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## Social disparities: Household income in poverty stricken Ecuador affecting cognitive function in children

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stakeholders in each country, an approach that has proved to be successful during the ongoing planning grant.

**Funding:** Fogarty International Center, NIH (grant# 5R24 TW009552 [AAU]; 5R24 TW009548 [USC]).

**Abstract #:** 02SEDH002

### Assessing the contraceptive needs of female sex workers in Kigali, Rwanda

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**Program/Project Purpose:** FSWs are a high-risk group for HIV infection, yet few studies have examined the overall contraceptive needs of this group. Projet San Francisco (PSF), a branch of the Rwanda Zambia HIV Research Group, has been following a cohort of Kigali-based, HIV- FSW to track their HIV risk, reproductive health, and behavioral risks since September 2012. Within this cohort, low contraceptive prevalence has been observed. This project was conducted from May 2014-August 2014 to assess Kigali FSWs' knowledge, attitudes, and practices around contraception, as well as to identify any barriers or facilitators of obtaining and utilizing contraception.

**Structure/Method/Design:** PSF staff used a venue-based recruitment strategy to invite FSW for an eligibility screening for the overall cohort study. At three screening visits, FSW (n=19) were asked to return the next day to participate in a focus group discussion (FGD). Trained moderators facilitated discussion about contraceptive knowledge, attitudes, and practices, with a focus on long-acting, reversible contraceptive (LARC) methods. In addition to FGDs, a survey was designed to understand contraceptive decision-making. HIV+ FSW were recruited from screening visits. Enrolled HIV- FSW were surveyed at study visits. FSW who did not want to conceive within the next three years and who were not using a LARC method (n=40) were surveyed to assess knowledge and beliefs about LARC methods. LARC users (n=44) were surveyed on their satisfaction with the method. The non-LARC survey also served as a counseling intervention; it was based on a psychological model intended to encourage women to consider their contraceptive decision-making process.

**Outcomes & Evaluation:** FSW who participated in FGDs and surveys reported similar beliefs about LARC methods. Many were hesitant to use the implant because of side effects (spotting, headaches, weight gain). Misconceptions about the IUD were frequently reported, including that it is ineffective and may become dislodged during sex. Several FSW mentioned that they did not feel comfortable disclosing their FSW status to healthcare providers. After completing the Non-LARC user survey, 12.5% of FSW chose to uptake a LARC method that day. An additional 33% would consider using one in the future. LARC users reported that healthcare providers (52%) and friends (36%) influenced their decision to use this method.

**Going Forward:** In the future, family planning counseling will take into account the specific contraceptive needs of FSW. The decision-making model used in the survey will be adapted for use in counseling. Common misconceptions about the IUD will be specifically addressed. Further research should be done to explore how to best encourage FSW to discuss their profession with healthcare providers.

**Funding:** This project was funded by the International AIDS Vaccine Initiative and the Global Field Experience Committee at the Rollins School of Public Health at Emory University.

**Abstract #:** 02SEDH003

### Applying a biopsychosocial perspective to address hand washing behaviors among young learners in Limpopo, South Africa

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**Background:** Despite its perceived simplicity, the promotion of hand washing for disease prevention remains a challenge particularly in resource-limited settings. This paper reports on a quasi-experimental study to measure the independent effect of contextual (resource modifications) and individual-level (education) factors on hand washing behaviors of learners attending two primary schools in Limpopo, South Africa.

**Methods:** Resource modifications were made at School A and included improvements in hygiene and sanitation facilities that increased access to soap and water. Subsequently, education programs, developed in collaboration with local educators and focused on hand washing for disease prevention, were delivered at both schools. Observations included total counts of hand washing and hand washing paired with toilet facility use.

**Findings:** At School A, significant increases in hand washing occurred following resource modifications (total counts: T0=359, T1=712;  $t=3.61$ ,  $p=0.018$ ). Additional increases in total hand washing behaviors occurred following education (T2=1095,  $t=3.88$ ;  $p=0.015$ ). In contrast, at School B, with education alone smaller increases in total hand washing were observed (T0=249; T1=324;  $t=2.08$ ,  $p=0.065$ ).

**Interpretation:** Resource improvements are necessary in order to promote disease prevention behaviors such as hand washing. However, education aids to both promote and sustain these behaviors at the individual level. Results confirm that coordinated interventions that address health promoting behaviors at multiple levels are likely to achieve more substantial change.

**Funding:** This work was funded by the National Sciences Foundation Research Experience for Undergraduates program. It was also supported in part by the Fogarty International Center of the NIH, award number D43 TW009259.

**Abstract #:** 02SEDH004

### Social disparities: Household income in poverty stricken Ecuador affecting cognitive function in children

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**Program/Project Purpose:** Iron deficiency anemia (IDA) is one of the largest nutritional disorders in the world. Approximately 25% of the world's population has anemia with 50 % of those cases being IDA, according to the World Health Organization. The reduced oxygen carrying capacity associated with anemia can have many adverse effects. Many anemia studies have been done on infants but few have been done on school-aged children. A charity organization in Ecuador has been identifying anemia prevalence among children within a suburb of Guayaquil. To further identify possible risks resulting from anemia, a study comparing cognitive function with anemia rates was conducted in May 2014.

