Changes in Pneumococcal Meningitis Incidence Following Introduction of PCV10 and PCV13: Results from the Global PSERENADE Project

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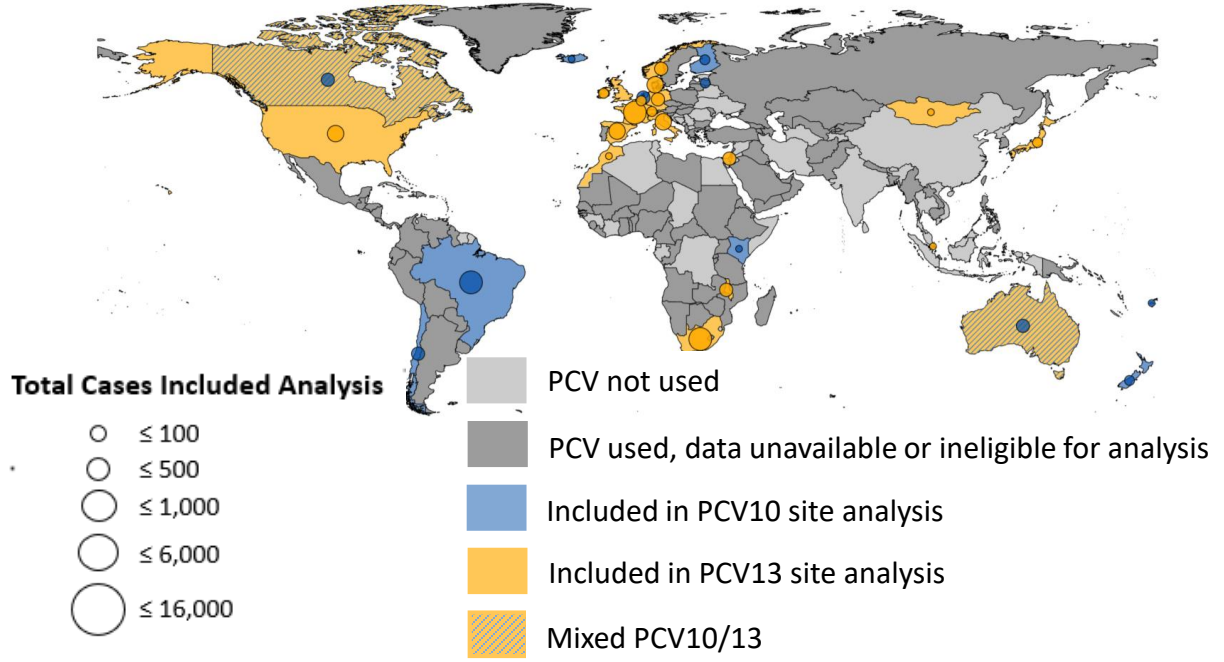
November 2021

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

PSERENADE Project: Background & Methods

- Pneumococcal conjugate vaccines (PCV10 and PCV13) have been introduced into infant immunization programs of 147 countries
- We assessed the impact of PCV10/PCV13 introduction on pneumococcal meningitis incidence globally in children <5 years and adults ≥18 years



Methods

- Countries shared IPD surveillance data
- **Meningitis cases** = pneumococcus detected in cerebral spinal fluid (CSF)
- Modeled each site's change in meningitis incidence after PCV introduction and averaged across sites (Bayesian multi-level Poisson regression)

  Stratified by: age group, PCV10 vs PCV13, and the amount of PCV7 impact prior to PCV10/13 introduction

