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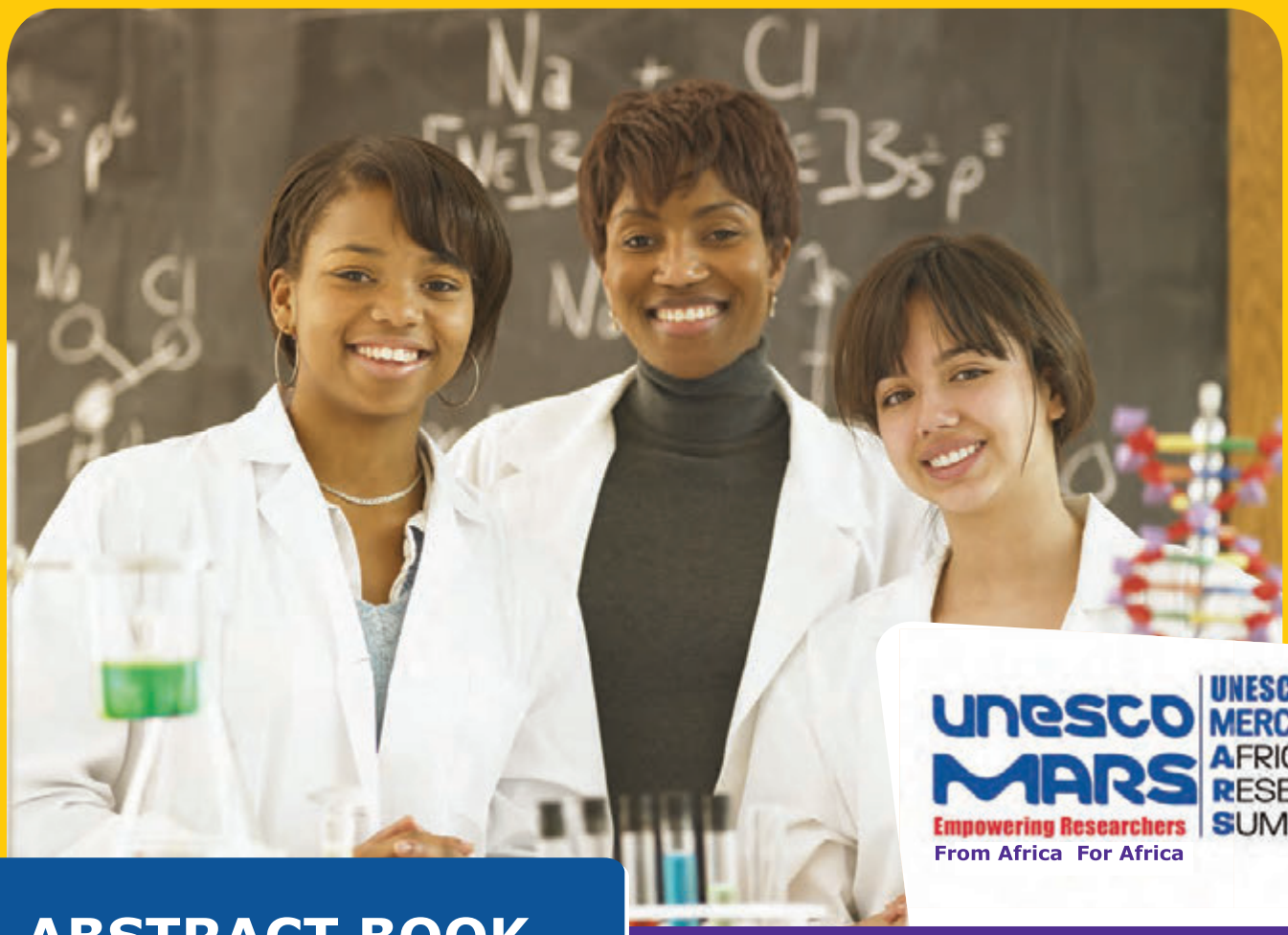
UNESCO-MERCK Africa Research SUMMit- MARS 2016

Empowering Women in Research

South-South Collaboration



UNESCO MERCK AFRICA RESEARCH SUMMIT
UNESCO MARS
Empowering Researchers
From Africa For Africa

ABSTRACT BOOK

UNESCO-MERCK Africa Research SUMMit 2016

28th to 29th November 2016
Addis Ababa, Ethiopia

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UNESCO MERCK AFRICA RESEARCH SUMMIT

UNESCO MARS

Empowering Researchers

From Africa For Africa

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ABOUT UNESCO-MERCK AFRICA RESEARCH SUMMIT 2016

The UNESCO-MARS initiative was born from the idea of improving the cooperation between public research institutes, operating in Africa in the domain of life and chemical sciences, and the global private sector, notably the pharmaceutical industry. Scientific research in the life sciences and health is recognised as a fundamental component of effective health systems, and the need to perform such research should be considered a priority in counties where health challenges constitute a burden to economic productivity and sustainable development. Research into many of the diseases which afflict the world's poorest people is neglected for financial, scientific, or political reasons; and there is a huge global inequality in the resources devoted to life science research, and only small proportion benefit countries where the majority of preventable deaths occur.

The role of scientific research has become increasingly prominent in health and development strategies since its significance was explicitly addressed in the 2004 Ministerial Summit on Health Research. During the 2008 Global Ministerial Forum on Research for Health in Bamako, UNESCO and WHO produced a declaration articulating the vital role of collaborative scientific research in health. Building research capacity requires strengthening institutions and sustainable funding, but also the training of researchers, and strong national commitment to science education at all levels.

The example of the UNESCO-MERCK cooperation symbolises the emergent need of creating sustainable partnerships among heterogeneous actors, to support research in life and health sciences in Africa. To this end, Merck in partnership with UNESCO, African Union, Ethiopia Ministry of Health and the University of Cambridge successfully held the second edition of UNESCO-Merck Africa Research Summit (UNESCO-MARS) in Addis Ababa, Ethiopia. The aim of the 2016 Summit was to empower women in research with the key focus to improve women health.

During the Summit, nine winners under two categories, '**Best Young African Researchers Award'** and **'Best African Women Researchers Award'** were announced. This was the first time the 'Best African Women Researchers Award' was launched. The Merck online research community (www.merck-cap.com) was also launched at the Summit with the aim of providing a platform that will enable young researchers to share experiences with their peers in Africa and beyond.
At the Award ceremony, Merck together with UNESCO presented five winners from Kenya, Burkina Faso, Gabon, Uganda and Ethiopia with the 'Best African Women Researchers Awards' and four winners from Botswana, Cameroon, Gambia and Zimbabwe with the 'Best Young African Researchers Awards'

UNESCO–MARS 2016 brought together more than 200 researchers from more than 35 African countries to discuss the generation, sharing and dissemination of research data and to prepare for the road ahead in developing Africa as an international hub for research excellence and scientific innovation. Prof. Frank Stangenberg-Haverkamp, Chairman of Executive Board and Family Board of E. Merck KG congratulated the winners. He said: "Merck will work together with UNESCO to empower young researchers which raises the level of scientific research in Africa and encourages in particular young women researchers to pursue their dreams, work for improving access to health solutions and make a difference in the continent. Moreover, I am very pleased to offer my support to motivate female researchers & healthcare providers and recognizes their excellent contribution to fields where they are underrepresented." In her introductory remarks, Dr Rasha Kelej, Chief Social Officer, Merck Healthcare highlighted: "This is the second UNESCO-MARS we are holding after the successful one held in Geneva, Switzerland in 2015. Merck is committed to empowering women in STEM (Science, Technology, Engineering and Mathematics) which will consequently contribute to improving the quality of research and science in Africa." "Merck's support for Women in research where they are currently under-represented will help bridge the gender gap in STEM in Africa. The five Best Women Researchers awardees from Kenya, Burkina Faso, Gabon, Uganda and Ethiopia were selected by the MARS Scientific Committee based on their high quality contribution to research in their respective fields of health sciences," Kelej explained.

The first UNESCO-Merck Africa Research Summit was successfully organized and held in Geneva, Switzerland in October 2015 with the focus on Emergent Infectious Diseases such as Ebola. The third UNESCO- MARS is scheduled to be held in 2017 in Africa.

SCIENTIFIC & STEERING COMMITTEE MEMBERS

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SELECTED ABSTRACTS

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1ST PLACE, 'BEST YOUNG AFRICAN RESEARCHERS AWARD'

Prevalence of Oncogenic Human Papillomavirus genotypes in women with vulvar and cervical squamous cell carcinoma in Botswana

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Background: Increasing evidence worldwide shows that oncogenic/high risk Human papillomavirus (HR HPV) causes invasive cervical squamous cell carcinoma (SCC) and its and its precursor lesions. Studies have also shown that HPV infection is associated with other genital cancers such as vulval, anal and penile SCC with HPV 16 being the mostly commonly isolated in the developed world. Knowledge on the prevalence of high risk HPV in HPV associated SCC is crucial for selecting appropriate vaccines in cervical and anogenital cancer prevention programs for a particular region.

Aims and Objectives: The aim of the study was to determine the prevalence of HPV genotypes in the patients diagnosed with anogenital SCC in Botswana and its distribution patterns.

Methods: This study used 141 formalin-fixed and paraffin-embedded cervical and vulval tissue blocks diagnosed with SCC from year 2000 to 2016. Tissues were sectioned at 20µm and de-waxed with xylene and alcohol. DNA was extracted from tissue sections and genotyped for the 14 high risk HPV types using Abbott m2000 Real time PCR platform. This assay is a qualitative test that is able to detect all the 14 high risk HPV but differentiates between HPV 16, HPV 18 genotypes. Other 12 high risk (HR) genotypes were reported as Other HR HPV and were genotyped using an in-house method.

