Background. The 7-valent pneumococcal conjugate vaccine (PCV7) has been part of the national vaccination program (NVP) in Israel since July 2009, and was replaced by 13-valent pneumococcal conjugate vaccine (PCV13) by November 2010. The current study was performed to determine the impact of routine pneumococcal vaccination on patterns in community-acquired bacteremia (CAB) in the Pediatric population in Israel.

Methods. Retrospective chart review of children aged 0–18 years that arrived to three tertiary care pediatric hospitals between January 2007 and December 2015 with CAB. Patients’ charts were retrieved for demographic, clinical and microbiological data, final diagnoses and outcome.

Results. 554 children were included. Significant reduction was found in admission rate due to pneumococcal bacteremia (from 250/1,000,000 to 115.2/1,000,000; 54% reduction), lower respiratory infections (from 142.1/1,000,000 to 80.9/1,000,000; 43% reduction) and CAB (from 430/1,000,000 to 337/1,000,000; 22% rate of decrease value of 0.001 for all of them. Streptococcus pneumoniae was the most common pathogen in both periods, isolated in 258(46.6%) of cases. The relative proportion of S. pneumoniae decreased in the post-PCV7 period (from 69.0% to 35.5% P < 0.001), while that of other pathogens increased, including Staphylococcus aureus (7.1% to 15.7%, P = 0.05) and Streptococcus pyogenes (3.4% to 6.9%, P = 0.05). The frequency of penicillin non-susceptible S. pneumoniae isolates decreased significantly (from 5.1% to 3.6%, P < 0.05). 86% (117/136) of the pneumococci isolated in the pre-PCV7 period were PCV7 or PCV13 serotypes, compared with 50% (135/260) in the post-PCV7 period. Meningitis was the final diagnosis in 31 (5.6%) of patients, of them 18 (58.1%) were of pneumococcal meningitis, nine (50%) in the pre-PCV7 period. Overall mortality rate following CAB was 0.36%.

Conclusion. We demonstrate that PCV reduces pediatric morbidity and hospitalization rate and impacts epidemiology of CAB. These changes may require change in the empiric antimicrobial treatment of suspected bacteremia. Continued etiological surveillance is important.

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1483. Changes in the Serotype Distribution among Antibiotic Resistant Carriage Streptococcus pneumoniae Isolates in Children after the Introduction of the Extended-Valency Pneumococcal Conjugate Vaccine

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Background. The aim of this study is to investigate the serotype distribution and antimicrobial resistance of nasopharyngeal isolates of Streptococcus pneumoniae from children after the introduction of the extended-valency pneumococcal conjugate vaccines (PCVs) in Korea.

Methods. From July 2010 to June 2015, 3,820 nasopharyngeal aspirates obtained from infants and children who presented with respiratory symptoms at the Seoul National University Children’s Hospital were plated on trypticase soy agar containing 5% sheep blood for isolation of pneumococci. Serotype was determined by Quellung reaction.

Results. Of the 20 toddlers with PCV13 serotypes, 16 were completely vaccinated (OR: 1,7 (IC95% 1,03–2,7) and 5 non-PCV13 serotypes had lower carriage rates than those with PCV13 serotypes: OR: 2,8 (IC96% 1,2–6,3) respectively.

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1485. Community Acquired Pneumonia Incidence Among Children Under 5 Years of Age in Concordia Argentina. Universal Vaccination Impact

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Background. In 2012 the 13-valent conjugated pneumococcal vaccine (PCV-13) was introduced in the National Immunization Program. We performed an epidemiological study to describe SPN nasopharyngeal carriage prevalence.

Methods. Between June to September 2015 it was performed a cross-sectional study among children <3 years old, attending day care centers. Nasopharyngeal samples were collected from children at public and private centers from 5 cities of Argentina (Salta (North West), Trelew (South), Rosario (Centre), Buenos Aires (Capital city) and Posadas (North East)). Samples were analyzed at references hospitals of each city and isolates were submitted to the INEI “Dr. Carlos G. Malbrán” for confirming and serotyping. We considered completed schedule 3 doses of PCV13, administrated 14 days prior to enrollment.

