Presentation Type:
Poster Presentation - Top Poster Award
Subject Category: Antibiotic Stewardship
Description of antibiotic stewardship expertise and activities among US public health departments, 2022
Destani Bizune; Angelina Luciano; Melinda Neuhauser; Lauri Hicks and Sarah Kabbani

Background: In 2021, the CDC awarded >$100 million to 62 state, local, and territorial health departments (SLTHDs) to expand antibiotic stewardship expertise and implement antibiotic stewardship activities in different healthcare settings. Our objective was to describe SLTHD antibiotic stewardship personnel and activities to characterize the impact of the funding. **Methods:** SLTHDs submitted performance measures, including quantitative and qualitative responses, describing personnel supporting antibiotic stewardship activities, types of activities, and healthcare facilities and professionals engaged from January through June 2022. A quantitative analysis of performance measures and qualitative thematic analysis of select narrative responses are reported. **Results:** Most SLTHDs (58 of 62, 94%) submitted performance measures. Among them, 37 (64%) reported identifying an antibiotic stewardship leader or coleader; most were pharmacists (57%) or physicians (38%) with infectious diseases training (68%) (Table 1). Of the remaining STLHDs, 20 reported barriers to identifying a leader or coleader, including hiring process delays and programmatic barriers (Table 2). SLTHDs reported 254 antibiotic stewardship activities; most reported activities involving multiple activity types (44%). Education and communication (eg, providing stewardship expertise) was the most common single activity (30%), followed by antibiotic use tracking and reporting (13%), assessment of antibiotic stewardship implementation (8%), and action and implementation (eg, audit and feedback letters) (4%). The highest number of activities were implemented in multiple healthcare settings (35%), followed by acute care (21%), outpatient (18%), long-term care (17%), and other (9%) (Fig. 1). SLTHDs reported engaging 4,970 healthcare facilities and 15,194 healthcare professionals in antibiotic stewardship activities across healthcare settings, to date, as part of this funding opportunity (Fig. 2). **Conclusions:** Antibiotic stewardship funding to SLTHDs allowed for increases in capacity and expanded outreach to implement a variety of antibiotic stewardship activities across multiple healthcare settings. Sustaining STLHD antibiotic stewardship activities can help increase engagement and coordination with healthcare facilities, healthcare professionals, and other partners to optimize antibiotic prescribing and patient safety.

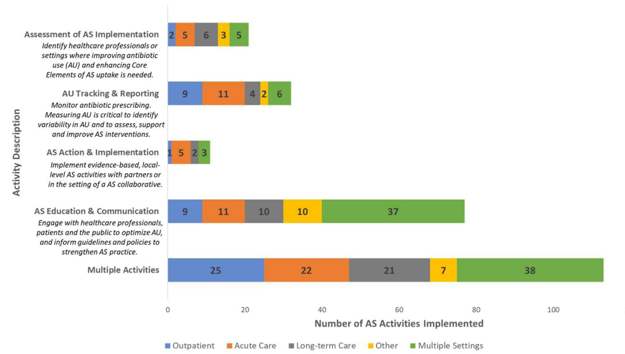
Table 1. Description of Personnel Leading Antibiotic Stewardship (AS) Activities		
	N	%
Jurisdictions that identified AS Lead/Co-leads	37/58	(63.8)
Hours/week		
<20	14	(37.8)
≥20	24	(64.9)
Discipline[a,b]		
Physician	14	(37.8)
Pharmacist	21	(56.8)
Other	12	(32.4)
Training[a]		
Infectious diseases training	25	(67.6)
AS certificate/training course	29	(78.4)
AS experience	26	(70.3)
None of the above	7	(18.9)

[a]Categories not mutually exclusive
[b]Jurisdiction may have co-leads

Table 2. Reported Barriers to Hiring Antibiotic Stewardship Personnel (N=20)[a]		
Category	**Subcategory**	**N**
Hiring Delays	Position not posted	9
	No interested candidate	1
	Pending contract/onboarding	11
Programmatic Barriers	Lack authority to spend/hire	2
	Restructuring	2
	Limited hiring capacity	2

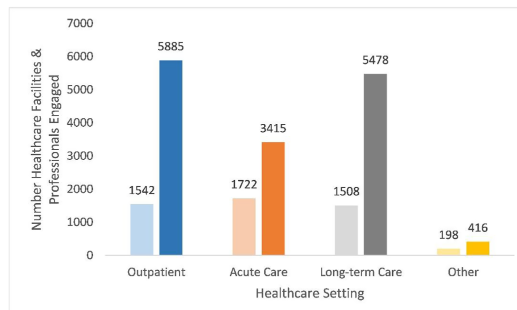
[a]Multiple barriers may be identified per response

