

improve patient outcomes and satisfaction, as well as possibly decrease costs. Multiplex PCR panels should be considered as part of routine sepsis evaluations in young febrile infants. Larger studies are needed, including in depth cost analysis.

Table 1: Demographics

	Post-PCR (N = 66)	Pre-PCR (N = 52)
Age on admission (days)		
Mean (95% CI)	28.44 (23.00 - 33.87)	31.08 (25.18 - 36.98)
Median (IQR)	22.0 (7.2, 44.8)	29.0 (11.0, 50.0)
Range	2 to 87	2 to 76
Sex		
Female	31 (47.0%)	19 (36.5%)
Male	35 (53.0%)	33 (63.5%)
Race		
Black	8 (12.1%)	12 (23.1%)
White	47 (71.2%)	26 (50.0%)
Other	11 (16.7%)	14 (26.9%)
Gestational age (weeks)		
Mean (95% CI)	38.3 (37.9 - 38.8)	38.30 (37.9 - 38.7)
Median (IQR)	39.0 (37.6, 39.1)	39.0 (37.2, 39.2)
Range	33 to 41	34.5 to 40.6
Birth weight (grams)		
Mean (95% CI)	3,086 (2963 - 3209)	3,134 (3010 - 3258)
Median (IQR)	3,153 (2812, 3417)	3,136 (2855, 3463)
Range	1760 to 4196	2070 to 4270

Table 2: Results between Eras

	Post-PCR (N = 66)	Pre-PCR (N = 52)
Length of stay (hours)		
Mean (95% CI)	47.64 (42.57 - 52.70)	56.10 (51.01 - 61.18)
Median (IQR)	47.0 (32.2, 56.0)	56.5 (46.2, 68.5)
Range	13 to 122	14 to 111
Duration of therapy (hours)		
Mean (95% CI)	23.70 (18.64 - 28.75)	56.50 (43.84 - 69.16)
Median (IQR)	26.5 (0.0, 43.5)	48.0 (15.2, 93.2)
Range	0 to 60	0 to 158
Discharge diagnosis		
FUO	26 (39.4%)	19 (36.5%)
Viral	40 (60.6%)	33 (63.5%)
Respiratory PCR result		
Negative	19 (28.8%)	0 (0.0%)
Not Done	18 (27.3%)	0 (0.0%)
Virus	29 (43.9%)	0 (0.0%)
Meningoencephalitis PCR result		
Negative	22 (33.3%)	0 (0.0%)
Not Done	32 (48.5%)	0 (0.0%)
Virus	12 (18.2%)	0 (0.0%)
Blood culture		
No growth/not done	63 (95.5%)	44 (84.6%)
Contaminant	3 (4.5%)	8 (15.4%)

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1341. Blood Volume Collected for Blood Cultures in Infants with Suspected Neonatal Sepsis in the NICU

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

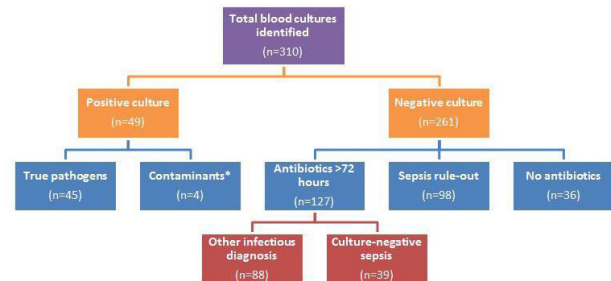
Background. Blood cultures have high sensitivity to detect bacteremia in septic neonates when ≥ 1 ml of blood is collected. Neonatologists often cite low confidence in microbiologic sampling as rationale for continuing antibiotics without a focus of infection despite negative blood cultures, resulting in prolonged antimicrobial therapy.

We aim to describe the blood culture sample volumes in NICU patients, to identify factors associated with sample volumes < 1 ml, and to compare the sample volumes of patients treated for culture-negative sepsis with those with bloodstream infections and those treated for a ≤ 72 -hour sepsis rule-out

Methods. Data from this observational cohort study were collected retrospectively and prospectively from NICU patients with blood cultures obtained from September 2018 to February 2019. Clinical data were collected through chart review. All inoculated culture bottles were weighed for volume calculation. We determined the association of age, weight, sample source, and time of collection with volume < 1 ml. Continuous variables were analyzed using Wilcoxon-Mann-Whitney, and categorical variables using chi-squared test. For aim 3, the volumes of the groups were compared using analysis of variance.

