

An ally against childhood pneumonia

June 18 2013, by Pam Auchmutey

(Medical Xpress)—Since 2000, children born in the United States benefit from the research of Keith Klugman, who helped develop the pneumonia vaccine that is now part of their immunization regimen. As a result, invasive pneumococcal disease among young American children has decreased by nearly 80%.

Children are less fortunate in the developing world, where pneumonia claims 800,000 lives annually—more than any other childhood disease. Klugman has made it his life's work to reverse that trend.

When the South African native joined the Rollins School of Public Health in 2001, he was regarded as the world's leading expert on [antibiotic resistance](#) in pneumonia. Four years later, Klugman was named the William H. Foege Chair of Global Health, funded by the Hubert Foundation in honor of Foege's contributions to the field.

In 2003, the *New England Journal of Medicine* published the results of Klugman's landmark study that proved overwhelmingly that the [pneumococcal vaccine](#) had the potential to save the lives of thousands of HIV-positive and HIV-negative children. Since then, Klugman has pushed to make the vaccine available to children in Africa and Southeast Asia.

"One challenge in particular is developing the evidence to show that the vaccine, when implemented in routine immunizations, reduces children's deaths," says Klugman. "That is largely the focus of our current research at Rollins."

Klugman's team has begun to evaluate [vaccine effectiveness](#) in rural South Africa by looking at the ecology of the [pneumococcal bacteria](#) pre- and post-vaccine. Ultimately, they expect their results to show that the vaccine protects children up to age 5 and interrupts [disease transmission](#) to unvaccinated children and adults.

Bacteria resistance to vaccines remains an ever-present threat, leading Klugman and several collaborators to embark on the largest project ever to sequence the 20,000 pneumococcal genomes. Researchers will collect strains of the bacteria before and after the vaccine is rolled out in four countries in Africa and analyze existing strains in the United States, Asia, and South America. Through genetic sequencing of these strains, they hope to identify the genomic changes associated with bacterial escape from the [vaccine](#).

Klugman is leading the five-year study, funded by the Bill & Melinda Gates Foundation, in collaboration with the CDC, the University of Cambridge in England, the National Institute for Communicable Diseases at Wits University in South Africa, the Wellcome Trust Sanger Institute unit in Malawi, the Medical Research Council in Gambia, and the Kenya Medical Research Institute.

Earlier this year, the Gates Foundation tapped Klugman to serve six months as its senior adviser on pneumonia prevention. Students also benefit from his expertise. A conversation with Klugman led MD/PhD student Michael Mina to study how influenza vaccines may impact diseases caused by bacteria.

Mina remembers that first meeting. "Keith told me, 'I'm fairly confident that the influenza virus is responsible for most pneumococcal disease during flu season.' His comment stuck with me," says Mina. "He has this wonderful ability to think broadly about the different aspects of human biology and disease."

Provided by Emory University

Citation: An ally against childhood pneumonia (2013, June 18) retrieved 6 May 2024 from <https://medicalxpress.com/news/2013-06-ally-childhood-pneumonia.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.