

## **Pneumococcal conjugate vaccines can improve the lives of HIV-infected children**

An international team of experts has published the first comprehensive review of evidence on pneumococcal conjugate vaccination (PCV) for children with HIV infection. Now available in the on-line edition of the journal *Lancet Infectious Diseases*, the review shows that HIV increases the risk of pneumococcal infection by up to 40 fold, that the disease is usually due to serotypes in the PCV, and that the vaccine can protect HIV-infected infants. The authors conclude that PCV can improve the lives of HIV-infected children and should be considered a potentially valuable complement to existing treatment strategies for HIV-infected children.<sup>1</sup>

In the run up to World AIDS Day (1<sup>st</sup> December 2007), the study authors are calling for action to make pneumococcal vaccines available for all children in resource-poor countries, especially those with a high burden of HIV infection.

*Streptococcus pneumoniae*, a bacterium that is a major cause of pneumonia, meningitis and blood stream infections, kills over 800,000 and up to one million children every year.<sup>2</sup> Tragically children with HIV are at a vastly increased risk of getting pneumococcal disease, due to their weakened immune system.<sup>3,4</sup>

The expert review, authored by seven leading experts in pneumococcal disease and HIV medicine, based in the US and Africa, summarises available data on the burden of pneumococcal disease and the safety and efficacy of pneumococcal vaccination in HIV infected children. The review found:<sup>1</sup>

- HIV increased the risk of pneumococcal disease in HIV infected as compared with uninfected children (studies found it to be as high as 43-fold)
- The serotypes, or strains, of the bacteria included in the currently licensed, and near-licensed vaccines, include the majority of the serotypes that cause invasive pneumococcal disease in HIV-infected children and adults
- Pneumococcal conjugate vaccine protects against pneumonia and invasive pneumococcal disease when given to HIV infected infants

The review paper, *The evidence for using conjugate vaccines to protect HIV-infected children against pneumococcal disease*, indicates that PCV should be considered an important complement to highly active antiretroviral therapy (HAART), which has brought marked improvements to morbidity and mortality in HIV-infected people. The study advocates for vaccination of all infants in areas with high rates of HIV infection.

Lead author Dr Sandra Bliss, a physician with Johns Hopkins School of Medicine said, “this report gathers all the available data on the risks and benefits of PCV in HIV infected children. When viewed altogether, it makes a compelling case for action to vaccinate HIV infected children against pneumococcal disease.”

Earlier this year, the World Health Organization recommended that all countries include pneumococcal conjugate vaccines in their routine immunization programs and that the highest priority be given to countries with high child mortality rates and/or a high HIV prevalence rate. Already more than 17 countries have national programs that include pneumococcal conjugate vaccines, and through support from the GAVI Alliance, children in the world’s poorest countries can begin accessing the vaccine as early as 2008.

Dr Keith Klugman, Professor of Global Health at Emory University, Atlanta, USA said, “a simple intervention that can reduce the suffering, and improve the quality of life, of HIV infected children and adults is desperately needed in countries adversely affected by HIV. I welcome the introduction of the pneumococcal vaccine and am eager for the day it is routinely available for all children who need it.”

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<sup>1</sup> Bliss SJ, O’Brien KL, Janoff EN, Cotton M, Musoke P, Coovadia H, Levine OS. The evidence for using conjugate vaccines to protect HIV-infected children against pneumococcal disease. *Lancet Infect Dis* 2007;

<sup>2</sup> World Health Organization, Pneumococcal vaccines, *Weekly Epidemiology Record* 2003;14:110-9

<sup>3</sup> Gesner M, Desiderio D, Kim M, et al. *Streptococcus pneumoniae* in human immunodeficiency virus type 1-infected children. *Pediatr Infect Dis J* 1994; **13**: 697–703.

<sup>4</sup> King MD, Whitney CG, Parekh F, Farley MM. Recurrent invasive pneumococcal disease: a population-based assessment. *Clin Infect Dis* 2003; **37**: 1029–36.