Results. A total of 310 blood cultures were identified, corresponding to 159 patients. Of these, 49 (16%) were positive. Among the negative blood cultures, 86% were collected in patients who subsequently received antibiotics (Figure 1). Median inoculated volume was 0.6 ml (IQR: 0.1-2.4). Weight and age at time of culture collection, source of sample, and time of collection were not significantly associated with the inoculation of < 1 ml of blood. Median volume of blood was 0.6ml (0.3-0.6) for sepsis rule-out, 0.6ml (0.2-0.6) for bloodstream infection, and 0.6ml (0.6-1.4) for culture-negative sepsis. No difference was found among the three groups ($p=0.54$)

Figure 1. Classification of blood cultures identified during study period



* Contaminants classified by Stoll et al. Pediatrics. 2002 Aug;110(2 Pt 3):285-91

Conclusion: The blood volume collected for cultures in the NICU is lower than recommended. Clinical and environmental characteristics are not significantly associated with the inoculated volume. The volume of blood sampled does not differ in patients with culture-negative sepsis, bloodstream infection and sepsis rule-out, and should not be a justification for longer duration of antibiotic therapy

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1342. Clinical failure rates of amoxicillin for the treatment of acute otitis media in young children

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

Background. Acute otitis media (AOM) is the most common indication for antibiotics in children. The primary pathogens that cause AOM have changed since the introduction of the pneumococcal conjugate vaccine (PCV). The clinical failure rate of amoxicillin for treatment of AOM post-PCV is unknown. We aimed to determine the clinical failure rate of amoxicillin for the treatment of uncomplicated AOM in children.

Organisms identified on culture and amoxicillin treatment failure from nasopharyngeal specimens of children age 6-35 months with uncomplicated acute otitis media at Denver Health, Denver, CO from April 2019-March 2020.

Methods. Children age 6-35 months seen at Denver Health, Denver, CO with uncomplicated AOM and prescribed amoxicillin were prospectively enrolled. An interim analysis of patients enrolled from April 2019-March 2020 was completed. Patients completed surveys that included the AOM-SOS@ (UPMC, Pittsburgh, PA) at enrollment, days 5, 14, and 30 and had chart abstraction completed. Treatment failure was defined as: (1) requiring a new antibiotic within 14 days; (2) AOM-SOS@ score on day 5 or 14 not improved by a relative reduction of $\geq 55\%$ from baseline. Recurrence was defined as requiring a new antibiotic within 15-30 days. Nasopharyngeal swabs were obtained and bacterial culture was completed.

Results. In total, 110 patients were enrolled. Rates of treatment failure defined by AOM-SOS@ were 28.4% (37; 95%CI:25.5-33.6%) at 5 days and 15.5% (27; 95%CI:11.7-24.5%) at 14 days. However, only 4.5% (5; 95%CI:2.0-4.5%) required a new antibiotic. Recurrence occurred in 5.5% (6, 95%CI:2.5-5.5%) of patients. Of patients who had not received antibiotics before enrollment (82), culture yielded no organism in 17.0%, one organism in 42.7%, and multiple organisms in 40.0% (Table). *M. catarrhalis* was the most frequently identified organism (53.7% of children). Of *H. influenzae* isolates 52.9% (9/17) produced beta-lactamase, resulting in no treatment failures or recurrences requiring a new antibiotic. Failure rates were similar between organisms.

Table: Organisms identified on culture and amoxicillin treatment failure from nasopharyngeal specimens of children age 6-35 months with uncomplicated acute otitis media at Denver Health, Denver, CO from April 2019-December 2020.