Figure 1. Description of Antibiotic Stewardship (AS) Activities by Healthcare Setting N=254[a]



[a]Other settings include dialysis facilities, telehealth, dental clinics, OneHealth collaboratives, ambulatory surgical centers

Figure 2. Number of Healthcare Facilities and Healthcare Professionals Engaged in Antibiotic Stewardship (AS) Activities by Healthcare Setting[a,b,c]



[a]Other settings include dialysis facilities, telehealth, dental clinics, OneHealth collaboratives, ambulatory surgical centers
[b]Some activities may involve multiple setting types
[c]Healthcare facilities light column, healthcare professionals dark column

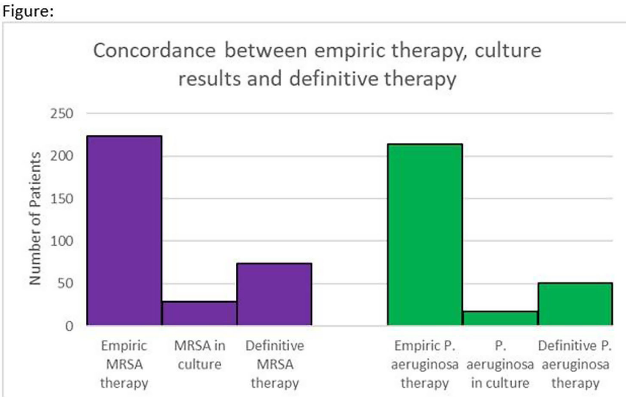
Disclosure: None

Antimicrobial Stewardship & Healthcare Epidemiology 2023;3(Suppl. S2):s3
doi:10.1017/ash.2023.211

Presentation Type:
Poster Presentation - Top Poster Award
Subject Category: Antibiotic Stewardship
Fear of missing organisms (FOMO): Diabetic foot and osteomyelitis management opportunities
Morgan Morelli; Andrea Son; Yanis Bitar and Michelle Hecker

Background: Hospitalizations for diabetic foot infections and lower-extremity osteomyelitis are common. Use of empiric antibiotic therapy for methicillin-resistant *Staphylococcus aureus* (MRSA) and *Pseudomonas aeruginosa* is also common. Guidelines recommend antibiotic therapy based on severity of illness, risk factors for MRSA and *P. aeruginosa*, and local prevalence. We evaluated the concordance between empiric antibiotic therapy and both culture results and definitive antibiotic therapy with a focus on MRSA and *P. aeruginosa*. We also evaluated how well MRSA and pseudomonal risk factors were predictive of culture results with these organisms. **Methods:** We conducted a cohort study of all patients admitted to our hospital system in 2021 with a diagnosis of a diabetic foot infection or lower-extremity osteomyelitis. Patients were included if they had an *International Classification of Disease, Tenth Revision* (ICD-10) diagnosis code of M86, E10.621, E11.621, or E08.621. Patients were excluded if antibiotics were for another indication or if they

Figure:



MRSA: methicillin-resistant *Staphylococcus aureus*

were aged <18 years. In patients with multiple hospitalizations only the first hospitalization was included. Empiric antibiotic therapy included antibiotics started by the admitting team. Definitive antibiotic therapy included the final antibiotic course either completed during admission or prescribed at the time of discharge. MRSA risk factors included prior positive culture with MRSA within the last year, hospitalization with IV antibiotics within 90 days, intravenous drug use, or hemodialysis. Pseudomonal risk factors included prior positive culture with *P. aeruginosa* within the last year or hospitalization with IV antibiotics within 90 days. **Results:** In 2021, 260 unique patients were admitted with suspected diabetic foot infections or lower-extremity osteomyelitis. 68 patients had >1 admission. Empiric anti-MRSA and antipseudomonal therapy was administered to 224 (86%) and 214 (82%) patients, respectively. Definitive anti-MRSA and antipseudomonal therapy was administered to 76 (30%) and 51 (20%) patients, respectively. Of the 195 patients who had wound cultures, 29 (15%) and 18 (9%) had positive cultures for MRSA and *P. aeruginosa* respectively (Fig.). The negative predictive value of MRSA risk factors for predicting a negative culture with MRSA was 91%. The negative predictive value of pseudomonal risk factors for predicting a negative culture with *P. aeruginosa* was 95%. **Conclusions:** Our data suggest an opportunity for substantial reductions in empiric anti-MRSA and antipseudomonal therapy for diabetic foot infection and lower-extremity osteomyelitis. The absence of MRSA and pseudomonal risk factors was reasonably good at predicting the absence of a positive culture with these organisms.