Results: The median age of the subjects was 42 years (range 26 - 83 years). Of 141 tissues studied, 70/141 (49.65%) had vulval SCC and 71/141 (50.35%) had cervical SCC. 92/141 tissues were from HIV infected women. 96/141 (68.09%) had HR-HPV, and HR-HPV prevalence was 71.43% (50/70) in vulval and 78.9% (56/71) cervical SCC respectively. In HIV/HR-HPV co-infection, the most commonly isolated genotypes were HPV 16(82.8%), HPV 33 and 52 at 6.9%, HPV 26 and 39 at 3.4% each in vulval SCC; no HPV 18 was isolated in this group. In cervical SCC, the most common was HPV 16 (66.1%), 18 (16.1%) 35 and 45 at 11% each. Only HPV 16 was isolated in HIV negative women with HPV infection.

Conclusion: HPV 16 and other HR HPV were the most prevalent HPV genotypes in women with vulval and cervical SCC and accounted for 65% of the HPV associated anogenital SCC in the study. However HPV 18 was also seen in significant numbers in cervical SCC. This information will assist HPV vaccination strategies and selecting the best vaccine design for this study population in Botswana.

2ND PLACE, 'BEST YOUNG AFRICAN RESEARCHERS AWARD'

The experiences of women living with trachoma in Africa: A qualitative systematic review

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[2]Department of Anthropology, University of Yaounde.

Background: Trachoma remains the second leading cause of blindness in the world with majority of the cases in Africa, Middle East and Asia. The disease inflicts untold suffering with women and children being the most affected. While efforts have been made both at national and international levels to combat the disease, a gender approach has been lacking with a particular consideration on how it affects women.

Objective: The aim of this study was to synthesize the best available evidence on the experiences of women living with trachoma in Africa that could inform policy and decision-making.

Methodology: We searched studies that used qualitative methodologies (ethnography, phenomenology grounded theory etc.), with a focused on the experiences of women with trachoma in Africa. Data bases searched were not limited Pubmed, Google scholar, Psych Info, and the reference list of included studies as well. Search terms used include "experience with trachoma on women, women and trachoma, impact of trachoma on women, burden of trachoma on women, gender and trachoma etc. Included papers were appraised separately by two independent reviewers for methodological quality and rigor using the Joanna Briggs Institute critical appraisal instrument (QARI). Data was extracted and synthesized using the QARI tool

Results: A total of 2713 studies were screened and finally two studies were eligible for inclusion. The findings indicates that trachoma represents a heavy burden on women from the economic, social and religious perspectives. Economically, the disease drains family resources and causes poverty as women were unable to work and earn income. From the social dimension, the disease caused women to live in isolation since they had to cut off from the community and live at home due to the watery nature of their eyes, leading to public embarrassment and stigmatization from friends, family members and neighbours. Women also suffered from psychological problems like stress and trauma due to the disease. The negative impact of the disease is not limited to women alone but also their children and families.

Conclusion: Interventions towards effective management of trachoma goes beyond the clinical aspects of the disease. Policy makers and health care providers and health promotion groups need to consider the socio-cultural, economic, religious and psychological dimensions of the disease, which goes beyond the clinical management of the disease. However, more primary research is needed on the gendered aspects of the prevalence, management and prevention of trachoma.

3RD PLACE, 'BEST YOUNG AFRICAN RESEARCHERS AWARD'

Cryptococcus neoformans population diversity is not associated with clinical outcomes of HIV-associated cryptococcal meningitis patients in Zimbabwe

Tinashe K. Nyazika, Ferry Hagen, Tendai Machiridza, Melody Kutepa, Faith Masanganise, Marijke Hendrickx, Teun Boekhout, Tricia Magombei-Majinjiwa, Nonthokozo Siziba, Nyasha Chin'ombe, Kudzayi Mateveke, Jacques F. Meis, Valerie J. Robertson

The University of Zimbabwe

Abstract: HIV and cryptococcal meningitis coinfection are a major public health problem in most developing countries. Cryptococcus neoformans sensu stricto is responsible for the majority of HIV-associated cryptococcosis cases in sub-Saharan Africa. Despite the available information, little is known about cryptococcal population diversity and its association with clinical outcomes in patients with HIV-associated cryptococcal meningitis in sub-Saharan Africa. In a prospective cohort we investigated the prevalence and clinical outcome of C. neoformans sensu stricto meningitis among HIV-infected patients in Harare, Zimbabwe and compared the genotypic diversity of the isolates with those collected from other parts of Africa. Molecular typing was done using amplified fragment length polymorphism genotyping and microsatellite typing. The majority of patients with HIV-associated C. neoformans sensu stricto meningitis in this cohort were males (n=33/55; 60.0%). The predominant C. neoformans sensu stricto genotype among the Zimbabwean isolates was genotype AFLP1/VNI (n=40; 72.7%), followed by AFLP1A/VNB/VNII (n=8; 14.6%) and AFLP1B/VNII was the least isolated (n=7; 12.7%). Most of the isolates were mating-type α (n=51; 92.7%) and only 4 (7.3%) were mating-type a. Overall in-hospital mortality was 55.6% (n=30) and no difference between infecting genotype and survival outcome of patient (P=0.73) or CD4+ counts (P=0.79) was observed. Zimbabwean C. neoformans sensu stricto genotypes demonstrated a high level of genetic diversity by microsatellite typing and 51 genotypes within the main molecular types AFLP1/VNI, AFLP1A/VNB/VNII and AFLP1B/VNII were identified. This study demonstrate that C. neoformans sensu stricto in Zimbabwe has a high level of genetic diversity when compared to other regional isolates.

3RD PLACE, 'BEST YOUNG AFRICAN RESEARCHERS AWARD'

Qualitative detection of proviral-DNA of HIV-1 in neonates to determine the efficacy of antiretroviral therapy in the prevention of vertical transmission of HIV-1 in the Gambia.

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National AIDS Control Program, the Gambia.

Abstract: The priority of the Gambia is to eliminate maternal to child transmission of HIV and in line with this priority, the country implemented an antiretroviral therapy (ART) program. With this, all HIV infected pregnant and breastfeeding mothers and infants have access to ARV drugs. This study aims to determine the prevalence of vertical transmission of HIV among women receiving the ARV drugs. Dried blood spot samples were collected from 109 HIV-exposed infants enrolled in 12 ART sites across the country. A qualitative detection of proviral-DNA of HIV-1 was performed using the RealTime Abbott PCR assay. Data from 105 mothers were analyzed using SPSS version 16.0 and association of risk factors to PCR results were analyzed using (Cross-tabs) Pearson Chi-Square. The p-value of significativity is set at $p<0.05$. This study has found the prevalence of vertical transmission of HIV is 0.0% (0/64) among women that received the ART, 7.1% (2/28) among mothers that received HIV prophylaxis only, and 38.4% (5/13) among women who neither receive HIV-prophylaxis nor ART during pregnancy or breastfeeding. Other risk factors of vertical transmission such as late initiation of treatment, default during treatment and first born of twins were found to be significantly associated with vertical transmission $p=0.001$, $p=0.022$ and $p=0.000$ respectively. This study has found that the early intervention of ART at the onset of pregnancy through breastfeeding can eliminates Maternal to Child transmission of HIV and a high risk of vertical transmission was found among women who neither receive prophylaxis nor ART. If the effectiveness of the antiretroviral therapy is maintain, the Gambia, in the near future will attain the WHO's goal to eliminate Maternal to Child transmission of HIV.

1ST PLACE, 'BEST AFRICAN WOMEN RESEARCHERS AWARD'

Clinicians' experiences and insights in conducting an intra-vaginal ring study among young women in Kisumu, Kenya, 2015 - lessons learned

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Issue: Clinician's experiences with introducing multi-purpose technologies are often lacking in our assessments of novel biomedical technologies and procedures. From April 2014-August 2015 we conducted a single-trial observations study of a contraceptive intravaginal ring (IVR) in Kisumu Kenya given microbicide trials are currently testing the use of technology for preventing HIV infection. No IVRs are currently licensed for use in Kenya and pelvic examinations are not routinely done in family planning clinics.

Setting: HIV-uninfected, sexually-active females 18-34 years of age were recruited to take part in a 12-month clinical trial. Documentation of contraceptive method and willingness to undergo routine pelvic examinations were required to enrol in the study. Women were transitioned from their existing contraceptive method to a contraceptive IVR (NuvaRing) for six months, and then transitioned back to oral or injectable contraceptives. To augment our understandings IVR use, we undertook textual analysis of clinicians' notes by hand.

Results: Contraceptive documentation was found to not be reliably available as some women accessed contraceptives from pharmacists (over-the-counter purchase). Participants were noted to self-report injectable or oral contraceptive use; yet, physical and pelvic examinations showed the presence of implants and other intrauterine devices. Clinicians also documented that some participants self-reported that oral contraceptives use did not occur daily. Instead, pills were only used if sexual intercourse would be taking place (e.g., partner worked out of town and would be returning for a home visit). Initially, anxiety about pelvic examinations was observed. Waiting room conversations around the painful insertion of a metal object and input from women who had already undergone a pelvic examination were overheard. Documentation indicated that privacy and reassurance from clinicians also helped alleviate pelvic examination concerns. In addition genital modification such as labial elongation (not commonly practiced in the region) was observed. Preference for female clinicians was made by participants.

Lessons Learned: Anecdotal information served an important role in the clinical management of study participations and expanding clinicians' understanding of participants' practices in this study. Moreover, increased clinician knowledge and insights regarding motivations for omitting or providing incorrect information may have implications for study procedures and outcomes. Clinicians may require additional time to address patients concerns or misinformation as well as understand how contraceptives are accessed outside of a clinic setting. Lastly, contraceptive use may be inconsistent, not used as intended, and change within a given period; hence, ongoing contraceptive education and monitoring may be required.

