

Global Child Health

Division Details

RESEARCH AND TRAINING DETAILS

Faculty	3
Joint Appointment Faculty	5
Total Annual Grant Award Dollars	\$774,778
Total Publications	5



Left to Right: A Dawodu, E Schlaudecker

Research Highlights

Mark Steinhoff, MD

In tropical regions, influenza circulates for many months of the year, which makes the policy of using influenza vaccine during the flu “season” not feasible. [Mark Steinhoff, MD](#), and colleagues at [Johns Hopkins University](#), [University of Washington Seattle](#) and in Nepal have completed a prospective placebo-controlled trial of year-round influenza immunization in pregnancy. The study, carried out for two separate annual cohorts, had a total of 3,600 women. Detection of the flu viruses occurred during 24 of 36 months of surveillance. When the vaccine matched the circulating influenza viruses, there was a reduction of the flu illness in pregnant mothers by 45% and in their infants by 60%, and the rate of low birth weight infants went down by 15%.

Dr. Steinhoff’s group was one of several groups involved in the evaluation of a new Respiratory Syncytial Virus (RSV) vaccine designed for use in pregnancy to protect the newborn infant. The strategy of maternal immunization to prevent infant RSV is likely to be a new approach to reducing severe respiratory illness in infants.

Adekunle Dawodu, MBBS, FRCPCH

Health organizations currently recommend vitamin D supplementation of breastfeeding infants to prevent vitamin D deficiency because of low vitamin D in breast milk. However, the recommendation is not often followed, and does not address vitamin D status of the mothers who also are often vitamin D deficient especially in the Middle Eastern regions. [Dr. Adekunle Dawodu, MBBS, FRCPCH](#), and colleagues at [Hamad Medical Corporation](#) in Doha, Qatar, have completed a randomized controlled trial funded by [Qatar National Research Fund](#) to evaluate the effect of high-dose (6000 IU/day) maternal vitamin D supplementation alone compared with maternal (600 IU/day) plus infant (400 IU/day) supplementation to prevent vitamin D deficiency in Arab breastfeeding mother-infant dyads. Analysis of the results is in progress. If high-dose maternal supplementation alone is as effective as direct infant supplementation in preventing vitamin D deficiency without any safety issues, maternal supplementation alone could be an important alternative strategy to prevent vitamin D deficiency in breastfeeding mother-infant dyads.

Steven B. Black, MD

The Risk of Narcolepsy following Adjuvanted Pandemic Influenza Vaccine

In this U.S. Center for Disease Control and Prevention (CDC) funded study, [Dr. Steven Black, MD](#), (PI) evaluated the possible association of narcolepsy and adjuvanted 2009 pandemic H1N1 influenza vaccine in a global collaborative study including Taiwan, Argentina, Canada, the Netherlands, Switzerland, and Spain. The study did not identify evidence for an increased risk of narcolepsy following adjuvanted vaccines. This finding will inform the use of adjuvants for future epidemics.

Global Vaccine Initiative Pilot Data Linkage Project

This project was a World Health Organization (WHO) sponsored pilot to evaluate the feasibility of multi-national data linkage studies to identify and evaluate vaccine safety concerns. Participating sites included eight sites in Latin America plus sites in Iran, Albania, India, South Africa, Singapore, China and Australia. The collaboration was successful with publications developed both on the methods and the results.

The Effect of Statins on Influenza Vaccine Response

In this re-analysis of data from a clinical trial, researchers found influenza vaccine recipients who were on chronic statin therapy to have up to a 40% reduction in their antibody response to vaccination. A research grant is currently under consideration for a prospective validation study.

Significant Publications

Bardají A, [Steinhoff M](#), Macete E, Aguado T, Menéndez C. [The burden of vaccine-preventable diseases in pregnancy in low-resource settings](#). *Lancet Glob Health*. 2016 Mar;4(3):e152-3.

This study describes the importance of immunization in pregnancy to protect both the mother and infant. It points out that pregnant women are generally left out of vaccine research, and the lack of data reduces their access to effective prevention. There is a need for rigorous evaluations to generate maternal disease burden data, which will allow implementation of policies. Collaboration between lower, middle, and high income countries to gather the data and collaborate on evaluation of interventions is crucial.

Hughes MM, Katz J, Englund JA, Khatry SK, Shrestha L, LeClerq SC, [Steinhoff M](#), Tielsch JM. [Infant vaccination timing: Beyond traditional coverage metrics for maximizing impact of vaccine programs, an example from southern Nepal](#). *Vaccine*. 2016 Feb 10;34(7):933-41.

Vaccine coverage surveys usually provide information regarding the percent of children immunized. This was a population-based cohort study that followed Nepalese infants prospectively every week from birth to 6 months to assess timing of immunization. It showed that the date of immunization is often substantially delayed, meaning that infants are not protected in early infancy. We suggest that standard vaccine coverage data should report both the percentage immunized, as well as the age of receipt of vaccine.

