

international travel leads to the spread of drug resistant organisms. The information from this project will be used to drive infection prevention efforts.

Funding: Funding was received from the institutions performing the study.

Abstract #: 01CD002

Studying pulmonary function in HIV positive tanzanian youth

A. August; Geisel School of Medicine at Dartmouth, Hanover, NH/US

Program/Project Purpose: Survival into childhood with an untreated HIV infection was once considered unusual, but has increased in recent years. This has spurred further interest in studying the health of adolescents living with HIV. There have been two major reports from Zimbabwe (Ferrand et al., 2007) and Malawi (Zverez et al., 2001) of a decrease in pulmonary function in HIV positive youth, especially if they had delayed onset of treatment. The purpose of this study is to investigate the pulmonary function of HIV positive Tanzanian children. This study will help determine the importance of monitoring lung function in HIV patients and if a pulmonary treatment regimen should be instituted.

Structure/Method/Design: A cohort of 250 Tanzanian children between the ages of 8 and 18 with a diagnosis of HIV currently being treated at the DarDar Pediatric Program in Dar es Salaam, Tanzania will take part in the study. Pulmonary function (PFT) was assessed using spirometry to measure forced expiratory volume at one second (FEV1), forced vital capacity (FVC), FVC/FEV1 ratio, and forced expiratory flow 25% to 75% (FEF25-75) as well as pulse oximetry. Each participant was evaluated at rest. If recorded values for FVC and FEV 1 were > 70% of predicted, they were re-evaluated after moderate exercise and after administration of a bronchodilator. Normative data from healthy Malawian youth were used. The PFT data were analyzed in correlation with age of diagnosis and age at initiation of antiretroviral therapy.

Outcomes & Evaluation: A preliminary analysis of the first 50 subjects has not shown any significant degree of pulmonary dysfunction nor any correlation with a delayed ART regimen. Of the 50 subjects, three were excluded for inconsistent PFT efforts. The remaining 47 subjects consisted of 17 females/30 males. Only 3 subjects had FEV 1

Going Forward: Ongoing challenges include obtaining consistent data from younger subjects as well as timely patient acquisition. We anticipate meeting our goal of 250 subjects by late spring 2015.

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Abstract #: 01CD003

Comparing the syndromic approach with point-of-care testing in treatment of STIs at St. Paul's Hospital in Addis Ababa, Ethiopia

J. Bell¹, S. Echols¹, E. Iglesias¹, N. Musili¹, A. Kebede², Y. Gebresilasie Mumuye², B. Nigatu², O. Mmeje¹, J. Bell¹; ¹University of Michigan, Ann Arbor, MI/US, ²St. Paul's Hospital Millennium Medical College, Addis Ababa, ET

Background: The purpose of this project was to determine if the point-of-care (POC) rapid testing at St. Paul's Hospital Millennium

Medical College (SPHMMC) in Addis Ababa, Ethiopia, was more effective at diagnosing sexually transmitted infections than the current standard of care, syndromic approach, which does not use laboratory testing and is solely based on visual and patient-reported symptoms.

Methods: This twelve week pilot study was conducted at SPHMMC among female patients aged 18-45 with vaginal discharge. All patients completed a questionnaire asking about their demographics and current and prior clinical gynecologic treatment. Patients underwent speculum exam and vaginal and cervical swabs were collected. These swabs were used for POC and molecular-based testing (a confirmatory test for the POC testing). Women were treated per standard of care at SPHMMC and treatment was augmented when additional diagnoses were made outside of the clinical exam. After the speculum exam was complete, the resident treating the patient completed a short questionnaire to record his or her observations and treatment plan.

Findings: We recruited 47 participants for our study. Of these women, zero patients had a positive chlamydia test, four had a positive trichomonas vaginalis POC test, and one had a positive wet mount test for trichomonas vaginalis. Overall, 21% (10/47) of the patients were given antibiotics immediately by the resident and another 26% (12/47) were prescribed antibiotics at a later appointment with the resident. Another 38% (18/47) of patients were prescribed doxycycline, an antibiotic recommended by the syndromic approach for treatment of chlamydia and 34% (16/47) of patients received metronidazole, an antibiotic that targets trichomonas vaginalis. Confirmatory molecular analysis for chlamydia and trichomonas vaginalis is pending at this time.