2ND PLACE, 'BEST AFRICAN WOMEN RESEARCHERS AWARD'

Molecular diagnosis of cytomegalovirus (CMV), the Human Herpes Virus Type 6 (HHV6) and Epstein-Barr virus (EBV) by real-time PCR in pregnant women infected or not infected by HIV at Ouagadougou, Burkina Faso

Alice Rogomenoma Ouedraogo[1], Birama Diarra[1], Cyrille Bisseye[2], Lassina Traore[1], Madeleine Kabre[1], Maleki Asshi[1], Serge Théophile Soubeiga[1], Théodora Mahoukèdè Zohoncon[1], Florencia Wendkuuni Djigma[1], Djénéba Ouermi[1], Virginio Pietra[1], Nicolas Barro[3], Jacques Simpore[1]

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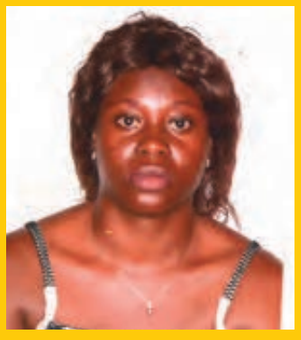
Introduction: The herpes virus EBV, CMV and HHV-6 are viruses that evolve under the model pandemic and are responsible for congenital infections can cause severe sequelae in newborns.

Objective: To determine the prevalence of CMV, EBV and HHV-6 in pregnant women HIV (+) and HIV (-) in Ouagadougou. Methods: In this study 200 blood plasma samples from pregnant women with 100 women HIV (+) and 100 women HIV (-) were diagnosed by multiplex real time PCR for the three infections (EBV, CMV and HHV-6).

Results: Of the 200 samples tested, 18 (9.0%) were positive for at least one of the three viruses, 12 (6.0%) were positive for EBV, 13 (6.5%) and CMV 12 (6.0%) positive for HHV-6. Among 18 cases of infections, we found 10 cases (55.6%) of co-infections of which 90.0% (9/10) of multiple infection EBV / CMV / HHV6 and 10.0% of EBV coinfection / HHV6. The infection rate HHVs was higher among women HIV (-) than HIV (+) (12.0% versus 6.0%). Among the HIV (+), PCR revealed 7.1% (or 6/85) of HHVs infection in those who were not on ARV against 0% in those on ARVs.

Conclusion: Herpes viruses are common among pregnant women in Burkina Faso and could pose a threat in the past because of the complications and risks of infection to the newborns.

3RD PLACE, 'BEST AFRICAN WOMEN RESEARCHERS AWARD'



Pro- and anti-inflammatory cytokines in children with malaria in Franceville, Gabon

Sandrine L Oyegue-Liabagui[1], Aline G Bouopda-Tuedom[1]

Lady C Kouna[3], Sidney Maghendji-Nzondo[3], Herman Nzoughe[3], Nina Tchitou-la-Makaya[1], Irene Pegha-Moukandja[3], and Jean-Bernard Lekana-Douki[2,3]

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Abstract: Severe Plasmodium falciparum malaria anaemia (SMA) is a major cause of mortality in pediatric wards. Variations in inflammatory mediator production play an essential role in disease outcomes. The role of the recently discovered Th17 cells subset in malaria is unclear. Several studies show the involvement of pro- and anti-inflammatory cytokines such as IFN-α, IL-6, TNF-α and IL-10 in malaria immunopathology. Here, we investigated IFN-ɣ, TNF-ɴ, IL-6, IL-12, IL-10, IL-4, IL-13, IL-17, IL-22 and IL-21 circulating levels and their association with malaria anaemia and parasitemia in Gabonese children. Levels of IFN-α (500±100.2 pg/ml), IL-6 (64±14.2 pg/ml), IL-10 (505±35 pg/ml), IL-13 (30.6±5.6 pg/ml) were significantly higher ($p<0.03$) in infected children than in uninfected controls (210 ± 20 pg/ml, 17.5 pg/ml, 50 ± 25.9 pg/ml, 17.48 pg/ml, respectively) . IFN-α levels were significantly lower ($p = 0.04$) in children with SMA (400 ± 200 pg/ml) than in those with uncomplicated malaria (900 ± 450 pg/ml) and higher in those with parasitemia ($p = 0.019$). Levels of IL-6 and IL-10 were significantly higher in children with malarial anaemia ($p < 0.001$) and hyperparasitemia ($p < 0.0001$). A significant association between IL-10 levels and parasite density was observed ($p < 0.00001$). IL-22 levels were significantly higher ($p = 0.01$) in infected children (72.57 ± 7.5 pg/ml) than in the controls (54.96 ± 1.93 pg/ml). IL-21 levels (44.46 ± 17.27 pg/ml) decreased with the severity of . anaemia ($p < 0.05$), whereas IL-17 levels increased in children with SMA (12.25 ± 1.25 pg/ml) than in those with mild malaria anaemia (MMA: 6.2 ± 5.25 pg/ml, $p = 0.002$).

These results confirm the role of IFN-α in protection from SMA and in parasite clearance. Elevated IL-6 levels are associated with SMA. IL-10 regulates the inflammatory response. IL-22 and IL-17 could play a role in the development of P. falciparum malaria infection.

4TH PLACE, 'BEST AFRICAN WOMEN RESEARCHERS AWARD'

Understanding outcomes of HIV positive patient following a missed appointment in rural Uganda

Nabaggala Maria Sarah

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The Infectious Diseases Institute, Uganda.

Background: Retention into HIV care has both individual and public health implications since it is associated with HIV viral suppression and survival[1, 2, 3].Missed scheduled HIV appointments lead to increased mortality, resistance to antiretroviral therapy and suboptimal viralogical response[4]. We sought to assess the effect of patient tracking on return to care among HIV positive patients that miss their scheduled visits in a rural resource limited setting.

Methods: As per Civil Society Fund (CSF) project of "Strengthening HIV Care and Treatment at Regional Referral Hospitals in Uganda", one of the objectives was to achieve 85% retention rates by September 2015.Patient tracking involved a monthly phone call and/or home visit for any patient that missed a scheduled appointment visit for three successive months. We retrospectively reviewed patients' information on gender, age, mode of contact, reason for missing scheduled appointment and their respective return statuses. Data was extracted from the Ministry of Health follow-up register for the period January 2014 to August 2015.Using logistic regression; we examined the factors associated with returning to care after a missed appointment.

Results: Of the 650 patients in the clinic, 309 patients ever missed a scheduled appointment in the period, of which 204(66%) are female. Overall, 598 phone calls and 472 home visits were made. Among the patients contacted, 167 (54%) returned to care. Having adjusted for gender, age, contact form and reason of missing appointment, females (OR=1.65, 95%CI=1.01-2.68) and travelling at time of contact (OR=1.36, 95%CI=0.74-2.58) were associated with return to care. There were no differences in return to care by age or contact form used.

Conclusions: Despite high percentages of patients returning to care the findings emphasize the need for additional measures geared towards contacting patients particularly HIV positive males after a missed scheduled appointment as a strategy to retain them into care.

5TH PLACE, BEST AFRICAN WOMEN RESEARCHERS AWARD

Ex-vivo characterization of regulatory T-cells in Pulmonary Tuberculosis patients, latently infected persons, and healthy endemic controls

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Background: Regulatory T cells (Treg) are an essential arm of adaptive immunity not only in tolerance and autoimmunity but also in infectious diseases. In Tuberculosis (TB), it has been suggested that the frequency of Tregs is higher in the blood of TB patients when compared to healthy controls with subsequent decline after treatment. However, with the discovery that FOXP3, the hallmark marker of Tregs, is not exclusive to Tregs and the lack of specific markers for Tregs, it has been a challenge to fully understand the role of Tregs in TB.

Method: We isolated PBMC from smear positive TB patients (TB, N=13) before and after treatment, latent TB infected participants (LTBI, N=8), and healthy endemic controls (EC, N=9) and evaluated the frequency of different populations of Tregs and expression of FOXP3 by flow cytometry using six markers.

Results: The findings in this study showed that the association of Treg frequency with TB disease depends on the phenotypic markers used. While the frequency of CD4+CD25+/hi T cells were higher in TB patients compared to LTBI individuals, there was no difference in the frequency of CD4+CD25+FOXP3+CD127lo Treg among TB, LTBI, or EC. However, delineation of Tregs into active and naïve subsets revealed a significant increase in FOXP3 expression in active primed Tregs (CD4+CD25+FOXP3+CD127loCD45RO+Ki-67+) of TB patients compared to LTBI and EC; and a significantly higher frequency of resting primed (CD45RO+Ki-67-) Treg in QuantiFERON negative EC compared to TB patients. After treatment completion, there was a significant decline in the frequency of active primed Treg, median (IQR) from 12.4% (9.5-21.9) of Tregs to 9.3% (7.0-12.2); P=0.003 Wilcoxon signed rank test. We conclude that Treg subsets maybe differentially regulated and expressed in TB disease, cure, and infection.

Cryptococcus clinical manifestation among HIV infected of patients attending the Intermediate Hospital Oshakati, Namibia

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Introduction: Cryptococcus is the most incriminated fungal pathogen that causes cryptococcal meningitis in HIV-infected patients and is known to constitute a major cause of mortality in AIDS patients. Previous studies, mostly from Africa have indicated that positive serum cryptococcus may precede the development of cryptococcal meningitis and cause early mortality among patients with advanced HIV infection. There is no published data on the burden of cryptococcal infections among HIV patients in Namibia; thus the magnitude of cryptococcal diseases associated with HIV is unknown. This study was done to determine the prevalence of cryptococcus among HIV patients attending at Intermediate Hospital Oshakati and the level at which a patient's CD4 count is significantly associated with cryptococcal antigenemia.

Methodology: A descriptive cross-sectional study was conducted at the Intermediate Hospital Oshakati. The study included 384 HIV patients (231 females and 153 males) whose blood samples were examined for cryptococcus by using IMMY CrAg test kit at the NIP laboratory. Baseline clinical data and demographic information were retrieved from the patient medical records and laboratory information system.

