

P0595 The Belgian nasopharyngeal carriage study of *S. pneumoniae* in healthy infants attending day-care centres and in infants with acute otitis media: year 2 results

Ine Wouters*¹, Liesbet Van Heirstraeten³, Stefanie Desmet², Stéphanie Blaizot⁴, Abbas Rahman¹, Christine Lammens, Katty Standaert², Pierre Van Damme¹, Jan Verhaegen², Herman Goossens³, Surbhi Malhotra-Kumar, Heidi Theeten¹

¹Antwerp University, CEV-Vaxinfectio, ²University Hospitals Leuven, Laboratory Medicine - Medical microbiology, ³Antwerp University, LMM-Vaxinfectio, ⁴Antwerp University, Chermid-Vaxinfectio

Background: The Belgian infant pneumococcal conjugate vaccine (PCV) programme changed from PCV13 to PCV10 in 2015-2016. In 2016-2017 (Y2), we monitored for the second year *S. pneumoniae* colonization in healthy infants in day-care (DCC) and in infants with acute otitis media (AOM), using the same methodology as in year 1 (March-June 2016).

Materials/methods: In infants (6-30 months), a single nasopharyngeal swab was taken in November-March and transported in STGG. *S. pneumoniae* were cultured with and without BHI-enrichment, screened for antibiotic resistance, and serotyped (Quellung). Demographic and clinical characteristics and vaccination status were collected.

Results: In total, 1218 samples were collected of which 1096 in DCC and 122 in AOM infants. Pneumococcal carriage rates were high, similarly as in year 1 (Y1, DCC: 60.8%, AOM: 69.2%). Among carriers, prevalence of PCV13 serotypes was low and similar in DCC and AOM infants (P-value=0.203). Although prevalence of PCV13-non-PCV10 serotypes altogether did not increase significantly since year 1 (Y2 vs Y1, DCC: 1.6% vs 0.9%, P-value=0.281; AOM: 5.0% vs 0.0%, P-value=0.570), the proportion of PCV13-non-PCV10 serotypes among vaccine serotype carriers in DCC was significantly higher in Y2 than in Y1 (46.2% vs 16.0%, P-value =0.03). 23B and 15B were the predominant non-vaccine serotypes. Among detected strains, resistance to at least one of five tested antibiotics was 41.4% in DCC and 49.4% in AOM and was most frequent against cotrimoxazole. Multiple resistance (≥ 2 antibiotics) was 11.3% in DCC and 6.3% in AOM. Pneumococcal carriage was related to siblings within one household and antibiotic treatment (<3 months).

Belgian nasopharyngeal carriage study: year 2		DCC (%)	AOM (%)
Pneumococcal carriage		68.2	64.8
PCV13 serotypes		3.5	7.6
Predominant PCV13 serotypes	19F	1.7	2.5
	19A	1.5	2.5
Predominant non-PCV serotypes	23B	17.8	16.5
	15B	8.3	10.1
PCV13-non-PCV10 serotypes	3	0.1	2.5
	6A	0.0	0.0
	19A	1.5	2.5

Antibiotic resistance	penicillin	0.0	0.0
	tetracycline	10.6	12.7
	erythromycin	15.5	17.7
	levofloxacin	0.0	0.0
	cotrimoxazole	34.4	43.0

Conclusions: One year after the PCV13-to-PCV10 switch in Belgium, culture-based PCV13 serotype carriage remained rare in healthy infants in day-care and in infants with AOM, but PCV13-non-PCV10 serotypes increased among vaccine serotype carriers in day-care.