activity profiling of these pharmacophores identified potent agonists (EC50<100nM) and antagonists (Ki<100nM) active against receptors from all three species. 5-HT receptor agonists stimulated movement in cultured adult schistosomes, with some compounds demonstrating ~1000x higher potency than serotonin. Similarly, 5-HT receptor antagonists blocked parasite movement. Drugs prioritized from *in vitro* screens proved effective *in vivo.* Injection of compounds into infected mice resulted in a rapid shift of parasites from the mesenteries to the liver, and a 65% reduction in worm burden when dosed over one week. Oogram analysis revealed a 97% reduction in schistosome egg burden- a crucial outcome given that schistosomiasis pathology is driven by the immune response to parasite eggs. These data provide the first high throughput screen of a schistosome GpCR and validate serotonergic signaling as an anti-schistosomal target.

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MINIMIZING THE COST OF CONGENITAL CHAGAS DISEASE IN THE UNITED STATES THROUGH MATERNAL SCREENING

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Chagas disease, caused by *Trypanosoma cruzi*, is transmitted by insect vectors, as well as through blood transfusion, organ transplant, consumption of insect feces in food and water, and from mother to child during gestation. Programs of vector control and screening of blood products and transplant organs have been successful in reducing transmission. Congenital infection, however, could perpetuate Chagas indefinitely, even in countries with no or almost no autochthonous vector transmission. Even mothers who themselves have been infected congenitally and who are not symptomatic can transmit to their babies. About 30% of infected persons will develop lifelong cardiac or digestive complications that can be fatal. Treatment of infants with benznidazole has close to 100% cure rate, and efficacy in adults is estimated between 40% and 70%. This is the first study of the costs of screening and treatment for Chagas in the United States. We constructed a decision-analytic model to find the cost-minimizing option, comparing the costs of testing and treatment, as indicated, for mothers and infants with the lifetime societal costs of no testing and consequent morbidity and mortality due to lack of treatment or late treatment. We find that a protocol of screening and treatment is cost-minimizing for all rates of congenital transmission, even as low as 0.1%, and all levels of maternal prevalence, as low as 0.1%. Lifetime societal savings due to screening and treatment are more than $1,300 per birth to Hispanic women from endemic areas. There are more than 480,000 births to Hispanic women from endemic areas in the United States per year, resulting in a saving of more than $600 million in lifetime savings per birth-year cohort. Educating obstetricians to offer prenatal or cord blood serologic screening to Hispanic mothers makes it possible to treat mothers, infants, siblings, and other family members at risk of serious Chagas morbidity.

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RISK FACTORS FOR ACUTE MESOAMERICAN NEPHROPATHY IN NICARAGUAN SUGAR WORKERS

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An epidemic of kidney disease of unknown etiology is unrelenting among primarily young agricultural workers in Central America. Patients with Mesoamerican nephropathy (MeN) lack traditional risk factors for kidney disease. Until recently, MeN was defined only as a chronic kidney disease (CKD), but we recently documented acute kidney injury (AKI) associated with MeN. In order to shed light on the most likely etiology and gain a better understanding of factors contributing to acute MeN, we conducted a prospective study at a large sugar estate in Nicaragua, an area heavily affected by MeN. Physicians conducted case surveillance in patients presenting for care, and controls were recruited during health screening visits. Using structured interviews, we documented demographic, medical, occupational and behavioral data. In this univariate case-control analysis, we compare data from workers with acute MeN to that from healthy control workers in order to determine occupational risk factors for acute MeN. Interview data was available on 225 cases and 167 controls, mostly male (90%). Cases were older than controls (median 31 yrs vs 28 yrs; p=0.025) and more likely to live in the village adjacent to the sugar fields (p=0.012). Case patients were more likely to work in direct contact with the sugar fields (p<0.001) but not with water, compared to controls. We also found that controls more often wore protective gear on the job: gloves (p=<0.001); glasses (p<0.001); mouth cover (p=0.001); nose cover (p=0.041); and boots (p<0.001). Cases were more likely to drink well water (p=0.002) and less likely to drink from fountains (p=0.001). Controls had a higher frequency of handwashing before eating lunch on the job (p=0.010). Interestingly, cases reported having a family member with MeN (p<0.001) more frequently than controls did. This is the first analysis to explore work-related risk factors of acute MeN. These data suggest an environmental source of MeN to which workers are exposed. Our ongoing analysis and predictive modeling will further elucidate which exposures are the most important and may inform where preventive measures could be used to prevent disease.

