

Division Photo



A. Dawodu, M. Steinhoff, S. Black

Division Data Summary

Research and Training Details

Number of Faculty	3
Number of Joint Appointment Faculty	1
Number of Support Personnel	8
Direct Annual Grant Support	\$1,807,242
Direct Annual Industry Support	\$416,351
Peer Reviewed Publications	16

Significant Publications

Black S, Eskola J, Siegrist CA, Halsey N, Macdonald N, Law B, Miller E, Andrews N, Stowe J, Salmon D, Vannice K, Izurieta HS, Akhtar A, Gold M, Oselka G, Zuber P, Pfeifer D, Vellozzi C. (2009). "Importance of background rates of disease in assessment of vaccine safety during mass immunisation with pandemic H1N1 influenza vaccines." Lancet 374(9707): 2115-22.

Because of the advent of a new influenza A/H1N1 strain, many countries have begun mass immunisation programmes. Awareness of the background rates of possible adverse events will be a crucial part of assessment of possible vaccine safety concerns and will help to separate legitimate safety concerns from events that are temporally associated with but not caused by vaccination.

Ji W, Zhang T, Zhang X, Jiang L, Ding Y, Hao C, Ju L, Wang Y, Jiang Q, Steinhoff M, Black S, Zhao G. "The epidemiology of hospitalized influenza in children, a two year population-based study in the People's

Republic of China." BMC Health Serv Res 10: 82.

The epidemiology and disease burden of annual influenza in children in mainland People's Republic of China have not been reported in detail. To understand the incidence and epidemiology of laboratory-proven influenza hospitalization in children in China, a review of available laboratory and hospital admission data was undertaken.

MacDonald NE, Riley LE, Steinhoff MC. (2009). "Influenza immunization in pregnancy." *Obstet Gynecol* 114(2 Pt 1): 365-8.

Among healthy persons, two groups are notable for increased risk of serious illness and hospitalization with influenza infection: healthy women in pregnancy and their infants (age 0 to 6 months). Inactivated influenza vaccine has been used in pregnant women since the 1960s in both the United States and Canada; however, currently, only 15% of pregnant women receive the vaccine. A randomized, controlled trial has shown influenza immunization of pregnant women reduced influenza-like illness by more than 30%. Physicians caring for pregnant women should be aware of the risks of influenza and of the availability of an effective and cost-saving intervention.

Amirlak I, Ezimokhai M, Dawodu A, Dawson KP, Kochiyil J, Thomas L, Abdulle AM. (2009). "Current maternal-infant micronutrient status and the effects on birth weight in the United Arab Emirates." *East Mediterr Health J* 15(6): 1399-406.

Micronutrient deficiencies exist among women of childbearing age in the United Arab Emirates but the effects of maternal micronutrient deficiency on fetal growth are not well documented. To investigate the association between micronutrients and birth weight, we measured maternal and cord blood micronutrients (vitamin A, C, D, and E) and ferritin in infants born to healthy Arab and South Asian women. In multivariate analysis, maternal serum 25-OHD correlated positively with birth weight while serum ferritin showed a negative correlation.

Division Highlights

Vitamin D Research

The Thrasher funded study (#02826-4) for \$381,679 entitled "A randomized controlled trial of prenatal vitamin D supplementation in the United Arab Emirates" is in the third year. The target of 188 evaluable patients for the study of high-dose vitamin D supplementation during pregnancy has been reached. So far, the findings indicate that 103 (98%) of the 105 subjects with available vitamin D results were vitamin D deficient on enrollment. There was no seasonal variation in the prevalence of vitamin D deficiency as anticipated. This extraordinarily high prevalence of vitamin D deficiency during pregnancy could have significant adverse effect on the mother and the growing fetus. The study is ongoing without reportable adverse events to determine the efficacy of high dose vitamin D to prevent vitamin D deficiency in mothers and their newborn infants in this high risk population. The follow up of enrolled patients would end in June 2011.

Mark C. Steinhoff, MD

We have successfully submitted and won two highly competitive NIH training awards for junior fellows in the Infectious Disease Division. The first award to Dr. Vidwan has been nearly completed, and her abstract has been selected as a poster in the PAS 2010 meeting Vancouver, Canada. In addition in the presentation of results at the Fogarty Center NIH, her submitted abstract was selected for a platform presentation, and was well received. This has been a successful planning, execution, and public presentation of a unique project to assess infection by Chlamydia trachomatis in approximately 800 mothers and their infants in southern India, and will be an important addition to knowledge needed by policy makers in that country.

The second award was received by Dr. Schlaudecker, to carry out a prospective evaluation of causes of respiratory infection presenting to a small rural clinic in Honduras. We believe this is the first assessment of its kind in that region, and will be particularly useful in describing the seasonality and epidemiology of influenza viruses in this tropical setting. Specimen collection has begun, and we are planning several add-on projects that will enhance the value of the main project.

International Visitors' Office

In FY2010, the Global Health Center established an International Visitors' Office. In this office, our four Coordinators assist medical professionals from all of the world to come to CCHMC to study with our highly accomplished faculty. In that year, our office alone processed 161 international professionals. We also assist CCHMC faculty with their travels abroad. We are currently expanding our office and our services to be able to provide assistance to the entire medical center.

