

Findings: United Nations human rights treaties, in particular the 1979 *Convention on the Elimination of All Forms of Discrimination Against Women*, 1989 *Convention on the Rights of the Child*, 1948 *Universal Declaration of Human Rights* and 1976 *International Covenant on Economic, Social and Cultural Rights* oblige Member States to adopt policies and practices that protect children's right to healthy development and women's rights to health, appropriate pregnancy services, and education to support the health of herself and her children. We find a large variation between practice guidelines in terms of how closely recommendations on e-cigarette use in pregnancy align with these human rights obligations.

Interpretation: In clinical practice, a higher degree of vigilance is needed to ensure that both providers and patients are given clear, accurate messages about the known and unknown risks associated with e-cigarette use. Clinical practice guidelines should consider both scientific evidence and global human rights principles. Within a human rights framework, health providers have an ethical obligation to ensure that pregnant patients can make informed decisions on all matters related to their pregnancy, including e-cigarette use in pregnancy.

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Abstract #: 2.027_WOM

Social Factors Influencing Family Planning Knowledge, Attitudes, and Practices in the Ngäbe Population in Bocas del Toro, Panama

C.M. Vicens-Cardona¹, J. Lewis², A. Novak³, B. La Brot⁴; ¹University of Connecticut School of Medicine, Farmington, Connecticut, USA, ²University of Connecticut, School of Medicine, Farmington, CT, USA, ³University of Washington, Seattle, USA, ⁴University of Southern California, Los Angeles, USA

Background: According to Panama's 2009 National Sexual and Reproductive Health Survey, only 19% of indigenous women in Panama use modern family planning (FP) methods. Despite the Ngäbe representing 62% of the indigenous population, there is limited research on their use of FP.

Methods: 14 Ngäbe communities in Bocas del Toro served by Floating Doctors were surveyed. Women between the ages of 18 and 50, who had >2 children were invited to be interviewed about FP knowledge, attitudes, and practices.

Findings: A total of 148 women were enrolled, mean age 32.18 (SD = 8), and mean number of pregnancies 4.9 (SD = 2.5). On average, first sexual encounter occurred at age 14.7 (SD = 1.9), with first pregnancy occurring at age 16.3 (SD = 2.5), and mean spacing between first and second pregnancy was 2.8 years (SD = 2.1). Only 7% of women could not name any family planning method. Women reported ideal age to begin having children as 21.5 (SD = 4), and reported ideal birth spacing as 4.8 years (SD = 2.4). 78% did not want to have more children but only 32% were currently using FP. 40% of women currently not using FP had used a form of FP in the past. 41% of women used any FP methods. Respondents with unmet need for FP reported

concerns about side effects (48%) and lack of access (32%) as main barriers to using FP. Women practicing indigenous religions were less likely than all other religious groups to use FP ($X^2 = 19.0$, $p < 0.001$). FP use was higher for women who received information on FP during prenatal visits ($X^2 = 8.5$, $p = .003$), from health care providers ($X^2 = 7.5$, $p = .006$), and who talked with a health care provider about FP during the last year ($X^2 = 4.8$, $p = .029$). There was no significant association between age, location, education level, marital status, number of pregnancies, and FP use.

Interpretation: Ngäbe women believe it is important to delay first birth, increase birth spacing, and have fewer children. However, misconceptions about FP and concerns about side effects are widespread and deter FP use. Receiving accurate FP information from health care providers increases use. Qualitative research is needed to more fully understand how indigenous beliefs and traditional practices influence FP use.

Source of Funding: University of Connecticut School of Medicine.

Abstract #: 2.029_WOM

Saving Mothers Project-Distribution of Birth Kits with Misoprostol in Two Rural Districts of Mara Region Tanzania: The challenges with survey data

G. Webber¹, B. Chirangi², N. Magatti²; ¹Elizabeth Bruyere Research Institute, University of Ottawa, Ottawa, ON, Canada, ²Shirati Hospital, Shirati, Tanzania

Program/Project Purpose: The "Saving Mothers Project" in Bunda and Tarime Districts of Mara Region, was conducted from October 2015 to early 2017. Pregnant women were provided with clean delivery kits with misoprostol to prevent infection and postpartum hemorrhage. The kits were distributed through community health workers (CHWs) and nurses. The women were instructed to seek a health facility for birth, but the kits could be used for home births, delivery on route, and at the facility as supplies were often lacking. Also, CHWs were given mobile phones equipped with an m-health application to register the pregnant women, send them reminders to attend antenatal clinic, warn them about danger signs, and track their delivery outcomes.

Structure/Method/Design: We randomized all the pregnant women who were registered by the CHWs using the m-health application. We then interviewed 20 percent of the group using a structured interview on tablet computers in order to evaluate the success of the project. We will report on the first 12 months of data collected.

Outcome & Evaluation: We surveyed approximately 2,323 women in Bunda District (1,485) and Tarime District (838). The facility birth rates for the participating women was high at 83%, all attended by a skilled health provider. Only 4% of women had no provider available (either alone or with family or friends only) and a further 12% had a TBA. The reported facility birth rate with the m-health data and from the District Health Offices showed improvement in facility births, but not to the extent of our data. It appears women falsify their delivery location if they have a non-facility birth as they are aware that home births are not approved of by the government.

