

Can traditional birth attendants be integrated successfully into national health programs to improve maternal health amongst indigenous populations? A case study of Mam and K'iche' indigenous peoples in Quetzaltenango & Totonicapán, Guatemala

R. Meredith; *Liverpool School of Tropical Medicine, Liverpool, United Kingdom; King's College London, London, United Kingdom*

Background: Guatemalan maternal health shows extreme ethnic inequality and indigenous women suffer disproportionate mortality and morbidity. In line with international policy, this study aimed to evaluate the success of the integration of traditional birth attendants (TBAs) into the public health systems of the predominantly indigenous regions of Quetzaltenango and Totonicapán, and its potential to improve indigenous maternal health.

Methods: In total, 55 participants took part in one of 19 semi-structured interviews or 4 focus group discussions in May and June 2015. Stratified purposeful sampling ensured representation of all main stakeholders in indigenous maternal healthcare: NGO Officers, Ministry of Health personnel, TBAs, Municipal Councilors and women and men of reproductive age. The Framework Approach was used to analyse interview data. The Liverpool School of Tropical Medicine granted ethical approval in April 2015 and written informed consent was gained from all study participants.

Findings: Currently, TBAs are not fully integrated into health systems despite increased collaboration with health professionals. Political dysfunction and inter-stakeholder competition challenge effective integration on multiple levels. Whilst national political policies promote indigenous and western maternal healthcare practices, at a regional level, western medicine is the hegemonic discourse, and within communities, Mayan culture wins out. Relationships between TBAs and health professionals are often tense and competitive, with biomedical providers concerned about increasing westernisation of TBA practices. Communities perceive institutional births poorly due to cultural inappropriateness of health facilities and distrust of state actors, but also want access to biomedical knowledge. All stakeholders consider integration necessary to improve indigenous maternal health. In municipalities where stakeholders unite, successful integration is possible and increases health service accessibility to indigenous communities.

Interpretation: The current non-integration of TBAs into health systems limited triangulation of the stated attitudes of participants towards integration with their observed behaviour. TBA integration in Guatemala is complex and culturally sensitive, but necessary. Successful integration requires: 1) negotiations between TBAs and SBAs to define their respective roles, 2) increased community participation in healthcare, 3) community education to increase awareness of obstetric emergencies and trust in health institutions. In the long term, state funding for integrated TBAs is necessary.

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Abstract #: 2.012_PLA

Breastfeeding increases the risk of childhood anemia in a rural community in south-eastern Nigeria – Emphasis on maternal nutritional status may be the key to reducing child mortality from anemia

S. Buck¹, K. Rolnick¹, A. Nwaba², J. Eickhoff⁴, K. Mezu-Nnabue³, E. Esenwah⁴, O.J. Mezu-Ndubuisi^{1,5}; ¹Department of Pediatrics,

University of Wisconsin School of Medicine & Public Health, Madison, WI, ²Vanderbilt University, Nashville, TN, ³Mezu International Foundation, Pikesville, MD, ⁴Federal University of Technology, Owerri, Imo State, Nigeria, ⁵Department of Ophthalmology, University of Wisconsin School of Medicine & Public Health, Madison, WI

Background: Child mortality rate in sub-Saharan Africa is 29 times higher than in industrialized countries. Anemia is one of the preventable causes of child mortality. Volunteer medical staff from University of Wisconsin (UW), Madison used a free humanitarian medical mission conducted by Mezu International Foundation (MIF) in rural South-Eastern Nigeria to determine the prevalence and risk factors of anemia in that region, in order to identify strategies for reduction.

Methods: We conducted a cross-sectional study on 96 children aged 1-7 years from 50 randomly selected families seeking care at the august 2015 MIF medical mission. The number of children surveyed was determined from attendance at prior medical missions. Institutional Review Board (IRB) was obtained from a collaborating local institution, Federal University of Technology, Owerri. Verbal informed consent was obtained from parents or caregivers prior to study participation. A study questionnaire was used to collect information regarding socio-economic status, family health practices and nutrition. Other clinical diagnoses were obtained from medical records at the mission. Anemia was diagnosed clinically or by point of care testing of hemoglobin (Hgb) levels.

Findings: Out of 96 children that were selected for the study, 90 completed surveys were analyzed (49% male and 51% females). Anemia was the most prevalent clinical morbidity (69%), followed by intestinal worm infection (53%), and malnutrition (29%). All children were breastfed beyond five months of age. Mean age (months) that breastfeeding was stopped was 11.8 (± 2.2) in children with Hgb <11mg/dl (severe anemia), 10.5 \pm 2.8 in children with Hgb = 11-11.9mg/dl (mild-moderate anemia), and 9.4 \pm 3.9 in those with Hgb >12mg/dl (no anemia) ($p = 0.0445$).

Interpretation: The longer the infant was breastfed, the worse the severity of childhood anemia. Childhood anemia was likely influenced by the low iron content of breastmilk, an indication of maternal anemia and poor nutrition. Although continuous breastfeeding is a known strategy to reduce child mortality, a family-centered preventive intervention to diagnose and treat maternal anemia may be more effective in reducing childhood anemia in the community, which could lead to reduced mortality from anemia.

