Methods. We used claims data from 4 large national insurers in the FDA-sponsored Sentinel Initiative, which was developed to monitor the safety of FDA-regulated medical products. With a self-controlled risk interval design, the risk of FS in 0–1 days following IV and following PCV13 was compared with a comparison interval (14–20 days), adjusting for confounding by age, calendar time, and concomitant vaccination with the other vaccine. In exploratory analyses, we assessed whether the effect of IV is modified by concomitant administration of PCV13.

Results. During the study period, 355,486 children received IV and 581,868 received PCV13. We observed an incidence rate ratio (IRR) of 1.12 (95% CI 0.80, 1.56) for the risk of IV following IV after adjustment for age, calendar time and concomitant PCV13. PCV13 was associated with an increased risk of FS (IRR adjusted for age, calendar time and concomitant IV, 1.80, 95% CI 1.29, 2.52). The attributable risk for PCV13 ranged from 0.3 to 5.16 per 100,000 doses.

The age and calendar-time adjusted IRR comparing exposed time to unexposed time was greater for concomitant IV and PCV13 (IRR 2.80, 95% CI 1.63, 4.83), as compared with that for PCV13 without concomitant IV (IRR 1.54, 95% CI 1.04, 2.28). However, the formal test assessing for interaction between IV and PCV13 was not statistically significant.

Conclusion. We found an elevated risk of FS after PCV13 vaccine but not after IV, when adjusting for concomitant administration of the other vaccine. We found some evidence to suggest that concomitant administration of IV with PCV13 might interact to increase the risk beyond the independent effects of PCV13, but the study was not powered to assess this interaction. The risk of seizures associated with PCV13 is low compared with a child’s lifetime risk of FS. Findings should be interpreted in the context of the importance of preventing influenza and pneumococcal infections in young children.

Disclosures. L. Li, Sanofi pasteur: The author is currently employed by Sanofi Genzyme, which shares the same parent company as sanofi pasteur, the manufacturer of the Flu vaccine. However, the work was done while this author was still employed by Harvard Pilgrim Health Care Institute. No financial benefit received

1492. Incidence of Invasive Pneumococcal Disease Before and During an Era of Use of Three Different Pneumococcal Conjugate Vaccines in Quebec

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Session: 165. Pneumococcal Immunization and Epidemiology-North America Friday, October 6, 2017: 12:30 PM

Background. In Quebec, 7-valent (PCV7), 10-valent (PCV10) and 13-valent (PCV13) pneumococcal conjugate vaccines were successively used for children immunization according to a 2 + 1 doses schedule. The objective was to assess the impact of this program on the epidemiology of invasive pneumococcal disease (IPD).

Methods. Notification (2000–2016) and laboratory surveillance (2005–2016) data were analyzed and the immunization status of IPD cases in 2011–2015 was checked.

Results. In children <5 years, IPD rate decreased from 68/100,000 in 2003 to 12/100,000 in 2016 (83% reduction). Following PCV7 introduction in 2004, there was a rapid decline in incidence of homologous serotypes. 7F cases and 19A decreased following PCV10 introduction in 2009 and PCV13 in 2011, whereas decrease in serotype 3 (a PCV10 marker) was minimal. Non-vaccine type IPD increased and represented 79% of cases in 2016. The same pattern was seen in adults but replacement was complete and there was no decrease in overall IPD rate. In those 65 years and over, PCV13 serotypes represented 28% of cases in 2016, and 62% were covered by the 3-valent polyvalent conjugate vaccine. Out of 7 IPD cases caused by serotype 3 in children vaccinated with PCV13, 5 occurred more than one year following the booster dose, which suggests a short-term protection. Out of 27 breakthrough 19A cases, 17 occurred between 8 and 14 months of age in children who had received the 2 primary PCV13 doses but not the toddler booster dose, which suggests a window of susceptibility in a 2 + 1 schedule.

Conclusion. Hopefully, 19A incidence in children will continue to decrease and herd protection would eventually close the window of susceptibility. Serotype 3 is fortunately not frequent in children but a hard nut to crack. In elderly adults, PCV13 serotype coverage is diminishing year after year but a majority of cases remains potentially covered by the 23-valent polysaccharide vaccine.

