

# Limited number of *Streptococcus pneumoniae* serotypes cause most invasive pneumococcal disease

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Contrary to current thinking, the group of serotypes of *Streptococcus pneumoniae* responsible for most invasive pneumococcal disease worldwide is conserved across regions. *Streptococcus pneumoniae* is the leading bacterial cause of pneumonia, sepsis, and meningitis in children, which together comprise more than 25% of the 10 million deaths estimated to have occurred in 2000 in children under 5 years of age, and preventable by access to appropriate vaccines.

The serotypes currently included in existing pneumococcal [conjugate vaccine](#) formulations account for 49-88% of deaths in [children](#) under 5 in Africa and Asia, where the morbidity and mortality of pneumococcal disease are the highest, and where until recently, most children do not have access to current pneumococcal conjugate vaccines. These are the key findings of a research study in this week's [PLoS Medicine](#) by Hope Johnson from the International Vaccine Access Center, Johns Hopkins University Bloomberg School of Public Health, Baltimore, USA, and colleagues.

After an extensive literature review, which included information on 60,090 isolates of [Streptococcus pneumoniae](#) from 70 countries, the authors estimated which serotypes caused invasive pneumococcal disease among children under five in different regions of the world. They found that found seven serotypes (1, 5, 6A, 6B, 14, 19F, and 23F) were the most common globally and that these seven serotypes accounted for the

majority of invasive pneumococcal disease in every region.

These important findings mean that health policy makers can assess the potential impact of serotypes included in different conjugate vaccines and vaccine manufacturers can now work from a consensus set of serotype coverage estimates to plan and design future serotype-based [vaccine](#) formulations to target local pneumococcal disease burden more accurately.

The authors say: "Our findings contradict the conventional supposition that the most common serotypes causing [invasive pneumococcal disease] vary greatly across geographic regions."

They add: "Recent progress towards increasing access to pneumococcal conjugate vaccines in high-burden countries will contribute to achieving the year 2015 Millennium Development Goal 4 target to reduce child mortality by two-thirds."

**More information:** Johnson HL, Deloria-Knoll M, Levine OS, Stoszek SK, Freimanis Hance L, et al. (2010) Systematic Evaluation of Serotypes Causing Invasive Pneumococcal Disease among Children Under Five: The Pneumococcal Global Serotype Project. PLoS Med 7(10): e1000348. [doi:10.1371/journal.pmed.1000348](https://doi.org/10.1371/journal.pmed.1000348)

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