Hib Vaccine in India

With colleagues in India, Dr. Steinhoff reported the effect of haemophilus influenzae Type b (Hib) vaccine in India. The project was a nine year surveillance study from 1996 to 2005. There was a 60% reduction in hospital admissions for Hib the last 5 years, during which the coverage of Hib vaccine increased from 0% to 35%. During the same time period when no pneumococcal vaccine was available, there was no change in pneumococcal admissions to the hospital. These data strongly suggest that the use of Hib vaccine in India will reduce severe Hib infections. This is unique and important data for policy makers in India, who have now advised the use of Hib vaccine for all Indian children.

Division Collaboration

Collaboration with Infectious Diseases

Collaborating Faculty: David Bernstein, MD

Through the Fogarty International Clinical Research Scholars Program, Dr. Mark Steinhoff mentored Dr. Navjyot Vidwan, Clinical Fellow in Infectious Diseases. This project, titled: Chlamydia trachomatis: A study of the prevalence of disease in pregnant women and rates of transmission to the infant in Vellore, India, recruited subjects from Christian Medical College in Vellore, India.

Collaboration with Infectious Diseases

Collaborating Faculty: David Bernstein, MD

Through the Fogarty International Clinical Research Scholars Program, Dr. Mark Steinhoff mentored Dr. Elizabeth Schlaudecker, Clinical Fellow in Infectious Diseases. This project, titled: Acute respiratory infections in Honduras, is recruiting subjects from the Hospital Regional del Occidente in Santa Rosa de Copan, Honduras

Faculty Members

Mark Steinhoff, MD, Professor ; *Division Director, Global Child Health*

Steven Black, MD, Adjunct Professor

Adekunle Dawodu, MD, Professor ; *Director, International Patient Care and Education*

Significant Accomplishments

Maternal immunization benefits infants

Further analysis of the Mother's Gift Study, a maternal influenza vaccine project in Bangladesh that was led by Mark Steinhoff, MD, shows impact even beyond the substantial protection the vaccine provides against influenza in mothers and their infants.

Analysis of birth weights and prematurity rates reveals that protection against influenza improves fetal growth. The study reports a 32 percent reduction in the numbers of small-for-gestational-age infants born to vaccinated mothers. Analysis also shows substantial gains in height and weight during the first six months of life for infants who received influenza vaccine. The effect was greatest in girls, with an increase of 1.6 cm in height and 497g in weight at six months of age.

These unique data will be further evaluated in a new study in Nepal that began in 2010. With support from the Bill and Melinda Gates Foundation, we will be immunizing 700 women in the Sarlahi District in Nepal with influenza vaccine, and another 700 will receive a placebo injection. This new field trial should provide further information regarding influenza disease and immunization in pregnancy in Asia.

Studying Influenza in China

In China each year, respiratory illness in young children results in substantial morbidity and hospitalization costs. In September 2009, Steven Black, MD, received a CDC contract to study the disease burden and the role of children as sources of transmission of influenza. This work led to better understanding of the role of influenza in causing respiratory illness in young children in China.

Results from a retrospective hospital surveillance study – a first of its kind in China – were published in the journal BMC Health Services Research in March 2010. A follow-up prospective surveillance study for pediatric influenza in China is planned.

Bang Bao Program Expands

The Bang Bao Scholar program, sponsored by Cincinnati Children's and the Pampers brand of the Procter & Gamble Co., is expanding to more nations.

During the second cycle of the program, which ended June 30, 2010, four research scholars from China trained at Cincinnati Children's for one year each. All have since returned to China to continue their research and collaborations with us. We also trained 10 clinical observers from China, who studied at Cincinnati Children's and in the Ob/Gyn department at the University of Cincinnati Medical Center for two months each.

This year, sponsors announced that the Bang Bao program will be renamed "Healthy Children, Healthy World" and will expand to include scholars from Pakistan, Nigeria, Mexico and Brazil.

Division Publications

1. :

Grants, Contracts, and Industry Agreements

Grant and Contract Awards

Annual Direct / Project Period Direct

Black, S

CDC China Influenza Study

Centers for Disease Control

09/30/09 - 09/29/10

\$74,995 / \$74,995

National Vaccine Program Office Agreement

Office of Public Health Service (Department of Health and Human Services)

08/24/09 - 11/24/09

\$11,049 / \$11,049

Dawodu, A

High Prevalence of Ricketts and Subclinical Maternal and Childhood Vitamin D Deficiency

Thrasher Research Fund

01/01/08 - 12/30/11

\$121,686 / \$362,284

Steinhoff, M

Mother's Gift 241 Field Trial

Bill & Melinda Gates Foundation

12/01/08 - 12/01/13

\$1,383,992 / \$6,411,525

Fogarty International Clinical Research Scholars Support

Vanderbilt University Medical Center (National Institutes of Health)

R24 TW 007988

10/01/08 - 06/30/10

\$116,960 / \$151,106

Fogarty International Clinical Research Scholars Support

Vanderbilt University Medical Center (National Institutes of Health)

R24 TW 007988

07/01/09 - 06/30/10

\$62,060 / \$62,060

Fogarty-Schlaudecker

Vanderbilt University Medical Center (National Institutes of Health)

R24 TW 007988

07/01/09 - 06/30/11

\$36,500 / \$36,500

Current Year Direct

\$1,807,242

Industry Contracts

Dawodu, A

Procter & Gamble China Scholars Program

\$ 339,049

Steinhoff, M

Wyeth Pharmaceuticals

\$ 77,302

Current Year Direct Receipts

\$416,351

Total \$2,223,593