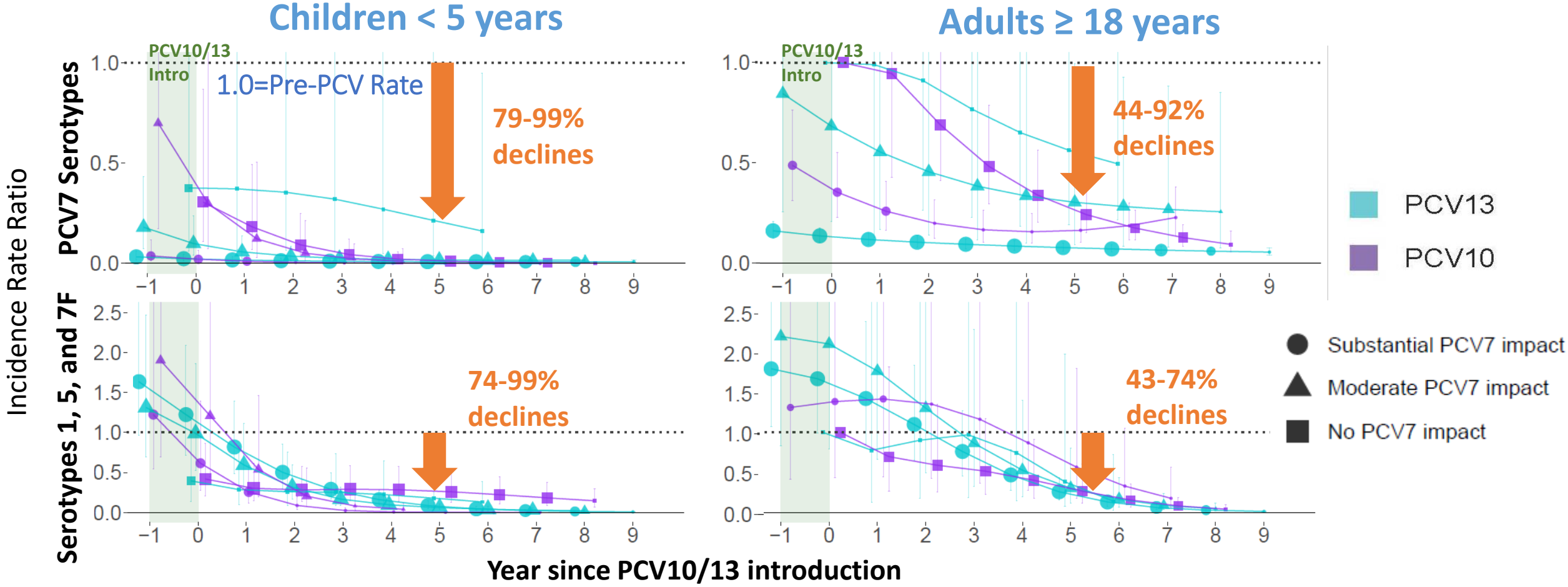
Number included in analysis:

Sites: PCV13 = 32 PCV10 = 14

Countries: PCV13 = 22 PCV10 = 12

N Cases: <5 years: 13,391 ≥18 years: 36,322

Change in pneumococcal meningitis: PCV10 serotypes



Key messages: Meningitis caused by serotypes in PCV10 by year 5:

- <5 years -- Almost eliminated in most sites
- ≥18 years – large herd effect but took longer and heterogeneous across sites

