197

Bridging the Divide Between Antimicrobial Stewardship and Surgical Services: Successful Use of Handshake Stewardship with Hepato-Pancreato-Biliary Surgical Services in Adults Patients at a Large Academic Medical Center

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Background

- Engagement of frontline providers remains challenging despite usual antimicrobial stewardship (ASP) efforts using prospective audit and feedback (PAF) and/or antimicrobial restrictions, especially in complex patient populations
- Use of handshake stewardship with PAF has displayed promise in engaging providers, but literature in adults are lacking
- Face-to-face interactions are proposed to improve ASP efforts in challenging services that have low ASP acceptance and commonly utilize broad-spectrum antibiotics such as Hepato-Pancreato-Biliary surgical service (HPBSS)

Objectives

Evaluate the impact of handshake stewardship with PAF with a specialty surgical service, HPBSS

Methods

Design and Patient Selection

- Single-center, quasi-experimental cohort study of adult patients admitted to Atrium Health's Carolinas Medical Center between 1/2018 – 12/2018 (pre-intervention) and 1/2019 – 12/2019 (post-intervention), and admitted to the hospital's designated HPBSS-specific nursing unit
  - Due to unit change, June 2019 was omitted from days of therapy (DOT) data

Study Interventions

- Twice weekly rounding with HPBSS team by ID PharmD
  - Cases reviewed by ID PharmD and discussed with ID/ASP MD, as needed
  - Routine remote ASP completed on non-rounding days
- Development of treatment guidance documents for common disease states (e.g. liver abscesses, necrotizing pancreatitis)

Study Outcomes

Antibiotic utilization of carbapenems and anti-pseudomonal agents	ASP intervention acceptance rates
Rates of CRE† HA-infections and colonization‡	Rates of HA-*C. difficile* infections (CDI)‡

†CRE definition per CDC guidance; ‡HA-infections/colonization: identified on hospital day 3 or later

Results

Figure 1: Carbapenem Utilization, DOT/1,000 Patient Days

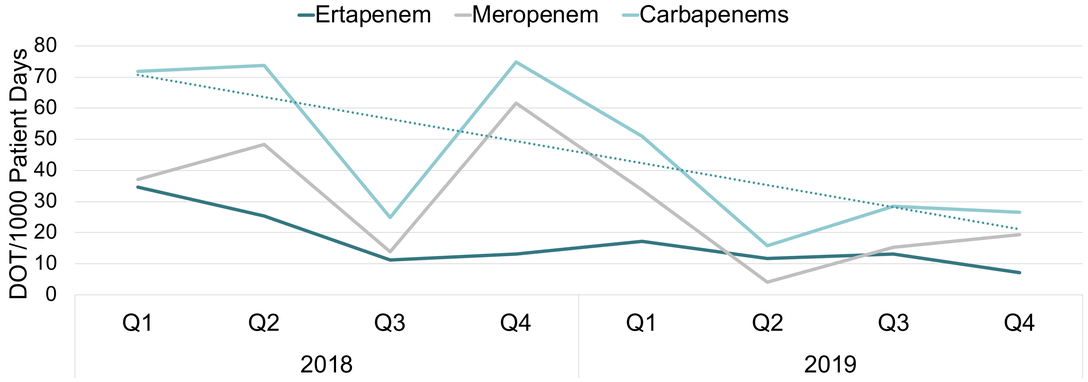
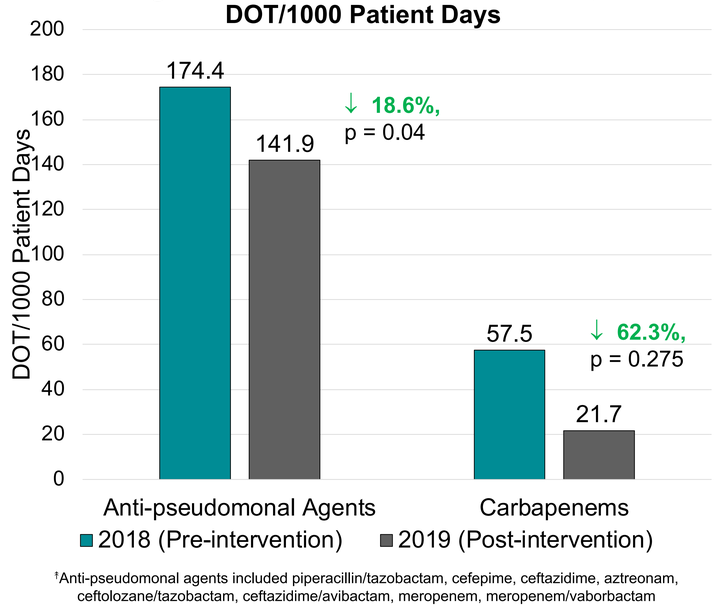


Figure 2: Anti-pseudomonal Utilization, DOT/1000 Patient Days



†Anti-pseudomonal agents included piperacillin/tazobactam, cefepime, ceftazidime, aztreonam, ceftolozane/tazobactam, ceftazidime/avibactam, meropenem, meropenem/vaborbactam

Figure 3: ASP Intervention Rates

Figure 4: Types of Accepted ASP Interventions

Table 1: Rates of HA-CRE Infection/Colonization and CDI

	2018	2019	% Change	p-value
CRE Rates per 10,000 Patient Days				
HA – CRE Infections	8.2	1.0	↓ 87.7%	0.104
HA – CRE Colonization	14.7	5.0	↓ 66.0%	0.353
C. difficile Rates per 10,000 Patient Days				
HA – CDI	4.9	3.0	↓ 38.8%	0.807

Discussion/Conclusion

- A significant decrease in anti-pseudomonal DOT was observed in the post- vs. pre-intervention period
  - From sparing carbapenems, a shift to other anti-pseudomonal antibiotics was expected; however, the overall drop in anti-pseudomonal utilization emphasizes our successes in further antibiotic de-escalation
- Handshake stewardship improved overall ASP intervention acceptance rates (31% increase)
  - 3-fold higher number of ASP interventions made despite only twice weekly rounding
  - 18% v 0% of ASP interventions received no response from providers in pre- vs. post-intervention period
- Overall, reduced rates of CRE HA-infection/colonization and HA-CDI resulted in the post-intervention period
  - Additional interventions may have been completed by infection prevention that could have impacted these results
- Data on cost savings were not collected, but cost reductions were likely given the decrease in HA-infections (e.g. CMS reimbursement, broad-spectrum antimicrobial use, infection complications, etc.)
- Handshake stewardship may be useful in services that display challenges in implementing ASP efforts due to their complex patient populations, such as HPBSS

References

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Disclosures

All authors have no relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or this presentation

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