Pilot of a Face-to-face Model of Stewardship (Handshake Stewardship) in a General Medicine Ward

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BACKGROUND

- Antimicrobial stewardship programs continue to seek effective strategies to optimize antimicrobial use nationwide.

- Handshake stewardship (HS) is an antibiotic stewardship strategy that has emerged as a potentially more effective and sustainable form of prospective audit and feedback (PAF). It utilizes a more in-person, face-to-face approach to PAF, which enhances the value of trust and shared decision making between the antibiotic stewardship team (AS Team) and the prescribers[1,2].

- Currently, the AS Team performs PAF on patient's with certain antimicrobials and disease states. It is most often completed via telecommunication by 1 FTE Infectious Diseases (ID) pharmacist and 0.2 FTE ID physician.

OBJECTIVES

We sought to describe our experience of a handshake stewardship (HS) pilot implementation in a general medicine ward.

ENDPOINTS

- Description of antimicrobial stewardship recommendations and acceptance rates.

- Trends in antibacterial use of the medicine ward where the HS model took place.

- Survey results of the hospitalists involved in the HS model pilot to determine their perceptions toward the HS model.

DEFINITIONS

Narrow Spectrum (NS)	amoxicillin, ampicillin, cephalexin, cefazolin, oxacillin, metronidazole, penicillin G, azithromycin, clarithromycin, clindamycin, doxycycline, erythromycin, trimethoprim-sulfamethoxazole, amoxicillin-clavulanate, ampicillin-sulbactam, ceftriaxone (CRO), cefpodoxime, nitrofurantoin
Broad Spectrum (BS)	aztreonam, ceftazidime, ertapenem, gentamicin, tobramycin, vancomycin, daptomycin, linezolid, meropenem, piperacillin-tazobactam, cefepime, tigecycline, amikacin, Fluoroquinolones (FQ): ciprofloxacin, levofloxacin
Anti-pseudomonal beta-lactam (APBL)	aztreonam, ceftazidime, cefepime, meropenem, piperacillin-tazobactam, ceftazidime-avibactam

- Cost savings were calculated using Clinical Measures™, a web-based documentation system that uses proprietary formula to provide standardized monetary savings by identifying select direct costs associated with preventing potential adverse outcomes.

- Antibacterial usage was measured as days of therapy per 1000 patient days (DOT/1000 PD)

METHODS

HS Pilot Model

Pilot period: 2/4/2019 to 3/4/2019

Setting: Five attending only hospital medicine teams centralized in one 35 bed medicine ward.

Activities:
- Each weekday, AS Team pharmacist reviewed all antimicrobials ordered for patients cared by the above five medicine teams.

Communication method:
- The AS Team physically located each of the five teams to discuss recommendations and answered questions.

- Antimicrobial stewardship recommendations, acceptance rates, and cost savings were tracked.

- Monthly broad spectrum, narrow spectrum and total antibacterial use from 1/2019 to 3/2019 was measured at the medicine ward where the HS model took place.

- An online survey was performed to determine their perceptions toward the HS model.

