



Background

- Prospective audit and feedback (PAF) is a core strategy of antimicrobial stewardship programs (ASPs) and is typically performed by either an ASP or infectious diseases (ID) pharmacist.
- The background of ASP and ID pharmacists may overlap based on expertise and training; however, their responsibilities may differ. ASP pharmacists are often tasked with tracking antimicrobial use metrics whereas ID pharmacists may be more involved in clinical responsibilities, such as patient care rounds.¹⁻³
- In the absence of an ID pharmacist role at our institution, the ASP pharmacists at our hospital were integrated into patient care rounds to improve support of the inpatient ID consult service and antimicrobial decision-making.
- Specifically, the ASP pharmacists participated in pediatric ID rounds to improve the communication of PAF recommendations to the pediatric ID consult service.

Objective

To assess the impact of an ASP pharmacist participation in ID rounds on the rate of PAF recommendations and recommendation acceptance.

Methods

- Audits performed between 1/4/21-12/30/21 and 1/3/22-4/29/22 on patients with an ID consult were included in the pre- and post-cohort, respectively.
- Audits with an ID consult were identified based on data captured in the electronic medical record (EMR)-embedded ASP navigator.

Inpatient Prospective Audit and Feedback Program

- During the study period, all active parenteral and enteral antimicrobial orders were audited within 72 hours, Monday-Friday; all inpatient pediatric units are included.
- Audits and recommendations were documented in the EMR-embedded ASP navigator for tracking purposes.

Inpatient Pediatric Infectious Diseases Consult Service

- Two teams: General ID and immunocompromised host ID team.
- Comprised of one ID attending physician per team and either a pediatric ID fellow or advanced practice provider.

Intervention: ASP Pharmacist Participation

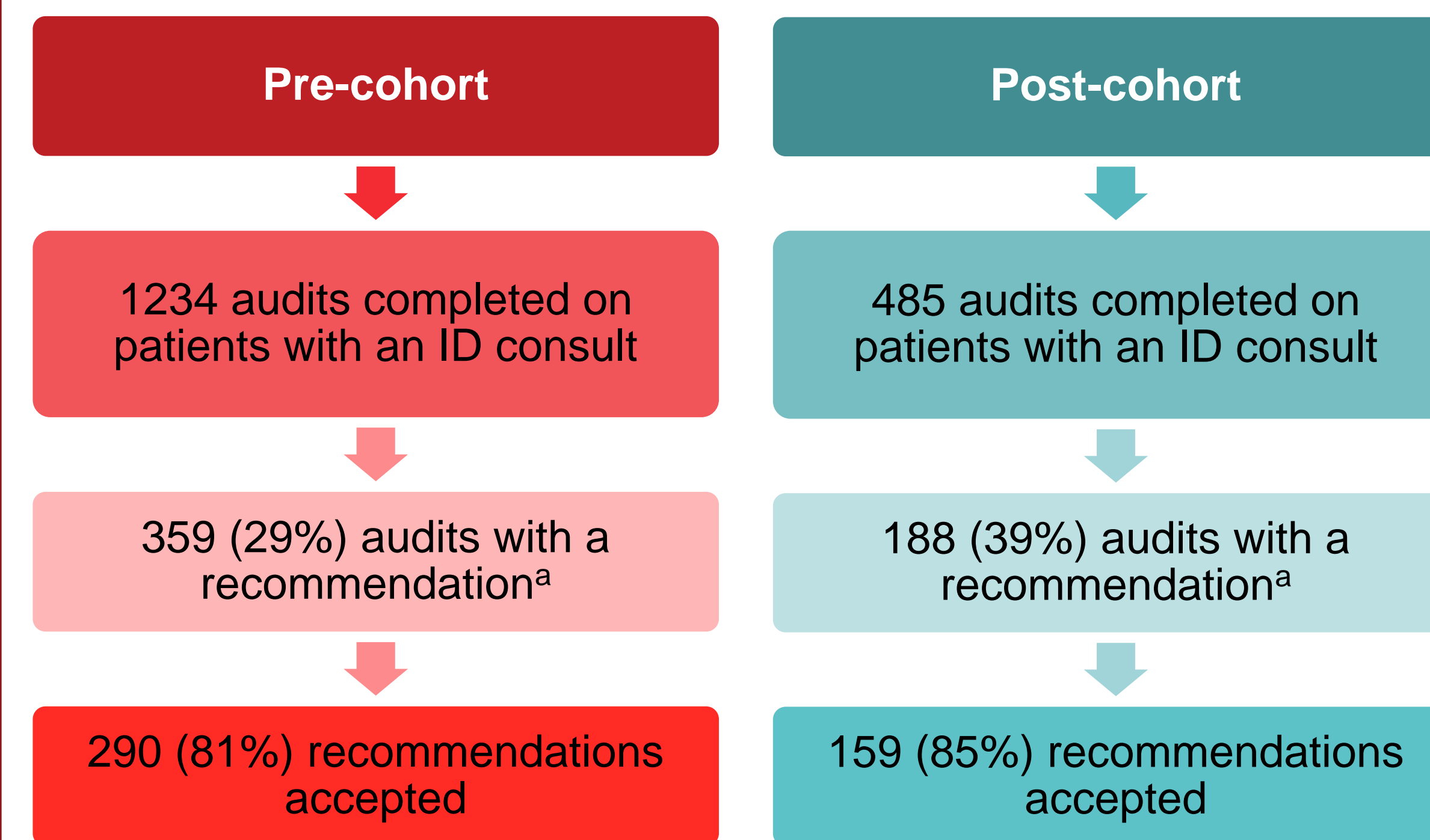
- Prior to implementation of the intervention, an ASP pharmacist did not routinely attend pediatric ID rounds; however, pharmacy residents rotating through the ID service did round with the team.
- Prior to implementing the intervention, PAF recommendations were typically communicated via a messaging service or email to the pediatric ID consult service.
- Starting 1/3/22, an ASP pharmacist participated in daily (M-F), in-person discussions for up to one hour with each ID team regarding their patients' antimicrobials.
 - Participation included attending patient care rounds, sit rounds with the team, and/or a brief, targeted discussion of specific concerns.

