

Session: P001 Epidemiology and surveillance of pathogenic streptococci

**Category: 3a. Resistance surveillance & epidemiology: MRSA, VRE & other Gram-positives**

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P0020

**Distribution of *Streptococcus pneumoniae* serotypes among adults 18 years and older in Europe and the United States, 2014-2015**

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**Background:** Worldwide, *Streptococcus pneumoniae* represents a leading cause of mortality and morbidity in children and adults. A 7-valent pneumococcal conjugate vaccine (PCV7) was introduced in the infant immunization program in United States (US) and European Union (EU) in 2000 and 2001, respectively, followed by a 13-valent (PCV13) vaccine in 2010 and 2009. As pneumococcal disease risk is increased in older adults and in those with certain chronic medical conditions, it is important to monitor both the burden of pneumococcal disease and changing serotype specific epidemiology in the setting of pneumococcal vaccination programs. We therefore evaluated the serotypes and antibiotic susceptibilities of *S pneumoniae* non-sterile isolates collected through the Tigecycline Evaluation Surveillance Trial, (TEST) between 2014-2015.

**Material/methods:** 774 *S. pneumoniae* isolates from respiratory specimens from adults ≥18 years of age were collected in the US (205) and EU (569) from sputum (559), trachea (112), head/ears/eyes/nose and throat (67), and other respiratory (36). Serotypes were determined by PCR. Minimum inhibitory concentrations (MICs) were determined by broth microdilution and interpreted following Clinical and Laboratory Standards Institute guidelines (erythromycin, ≤0.25 mg/L, susceptible; penicillin, ≤2 mg/L, susceptible [parenteral nonmeningitis breakpoint]).

**Results:** From the total number of isolates, 348 were from adults ≥65 and 426 were from those 18-64 years of age. 558 of 774 (72.0%) of isolates were typeable via PCR. Prevalence of serotypes and

susceptibility to penicillin and erythromycin for the ten most common serotypes is shown below. The most common serotypes in respiratory specimens were 3 (14%), 11A (7%), and 19A (6%). The largest percentage of penicillin-resistant isolates was found in serotypes 19A, 17F, and 19F. Erythromycin resistance was most commonly seen in 15A, 19A, 6A/B, and 19F and was more prevalent than penicillin resistance.

Serotype	N	PEN-S (N)	PEN-S (%)	ERY-S (N)	ERY-S (%)
3*	111	110	99.1	94	84.7
11A	58	56	96.6	43	74.1
19A*	44	29	65.9	15	34.1
6A/B*	43	43	100.0	21	48.8
22F/A	36	35	97.2	30	83.3
35B	31	31	100.0	21	67.7
19F*	28	25	89.3	15	53.6
16F	23	22	95.7	22	95.7
15A	22	22	100.0	7	31.8
17F	17	15	88.2	14	82.4

\*Contained in PCV13

PEN-S: penicillin-susceptible; ERY-S: erythromycin-susceptible

**Conclusions:** These data, although limited in numbers, suggest a persistent burden of pneumococcal disease in adults, including disease caused by serotypes 3 and 19A, which are included in PCV13. The association between pneumococcal serotypes and antibiotic resistance highlights the need for ongoing monitoring of the serotype epidemiology of this important pathogen.