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Implementation of a Resource-Efficient Indirect Handshake Stewardship Model at an Academic Medical Center

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Background: Handshake antibiotic stewardship is an effective but resource-intensive strategy for reducing antimicrobial utilization. At larger hospitals, widespread implementation of direct handshake rounds may be constrained by available resources. To optimize resource utilization and mirror handshake antimicrobial stewardship, we designed an indirect feedback model utilizing existing team pharmacy infrastructure. **Methods:** The antibiotic stewardship program (ASP) utilized the plan-do-study-act (PDSA) improvement methodology to implement an antibiotic stewardship intervention centered on antimicrobial utilization feedback and patient-level recommendations to optimize antimicrobial utilization. The intervention included team-based antimicrobial utilization dashboard development, biweekly antimicrobial utilization data feedback of total antimicrobial utilization and select drug-specific antimicrobial utilization, and twice weekly individualized review by ASP staff of all patients admitted to the 5 hospitalist teams on antimicrobials with recommendations (discontinuation, optimization, etc) relayed electronically to team-based pharmacists. Pharmacists were to communicate recommendations as an indirect surrogate for handshake antibiotic stewardship. As reviewer duties expanded to include a rotation of multiple reviewers, a standard operating procedure was created. A closed-loop communication model was developed to ensure pharmacist feedback receipt and to allow intervention acceptance tracking. During implementation optimization, a team pharmacist-champion was identified and addressed communication lapses. An outcome measure of days of therapy per 1,000 patient days present (DOT/1,000 PD) and balance measure of in-hospital mortality were chosen. Implementation began April 5, 2019, and data were collected through October 31, 2019. Preintervention comparison data spanned December 2017 to April 2019. **Results:** Overall, 1,119 cases were reviewed by the ASP, of whom 255 (22.8%) received feedback. In total, 236 of 362 recommendations (65.2%) were implemented (Fig. 1). Antimicrobial discontinuation was the most frequent (147 of 362, 40.6%), and most consistently implemented (111 of 147, 75.3%), recommendation. The DOT/1,000 PD before the intervention compared to the same metric after intervention remained unchanged (741.1 vs 725.4; $P = .60$) as did crude in-hospital mortality (1.8% vs 1.7%; $P = .76$). Several contributing factors were identified: communication lapses (eg, emails not received by 2 pharmacists), intervention timing (mismatch of recommendation and rounding window), and individual culture (some pharmacists with reduced buy-in selectively relayed recommendations). **Conclusion:** Although resource efficient, this model of indirect handshake did not significantly impact total antimicrobial utilization. Through serial PDSA cycles, implementation barriers were identified that can be addressed to improve the feedback process. Communication, expectation management, and interpersonal relationship development emerged as critical issues contributing to poor recommendation adherence. Future PDSA cycles will focus on streamlining processes to improve communication among stakeholders.

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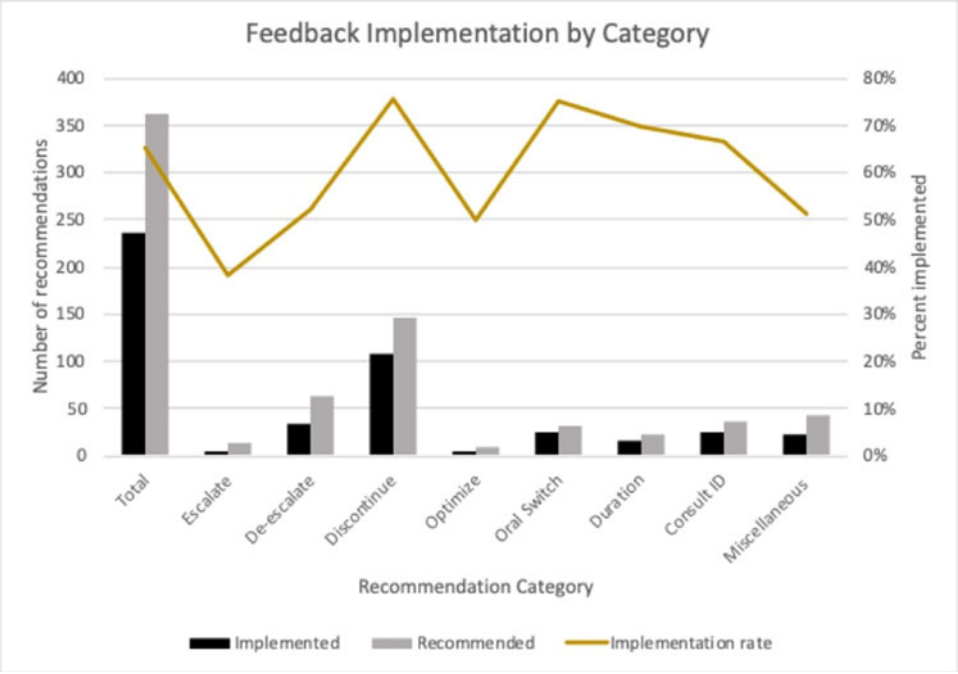

Fig. 1.