

**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

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**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

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**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

seen. Boys had slightly higher prevalence of under nutrition (7.9%) than girls (4.8%) and children aged 4–5 years showed the highest prevalence (7.3%). The overall prevalence of parasitic infections was 34.5% (71/206). Two species of parasites were identified; *Ascaris lumbricoides* (28.5%, 59/206) and *Entomeaba coli* (10.6%, 22/206). Children with *Ascaris* infection showed higher prevalence of MAU (10.2%, 6/59) than children infected with *Entomeaba coli* infections (9.1%, 2/22). No statistically significant association between intestinal parasitic infections and acute under nutrition was found in this study.

**Interpretation:** Acute energy under nutrition is not common in this study group, though high prevalence of intestinal parasitic infections was seen, indicating a high level of transmission. Health education and awareness programs among the study population could be effective for addressing the problem.

**Funding:** No any funds for this study.

**Abstract #:** 01CD008

### The need for structural and community interventions to support HIV care and harm reduction for people who inject drugs in Kenya

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**Background:** Injecting of heroin is a significant human rights and public health challenge in Sub-Saharan Africa. In Kenya People Who Inject Drugs (PWID) face severe vulnerability to HIV and other infectious diseases and social harms. Government and civil society partners have sought to increase access to HIV care, including anti-retroviral treatment, and introduced needle and syringe programmes; methadone to treat heroin addiction is also planned. This study explores how the new services are experienced by PWID with the goal of informing their scale-up and the future introduction of methadone.

**Methods:** We conducted a longitudinal qualitative study across three sites: Nairobi, Malindi and Ukunda. In-depth interviews in English and Kiswahili with PWID, community observation, and stakeholder interviews explored the social context and experiences of HIV care. Baseline interviews with 109 people who use drugs (majority people injecting, 76 male, 33 female) were conducted in Dec 2012/Jan 2013, with follow-up at 6 and 12 months with 33 PWID. Sampling purposively sought a range of experiences of HIV care and injecting drug use by both genders. Thematic content analysis identified factors shaping access to services. Written consent was obtained from all participants; the study has ethical approval from University of Nairobi and LSHTM.

**Findings:** For the majority of PWID, life involves considerable hardship. The risk or experience of HIV is frequently accompanied by hunger, homelessness, social isolation, violence and harassment from the community and police, and imprisonment, reflecting an environment of criminalisation and marginalisation of PWID. The associated poverty limits access to care and creates risk for HIV: HIV care is free, but is focused in clinic facilities, involving considerable direct costs for travel and opportunity costs for earning money. Drug rehabilitation is too expensive for most. Available services are delivered with few restrictions on PWID, and yet programs are under-resourced and rarely linked to interventions that address economic and social constraints on PWID, despite recognition of their importance.

**Interpretation:** The limited availability, biomedical orientation, and disconnect from community settings of services means they don't respond adequately to the barriers PWID face to care. Services need a community orientation and associated structural interventions to

address needs like food, livelihoods and social support. The lack of systematic support for community and structural interventions from government and donors suggests the potential emergence of a narrow biomedical paradigm for the response to HIV for PWID in Kenya. In the absence of integrating such structural interventions, methadone rollout will likely remain inaccessible for many PWID and not meet current expectations as a treatment for heroin addiction. This study has direct implications for service provision and strategies to ensure structural and social dimensions of HIV care for PWID are addressed.

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**Abstract #:** 01CD009

### Parental factors associated with influenza school located vaccination program in the United States

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**Background:** The United States Center for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices expanded recommendations on targeted influenza vaccination to include school-aged children in 2009. In this study, we conduct a systematic review to identify the parental factors associated with influenza school located vaccination (SLV) program in the United States.

**Methods:** We used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework to conduct the systematic review. PubMed, Web of Science, and Medline ProQuest databases were searched for English language articles published since 2004 and focused on child/adolescent age groups. Inclusion criteria were studies that included qualitative analysis of influenza vaccinations through a school-based vaccination program in United States, and assessed parental factors including knowledge, attitudes, perceptions, beliefs, and/or behavior towards such programs for their children. Exclusion criteria were studies that included other non-influenza vaccines (i.e. MMR, MCV4), non-parental beliefs (i.e. college students, school personnel, nurses, physicians), infrastructure (i.e. health care billing systems, cost-effectiveness), and studies taking place outside the United States.

**Findings:** We identified 6 studies from 107 articles that matched the inclusion and exclusion criteria. 5 studies utilized questionnaires and 1 study used focus groups as primary source of data collection, with 1 study grounded in health behavior theory. While parents generally exhibited signs of interest in school-based vaccination programs, the reasons for disinterest were varied. The significant parental factors associated with influenza school located vaccination program are vaccine safety, sterility and delivery, perceived threat, parent demographics, convenience, negative past experience, influenza vaccine importance, cost, access to primary care/insurance, discussion with doctor, trust, previous experience with SLV program, vaccine type, vaccine availability to all students, public health benefits, and beliefs in vaccination is a social norm and their benefits.

**Interpretation:** We identified cost, convenience and misconceptions regarding safety and side-effects as barriers to vaccination. Thereby, the effectiveness is higher among influenza SLV programs that resolve these barriers. Socio-demographics of parents are significant for their receptiveness of influenza SLV programs. We recommend that information regarding insurance status, estimates for family income and basic beliefs of vaccination be used to customize the SLV program design and implementation. Targeting schools with a high percentage of uninsured and low-income teens for vaccination may be particularly