Disclosures. P. De Wals, GSK: Investigator and Scientific Advisor, Research grant and Travel expenses; Pfizer: Grant Investigator and Scientific Advisor, Research grant and Travel expenses; SanofiPasteur: Grant Investigator, Research grant and Travel expenses

1493. Enhanced Detection of Vaccine Type Colonization and Dual Serotype Carriage with Molecular Strategies for Identification of Streptococcus pneumoniae Colonization

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Session: 165. Pneumococcal Immunization and Epidemiology-North America Friday, October 6, 2017: 12:30 PM

Background. Detecting Streptococcus pneumoniae (SP) carriage in children via conventional microbiological methods lacks sensitivity as high density is required for routine culture and identification of dual serotype colonization is a technical challenge. To increase understanding of post vaccine nasopharyngeal (NP) carriage, persisting resistance of vaccine serotypes, strategies for molecular identification of SP have been developed. These methods often rely on the identification of the SP autolysin gene lytA through non-quantitative PCR or semi-quantitative real-time PCR (RTFPCR).

Methods. We collected NP swabs from 600 healthy or sick children ≤5 years old at Boston Medical Center from Nov 2015 – Mar 2016 and used enhanced microbiologic logic methods and molecular identification strategies to characterize SP colonization. NP samples were broth enriched for 4 hours and cultured on selective blood agar; routine microbiologic methods were used to isolate and identify SP. A second aliquot of enriched broth was used for DNA isolation. RTFPCR assays were performed targeting the lytA, piaB (SP membrane permease), cpxA (SP capsule operon) genes, and 21 SP serotypes: all serotypes included in 13-valent pneumococcal conjugate vaccine and 8 additional non-vaccine serotypes.

Results. In our sample, 16% of specimens were SP positive via culture and 33% were RTFPCR-positive (Cq≤35) for the lytA gene. Multiplex RTFPCR assays with both the lytA and piaB genes yielded a positive result for 24% of samples. Further RTFPCR confirmed that 99% of the lytA/piaB positive samples were positive for cpxA (a second marker of lytA validation) but only 70% of the lytA positive samples were cpxA positive. Serogroup 19 was the most frequently isolated vaccine serogroup among both culture and RTFPCR; molecular analysis identified 6% of specimens with concurrent carriage of more than one serotype.

Conclusion. Compared with enhanced culture, we found a 50% increase in SP detection using combined lytA and piaB multiplex RTFPCR. Similarly, the proportion of children colonized with vaccine serotypes increased from 2% to 7%. This work is funded by an investigator initiated grant to BUMC from Pfizer.

Disclosures. K. M. Shea, MD: Consulting fee and Grant Investigator, Consulting fee and Grant recipient; S. 1. Pelton, Pfizer: Board Member and Grant Investigator, Consulting fee, Research grant and Speaker honorarium; Merck vaccines: Board Member, Consulting fee and Speaker honorarium; GSK: Board Member, Consulting fee and Speaker honorarium; Merck: Consulting fee and Speaker honorarium

1494. Antibiotic Prescription Rates in Children <24 Months Old Following PCV7/PCV13 Sequential Implementation

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Session: 165. Pneumococcal Immunization and Epidemiology-North America Friday, October 6, 2017: 12:30 PM

Background. PCV7/PCV13 (PCV) implementation markedly impacted on acute respiratory infections rates in young children, and is thus expected to reduce antibiotic use. We conducted a community-wide study to determine the extent of antibiotic prescription rates (APRs) following PCV implementation.

Methods. The study was conducted from July 2005 through June 2016 among all Jewish children <24m, insured by the Clalit Health Maintenance Organization (HMO) in southern Israel (74% of all the region’s Jewish children; n = 8,483, 2005; n = 13,604, 2016). All dispensed prescriptions for oral antibiotics at the HMO were recorded and yearly APRs were calculated by antibiotic category. PCV7 and PCV13 were implemented in July 2009 and November 2010 respectively and rapidly reached 90% coverage for 3 doses. Epidemiological years were from July through June.

Results. Overall, high APRs were seen throughout the study. A total of 226,035 antibiotic prescriptions were dispensed. Overall annual APR means (per 1,000 ± SD) were 2088.9 ± 15.2 and 1841.1 ± 39.1 in 2005–2009 and 2013–2016, respectively (11% reduction; 95% CI 10–12%) (Figure 1). Amoxicillin, the most commonly prescribed antibiotic drug (60.8% of all dispensions) was reduced by 14% (95% CI 13–15%) (Figure 2). Similar reductions were seen for oral cephalosporins and amoxicillin/clavulanate. However antibiotic intake remained continuously throughout the study. Calculation of linear trends before and after PCV implementation demonstrated a significant change in trends for amoxicillin, oral cephalosporin and total APRs, strongly suggesting a causative role of PCVs. PCV implementation resulted in an overall reduction of 45,320 prescriptions for a cohort of 100,000 children during their first 2 years of life (95% CI 41,212 to 49,007).