Results and Discussion: Among the 384 HIV-infected patients enrolled, 36 (9.38%) were positive for serum cryptococcal antigen. Among these 36 patients the CD4 count ranged from 2-301 cells/ul and median CD4 count was 72cells/ul. Of the 36 positive cryptococcus cases, 26 (72.22%) had CD4 counts below 100cells/ul. When stratified by CD4 count, 72.22% of patients with ≤100 cells/ul had a positive cryptococcal antigen test as compared to 25.00% with CD4 counts between 101-200 cells/ul and 2.78% with CD4 counts >200 cells/ul.

This study demonstrates a high prevalence of cryptococcus among HIV patients receiving their CD4 count measurements at the Communicable Disease Clinic, Intermediate Hospital Oshakati. The prevalence of cryptococcus among HIV patients was high and as such it calls for drastic public health interventions spearheaded by the Namibia Ministry of Health and Social Services (MoHSS). It is recommended that the MoHSS implement a routine screening of cryptococcus neoformans antigen among HIV patients with CD4 count ≤100cells/ul. This will improve the accurate early diagnosis and provide the surest way to reverse the deteriorating health status of the Namibian people.

Trends in maternal deaths in HIV-infected women, on a background of changing HIV management guidelines in South Africa: 1997 to 2015

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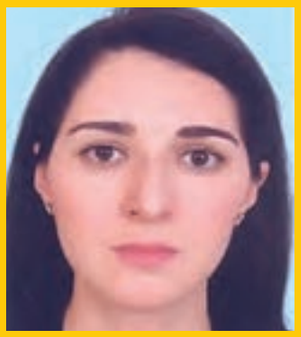
Background: As work begins towards the Sustainable Development Goal (SDG) target of reducing global maternal mortality to less than 70 deaths per 100 000 live births by 2030, much needs to be done in ending preventable maternal deaths. Due to the HIV epidemic, South Africa experienced a reversal in gains in decreasing maternal mortality, with an increase in HIV-related maternal deaths.

Objective: To assess trends in maternal mortality in HIV-infected women, at Chris Hani Baragwanath Academic Hospital (CHBAH) in Johannesburg, South Africa, on a background of evolving HIV management guidelines. Methods: This was a retrospective record review of maternal deaths in the obstetric unit at CHBAH, a referral hospital in a high HIV prevalence setting where the prevalence among pregnant women accessing antenatal care has plateaued around 29.0% for the past decade. Trends in HIV diagnosis and management in pregnancy, and causes of maternal deaths, in HIV-infected women, were analysed over different time periods reflecting evolving guidelines.

Results: From January 1997 to December 2015, there were 692 maternal deaths at CHBAH. Of the 490 (70.8%) women with a documented HIV status, 335 (68.4%) were HIV-infected. The institutional maternal mortality ratio (iMMR) in HIV-infected women peaked in the period 2004-2009 at 379 (95% CI 319-446) per 100 000 live births, with a decline to 267 (95% CI 198-353) per 100 000 live births in 2013-2015, p=0.024. Non-pregnancy related infections, the majority respiratory infections, were the leading cause of death throughout the review period, accounting for 61.5% (206/355) of deaths. Only 23.3% (78/335) of the women who died were on antiretroviral therapy (ART) at the time of death, this in the context of advanced immune suppression and an overall median CD4 count of 136 cells/μl (IQR 45-301). In 2013-2015, 38.8% (19/49) of women who died were not on ART, despite widespread availability of ART.

Conclusion: In this 19-year review of maternal deaths at a referral hospital in Johannesburg, South Africa, the iMMR in HIV-infected women remains unacceptably high. Efforts to address drivers of mortality and barriers to accessing ART need to be accelerated if we are to see substantial decreases in maternal mortality.



Knowledge of Human Papillomavirus and acceptability to vaccinate in adolescents and young adults of the Moroccan population

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Abstract: Human papillomavirus (HPV) infection is estimated to play an etiologic role in 99.7% of cervical cancer. Vaccines can prevent up to 70% of the cervical cancer caused by HPV 16 and 18. The present study was designed to define the knowledge of HPV and HPV vaccine acceptability among Moroccan youth. A nationwide anonymous questionnaire with a sample of 688 adolescents (12-17 years) and 356 young adults (18-30 years) was organized, that asked about HPV, origin of cervical cancer, Papanicolaou (Pap) test, and acceptability of HPV vaccine. Data were analyzed using univariate and multivariate logistic regression methods. Overall, a low frequency (213/1044 = 20%) of HPV knowledge was observed among the studied population. A multivariate model analysis showed that age, educational level, and knowledge of the Pap test remained significantly associated factors with HPV knowledge. Additionally, only 27% (282/1044) of participants were willing to accept HPV vaccination. Highest acceptability was observed among young adults compared with adolescents (166/356 = 46.6% vs 116/688 = 16.9%). Sixty-two percent (103/165) of male participants accepted the HPV vaccine compared with only 20.4% (179/879) of female participants. Educational level, type of school, and knowledge of the Pap test were associated factors with HPV vaccine acceptability in a multivariate model analysis. The present study showed a low level of HPV knowledge and HPV vaccine acceptability among Moroccan youth. Promotion of activities and sensitization are required to maximize public awareness in the future. This objective can be achieved with the use of media, active efforts by health care providers, and introduction of sexual education in school programs.

The potential effects of combined oral contraceptives and local vaginal estriol cream on transmission of HIV and other STIs in a baboon model

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Abstract: The vaginal mucosa changes has been associated with increased risk of HIV and sexually transmitted infections (STIs). Estrogen regulates growth and development of the epithelium through estrogen receptor alpha and beta while progestin mediates their transcription regulatory effects through progesterone receptors that belong to nuclear superfamily class of receptors. Although hormonal based contraceptives are widely used by women, little is known about how they regulate the vaginal epithelium thickness and steroid hormone receptors on vaginal mucosa. Hormonal based contraceptives may modulate histological changes in vaginal epithelium which could protect or predispose women to vaginal infections. In the current study, we determined the effects of COCs and LVEC on menstrual cycle, vaginal epithelium thickness, reproductive hormone levels and distribution of steroid hormone receptors in normal cycling captive female baboons. This study was an experimental controlled design with LVEC and COCs groups of 9 healthy cycling adult female baboons (Papio anubis; 11– 15kg). Biopsies and blood samples were taken before hormonal treatment and during the third month of treatment (luteal, menstrual and mid-follicular phases) from all the 9 baboons. All vaginal biopsies were fixed in 10% formaldehyde, processed and stained using hematoxylin and eosin to determine the vaginal thickness and using immunohistochemistry for estrogen receptor and progesterone receptor analysis. Reproductive hormones were determined using the electrochemiluminescence immunoassay. During the normal menstrual cycle, mid-follicular phase had the thickest vaginal epithelium corresponding to increased estradiol levels and maximum turgescence of the perineal sex skin. Luteal phase had the thinnest vaginal epithelium, with decreased estradiol levels, increased progesterone levels and perineal sex skin deflation. The staining intensity of ER alpha, ER beta and PR was similar in the different menstrual cycle phases. COC and LVEC treatment maintained a relatively constant vaginal thickness as compared to baseline values. COC maintained a thicker vaginal epithelium as compared to LVEC. Both treatments altered the menstrual cycle length of the baboons following 3months of treatment. COC suppressed ER beta expression, LVEC elevated PR expression and suppressed ER alpha expression. Data from this study indicate that hormonal treatment affect the vaginal epithelium thickness and steroid hormone receptors. However, their role in influencing the mechanism of female heterosexual transmission of infections such as HIV and other STIs may need further studies to elucidate. The current study is a component of a bigger study that aims at determining possible prevention strategies against human immunodeficiency virus (HIV) in women using baboon models.

Prevalence of oncogenic Human Papillomavirus genotypes in women with vulvar and cervical squamous cell carcinoma in Botswana

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Background: Herpes simplex virus infection is a global health concern. Herpes simplex virus has been characterized into two distinct serotypes: HSV-1 (associated with orofacial infections) and HSV-2 (associated with genital infections). Both types are highly infectious and can be transmitted from mother to the neonate and increase the mortality rate. Infection with HSV-2 increases the risk of HIV and HPV acquisition, and in association with HPV infection increase the risk of invasive cervical cancer. The WHO has estimated the global burden of HSV-1 and HSV-2 in 2012 to be 67.0% and 11.3% respectively, with highest occurring in Africa. There is a paucity of data on the prevalence of HSV infection in Ghana.
Aim: To provide up-to-date data on sero-prevalence of HSV-1 and HSV-2 infection among women attending the cervicare clinics in Ghana.

Methodology: The study was a cross-sectional descriptive study, where 380 women attending the Cervicare Centers at Regional Hospitals in Kumasi and Accra, Ghana were enrolled. The serum HSV-1 IgG and HSV-2 IgG were determined by ELISA method (Calbiotech Inc., CA, USA). The SPSS version 22 was used for statistical calculations. Statistical significance was accepted at $p<0.05$.

Results: The mean age of the study participants was 40.83 years (SD ± 11.12). The overall HSV-1 and HSV-2 sero-prevalence were 99.20% and 78.40% respectively. The study observed 78.2% cross-positive prevalence of HSV-1 and HSV-2 of the studied participants. There was no association between the occurrences of HSV-1 and HSV-2 infection and age groups ($\chi2= 2.351$, $p=0.799$ and $\chi2=1.655$, $p=0.895$ respectively). The study showed association between the prevalence of HSV-2 and the age at coitarche ($p=0.021$).

Conclusion: The sero-prevalence of HSV-1 and HSV-2 among the population of women attending Cervicare centers in Accra and Kumasi, the two major cities in Ghana was high. This is likely to be due to the high transmission of the virus, lack of awareness of the viral infections among the population and certain predisposing environmental risk factors. Public health concern must be geared towards educating women on herpes infection and its mode of transmission.

Socio-economic situations and determinants of ART non-adherence among individuals living with HIV/AIDS in Gondar Town Health Center, North west Ethiopia

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Introduction: The epidemic of HIV / AIDS is affecting individual and community lives at different levels. To encounter such challenge HIV positive individuals are taking ART drugs but they often faced different challenge for taking the drug.

