

were analyzed by encounter (in-person vs telemedicine [TMed]), clinic and provider type. We also interviewed 16 providers about perceived COVID-19 impact on pediatric ambulatory antibiotic prescribing. Student's T and  $\chi^2$  tests were used as appropriate.

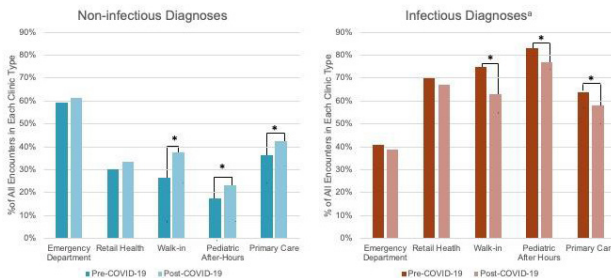
**Results.** The number of pediatric ambulatory visits was 16671 in P1 and 7010 in P2. There were no TMed visits in P1 vs 188 in P2 (2.7% of total P2 visits); 186 (99% of TMed visits) were in PCC (Table). In all settings, the number of encounters was lower in P2 vs P1 ( $p < 0.001$ ). The percent of encounters with an antibiotic prescription was lower in P2 (32%) than in P1 (38.2%) ( $p < 0.001$ ) (Table) overall and in all settings except RHCs. Only 14 (7.4%) TMed visits resulted in an antibiotic prescription. There were no differences in antibiotic prescribing rates by provider type. Diagnoses varied significantly between periods in all clinic types except the ED, with noninfectious diagnoses being higher in P2 vs P1 (Figure 1). Providers felt that COVID-19 led to fewer but sicker patients presenting for care, and variable impact on antibiotic prescribing (Figure 2).

Table. Percent of Encounters with an Antibiotic by Clinic Type, Pre- and Post-COVID-19

Location* and Provider Type	Pre-COVID-19 (March 1, 2019 – May 15, 2019)			Post-COVID-19 (March 1, 2020 – May 15, 2020)			p-value*
	No. of Antibiotic Prescriptions	No. of Encounters	Percent of Encounters with an Antibiotic	No. of Antibiotic Prescriptions	No. of Encounters	Percent of Encounters with an Antibiotic	
<b>Emergency Department</b> (111 physicians, 12 NP, 1 PA, 74 trainees)	736	2342	31.4	279	1081	25.8	.001
<b>Retail Health*</b> (57 NP, 3 PA)	824	1860	44.3	293	539	54.4	<.0001
<b>Walk-in</b> (56 physicians, 88 NP, 13 PA)	1595	3590	44.4	665	1993	33.4	<.0001
<b>Pediatric After-Hours</b> (31 physicians)	2024	4141	48.9	520 (1 Tmed)	1281 (2 Tmed)	40.6	<.0001
<b>Primary Care</b> (203 physicians, 47 NP, 5 PA, 67 trainees)	1194	4738	25.2	483 (13 Tmed)	2116 (186 Tmed)	22.8	.04
<b>All Settings</b> (401 physicians, 204 NP, 19 PA, 141 trainees)	6373	16671	38.2	2240 (14 Tmed)	7010 (188 Tmed)	32	<.0001

\*Walk-in Clinics = Urgent care clinics (UCC) seeing adults and children. Retail Health = UCC within a retail business, staffed by nurse practitioners (NPs) and physician assistants (PAs). Pediatric After-Hours = UCC staffed by pediatricians. Tmed = telemedicine encounter  
\*p-value compares prescribing rate pre- and post-COVID-19

Figure 1. Diagnosis Rates by Clinic Type, Pre- and Post-COVID-19



\* = statistically significant change in diagnoses Pre-COVID-19 vs. Post-COVID-19

\*Infectious diagnoses = viral upper respiratory tract infection, pharyngitis, otitis media, sinusitis, pneumonia, abscess, skin/soft tissue infection, or urinary tract infection. All other diagnoses were considered non-infectious.

Figure 2. Themes from Provider Interviews about perceived Impact of COVID-19 on Clinician Practice

**Decreased Census**  
(5 [31%] providers commented)

- "We haven't seen a lot of kids who need antibiotics lately" – MD in PCC
- "I have not seen as many infections right now because everybody's staying home with their own families. So their own germs are all at home with their own families." – NP in PCC

**Stricter Triage (Provider and Patient Directed)**  
(6 [38%] providers commented)

- "...people are scared to come in. They're only coming in if they feel like it's really serious or really bad." – MD in AHC
- "...they're probably a little bit scared to come into clinic. ...maybe this is teaching them that they don't need to come all the time when the kid has a runny nose and a cough" – NP in PCC
- "...maybe having family wait a little bit longer as far as watching symptoms before bringing them in." – MD in PCC

**Varied Perceived Impact on Antibiotic Prescribing**  
(16 [100%] providers commented)

- "I feel like my antibiotic prescribing has gone up with this, because patients are waiting to come in, until they are sick or they definitely have something that is bacterial" – NP at RHC
- "But I'm still not going to prescribe if I don't think it's necessary. It's just... even if they said they were willing to come back, I might be like, Yeah, take the safety net prescription." – MD in PCC
- "[commenting on telemedicine] "So if they have URI symptoms and unilateral ear tugging and fever, we've been instructed to be a little bit more lenient with our antibiotic prescribing during this time." – NP in PCC

Abbreviations: MD = physician, NP = nurse practitioner, PCC = primary care clinic, AHC = after hours clinic, RHC = retail health clinics

**Conclusion.** The proportion of encounters with non-infectious diagnoses increased and antibiotic prescribing rates decreased significantly in all pediatric ambulatory settings post-COVID-19 except RHCs. Almost all TMed encounters occurred in the primary care setting, and few resulted in an antibiotic prescription. Providers felt they saw fewer patients and higher acuity of illness post COVID-19.

