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Background. The routine use of 13-valent pneumococcal conjugate vaccination (PCV13) was implemented in children in 2010 and in adults (≥65 years of age) in 2014 in the United States. Trends in rates of penicillin G (PEN) antimicrobial nonsusceptibility (NS) for PCV13-type *S. pneumoniae* from adult pneumonia patients were assessed by age group.

Methods. Isolates were consecutively collected from pneumonia patients in 105 US sites in 40 states during 2009–2017. Isolates were identified by biochemical algorithms and/or PCR; susceptibility testing and interpretation used CLSI Methods. The *cpsB* sequence was obtained by PCR or whole-genome sequencing for serotype (ST) determinations. Multiplex PCR and/or Quellung reactions were also performed, as needed.

Results. Of 7,254 analyzed *S. pneumoniae* isolates, 63.6 and 36.4% were obtained from pneumonia patients aged 18–64 and ≥65 years, respectively. *S. pneumoniae* recovered from both age groups (18–64 and ≥65 years of age) showed a reduction in PEN-NS rates (from 12.9–14.5% in 2009 to 2.8–4.3% in 2017). The PEN-NS rates among PCV13 STs from both age groups rose to 37.7–39.9% from 2009 to 2011, decreasing in subsequent years (2012–2017) to 11.8–16.4% (Figure 1). Similar results were observed for PEN-NS rates against the STs included in PCV13 but not PCV7 (Figure 2). PEN-NS rates against PCV13 and PCV13-non-PCV7 STs from patients age 18–64 years plateaued or increased in 2015–2017, while PCV13 and PCV13-non-PCV7 STs from patients age ≥65 years declined continuously after 2012.

Conclusion. The decrease in PEN-NS rates among PCV13 and PCV13-non-PCV7 STs may be associated with the herd effect from PCV13 vaccination in children, an effect that may have occurred as early as 2 years after PCV13 implementation. The modest differences in PEN-NS trends between age groups during 2015–2017 may reflect the US recommendation to directly vaccinate adults age ≥65 but not 18–64 years; however, this hypothesis requires further data for confirmation.

Figure 1. Penicillin nonsusceptibility rates in PCV13-type *S. pneumoniae* pneumonia by age group in the United States

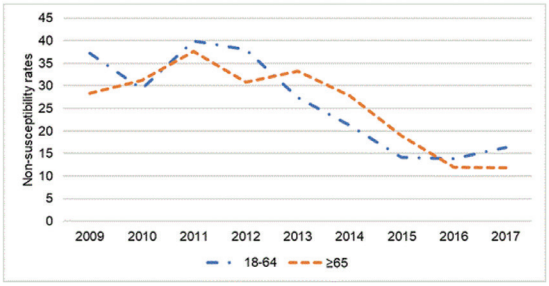
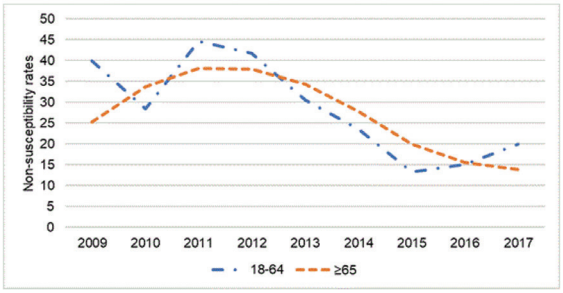


Figure 2. Penicillin nonsusceptibility rates in PCV13-type, excluding PCV7 *S. pneumoniae* pneumonia by age group in the United States



Disclosures. **R. E. Mendes**, **T. B. Doyle**, **L. N. Woosley**, **R. K. Flamm**, Pfizer Inc: Research Contractor, Research support. **J. A. Suaya**, Pfizer: Employee and Shareholder, Benefits and stock and Salary. **B. D. Gessner**, Pfizer Inc.: Employee and Shareholder, Salary. **R. E. Isturiz**, Pfizer, Inc: Employee and Shareholder, Salary and Stock & Stock Options.

