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Session: P-67. Respiratory Infections - Bacterial

Background. PCVs have been recommended for U.S. children since 2000. A 7-valent vaccine (PCV7) was introduced in 2000. This was replaced by a 13-valent vaccine (PCV13) in 2010. PCV13 was also recommended for adults aged ≥ 65 years in August 2014. We evaluated PCV impact on IPD.

Methods. IPD cases (isolation of pneumococcus from sterile sites) were identified through CDC's Active Bacterial Core surveillance during 1998-2018. Isolates were serotyped by Quellung or whole genome sequencing and classified as PCV13-type and non-vaccine-type (NVT). Incidence rates (cases/100,000) were calculated using U.S. Census Bureau population denominators.

Results. From 1998 through 2018, overall IPD rates among children aged < 5 years decreased by 93% (from 95 to 7 cases/100,000). PCV13-type IPD decreased by 98% (from 88 to 2 cases/100,000). Among adults aged ≥ 65 years, overall IPD rates decreased by 60% (from 61 to 25 cases/100,000). PCV13-type IPD rates declined 86% (from 46 to 7 cases/100,000). Declines were most dramatic in the years following PCV7 introduction, with additional declines after PCV13 introduction in children (Figures 1 and 2). Serotypes 3, 19A, and 19F caused most of the remaining PCV13-type IPD. NVT IPD rates did not change significantly among children. Among adults aged 50-64 years, NVT IPD increased by 83% (from 6 to 12 cases/100,000) (p< 0.01). Among adults aged ≥ 65 years, NVT IPD increased by 22% (from 15 to 18 cases/100,000) (p< 0.01). The most common NVTs in 2018 were 22F (10% of all IPD), 9N (7%) and 15A (5%). Among children, the proportion of cases with meningitis increased from 5% to 14% (p< 0.01), and the proportion with pneumonia/empyema increased from 17% to 31% (p< 0.01). Among adults, the proportion of cases with meningitis did not change (3%), while the proportion with pneumonia/empyema increased from 72% to 76% (p=0.01).

Figure 1: Incidence of invasive pneumococcal disease among children aged < 5 years, 1998-2018

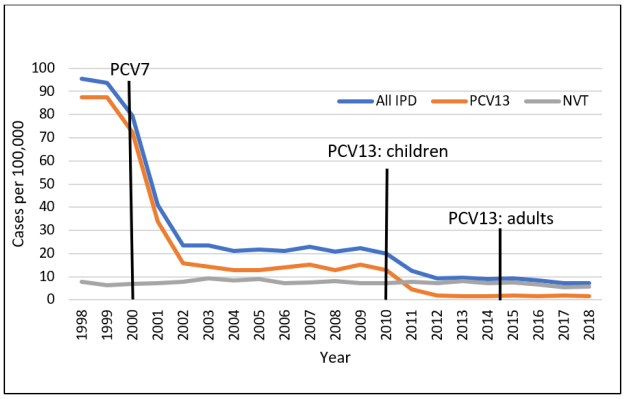
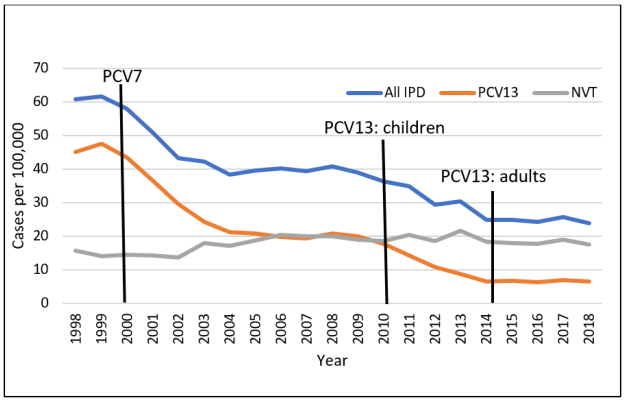


Figure 2: Incidence of invasive pneumococcal disease among adults aged ≥ 65 years, 1998-2018

Conclusion. Overall IPD incidence among children and adults decreased following PCV introduction for children, driven primarily by reductions in PCV-type IPD. NVT IPD increased in older adults, but these increases did not eliminate reductions from PCV13-type IPD.