Results. We included 359 toddlers, 61.6% (IC95% 56.3–66.6) were SPN carriers. Median age was 24 months, without significant difference in carriage status. Multivariate analysis showed that independently of age, sex and socioeconomic level, variables associated with carriage were: City: Taking Salta as reference (less carriage prevalence), Rosario and Posadas were statistically associated with higher prevalence rates: OR: 3.1 (IC95% 1.3–7.7) y OR: 2.8 (IC96% 1.2–6.3) respectively.

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Graphical 1: S pneumoniae serotype distribution. N = 221.
X-rays were recorded from children < 5 years old with pneumonia and pleural effusion. A pediatrician and a radiologist interpreted the images independently. A second reference radiologist arbitrated when discordances occurred. Bacterial etiology was investigated in blood and/or in pleural fluid. Probably bacterial pneumonia (PBP) was determined following WHO protocol. Results were compared with previous data (2002-2005) from the pre-PCV-13 vaccination era. Variables associated to consolidated pneumonia were evaluated by multivariate analysis using logistic regression.

Results. 330 patients under 5 years old with pneumonia were assisted during the study period. Of these, 92 (27.9% [95% CI: 23.3–32.8]) were classified as PBP. Annual incidence rate, in pre and post vaccination period and impact of vaccination are described in table 1. Incidence of pneumococcal disease could not be estimated as pneumococcal isolation was negative in all cases.

Multivariate analysis of post-PCV-13 vaccination era showed that incidence of consolidated pneumonia was significantly higher in hospitalized toddlers than outpatients: OR: 2.97 (1.65–5.38).

Table 1: PBP incidence (*100,000) by study period. Vaccination impact

| Final Classification | Incidence Rate ratio (95% IC) | Decrease P value |
|---------------------|------------------------------|-----------------|
| Pneumonia without pleural effusion | 18.053 | 97.4% | <0.001 |
| Pneumonia with pleural effusion | 7.2 | 92.9% | 0.004 |

Conclusion. A significant decline in consolidated pneumonia and pleural effusion incidence in <5 year old children was evidenced in Concordia after the introduction of PCV13 into national immunization program.

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1486. Impact of Ten-Valent Pneumococcal Conjugate Vaccine Introduction on Serotype Distribution Trends in Colombia: An Interrupted Time-Series Analysis

Serotype Distribution Trends in Colombia: An interrupted time-series analysis showed a positive effect of the PCV10 introduction on the proportion trends of 6A, 19A and 3 serotypes. After 2012, the proportion of these three serotypes remained constant until 2016. However, an increase of serotypes (ARIMA model) was observed since 1993 to 2016 in children under 5 years. The isolates came from sterile sites (blood, cerebrospinal fluid, pleural fluid, articular and peritoneal fluids). All the isolates were serotyping by National Institute of Health. An interrupted time series analysis was performed to determine the effect of the PCV10 introduction on the 6A, 19A and 3 serotypes (ARIMA model).

Results. Serotyping was performed in 4683 isolates. The annual proportion trend of the 6A, 19A and 3 serotypes remained constant until 2012. An increase of double in the serotype proportion trends was observed after 2012 (Figure). The interrupted time-series analysis showed a positive effect of the PCV10 introduction on trends of 19A and 3 serotypes, with coefficients 20.92 (P = 0.00, ARIMA(2,0,1)) and 6.32 (P = 0.00, ARIMA(2,1,1)), respectively. There was no significant effect on 6A serotype trend.

Conclusion. The introduction of PCV10 in the national vaccination program in Colombia, affected the distribution of PCV 13 capsular types not included in the PCV 7 and PCV 10 in children under 5 years. This information emphasizes the importance to surveilance the changes in serotype distributions to guide prevention strategies in children under 5 years in Colombia.

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1487. Estimating the Clinical and Economic Impact of Maintaining use of 13-valent Pneumococcal Conjugate Vaccine (PCV13) in Mexico

Costs are presented in MXN

Conclusion. Continued use of PCV13 in Mexico is predicted to provide greater public health benefit compared with switching to PCV10 not only economically but also socially. It is important that policy makers consider potential implications of disease re-emergence of non-covered serotypes when considering modifications to vaccination strategies.

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