Interpretation: The physicians at SPHMMC do not have the resources to quickly and accurately diagnose their patients' sexual health. We found that the residents at SPHMMC follow the prescription-based model promoted by the syndromic approach, though our results suggest that this may be leading to the overtreatment of patients.

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Abstract #: 01CD004

Concentrated livestock production in Illinois: Spatial analysis of the impacts on human health and the environment

G.A. Beresin¹, J. Wright², G. Rice², R. Gernes³, J.S. Jagat⁴; ¹Association of Schools and Programs of Public Health, US EPA, Cincinnati, OH/US, ²U.S. Environmental Protection Agency, National Center for Environmental Assessment, Cincinnati, OH/US, ³Association of Schools and Programs of Public Health, Hosted by the Environmental Protection Agency, Cincinnati, OH/US, ⁴University of Illinois - Chicago, Chicago, IL/US

Background: Individuals living near and working in concentrated animal feeding operations (CAFOs), defined in U.S. environmental regulations as confining the equivalent of at least 1000 cattle and identifying a point-source method of waste discharge, may be at increased risk for adverse health outcomes due to occupational exposures and the movement of contaminants and pathogens in animal waste from facilities to the surrounding environment via runoff, atmospheric deposition of particulate matter, or leaching into groundwater. Although increased risk of respiratory illness and enteric infections have been linked to CAFOs, many studies observing community outcomes have used facility-specific approaches, rather than attempting to understand health patterns at a broader spatial scale. Additionally, there are potential zoonotic pathogens, such as bacterial pneumonias or Hepatitis E, that have not been thoroughly examined in this context.

Methods: Similar to Jagai et al (2010), looking at cryptosporidiosis and cattle density, we utilized hospitalization claims data and county-level swine inventory data to examine health impacts of concentrated swine production. The International Classification of Diseases (ICD 9CM) codes were used to Abstract symptoms and outcomes of interest within hospitalization claims data from the Illinois Hospital Association Inpatient and Outpatient Database for 1999-2011. Livestock density is derived from county inventory data from United States Department of Agriculture Survey and Census and supplemented with North American Industry Classification System database. Associations will be assessed using General Additive Models, Poisson regression analyses, as well as bivariate spatial autocorrelation (Moran's I). Additionally, climatic and environmental fecal contamination measurements will be examined to address confounding and fate and transport of potential exposures.

Findings: Preliminary analysis of bacterial pneumonia and *Clostridium difficile* Associated Disease (CDAD) rates from a comparable database revealed complex non-linear relationships between human infection, swine density and human population density, which requires further inclusion of spatial land use and climatic indicators, as well as alternative anthropogenic pathogen source contribution. Analyses examining other biologically plausible health outcomes (bronchitis, asthma, gastrointestinal disease, and antibiotic-resistant pathogens [MRSA]) are being evaluated.

Interpretation: This study builds on prior knowledge of health outcomes related to CAFO exposure using spatially informed approaches to determine potential health impacts and risks to communities and ecosystems around CAFOs. Disclaimer: The views expressed in this Abstract are those of the authors and do not necessarily reflect the views or policies of the U.S. EPA.

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Abstract #: 01CD005

Knowledge of and barriers to bednet use among pregnant women in Northern Ghana

Abstract opted out of publication.