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Abstract #: 2.013_PLA

Dengue and Chikungunya virus in the Dominican Republic: Knowledge, awareness and preventative practices

S. Murag, M. Gurakar, R. Melvani, A. Molayi, N. Warner, K. Sanogo, G. Bearman, M. Ryan, M. Stevens; *Virginia Commonwealth University, Richmond, VA, USA*

Background: Although Dengue has had a longstanding presence in the Dominican Republic, Chikungunya was introduced into the region in December of 2013. Since then, the Dominican Republic

has been affected with over 500,000 cases of Chikungunya – which is more than half of the overall outbreak and 5% of the country's population. While Dengue hasn't spiked since 2007, the virus remains endemic affecting 6,035 people in 2014 on the island. While infections with these viruses are rarely fatal, the most concerning issue to the Dominican Republic is the economic and health services burden, especially since 20–30% of cases can have long-term sequelae.

Objective: The purpose of the current study is to assess the knowledge, attitudes, risk factors and prevention practices for Chikungunya and Dengue viruses in a the communities of Paraiso and Los Mina in the Dominican Republic.

Methods: Of 289 eligible patients seen in clinic, 75 agreed to participate in this survey (26%). In June 2015, Participants were recruited from a school-based clinic in Paraiso, a marginal urban barrio on the Northwest edge of Santo Domingo, and from a local nonprofit health center in Los Mina, a densely populated urban barrio in the eastern part of the city. All participants gave verbal informed consent before participation. A 48 question survey was administered to patients during a medical outreach clinic in a community school or non-profit clinic. Pregnant women and people under the age of 18 were excluded. Quantitative analyses were performed using Microsoft Excel (Version 14.4.7, 2011). This research study was approved by the VCU IRB under protocol HM20004706.

Findings: Eighty-four percent of participants (63/75) identified Dengue as a mosquito borne illness while 65.3% (49/75) identified Chikungunya as such. Fever was the most commonly identified symptom associated with both diseases. Ninety-five percent of participants engage in practices to prevent mosquito bites at home. Among prevention techniques for both viruses, 77% used a bed net and 72% sprayed repellent around the home and 92% prevent standing water around the home. Almost 30% stated they could not afford bug spray to use on their own body and clothes. The government has attempted to take an active role in prevention as 75% of houses have been sprayed.

Interpretation:

1. Despite both viruses being prevalent locally, people were less knowledgeable about Chikungunya
2. People who were knowledgeable about Dengue were more likely to deploy mosquito prevention precautions than those who were knowledgeable about Chikungunya
3. Bed nets are the most frequently used method of mosquito prevention but are still infrequently utilized by a majority of individuals
4. These findings will inform future dengue and chikungunya prevention efforts in the studied communities

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Assessment of blood lead levels and associated risk factors among children in Ulaanbaatar, Mongolia

P.B. Olkhanud¹, M.L. Praamsma¹, N. Ganbaatar¹, M. Tsogtbaatar¹, E. Halmambetova², E. Malchinkhuu¹, C. Ochir¹, G. Ulziibayar³, D. Warburton⁴; ¹Mongolian National University of Medical Sciences,

Ulaanbaatar, Mongolia, ²Vrije Universiteit University Amsterdam, Amsterdam, Netherlands, ³Public Health Institute, Ulaanbaatar, Mongolia, ⁴The Lifespan Environmental Pollution Global Impact Center at The Saban Research Institute, Children's Hospital of Los Angeles, Los Angeles, USA

Background: Despite dramatic declines of children's blood lead levels (BLLs) worldwide, significant exposure remains, particularly in developing countries due to their rapid environmental changes. The objectives of this study were to determine blood lead levels of children living in Ulaanbaatar, Mongolia and to identify potential risk factors influencing their BLLs with a lifestyle and residential environment questionnaire.

Methods: Four (School #16, 23, 43, or 79) were selected based on their geographical location within Ulaanbaatar so that different regions of the city could be assessed. A total of 153 school children aged 6–8 years old were tested in February and March of 2014. For BLL measurement, capillary blood was tested using the LeadCare II, and the children's parents were requested to fill out a structured questionnaire to identify demographical, socio-economical, environmental and behavioral risk factors for lead exposure.

Findings: The geometric mean BLL was 5.3 µg/dL (95% CI: 4.9 – 5.7 µg/dL) and 54.5% of the children had blood lead levels >5 µg/dL (the U.S. Center for Disease Control's current safety reference level). Factors that were significant ($p < 0.05$) predictors of BLL in a multiple linear regression model were sex, age, father's education level, and father's job type.

Interpretation: The BLL from this study in 2014 shows a 60% decrease since a prior 2005 study, likely due to the ban on leaded gasoline in the country. However, academic performance was significantly influenced by BLL, indicating that actions still need to be taken to reduce lead exposure in Ulaanbaatar.

Findings: This work was supported by Avison International Research Grant of the Yonsei University Health System, Korea [grant # 20140404], the Mongolian Science and Technology Fund of the Ministry of Education and Science, Mongolia [grant # 05312013], and by educational activities funded by a DE43 grant from the Fogarty International Center and National Institute of Environmental Health Sciences, National Institutes of Health, USA [grant # D43ES022862].

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Development of a sustainable academic and clinical medical mission: Honduras

K. Brickman, T. Ramsay, B. Crosby, V. Kazane; University of Toledo Medical Center, Toledo, OH, USA

Background: Medical mission activity has become an active part of the Global Health Programs at many academic institutions. Commonly these programs involve annual trips to indigenous locations within the United States and around the world. Each one of these medical missions requires extensive resources and staffing and come at a high monetary and time cost. Medical missions by nature are brief and ensuring long term health and educational benefit to the community served can be difficult. The University