

Vietnamese infants; this study confirms the excellent efficacy and safety profile of Quinvaxem®.

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The Global Meningococcal Initiative (GMI): efforts to prevent and control meningococcal disease in India

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Background: The Global Meningococcal Initiative (GMI) is led by international experts in meningococcal immunology, epidemiology, vaccinology, and public health. The goal is to prevent meningococcal disease (MD) through education, research, and vaccination.

Methods: In January 2012, the GMI met with Indian experts to review India's MD burden and to explore MD prevention/control strategies.

Results: *Neisseria meningitidis* is the third commonest cause of sporadic bacterial meningitis in children <5 years, with a higher prevalence in temperate northern versus tropical southern regions. Actual incidence is underestimated, due to a confluence of fractured surveillance, rampant antibiotic use, and insufficient microbiological support for diagnosis. India experiences occasional (approximately every 20 years)—but large—MD outbreaks caused exclusively by serogroup A, with only rare reports of serogroups B and C. There have been unusual increases in the number of MD outbreaks in Delhi, Meghalaya, and Tripura since 2005. Outbreak management involves mandatory case reporting by hospitals in Delhi, temporarily strengthening laboratory diagnostics and chemoprophylaxis of close contacts/high-risk groups, and limited reactive vaccination. Currently, only meningococcal polysaccharide vaccines are available in India and have successfully contained the Meghalaya and Tripura outbreaks. However, an Indian facility is manufacturing a serogroup A conjugate vaccine for use in sub-Saharan Africa. The GMI recommends replacement of polysaccharide vaccines with conjugate vaccines—without necessarily changing current indications. Although routine immunization is endorsed in some settings, costs and data limitations make such an effort not presently feasible in India. To improve surveillance, and thus understanding of true MD burden, the GMI recommends (1) soliciting existing reference centers to generate diagnostic data using RT-PCR, (2) wider use of latex agglutination tests on CSF for confirming meningitis, and (3) initiating carriage and seroepidemi-

Conclusion: MD burden in India is underestimated, and more robust surveillance data are needed. Control efforts should focus on expanding surveillance and educating physicians and regulators of biological interventions on the importance of MD, its diagnosis, and the need for quality data. Conjugate vaccines should be the vaccines of choice for outbreak control and immunization of high-risk persons.

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Factors affecting participation in a typhoid vaccine trial in Pakistan

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Background: Participation in vaccination campaigns has increased worldwide. However, behavioral and socio-cultural barriers continue to exist in developing countries.

Methods: The study was designed to understand perceptions of typhoid fever, gauge level of interest in a vaccine against the disease and experiences of participants in vaccine trial. A pre-vaccination socio-behavioral survey was conducted on a random sample of 502 households with children (2-16 years) of them 295 households were accessible after the vaccination campaign. Refusal rate in our sample was low compared to 15% in the vaccination campaign, so to explore factors for non-participation 200 randomly selected households were visited.

Results: Non-participants had fewer household members with a history of typhoid fever, than participants ($p < 0.01$); Non-participants were less aware of anyone suffering from a serious case of typhoid fever, than participants ($p < 0.01$); Non-participants were less satisfied with the information given them about the trial ($p < 0.01$). Non-participants were less satisfied with the trial logistics ($p < 0.01$); Non-participants were less interested in a vaccine against typhoid fever for their children in the future ($p < 0.01$).

Conclusion: Typhoid fever is a paediatric illness in Pakistan. Perceived severity and vulnerability in contracting the disease and experiences with the illness influences decisions to take vaccine for a disease. However, it is very imperative to consider prevailing perception regarding vaccines and cultural concerns such as perceived relationship of vaccine with family planning.

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