

# Impact of Antimicrobial Stewardship in a Community Teaching Hospital

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## Introduction

- Antimicrobial stewardship (AMS) programs have been established nationwide to optimize antimicrobial therapy and minimize other consequences of antimicrobial use.<sup>1</sup>
- HSHS St. Elizabeth's Hospital has numerous AMS protocols in place with the recent addition of a proactive service known as Prospective Audit and Feedback (PAF)
- The CDC and IDSA/SHEA recommend PAF as a core component of AMS.<sup>1,2</sup>

## Objective

- Assess the effect pharmacist-led PAF has on antimicrobial use and other consequences of antimicrobial use
- Identify the types of interventions made by the AMS pharmacist

## Methods

### Study Design:

- Retrospective chart review

### Enrollment:

- Included inpatients age  $\geq 18$  at HSHS St. Elizabeth's Hospital in O'Fallon, IL
- Patients were identified for potential interventions by either clinical decision support software or a consult from a healthcare provider in the electronic health record.

### Outcomes:

- Primary: Antimicrobial use defined as Days of Therapy per 1,000 Patient Days (DOT/1000PD)
- Secondary: Intervention type and hospital-acquired *Clostridioides difficile* infection (HAI CDI) rate

### Data collection:

- Pre-PAF: December 2021-March 2022
- Post-PAF: May 2022-August 2022
- April 2022 served as a washout period

### Data Analysis:

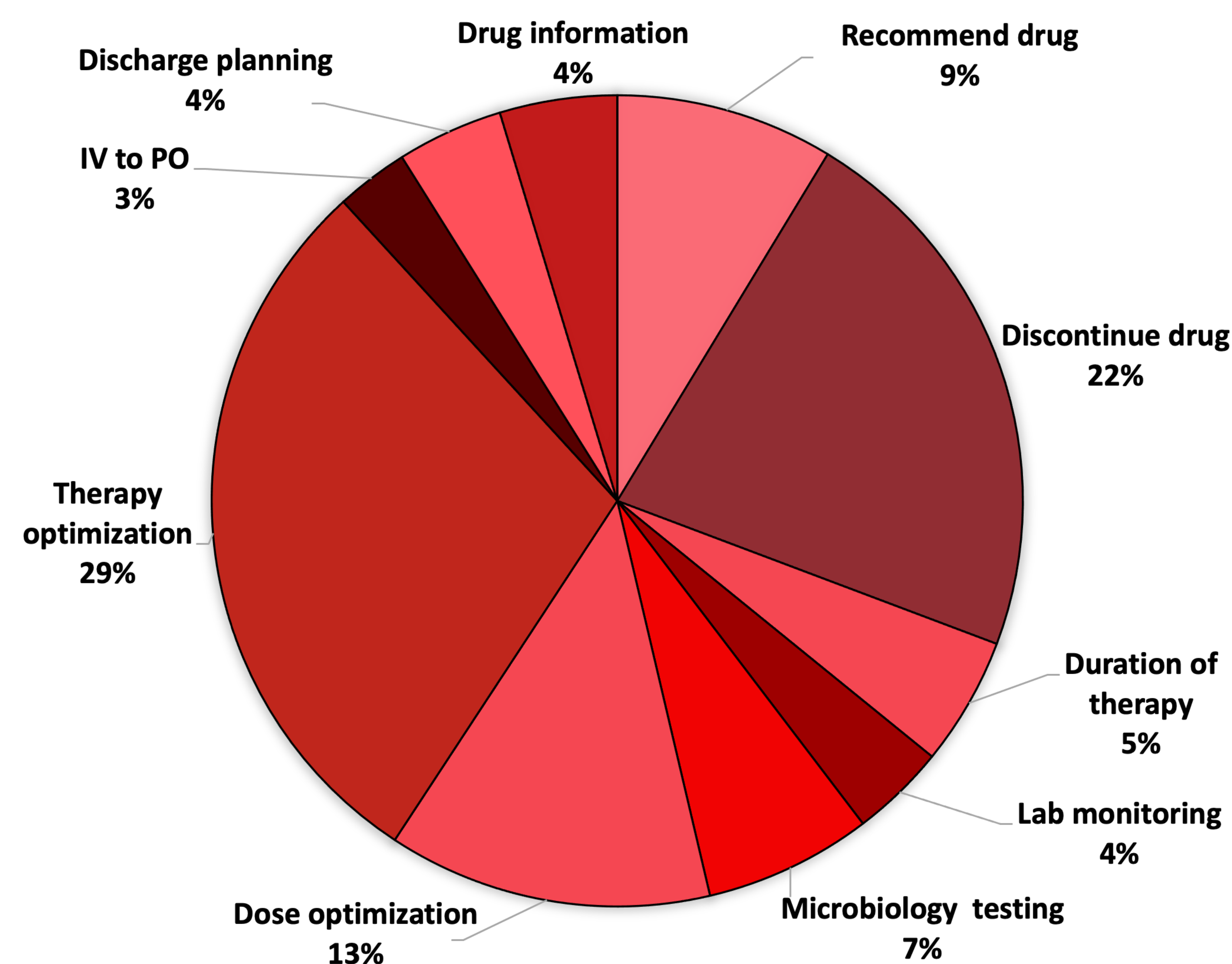
- Mean antimicrobial use and HAI CDI analyzed using Student's t-test
- Frequency of each intervention type

## Results

**Table 1: Mean Monthly DOT/1000 PD**

Pre-PAF $\pm$ SD	Post-PAF $\pm$ SD	p-value
710.10 $\pm$ 22.4	780.73 $\pm$ 28.8	0.0082

**Figure 1: Intervention Types**



**Table 2: Mean HAI CDI rates**

Pre-PAF $\pm$ SD	Post-PAF $\pm$ SD	p-value
0.5 $\pm$ 0.58	1.0 $\pm$ 0.82	0.3559

## Discussion

- A statistically significant increase in antimicrobial use was observed after PAF was implemented even though discontinuation of drug was the second most frequent intervention type
- No statistically significant difference in HAI CDI rates

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### Study limitations and potential confounders:

- Short data collection period
- COVID-19 pandemic
- Seasonal infection rates
- Rotation between different Infectious Disease service and Family Medicine physicians
- Increasing rates of multi-drug resistant infections

## Conclusion

- Antimicrobial use increased after implementation of PAF
- Therapy optimization was the most frequent intervention made followed by discontinuation of antimicrobials
- HAI CDI rates remained stable after PAF implementation
- Further research is needed to assess the long-term effect of PAF implementation on antimicrobial use

## References

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