

and sexual IPV, respectively. The majority (72%) reported not using any modern spacing method of contraceptive in the past 3 months; 14% reported condom use and other modern spacing contraception, respectively. Physical IPV was significantly associated with condom use (AOR: 1.89, 95% CI: 1.04, 3.28) but not other contraception use. Sexual violence was associated with other modern contraceptive use (AOR: 2.78, 95% CI: 1.11, 7.00), but not condom use.

**Interpretation:** Women contending with sexual violence were more likely to engage in other modern contraceptive use but not condom use. This finding may indicate that women contending with sexual violence may depend on forms of contraception more within their control. To our knowledge, this study is the first of its kind to examine such associations between IPV and contraception use by type of method. These findings are limited due to the cross-sectional nature of the data, and are not generalizable to the larger population of women in India. Further research is needed to explain the association between recent physical IPV and condom use, a finding inconsistent with prior research.

**Funding:** This study was funded by NICHD (R01HD061115), and NIDA (T32DA023356).

**Abstract #:** 02SEDH007

### Increase in metabolic diseases following the Fukushima triple disaster: A retrospective study of Kawauchi Village with long-term follow-up

D. Ebner<sup>1</sup>, K. Harada<sup>2</sup>, A. Koizumi<sup>2</sup>; <sup>1</sup>Brown University, Providence, RI/US, <sup>2</sup>Kyoto University, Kyoto, JP

**Background:** The March 2011 earthquake, tsunami, and nuclear accident in northeastern Japan caused unprecedented destruction and worry of contamination, with the Fukushima Daiichi nuclear accident 20 km exclusion zone requiring the evacuation of over 200,000 people alone. Residents of Kawauchi Village in Fukushima Prefecture escaped significant damage from the earthquake and tsunami, but were forced to evacuate due to threat of nuclear contamination to government-erected shelters and temporary housing in Koriyama City. In April 2012 residents were allowed to return, and by April 2014 approximately 50% of villagers had returned. We aim to retrospectively examine the members of the village for changes to their health status secondary to the evacuation, focusing primarily on metabolic disease. **Methods:** Residents of Japan undergo comprehensive health screenings yearly under the National Health Insurance system. We were granted access to the records from 2008 to 2013. Data for 777, 797, 779, 431, and 477 residents were available in 2008, 2009, 2010, 2012, and 2013, respectively; 2011 was not collected due to the disaster. In 2012, 233 residents remained evacuated, while 99 remained evacuated in 2013. Data were analyzed by ANOVA using Statistica, with  $p < 0.05$  considered significant.

**Findings:** Population changes between 2008 and 2010 were compared to 2010 vs. 2012. Significant increases in change rate were seen in weight, BMI, blood glucose, HDL, LDL, AST, ALT,  $\gamma$ -GT, and uric acid. Significant decrease was seen for systolic blood pressure. Evacuees in 2012 had significantly increased systolic and diastolic blood pressure, triglyceride count, and blood creatinine, and significantly decreased eGFR and HDL, compared to village returnees. In 2013, there was significantly increased LDL and significantly decreased ALT in evacuees, but other differences had normalized compared to the returnee population.

**Interpretation:** Significant differences in metabolic health status were seen between the pre-disaster and post-disaster timeframes and between evacuees and returnees. By 2013 the majority of evacuee

differences appear to have normalized, suggesting population adjustment to the evacuation city. This represents the first time recovery from an earthquake and tsunami has been complicated by nuclear accident, and ongoing longitudinal study is needed to inform response to future disasters.

**Funding:** Financial support for author provided by Brown University and the Japanese Medical Society of America.

**Abstract #:** 02SEDH008

### Water quality and quantity in the Trifinio: A pilot study

I.F. Eisenhauer<sup>1</sup>, E. Carlton<sup>2</sup>; <sup>1</sup>University of Colorado School of Medicine, Denver, CO/US, <sup>2</sup>University of Colorado School of Public Health, Denver, CO/US

**Program/Project Purpose:** Fecal contamination of water has been proven to indicate diarrheal illness, which itself is a contributor to child malnutrition and developmental delay. This study attempted to quantify contamination of drinking water as part of a long term goal of improving access to safe water and sanitation in the Trifinio Region of Guatemala. This effort was completed in conjunction with the Center for Human Development, a public-private partnership with a clinic in the region, ensuring sustainability of the project.