Study Analysis

- PAF recommendation rates, characteristics, and acceptance rates were compared between the two cohorts.

Results

Study Cohort Comparison



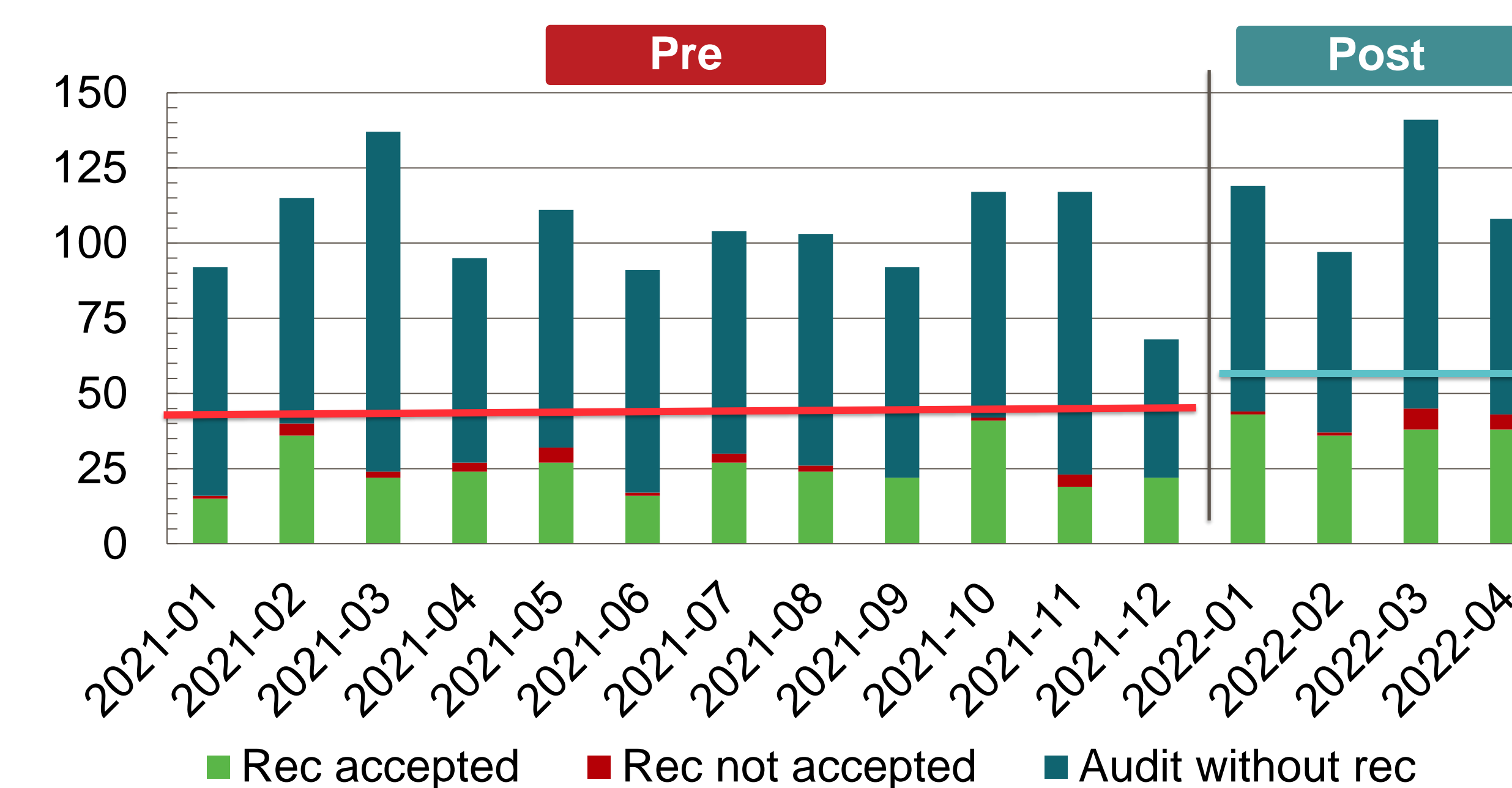
^a Comparison of PAF recommendation rate in the pre- vs. post-cohort, $P < 0.001$; no difference in overall recommendation acceptance rate, $P = 0.293$.

