Expanding use of pneumococcal conjugate vaccines could save 700,000 children, modeling study finds

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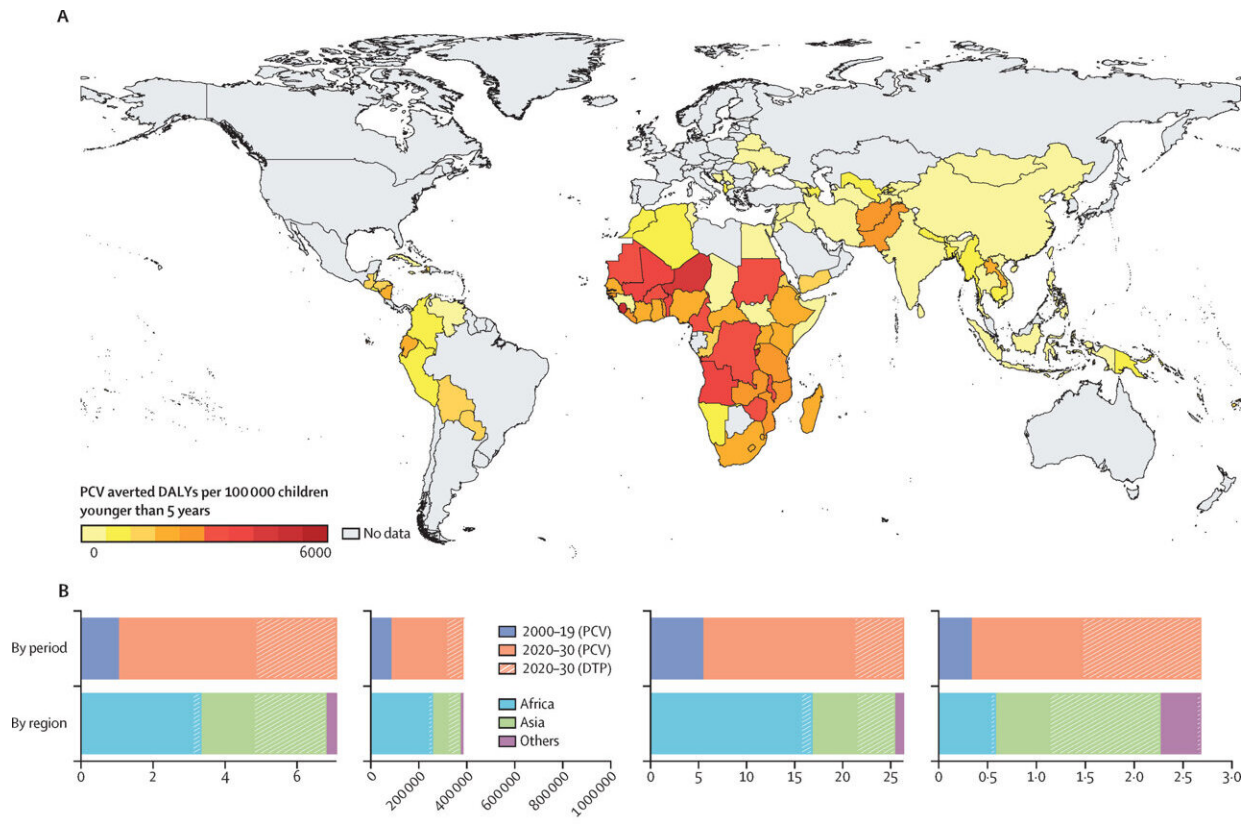

Cases, deaths, and DALYs averted compared with no vaccination scenario, by countries, regions, and time period (undiscounted). Credit: *The Lancet Global Health* (2024). DOI: 10.1016/S2214-109X(24)00232-8

Utilizing pneumococcal conjugate vaccines (PCVs) could save almost 700,000 children's lives between the time of their introduction to the year 2030, according to a new modeling study. This would be equivalent to the average number of babies born in the UK each year.

The new study, by researchers from The London School of Hygiene & Tropical Medicine (LSHTM) and the National University of Singapore (NUS), suggests that by 2030, PCVs could have prevented around 5% of pneumococcal deaths since their introduction in 2000.

They also found that delays in vaccine roll-out, as well as low coverage achieved in some countries, have resulted in PCVs failing to achieve their full potential in preventing deaths. Increasing the vaccine coverage to levels seen with other vaccines such as the DTP vaccine against whooping cough, tetanus and diphtheria, could prevent an additional 146,000 deaths.

The findings are published in *The Lancet Global Health*.

PCVs protect children from the dangerous Streptococcus pneumoniae bacterium, which can lead to severe illnesses including pneumonia and meningitis.

The analysis modeled the impact of PCVs given to children aged 5 and under across 112 countries. It updates a previous analysis with new data from low- and middle-income countries that have recently introduced the vaccine, as well as updated vaccine coverage figures.

The research emphasizes not only the potential health benefits of utilizing the vaccine but also calculates their affordability.

The researchers found that saving a year of a child's life by using a pneumococcal vaccine would only cost the same as $851USD worth of

goods in 2015. This time-point was used to allow the team to compare figures with data published in their previous study in 2019.

Mark Jit, Professor of Vaccine Epidemiology at LSHTM and senior author for the paper, said, "This study underscores the urgent need to ramp up vaccine coverage worldwide. By working together, we can ensure these lifesaving vaccines reach every child who needs them."

Cynthia Chen Huijun, Assistant Professor at Saw Swee Hock School of Public Health and the first author on the paper, said, "The substantial benefits of PCV, through prevention of disease and death, clearly outweigh the costs involved in providing vaccinations to those who need it."

The study was conducted as part of the Vaccine Impact Modeling Consortium, an international community of modelers providing high-quality estimates of the public health impact of vaccination.

The modeling assumed level coverage across each country and further research is needed to collect figures on a more localized level, to help tailor potential interventions.

An earlier study by a group of investigators, including LSHTM, that was convened by the World Health Organization (WHO), found that WHO-recommended vaccines have provided the single greatest contribution to improved infant survival over the past 50 years.

More information: Cynthia Chen et al, Re-evaluating the impact and cost-effectiveness of pneumococcal conjugate vaccine introduction in 112 low-income and middle-income countries in children younger than 5 years: a modelling study, *The Lancet Global Health* (2024). DOI: 10.1016/S2214-109X(24)00232-8

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