Disclosures. **Lee Harrison, MD, GSK** (Consultant)**Merck** (Consultant)**Pfizer** (Consultant)**Sanofi Pasteur** (Consultant)

1471. Evaluation of Antibiotic De-escalation in Post Cardiac Arrest Patients with Culture-Negative versus Culture-Positive Aspiration Pneumonia

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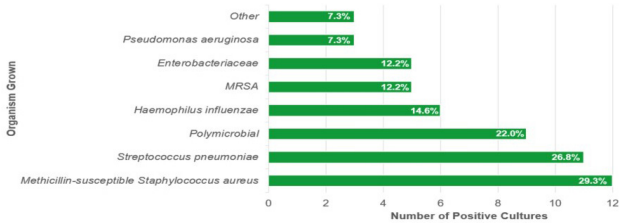
Session: P-67. Respiratory Infections - Bacterial

Background. Cardiac arrest patients are often empirically treated for aspiration pneumonia with broad-spectrum antibiotics. Previous literature has shown no difference in clinical outcomes when discontinuing antimicrobial therapy for suspected aspiration pneumonia with negative respiratory cultures, but the application is limited in this population. This study aimed to assess antibiotic de-escalation practices for suspected aspiration pneumonia in post cardiac arrest patients with respiratory cultures and explore clinical outcomes.

Methods. This retrospective cohort conducted at a level 1 trauma center included adult out-of-hospital cardiac arrest patients who received antimicrobial therapy for suspected aspiration pneumonia. The primary endpoint was incidence of antibiotic de-escalation before day seven comparing culture-negative and culture-positive patients. De-escalation included discontinuation of methicillin-resistant *Staphylococcus aureus* (MRSA) coverage, *Pseudomonas aeruginosa* coverage, atypical coverage or all antibiotics when respective pathogens were not identified from microbiologic or serologic methods. Secondary endpoints included type of de-escalation and clinical outcomes.

Results. Eighty-six patients were included: 45 culture-negative and 41 culture-positive. Figure 1 depicts the breakdown of organisms isolated. Guideline-directed empiric therapy was used in 18.6% of patients, with the remainder receiving excessively broad empiric coverage. Antibiotic de-escalation before day seven occurred in 28 (80%) culture-negative patients and 32 (82%) culture-positive patients ($p = 0.82$), excluding patients who died before day seven. Providers frequently stopped unnecessary MRSA coverage in both groups. In-hospital mortality was higher in the group of patients without antibacterial de-escalation (62% vs. 33%, p=0.03), but hospital length of stay, ICU length of stay, and number of ventilator-free days were not different between groups.

Figure 1: Epidemiology of Pathogens Isolated From Respiratory Cultures in Cardiac Arrest Patients



Conclusion. Culture results were not associated with antibiotic de-escalation in post cardiac arrest patients with suspected aspiration pneumonia. Opportunities exist for further de-escalation in this population, particularly patients with unnecessary pseudomonal coverage.

Disclosures. **All Authors**: No reported disclosures

1472. Frequency of Occurrence and Antimicrobial Susceptibility of Bacteria Isolated from Patients Hospitalized with Bacterial Pneumonia in the United States, Western Europe, and Eastern Europe: Results from the SENTRY Program (2016-2019)

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Session: P-67. Respiratory Infections - Bacterial

Background. The SENTRY Antimicrobial Surveillance Program monitors the frequency of occurrence and antimicrobial susceptibility of organisms from various infection types worldwide. In this investigation, we evaluate the results for organisms isolated from patients hospitalized with bacterial pneumonia.

