

**Findings:** 57 of the 60 VHA in attendance during the 2-day training completed the survey (Response Rate=95%). The mean age was 40.24 years. A majority of participants were females (78.9%) aged 40-49 (42.1%), married (66.7%), college educated (56.1%), employed (61.4%) and reside in rural areas (58%). Most respondents indicated that mental illness is caused by alcohol or drug misuse (98%), inherited (89%) and possession by evil spirits (74%). Respondents agree that virtually anyone can become mentally ill (78%) and people with mental illness can be treated outside the hospital (67%). However, 69% believe that people with mental illness are a nuisance and less than half (45%) believe that mental disorder is an illness like any other.

**Interpretation:** Significant stigmatizing negative beliefs and attitudes exist among the general population. Individuals selected to implement programs aimed to screen, assess and link individuals with mental illness to care should first receive training to provide accurate information on mental health illnesses.

**Funding:** Supported in part by the National Institutes of Health and PEPFAR through grant #R01HD 075050, HealthySunrise Foundation and PeTR-GS.

**Abstract #:** 01NCD016

### Heart failure in rural Haiti: Descriptive epidemiology and outcomes

G.F. Kwan<sup>1</sup>, W. Jean Baptiste<sup>2</sup>, E.J. Benjamin<sup>3</sup>, L.R. Hirschhorn<sup>4</sup>; <sup>1</sup>Boston University School of Medicine, Section of Cardiovascular Medicine, Boston, MA/US, <sup>2</sup>University Hospital, Mirebalais, Zanmi Lasante/Partners In Health, Port au Prince, Haiti, <sup>3</sup>Boston University Schools of Medicine and Public Health, Boston, MA/US, <sup>4</sup>Brigham and Women's Hospital, Harvard Medical School, Boston, MA/US

**Background:** There is increasing attention to the cardiovascular disease burden, including heart failure (HF), in low-income countries, particularly those caused by atherosclerosis in urban settings. Less is known about heart disease in rural areas. We studied the demographics and short-term outcomes of adults admitted with HF to a tertiary care hospital in rural Haiti supported by the non-governmental organization Zanmi Lasante/Partners In Health.

**Methods:** We included all adults patients admitted for HF to the internal medicine ward at University Hospital Mirebalais in rural Haiti over 12 months (October 2013 - September 2014). When available, a rotating cardiologist performed diagnostic echocardiograms. We extracted demographic and clinical data from the electronic medical record. The institutional review boards of Zanmi Lasante and Boston University approved the study.

**Findings:** Of the 983 admissions, HF accounted for 388 (39.5%) involving 310 unique individuals. HF patients included 186 (60%) women with a median age of 46.2 (interquartile range 31.9-62.6) for women and 57.5 (48.9-70.3) years for men. Two-thirds (177, 64.8%) came from the hospital catchment area and 109 (35.2%) were from outside of the hospital catchment area. Cardiologist evaluation including echocardiography was performed for 77 (24.8%) patients. Fifty-eight (75.3%) had non-ischemic cardiomyopathy, 9 (11.7%) had right heart failure, 2 (2.6%) had hypertensive heart disease, 2 (2.6%) had rheumatic heart disease, 2 (2.6%) had pericardial disease and 1 had ischemic cardiomyopathy. Of the 38 women with cardiomyopathy, 16 (42.1%) had a presentation consistent with peripartum cardiomyopathy. Three subjects (3.9%) had normal echocardiograms. Forty-eight patients (15.5%) died in the hospital, with 37 (11.9%) dying during their index hospitalization. During the study period, 252 (81.3%) were admitted once, 45 (14.5%) had one readmission, and 15 (4.8%) had multiple readmissions. Median length of stay was 10

(7-17) days. Of those who survived the index hospitalization, 98 (35.9%) were seen in the hospital's outpatient clinic within 30-days (40.1% of patients within the catchment area and 28.1% from outside,  $p=.06$ ). Only 17 (6.3%) of the subjects were readmitted to the same hospital within 30-days.

**Interpretation:** HF is a very common cause of hospitalization in rural Haiti. HF is frequent among young women and is overwhelmingly due to non-atherosclerotic heart disease. Increased echocardiography capacity through task shifting is needed to expand diagnosis. Short-term readmission rates were low with nearly half of patients from the catchment area successfully linked to the outpatient clinic. Strengthened health systems are needed to address the burden of HF through earlier diagnosis and management to prevent hospitalization, and improved linkage to long-term care to reduce morbidity and mortality.

**Funding:** Clinical care funded by the Haitian Ministry of Public and Population Health and Zanmi Lasante/Partners In Health. Research funded by the Research Career Development Program in Vascular Medicine (NHLBI K12HL083781).