Abstract #: 01CD006

Underutilization of isoniazid drug therapy to prevent TB disease progression in Swaziland

B. Cronin¹, M. Calnan, S. Haumba, L.V. Adams²; ¹Dartmouth College, Hanover, NH/US, ²Geisel School of Medicine at Dartmouth, Hanover, NH/US

Background: An estimated 80% of the Swaziland population unknowingly contract tuberculosis (TB) as children and harbor inactive TB bacteria in their bodies — a condition called latent TB infection (LTBI). The TB infection can reactivate to cause TB disease in these individuals during their lifetime, especially if they are immunosuppressed by HIV (in Swaziland 75-80% of HIV patients also have latent TB infection). Swaziland has the highest TB incidence rate of any country in the world and TB causes an estimated 50% of the nation's HIV patient deaths. Administration of Isoniazid Preventive Therapy (IPT) for six months has been shown to prevent progression of latent TB infection to TB disease. In 2011 the Swaziland government mandated IPT for all HIV patients at all national health facilities. We sought to determine if this policy was being implemented.

Methods: We reviewed the 2012 and 2013 annual TB/HIV reports for the number of HIV-infected patients screened for TB to determine those eligible for and initiated on IPT at four health facilities in Swaziland. A

retrospective review of patients initiated on IPT was performed at the facilities to assess patient IPT adherence. Data on IPT/ART prescription refills, dates of IPT therapy and IPT outcomes were extracted from 400 individual patient records at facility data rooms and pharmacies.

Findings: During 2012-2013, 68,884 HIV patients were screened for TB at the four facilities. 67,870 (98.5%) of all documented HIV patients had TB disease ruled out by symptom screen and were considered eligible for IPT. However, only 532 (<1%) of eligible patients were initiated on IPT. Less than half (47%, 189/400) of patients examined in the individual record review had documentation of completing IPT. 40% (159/400) of reviewed patients were prescribed at least one month of IPT and returned for consistent anti-retroviral therapy (ART) refills despite discontinuing IPT. These patients adhered to their HIV therapy for an average of 18 months after stopping IPT. Of the patients who had traceable discontinuation dates, 29% (42/144) stopped IPT after one month and 91% (131/144) stopped within 4 months. Completeness of IPT data varied by site and ranged from 75% to less than 50%.

Interpretation: Our study suggests significant underutilization (greater than 98%) of IPT among eligible HIV-infected patients and low treatment completion rates among those initiating IPT in Swaziland. Given the large proportion of IPT-noncompleters who remained adherent to ART, poor IPT adherence may be due to lack of documentation and/or increased pill burden. Further efforts to increase IPT uptake and adherence among this high-risk population are necessary to decrease the burden of future TB disease in Swaziland.

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Abstract #: 01CD007

Acute energy undernutrition and intestinal parasitic infections in under five years children in low socio-economic communities, Sri Lanka

L. Sandaruwan Galgamuwa¹, D. Iddawela¹, S.D. Dharmaratne²; ¹University of Peradeniya, Sri Lanka, Peradeniya, LK, ²Department of Community Medicine, Faculty of Medicine, University of Peradeniya, Sri Lanka and Institute for Health Metrics and Evaluation, University of Washington, USA, Peradeniya, LK

Background: Acute energy under nutrition remains a major public health problem in Sri Lanka and it is one of the most common causes of childhood morbidity and mortality worldwide. Measurement of Mid-Upper Arm Circumference (MUAC) is used as an indicator of mortality risk associated with acute under nutrition. The aim of the study was to identify the association between acute energy under nutrition and intestinal parasitic infections among children aged one to five years in low socio-economic communities in the Central province of Sri Lanka.

Methods: This cross-sectional study was conducted from January to April 2013. Circumference of each child's left mid-upper arm was measured for MUAC using standard procedures. MUAC < 115 mm were classified as severe acute under nutrition (SAU), MUAC ≥ 115 mm and < 125 mm were classified as moderate acute under nutrition (MAU). Stool samples were subjected to wet preparation and formaldehyde-ether sedimentation technique for parasites identification. Data were analyzed with SPSS version 17 statistical software.

Findings: 206 children between 1 to 5 years with a mean age of 2.9 (SD±1.0) years participated and the mean MUAC of them was 14.7 (SD±1.1) cm. The prevalence of acute energy under nutrition was 6.3% (13/206). All of them had MAU and no cases of SAU were