Methods. 28,918 bacterial isolates were consecutively collected (1/patient) in 2016-2019 from 121 medical centers located in the United States (US; n=17,770; 82 centers), western Europe (W-EU; n=7,966; 25 centers from 10 nations), and eastern Europe (E-EU; n=3,182; 14 centers from 11 nations). Organisms were tested for susceptibility by reference broth microdilution methods in a central laboratory.

Results. The rank order of organisms varied markedly among geographic regions (Table). Gram-negative bacilli (GNB) represented 69.1%, 76.3%, and 88.6% of organisms; and non-fermentative (NF) GNB represented 34.6%, 26.9%, and 51.8% of organisms in US, W-EU, and E-EU, respectively. Among NF-GNB, *P. aeruginosa* ranked first in W-EU and E-EU and second in the US, *A. baumannii* ranked third in E-EU, and *S. maltophilia* was among the top 8 in all 3 regions (fifth in the US). *P. aeruginosa susceptibility to piperacillin-tazobactam and meropenem (MEM) were 76.1% and 74.8% in the US, 75.4% and 76.9% in W-EU, and 57.4% and 48.3% in E-EU, respectively. Only 10.4% of A. baumannii isolates from E-EU were MEM-susceptible compared to 45.8%*

in W-EU and 58.7% in the US. MRSA rates in the US improved from 44.8% in 2016 to 40.2% in 2019 (p< 0.05). Overall MRSA rates were 21.4% in W-EU, and 28.7% in E-EU. CRE rates decreased continuously in the US from 3.0% in 2016 to 1.7% in 2019 (p < 0.05; 2.4% overall) and were higher E=EU (16.6%) than W-EU (2.2%). Among *K. pneumoniae*, susceptibility to ceftriaxone and MEM were 80.7% and 94.9% in the US, 70.1% and 90.7% in W-EU, and 34.5% and 70.4% in E-EU, respectively. Among *E. coli*, susceptibility to ceftriaxone and levofloxacin were 71.4% and 55.0% in the US, 79.2% and 71.2% in W-EU, and 62.6% and 55.9% in E-EU, respectively.

Table 1

Rank	Frequency of top 8 organisms stratified by region		
	United States (n=17,770)	Western Europe (n=7,966)	Eastern Europe (n=3,182)
1	*S. aureus* (27.3%)	*P. aeruginosa* (20.6%)	*P. aeruginosa* (27.2%)
2	*P. aeruginosa* (24.3%)	*S. aureus* (20.1%)	*K. pneumoniae* (19.3%)
3	*K. pneumoniae* (8.1%)	*E. coli* (12.7%)	*A. baumannii* (19.0%)
4	*E. coli* (6.4%)	*K. pneumoniae* (9.2%)	*S. aureus* (9.1%)
5	*S. maltophilia* (4.7%)	*E. cloacae* (5.5%)	*E. coli* (6.1%)
6	*S. marcescens* (4.3%)	*S. marcescens* (4.3%)	*S. maltophilia* (3.9%)
7	*E. cloacae* (3.9%)	*K. oxytoca* (3.5%)	*E. cloacae* (2.9%)
8	*H. influenzae* (3.0%)	*S. maltophilia* (3.2%)	*S. marcescens* (2.3%)

Conclusion: Rank order and antimicrobial susceptibility of bacteria isolated from patients with pneumonia varied widely by geographic region. Multidrug-resistant NF-GNB represented an important cause of pneumonia in US and Europe.

