

# Nationwide trends of invasive pneumococcal disease in Spain for the period 2009-2019

Sara de Miguel, Miriam Domenech, Julio Sempere, Fernando González-Camacho, Jose Yuste

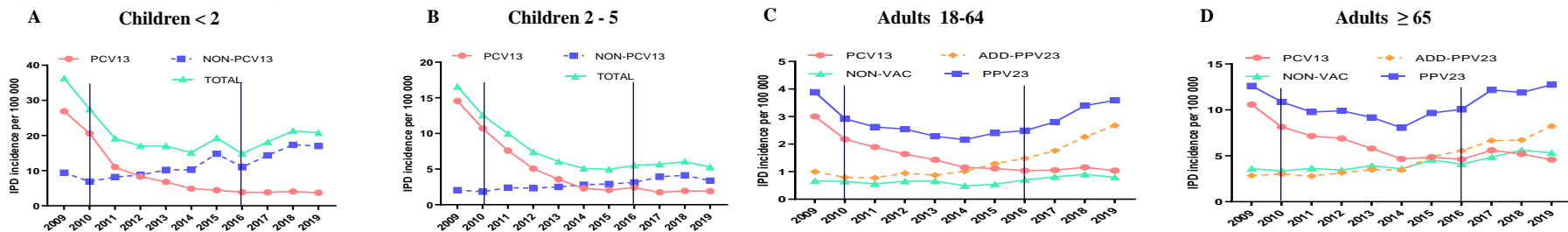
National Center for Microbiology. Institute of Health Carlos III, Madrid, Spain and CIBER of Respiratory Research (CIBERES)

**BACKGROUND** Introduction of pneumococcal conjugate vaccines (PCVs) has shown a marked reduction in the disease caused by vaccine serotypes in children providing herd protection to the elderly group. However, the emergence of non-vaccine serotypes is of great concern worldwide.

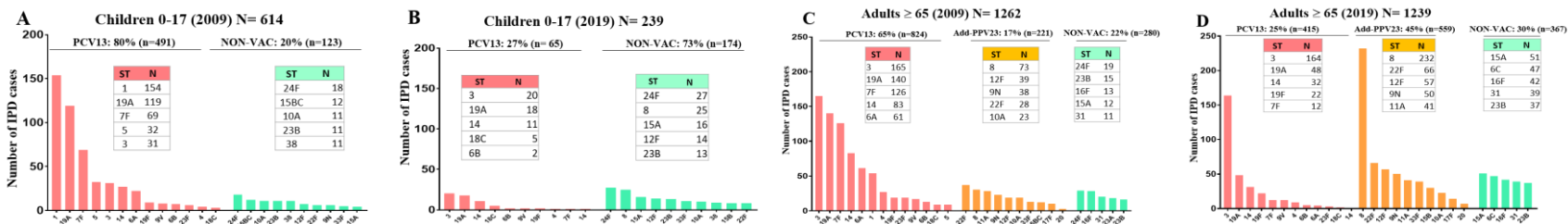
**METHODS** This study includes national data from IPD cases affecting pediatric and adult population for the period (2009-2019). Data contain 25341 laboratory-confirmed clinical isolates of *Streptococcus pneumoniae* causing IPD in Spain. PCV13 represents the IPD cases due to serotypes included in the 13-valent conjugate vaccine. NON-PCV13 represent the IPD cases due to serotypes that are not included in the 13-valent conjugate vaccine. Total represents all the IPD cases in the correspondent age group. Add-PPV23 represent the IPD cases due to additional serotypes included in PPV23 but not in PCV13. NON-VAC represent all the IPD cases due to serotypes that are not included in PCV13 and PPV23.

## RESULTS

**Figure 1: Trends of IPD in Spain in pediatric and adult population:** Vertical lines represent the years when PCV13 was introduced for private market (2010) and into the national childhood immunization calendar (2016).



**Figure 2: Serotypes causing IPD in pediatric population 0-17 years and adults ≥ 65 years old**



The overall reductions of IPD cases by PCV13 serotypes in children and adults were 88% and 59% respectively during 2009–2019 with a constant increase of serotype 8 in adults since 2015. IPD cases by additional serotypes covered by PPV23 increased from 20% in 2009 to 52% in 2019. In children, serotype 24F was the most frequent in 2019 whereas in adults, serotypes 3 and 8 accounted for 36% of IPD cases.

## CONCLUSIONS

**Use of PCV13 in children has reduced the burden of IPD in children but also in adults by herd protection although the increase of serotype 8 in adults is worrisome.**