respectively. R^2 varied across states, though positive, from 0.29 in Akwa Ibom to 0.95 in Kebbi states. Standard deviation of residuals in the regression model ranged from −3.89 to 3.33 in Borno and Gombe states respectively, while Sokoto and Bauchi had 0.006 and 0.024 respectively, thus having the best accuracy in predictions across all states in the country. Both correlation and GWR were at $p<0.05$.

Conclusion The results obtained support literature, confirming the inverse relationship between ORST prevalence, improved drinking water access and improved sanitation to diarrhea prevalence. It also supports the already confirmed positive relationship between poor nutrition of children and susceptibility to diarrhoea. The study however expanded knowledge by incorporating geocomputation to predict diarrhoea prevalence.

PO 8438 KNOWLEDGE, ATTITUDE AND PERCEPTIONS ON ADVERSE DRUG EVENTS REPORTING AMONG PATIENTS AND HEALTHCARE PROVIDERS IN RURAL UGANDA

[2]Helen Ndagije, [2]Victoria Nambasa, [1]Dan Kajungu. *[1]Makerere University Centre for Health and Population Research-Iganga Mayuge HDSS, Kampala, Uganda; [2]National Drug Authority, Kampala, Uganda*

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Background Drug regulatory authorities promote patient safety by, among other ways, monitoring adverse drug events (ADEs). Reporting of ADEs in Uganda is below the average for a well-performing system. Enhancing patients' understanding of and involving them in reporting ADEs improves drug safety and treatment outcome monitoring. The objective of this study was to describe the knowledge, attitude, and practice of patients and healthcare workers regarding ADEs and ADEs reporting.

Methods A cross-sectional survey was carried out among 1034 respondents from randomly selected households and 327 health workers at health facilities in the Iganga Mayuge Health and Demographic Surveillance Site (IMHDSS). The IMHDSS, located in Uganda, covers 90,000 people living in 17,000 households.

Results Over half of respondents (59%) sought treatment from private drug shops, 37% from either clinic, health center or hospital, while 4% sought treatment from herbalists, friends or relatives. Over half (56%) were aware of ADEs, 57% expressed willingness to report an ADE while 43% did not know what to do when it occurs. Almost half (46%) could not differentiate between an ADE and the symptoms, and for those who could, the majority (76%) were willing to report it. Only 34% had ever reported an ADE when it occurred to them. Of those who reported, 43% had their drugs changed, 31% were only counseled while 11.5% continued taking the same medication. Among healthcare workers, 95% knew about ADEs, but only 35% had ever reported. Reasons for not reporting were: fear of being victimised or sued (35%); lack of adequate knowledge about ADE (26%); 20% thought it would disappear shortly; and 14% did not find it necessary to report.

Conclusion Patients seek their treatment from private providers. Patients want to report ADEs, but they do not have adequate knowledge. Healthcare workers' reasons for not reporting are subjective. Dedicated pharmacovigilance-related interventions at community level would improve community members' knowledge and hence ADE reporting rate.

PO 8439 EFFECT OF *PLASMODIUM FALCIPARUM* EXPOSURE ON HUMAN URINARY METABOLOMICS PROFILING

[1]Madeleine E Betouke Ongwe*, [2]Aswin Verhoeven, [1]Akim Ayola Adegnika, [2]Maria Yazdanbakhsh, [2]Oleg Mayboroda. *[1]Centre de recherche médicale de Lambarene, Libreville, Gabon; [2]Leiden University Medical Center, Netherlands*

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Background Immunity against malaria infection is being studied extensively but the underlying mechanisms of protection remain not fully understood. Metabolomics is a post-genomic technology enabling a minimally invasive monitoring of the physiological responses to external and internal stimuli. Here, we present a longitudinal study of the urinary metabolic profiles of healthy individuals before and after intravenous administration of *P. falciparum* sporozoïtes, aiming at deciphering the metabolic changes observed during malaria infection.

Methods Twenty (20) healthy Gabonese and 5 Europeans were voluntary challenged by live *P. falciparum* sporozoïtes (3200 PfSPZ) and followed up until they developed symptoms and became thick blood smear-positive. Urine samples were collected before and after challenge at several time points until treatment. Samples were analysed in an untargeted approach using state-of-the-art analytical platforms, namely hydrophilic interaction chromatography-mass spectrometry (HILIC-MS) and nuclear magnetic resonance (NMR) spectroscopy. A combination of the multivariate and univariate data analysis approaches was used for dissecting the metabolic effects of a host response to the infection.