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BARRIERS TO PEDIATRIC INPATIENT CARE GUIDELINE ADHERENCE: A MIXED METHOD ASSESSMENT OF EIGHT HOSPITALS IN ASIA AND AFRICA

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Difficulty adhering to evidence-based guidelines is an important driver of inpatient child mortality. A mixed method assessment was conducted in eight district or national referral hospitals in Bangladesh (2), Kenya (3), Malawi (1), Pakistan (1) and Uganda (1) between July and November 2016. Key informants (administrators, clinicians, nurses, nutritionists, pharmacists) were interviewed and essential hospital infrastructure, equipment and medicines was assessed by direct observation. The clinical notes of 240 children aged 2-23 months were reviewed and indicators of adherence to guidelines for common pediatric conditions, including severe acute malnutrition (SAM), pneumonia, diarrhea, and anemia were abstracted. All facilities had local guidelines adapted from WHO recommendations. Staffing levels varied between 2.4-16.1 nurses, 0.0-11.9 nursing assistants and 2.6-12.4 clinicians per 1000 pediatric admissions. Equipment, medicines and infrastructure were generally adequate for guideline implementation, but the notes review demonstrated variable adherence. Prescribed antibiotics corresponded with recommended regimens for 79% (n: 174) of cases with a documented antimicrobial indication. Universal malnutrition screening was not implemented in four sites. Recommended SAM feeding volumes were followed in 83% (n: 72) of cases but relactation was not offered at four sites. Pulse oximetry was noted in 80% (n: 88) of pneumonia cases and

oxygen therapy was documented for 74% (n: 19) of hypoxemic children. Hemoglobin results were recorded in 70% of reviewed notes, but only 14% (n: 63) with mild or moderate anemia had documented diagnoses of anemia. Key informants reported inadequate human resources, frequent rotation of junior clinicians and difficulty providing senior supervision as key barriers to guideline adherence. Adherence to guidelines remains a challenge across a range of childhood conditions even when access to recommendations and the materials necessary for implementation are in good supply. Facility staff perceive inadequate human resources as the primary constraint to consistent guideline adherence.

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THE PREVALENCE AND DETERMINANTS OF DISCLOSURE OF SEXUAL PRACTICES TO OTHER FAMILY MEMBERS AMONG MEN WHO HAVE SEX WITH MEN IN LOME AND KARA, TOGO

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Supporting HIV prevention and treatment among people at risk/living with HIV necessitates understanding their specific HIV acquisition/transmission risk. Disclosure of sexual practices facilitates improved service provision. However, in settings of higher HIV prevalence, disclosure of sexual practices may lead to stigma and discrimination. This study aims to characterize the prevalence and determinants of disclosure of sexual practices to a family member (DFM) among MSM in 2 cities in Togo. 683 MSM ≥18 years of age were recruited using respondent driven sampling for a cross-sectional survey (354/683 in Lomé and 329/683 in Kara). Participants completed a structured questionnaire and biological testing for HIV and syphilis. Statistical analyses included t-test, RDS-weighted (RDS-w) proportions, bootstrapped confidence intervals and logistic regression models. Overall median age was 23.9 years. Most participants reported a weekly income of 2001-12,000 CFA (RDS-w Lomé= 46.5% vs. Kara=48.7%, p<0.01), and reported their sexual identity as gay/homosexual (RDS-w Lomé=61.2% vs. Kara: 62.6%, p=0.59). In total, 62/683 (9.1%) MSM were living with HIV (RDS-w Lomé=10.4% vs. Kara: 0.2%, p<0.01). Difficulties accessing health services and blackmail as a result of having sex with men were reported by less than 20% of participants. Overall, 26.8% (183/683) participants had DFM, 24.0% (85/354) in Lomé and 29.8% (98/329) in Kara. MSM living in Kara (aOR=2.05, 95% CI=1.35, 3.14) showed an increased odds of DFM compared to MSM living in Lomé. DFM was associated with income level (aOR=1.68, 95% CI=1.11, 2.56), gender (aOR=2.16, 95% CI=1.12, 4.16), living with HIV (aOR=2.03, 95% CI=1.08, 3.81). MSM who have DFM demonstrated increased odds of experiencing difficulties accessing health services (aOR=1.93, 95% CI=1.15, 3.24) and increased odds of blackmail (aOR=2.43, 95% CI=1.45, 4.07). These results highlight the individual, social, and community level determinants of DFM among MSM in Togo. Moving forward necessitates studying the temporality of disclosure in relation to other factors in order to better inform HIV treatment and prevention programs.