Objective: The main objective of this study is to investigate the major socio-economic situations determinants of ART non- adherence among HIV/ AIDS positives in Gondar Town Health Center.
Methods: To do so I have conducted a cross-sectional study with mixed method research that is both quantitative and qualitative methods. More specifically, I have employed questionnaires, FGD and in-depth interview to collect the actual data from respondents.

Results: Based on the information gathered from respondents' majority of them are females (78%) whose age lay between 39-49 and socio-economically their major occupation is daily laborer and unemployed. As to the major challenges of taking ART drug personal, socio-economic situation that is being poor, lack of food, family level factors, shortage of professional counseling services and others are responsible.

In conclusion, ART non- adherence is associated with the socio-economic condition of patients' personal, family and community level challenges.

Tuberculosis and the risk of opportunistic infections in HIV-infected patients starting ART in Burundi

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Objectives: To study the incidence of opportunistic infections (OIs) and cancers and the role history of tuberculosis (TB) as a risk factor for developing these conditions in patients infected with HIV who start antiretroviral (ARV) Burundi.

MethodS: Five ARV programs in Gitega, Ngozi, Kayanza, RUMONGE, and Bujumbura Mairie of the largest cities of Burundi participated. The results were the extrapulmonary cryptococcal disease (CM), pneumonia caused by Pneumocystis jirovecii (PCP), Kaposi's sarcoma and non-Hodgkin lymphoma. A history of tuberculosis was defined as a diagnosis of tuberculosis before or at the start of ART. We used Cox models adjusted for age, sex, CD4 cell count at the start site and ART, the presentation of results that the adjusted risk ratios (PA) with confidence intervals of 95% (IC).

Results: We analyzed data from 175,212 patients enrolled between 2000 and 2010 and identified 702 patients with CM incidents (of which 205 with a history of tuberculosis) and 487 with the incident PCP (including 179 with a history of tuberculosis). The incidence per 100 person-years during the first year of ART was 0.48 (95% CI 0.44 to 52) for CM, 0.35 (95% CI of 0.32 to 0, 38) for the PCP, 0.31 (95% CI from 0.29 to 0.35) for Kaposi's sarcoma and 0.02 (CI 0.01-0.03 95%) for non-Hodgkin lymphoma. A history of tuberculosis was associated with cryptococcosis (AHR 1.28, CI 1.05 to 1.55 95%) and Pneumocystis jirovecii (AHR 1.61, 95% CI 1.27 to 2.4), but not with non-Hodgkin lymphoma (AHR 1.09, 95% CI 0.45 to 2.65) or Kaposi's sarcoma (AHR 1.02, CI 0.81 to 1.27 95%).

Conclusions: Our study suggests that there may be interactions between the various opportunistic infections in patients infected with HIV.

Prevalence and distribution pattern of cervical epithelial cell dysplasia amongst HIV sero-positive pregnant mothers attending the prevention from mother to child transmission (PMCT) clinic at Nnamdi Azikiwe University Teaching Hospital Nnewi-Nigeria

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Abstract: Cervical epithelial dysplasia refers to abnormal changes in the epithelial cells of the cervix. These abnormal cells are premalignant cells and could transform to cervical cancer if not detected and treated. Most often, cervical epithelial dysplasia is caused by infection with human papillomavirus (HPV). Risk factors include individuals who had sex before the age of 16 years, multiple sexual partners and HIV sero-positivity. Early detection through regular Pap smear tests enables early intervention which may reverse progression to malignant lesion. Prevalence and distribution pattern of cervical epithelial dysplasia amongst HIV sero-positive pregnant mothers attending the prevention from mother to child transmission (PMCT) clinic at Nnamdi Azikiwe University Teaching Hospital Nnewi was determined. Fifty nine subjects (59) with no history of malignancy were recruited by simple random sampling. Questionnaire aimed at elucidating the bio-demographic and risk factor data was administered to each participant, who read and signed informed consent forms. Cervical smears were obtained by scraping the transformation zone of the cervix, using wooden Ayre spatula. Monolayer smears were made on pre-labelled slides and immediately inserted into jars of 95% ethyl alcohol fixative for 15 minutes. The smears were stained by Papanicolaou staining method and each slide examined under optical microscope. The cytomorphologic pattern was based on the Bethesda reporting system. Results obtained showed epithelial cell dysplasia in 79.6% of the smears. Atypical cells of undetermined significance (ASCUS) were 22.0%, atypical squamous cells (cannot rule out high grade squamous intraepithelial lesion) (ASC-H) were 5.0%, low grade squamous intraepithelial lesions (LSIL) were 23.7% and high grade squamous intraepithelial lesions (HSIL) were 11.8%. Mean age of patients with diagnosis of LSIL and ASC-H was 31years and that in HSIL was 30 years. Majority of patients diagnosed with HSIL were in their third trimester of pregnancy and 53% of them had multiple sexual partners prior to marriage, hence establishing positive association between multiple sexual partners and cervical epithelial cell dysplasia. This study shows high prevalence of cervical epithelial dysplasia amongst the study population. Therefore, regular Pap smear test for HIV sero-positive pregnant mothers and non-positive mothers alike is recommended.

Correlation of HBsAg titres and HBV DNA levels in patients with chronic Hepatitis B infection seen at The University of Benin Teaching Hospital, Benin City, Nigeria

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Background: There are limited data on serum Hepatitis B surface antigen (HBsAg) quantification in patients with CHB infection in Nigeria. Serum HBV DNA levels have been proven to be useful in the management of chronic hepatitis B; however, due to its high cost, patients often shy away from it. In this study, the possibility of HBsAg quantification acting as a replacement for HBV DNA assay was evaluated.

Objectives: The aim of this study was to determine the correlation between serum HBsAg titres and HBV DNA levels in our cohort of patients with chronic hepatitis B.
MATERIALS AND METHODS: Chronic hepatitis B patients were enrolled in this cross-sectional study. The diagnosis of CHB was made in patients with continuous HBsAg sero-positivity for at least 6 months, or using serological tests. Serum HBsAg titres were quantified using the Elecsys HBsAg II quant assay (Roche Diagnostics) and HBV DNA concentrations determined by real time PCR using the COBAS ampli prep / COBAS Taqman (Roche diagnostics). HBsAg was correlated with HBV DNA, using the Spearman correlation coefficient.

Results: Of 178 patients, 111 were male (62%) and 67 (38%) were female. The mean age of study patients was 38 ± 13 years. One hundred and sixty-five patients (93%) were HBeAg negative, while 13 (7%) were HBeAg positive. There was a statistically significant positive correlation between HBsAg titre and HBV DNA amongst all study patients ($r = 0.412$, $p < 0.05$), and HBsAg correlated better with HBV DNA in HBeAg positive than HBeAg negative patients ($r= 0.551$/ $r = 0.388$, $p <0.05$).

Conclusion: A positive correlation between HBsAg titres and viral load was found in the whole cohort of patients. There was however a stronger correlation in the HBeAg positive patients than in the HBeAg negative patients. Quantitative HBsAg titres may be used in place of HBV DNA as a monitoring index in HBeAg positive CHB patients in a resource poor setting such as ours.

Prevalence of HepatitisB and HIV co-infection, Effect of HAART on HBSAg sero-reactivity in Ayder Referral Hospital, Mekelle, Tigray, Ethiopia

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Background: Hepatitis B virus (HBV) co-infection with HIV is becoming a major challenge due to shared routes of transmission. The co infection rate is especially high in sub-Saharan Africa where the two infections are prevalent; therefore screening HBV in HIV infected individuals should be a routine clinical practice. It is known that use of HAART regimens with dual AntiHIV/HBV action are recommended in co infected individuals. In Ethiopia practice of routine HBV screening, Use of HAART regimens with dual Anti HIV/HBV action & their effect on HBSAg sero-reactivity is not well studied.

Objective: To determine the sero-prevalence of HBSAg in HIV infected patients, Pattern of HAART use in Co infected patients & Effect of HAART on HBSAg sero-reactivity

Methods: Retrospective cohort of HIV infected patients for whom HBSAg testing was done previously was taken by reviewing the medical records of 424 patients following in ART clinic of ARH, 128 patients were found to have HBSAg test results & 110 patients were included in the study. Data was collected from the medical records of patients based on structured check list & repeat testing of HBSAg was done for co infected patients who took HAART for more than One Year by rapid HBSAg screening technique. Data was entered & analyzed by SPSS version 21 software; Univarate & Bivarate analysis using chi-square & binary logistic regression was done.

Results: The prevalence of HBV in HIV infected patients is found to be 10% which is consistent with the prevalence worldwide & it is slightly higher than the studies done in developed countries. Among co-infected patients practice of HAART use is in accordance with International Guidelines with 81.8% of patients were put on HAART regimens with two agents active against HIV & HBV. HBSAg Sero Conversion rate was found to be 63.6% in co-infected patients who took HAART for more than one year.

Conclusion: HIV/HBV Co infection rate in ARH is comparable with the previously done studies & Practice of HAART use in ARH is in accordance with International HIV & HBV treatment guidelines recommendations. All of the seroconverted patients were taking TDF, 3TC, EFV regimen proving the importance of this regimen effectiveness on co-infected patients.

The influence of gender-stereotypic cultural norms and a maternalistic social structure on maternal, newborn and child health outcomes among the Digo community of Kwale, Kenya

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Background: Maternal and child health outcomes in the developing world are influenced predominantly by supply-side factors affecting provision of quality services. A complex socio-cultural context calls for interventions that also address demand-side factors especially the influence of community social structure and cultural norms.

Methodology: We adapted Price & Hawkin's social-analytic conceptual framework to develop an over-arching ethnographic approach complemented by a series of mixed methodology sub-studies. The framework involves a social analysis at the national policy and legislative level moving to a local analysis of the dynamics of social vulnerability, social capital and gender-stereotypic attitudes and roles. The ethnography is grounded in Clifford's Geertz interpretive approach as opposed to the more popular positivist approach.