**Structure/Method/Design:** A cross-sectional descriptive correlation design was used to study the relationship between the level of anemia

and the level of cognitive function at a school in Guayaquil, Ecuador. Demographic data was also collected from 175 students between the ages of 5 to 11 years old. Exclusions were those children with a known mental disability. Each student had their hemoglobin levels measured using the STAT-Site Hgb Meter. Cognitive function was measured by the Raven Colored Progressive Matrices (CPM) exam. The CPM exam measures nonverbal intelligence and was selected because it is language independent.

**Outcomes & Evaluation:** The correlation between the level of anemia and the level of cognitive function was .001 showing no correlation. A T-test from the CPM score also showed no significant difference. Of significance (Beta=0.16, t= 2.5, p= 0.01) was the correlation between cognitive function and monthly household income.

**Going Forward:** Although the original hypothesis of anemia negatively affecting cognitive function was disproved, it is worthwhile to further investigate the relation between household income and cognitive function. Time spent with parent and child doing homework, the opinion of parents and others in the household on the value of education, and the level of education of the parents are a few of the items that could be considered. Higher incomes resulting in improved nutrition could also contribute to higher hemoglobin levels and higher CPM scores. All of these variables should be studied to show the correlation between household income and cognitive function in children.

**Funding:** Funding was provided through Brigham Young University's Graduate Research Fellowship.

**Abstract #:** 02SEDH005

### Assessing childhood malnutrition in Haiti: Is the United Nations Millennium Goal #4 being met?

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**Background:** Context: The United Nations (UN) Millennium Developmental Goal #4 is to reduce childhood mortality. Malnutrition in Haitian children has been a major public health problem. Why the study was done, in one or two sentences: The study was done to quantify the progress of the UN Developmental Goal #4 in Haiti. Aim: The major aim was to examine the nutritional status and characteristics of children that increase risk for malnutrition.

**Methods:** Study Design: The study was conducted in a medical clinic that serves four communities in the rural Thomazeau region of Haiti. Identifying information was not recorded; participants were not allocated to groups. Participants: Participants consisted of 103 children under the age of five presented in the clinic over seven days. Interventions: Not applicable. d. Analysis: i. Participant numbers were limited by the time period. Primary outcomes were significant variables of these specific populations at higher risk of malnutrition. Both univariate and multivariate analyses were performed. ii. Verbal consent was obtained from guardians. The study was approved by the Texas A&M IRB.

**Findings:** Provide number of participants assigned and analyzed in each group: Participants were not assigned to groups. Describe outcomes, data, and statistical tests if appropriate. Average age was 2.1 years (SD=1.4), 52% were females, and 63% were first-born

children in families that averaged 2.3 children. Moderate malnutrition (as measured by height-for-age Z-score) was found in 10.9% of children with an additional 5.9% having a severe status. Using a parsimonious multivariable regression model to compare family structure factors to anthropomorphic variables, multiparity was significantly associated with Z-score (p < 0.05), suggesting that higher values may be more protective. Distance from the clinic negatively affected nutritional status. Any important adverse events/side-effects: None.

**Interpretation:** General interpretation of the results and their significance: Malnutrition is prevalent in this region. Children of new mothers may be at higher risk as new mothers may be less skilled at securing nutrition for children or have fewer resources. Distance from medical care may obstruct treatment for parasites and other common illnesses. We plan to educate community health workers to focus attention and resources toward at-risk populations to decrease malnutrition and hopefully child mortality to achieve the UN Millennium Goal #4. Outline limitations and strengths of the study: The study was only conducted in one rural region of Haiti and may not be representative of the entire country. This study completed its aim.

**Funding:** None.

**Abstract #:** 02SEDH006

### Intimate partner violence and condom versus other modern contraception use among married women in rural India

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**Background:** Data from India document that spousal intimate partner violence (IPV) is associated with both unintended pregnancy and spacing contraceptive use. Analysis of IPV by type of contraception is lacking. Condom use may be less likely than other spacing contraception in the context of IPV, as it is under male control. This study aims to assess associations of physical and sexual IPV with condom and other contraception use among married women in rural India. We hypothesize that women reporting physical and sexual IPV victimization are significantly less likely to report condom use but not other contraception use, relative to women reporting no such victimization.

**Methods:** Study participants were from the randomized control trial evaluation of CHARM, a male-centered family planning intervention for young married couples in rural Maharashtra, India. Baseline data from women (age 18-30, residing with husbands) were used for analyses; data were restricted to those who were not pregnant at interview (n=867). Surveys assessed socio-demographics, husband's physical and sexual IPV perpetration, and an item on primary form of contraception used by women in the past 3 months (subsequently categorized as none, condom, other modern spacing contraception). Multinomial logistic regression analyses assessed associations between past 6 month physical and sexual IPV and contraceptive use, adjusting for age, education, length of marriage, caste, parity, and husband's alcohol use. All participants provided written informed consent; all study procedures were approved by Institutional Review Boards at UCSD, and ICMR.

**Findings:** Participants were aged 18-30 (SD: 2.5), and 17% reported no formal education. 12% and 4% of women reported past 6 month physical