**Abstract #:** 01NCD017

### Prevalence and symptoms of abnormal vaginal flora in rural sylhet, Bangladesh

K. Ladhani<sup>1</sup>, A.C.C. Lee<sup>2</sup>, M. Quaiyum<sup>3</sup>, L. Mullany<sup>4</sup>, D. Mitra<sup>5</sup>, A. Labrique<sup>5</sup>, P. Christian<sup>5</sup>, P. Ahmed<sup>3</sup>, I. Rafiqullah<sup>6</sup>, S. Saha<sup>7</sup>, A. Baqui<sup>5</sup>; <sup>1</sup>Harvard School of Public Health, Cambridge, MA/US, <sup>2</sup>Brigham and Women's Hospital, Boston, MA/US, <sup>3</sup>ICDDR,B, Dhaka, Bangladesh, <sup>4</sup>John Hopkins University, Baltimore, MD/US, <sup>5</sup>John Hopkins Bloomberg School of Public Health, Baltimore, MD/US, <sup>6</sup>Child Health Research Foundation, Sylhet, Bangladesh, <sup>7</sup>Child Health Research Foundation, Dhaka, Bangladesh

**Background:** 15 million babies are born preterm (< 37 weeks of gestation) annually and preterm birth is the leading cause of neonatal mortality globally. In low- and middle-income countries where antenatal care coverage and screening is limited, estimates of the prevalence of maternal infections are also limited. There is a significant association between abnormal vaginal flora (AVF) and preterm birth. The objective of this study is to determine the prevalence of AVF, including intermediate flora and bacterial vaginosis (BV), and the frequency of self-reported symptoms among infected mothers in rural Bangladesh.

**Methods:** In a population-based pregnancy cohort in Sylhet district Bangladesh, all eligible women in selected communities were screened for AVF using sterile self-administered vaginal swabs and answered questions about their symptoms ( $n=3,166$ ). AVF were classified by microscopic examination of a Gram stained sample of the vaginal smear and diagnosed by a Nugent score, a scoring system of 3 bacterial morphotypes (lactobacillus, gardnerella/bacteroides, and mobiluncus). AVF is defined as Nugent score  $\geq 4$ , and includes intermediate flora (Nugent score 4-6) and bacterial vaginosis (Nugent score 7-10). Descriptive analyses were performed, and sensitivity and specificity of symptom-based screening were calculated. Proportions were compared using the Chi-square test. IRB approvals for this study were granted to John Hopkins University, ICDDR,B, and Brigham and Women's Hospital. Informed oral consent was obtained from all participants.

**Findings:** Among 3,166 pregnant women screened, the prevalence of AVF was 15.4% (95% CI: 14.1% - 16.6%), with 6.8% (95% CI: 5.9% - 7.6%) intermediate flora and 8.6% BV (95% CI: 7.6% - 9.6%). 91.0% of women with AVF were asymptomatic. Among mothers with intermediate flora, 9.8% reported any symptoms (2.8% malodorous discharge, 1.4% grey discharge, 6.5% pruritus, 2.8%

dyspareunia, 0.93% vaginal bleeding). Among mothers with BV, 8.5% reported any current vaginal symptoms (2.6% malodorous discharge, 0.74% grey discharge, 4.4% pruritus, 2.9% dyspareunia, 0.74% vaginal bleeding). Among mothers without AVF, 7.7% reported any symptoms (1.6% malodorous discharge, 0.54% grey discharge, 5.2% pruritus, 2.5% dyspareunia, 0.52% vaginal bleeding). There was no significant difference in the frequency of any vaginal symptoms among infected and uninfected women ( $\chi^2(1)=0.97$ ,  $p=0.33$ ). Using clinical signs as a screening diagnostic tool would have only detected 9.0% of the women with AVF (sensitivity 9.0%, specificity 92.3%, PPV 17.5%, NPV 84.8%).

**Interpretation:** The prevalence of AVF is high and the majority of mothers are asymptomatic. There is no significant difference in the prevalence of vaginal symptoms between mothers with and without AVF infection. A symptom-based screening approach is ineffective in identifying AVF and BV. Alternate and feasible diagnostic methods are needed to screen for AVF and BV in resource-limited settings.

**Funding:** National Institute of Health.

**Abstract #:** 01NCD018

### Chronic kidney disease of non-traditional causes and proposed risk factors prevalence in hemodialysis patients from southwest Guatemala

T. Laux<sup>1</sup>, J. Barnoya<sup>2</sup>, V. Sanchez<sup>3</sup>, A. Lucas<sup>3</sup>, E. Herrera<sup>3</sup>, E. Cipriano<sup>3</sup>, M. Rothstein<sup>2</sup>; <sup>1</sup>Barnes Jewish Hospital / Washington University in St. Louis, St. Louis, MO/US, <sup>2</sup>Washington University in St. Louis, St. Louis, MO/US, <sup>3</sup>Instituto Guatemalteco de Seguridad Social (Guatemalan Social Security Institute), Guatemala City, Guatemala

**Program/Project Purpose:** An epidemic of chronic kidney disease of non-traditional causes (CKDnT) has been documented in southwest El Salvador and Nicaragua, yet no data is available from neighboring Guatemala. Therefore, we sought to determine both the chronic kidney disease (CKD) and CKDnT proposed risk factors prevalence in hemodialysis patients from southwest Guatemala.