**Structure/Method/Design:** Water samples from randomly selected homes in Colonia Los Dias (21/267) and Los Encuentros (40/621), were tested for *Escherichia coli*, sanitation hazards, and other determinants of contamination using WHO Rapid Assessment for Drinking Water Quality (RADWQ) standards. Current and possible future methods were also piloted including P&G Purifier of Water (n=5), chlorine bleach (n=2), and ONIL filtration systems (n=2).

**Outcomes & Evaluation:** GIS ArcMap software was utilized to display maps and bacterial distribution, and median contamination levels were found to be 90 E-Coli/100mL and 160 E-Coli/100mL in Los Encuentros and Colonia Los Dias, respectively. Water retrieval method was implicated in contamination (Mean 247 vs 871 for pumped vs. hand-drawn, respectively), as was distance from main roads. Pilot data indicated that methods such as ONIL filtration were not effective against bacterial contamination, but that the P&G "Purifier of water" was more effective in this respect, though our method was above the minimum level of detection.

**Going Forward:** Local leadership were engaged and presented the initial results of this work, to build local capacity and knowledge around the issue of water quality. Understanding of current contamination levels and contributors to contamination should guide the development of permanent sustainable drinking water delivery, with clear recognition of social, financial, and political constraints. Future efforts will include studying the effects of sanitation and clean water interventions on diarrheal illness to understand determinants of health, and to understand local resistance to large-scale water quality projects.

**Funding:** This project was funded by an ASTMH Benjamin H. Kean Travel Fellowship in Tropical Medicine and a Rotary International Student Scholarship.

**Abstract #:** 02SEDH009

### Understanding resource deserts and geospatial needs: Working with refugee women's groups

C.J. Frost, S. Benson, L. Gren, R. Jaggi; University of Utah, Salt Lake City, UT/US

**Program/Project Purpose:** Refugee women often arrive in the United States with significant and unique health care needs.

However, research has shown that refugee women often are unable to access necessary health care due to an inability to overcome the geographic barrier of traveling to a medical appointment. The Refugee Reproductive Health (RRH) Committee is a coalition of refugees, government officials, and university researchers who seek to address these barriers and improve refugee health in Salt Lake County, Utah.

**Structure/Method/Design:** In April 2014, women from the Congolese refugee community participated in a health workshop held at a local multicultural center not far from the women's homes. Volunteers picked up participants to ensure they were able to participate in the workshop. At the conclusion of the workshop, a second set of volunteers discovered that the women were not clear about the location of their neighborhoods nor could they adequately explain how to get to their homes. The researchers completed a basic geospatial analysis of the resources available for these women and connected the resources to the location of the women's homes. Based on this analysis, refugee communities are resettled in locations that are "resource deserts" and not close to resources such as hospitals, clinics, libraries, and grocery stores.

**Outcomes & Evaluation:** Workshop participants varied widely in their ability to direct facilitators to their homes. Many were unable to provide a street address or directions; those who were able to provide directions to the facilitator generally relied on recognizable landmarks to navigate. Overall, returning home presented significant challenges for most of these women. In October 2014, university researchers identified six Congolese women who were willing to be filmed talking about and navigating through their neighborhoods and communities. We filmed these neighborhood walkthroughs at two different seasons to determine how women viewed their communities and how they navigated them. The overall outcome for this project will be to develop tools that women could use to better understand navigating in the Salt Lake County area.