Conclusion. A clear and significant change in all APR trends associated with PCV implementation was observed in children <24 months old with a baseline high APR. This resulted in a marked decline in antibiotic use. Continuous surveillance is needed to determine further trends, including those for specific antibiotic categories.
Disclosures. R. Dagan, Pfizer: Consultant, Grant Investigator, Investigator, Research Contractor, Scientific Advisor and Speaker’s Bureau, Consulting fee, Grant recipient, Research grant, Research support and Speaker honorarium; MSD: Consultant, Grant Investigator, Investigator, Research Contractor and Scientific Advisor, Consulting fee, Grant recipient, Research grant and Research support; Meded: Consultant, Consulting fee; Pfizer: Speaker’s Bureau, Speaker honorarium; D. Greenberg: Pfizer: Consultant: Speaker’s Bureau, Consulting fee and Speaker honorarium; MSD: Consultant, Grant Investigator, Investigator and Speaker’s Bureau, Consulting fee, Grant recipient, Research grant, Research support and Speaker honorarium.

1495. The Changing Epidemiology of Invasive Pneumococcal Disease Among the Indigenous and Non-Indigenous Population of Northwestern Ontario, Canada, from 2006 Through 2015 and Emergence of Non-vaccine Serotypes
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Session: 165. Pneumococcal Immunization and Epidemiology-North America
Friday, October 6, 2017: 12:30 PM

Background. Rates of invasive pneumococcal disease (IPD) among indigenous populations remain substantially higher than their non-indigenous counterparts. The goal of this study was to analyze the epidemiology and demographic features of IPD in the Indigenous and Non-Indigenous Population of Northwestern Ontario, Canada, from 2006 through 2015 and to identify the emergence of non-vaccine pneumococcal serotypes.

Methods. Two databases were used to identify cases of IPD in NWO: Thunder Bay Regional Health Sciences Centre and the Thunder Bay District Health Unit. Adult patients with a diagnosis of IPD at the TBRHSC from January 1, 2006 to December 31, 2015 had their medical charts retrospectively reviewed; TBDBHU data contained only patients with a diagnosis of IPD at the TBRHSC from January 1, 2006 to December 31, 2009. Serotype, age, and gender data were also collected. The proportion of non-vaccine serotypes has increased, on average, by 16% per year (P = 0.024, 95% CI: 1.02, 1.32).

Results.

The proportion of non-vaccine serotypes has increased, on average, by 16% per year (P = 0.024, 95% CI: 1.02, 1.32).

Conclusion. High rates of IPD were found to occur among immunocompromised indigenous adults in NWO. Our findings identify a vulnerable cohort of the population that would benefit from pneumococcal vaccination coverage. The proportion of non-vaccine serotypes causing IPD has increased during the 10-year observation period.

Disclosures. M. Ulanova, Pfizer: Grant Investigator, Grant recipient

1496. Yearly Trends of Antimicrobial Non-susceptibility among Streptococcus pneumoniae Serotypes Causing Infections in Adult Patients in the United States (2009–2015)
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Session: 165. Pneumococcal Immunization and Epidemiology-North America
Friday, October 6, 2017: 12:30 PM

Background. The implementation of pneumococcal conjugate vaccination (PCV) in children with the 7-valent and 13-valent PCV in 2000 and 2010, respectively, has reduced the incidence of pneumococcal disease, nasopharyngeal carriage and changed the epidemiology of pneumococcal serotypes (STs). This study describes the yearly trends in antimicrobial non-susceptibility (NS) rates in pneumococci during 2009–2015.

Methods. 6,197 S. pneumoniae originated from patients ≥18 years old seen/hospitalized in 105 US sites and recovered primarily (78.3%; 4,852/6,197) from lower respiratory tract specimens. Identification was performed by biochemical algorithms and/or PCR, and susceptibility (S) testing used broth microdilution. MIC interpretation was performed by E-test and/or the CLSI criteria. The cpsB sequence was obtained by PCR or whole genome sequencing for STs determinations. Multiplex PCR and/or Quellung reactions were also performed, as needed.

Results. All isolates were highly S to levofloxacin (98.7–99.2%), vancomycin (100.0%), and linezolid (100.0%). PCV7 STs showed a reduction in the NS rates for...