Going Forward: The birth kits with misoprostol increased the facility birth rate as they were an incentive for women to get care. For the minority of women who cannot reach a health facility, they provide some degree of protection from infection and post-partum hemorrhage. Researchers need to be aware of the poor reliability of asking women to report on delivery location, especially if home births are discouraged.

Source of Funding: HDIF, UK Aid.

Abstract #: 2.031_WOM

Experiences of Women, Nurses and Community Health Workers in “Saving Mothers Project Tanzania”: Lessons for Scaling Up

G. Webber¹, B. Chirangi², N. Magatti²; ¹Elizabeth Bruyere Research Institute, University of Ottawa, Ottawa, ON, Canada, ²Shirati Hospital, Shirati, Tanzania

Program/Project Purpose: The “Saving Mothers Project” in Bunda and Tarime Districts of Mara Region, was conducted from October 2015 to early 2017. Pregnant women were provided with clean delivery kits with misoprostol to prevent infection and post-partum hemorrhage. The kits were distributed through community health workers (CHWs) and nurses. The women were instructed to seek a health facility for birth, but the kits could be used for home births, delivery on route, and at the facility as supplies were often lacking. Also, CHWs were given mobile phones equipped with an m-health application to register the pregnant women, send them reminders to attend antenatal clinic, warn them about danger signs, and track their delivery outcomes.

Structure/Method/Design: We conducted 20 focus groups separately with women, nurses and CHWs. The discussions focussed on their experiences during the project, challenges with distribution of the kits, alternative distribution strategies, barriers to accessing health facilities at delivery, and the m-health applications. Focus groups were recorded, transcribed and translated from Swahili to English, then subjected to thematic analysis.

Outcome & Evaluation: The women, nurses and CHWs were supportive of the distribution of birth kits and most believed this increased access to health facilities for women. Women were grateful for the supplies as they often could not afford to purchase them. Availability of supplies improved nurses' attitude towards women. CHWs appreciated their role engaging women in health care services and found the m-health applications easy to use. Challenges of the project include stock outs of kits and limitations of distribution in one district as the District Reproductive Health nurse forbade distribution of the kits for use outside of health facilities and many of the nurses followed this command.

Going Forward: Distribution of birth kits with misoprostol to women in rural settings is well received and helps improve access to health facilities for women. Future projects need to ensure government support (including all key staff) prior to implementation and closer management of supplies to avoid stock outs. Incorporation of

birth kits with misoprostol into government budgets for distribution is recommended.

Source of Funding: HDIF, UK Aid.

Abstract #: 2.032_WOM

Obtaining Cost Efficiencies in a Cervical Cancer Screening Program in Kenya: Leveraging High-volume, Low-margin Clinics with Novel Technological Platforms

Q.W. Wong¹, R. Korom², M. Adam³; ¹Boston University School of Public Health, Boston, USA, ²Penda Health, Nairobi, Kenya, ³Kijabe Hospital, Kijabe, Kenya

Background: Cervical cancer is the leading cause of cancer death in women in Kenya. Several barriers, including the high cost of quality screening methods, have led to less than 5% of women in developing countries being screened for cervical cancer. Penda Health is a social enterprise that provides high-quality, comprehensive primary health care to low-income Kenyans in a financially sustainable way through its three high-volume, low-margin medical centers in Nairobi.

Methods: Penda Health offered comprehensive cervical cancer screening, including pre-test counseling, sample acquisition, transmission to a central cytology laboratory for assessment by a licensed pathologist (*Pathologists Lancet Kenya*®), and discussion of results with the patient. Patients paid 9 USD out of pocket for the service, which was advertised passively in the waiting room, or occasionally prompted by the provider if the patient was within the target demographic.

Findings: 141 patients, ranging from 18 to 66 years old, underwent Pap screening. Six of the 141 had abnormal cytology (4.26%) and were referred to a gynecologist. Cervicitis was detected in 49 of 141 (34.7%). Logistic regression analysis showed a strong negative correlation between age and diagnosis of cervicitis ($R^2 = 0.939$).

Interpretation: Penda Health's cervical cancer screening program is affordable for women with incomes of 3 USD per day. To our knowledge, this is the lowest-cost Pap smear screening program still profitable at the clinic level, ensuring sustainability. Major cost efficiencies were achieved by offering the screening in high-volume, low-margin medical centers located in low-resource urban areas. Additionally, novel technological platforms were utilized to efficiently deliver samples by motorbike and to communicate results.

This study shows that major cost efficiencies for cervical cancer screening are obtainable in a developing country setting. A price point of 9 USD per patient is comparable with other screening methodologies used in resource poor settings, such as VIA, which have significant drawbacks in terms of sensitivity, specificity, and complications from over-treatment. Further work is underway to identify and overcome additional barriers to increased uptake of affordable cervical cancer screening in Kenya.

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