recommendations, were prospectively enrolled through 45 general pediatric practice facilities in 30 municipalities in Greece. A single oropharyngeal sample was obtained from each subject in a standardized manner (questionnaire, procedure). Based on the time interval since the fourth dose of PCV13, the children sampled were grouped for analysis in 6 groups: 26 days to 11 months; 12–23 months; 24–35 months; 36–47 months; 48–59 months, and 60–71 months. Carriage and distribution of Streptococcus pneumoniae serotypes was detected by RT–PCR.

**Results:** A total of 1212 children aged 14–83 months were investigated. S. pneumoniae was identified in the pharyngeal swab of 617 children (50.9%); 172/617 (27.9%) children carried > 1 pneumococcal serotype. As a consequence of co-colonization, a total number of 718 S. pneumoniae (belonging to 28 serotypes) was identified. The carriage rate of non-PCV13 serotypes escalated within 3 years after the fourth dose and plateaued during the fourth and fifth year. The carriage rate of PCV13 serotypes escalated during the 4 years after the fourth dose and declined thereafter. 22/305 children (7.2%) carried one or more PCV13 serotypes in the first year after the fourth vaccine dose, 27/201 (13.4%) in the second year, 34/207 (16.4%) in the third year, 48/224 (21.4%) in the fourth year, 40/191 (20.9%) in the fifth year and 13/84 (15.5%) in the sixth year (P < 0.0001) (Figure 1). The colonization frequency of serotypes 3 and 19A increased with the rise of the vaccination time interval (Figure 2). Changes in the frequency of other PCV13 serotypes were not significant. Serotypes 7F, 14 and 23F were not recovered.

**Conclusion:** Our study suggests that S. pneumoniae is present in the pharynx of children 26 days to 71 months after the completion of PCV13 vaccination, and that non-PCV13 serotypes predominate throughout this period. The carriage rate of PCV13 serotypes 3 and 19A increases significantly as the time interval from the fourth dose of PCV13 increases.

**Figure 1:**

**Figure 2:**

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

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**2704. Molecular Technology to Detect Pneumococcal Colonization in Young Children Reveals Increased Prevalence of Vaccine Serotypes as Compared with Enhanced Culture Methods**

Stephen I. Pelton, MD; Kim Shea, PhD; Yazen Shah-Dastaghiriasheh, PhD; Brent Little, PhD; Boston Medical Center, Boston, Massachusetts; Pfizer Inc., Collegeville, Pennsylvania; Boston University School of Medicine, Boston, Massachusetts; Texas Department of State Health Services, Austin, Texas

**Session:** 277. Vaccines: Bacterial  
Saturday, October 5, 2019: 12:15 PM

**Background:** Human challenge studies demonstrate enhanced sensitivity of molecular technology for identification of vaccine strain pneumococcal (SP) carriage in PCV13 immunized adults. We hypothesized that PCV13 immunized children would similarly harbor vaccine serotypes in their nasopharynx (NP) that could only be identified by molecular technology.

**Methods:** We compared use of enhanced microbiologic culture vs. molecular technology to characterize SP colonization among NP swabs collected from 995 healthy or sick children <5 years old at Boston Medical Center from November 2015 to May 2016. NP specimens were broth enriched for 4 hours and cultured on selective blood agar. Specimens were evaluated for presence of SP using both routine microbiologic methods and RT–PCR: RT–PCR assays targeted the lytA, piaB (SP membrane permease) genes, and 26 SP serotypes: all serotypes included in 13-valent pneumococcal conjugate vaccine and 13 prevalent non-vaccine serotypes.

**Results:** A total of 162 (16.3%) NP specimens were positive for SP via enhanced culture, and an additional 163 (16.3%) were positive via lytA+ RT–PCR molecular technology. Prevalence of SP carriage was equivalent in children aged 0–2 years and 3–5 years, but greater in children with respiratory tract infections (RTI) compared with children without RTI (26.5% vs. 9.6% among culture+ specimens only; and 43.2% vs. 25.8% among combined culture+ and molecular+ specimens). Using enhanced culture only, vaccine serotypes (VST) were identified in 4 (1%) of 450 children <2 years and 14 (2.6%) of 545 children ≥2 years; adding molecular positive serotypes increased the prevalence of VST to 2.9% in children <2 years and 4.6% in children ≥2 years (table). Serotypes 3 and 19A were the two most commonly identified VST.

**Conclusion:** Combining molecular technology with enhanced culture reveals an increased prevalence of vaccine strain colonization in young children. The ability of sensitive molecular methods to detect vaccine serotypes in culture-negative specimens suggests low-density vaccine serotype carriage persists in a highly immunized pediatric population. The importance of culture negative but RTPCR positive carriage for transmission requires further evaluation.

**Table 1:** Detection of vaccine serotype carriage by enhanced culture and molecular technology

| Serotype | Culture positive | Molecular detection of vaccine serotypes | Combined prevalence of vaccine serotypes |
|----------|-----------------|----------------------------------------|-----------------------------------------|
| 1        | 0               | 0                                      | 0                                       |
| 3        | 1               | 1                                      | 1                                       |
| 7        | 1               | 1                                      | 1                                       |
| 19A       | 1               | 1                                      | 1                                       |
| 23F       | 1               | 1                                      | 1                                       |
| 19        | 1               | 1                                      | 1                                       |
| 6         | 1               | 1                                      | 1                                       |
| 4         | 1               | 1                                      | 1                                       |
| 5         | 1               | 1                                      | 1                                       |
| 14        | 1               | 1                                      | 1                                       |
| 15        | 1               | 1                                      | 1                                       |
| 16        | 1               | 1                                      | 1                                       |
| 18        | 1               | 1                                      | 1                                       |
| 19A       | 1               | 1                                      | 1                                       |
| 23F       | 1               | 1                                      | 1                                       |

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