**Going Forward:** Because many of the workshop participants were unable to navigate to their own home, it is likely that this population also faces significant spatial barriers in accessing health care. This study suggests that interventions seeking to improve refugee women's health should carefully evaluate the geographic barriers and seek to establish tools to expand the spatial mobility of this vulnerable population. The tool templates developed from this project will be made available for other entities working with refugee and immigrant groups.

**Funding:** The Congolese Community Specialist (5% FTE) devotes part of her effort to this project; involvement in this project is within the scope of employment of our governmental partners.

Abstract #: 02SEDH010

### Evaluating the developing families center: A unique model of midwifery care, primary care and early childhood education

M. Furrer<sup>1</sup>, L.J. Hart<sup>2</sup>; <sup>1</sup>Johns Hopkins University Susquehanna OB/GYN and Nurse Midwives, Baltimore, MD/US, <sup>2</sup>Jhpiego, Washington, DC/US

**Program/Project Purpose:** The Developing Families Center (DFC) was founded in 2000 in response to poor maternal/child health outcomes for low-income African Americans in the nation's capital, especially in wards 5, 7 and 8. The range of services provided under the DFC over the past several years include group prenatal care, midwife-attended births at the family health and birth center (on-site) or at Washington Hospital, doulas, breastfeeding support, peer

counselors, easy access to WIC and other services that are brought on-site, as well as parenting classes and other targeted social supports to address community needs. A third-party evaluation is currently being conducted to document the various aspects of the model that have made it successful in terms of improving outcomes, and will be the focus of this project.

**Structure/Method/Design:** Documents have been gathered and reviewed, as the first step in documenting the DFC's successes and challenges, including a precarious funding climate and frequent organizational changes under the DFC umbrella, with limited infrastructure for inter-organizational collaboration. Key informant interviews will be held with three sets of stakeholders from November – December 2014: 1) providers at the DFC, 2) former clients of the DFC and 3) Community Advisory Board members. In total, 26 individuals have been invited to participate in evaluation study interviews. IRB approval for the evaluation study qualitative research has been obtained by the Johns Hopkins University School of Public Health. Interpretation of the interview results will be applied in an expanded logic model, to document key aspects of the DFC's model of care, to inform replication of the comprehensive model, but with improved financial viability.

**Outcomes & Evaluation:** In part due to the DFC, infant/maternal mortality and C-section rates have been reduced while breastfeeding rates, employment, educational attainment, and community empowerment have been attained. By using a midwifery model of care, and with community advisory board involvement, these goals, and associated cost-savings, have been achieved and demonstrated in the literature. However, DFC has not been financially sustainable to date, since many of its services are not billable.

**Going Forward:** The evaluation results will help to elucidate the synergistic impact of social supports and services, community leadership and involvement at a local health care center, and the particularly compelling combination of perinatal care and early childhood education. The evaluation aims to document the DFC model as a whole, in order to facilitate its replication both domestically and abroad.

**Funding:** The DFC has been funded through federal and district-level programs such as Healthy Start Program, Early Head Start Program, Child Care Block Grant, as well as a through variety of private foundations and donors. The evaluation study is being conducted by Jhpiego, an affiliate of Johns Hopkins University, funded by the DFC.

Abstract #: 02SEDH011

### Home and community activity and participation status of clients with neurological disorders after rehabilitation center discharge in a less-resourced country

L.B. Glickman<sup>1</sup>, L. Neely<sup>2</sup>; <sup>1</sup>U of MD, Baltimore, MD/US, <sup>2</sup>University of Maryland, School of Medicine, Department of Physical Therapy and Rehabilitation Science, Baltimore, MD/US

**Background:** Literature on clients with neurological disorders post rehabilitation discharge in less-resourced countries identified many problems participating in their prior home and community environments. Access barriers were a major factor. This study fills a gap in the literature through an investigation into the community reintegration status of discharged clients from the Kachere Rehabilitation Centre, Malawi. The aims were to 1) determine client-perceived disability, 2) explore whether disability varied by diagnosis or gender, and 3) describe environmental barriers. The hypotheses were 1) patients would perceived moderate to severe levels of disability and 2)