Results: As part of the eastern Bantus, the Digo community traditionally adopted a maternalistic social structure. Society members defer to the 'wisdom' of an older maternal figure especially in the uptake and utilization of maternal and child health/family planning services. This maternal figure plays a prominent role in the decision-making pathway for place of delivery.

Conclusions: Maternal and child health outcomes in a rural developing world setting cannot be fully explained using an individualistic framework since they are entrenched within complex socio-cultural contexts. A better understanding of this context provides a more efficient framework for developing sustainable interventions that are culturally-acceptable and locally-responsive. Maternal and child health interventions among the Digo community should focus on engaging dominant maternal figures.

Consumption of dairy, fruits and dark green leafy vegetables is associated with lower risk of adverse pregnancy outcomes in a prospective cohort study in rural Ethiopia

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Background: There is paucity of evidence about role of maternal dietary and nutritional factors on risk of adverse perinatal outcomes (APO) in resource poor settings.

Objective: The aim of this study was to determine the associations between dietary and nutritional factors with risk of key APO: preterm birth, low birth weight and still birth.

Setting: Rural health centers in four districts of Arsi Zone, Oromia region, Ethiopia.
Design: A multi-center prospective cohort study Subjects: A total of 432 eligible pregnant women were recruited. Mothers were then classified into exposed (n = 216) versus unexposed (n = 216), based on women's individual dietary diversity (WIDD) score and followed-up since their enrolment, during second antenatal care visit, until the end of pregnancy.

Findings: A total of 374pregnant women were retained at the end of the study. Among these, one in every five, 74(19.8%), experienced at least one of the APO: 34 (9.1%) gave birth to low birth weight babies, 51(13.6%) had preterm births and 17 (4.5%) had still birth babies. Poor or inconsistent consumption of dark green leafy vegetables (Adjusted Odds Ratio (AOR), 2.012; 95% confidence interval (CI): 1.04; 3.87), dairy products (AOR, 2.64; 95% CI: 1.11; 6.30), and fruits and vegetables (AOR, 2.92; 95% CI: 1.49; 5.67) were dietary factors independently associated with APO. Similarly, being non-anaemic at term (AOR, 0.24; 95% CI: 0.12; 0.48) showed up as a single independent nutritional factor predicting APO, in a rural resource limited settings of Ethiopia.

Conclusions: Risk of adverse pregnancy outcome was associated with poor or inconsistent dietary consumption of animal source foods, mainly dairy products, fruits and dark green leafy vegetables. Additional studies in other settings with larger sample and adequate power are needed before conclusive recommendations can be made.

Knowledge, attitude and practices in relation to prevention and control of schistosomiasis infection in Mwea Kirinyaga County, Kenya

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Background: Schistosomiasis remains a major public health problem in Kenya. Inadequate knowledge, attitudes and practices (KAP) on causative factors are some of the critical factors for the increased prevalence. The study assessed KAP on the control and prevention of schistosomiasis infection in Mwea division, Kirinyaga County-Kenya. Four hundred and sixty five house-hold heads were enrolled in this study by use of simple random sampling technique.

Methods: The study employed an analytical descriptive cross sectional design utilizing both quantitative and qualitative data collection methods. A pretested structured questionnaire, Focus Group Discusions (FGDs) and Key Informant Interviews (KII) guides were used for data collection. Descriptive statistics and Chi square tests and Fisher's exact tests were computed where applicable. Data from the FGDs and KIIs were analyzed using NUID.IST NUIRO.6 software.

Results: Significant associations between knowledge and demographic factors i.e age ($p=0.011$), education level ($p=0.046$), were reported. Handwashing after visiting the toilet ($p=0.001$), having a toilet facility at home ($p=0.014$); raring animals at home ($p=0.031$), households being affected by floods ($p=0.005$) and frequency of visits to the paddies ($p=0.037$) had a significant association with respondents practices and schistosomiasis infection. Further significance was reported on households being affected by floods during the rainy season ($p<0.001$), sources of water in a household ($p<0.047$) and having a temporary water body in the area ($p=0.024$) with increase in schistosomiasis infection. Results revealed that respondents practices were not significantly associated with gender ($p=0.060$), marital status ($p=0.71$), wearing of protective gear ($p=0.142$) and working on the paddies ($p=0.144$).

Conclusions: This study reveals that knowledge about the cause, transmission, symptoms and prevention of schistosomiasis among the Mwea population was inadequate, and that this could be a challenging obstacle to the elimination of schistosomiasis in these communities. Due to various dominant risk factors, different control strategies should be designed. Therefore, there is a need for integrated control programme to have a lasting impact on transmission of schistosomiasis infection. Control programs like mass drug administration need to go beyond anti-helminthic treatment and that there is a need of a more comprehensive approach including access to clean water, sanitation and hygiene. School and community-based health education is also imperative among these communities to significantly reduce the transmission and morbidity from schistosomiasis.

Table banking as a strategy for improving health status of immuno-suppressed women of rural Kenya

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Background: Table banking is a concept that has gained popularity recently in Kenya with the aim of enhancing the socioeconomic status of people particularly those from poor areas of the country. This concept has economical empowered sero-positive women living in rural areas thus significant improving their health status.

Objective: The study focused on assessing the predictive power of table banking in enhancing the health status of women living with HIV/AIDs in rural Kenya.

Methodology: This was a prospective controlled trial conducted from January to November, 2015 in Kakamega County within 3 Comprehensive Care Clinics that were purposively sampled. Proportionate stratified sampling was utilized to obtain 220 respondents in the intervention and control arm. A structured questionnaire was used to collect quantitative data where exploratory factor analysis tested dimensionality of questions, while skewness and kurtosis assessed normality of data. Structural equation modeling determined predictive power of latent variables. The intervention model fitted data acceptably well, 2= 156, P<.001, Tucker Lewis index =.93, comparative fit index =.95, root mean square error of approximation =.090, Hoelter critical N (0.01=220), with regard to health status of the respondents. Regression weights for the intervention and control arms respectively showed predictive power for respondent's physical health, I(β=.82, P<.001) & C(β=.42, P<.01), mental health I(β=.76, P<.001) & C(β=.32, P<.01), social well-being I(β=.88, P<.001) & C(β=.22, P<.05) and absence of opportunistic infections I(β=.95 P<.001) & (β=.32, P<.01).

Public Implication: The finding of this study reveals that despite the existence of treatment for seropositive women, it's extremely important to economical empower these women using various accessible resources to reduce poverty related issues such as infectious disease and ensure their optimal health status. It's significant for policy makers to not only improve treatment strategies for seropositive women but also device approaches of ensuring they can defend for themselves to ensure sustainable optimal health.

Inter-epidemic surveillance of Rift Valley Fever in Trans Nzoia County, Western Kenya

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Abstract: Rift Valley fever (RVF) is an important medical and veterinary viral disease associated with morbidity and mortality in humans. The prevalence of RVF in Kenya is unknown, however, there have been major outbreaks in 1998 and 2006/2007. There is no clear explanation about the maintenance mechanism of RVF during inter-epidemic periods (IEPs) among humans, especially in Western Kenya. The aim of this study was to determine the inter-epidemic prevalence of RVF among febrile patients presenting at selected health facilities, Trans Nzoia County, Kenya. Serum samples from 390 febrile patients collected at the three health facilities from 2008 to 2013. The samples were analyzed using an in-house anti-Rift Valley fever virus (RVFV) IgM-capture ELISA and anti-RVFV IgG indirect ELISA. Focus reduction neutralization test (FRNT50) was applied for confirmation of IgM and/or IgG positive cases. Of the 390 samples tested, 38 (9.7%) were positive by IgM-capture ELISA and 178 (45.5%) of these samples tested positive by indirect IgG ELISA. From these, 13 IgM and 25 IgM/IgG double positive samples were selected and tested by FRNT50. Six samples (15.0%) were confirmed to be RVFV positive. The results show an active low-level circulation of RVFV in Trans Nzoia County. The population in this region may have been exposed to RVF during previous outbreaks. The gap between the FRNT50 and the ELISAs may result from cross reaction with closely related bunyaviruses circulating in this region and this needs to be clarified. Three serological tests, are now established for diagnosis and surveillance of RVF in Kenya.

The role of print media in setting the agenda for reproductive health in Kenya; A case study of the daily nation newspaper

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Background: The print media plays an important role in informing the public on health matters, including reproductive health, through the publication of daily and weekly articles. However reproductive health stories do not receive prominent placing in this media platform with politics, insecurity, business and other types of articles receiving front and top pages prominence in the Kenyan newspaper.
Objectives: The broad objective of this study was to determine the role of print media in setting the agenda for reproductive health in Kenya in reference to the Daily Nation newspaper. The specific objectives were to; Determine extent of coverage and priority given to reproductive health content; investigate factors that determine the articles journalists choose to write, editors publish and identify challenges hindering the dissemination of reproductive health content.

Methods: This was a retrospective cross-sectional study using a mixed quantitative and qualitative research approach. The study reviewed all Daily Nation copies published between February 2010 and January 2011 and included 30 in-depth interviews and 6 key-informant interviews with Daily Nation journalists and editors respectively. Data from the newspaper articles were entered into spreadsheet and analysed using descriptive statistics. Audio recording and data from the in-depth interviews were analysed using content analysis based on key themes generated from the study objectives.

Results: The study findings show the prominence given to reproductive health stories was mainly driven by the person interviewed, agenda of the day, editorial policy, writer's experience, news values and novel reproductive health information. Prominence was given to abortion before the referendum and this declined after the referendum ended and focus shifted to other RH related issues.
Conclusion: A strong agenda setting and framing role by the media was noted in this study and further underscores the valuable contributions of news media to make reproductive health content more prominent in print media. The Daily Nation creates awareness on reproductive health matters through the publication of straight news stories and occasional features and can play an important role in stimulating discussions on the reproductive health agenda.

