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Abstract (eposter session)

The burden of hospitalised multi-cause pneumococcal meningitis in the Rhône-Alpes region, France (2005-2010)

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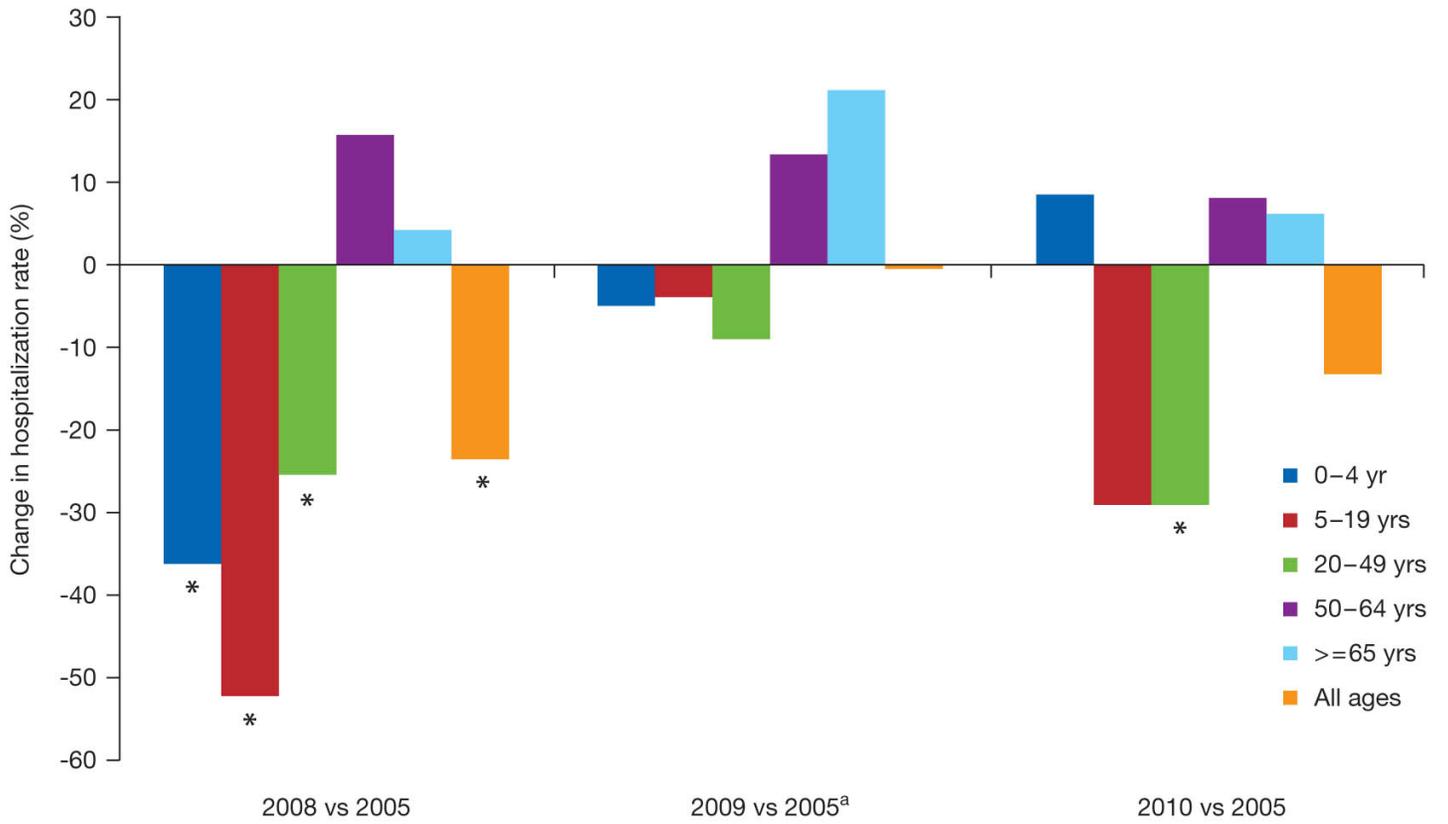
Objectives: To describe the changing burden of hospitalized multi-cause and pneumococcal meningitis (MN) in the Rhône-Alpes region of France when the proportion of children aged <2 years vaccinated with 7-valent pneumococcal conjugate vaccine (PCV7) increased from almost 50% in 2005-2006 to over 90% in 2010.

Methods: This population-based, retrospective study analysed hospital admissions from the Programme de Médicalisation des Systèmes d'Information. Cases were Rhône-Alpes residents admitted to any hospital in France during 2005-2010, with a diagnosis of multi-cause MN or *Streptococcus pneumoniae* (SP)-MN based on International Classification of Diseases-10 codes. Hospitalization rates per 100,000 persons were generated. Rates in 2008-2010 were compared with rates in 2005 overall and by age group (0-4, 5-19, 20-49, 50-64, and ≥ 65 years). Using a Chi-squared test, a Bonferroni corrected p-value ≤ 0.002 was considered significant.

Results: In the 6 study years, there were 4,630 cases of multi-cause MN of which 411 (8.9%) were coded as SP-MN. For multi-cause MN, the overall hospitalization rate in 2005 was 14.22 (95% CI 13.28, 15.21) and rates in 2008, 2009, and 2010 were 10.87 (95% CI 10.06, 11.73), 14.16 (95% CI 13.24, 15.13), and 12.34 (95% CI 11.49, 13.25), respectively. Compared with 2005, changes in overall rates were -23.55% ($p < 0.001$) in 2008, -0.41% ($p = 0.931$) in 2009, and -13.19% ($p = 0.004$) in 2010 (Fig). Across study years, the highest MN rates were in those aged 0-4 years and changes from 2005 to 2008, 2009, and 2010 were -36.30% ($p = 0.001$), -4.79% ($p = 0.679$) and 8.66% ($p = 0.468$), respectively. For SP-MN, the overall hospitalization rates were 0.94-1.27 across study years. These rates were highest in the youngest age group; all changes by age group were $p > 0.002$.

Conclusion: Following expanded use of PCV7 in France (high-risk to universal), MN hospitalization rates for the Rhône-Alpes population overall and for 3 of 5 age groups declined significantly in 2008 versus 2005, suggesting direct and indirect effects. In 2010, significant change was limited to those aged 20-49 years; the youngest age group had a non-significant (NS) increase. There were NS changes in SP-MN rates. In conjunction with results from microbiological studies, these findings suggest serotype replacement may have reversed earlier declines. Use of 13-valent pneumococcal conjugate vaccine for children starting in 2011 and vaccination of older adults may improve the disease outlook.

Figure 1. Percent changes in multi-cause meningitis hospitalization rates: years 2008, 2009 and 2010 compared to 2005



*Statistically significant change $p < 0.002$ (Chi-squared test).

^aThe change was zero for all ages in 2009 vs 2005.