Seto TL, Tabangin ME, [Langdon G](#), Mangeot C, [Dawodu A](#), [Steinhoff M](#), Narendran V. [Racial disparities in cord blood vitamin D levels and its association with small-for-gestational-age infants](#). *J Perinatol*. 2016 Aug;36(8):623-8.

Vitamin D is increasingly recognized for its role in pregnancy and deficiency may associate with maternal and neonatal complications such as small-for-gestational-age. Identification of racial disparity in neonatal vitamin D deficiency and its association with small-for-gestational age can lead to targeted prenatal vitamin D supplementation to reduce neonatal vitamin D deficiency and improve perinatal outcome.

Ebenezer K, [Dawodu A](#), [Steinhoff M](#). [Serum vitamin D status and outcome among critically ill children admitted to the pediatric intensive care unit in South India: Authors' Reply](#). *Indian J Pediatr*. 2016 Aug;83(8):912-3.

Researchers associate vitamin D deficiency with illness severity and longer hospital stay in critically ill hospitalized children. This study among critically ill children admitted to Pediatric Intensive Care Unit in South India, demonstrated that vitamin D deficiency on admission is associated with higher severity of illness score, need for cardiovascular and ventilator support, and suggests that evaluation of effect of vitamin D supplementation among critically ill children warrant study.

Division Publications

1. Bardaji A, Steinhoff M, Macete E, Aguado T, Menendez C. **The Burden of Vaccine-Preventable Diseases in Pregnancy in Low-Resource Settings.** *Lancet Glob Health.* 2016; 4:e152-3.
2. Ebenezer K, Job V, Antonisamy B, Dawodu A, Manivachagan MN, Steinhoff M. **Serum Vitamin D Status and Outcome among Critically Ill Children Admitted to the Pediatric Intensive Care Unit in South India.** *Indian J Pediatr.* 2016; 83:120-5.
3. Hughes MM, Katz J, Englund JA, Khatry SK, Shrestha L, LeClerq SC, Steinhoff M, Tielsch JM. **Infant Vaccination Timing: Beyond Traditional Coverage Metrics for Maximizing Impact of Vaccine Programs, an Example from Southern Nepal.** *Vaccine.* 2016; 34:933-41.
4. Omer SB, Richards JL, Madhi SA, Tapia MD, Steinhoff MC, Aqil AR, Wairagkar N, Bmgf Supported Maternal Influenza Immunization Trials Investigators Group. **Three Randomized Trials of Maternal Influenza Immunization in Mali, Nepal, and South Africa: Methods and Expectations.** *Vaccine.* 2015; 33:3801-12.
5. Seto TL, Tabangin ME, Langdon G, Mangeot C, Dawodu A, Steinhoff M, Narendran V. **Racial Disparities in Cord Blood Vitamin D Levels and Its Association with Small-for-Gestational-Age Infants.** *J Perinatol.* 2016; 36:623-8.

Grants, Contracts, and Industry Agreements

Annual Grant Award Dollars

Investigator	Title	Sponsor	ID	Dates	Amount
Steven Black, MD	Enhanced Evaluation of Risk of Narcolepsy Associated with Pandemrix and Arepanrix	Ctr for Disease Control and Prevention (Brighton Collaboration Foundation)	200-2012-53425	9/29/2012 - 12/31/2016	\$86,396
Steven Black, MD	Clinical Immunization Safety Assessment	Ctr for Disease Control and Prevention	200-2012-53661	9/29/2013 - 9/28/2017	\$39,256
Steven Black, MD	Proof of Concept Study for the Feasibility, Quality and Sustainability of an International Hospital-based Active Surveillance System for Vaccine Safety	World Health Organization (Vaccine.GRID Foundation)	V20-TSA004	1/1/2015 - 12/31/2016	\$13,800
Adekunle Dawodu MBBS	Maternal Vitamin D Supplementation to Prevent Vitamin D Deficiency in Mothers and their Infants	Qatar National Research Fund (Hamad Medical Corporation)	NPRP6-1151-3-275	11/20/2013 - 11/19/2016	\$62,477
Elizabeth Schlaudecker, MD	Clinical Study of Simultaneous Administration of Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine (Tdap) and Inactivated Influenza Vaccine (IIV) in Pregnant Women - Pilot Contributing Site	Ctr for Disease Control and Prevention	200-2012-53661	9/29/2015 - 9/28/2017	\$116,500

Mary Allen Staat, MD	Potential Mechanisms for Intussusception after Rotavirus	Ctr for Disease Control and Prevention	200-2012-53661	9/29/2014 - 9/28/2017	\$159,576
Mary Allen Staat, MD	Clinical Study of the Safety of Quadrivalent Live Attenuated Influenza Vaccine (LAIV4) in Children with Asthma of Varying Levels of Severity and Control (Contributing)	Ctr for Disease Control and Prevention	200-2012-53661	9/30/2015 - 9/23/2018	\$296,773

Total Annual Grant Award Dollars

\$774,778