Recommendations: This study recommends dedicated health pages in the newspaper, appropriate reproductive health training for editors and journalists, encourage networking sessions between reproductive health stakeholders and editors and exploring alternative publication avenues. These findings will inform health providers on the optimal use of media to drive health messages and agenda including the design of media-health campaigns that translate into prominent, informative, balanced and accurate reproductive health articles in print media.

Genetic diversity of Mycobacterium tuberculosis strains isolated from tuberculous lymphadenitis patients in Southwest Ethiopia

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Background: Ethiopia is a hotspot for tuberculosis (TB) infection, ranking third among African countries and tenth in the world. Ethiopia has also an extremely high rate of tuberculous lymphadenitis (TBLN). However, little is known about the genetic diversity of Mycobacterium tuberculosis complex (MTBC) strains driving the epidemic. In this study, we investigated the overall genetic diversity of MTBC strains and defined the role newly described Ethiopian clades (lineage-7, Ethiopia-2, Ethiopia-3 and Ethiopia H37Rv-like) in Southwest Ethiopia.

Methods: A total of 298 MTBC strains isolated from TBLN patients in Southwest Ethiopia were included. Genotyping was primarily performed by spoligotyping. Isolates of selected spoligotypes were further analyzed by 15-loci mycobacterial interspersed repetitive unit–vari¬able number tandem repeat (MIRU-VNTR) and qPCR-based single nucleotide polymorphism. Resistance to rifampicin was determined by Xpert MTB/RIF assay. Spoligotyping patterns and MIRU-VNTR 15-loci profiles were used to classify the strains into main phylogenetic lineages by using the reference strain collection available at www.miru-vntrplus.org.

Results: Majority (58.4%, 174/298) of the isolates grouped to ten previously reported lineages and interestingly 37% (110/298) to four recently reported Ethiopian clades. The five most dominant strains in TBLN patients were Ethiopia-2 (15.8%) followed by Delhi/CAS (15.4%), Haarlem (14%), Ethiopia-3 (11.4%) and Ethiopia H37Rv-like. Lineage-7 (new phylogenetic lineage) was identified from six (2%) TBLN cases. The contribution of M. bovis in TBLN infection was minimal (0.7%). The remaining, 4% (12/298) of the isolates could not be assigned to the previously known or new lineages. The overall clustering rate was 47.8% (2 to 40 isolates per cluster), indicating a high rate of recent TB transmission. Dehli/CAS strains were associated with rifampicin resistance (p-value= 0.02).

Conclusions: The recently described and not yet largely defined Ethiopian clades are the most dominant lineages in TBLN patients followed by Delhi/CAS lineages. We reported a new phylogenetic lineage (i.e. lineage 7) for the first time in Southwest Ethiopia. The high rate of recent transmission indicates defects of the TB control program in Southwest Ethiopia.

Effect of Schistosoma haematobium infection on Plasmodium falciparum malaria burden in Lambaréné, Gabon

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Background: Malaria remains the first cause of death in Africa. In endemic area, it overlap with other infections including helminthes infections. It has been shown that there are interactions between the two parasites infection. Lambaréné is the endemic area for uro-genital schistosomiasis which co-exist with P. falciparum malaria. Therefore, we decide to assess for the first time the effect of schistosomiasis infection on malaria infection burden.

Methods: In order to assess the effect of S. haematobium on malaria infection burden, a cross sectional study was conducted in school children aged from 6 to 16 years old. One blood smear has been performed and 3 urine samples have been obtained to assess the presence of infections. Chi square test and generalized linear model have been used to compare the risk to be infected by P. falciparum parasite and Mann Whitney/Wilcoxon to compare the parasitemia of P. falciparum. Demographic data was collected as well.

Results: A total of 741 children were included. The overall prevalence were 20% and 31% for P. falciparum microscopic carriage and S. haematobium infection respectively. Co-infection of both was found in 65 (9%) participants. S. haematobium and P. falciparum are highly prevalent in PK than Bindo and Makouké areas. At univariable analysis, Schistosoma infected subjects have an odds of 2.11 [1.46-3.07] to be infected by P. falciparum parasite compared to non-infected. Locality has found to confound the association which remains significant after adjustment by age, gender and locality (aOR=1.69, [1.13-2.59]). The effect of S. haematobium on the P. falciparum parasitemia outcome has been also assessed. There is no effect of Schistosoma infection on malaria parasite density (P value = 0.92).

Conclusions: S. haematobium infection increases the risk of being infected with P. falciparum but doesn't affect the parasitemia density of P. falciparum malaria in our study population.

Sero-prevalence and risk factors of Human Immune Deficiency Virus (HIV) and Hepatitis C Virus Infections among Pregnant Women attending Antenatal Care Clinic in Western Ethiopia

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Introduction: Human Immune Deficiency Virus and Hepatitis C virus (HCV) are a global public health challenge. Both HIV and HCV have serious effects on both pregnant women and infants, and share common modes of transmission. There is limited information on sero-prevalence of HIV and HCV infection among pregnant women in West part of Ethiopia. Hence, this study was conducted to assess sero-prevalence and predictor factors of HIV and HCV infection among pregnant women attending antenatal care in West Ethiopia.

Methods: Institutional based cross-sectional study was conducted from July to September, 2014 among 421 pregnant women's attending antenatal care services in purposively selected health facilities, East Wollega Zone, Ethiopia. The HCV and HIV sero-markers were tested from aseptically collected serum samples. Hepatitis C virus was detected using an enzyme linked immunosorbent assay (ELISA). HIV infection was also detected using the national HIV test algorithms. The A pretested-structured questionnaire were used to collect socio-demographic data, and predictor factors of HIV and HCV infection. The collected data were analysis using SPSS version 20.

Results: The overall sero-prevalence for HCV and HIV among the study population was about 8.1% (34/412; 95%CI: 5.7-10.7) and 1.0% (4/421; 95%CI: 0.2-2.0), respectively. The HCV-HIV co-infected prevalence was 0.23% (1/421). Among HIV infected women, the prevalence of HCV infection was 25%. The an overall of higher sero-positivity for HCV infection among rural residents (10.2%), Tigray and Gurage ethnic group (10.5%), and participants having lower average monthly income (10.1%). All HIV positive participants were among Oromo ethnic group, married, house wife or unemployed and less than 24 year old. The risk of HCV infection was significant low for urban residents (AOR=0.38, 95% CI: 0.16-0.90) compared to their rural counterparts. Significantly low risk of HCV infection was also observed among illiterate (AOR= 0.24, 95%CI: 0.06-0.85) population comparing to those attending higher level of education. For HIV infection, the history of blood transfusion was significant increase the risk (AOR = 19.52, 95%CI: 1.80-150.6).

Conclusion: The study showed that HCV and HIV infections are important public health problem in the study area. All pregnant women need to be screened for both HCV and HIV infection during antenatal care. Thus, HCV testing and diagnosis need to be included in the antennal care services, and public health programmes need to make progress in increasing communities awareness on the prevention and mode of transmissions HCV and HIV in general.

Field evaluation of a Schistosome Circulating Cathodic Antigen rapid test kit at point of care for mapping Schistosomiasis endemic districts in the Gambia

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Background: The traditional parasitological urine filtration and Kato-Katz thick smears methods have been found to be less sensitive in the detection of light intensity of Schistosoma heamatobium and Schistosoma mansoni. Studies in Sub Saharan Africa have shown that Circulating Cathodic Antigen point-of-care-test (POC-CCA) is more accurate for the detections of Schistosoma mansoni than the microscopic Kato-Katz technique but less is known about the accuracy of this rapid test in detecting S.heamatobium infections. This study was intended to evaluate the field accuracy of POC-CCA as a rapid test kit for schistosomiasis mapping in The Gambia.

Methods: The prospective study was conducted in 4 regions in the country. Ten schools were randomly selected from each region, and a total of 1954 participants whose ages range from 7 to 14 years were enrolled in the study. Stool and urine samples were collected from each participant in May and June 2015, and tested for Schistosoma haematobium and Schistosoma mansoni infections. The tests were conducted using POC-CCA, double Kato-Katz smeared, urine filtration, and hematuria dipstick method.

Results: Of the 1954 participants with complete data, the mean age of participants was 9.9 ± 0.05 years. The prevalence of children infected with S. haematobium in the four regions using urine filtration technique was 10.13 (95% CI: 8.87-11.55). Central River Region (CRR) had the highest prevalence of urinary schistosomiasis with 27.95 (95% CI: 24.13-32.12) , follows by Upper River Region (URR) with a prevalence of 12.37 (95% CI: 9.72-15.62). Very low urinary schistosomiasis prevalence of 0.61 (0.12- 1.86) was found in Lower River Region (LRR) and whilst North Bank Region (NBR) had no cases of schistosomiasis. Only 5 participants were infected with S. mansoni. Using urine filtration as reference standard for the detection of S. haematobium, the sensitivity of POC-CCA was 47.69% and the specificity was 75.81%. Whilst Sensitivity and specificity of POC-CCA for detecting S.mansoni were 60.0% and 71.24% respectively using double Kato-Katz as reference standard.

Conclusion: This study showed lower sensitivity of POC CCA in detecting S. haematobium compared to the S. mansoni. Therefore POC CCA is less ideal for rapid diagnosis of urinary schistosomiasis.

Burden of obstetrics and gynaecological conditions on critical care admissions in Zimbabwe

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Background: Infection, trauma, post-operative treatment and perinatal complications are much more common causes of admission to an ICU in developing countries than diseases of lifestyle reported in developed countries. About 10-15% of hospital admissions in developing countries are due to diseases amenable to surgical treatment and the burden of surgical disease has been further increased by infectious diseases like HIV/AIDS. The aim of the study was to describe the characteristics and outcomes of obstetrics and gynaecology patients admitted into the ICUs in central hospitals and to describe the causes of the conditions.

