

GVIRF 2014: Protection of pregnant women, neonates and infants by maternal immunization	
Rapporteurs: Justin Ortiz (WHO), Mirjana Nesin (NIAID)	
Session Outline	<p>Chair: Helen Rees (University of Witwatersrand)</p> <p>Opening remarks: Helen Rees (University of Witwatersrand): WHO: Strategic Advisory Group of Experts (SAGE) on Immunization in 2013 annual meeting issued a statement that more should be done to address safety, risks and benefits of maternal immunization to mother and infant.</p> <p>Presentations: Keith Klugman (BMGF): Public health benefits of maternal immunizations Claire-Anne Siegrist (University of Geneva): Immunological considerations: impact of maternal immunization on infant immunity</p> <p>Discussants: Claire-Anne Siegrist (University of Geneva) Keith Klugman (BMGF) Alexander Precioso (Butantan) Janet Englund (University of Washington) Shabir Madhi, (NIHLS South Africa) Kathrin Jansen (Pfizer US) Pieter Neels (Vaccine-Advice BVBA) Melinda Wharton (CDC, USA)</p> <p>Closing Remarks: Helen Rees (University of Witwatersrand): WHO and the international vaccine community should develop a roadmap for data acquisition and analysis, policy development, and implementation for maternal immunization platforms for delivery of available and future vaccines.</p>
Objectives of the session	To discuss the benefit and potential risks of maternal immunization (for the mother, foetus and for the infant); and to identify key unattended research questions that will help to advance the agenda.
Main outcome	Experts discussed the biological basis of maternal immunization, the promise for integrating the strategy into existing health systems, and opportunities for using antenatal care platforms for future vaccines.
Summary	<p>While global mortality of children younger than 5 years of age has declined substantially in the last two decades, mortality during the neonatal period is decreasing at a slower rate. The global health community needs to identify innovative ways to address this important area of need. Maternal immunization has the potential to prevent disease in newborn children as well as their mothers, two important risk groups highlighted by the Millennium Development Goals. In 2009, the Mother's Gift Trial, a randomized clinical trial of influenza vaccination of pregnant women in Bangladesh, found that vaccine prevented influenza disease in newborn children of vaccine recipients. This important proof-of-concept study brought attention to the potential use of influenza vaccine in low resource settings. Data on vaccine performance and safety, as well as the burden of influenza disease during pregnancy and the newborn period, contributed to subsequent WHO recommendations that countries expanding or initiating influenza vaccine programs should prioritize pregnant women for vaccine receipt. The long success of maternal immunization against tetanus and the new WHO recommendation for influenza vaccination in pregnancy highlight the potential of a maternal immunization platform for prevention other high burden diseases in pregnancy or the newborn period.</p> <p>The Bill & Melinda Gates Foundation is making substantial investments in maternal immunization. Preliminary data from supported influenza trials are favourable, as are reports of the United Kingdom experience immunizing pregnant women against pertussis to prevent newborn disease. These successes are catalysing Foundation action toward vaccine development for other target pathogens that may have a large contribution to neonatal mortality, including respiratory syncytial virus and Group B streptococcus.</p> <p>Discussants emphasized the need for developing further data to support maternal immunization policies. Basic science research further describing the effects of maternal innate immune response on fetal development will be helpful. Burden of disease studies are needed to quantify the contribution of disease targets to maternal and child health and to facilitate comparison to</p>

	<p>other public health priorities. Well-designed clinical research in different geographic and socioeconomic regions would reassure decision makers about vaccine performance and safety in high risk communities. Further work on factors associated with vaccine receipt and confidence will help to target public health messaging.</p> <p>There are still challenges to implementation of maternal immunization strategies. There is no clear regulatory pathway for candidate vaccines designed for use in pregnancy. The vaccine industry needs further guidance on how large safety databases should be used for pre- and post-licensure evaluations, and at present there is no consensus classification of adverse events in pregnancy. Also, as clinical trials may be done in low-resource settings where the highest burden of disease may be, there is no clear guidance on how trial results will be bridged to higher-resource settings. At present, regulatory agencies are taking a cautious approach to maternal immunization. Product labelling remains conservatively worded, though agencies such as the European Medicines Agency are taking initiatives to use post marketing safety surveillance to inform statements of vaccine risk. Finally, there is some degree of enhanced litigation risk inherent in any product intended to be administered to pregnant women. Issues of product liability in pregnancy will need to be addressed before widespread acceptance of the policy.</p> <p>Helen Rees finished the session with a call for the WHO and the international vaccine community to develop a roadmap for data acquisition and analysis, policy development, and implementation for maternal immunization platforms for delivery of available and future vaccines.</p>
<p>Key references or quotes</p>	<p>Paraphrasing of quotes:</p> <ul style="list-style-type: none"> • Claire-Anne Siegrist: Pregnant women respond to inactivated vaccines similar to nonpregnant women, and risk of complications of vaccination is minimal compared to potential benefit. • Melinda Wharton: The Global Advisory Committee on Vaccine Safety recently reviewed the safety of influenza immunization in pregnant women and concluded that pregnancy should not preclude women from immunization with these vaccines, if medically indicated. • Shabir Madhi: The major data gap for maternal immunization is the need to quantify the burden of target diseases, otherwise the use of vaccines during pregnancy will remain limited. • Alexander Precioso: If maternal immunization is to be widely adopted, a major unmet need is the inclusion of pregnant women in vaccine safety surveillance systems. <p>References:</p> <ul style="list-style-type: none"> • Meeting of the Strategic Advisory Group of Experts on immunization, November 2013 -- conclusions and recommendations. Wkly Epidemiol Rec. 2014 Jan 3;89(1):1-20. English, French. PubMed PMID: 24466571. • Vaccines against influenza WHO position paper – November 2012. Wkly Epidemiol Rec. 2012 Nov 23;87(47):461-76. English, French. PubMed PMID: 23210147. • Ortiz JR, Neuzil KM, Ahonkhai VI, Gellin BG, Salisbury DM, Read JS, Adegbola RA, Abramson JS. Translating vaccine policy into action: a report from the Bill & Melinda Gates Foundation Consultation on the prevention of maternal and early infant influenza in resource-limited settings. Vaccine. 2012 Nov 26;30(50):7134-40. doi: 10.1016/j.vaccine.2012.09.034. Epub 2012 Sep 29. PubMed PMID: 23026690. • Adegbola R, Nesin M, Wairagkar N. Immunogenicity and efficacy of influenza immunization during pregnancy: recent and ongoing studies. Am J Obstet Gynecol. 2012 Sep;207(3 Suppl):S28-32. doi: 10.1016/j.ajog.2012.07.001. Epub 2012 Jul 11. Review. PubMed PMID: 22920055. • Blanchard-Rohner G, Siegrist CA. Vaccination during pregnancy to protect infants against influenza: why and why not? Vaccine. 2011 Oct 6;29(43):7542-50. doi: 10.1016/j.vaccine.2011.08.013. Epub 2011 Aug 4. PubMed PMID: 21820480.