Organism (s)	Total N (%)	Failure Requiring a New Antibiotic Prescription ¹		Failure by AOM-SOS ²	
		14 Day N=39 Failure (%)	5 Day N=35 Failure/Total (%)	14 Day N=30 Failure/Total (%)	14 Day N=30 Failure/Total (%)
<i>S.pneumoniae</i>	1 (2.6)	0 (0)	0/1 (0)	0/1 (0)	0/1 (0)
<i>S.pneumoniae</i> + <i>H.influenzae</i>	1 (2.6)	0 (0)	1/1 (100)	0/1 (0)	0/1 (0)
<i>S.pneumoniae</i> + <i>M.catarrhalis</i>	6 (15.4)	0 (0)	1/6 (16.7)	0/4 (0)	0/4 (0)
<i>H.influenzae</i>	4 (10.3)	0 (0)	1/4 (25.0)	0/4 (0)	0/4 (0)
<i>H.influenzae</i> + <i>M.catarrhalis</i>	1 (2.6)	0 (0)	1/1 (100)	0/1 (0)	0/1 (0)
<i>M.catarrhalis</i>	13 (33.3)	1 (7.7)	3/9 (33.3)	2/8 (25.0)	2/8 (25.0)
<i>M.catarrhalis</i> + <i>S.aureus</i>	2 (5.1)	0 (0)	1/2 (50.0)	0/2 (0)	0/2 (0)
<i>S.aureus</i>	1 (2.6)	0 (0)	1/1 (100)	0/1 (0)	0/1 (0)
Any <i>S.pneumoniae</i> present	8 (20.5)	0 (0)	2/8 (25.0)	0/6 (0)	0/6 (0)
Any <i>H.influenzae</i> present	6 (15.4)	0 (0)	3/6 (50.0)	0/5 (0)	0/5 (0)
Any <i>M.catarrhalis</i> present	22 (56.4)	1 (4.5)	7/18 (38.9)	2/14 (14.3)	2/14 (14.3)
Single organism	19 (48.7)	1 (5.3)	5/15 (33.3)	2/14 (16.7)	2/14 (16.7)
Multiple organisms	10 (25.6)	0 (0)	4/10 (40.0)	0/8 (0)	0/8 (0)
No organisms	10 (25.6)	0 (0)	2/10 (20.0)	0/8 (0)	0/8 (0)
Total	39	1 (2.6%)	11 (31.4%)	2 (6.7%)	2 (6.7%)

¹ New oral or topical antibiotic prescribed for acute otitis media within 14 days of diagnosis for reasons other than adverse drug event.

² Less than 55% relative improvement from baseline or a greater than 55% worsening from baseline.

Conclusion. Despite the change in otopathogen prevalence post-PCV, preliminary data suggest that while early subjective treatment failure was common, the 14 day treatment failure and 30 day recurrence rates were low when measured by need for a new antibiotic. Failure was low even among patients with organisms that would not be expected to be treated successfully with amoxicillin, such as those with beta-lactamase producing *H.influenzae* and *M.catarrhalis*.

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1343. Clinical Outcome of Penicillin Skin Testing as an Antimicrobial Stewardship Initiative in the pre-surgical clinic in a community hospital

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

Background. Penicillin (PCN) allergy is a serious adverse reaction that prevents use of first line therapy. 10% of the population reports a PCN allergy, however less than 1% is truly allergic. Elimination of false allergies significantly impacts patient's lives and decreases antimicrobial resistance and cost. Penicillin Skin Testing (PST) is a tool to support antimicrobial stewardship (ASP) and to optimize allergy de-labeling. The goal of this pilot study was to implement a pharmacy-nurse driven PST service in the outpatient pre-surgical clinic in a community hospital and to assess the impact of PST on the usage of vancomycin as the pre-op prophylaxis agent.

Methods. In May 2019 a single-center, prospective pilot in the outpatient clinic for pre-surgical adult patients with a documented PCN allergy was approved. Patients were identified via a PCN allergy report, generated from the electronic medical record and interviewed by the ASP pharmacist to identify the type of reaction. The study excluded patients if they were unable to give informed consent, if they took anti-histamines within 72 hours of the test, or if the allergy is clinically insignificant. The nurse administered the test and the ASP pharmacist read the results, documented them in the system, and counseled patients.

Results. A total of 155 patients with PCN allergy qualified for PST and only one patient had a true allergy. 154 patients had a negative test and their allergy was deleted in their electronic health system. In addition, those patients received cefazolin as the antibiotic of choice before their surgery which is narrower spectrum and has less side effects compared to vancomycin. Furthermore, all patients were counseled and acknowledged the impact of the results. After performing PST there was an overall 39% decrease in vancomycin DOT/1000 in the surgical population (2018 May-Dec Average DOT/1000 patient Days=3.75 vs 2019 May-Dec Average DOT/1000 patient Days=2.3. (p < 0.005))

Conclusion. The PST service offers an efficient method to collect a detailed PCN allergy history and de-label patients accordingly. PST helps reduce the pre-surgical prophylaxis use of broad spectrum agents and allergy testing significantly increases patient satisfaction

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1344. Impact of Pharmacist-Physician Team on Antimicrobial Utilization at a Pediatric Hospital

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

Background. "Handshake stewardship" is now considered a leading practice in antimicrobial stewardship (AMS) by The Joint Commission. This study aims to evaluate the impact of a pharmacist-led and physician-pharmacist led handshake stewardship method on antimicrobial utilization at a pediatric hospital.