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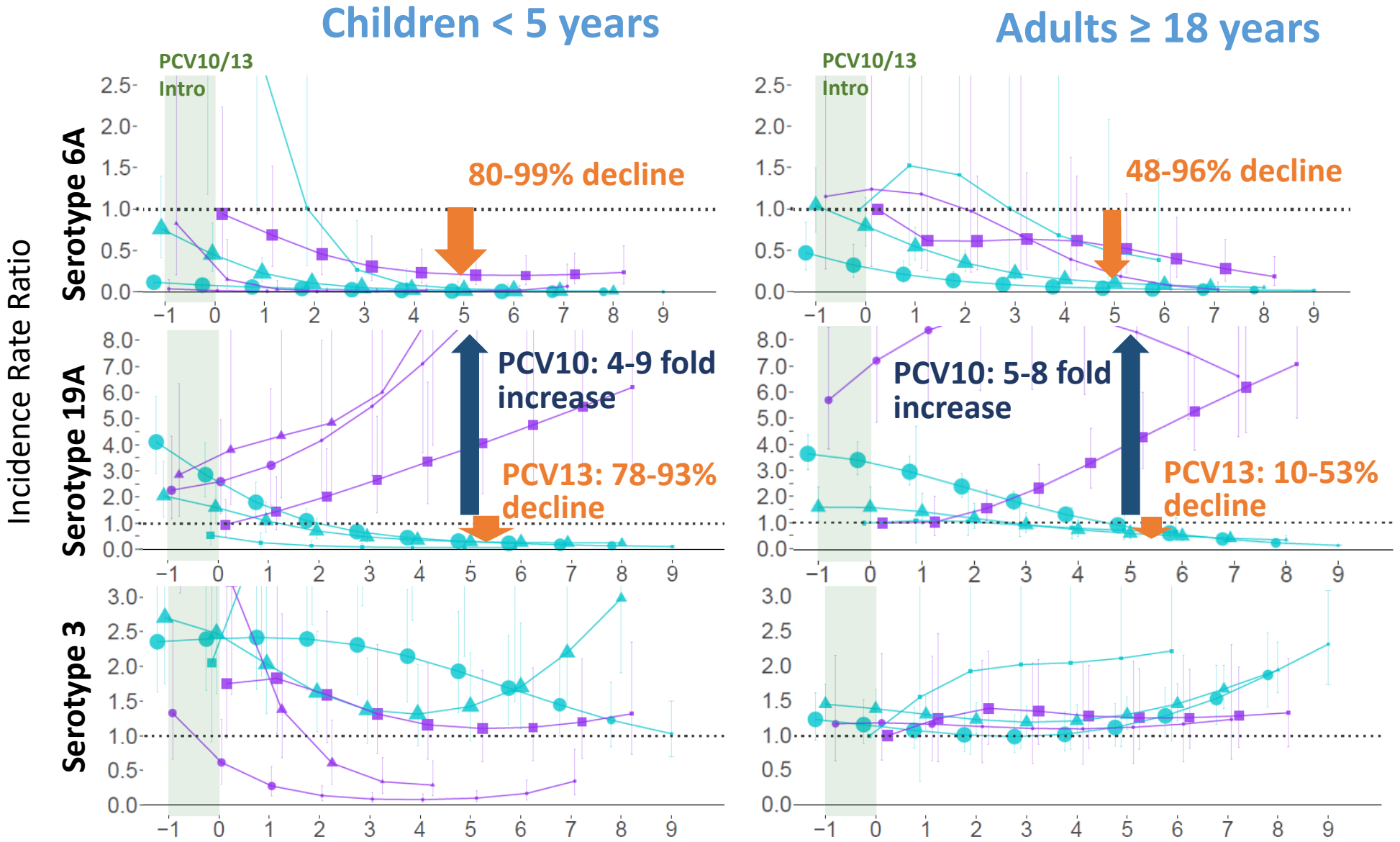
Change in pneumococcal meningitis: PCV13 (non-10) Types



Key messages

- Evidence of cross protection against 6A for PCV10
- 19A was reduced at PCV13 sites, but increased at PCV10 sites
- No clear trends in Serotype 3 for either product

PCV13
PCV10
Substantial PCV7 impact
Moderate PCV7 impact
No PCV7 impact

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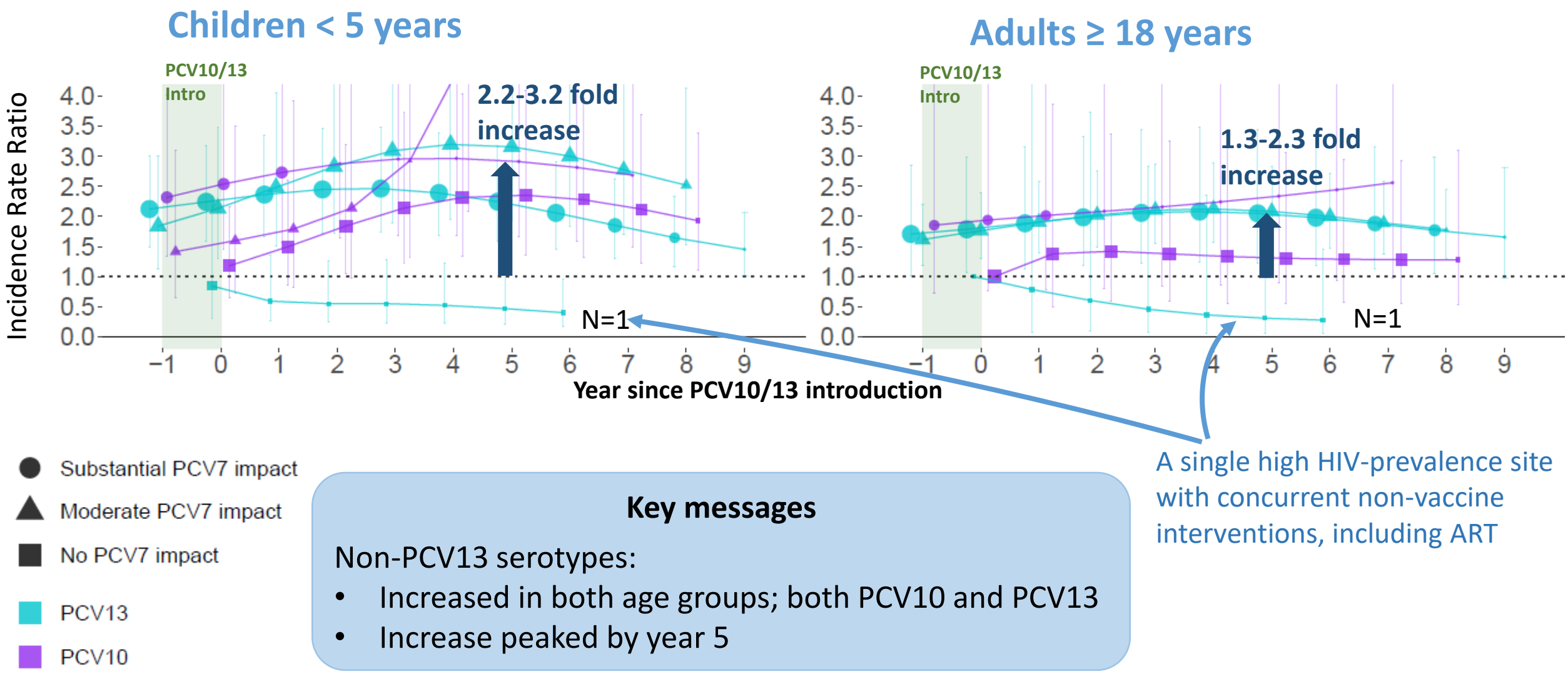
Change in pneumococcal meningitis: Non-PCV13 Types