**Structure/Method/Design:** The Guatemalan Social Security healthcare is the largest provider of hemodialysis in southwest Guatemala. All patients on hemodialysis were screened for diabetes. Non-diabetics were interviewed (and charts reviewed) asking for known CKD and proposed CKDnT risk factors. Interviews and chart reviews were performed in March 2014 by residents and fellows from collaborating Guatemalan and American training hospitals. Analyses were done in SPSS.

**Outcomes & Evaluation:** Most patients (74%) were non-diabetic (178/242). Hypertension was the most prevalent known CKD risk factor (56%). Many of CKDnT's proposed risk factors were present in more than half the patients, including male gender (81%) and agricultural work (64%). Almost one third were former sugar cane workers (29%). Upon dialysis initiation, only hyperuricemia was common (54%). About 20% (45/242) of participants did not have a history of hypertension or overweight/obesity and could be considered possibly affected by CKDnT. Table 1. Known CKD and proposed CKDnT risk factor prevalence in non-diabetics from Southwest Guatemala. Known CKD Risk Factors: (n=178 (%)) Hypertension: 99 (55.6%) Overweight/Obese: 59 (33.1%) Not Hypertensive or Overweight: 45 (25.3%) Family History Renal Disease: 29 (16.3%) Hypertension: 51 (28.8%) Diabetes: 47 (26.4%) Proposed CKDnT Risk Factors Age < 50 years old: 106 (59.6%) Age at Diagnosis ≤ 40 years old: 99 (55.6%) Male: 144 (80.9%) ≤ 6 years of schooling: 127 (71.3%) Possible Leptospirosis: 15 (8.4%) Ever Use NSAIDs: 154 (86.5%) Alternative medicine: 99 (55.6%) Agricultural Occupation:

113 (63.5%) > 20 years work: 51 (45.1%) Age ≤ 15 when started: 73 (64.6%) Sugar Cane Worker: 52 (29%) Alcohol Consumption: 128 (71.9%) Hypokalemic (n=177)\*: 24 (13.6%) Hyperuricemia (n=162)\*: 87 (53.7%) \*At first dialysis

**Going Forward:** Several of the proposed risk factors for CKDnT were highly prevalent and require additional research to establish causality. Through collaboration started from this project, Guatemalan Social Security and the Barnes Jewish Hospital Department of Nephrology have applied for sister institution status through the American Society of Nephrology. Faculty from both institutions and the Centers for Disease Control are included in a recently developed task force focused on kidney disease in Guatemala.

**Funding:** Funded with help from the Washington University in St. Louis Department of Internal Medicine Mentors-in-Medicine-International program and Institute for Public Health.

**Abstract #:** 01NCD019

### Increasing education about diabetes among community health workers in Naivasha, Kenya

N. Lee; University of Washington School of Medicine, Seattle, WA/US

**Program/Project Purpose:** Non-communicable diseases like diabetes mellitus are often neglected in Naivasha, a town of over 200,000 people, an hour north of Nairobi. This is largely due to lack of funding for diabetes since the focus is on communicable diseases like HIV and tuberculosis. However, rates of diabetes are increasing with minimal support and care. Management of diabetes is expensive since it is not subsidized like HIV or TB. The aim of this project was to increase education and awareness of diabetes among community health workers (CHWs) in Naivasha through teaching sessions and providing booklets on diabetes mellitus that cover the basics of diabetes and its care and management.

**Structure/Method/Design:** A community needs assessment was conducted to determine the current resources available to diabetics and CHWs regarding diabetes care and management. CHWs from three communities surrounding Naivasha town were identified to be partners in this project due to their interest and investment in diabetes. Information for the diabetes booklets was compiled specifically for CHWs to address the basics of diabetes, complications, recognizing signs and symptoms, and a general guide on common medications used in Naivasha to manage diabetes. Teaching sessions were held with CHWs to distribute the booklets, go over the information, and to answer any questions or concerns. Quizzes given both before and after each teaching session were used to assess the efficacy of the project and the CHWs' understanding of diabetes.

**Outcomes & Evaluation:** Twenty-two CHWs participated in two teaching sessions and 47 booklets were distributed to CHWs among the three communities. 13 CHWs completed both the before and after quizzes. They all increased their scores after the teaching session: 52.5% before and 88.8% after. The nutritionist in charge of diabetes care at Naivasha District Hospital was given the remaining booklets for future training sessions and outreach programs in the communities.

**Going Forward:** The project increased education and awareness of diabetes among community health workers in Naivasha. For future training sessions, the CHWs educated through this project will have a strong foundation on diabetes and its care and management. Additional funding and formal training sessions are still necessary to support CHWs and other health workers regarding diabetes care in Naivasha.

**Funding:** This project was funded by the University of Washington Department of Global Health, and student funded.

**Abstract #:** 01NCD020