Implementation of a Multidisciplinary 48 Hour Antibiotic Timeout in a Pediatric Population

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Background

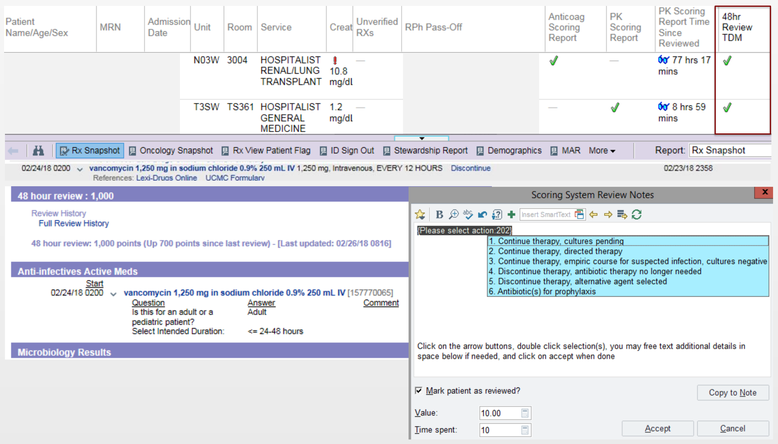
- Hospital antimicrobial stewardship programs are required to meet CDC Elements of Antibiotic Stewardship Programs
- An antibiotic timeout (ATO) process can be used to meet one of these requirements
- An ATO is a discussion and review of the need for ongoing empirical antibiotics 2-4 days after initiation
- We implemented a pharmacy-led ATO (pharm-ATO) institution-wide in 2017
- A multidisciplinary ATO (multi-ATO) process was implemented on select pediatric units in 2019
- We then evaluated both ATO methods to compare the impact of each intervention on antibiotic days of therapy (DOT)

Methods

- This was a retrospective, pre-post, quasi-experimental study of pediatric patients at a single site
- Primary endpoint: average days of therapy (DOT)
- Secondary endpoints: length of stay (LOS), all-cause inpatient mortality, 30 day readmissions
- Comparator groups and time periods:
  - Pre-48H ATO: February-September 2016
  - Pharmacy-led ATO: February-September 2018
  - Multidisciplinary-ATO: February-September 2019
- Inclusion criteria: Pediatric inpatients receiving IV or PO antibiotics administered for at least 48 hours
- Exclusion criteria:
  - Patients admitted to a pediatric surgical service, Mother-Baby unit or the neonatology unit
  - Home prophylactic antibiotics
- Intervention workflow:
  - An active non-interruptive alert was added to the electronic health record patient list
  - This triggered when new antibiotics had been administered to the patient for 48 hours
  - The responsible clinician (pharmacist for pharm- ATO, and pediatric resident for multi-ATO) would discuss the antibiotic and document their decision via the alert workspace

Results

Figure 1: Epic® 48H ATO Alert*



*48H ATO alert triggers in patient list based on duration of target antibiotics. The alert is 'acknowledged' in the 'review notes' prompt where the reviewer selects the action taken

Figure 2: Staged Multi-ATO Rollout: ATO Workspace Adoption by Physicians Over Time

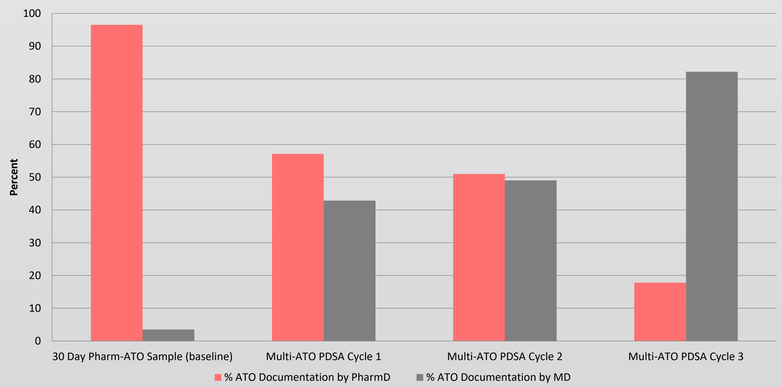


Table 1: Demographics

Demographics	Pre-Intervention	Pharm-ATO	Multi-ATO
# Unique Patients	572	323	305
# Unique Antibiotic Courses	1284	868	949
Average Age in Years	7.35	8.45	7.03
Female	42.8%	51.4%	49.5%
Male	57.2%	48.6%	50.5%

Figure 3: Antimicrobial Decisions Documented in the ATO Workspace: Pharm-ATO vs Multi-ATO

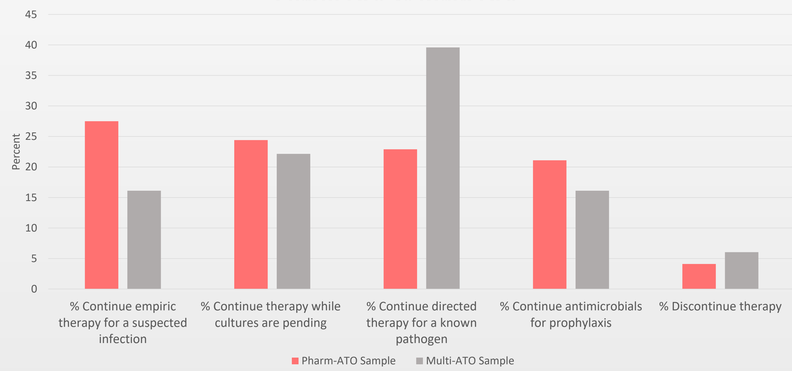


Table 2: Outcomes

Outcomes	Pre-ATO	Pharm-ATO	Multi-ATO	Pharm-ATO vs Multi-ATO *P* Value
Average Antibiotic Days of Therapy	4.64	4.67 (p=.87)	4.81 (p=.42)	.503
Mortality (%)	0.3%	0.3% (p=1)	1.0% (p=.35)	.359
LOS (Median, days)	6	7 (p<.01)	7 (p<.001)	.076

Conclusions

- The multi-ATO was successfully rolled out to target pediatric units (Fig. 2)
- ATO choice distribution was not significantly different between pharm-ATO and multi-ATO (Figure 3)
- Average DOT was not significantly different pre vs post intervention for either methodology (Table 2)
- Mortality was similar between groups, but LOS was longer for both intervention groups (Table 2)
- An ATO had no impact on average antibiotic DOT in a pediatric population, regardless of the ATO methodology (Table 2)
- An ATO may not be the best option to decrease average antibiotic DOT at sites with a well-established antimicrobial stewardship program

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Disclosures

The authors of this presentation have no financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation