

their child for six consecutive months, and then continue to breastfeed and supplement for up to two years; to optimize growth and development. While it has long been recognized that breastfeeding improves child survival by decreasing diarrheal disease and acute respiratory infections, recently it has also been linked to a decreased risk of childhood obesity and diabetes. Moreover benefits to the mother have been underestimated; breastfeeding is associated with a lower risk of cancer and metabolic disorders. Yet the number of women in low-middle income countries (LMIC) who follow the WHO guidelines is low. Optimal practices around birth and socio-demographic factors influence breastfeeding behaviors. We sought to describe the trends in breastfeeding and birthing practices over time in LMICs, and their association with individual and country level economic status.

Methods: Data from the **Demographic Health Surveys (DHS)** from three time periods within a 20-year timeframe in each of 41 countries were used. The DHS is a nationally representative household survey that provides data in the areas of population, health & nutrition. Sample sizes for surveys ranged from 1169 to 7530 infant/mother pairs. Descriptive analysis was conducted to examine trends in breastfeeding and birthing practices (type of delivery and location). Unadjusted and adjusted logistic regression models were conducted for each survey to estimate the relationship between breastfeeding and birthing practices. Results for each country were combined for a meta-analysis.

Findings: Preliminary findings. Country-level and individual-level wealth were associated with breastfeeding practices. In general as a country's wealth increased breastfeeding behaviors declined. Within countries wealthier individuals had poorer breastfeeding behaviors. Wealthier individuals had higher rates of c-sections. After controlling for socio-demographic variables individuals who had a vaginal delivery had significantly greater odds of breastfeeding.

Interpretation: There is a need for optimal practices around birth to support immediate breastfeeding.

We recommend training hospital staff and other health care workers on practices that protect, promote and support breastfeeding, like those outlined in WHO/UNICEF's Baby-Friendly Hospital Initiatives.

Other health system strengthening interventions should be explored.

Source of Funding: None.

Abstract #: 2.019_WOM

Disparity in Delivery: Why Is What Is Good for the Goose, Not Good for the Gander? Cervical Cancer Screening Program Strategies in LMICs Are Inferior

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Background: The incidence of cervical cancer is significantly higher in Low and Middle Income Countries (LMICs) than in High Income Countries. There are three methods to screen for

cervical cancer: Visual Inspection with Acetic Acid (VIA), HPV testing, and cytology. Cytology based screening resulted in drastic reduction in cervical cancer in High Income Countries, but has not been implemented in many LMICs because it is thought to be expensive and for fear of "loss to follow-up." In this study, we surveyed countries in various income groups and correlated income with the published screening strategy in each country. Through our pilot program, we also show that cytology can be implemented successfully with minimal resources in LMICs.

Methods: Published resources from IARC and WHO were surveyed for available cervical cancer screening strategies. We categorized the countries according to income levels. VIA, Pap smear, and HPV testing availability was collected.

A low-cost cytology laboratory in Tamil Nadu, India was established, and we trained 6 cyto-screeners for staining and reading cytology slides in 2 years.

Findings: Our study shows that while 90.9% of High Income Countries and 70.9% of Upper Middle Income Countries have cytology programs, only 45.0% of Lower Middle Income Countries and 18.2% of Low Income Countries have cytology based cervical cancer screening.

In our pilot program, we were able to implement a laboratory for cervical cytology with minimal cost and resources (<3000USD/year/laboratory). It takes 6 months to 1 year to fully train (95% concordance) a cytoscreener in these locations with sparse resources.

Interpretation: Cytology based programs are available in High Income Countries and Upper Middle Income Countries, but less frequently in Lower Middle Income Countries or Low Income Countries. We hypothesize that non-availability of cytology based programs may be associated with persistent higher incidences of cervical cancer in these countries. Much rigorous analysis is required to link this association. Through our pilot programs, we show that it is possible to create low cost cytology based screening programs in LMICs.

Thus, if cytology based programs can effectively decrease cervical cancer, then this should be available globally, rather than less effective methods.

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Coordination and Partnership for Improved Maternal-Child Health in Rural Chiapas, Mexico

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Program/Project Purpose: Improving maternal-child health remains a major goal worldwide for the most marginalized and vulnerable populations. New methods that implement what is known to work medically, but that also comprehensively address the myriad factors contributing to poor outcomes, are needed. Chiapas has one of the highest rates of maternal mortality in Mexico at

61 maternal deaths per 100,000 births. Partners In Health (PIH) has partnered with the Mexican Ministry of Health to reduce maternal morbidity and mortality by increasing the number and quality of institutional births, as well as reducing obstetric violence.

Structure/Method/Design: The strategy is centered around improving the value-chain of care surrounding birth at the Ángel Albino Corzo community hospital and its catchment area: improving antenatal care and family planning; facilitating access to facility deliveries; improving the experience of mothers during child-birth and the quality of care through standardized training, including the “WHO Safe Childbirth Checklist,” “Helping Babies Breathe,” and contextualized dignified birth practices (reducing episiotomy, overuse of antibiotics and IVs, allowing a companion, and encouraging free position for the delivery); and ensuring emergency transportation to secondary-level facilities for complications. Forming this strategy required coordinating international best practices with Mexican national policies and brokering buy-in from local partners.

Outcome & Evaluation: Implementing all of the elements as a single comprehensive program within an already existing government strategy is transforming the way in which births are being taken care of at the government-run, PIH-supported facility. In the 2 months since the PIH obstetric service started, 97 women have given birth in the hospital, 68 of whom have been taken care of utilizing the new model, representing an increase from 52% in the first month to 83% in the second month. The program is a model for Obstetric Nurse training, and 5 are currently working in the PIH-supported site.

Going Forward: Using this demonstration program, our goal is to continue working with the government to make this strategy the standard of care for pregnant women across Chiapas and beyond. If successful, the PIH experience suggests that this will lead to dramatic improvements in maternal-child health.

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Critical Assessment of Maternal-Newborn Care Delivery in Solukhumbu, Nepal

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Background: The majority of Nepal's births take place in remote, rural and difficult to reach areas. Adverse outcomes for mothers and newborns are common. Little information exists about available health resources and care practices for maternal-child health (MCH) in these areas. The intent of this study was to evaluate care practices and identify areas of intervention for ante-, intra-, and postpartum care in one Nepali district.

Methods: From December 2015 to March 2016, in the Solukhumbu District, we surveyed a random sample of 122 women

who had delivered in the preceding 24 months. They live in 3 randomly selected, geographically separated village clusters (pop ~5,000), each consisting of 9 settlements. Women were identified from government birth records. This was done using a previously validated, standardized MCH household survey, based on WHO practice guidelines with a primary focus on ante-, intra-, and post-partum processes and outcomes after delivery. Reporting is descriptive.

Findings: Of 122 women surveyed, 60/122 (49%) had a birth preparedness plan, including at least one antenatal care visit. 32/122 (26%) of deliveries took place in a healthcare facility, with a trained midwife who has the ability to manage birth asphyxia. 86/122 (70%) of deliveries were at home without a skilled provider, and 3 deliveries occurred en route to a hospital. 19/122 (16%) of deliveries had complications including post-partum hemorrhage, mal presentation, or prolonged labor; including one maternal and one newborn death. Of 121 live births, 7/121 (6%) had all four essential elements of newborn care (immediate drying, skin-to-skin placement, cord clamping after 1-3 minutes and breast-feeding within 1 hour). 11/121 (9%) of live newborns had a danger sign in the first week, and 47/121 (39%) received a health-worker check-up within the first week.

Interpretation: Access to skilled care around childbirth remains problematic in Solukhumbu. Improvements in the access to quality MCH services are critically needed. This data, in combination with prior related studies, has laid the foundation for our cohort to undertake a multi-faceted intervention to make such improvements possible.

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Human-Centered Design of Women's Reproductive Health Education in Guatemala: Promoting Education and Understanding about Cervical Cancer

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Program/Project Purpose: Although cervical cancer is the most common cancer as well as the leading cause of cancer-related premature deaths and disabilities (DALYs) among women in Guatemala, only an estimated 40% of Guatemalan women have ever been screened for this preventable cancer. With the long-term goal of increasing women's utilization of cervical cancer screening, this project of the UVA-Guatemala Initiative (UVA-GI) utilized human-centered design (HCD) methodology to co-design an educational curriculum concerning cervical cancer (CC), screening, and preventive health with indigenous Guatemalan women.

Structure/Method/Design: This project involved in-depth interviews of 48 indigenous Mayan (Kaqchikel) women— who were selected based on prior involvement with UVA-GI programs— in three rural villages surrounding San Lucas Tolimán, Guatemala.