

at a local urgent care center has contributed to the variance in prescribing habits among providers for these diagnoses. **Aims:** This project aims to decrease use of antibiotics in the treatment of URIs by 10% and to attain an 80% utilization rate of developed company practice guidelines for URIs for this urgent care practice.

**Structure/Method/Design:** Based on a comprehensive systematic review of the literature, multimodal strategies combining provider education, clinical pathway algorithms, and patient education have demonstrated success in increasing provider compliance with evidence based practice guidelines for URIs in outpatient settings. The goals of this project are to design, implement and evaluate evidence based guidelines, and to promote the judicious use of antibiotics when managing URIs in the urgent care setting. **Participants and Stakeholders:** As a result of weekly chart reviews conducted by the Clinical and Medical Directors demonstrating variance in treatment practices, the Medical Director agreed an intervention was necessary. With her support, the project was proposed to the full time providers who voluntarily agreed to participate. **Capacity/ Sustainability:** Using a consensus model, the providers have been recruited to collectively review, develop and evaluate treatment guidelines for URIs in our setting. These guidelines will be incorporated into company policy for use along with confidential prescriber feedback and audit, and ongoing patient education.

**Outcomes & Evaluation:** To date evidence based guidelines for URIs including sinusitis and bronchitis have been reviewed and adopted. Patient education encompassing the Get Smart, Know When Antibiotics Work campaign by the CDC within the centers and community has commenced. An eIRB application has been filed with the Johns Hopkins University School of Medicine which is under review. Upon approval, data collection will begin.

**Going Forward:** Ongoing challenges include provider prescribing habits and patient requests/expectations for antibiotics for URI diagnosis. Until data collection begins, evaluation of data cannot occur. If this project is successful, the project team can use this method to develop evidence based treatment protocols for additional diagnoses common to the urgent care environment.

**Funding:** None.

**Abstract #:** 01NCD014

### Type I diabetes management in a resource poor setting

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**Program/Project Purpose:** Understanding of perceived supports and barriers faced by patients with Type 1 Diabetes (T1DM) in developing and post-disaster countries remains inconclusive. The purposes of this study were to characterize and collect information from a cohort of T1DM patients in a resource poor setting, who visited a clinic that focuses on group visit, promotes education, and enhances social support. Information collected includes disease management, demographics, nutritional knowledge, quality of life, perceived barriers to care, and recommended improvements.

**Structure/Method/Design:** Patients were recruited from a diabetic clinic in Milot, Haiti during the fall of 2013. Demographic information, glucose control, nutritional awareness and diabetes camp participation was collected. A modified version of the Pediatric Quality of Life Inventory Diabetes Module 3.0 was administered and correlated to diabetes management. Qualitative interviews were conducted with hospital staff to evaluate barriers to medical management.

**Outcomes & Evaluation:** Fourteen of the 23 patients in the diabetes clinic were surveyed (65% female, mean age=16.4). Only one

(7%) had an HbA1C level below 7.5%, the level that the American Diabetes Association defines as “controlled”. Improved quality of life measures were found for those patients who attended camp (n=4, mean=65.3) compared to those who did not attend camp (n=10, mean=57.6). There was no association between diabetes management practices and glucose control. In addition, qualitative interviews revealed inadequate insulin supplies and inconsistent nutritional knowledge about diabetes.

**Going Forward:** Much of the diagnosed T1DM at this study site is uncontrolled. Poor diabetes control is multifactorial but diabetes practices and nutritional knowledge did not show an association to HbA1C levels. Overall, the inconsistent supply of insulin is a pressing and contributing factor. While the majority of patients understood the importance of appropriate nutrition with T1DM, their inability to articulate what type of diet change is necessary revealed a lack of nutritional knowledge. Improved nutrition education and the addition of a nutritionist to the clinic may help patients create individualized diets and identify other ways to stay healthy with limited resources. Additionally, despite the low number of camp participations, the improvement in quality of life in the patients who attended camp highlights the necessity of a larger scale investigation of the efficacy of social and education camps as they relate to quality of life and disease control in children. As diabetes camps become more commonplace in developed countries, we see an opportunity to expand this intervention to diabetic patients in developing countries, where resources are scarce. Future work should be centered on recruiting other diabetic management programs in the region to further explore T1DM in this population, and to identify areas for intervention.

**Funding:** Tisch Civic Engagement Fund (Tufts University).

**Abstract #:** 01NCD015

### Perception and attitudes towards mental illness among volunteer health advisors in Nigeria

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**Background:** Depression, anxiety and other mental health disorders are prevalent in low, middle and high income countries. In Nigeria, an estimated 10-20% of women experience depression during pregnancy and the postnatal period. However, only 10% of adults with mental health disorder in Nigeria receive any care irrespective of severity. With an estimated 150 psychiatrists for a population of more than 160 million people, Nigeria exemplifies the severe lack of capacity for mental healthcare seen in low and middle-income countries. Stigma and negative attitudes toward people with mental illness are common among the general population. We developed the Healthy Beginning Initiative (HBI), a community-based approach that integrates screening for perinatal depression with an existing program for prevention of mother-to-child transmission of HIV. HBI is implemented by lay, church-based volunteer health advisors (VHA). The aim of this study was to assess the beliefs and attitudes towards mental illness among the VHA.

**Methods:** A cross-sectional survey of 60 VHA aged 18 years and above who attended a 2 day training prior to implementing HBI in 40 churches in southeast Nigeria. We used a 43-item, investigator-assisted, self-administered questionnaire to assess perceptions and attitudes towards mental health disorders and individuals with mental illness.

**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

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**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

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**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%