1445. Impact of 10-Valent Pneumococcal Conjugate Vaccine Introduction on Pneumococcal Carriage and Antibiotic Susceptibility Patterns Among Children Aged <5 Years and Adults with HIV Infection, Kenya 2009–2013

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Background. Kenya introduced 10-valent pneumococcal conjugate vaccine (PCV10) in 2011 (three doses at ages 6, 10, and 14 weeks). Impact of PCV10 on pneumococcal carriage was unknown in this setting. We assessed changes in pneumococcal carriage and antibiotic susceptibility in children aged <5 years (U5) and HIV-infected adults (HIV+ adults) post-PCV10 introduction.

Methods. During 2009–2013, we performed annual cross-sectional pneumococcal carriage surveys in two sites with ongoing population-based surveillance: Kibera (U5 only) and Lwak (U5 and HIV+ adults, catch-up vaccination for children 1–4 years offered in 2011). Nasopharyngeal swabs (and oropharyngeal swabs in adults) were obtained for culture. Pneumococcal isolates were serotyped by multiplex PCR and Quellung. Antibiotic susceptibility was determined (2009 and 2013). We calculated changes in penicillin nonsusceptible (intermediate or resistant) pneumococci (PNSP) carriage by chi-squared test. Changes in PCV10-type (VT) pneumococcal carriage in 2013 compared with baseline (U5: 2009–10, adults: 2009 only) were calculated by modified Poisson regression by age and site.

Results. Overall, 2,962 U5 (2,073 in Kibera, 889 in Lwak) and 2,028 HIV+ adults were enrolled. VT carriage declined by 52–60% in children 1–4 years, by 60% in children <1 year in Kibera, and by 76% in HIV+ adults (table). PNSP carriage declined from 32.8% to 22.3% ($P < 0.01$) in HIV+ adults but did not change in U5 (Kibera: 77.0% vs. 75.5%, $P = 0.10$; Lwak: 74.3% vs. 74.6%, $P = 0.94$).

Conclusion. The infant PCV10 program was associated with declines in VT carriage among U5 and HIV+ adults, and declines in PNSP carriage among HIV+ adults; however, VT carriage remained >10% among U5 2 years post-PCV10 introduction.

Table. PCV10-Type Carriage by Site and Age Groups

Site		Kibera		Lwak	
Age Group	Year	Carriage (%)	aPR (95% CI)*	Carriage (%)	aPR (95% CI)*
<1 year	2009–2010	38.2	Ref.	30.0	Ref.
	2013	14.6	0.40 (0.26, 0.62)	10.3	0.37 (0.11, 1.24)
1–4 years	2009–2010	38.6	Ref.	34.3	Ref.
	2013	18.7	0.48 (0.37, 0.62)	13.8	0.40 (0.27, 0.60)
HIV+ adults	2009	—	—	12.9	Ref
	2013	—	—	2.8	0.24 (0.14, 0.41)

aPR, adjusted prevalence ratio; CI, confidence interval.

*Adjusted for respiratory illness ≤30 days, antibiotic use ≤7 days, and area used for cooking.

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

1446. Correlation Between Adult Invasive and Noninvasive *Streptococcus pneumoniae* Disease in 13-Valent Pneumococcal Conjugate Vaccine Serotypes in the United States

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Background. It is often assumed that there is correlation of *Streptococcus pneumoniae* (Sp) serotype distribution between invasive (INV) and non-invasive (N-INV) disease. This retrospective analysis assessed the correlations of the 13-Valent Pneumococcal Conjugate Vaccine serotypes (PCV13-type) between INV and N-INV diseases in US adults during 2009–2016.

Methods. For INV and N-INV pneumonia, we used a bank of Sp isolates from the SENTRY Antimicrobial Surveillance Program, where 105 centers across 40 states and nine US Census regions collected isolates from sterile or nonsterile respiratory specimen types from consecutive patients with pneumonia (one per patient). The official online US Active Bacterial Core (ABC) surveillance database for Sp was used for INV pneumococcal disease (IPD); ABCs conducts active surveillance in selected counties across 10 states in United States.

Results. Of 6,508 Sp isolates obtained from adults from the SENTRY database, 15% were from invasive pneumonia (mainly blood cultures). In 2009, PCV13 serotypes accounted for 55 and 37% of INV and N-INV pneumococcal pneumonia; in 2016, they accounted for 25 and 23%, respectively. Between 2009 and 2016, ABC reported 23,704