INTRODUCTION
The introduction of pneumococcal conjugate vaccines (PCV20 and PCV13) into national infant immunization programs worldwide has reduced invasive pneumococcal disease (IPD).

Pneumococcal meningitis is a small subset of pneumococcal disease but a major cause of severe childhood morbidity and mortality globally [1]. Because PCV impact may differ by syndrome, we assessed the change in pneumococcal meningitis incidence globally after PCV10/PCV13 introduction for children <5 years and adults ≥18 years, by PCV product.

MATERIALS & METHODS
Meningitis detection: S. pneumoniae in cerebrospinal fluid (CSF)

Eligibility criteria for inclusion in primary analysis:
- Site had CSF-positive meningitis incidence data [2]
- No bias over time detecting cases or affecting incidence rates
- At least 50% of isolates serotyped for serotype-specific analyses
- PCV10 or PCV13 used in national infant immunization program
- At least 50% vaccine uptake in birth cohort

Statistical Analysis
- Estimated site-specific meningitis incidence rate ratios (IRRs) for each year post-PCV10/13 relative to pre-PCV10/13 incidence using Bayesian multi-level, mixed effects Poisson regression
- Sites were grouped according to product (PCV10 vs. PCV13) & prior PCV7 impact (none, moderate or substantial)
- Weighted average IRRs were estimated for each product/PCV use group using linear mixed-effects regressions using data from sites with both pre- and post-PCV data only, but data from all sites (incl. post-only) contributed to shape of curve

RESULTS
- Analyses included 44 surveillance sites (28 with both pre- and post-PCV data, 2 sites contributed data to both) in 33 countries.
- Most sites used PCV13 (70%), used PCV7 prior (78%), were primarily high-income (82%), and had an adult pneumococcal vaccine program (78% of those in adult analysis) (Figure 1, Table)

CONCLUSION
- PCVs reduced CSF-positive pneumococcal meningitis by over 50% after substantial use in children <5 years of age, driven by substantial declines in vaccine-type disease, which were partially offset by increases in non-vaccine-type disease
- Impact among adults showed overall net declines in most sites, but lower than for <5 years
- Pneumococcal meningitis was further reduced after switch from PCV10/13 to PCV13
- Despite this study being global and the largest ever, nuanced comparisons of rate of decline between products are limited

The PSERENADE Team includes the Hopkins Core Team & investigators in over 50 surveillance sites and at the WHO.

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