Disclosures. **Helio S. Sader, MD, PhD**, **A. Menarini Industrie Farmaceutiche Riunite S.R.L.** (Research Grant or Support)**Allergan** (Research Grant or Support)**Allergan** (Research Grant or Support)**Allergan** (Research Grant or Support)**Cipla Ltd.** (Research Grant or Support)**Cipla Ltd.** (Research Grant or Support)**Melinta** (Research Grant or Support)**Merck** (Research Grant or Support)**Merck** (Research Grant or Support)**Paratek Pharma, LLC** (Research Grant or Support)**Pfizer** (Research Grant or Support) **Cecilia G. Carvalhaes, MD, PhD**, **A. Menarini Industrie Farmaceutiche Riunite S.R.L.** (Research Grant or Support)**Allergan** (Research Grant or Support)**Cidara Therapeutics** (Research Grant or Support)**Cipla Ltd.** (Research Grant or Support)**Fox Chase Chemical Diversity Center** (Research Grant or Support)**Melinta Therapeutics, Inc.** (Research Grant or Support)**Merck** (Research Grant or Support)**Merck & Co, Inc.** (Research Grant or Support)**Pfizer** (Research Grant or Support) **Jennifer M. Streit, BS**, **A. Menarini Industrie Farmaceutiche Riunite S.R.L.** (Research Grant or Support)**A. Menarini Industrie Farmaceutiche Riunite S.R.L.** (Research Grant or Support)**Allergan** (Research Grant or Support)**Melinta Therapeutics, Inc.** (Research Grant or Support)**Melinta Therapeutics, Inc.** (Research Grant or Support)**Merck** (Research Grant or Support)**Paratek Pharma, LLC** (Research Grant or Support) **Rodrigo E. Mendes, PhD**, **A. Menarini Industrie Farmaceutiche Riunite S.R.L.** (Research Grant or Support)**Allergan** (Research Grant or Support)**Allergan** (Research Grant or Support)**Basilea Pharmaceutica International, Ltd** (Research Grant or Support)**Cipla Ltd.** (Research Grant or Support)**Department of Health and Human Services** (Research Grant or Support)**GlaxoSmithKline** (Research Grant or Support)**Melinta Therapeutics, Inc.** (Research Grant or Support)**Merck** (Research Grant or Support)**Merck** (Research Grant or Support)**Pfizer** (Research Grant or Support) **Mariana Castanheira, PhD**, **1928 Diagnostics** (Research Grant or Support)**A. Menarini Industrie Farmaceutiche Riunite S.R.L.** (Research Grant or Support)**Allergan** (Research Grant or Support)**Allergan** (Research Grant or Support)**Amplyx Pharmaceuticals** (Research Grant or Support)**Cidara Therapeutics** (Research Grant or Support)**Cidara Therapeutics** (Research Grant or Support)**Cipla Ltd.** (Research Grant or Support)**Cipla Ltd.** (Research Grant or Support)**Fox Chase Chemical Diversity Center** (Research Grant or Support)**GlaxoSmithKline** (Research Grant or Support)**Melinta Therapeutics, Inc.** (Research Grant or Support)**Melinta Therapeutics, Inc.** (Research Grant or Support)**Melinta Therapeutics, Inc.** (Research Grant or Support)**Merck** (Research Grant or Support)**Merck** (Research Grant or Support)**Merck & Co, Inc.** (Research Grant or Support)**Merck & Co, Inc.** (Research Grant or Support)**Paratek Pharma, LLC** (Research Grant or Support)**Pfizer** (Research Grant or Support)**Qpex Biopharma** (Research Grant or Support)

1473. Guideline Adherence in Pediatric Ambulatory Visits for Acute Otitis Media

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Session: P-67. Respiratory Infections - Bacterial

Background. Acute otitis media (AOM) is the most common pediatric outpatient condition treated with antibiotics in the United States. Over 30% of children receive inappropriate antibiotics for AOM, contributing to increasing antimicrobial resistance and unnecessary adverse events. Strict adherence to diagnostic and treatment guidelines has been proposed by the American Academy of Pediatrics (AAP) Committee on Infectious Diseases as one strategy to combat inappropriate antibiotic use. Our objective was to describe adherence to the 2013 AAP guidelines on AOM.

