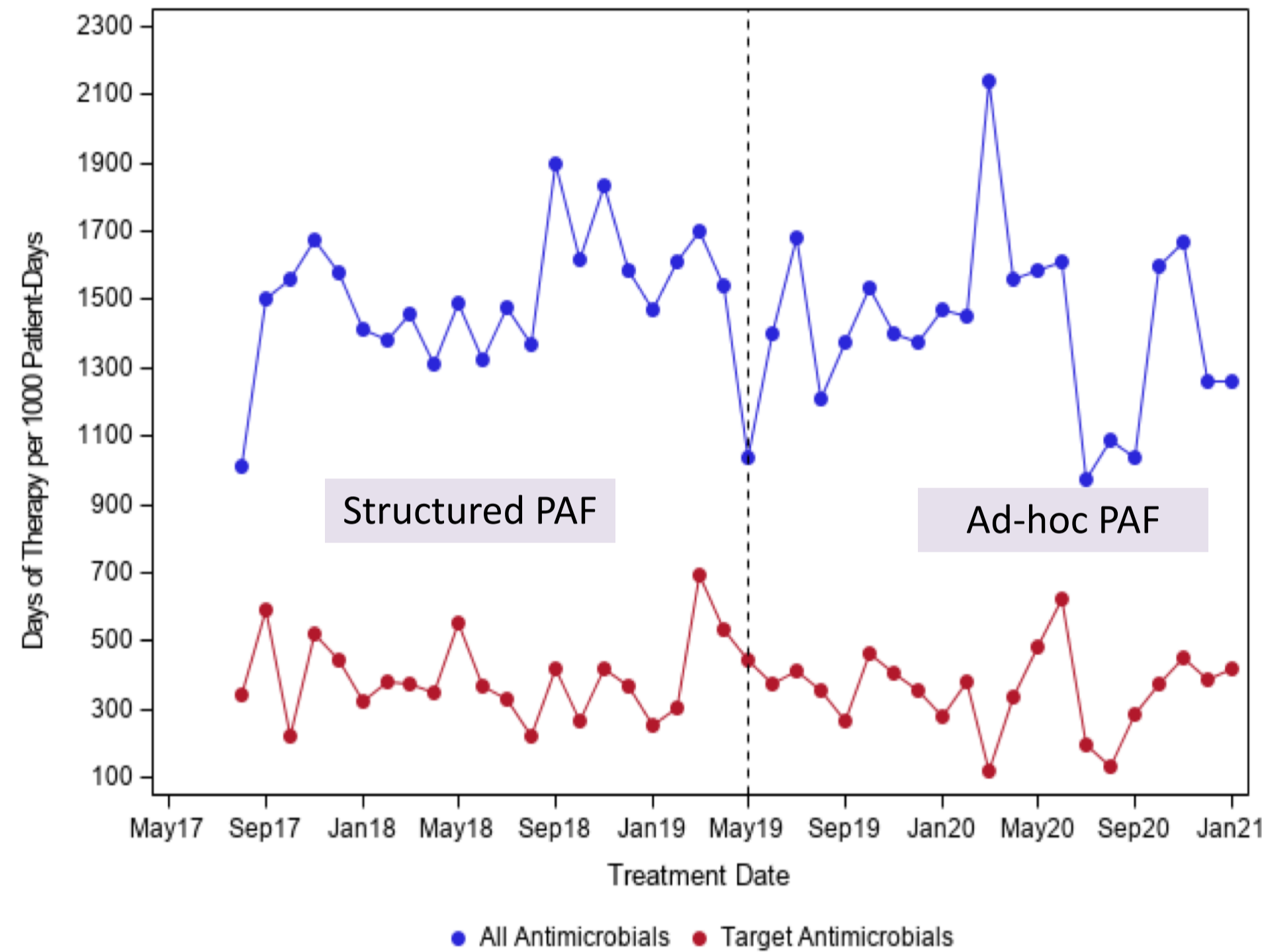


Figure 2: Predicted rates by time using negative binomial models

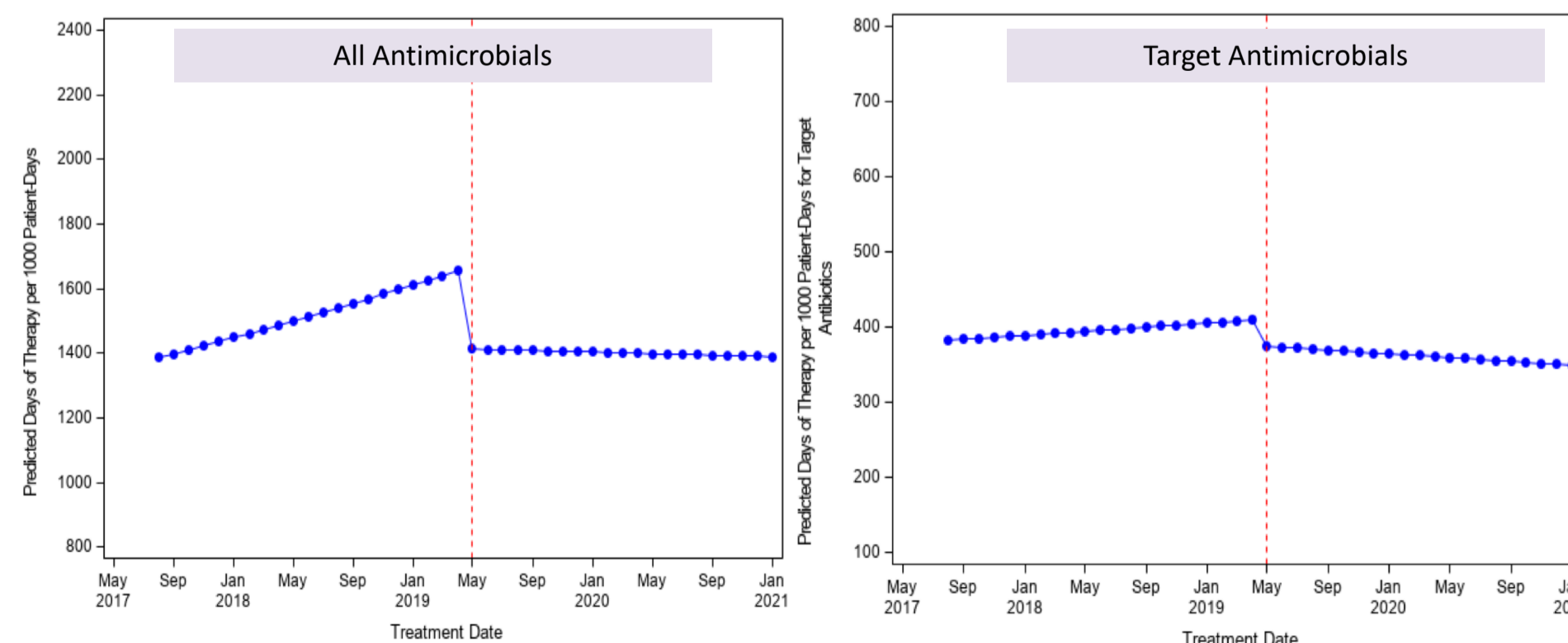


Table 1: Interrupted Time Series Analysis of Primary Outcome

	Rate Ratio	95% CI	p-value
<b>All Antimicrobials</b>			
Change in Level	0.85	0.70-1.02	0.074
Change in Trend	0.99	0.98-1.01	0.209
<b>Targeted antimicrobials</b>			
Change in Level	0.91	0.62-1.33	0.634
Change in Trend	0.99	0.96-1.02	0.664

Table 2: Secondary Outcomes

	Structured PAF N=776	Ad-hoc PAF N=783	Odds ratio or Rate ratio (95% CI)	p-value
<b>Readmission within 30 days (n, %)</b>				
Yes	45 (5.6)	40 (5.0)	0.87 (0.56-1.35)	0.5457
No	753 (94.4)	766 (95.0)		
<b><i>C. difficile</i> Infection (n, %)</b>				
Yes	3 (0.4)	2 (0.3)	0.66 (0.06-5.77)	0.9906
No	795 (99.6)	804 (99.8)		
<b>Length of Stay (Days)</b>				
Mean (standard deviation)	2.7 (3.5)	2.9 (5.0)	1.07 (0.98-1.17)	0.1206
Median (interquartile range)	2 (1-3)	2.0 (1-3)		

## Conclusion

Structured PAF showed similar clinical outcomes to ad-hoc PAF for the Acute Care Surgery Service at our institution. Other antimicrobial stewardship interventions can be explored to better support judicious antimicrobial use in General Surgery.