Characteristics of PAF Recommendations

	Pre (N = 359)	Post (N = 188)
Antimicrobial category (%)		
Antibiotic	271 (75)	132 (70)
Antifungal	66 (18)	32 (17)
Antiviral	15 (4)	18 (10)
Other	7 (2)	6 (3)
Infectious problem (%)		
Respiratory infection	64 (18)	32 (17)
Sepsis	58 (16)	30 (16)
Bloodstream infection	49 (14)	31 (16)
SSTI	38 (11)	16 (9)
Bone and joint infection	23 (6)	8 (4)
CNS infection	20 (6)	8 (4)
Gastrointestinal/Intraabdominal	18 (5)	12 (6)
UTI	16 (4)	8 (4)
Prophylaxis	13 (4)	9 (5)
Viral infection	12 (3)	10 (5)
Febrile neutropenia	2 (1)	3 (2)
Other	46 (13)	21 (11)

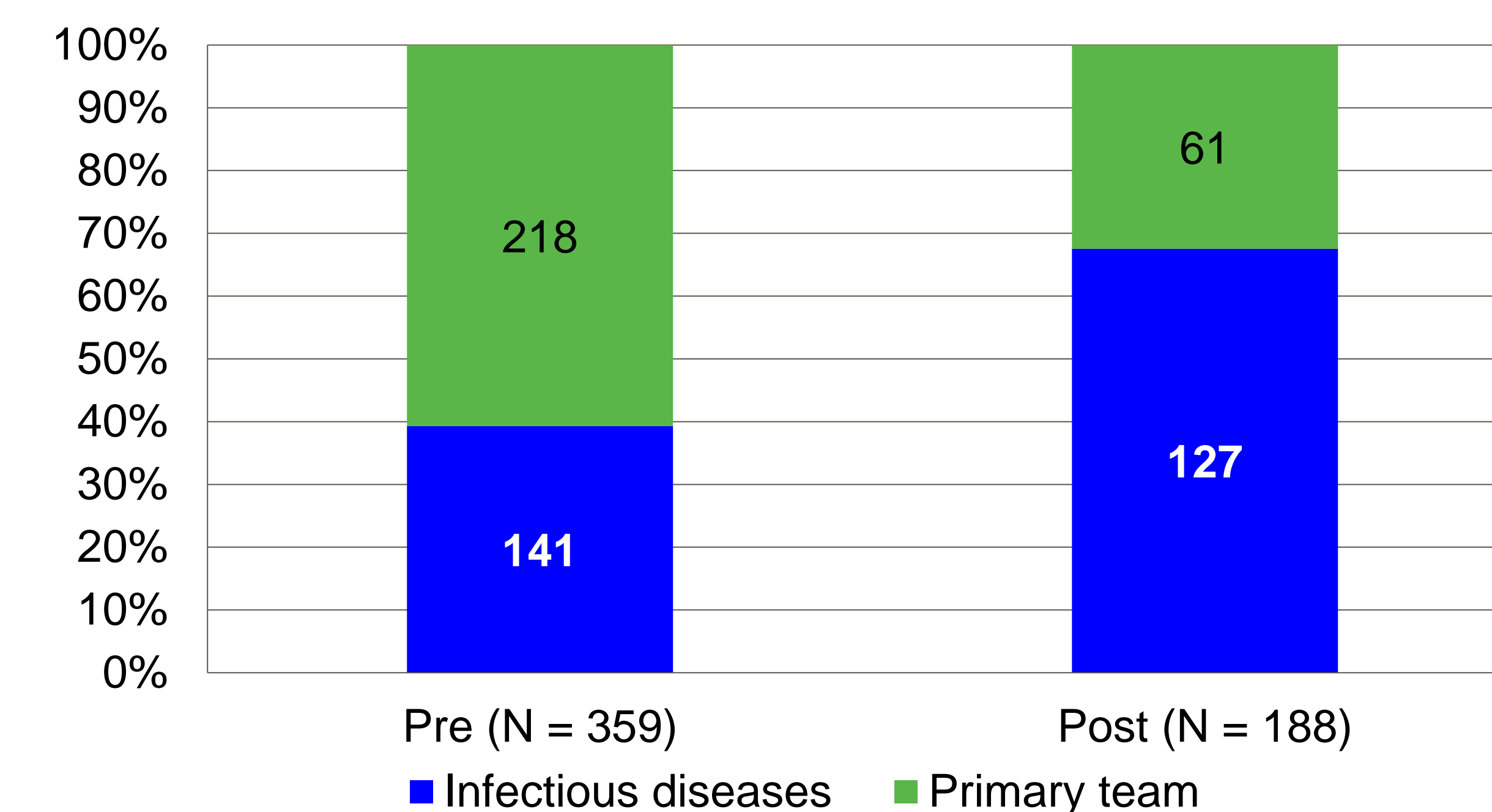
CNS: Central nervous system; IV: Intravenous; NRC: Non-rounding cohort; PAF: Prospective audit and feedback; PO: Per os, oral; RC: Rounding cohort; SSTI: Skin and soft tissue infection; UTI: Urinary tract infection

