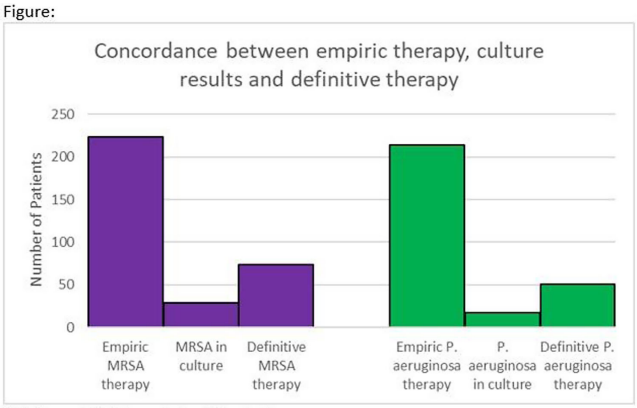
Figure:



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

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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.

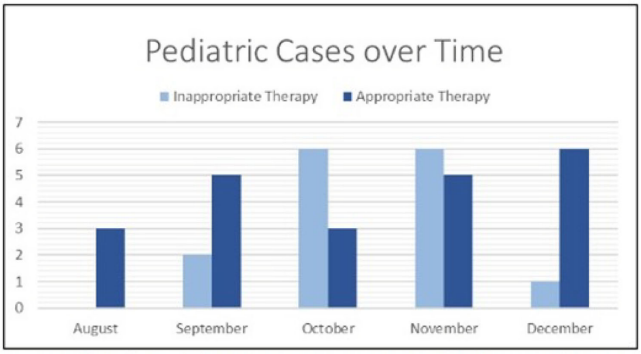

Fig. 2. Number of cases of appropriate and inappropriate therapy over study period.

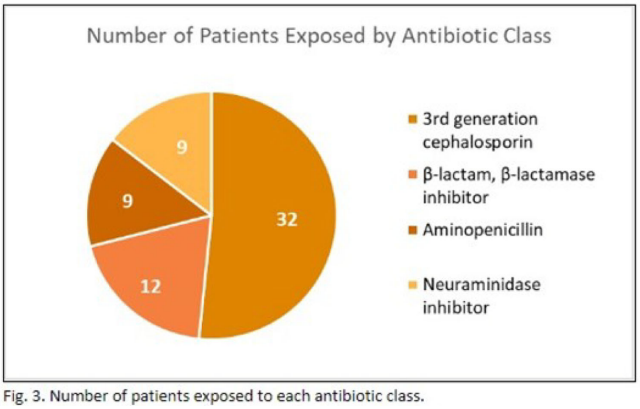

Fig. 3. Number of patients exposed to each antibiotic class.

This subgroup had an average antibiotic exposure of 4.27 ± 1.79 days. Documented rationale for therapy included severity of illness (4 of 11), radiograph consolidation (4 of 11), and provider disagreement with radiograph interpretation (3 of 11). **Conclusions:** Pediatric respiratory infections represent a significant opportunity for antimicrobial stewardship. In this study, as many as 40% of pediatric patients may have received unnecessary antibiotic exposure. Use of the VALS-DANCE criteria may help clinicians identify patients with low likelihood of bacterial infection and reduce antimicrobial use. The national surge of viral infections serves to highlight the vital importance of appropriate diagnostic stewardship.
Disclosure: None

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Presentation Type:
Poster Presentation - Top Poster Award
Subject Category: *C. difficile*

Integrated efficacy analysis from phase 3 studies of investigational microbiome therapeutic, SER-109, in recurrent *Clostridioides difficile* infection

Matthew Sims; Michael Silverman; Thomas Louie; Elaine Wang; Colleen Kraft; Mayur Ramesh; Tatiana Bogdanovich; Kelly Brady; David Lombardi; Asli Memisoglu; Ananya De; Brooke Hasson; Christine Lee; Paul Feuerstadt; Darrell Pardi; Colleen Kelly; Peter Daley; Godson Oguchi; Barbara McGovern and Lisa Von Moltke

