

Vaccine proves effective against the most severe type of pneumonia

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A pneumococcal vaccine was effective at protecting children in Laos against the most severe type of pneumonia, a new study has found. Credit: Natee K Jindakum

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The research led by the Murdoch Children's Research Institute (MCRI) and published in *The Lancet Regional Health—Western Pacific*, found the PCV13-vaccine reduced hypoxic pneumonia and pneumonia requiring oxygen support by 37 per cent.

MCRI Dr. Cattram Nguyen said although pneumococcal vaccines were known to reduce severe cases of childhood pneumonia, no studies from Asia had measured their effectiveness until now.

The study involved 826 [children](#), aged up to five years, admitted to hospital with pneumonia. PCV13 reduced hypoxic pneumonia and pneumonia requiring extra oxygen by 37 per cent.

Dr. Nguyen said because pneumonia was a leading cause of childhood deaths in Laos, the PCV13 vaccine had great potential to alleviate this burden of disease on the most vulnerable. Pneumonia that requires oxygen therapy is one of the severest manifestations of pneumonia.

"Universal health care did not exist in Laos until recently, and supplementary oxygen treatment was prohibitively expensive for families," she said.

In October 2013, Laos introduced the PCV13 vaccine into its national childhood vaccination program, supported by Gavi, the Vaccine Alliance. But the Ministry of Health requested evidence of the health benefits of the vaccine to support its ongoing use.

MCRI Professor Fiona Russell said Asian countries have been very slow to introduce PCV13 into their national immunization programs.

"These results provide a compelling argument to continue childhood

PCV13 vaccination in Laos and for its introduction into similar countries with high [death](#) rates from pneumonia," she said.

Professor Russell said the study also described a simple, low-cost single hospital-based method to assess vaccine effectiveness that was feasible for other low and middle-income countries to adopt. Measuring the success of this vaccine would usually require thousands of cases collected over many years of surveillance, and often involving many hospitals, she said

"In this study, we enrolled children hospitalized with hypoxic and non-hypoxic pneumonia in a single hospital and compared pneumococcal vaccination rates between the two groups to determine [vaccine](#) effectiveness over about four years," she said.

Globally, lower respiratory infections, including pneumonia, are a leading cause of death in children under five years old, causing 800,000 deaths annually, predominantly in low- and middle-income countries.

Streptococcus pneumoniae (the pneumococcus) is estimated to cause over half of all [pneumonia](#)-related deaths in children under five years old.

More information: Rupert Weaver et al, The effectiveness of the 13-valent pneumococcal conjugate vaccine against hypoxic pneumonia in children in Lao People's Democratic Republic: An observational hospital-based test-negative study, *The Lancet Regional Health - Western Pacific* (2020). [DOI: 10.1016/j.lanwpc.2020.100014](https://doi.org/10.1016/j.lanwpc.2020.100014)

Provided by Murdoch Children's Research Institute

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