Comparison of Monthly Audits and Recommendations^b



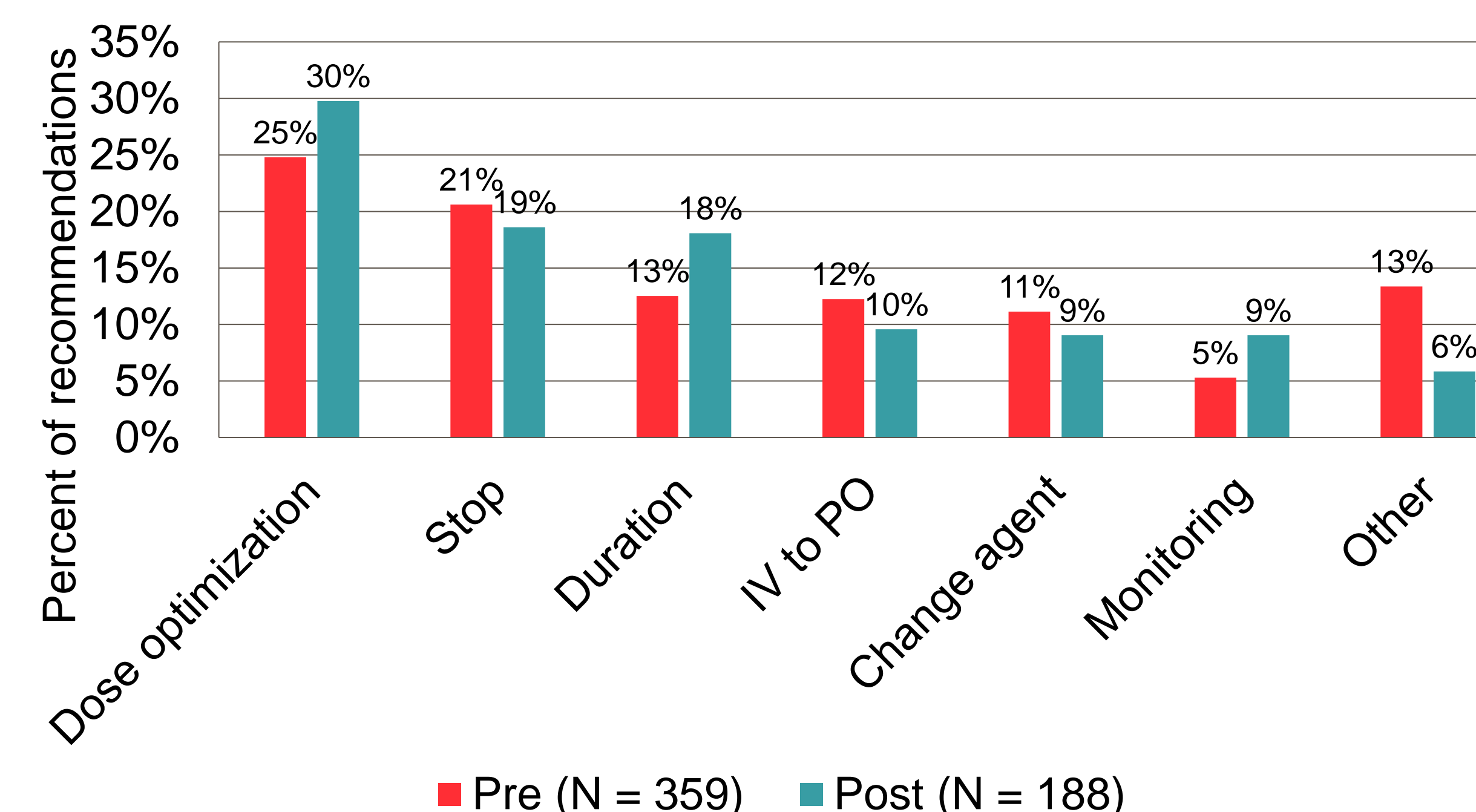
^b Average number of recommendations per month was increased from the pre- to post-cohort group (average 26.8 ± 8.1 vs. 42.2 ± 3.6 , $P = 0.003$).

Comparison of Recommendation Receiver^c



^c Recommendations communicated to ID directly increased in the post-cohort compared to the pre-cohort (67.5% vs 39.2%, $P < 0.001$).