Methods. We performed a cross-sectional study on a random sample of visit notes for patients 3 to 59 months old diagnosed with otitis media based on ICD-10-CM codes (H65, H66, H67) and treated with antibiotics between 9/1/2017 and 8/31/2018 in an association of pediatric practices across Massachusetts. Children with tympanostomy tubes or a chronic medical condition increasing their risk for AOM were excluded. Based on the 2013 AAP diagnostic criteria, tympanic membrane exam descriptions were reviewed and classified as describing AOM or not. Antibiotic choices were classified as appropriate or inappropriate. Notes were then labeled as "fully adherent" (exam consistent with AOM and appropriate antibiotic choice), "partially adherent" (exam inconsistent with AOM **or** inappropriate antibiotic choice), and "non-adherent" (exam inconsistent with AOM **and** inappropriate antibiotic choice).

Results. Three hundred and ninety-four visit notes from 39 different practices were analyzed. One hundred and sixty-six notes (42%) were "fully adherent" to the AAP guidelines, 183 (46%) were "partially adherent" and 45 (11%) were "non-adherent" (Figure 1). In the "partially adherent" and "non-adherent" groups combined, exams were inappropriate in 179 notes (45.4%) and antibiotic choice was inappropriate in 94 notes (23.9%). Cefdinir was the most frequent inappropriate antibiotic (44/94, 46.8%) (Table 1). "Watchful waiting" occurred in only 7% (16/229) of eligible cases.

Figure 1. Breakdown of encounters by adherence type

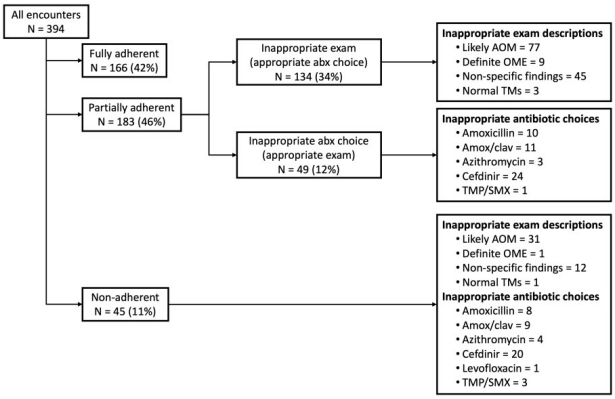

Table 1. Cross-table of indicated and prescribed antibiotics

Antibiotic Prescribed	Indicated Antibiotic: Amoxicillin	Amox-clav	Cefdinir*	Ceftriaxone
Amoxicillin	232	18		
Amox-clav	20	41		
Cefdinir*	18	25	27	1
Ceftriaxone				
Azithromycin	1	1	5	
Levofloxacin			1	
TMP-SMX	1		2	1

Conclusion. Our analysis of independent pediatric practices showed moderate adherence to the AAP guidelines for AOM. Substantial room exists for improvement in diagnosing and treating AOM in young children, especially regarding the potential for watchful waiting.

Disclosures. **All Authors**: No reported disclosures

1474. Impact of 13-valent Pneumococcal Conjugate Vaccine (PCV13) on Non-bacteremic Pneumococcal Pneumonia (NBPP) among Adults in the United States, 2013-2017

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Session: P-67. Respiratory Infections - Bacterial

Background. PCV13 was recommended for U.S. children in 2010 and for adults ≥ 65 years in 2014. Vaccine coverage among adults ≥ 65 years was 43% in 2017. We evaluated PCV13 impact on NBPP among adults.

Methods. NBPP cases (clinically or radiographically confirmed pneumonia and a positive pneumococcal urine antigen test (PUAT) in a hospitalized adult aged ≥ 18 years) were identified at select hospitals in 10 sites within CDC's Active Bacterial Core surveillance during 2013-2017. NBPP rates (per 100,000) were estimated using U.S. Census Bureau population denominators and adjusted for the proportion of pneumonia patients tested by PUAT and the number of pneumonia admissions in the catchment area.

Results. Between 2013 and 2017, 4,430 NBPP cases were identified. Adults aged ≥ 65 years accounted for 49% of cases. Case fatality rate was 6%. From 2013 to 2014, rates of NBPP declined from 153 to 90 (41% reduction, 95%CI 28%, 51%) in ≥ 65 year-olds;