- Current Antimicrobial Stewardship model continued in other parts of the hospital during the HS pilot.
  - PAF on 18 antimicrobials at 24 hours, 6 antimicrobials at 72 hours
  - PAF on 3 disease states
  - Drug-bug mismatch review
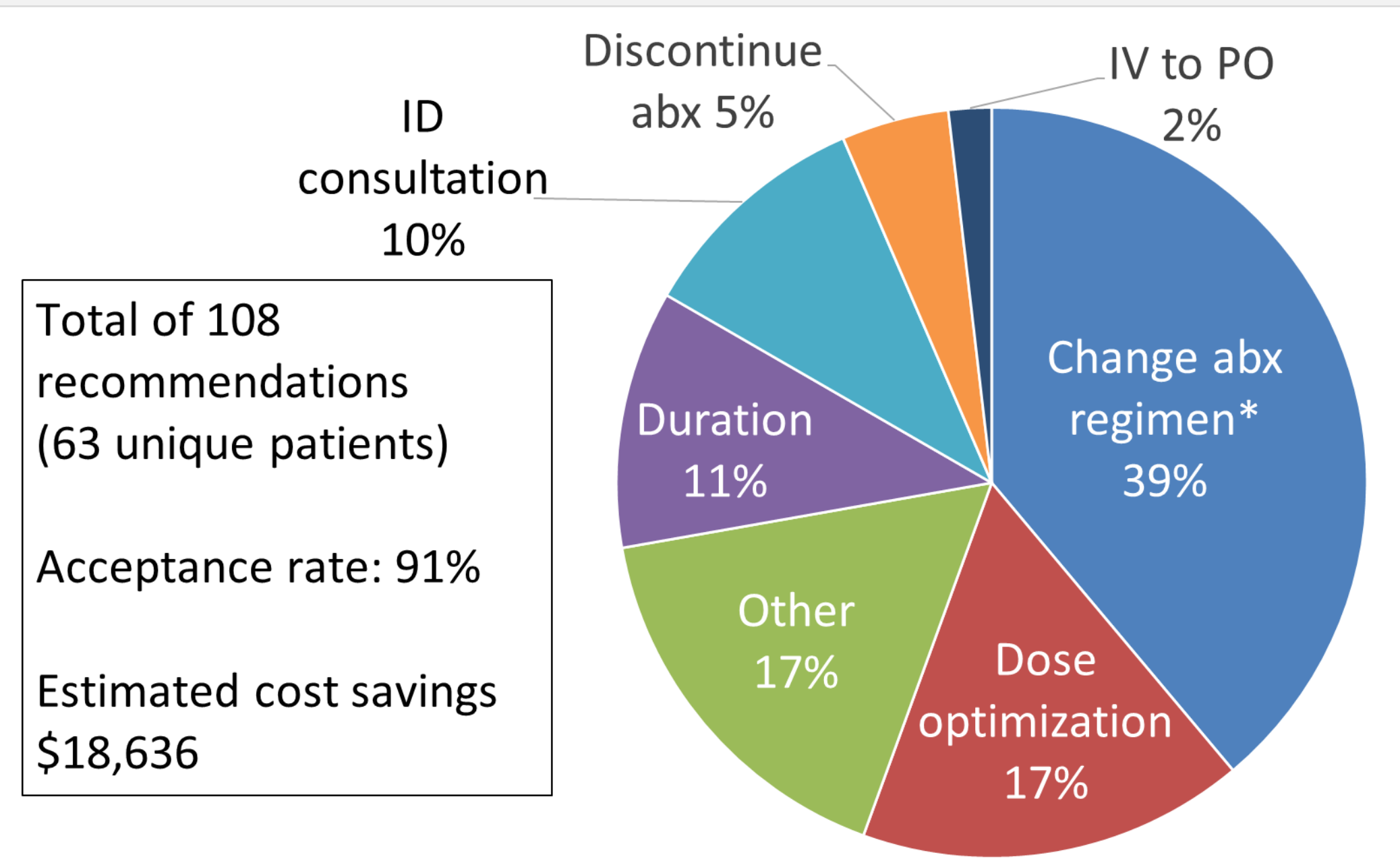 - Recommendation discussed via telecommunication

RESULTS

Figure 1. Types of recommendations provided during HS rounds
*Reasons for "change abx regimen": broaden empirically, narrow based on culture, narrow empirically, availability, allergy, drug-bug mismatch

Total of 108 recommendations (63 unique patients)

Acceptance rate: 91%

Estimated cost savings $18,636

Figure 2. Total antimicrobial stewardship program recommendation and cost savings

Table 1. Antibacterial usage in the HS pilot unit

DOT/1000 PD	Pre-pilot 1/2019	Pilot 2/2019	Post-pilot 3/2019
All Antibacterials	824.4	**622.1**	727.9
Broad spectrum	475.2	**292.0**	322.5
Narrow spectrum	349.2	330.2	405.4
Antipseudmonal β-lactams	181.3	**133.6**	198.2
Fluoroquinolones	85.9	76.3	73.9
Ceftriaxone	152.7	103.1	82.9