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### 1346. Implementation of a Multidisciplinary 48 Hour Antibiotic Timeout in a Pediatric Population

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Session: P-60. Pediatric Antimicrobial Stewardship (inpatient/outpatient pediatric focused)

**Background.** To meet the core elements required for antimicrobial stewardship programs, our institution implemented a pharmacy-led antibiotic timeout (ATO) process in 2017 and a multidisciplinary ATO process in 2019. An antibiotic timeout is a discussion and review of the need for ongoing empirical antibiotics 2-4 days after initiation. This study sought to evaluate both the multidisciplinary ATO and the pharmacy-led ATO in a pediatric population, compare the impact of each intervention on antibiotic days of therapy (DOT) to a pre-intervention group without an ATO, and to then compare the impact of the pharmacy-led ATO versus multidisciplinary ATO on antibiotic days of therapy (DOT).

**Methods.** This was a retrospective, pre-post, quasi-experimental study of pediatric patients comparing antibiotic DOT prior to ATO implementation (pre-ATO), during the pharmacy-led ATO (pharm-ATO), and during the multidisciplinary ATO (multi-ATO). The pre-ATO group was a patient sample from February-September 2016, prior to the initiation of a formal ATO. The pharmacy-led ATO was implemented from February-September 2018. This was followed by a multidisciplinary ATO led by pediatric residents and nurses from February-September 2019. Both the pharm-ATO and the multi-ATO were implemented as an active non-interruptive alert added to the electronic health record patient list. This alert triggered when new antibiotics had been administered to the patient for 48 hours, at which time, the responsible clinician would discuss the antibiotic and document their decision via the alert workspace. Pediatric patients receiving IV or PO antibiotics administered for at least 48 hours were included. The primary outcome was DOT. Secondary outcomes included length of stay (LOS) and mortality.

**Results.** 1284 unique antibiotic orders (n= 572 patients) were reviewed in the pre-ATO group, 868 (n= 323 patients) in the pharm-ATO and 949 (n= 305 patients) in the multi-ATO groups. Average DOT was not significantly different pre vs post intervention for either methodology (Table 1). Mortality was similar between groups, but LOS was longer for both intervention groups (Table 1).

Impact of an ATO on DOT, Mortality and LOS

Outcomes	Pre-ATO	Pharm-ATO	Pharm-ATO vs Pre-ATO P Value	Multi-ATO	Multi-ATO vs Pre-ATO P Value	Pharm-ATO vs Multi-ATO P Value
Average Antibiotic Days of Therapy	4.64	4.67	.872	4.81	.418	.503
Mortality (%)	0.3%	0.3%	1	1.0%	.348	.359
LOS (Median, days)	6	7	<.01	7	<.001	.076

**Conclusion.** An ATO had no impact on average antibiotic DOT in a pediatric population, regardless of the ATO methodology.

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### 1347. Improved Antibiotic Prescribing Practices for Respiratory Infections Through Use of Computerized Order Sets and Educational Sessions in Pediatric Clinics

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Session: P-60. Pediatric Antimicrobial Stewardship (inpatient/outpatient pediatric focused)

**Background.** The literature about comprehensive outpatient antimicrobial stewardship programs remains sparse. However, computerized clinical decision support systems (CDSSs) have shown promising effectiveness in improving outpatient antibiotic prescribing.

**Methods.** We developed an intervention in the form of EPIC order sets comprised of outpatient treatment pathways for 3 pediatric bacterial acute respiratory infections or ARIs (otitis media, community-acquired pneumonia, and streptococcal pharyngitis) coupled with educational sessions. Two study periods were included, and 4 pediatric clinics were randomized into intervention and control arms. Education was provided to the 2 intervention clinics between the study periods, and EPIC order sets became available to these 2 clinics at the beginning of the post-intervention period. The primary endpoint was the rate of first-line antibiotic prescribing, and the secondary endpoints included antibiotic duration and antibiotic prescription modification within 14 days.

**Results.** A total of 2690 antibiotic prescriptions were written for bacterial ARIs. At pre-intervention, there was no difference between the study arms in terms of first-line antibiotic prescribing (74.9% vs. 77.7%,  $P=0.211$ ) and antibiotic duration ( $9.69 \pm 0.96$  days vs.  $9.63 \pm 1.07$  days,  $P>0.999$ ). Following the intervention, the intervention clinics had higher rate of first-line antibiotic prescribing (83.1% vs. 77.7%,  $P=0.024$ ) and shorter antibiotic duration ( $9.28 \pm 1.56$  days vs.  $9.79 \pm 0.75$  days,  $P < 0.001$ ) compared to the control clinics. The rate of modified antibiotics was small in all clinics (1.1-1.6%) and not different at pre-intervention ( $P=0.852$ ) and post-intervention ( $P=0.552$ ).