Results Unlike the Europeans participants, a part of the Gabonese volunteers did not become parasitaemic. Unsupervised data analysis shows sample discrimination between Europeans and Gabonese at baseline, before and after challenge and between Gabonese who controlled their parasitaemia and those who did not.

Conclusion This metabolomics study highlighted the differences in the urinary metabolite profiles during *P. falciparum* infection. These differences observed between parasitaemic and non-parasitaemic Gabonese after challenge with *P. falciparum*, may suggest an underlying metabolic mechanism of protection against malaria infection which we will investigate in detail.

PO 8441 EXPERIMENTAL COMPARISON OF SENSITIVITY OF LAMP AND REAL-TIME PCR

[1]Jacques Kaboré*, [2]Hamidou Ilboudo, [1]Charlie FA Compaoré, [2]Oumou Camara, [1]Mohamed Bamba, [1]Hassane Sakandé, [2]Mamadou Camara, [2]Bruno Bucheton, [3]Dramane Kaba, [3]Vincent Jamonneau, [4]Stijn Deborggraeve, [5]Veerle Lejon. *[1]Centre International de Recherche-Développement sur l'Elevage en zone Subhumide, Bobo-Dioulasso, Burkina Faso; [2]Programme National de Lutte contre la THA, Guinea; [3]Institut Pierre Richet, Bouajem, Côte d'Ivoire; [4]Institut de Médecine Tropicale, Antwerp, Belgium; [5]Institut de Recherche pour le Developpement, Marseille, France*

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Background Human African trypanosomiasis, or sleeping sickness, remains a serious problem in tropical Africa. Timely diagnosis of this disease requires systematic population screening, particularly for *Trypanosoma brucei gambiense*, which has a long asymptomatic period.

The lack of sensitivity and specificity of conventional diagnostic tests has led in recent years to the use of molecular tools. Amplification of parasite-specific DNA sequences

significantly improved diagnosis of infection. However, these molecular tools still have some limitations especially in the case of low parasitaemia. Furthermore, research is still needed to make molecular detection a real control tool for the fight against sleeping sickness. The purpose of this study is to determine the threshold of sensitivity of real-time PCR using the 18S and TgsGp primers and of the LAMP technique, applied in the DiTECT-HAT project as molecular reference tests.

Methods We used serial dilutions containing 0, 1, 10, 100, 10^3, 10^4, 10^5, 10^6 parasites per ml of blood. Samples were extracted, and DNA was amplified.

Results The analytical sensitivity of the 18S real-time PCR with the Taqman probe of the filter paper samples is 100 parasites/ml and that of the TgsGp real-time PCR with the Taqman probe of filter paper samples is 10^4 parasites/ml. For Lamp technique, the analytical sensitivity is 10^3 parasites/ml.

Conclusion This study shows that a 'negative PCR' would not mean 'no parasite'. It suggests that DNA detection techniques should still be improved.

PO 8444 CHARACTERISATION OF PATHOGENS CAUSING DIARRHOEA IN CHILDREN UNDER FIVE IN LAMBARÉNÉ, GABON

[1,2]Gédéon P Manouana*, [1,3]Gedeon Bingoulou Matsougou, [4]Natalie Byrne, [5]Philipp Hofmann, [1]mirabeau Mbong Ngwese, [1]Pau A Nguema Moure, [1]Jeannot Fréjus Zinsou, [1]Jean Claude Dejon Agobe, [1]Bayode R Adegbite, [1]Jean R Edoa, [1]Yabo J Honkpehedji, [1]Matthew B.B. Mccall, [1]Abraham S Alabi, [6,7]Daniel Eibach, [1,2]Peter G Kremsner, [2]Steffen Borrmann, [1,2]Ayola A Adegnika. *[1]Centre de Recherches Médicales de Lambaréné, Lambaréné, Gabon; [2]Institut für Tropenmedizin, Universität Tübingen, Tübingen, Germany; [3]Faculté de médecine, Université des Sciences de la Santé, Libreville, Gabon; [4]Faculty of Medicine, Universität Tübingen, Germany; [5]Charité-Universitätmedizin Berlin, Germany; [6]Bernhard Nocht Institute for Tropical Medicine; [7]German Center for Infection Research, Hamburg-Borstel-Lübeck, Germany*

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Background Diarrhoeal disease remains the second leading cause of death in children under five years, being associated with about 525,000 deaths every year. The most common pathogens worldwide are *Shigella* spp/EIEC, rotavirus, adenovirus 40/41, ST-ETEC and *Cryptosporidium* spp. Public health interventions rely on estimates of pathogen-specific burden for prioritisation. Sadly, comprehensive data on the aetiology of diarrhoea in children is lacking for Gabon. This study aimed to identify the spectrum of pathogens found in Lambaréné, Gabon and provide baseline data on their prevalence, needed for implementation of effective control measures.