Background: Antibiotics alone are often insufficient to treat recurrent *C. difficile* infection (rCDI) because they have no activity against *C. difficile* spores that germinate within a disrupted microbiome. SER-109, an investigational, oral, microbiome therapeutic comprised of purified *Firmicutes* spores, was designed to reduce rCDI through microbiome repair. We report an integrated efficacy analysis through week 24 for SER-109 from phase 3 studies, ECOSPOR III and ECOSPOR IV. **Methods:** ECOSPOR III was a randomized, placebo-controlled phase 3 trial conducted at 56 US or Canadian sites that included 182 participants with ≥2 CDI recurrences, confirmed via toxin EIA testing. Participants were stratified by age (<65 years or ≥65 years) and antibiotic regimen (vancomycin, fidaxomicin) and were randomized 1:1 to placebo or SER-109 groups. ECOSPOR IV was an open-label, single-arm study conducted at 72 US or Canadian sites including 263 participants with rCDI enrolled in 2 cohorts: (1) rollover participants from ECOSPOR III who experienced on-study recurrence diagnosed by toxin EIA (n = 29) and (2) participants with ≥1 CDI recurrence (diagnosed by PCR or toxin EIA), inclusive of the current episode (n = 234). In both studies, the investigational product was administered orally as 4 capsules over 3 consecutive days following symptom resolution after standard-of-care antibiotics. The primary efficacy end point was rCDI (recurrent toxin-positive diarrhea requiring treatment) through week 8. Other end points included CDI recurrence rates and safety through 24 weeks. **Results:** These 349 participants received at least 1 dose of SER-109 in ECOSPOR III or ECOSPOR IV (mean age 64.2; 68.8% female). Overall, 77 participants (22.1%) enrolled with their first CDI recurrence. Four participants received blinded SER-109 in ECOSPOR III followed by a second dose of open-label SER-109 in ECOSPOR IV. Overall, the proportion of participants who received any dose of SER-109 with rCDI at week 8 was 9.5% (33 of 349; 95% CI, 6.6 %–13.0%), and the CDI recurrence rate remained low through 24 weeks (15.2%, 53 of 349; 95% CI, 11.6%–19.4%), corresponding to sustained clinical response rates of 90.5% (95% CI, 87.0%–93.4%) and 84.8% (95% CI, 80.6%–88.4%), respectively (Fig. 1). Most rollover participants (25 of 29, 86.2%) were from the placebo arm; 13.8% had rCDI by week 8. **Conclusions:** In this integrated analysis, the rates of rCDI were low and durable in participants who received the investigational microbiome therapeutic SER-109, with sustained clinical response rates of 90.5% and 84.8% at weeks 8 and 24, respectively. These data further support the potential benefit of microbiome repair with SER-109 following antibiotics for rCDI to prevent recurrence in high-risk patients.

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Disclosure: None

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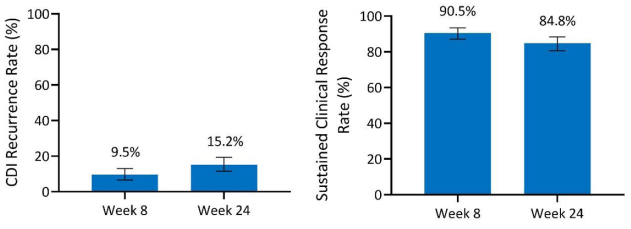

Presentation Type:
Poster Presentation - Top Poster Award
Subject Category: *C. difficile*

Utilizing vancomycin as secondary prophylaxis for the prevention of recurrent *Clostridioides difficile* infection

Zeitler Kristen; Andrew Nguyen; Candice Mateja; Ripal Jariwala; Carlos Bertran-Rodriguez; Cynthia Mayer; Diep Nguyen and Mindy Sampson

Background: Recurrent *Clostridioides difficile* infection (CDI) is associated with significant morbidity, mortality, and healthcare-related costs. Although data are minimal, agents including oral vancomycin have been used as secondary prophylaxis to prevent recurrent CDI. **Methods:** We conducted a randomized, double-blind, placebo-controlled trial to determine the effectiveness of vancomycin at preventing CDI from October 2019 to September 2022. Eligible patients had a history of at least 1 episode of CDI and were receiving systemic antibiotics for another condition. Participants were randomized 1:1 to oral vancomycin 125 mg by mouth twice daily and were interviewed at 1, 2, and 3 months thereafter to assess recurrence. We enrolled 26 patients: 15 completed the 1-month interview, 12 completed the 2-month interview, and 11 completed the full study. Those 15 participants who did not complete the 3-month interview were considered dropouts. The final sample for this study included those 11 participants who completed all interviews. Demographics and outcomes are shown in Table 1. **Results:** One case of recurrent CDI was reported at the 1-month interview and a second was reported at 3 months; both cases had received the placebo. The study was terminated early due to low enrollment. **Conclusions:** Although our results did not reach statistical significance and this study was limited in small sample size, our findings suggest that secondary prophylaxis with oral vancomycin may be beneficial in patients who are actively receiving antibiotics, which is consistent with prior retrospective studies. Future studies with larger sample sizes are still needed to examine this important question of whether secondary prophylaxis is useful for preventing recurrent CDI.
Disclosure: None

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Table 1: Baseline Characteristics and Outcomes

Patient Characteristics	All Participants (n = 11)	Vancomycin (n = 4)	Placebo (n = 7)	p-value
Age > 65 years, n (%)	5 (45)	2 (50)	3 (42)	1
Gender, n (%)				
Female	7 (63)	3 (75)	4 (57)	1
Male	4 (36)	1 (25)	3 (42)	
Primary CDI Infection, n (%)				
<1 Year Before Enrollment	4 (36)	2 (50)	2 (29)	0.58
≥1 Year Prior to Enrollment	7 (64)	2 (50)	5 (71)	
Systemic Antibiotic Duration > 7 days n (%)	3 (27)	0	3 (42)	0.24
Immunocompromised n (%)	5 (45)	2 (50)	3 (42)	1
Patient Outcomes				
Diagnosed with CDI at 3-month Interview	2 (18)	0	2 (28)	0.49