Decrease usage trend of broad spectrum agents, notably for antipseudomonal β-lactams was observed.
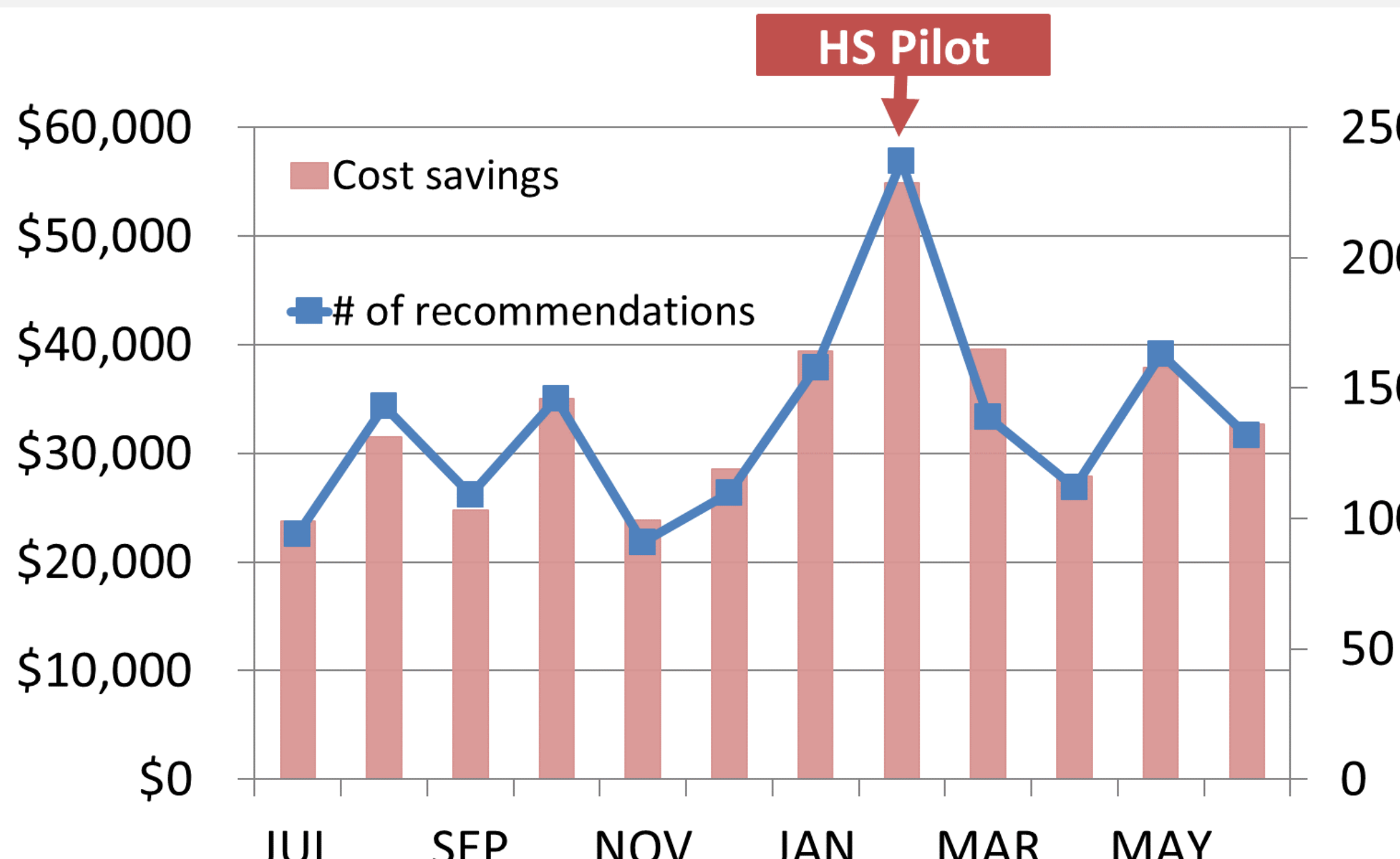
- **HS model pilot:**
  - Number of active HS days: 21 days.
  - On average, **20 patients** had orders for antimicrobials on a given day.
  - The AS team spent **approximately 2 hours per day** reviewing data and interacting with the primary teams.
  - **58 (54%) of the recommendations could not be identified through the current model.**
  - **Recommendation acceptance rate was higher** (91%) compared to acceptance rate of the current AS model average (85%).
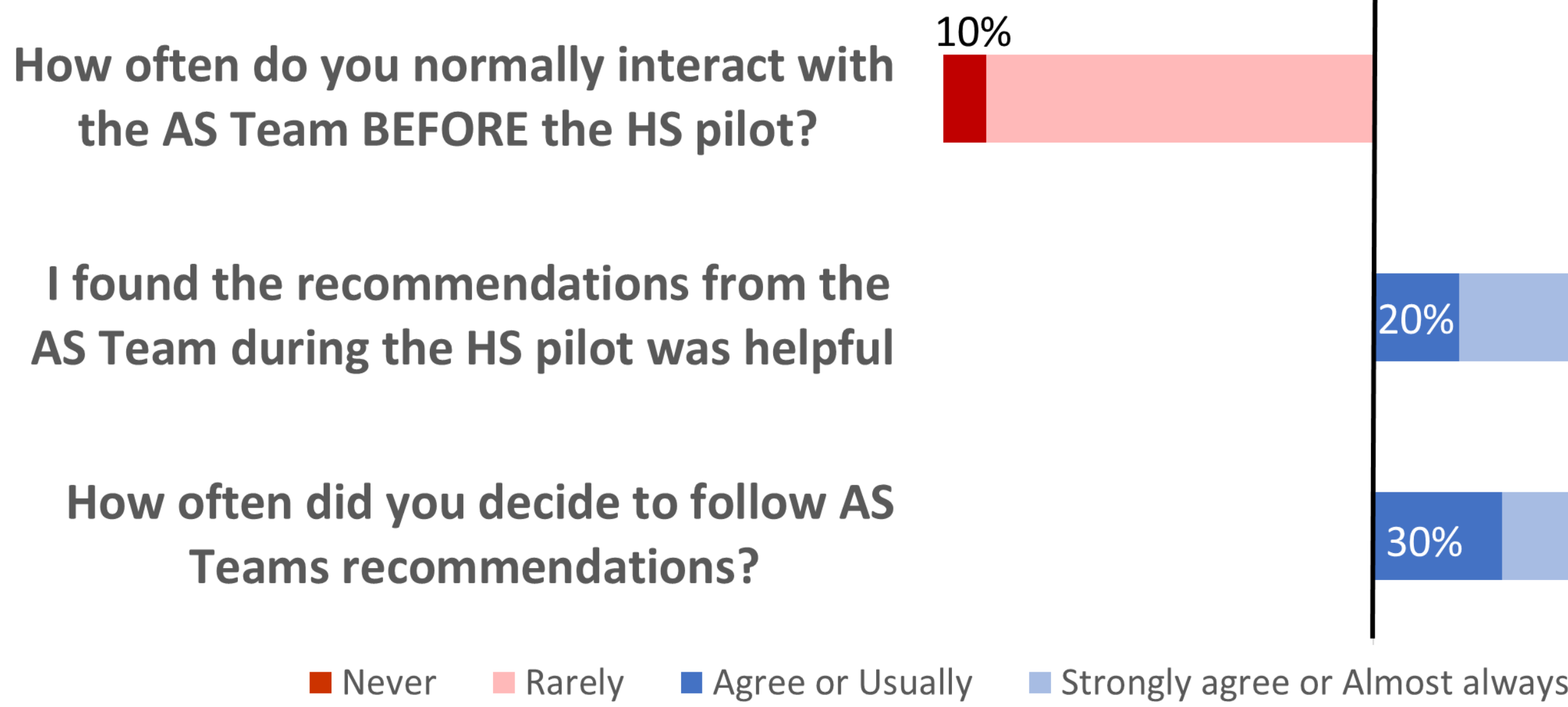
RESULTS

Figure 4. Feedback amongst the hospitalists who particiated in the HS

100% 👍 **10/10 preferred the face-to-face HS PAF model over the current telecommunication based PAF.**

CONCLUSIONS

- The HS pilot resulted in increased overall antimicrobial stewardship recommendations, improved acceptance rates, and trend towards lower antibacterial usage.

- The HS model appears to be effective and well accepted by our hospitalists. Strategies to expand to an antibiotic stewardship model that emphasizes on a more face-to-face approach may provide additional opportunities for antimicrobial optimization while increasing provider satisfaction.

REFERENCES

1. Hurst AL, Child J, Pearce K et.al: Handshake Stewardship: A Highly Effective Rounding-based Antimicrobial Optimization Service. *Pediatr Infect Dis J* 2016; 35(10): 1104-1110.
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