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SEASONAL FOOD INSECURITY IN HAYDOM, TANZANIA IS ASSOCIATED WITH LOW BIRTH WEIGHT AND ACUTE MALNUTRITION: RESULTS FROM THE MAL-ED STUDY

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In rural agricultural communities, the pre-harvest "hunger" season is a particularly vulnerable period that may cause increased food insecurity and have lasting impact on child growth. We assessed seasonal patterns of food insecurity and related health outcomes among children in the MAL-ED birth cohort study at the rural Haydom, Tanzania site. Children were followed twice-weekly to document food intake and monthly for anthropometry until two years of age. Household food insecurity was reported by caregivers every 6 months. We modelled the seasonality of food insecurity, intake of foods, birth weight, and acute malnutrition to estimate the impact of the high food insecurity season on these outcomes. We assessed severe outcomes from pediatric admissions with acute malnutrition at Haydom Lutheran Hospital in 2010-2015. Of 262 enrolled children, 158 (60.3%) of their caregivers reported food insecurity at least once. Food insecurity was highly seasonal with peak insecurity from December to February. Children born during these 3 months had an average 0.35 z-score (95% CI: 0.12, 0.58) lower enrollment weight (within 17 days of birth) compared to children born in other months. In addition, weight-for-length z-scores measured in these months were on average 0.15 z-scores lower (95% CI: 0.10, 0.20) compared to other months, adjusting for enrollment weight, and this disparity was sustained up to two years of age. These associations corresponded to the seasonal availability of foods. Consumption of animal milk was 9% lower (95% CI: 5, 12) and consumption of root vegetables was 77% lower (95% CI 71, 81) during the high food insecurity months. Correspondingly, the number of admissions with acute malnutrition at the local hospital was highest at this time, with twice as many cases in December-February compared to July-September. We identified seasonal trends of malnutrition in Haydom, Tanzania that correspond to both caregiver reports of food insecurity and child food intake. Targeting of prenatal care and child feeding interventions during high food insecurity months would likely have the greatest impact on reducing child malnutrition in this community.

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MOVING BEYOND PRIMARY HEALTH BENEFITS: EVALUATING THE IMPACT OF DRAINAGE INFRASTRUCTURE IMPROVEMENT PROJECT ON BUSINESSES AND TRAFFIC FLOW IN LUSAKA, ZAMBIA

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Impact evaluations of health intervention projects often fail to consider secondary potential benefits, possibly undervaluing the true value of the intervention. The Government of Zambia is upgrading drainage infrastructure in Lusaka, with one goal to reduce the impact of infectious diseases associated with seasonal flooding. To assess additional benefits, we collected, as part of a comprehensive evaluation of the drainage improvement project, baseline measurements of potential impact on households, businesses and traffic flow. We conducted business and traffic studies to evaluate the impact of flooding on travel time and business operations. We surveyed 587 randomly selected businesses located in a