Methods A cross-sectional study was conducted at Albert Schweitzer and Georges Rawiri Regional hospitals in Lambaréné from February 2017 to February 2018. A consecutive sample of children under 5 year old with diarrhoea or a history of diarrhoea within the previous three days were prospectively studied. A single stool sample was collected from each study participant and processed using commercial rapid immunoassays to detect antigens of rotavirus, adenovirus, and *Cryptosporidium* spp. Multiplex PCR was used for *Cryptosporidium* spp., *Giardia lamblia and Cyclospora cayetanensis* detection, and characterisation of *E. coli* strains.

Results Out of 188 participants who provided stool samples, one or more pathogens could be detected in 34.6% of the cases. The most prevalent parasites were *Giardia lamblia* (14.9%), *Cryptosporidium* spp. (11.7%), and *Cyclospora cayetanensis* (2.7%). Enteric viruses also were identified in these children: 10.6% and 1.6% of rotavirus and adenovirus, respectively. Multiple pathogens were detected in 5.3% of samples.

Conclusion This analysis of the causes of diarrhoea in children under 5 years of age in our setting showed three main pathogens: *Giardia lamblia*, *Cryptosporidium* spp. and rotavirus. Our study confirms major agents of acute diarrhoeal diseases in children, highlights research needs (*Cryptosporidium*) and supports the introduction of new tools such as the implementation of the rotavirus vaccine in the national immunisation programme.

PO 8446 COLLABORATIVE TUBERCULOSIS RESEARCH AGENDA AT KEMRI CENTER FOR GLOBAL HEALTH RESEARCH, KISUMU, KENYA

[1]Steve Wandiga, [1]Janet Agaya, [1]Ouma S Gurrion, [1]Ochieng Albert Okumu, [2]Grace Kiringa, [3]Juliana Otieno, [4]Geoffrey Mwai, [2]Videlis Nduba, [1]Stephen Munga. *[1]Kenya Medical Research Institute – Center for Global Health Research, Kisumu, Kenya; [2]Kenya Medical Research Institute – Center for Respiratory Diseases Research, Nairobi, Kenya; [3]Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu, Kenya; [4]Siaya County Referral Hospital, Siaya, Kenya*

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Background Developing countries grapple with inadequate funding amidst high burden of diseases. Africa is home to 9 of the 22 countries with a high tuberculosis (TB) burden and to 29 of the 41 countries with a high TB-HIV burden. Kenya is among the high TB and high TB-HIV burden countries. The Western Kenya region has the highest burden of TB and HIV. North-South partnerships are pivotal in ameliorating funding gaps in clinical research.

Methods While optimising existing infrastructure and organising programme support (i.e sensitisation and awareness creation, leading to study participant recruitment), from 2005 to date we conducted with multiple North-South collaborators capacity strengthening, TB prevalence survey, observational studies, operational research, and vaccine and drug trials.

Results TB prevalence survey showed 600 cases per 100,000 population, TB epidemiological studies among adolescents and infants yielded 680 and 900/100,000 population respectively while 2 TB vaccine trials among infants and adults were conducted in Siaya. Three TB drug trials and a TB patient observational cum bio-bank study were concluded in Kisumu. KEMRI TB laboratory was upgraded from BSL2 to BSL3, was ISO-accredited in 2013, renewed in 2015 and 2017 and supports TB programme health facilities with retreatment specimens, supervision and mentorship. Over 25 operational TB studies grouped into community and case detection (increasing case detection), diagnostic and molecular (new diagnostic methods) and epidemiology studies (testing and monitoring cohorts for epidemiological questions) were implemented. Five PhDs, 9 Master's, 2 Postgraduate Diplomas, 6 Bachelor's degrees and 10 Diplomas have been supported. Siaya clinical research center was built while in Kisumu an adolescent clinic was constructed. This work involved 18 northern and 26 southern partners. Over 35 publications have been published out of these collaborations.

Conclusion North-South collaborations provided funding, expertise and resources to harness research capacity of KEMRI; hence the need to foster a global networking culture.