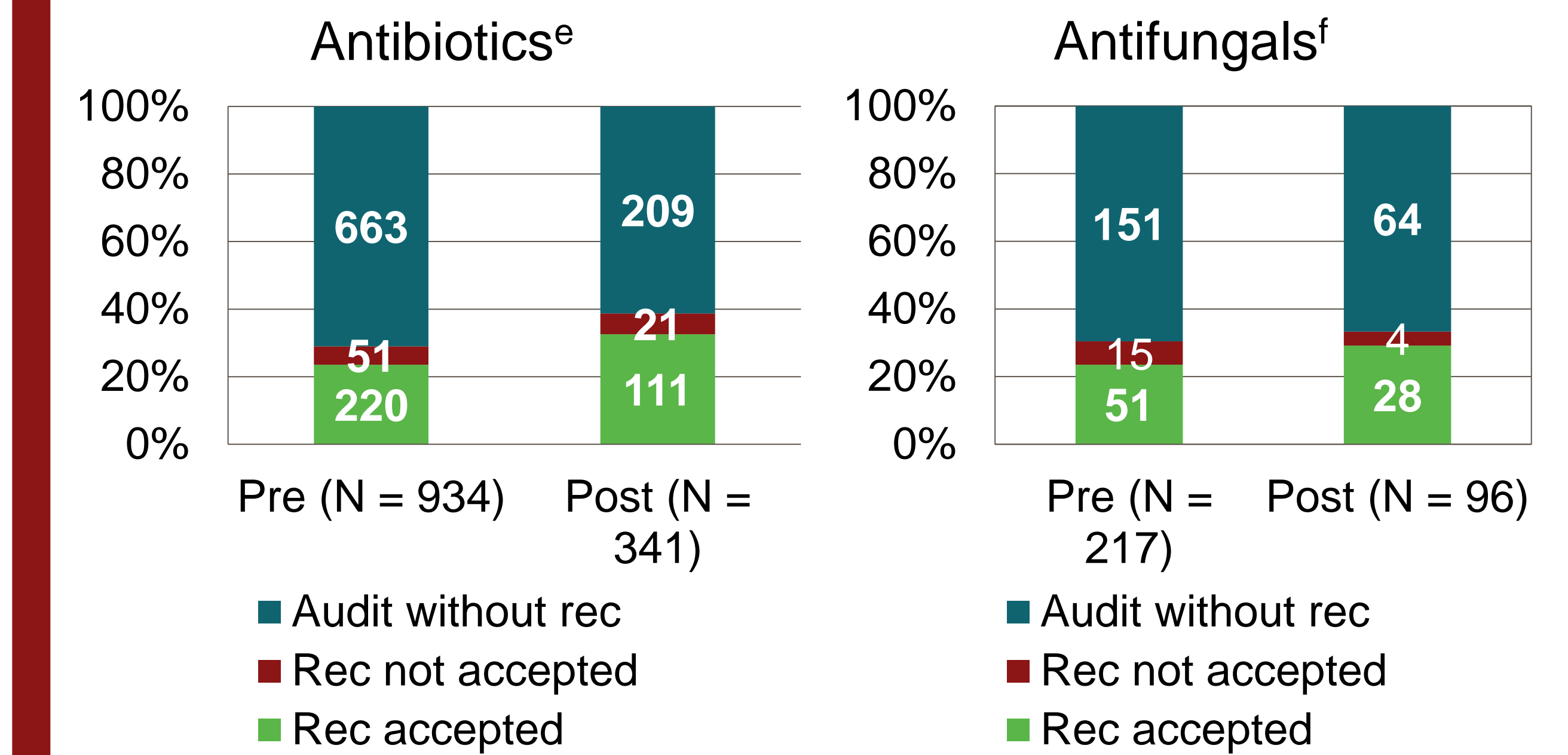
Comparison of Recommendation Type^d



^d No statistically significant difference in recommendation type. Numerical increase in percent of recommendations to optimize the dose, modify the duration, and monitoring.

Results

Comparison of Recommendation and Acceptance Rates Based on Antimicrobial Category



^e Antibiotic PAF recommendation rate between the pre- compared to post-cohort, $P = 0.0014$; acceptance rate, $P = 0.58$.

^f Antifungal PAF recommendation rate between the pre- compared to post-cohort, $P = 0.6$; acceptance rate, $P = 0.28$.

Conclusions

- Formal inclusion of a pediatric ASP pharmacist on inpatient pediatric ID rounds increased the rate of PAF recommendation, although there was no change in the rate of recommendation acceptance.
- ASP pharmacist participation in inpatient pediatric ID rounds may have provided clinical context that informed PAF recommendations.
- ASP pharmacist engagement with ID consult services may enhance antimicrobial optimization efforts.

Future Directions

- Future studies describing the potential benefit to the ID team of having an ASP pharmacist present on rounds are warranted, including the impact on clinical outcomes.
- Balancing roles and responsibilities of ASP pharmacists to ensure the judicious allocation of resources is important before committing to participation with ID rounds.
- Further qualitative studies aimed at understanding when and why ID consult services do not follow ASP recommendations are needed.

References

- Beach JE, et al. Roles of Infectious Diseases Consultant Pharmacists and Antimicrobial Stewardship Pharmacists: A Survey of Canadian Tertiary Care Academic Hospitals. *Can J Hosp Pharm.* 2017 Nov-Dec;70(6):415-422.
- Carreno JJ, et al. Evaluation of pharmacy generalists performing antimicrobial stewardship services. *Am J Health Syst Pharm.* 2015 Aug 1;72(15):1298-303.
- Khumra S, et al. Coaching ward pharmacists in antimicrobial stewardship: A pilot study. *Explor Res Clin Soc Pharm.* 2022 Mar 29;5:100131.