Methods. This was a single-center, retrospective quality improvement study at a teaching children's hospital in central Texas. We retrospectively measured hospital-wide antimicrobial utilization from June 2015 to May 2020. We compared the time periods with an ID pharmacist participating in handshake stewardship ([A] July 2012 to April 2015, [B] May 2015 to May 2018 and [D] August 2019 to May 2020) and without an ID pharmacist ([C] June 2018 to July 2019). We also compared time periods with only an ID pharmacist led ASP [A] compared to a physician-pharmacist led ASP [B]. The primary endpoint was days of therapy per 1,000 patient days (DOT/1000 PD).

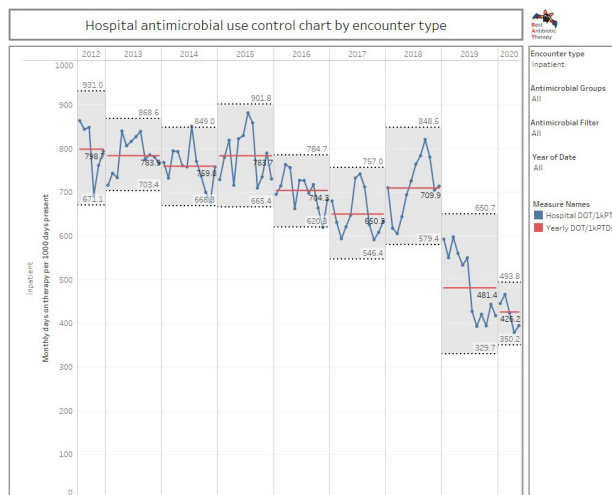
Table 1. Overall Antimicrobial Utilization During Changes in ASP Structure

Time Period	Date Range	ASP structure	Mean DOT/1000 PDX
[A]	7/2012-4/2015	Pharmacist-led	778.5 days
[B]	5/2015-5/2018	Pharmacist-Physician led	699.5 days
[C]	6/2018-7/2019	None	650.5 days*
[D]	8/2019-5/2020	Pharmacist-Physician led	472.3 days

*Not significant decrease from [B] to [C]

Results. Antimicrobial utilization during pharmacist-led ASP [A] was significantly higher than during the pharmacist-physician led ASP time period [B] (95% CI, 68.8-76.8; P=0.001). No significant difference was observed for mean hospital-wide antimicrobial, meropenem, piperacillin-tazobactam, or cefepime DOT/1000 PD from period [B] to [C]. However, the increase in mean DOT/1000 PD during these time periods was statistically significant for ceftriaxone (95% CI, 6.3-23.9; P=0.001) and vancomycin (95% CI, 1.2-18.1; P=0.03). For time period [C] to [D], there was a statistically significant reduction in mean DOT/1000 PD seen in overall antimicrobial use (95% CI, 156.9-313.6; P < 0.0001). Statistically significant decreases in DOT/1000 patient days were also seen for cefepime (95% CI, 11.4-36.4; P < 0.0007), ceftriaxone (95% CI, 5.0-24.8; P=0.005), and vancomycin (95% CI, 6.1-23.1; P=0.002). No difference was seen for piperacillin-tazobactam or meropenem DOT from [C] to [D].

Figure 1. Hospital-Wide Monthly Days of Therapy per 1000 Patient Days



Conclusion. Active engagement with frontline providers via handshake stewardship offers a more successful approach to decreasing antimicrobial utilization. A greater reduction in overall antimicrobial utilization was seen when the ASP was led by a pharmacist-physician team compared to when it was pharmacist-led without a physician champion.

Disclosures. All Authors: No reported disclosures

1345. Impact of the COVID-19 Pandemic on Pediatric Ambulatory Antibiotic Use in an Academic Health System

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

Background. It is unclear how the COVID-19 pandemic has impacted outpatient pediatric antibiotic prescribing.

Methods. We compared diagnoses and antibiotic prescription rates for children pre- vs post-COVID-19 in 5 ambulatory settings affiliated with Vanderbilt University Medical Center: emergency department (ED), urgent care clinics (including pediatric-only after-hours clinics [AHC]s and walk-in clinics [WIC] for all ages), primary care clinics (PCC), and retail health clinics (RHC). Time periods were pre-COVID-19 3/1/19 – 5/15/19 (P1); and post-COVID-19 3/1/20 – 5/15/20 (P2). Diagnoses and percent of encounters with an antibiotic prescription