



**BioUpdate
Foundation**

Carbohydrate-based Vaccines

News Update: October 2011

The effectiveness of Meningococcal Group A vaccine in sub-Saharan Africa.

Neisseria meningitidis Group A causes seasonal meningitis epidemics, with more than 88,000 cases and 5,352 deaths reported in 2009.ⁱ Major epidemics occur approximately every 8-12 years, with the last in 1996 when approximately 25,000 people died. In 2010 fourteen sub-Saharan countries implemented mass vaccination with a novel meningococcal Group A vaccine. Less than a year after its introduction a dramatic reduction in the number of cases has been observed,ⁱⁱ with many countries reporting no cases at all in vaccinated individuals. The vaccine was developed by the Meningitis Vaccine Project (MVP), a partnership between WHO and PATH and largely funded by a grant from the Gates' Foundation.

The development of typhoid conjugate vaccines based on the Vi polysaccharide.

Typhoid continues to be an extremely important pathogen, with at least 20 million cases per year and an estimated 216,000 deaths. Two reports of novel glycoconjugate vaccines against typhoid vaccine have appeared, with products developed by Novartisⁱⁱⁱ and at the International Vaccine Institute (Seoul).^{iv} Typhoid vaccines are an active area of research, with many manufacturers in China and India developing both purified polysaccharide and conjugate products.

ⁱ <http://www.who.int/mediacentre/factsheets/fs141/en/>

ⁱⁱ http://www.meningvax.org/files/PR_MenAfriVacimpact_9June2011_EN.pdf

ⁱⁱⁱ Micoli *et al.*, "Vi-CRM 197 as a new conjugate vaccine against Salmonella Typhi", *Vaccine*, 2011, 29, 712-20; and Rondini *et al.*, "Evaluation of the immunogenicity and biological activity of the Citrobacter freundii Vi-CRM197 conjugate as a vaccine for Salmonella enterica serovar Typhi", *Clin Vaccine Immunol.* 2011, 18, 460-8.

^{iv} Cui *et al.*, "Physical and chemical characterization and immunologic properties of *Salmonella enterica* serovar typhi capsular polysaccharide-diphtheria toxoid conjugates", *Clin Vaccine Immunol.* 2010, 17, 73-9.