Disclosure: None

Antimicrobial Stewardship & Healthcare Epidemiology 2023;3(Suppl. S2):s3–s4

doi:10.1017/ash.2023.212

Presentation Type:
Poster Presentation - Top Poster Award
Subject Category: Antibiotic Stewardship

Inpatient pediatric antimicrobial use for respiratory infections during the RSV surge

Aaron Hunt; Rodrigo Burgos and Alfredo Mena Lora

Background: In the United States, pneumonia causes >100,000 pediatric hospitalizations annually. On November 4, 2022, the CDC issued a Heath Advisory concerning an upcoming surge of respiratory illnesses including SARS-CoV-2, influenza, and respiratory syncytial virus (RSV). Differentiating between viral and bacterial causes is challenging and can lead to antimicrobial overuse. Currently, tools are being developed to distinguish between viral and bacterial pneumonia. The VALS-DANCE Pneumonia Etiology Predictor (PEP) provides clinical scoring criteria (Fig. 1) to determine probable cause of pneumonia with 93.1% sensitivity for bacterial pneumonia. Scores >11 have a >25% likelihood of having bacterial etiology. Given that antimicrobial exposure increases resistance rates, disrupts natural flora, and increases the risk of side effects, a core goal of researchers is to develop ways to promote stewardship and reduce inappropriate use. We assessed the patterns of use for antimicrobials in pediatric patients admitted with pneumonia at our institution. **Methods:** This retrospective review included pediatric cases admitted to an urban safety-net community hospital from July 22, 2022, to December 16, 2022. A daily list of all patients receiving antimicrobials was reviewed, and pediatric patients with diagnosis of a respiratory infection were included. Patients with additional indications for antimicrobial therapy, diagnosis of bronchitis, incomplete records, or without complete information were excluded from the scoring criteria. The primary objective was to assess the appropriateness of antimicrobial use for pneumonia, defined as use consistent with PEP scoring recommendations. **Results:** Of 53 patients reviewed, 37 met inclusion criteria. Of 37 patients, 22 (59.5%) met study criteria for appropriate therapy. The 15 patients (40.5%) who were inappropriate for treatment received an average of 4.67 ± 1.91 days of antibiotics. Of these 15 patients, 11 (73.3%) also had a positive viral test, further increasing the likelihood of a viral etiology.

Diagnostic Criteria	Weight (>11 indicates bacterial)
Age >3 years at admission	10.6
No doses of pneumococcal vaccine	1.2
Lack of work of breathing	2.2
Lack of wheezing	1
Temperature >37.7°C	1.3
Consolidation on X-ray	5.5
Hemoglobin > 11 g/dL	2.3
Leukocytosis > 15k cells/mm^3 or Leukopenia < 4k cells/mm^3	1.1
Neutrophilia > 10k cells/mm^3	1.2
CRP > 100 mg/L	2.2

Fig. 1. Pneumonia Etiology Predictor scoring criteria and weighted values.

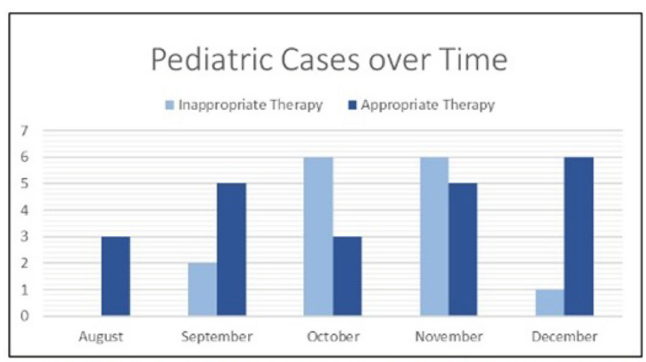


Fig. 2. Number of cases of appropriate and inappropriate therapy over study period.

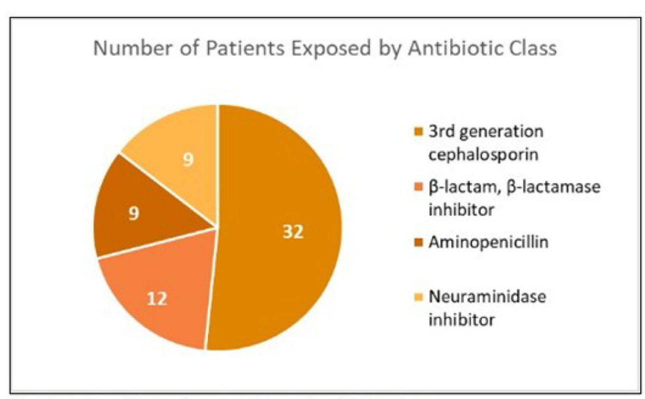


Fig. 3. Number of patients exposed to each antibiotic class.