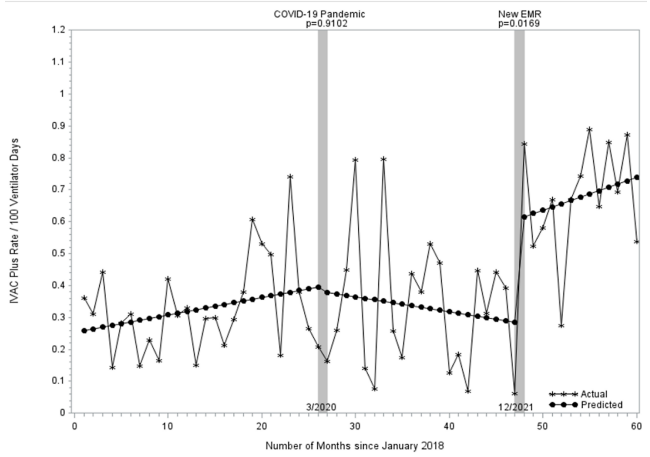
Figure 1: Interrupted Time Series Analysis of Infection-Related Ventilator Associated Events and Probable Ventilator Associated Pneumonias (IVAC Plus) Rates from January 2018 – November 2022



compared across periods using the χ^2 test. All analyses were performed using SAS version 9.4 software. **Results:** COVID-19 has been implicated in the increasing number of VAEs since the pandemic began: 6% of patients in 2020, 18% in 2021, and 23% in 2022 ($P < .001$). The percentage of patients meeting criteria for VAE by positive end-expiratory pressure (PEEP) decreased from 2018 to 2022 (92%, 95%, 93%, 85%, 85%, respectively; $P = .0004$). Patients meeting criteria for VAE by fraction of inspired oxygen (FiO_2) increased from 2018 to 2022 (9%, 6%, 11%, 17%, 19%, respectively; $P = .0002$). Manual review of 2022 data indicated opportunities for test stewardship in 8 of 65 patients with cultures (12%). ITS analysis revealed that IVAC+ rates were climbing prior to the onset of the COVID-19 pandemic (Fig. 1). We observed a marked increase in rates with the implementation of our new EMR and the changes to our surveillance process (0.32 cases per 100 ventilator days). Manual review of records from 2022 revealed 5 patients in which documentation of ventilator settings to meet VAE diagnosis could not be retrieved from flow sheets. **Conclusions:** COVID-19 continues to affect VAE despite vaccine availability and may partially account for elevated rates nationwide. However, changes in EMR-automated VAE surveillance may also affect rates. Our findings suggest that automated surveillance captures transient or spurious changes in ventilator machine settings that do not accurately represent clinical status. These data may contribute to spurious increases in VAE. More studies are needed to better understand the impact of both COVID-19 and automated surveillance on VAE.

Disclosures: None

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Poster Presentation - Oral Presentation

Subject Category: Antibiotic Stewardship

Validation of an electronic algorithm to identify appropriate antibiotic use for community-acquired pneumonia in children

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Background: Community-acquired pneumonia (CAP) is a common indication for antibiotic use in hospitalized children and is a key target for pediatric antimicrobial stewardship programs (ASPs). Building upon prior work, we developed and refined an electronic algorithm to identify children hospitalized with CAP and to evaluate the appropriateness of initial antibiotic choice and duration. **Methods:** We performed a cross-sectional study including children 6 months to 17 years hospitalized for CAP between January 1, 2019, and October 31, 2022, at a tertiary-care children's hospital. CAP was defined electronically as an *International Classification of Disease, Tenth Revision* (ICD-10) code for pneumonia, a chest radiograph or chest computed tomography scan (CT) performed within 48 hours of admission, and systemic antibiotics administered within the first 48 hours of hospitalization and continued for at least 2 days. We applied the following exclusion criteria: patients transferred from another healthcare setting, those who died within 48 hours of hospitalization, children with complex chronic conditions, and those with intensive care unit stays >48 hours. Criteria for appropriate antibiotic choice and duration were defined based on established guidelines. Two physicians performed independent medical record reviews of 80 randomly selected patients (10% sample) to evaluate the performance of the electronic algorithm in (1) identifying patients treated for clinician-diagnosed CAP and (2) classifying antibiotic choice and duration as appropriate. A third physician resolved discrepancies. The electronic algorithm was compared to this medical record review, which served as the reference standard. **Results:** Of 80 children identified by the electronic algorithm, 79 (99%) were diagnosed with CAP based on medical record review. Antibiotic use was classified as the appropriate choice in 75 (94%) of 80 cases, and appropriate duration in 16 (20%) of 80 cases. The sensitivity of the electronic algorithm for identifying appropriate initial antibiotic choice was 94%; specificity could not be calculated because no events of inappropriate antibiotic choice were identified based on chart review. The sensitivity and specificity for determining appropriate duration were 88% and 97%, respectively (Table 1).

Table 1. Performance Characteristics of an Electronic Algorithm Evaluating Appropriate Antibiotic Choice and Duration

Appropriate Choice	
Sensitivity	94% (75/80)
Specificity	NA (0/0)
Positive Predictive Value	100% (75/75)
Negative Predictive Value	0% (0/5)
Appropriate Duration	
Sensitivity	88% (14/16)
Specificity	97% (62/64)
Positive Predictive Value	88% (14/16)
Negative Predictive Value	97% (62/64)

Conclusions: The electronic algorithm accurately identified children hospitalized with CAP and demonstrated acceptable performance for identifying appropriate antibiotic choice and duration. Use of this electronic algorithm may improve the efficiency of stewardship activities and could facilitate alignment with updated accreditation standards. Future studies validating this algorithm at other centers are needed.

Disclosures: None

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Trends and duration of antibacterial drug supply chain issues in the United States, January 2017–June 2022

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Background: Drug manufacturing and distribution is a complex, global process. The global drug supply chain is prone to disruptions associated with geopolitical issues, trade, civil unrest, severe weather, and pandemics, all of which have the potential to affect medication supply and result in drug shortages. To our knowledge, the extent to which the supply of antimicrobials is threated due to disruptions in the drug supply chain in the United States is unknown. We examined trends and duration of disruptions to the drug supply chain for antimicrobials. **Methods:** Manufacturer reports of supply disruptions were extracted from the Food and Drug Administration (FDA) and the American Society for Health-Systems Pharmacists (ASHP) websites and merged on the agent-