A single high HIV-prevalence site with concurrent non-vaccine interventions, including ART

Key messages

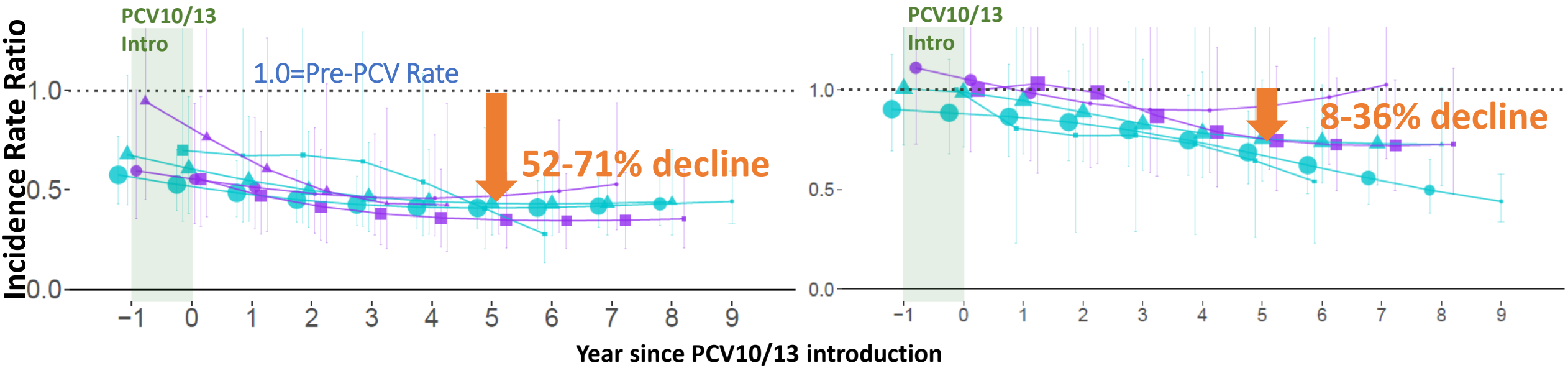
Non-PCV13 serotypes:

- Increased in both age groups; both PCV10 and PCV13
- Increase peaked by year 5

Change in all pneumococcal meningitis

Children < 5 years

Adults ≥ 18 years



Substantial PCV7 impact
Moderate PCV7 impact
No PCV7 impact

PCV13
PCV10

Key messages

For both PCV10 and PCV13 sites, the net impact on all pneumococcal meningitis by year 5 was a reduction in all ages:

- children <5 years – reduced about 50-70%
- Adults ≥18y years – reduced by about 25-36% (most sites)