Methods: A retrospective record review was done at the five central hospitals in Zimbabwe. The records of patients who had been admitted in the ICU between the period of April 2016 up to July 2016 were reviewed.

Results: Out of the 699 patients' records reviewed, majority of the patients were females, 424 (60.7%). About 172(40.6%) of the females were admitted into the unit due to either an obstetrical or gynaecological condition. The mean age of the patients was 25.5(SD=±5.05). Lower segment caesarean section done for eclampsia was the major reason for admission in 60 (34. 9%) of the patients. About 42 (24.4%) of the females had laparotomy for pelvic abscess whilst 7 (4.1%) of the patients had laparotomy for ectopic pregnancy. About 20 (11.6%) of the patients had puerperal sepsis. Subtotal hysterectomy was done in 20(11.6%) of the patients. Eclampsia was the reason for admission in 12 (7.0%) of the patients. About 5(2.9%) of the patients were admitted into the unit due to malaria in pregnancy and 6(3.5%) had exploratory laparotomy for ovarian mass. Out of these patients, 28 (16.3%) were HIV positive and on Antiretroviral therapy. The mortality rate was 14.5%

Conclusion: Although post-operative management following caesarean section due to eclampsia is the leading cause of admission into the ICU in our setting, infectious diseases which include pelvic inflammatory disease, sepsis and malaria have also increased the burden on critical care admissions. Potentially modifiable risk factors have to be identified and sstrategies to reduce surgical morbidity and mortality have to be formulated to improve outcome of patients.

Validation of variant surface glycoproteins as diagnostic biomarkers of human African

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Abstract: African trypanosomiasis (AT) is a group of diseases namely Nagana (African animal trypanosomiasis, AAT) and sleeping sickness (human African trypanosomiasis, HAT) in cattle and human respectively. The disease is caused by flagellated single celled protozoa called African trypanosomes (genus Trypanosoma), that is transmitted by an insect vector, tsetse fly (genus Glossina). Currently diagnosis methods for sleeping sickness involve clinical, parasitological, serological and use of molecular nucleic acid probes, most of which suffer from various limitations including low sensitivity, specificity, applicability and high cost hence, limiting early detection. World Health Organization (WHO) recommended diagnostic method is microscopic detection of parasites in body fluids. This method suffers from low sensitivity and is inapplicable in screening. Notably, it is inappropriate for Rhodesian HAT, a form that kills within weeks or months after infection. This necessitates development of novel diagnostic tools, and in this study, application of trypanosome surface protein, the variable surface glycoprotein (VSG) as a diagnostic marker is sought. VSGs are involved in antigenic variation and are expressed in an ordered fashion early during infection, making them a potential biomolecule for early detection of trypanosome infection. Therefore, this study seeks to determine VSGs predominantly expressed during T. brucei rhodesiense infection in vervet monkey and consequently access their diagnostic potential. Using trypanosomes previously recovered from vervet monkey infected with T. b. rhodesiense, total parasite RNA will be recovered, parasite cDNA synthesized and sequenced. Thereafter, VSG expression profile during infection will be determined and recombinant proteins of variable antigen types (VATs) predominantly expressed early generated in bacterial expression systems and purified. The purified recombinant antigens will be used for serological screening using enzyme linked immunosorbent assay (ELISA) to detect their respective antibodies in monkey serum. Validation of potential VSGs as early diagnostic biomolecules will be important in development of a sero-diagnostic kit for Rhodesian HAT that kills within weeks if not treated.

Involvement of husbands of HIV positive women in the treatment of their wives at an HIV care centre in Cotonou: Impact on medical and socioeconomic status of the HIV positive women

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Abstract: HIV positive women from developing countries are frightened of being stigmatised and divorced. They are therefore unable to share their HIV status with their husbands. They live with that stress where they hardly take ARVs and visits to health centres become irregular. Therefore, a project was instituted to help these women share their status with their husbands and to encourage their supports for an effective care. After 2 years of execution, the present study was conducted in December 2015 to probe the perception of the beneficiaries, and to appreciate their level of satisfaction and analyse the obtained results. The study enrolled 81 HIV+ women and 76 husbands to whom questionnaires were administered. Four focus group discussions of 8 participants each were also conducted and data were analysed in SPSS 20.

Three quarters of the HIV+ women live with their husband. Majority of them (88.89%) have their husband's supports thanks to the project. 80% of them benefit from financial and moral supports from their husbands. 7/10 women are accompanied by their husbands when they go to the HIV care centre.60% are assisted by their husbands as ARVs taking reminder. 4/5 women had a child after the knowledge of their HIV status and 69% of such children are taken care of at the centre. The HIV+ women estimated that the through the project their health is improved and harmony and peace reign in their couples and they can easily prosper in their income generation activities. About 31.58% of the husbands of the HIV+ women knew the HIV status of their wife through the project. 80% of them give a moral support to their wife as well as in ARVs taking. 90% provide financial support to their wife while 73.68% come with their wife in the Centre. Half of the husbands continued to have unprotected sexual intercourse after the discovery of their wife's status. 57.89% husbands are HIV+ and taken care of at the centre. They think that the project is a good initiative that saves lives and help to preserve peace in couples.

Overall, the study revealed that the total implication of couples in the care of HIV+ women is very important for the prevention of mother to child transmission, for the maintenance of tranquillity and peace in couples, for the limitation of the propagation of the virus and for the survival of the women and their children.

Breastfeeding among women on highly active antiretroviral therapy (HAART): A case study of selected FCTA Hospitals

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Problem: The prevalence of HIV/AIDS in children is higher in Sub-Saharan Africa than any other region of the world, with about 4.5 million children infected with HIV since the beginning of the HIV-1 pandemic, and most of these infections were from mother to child. Of the various ways in which HIV can be transferred from mother to child, breastfeeding accounts for 5-20%.
Objective: The study was designed to evaluate the breastfeeding practices of women on HAART in FCT, Abuja, Nigeria.

Methods: The study was carried out in three selected hospitals in the Federal Capital Territory, Abuja, Nigeria. A descriptive cross sectional survey of mothers who are on HAART was conducted. Women who access the ARV pharmacies of the selected hospitals for drugs and have children either before or after they started taking Highly Active Anti-Retroviral Therapy (HAART) were taken as sample population. Sample size was calculated using the Leslie and Kish formula for descriptive studies and based on the prevalence of breastfeeding among women on HAART and selected using simple random sampling in order to make the calculated overall sample size. Data was obtained through the use of structured, self-administered questionnaire. Data analysis was done using the Statistical package for Social Science (SPSS) version 17. Data were presented using descriptive statistics of frequencies, percentages, pie and bar charts. Inferential statistics of Chi-square was used to test for associations between various factors and the breastfeeding practices among women on HAART. Statistical level of significance was set at P-value <0.05. An approval to conduct the study was obtained from Research and Ethics Committee of the Health and Human Services Secretariat, Federal Capital Territory, Abuja. Participants were given participants information sheet and their consent were obtained in writing before participating in the study.

Outcome: The study revealed that the knowledge of transmission of HIV through breast feeding was high with about 182 (69.70%) respondents accenting that a mother can transmit HIV to her child through breastfeeding. 42 respondents (18%) did not think HIV can be transmitted through breastfeeding while 12.30% did not know if there was any link between breastfeeding and HIV transmission. Of the 260 respondents, 90.80% breast fed their babies while 26 (9.20%) did not breast feed. The period of breastfeeding by the mothers after subscribing for HAART showed improvement compared to before with a majority of them (23.4%) breastfeeding for between 4-6months. Also, 96 (40.7%) of the respondents introduced complementary feeding between 6months- 1year to their children. Most of the respondents (86.9%) acknowledged that healthcare workers provide adequate information on how best to feed a child and only 45.6% thought that there was too much confusion about breastfeeding. A higher number of them, 46.9%, reported that there was no confusion about breastfeeding.

This study recommended that the role of HAART in preventing MTCT should be stressed at health talks during antenatal visits and even through media to encourage women who have fears of transmitting HIV to their children through breastfeeding to make the right decisions concerning infant feeding and practices.

Prevalence of Human Papillomavirus infection and molecular detection from abnormal cervical cytology

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Background: Cervical cancer amongst Nigerian women has been on the increase in the past decade, and is regarded as the second highest cause of cancer deaths among Nigerian women.

Objective: This study was aimed at determining the prevalence, risk factors of HPV infection, Papanicolaou smear pattern and presence of HPV DNA in abnormal cytology amongst a cohort of women attending the Gynaecology clinic of a tertiary health facility in Ido-Ekiti, South west Nigeria.

Methodology: This was a cross-sectional study involving the screening of women between the ages of 15-64 years for cervical intraepithelial neoplasia using Papanicolaou smear staining technique, serological diagnosis using IgG enzyme linked immunosorbent assay kits and molecular analyses by means of DNA isolation techniques and polymerase chain reaction (PCR). Respondents were selected through convenience sampling of subjects, while interviewer- administered questionnaire and clinical report form were also used to collect data, and data was analyzed using SPSS version 17.

Result: Of the 200 blood samples examined for Human papillomavirus infection, 135 (67.5%) were sero-positive while 65 (32.5%) were sero-negative. For cervical cytology using Papanicolaou smear, 14 (7%) were positive (had presence of cervical abnormality) while 186 (93%) were negative (had no cervical abnormality). Result showed a direct relationship between sero-positivity, development of cervical intraepithelial neoplasia and Human papillomavirus infection. Presence of abnormal cervical cytology was found in 14 (7%) of the subjects. Abnormalities found among the subjects included; low grade squamous intraepithelial lesions (LSIL), which constituted 50 % of the total abnormal smears, high grade squamous intraepithelial lesion (HSIL) and atypical squamous cells of undetermined significance (ASCUS) which were 28.6% and 21.4% respectively. Molecular analyses showed that all the samples from abnormal cervical cytology subjected to HPV DNA extraction and gene amplification all contained the HPV DNA. The risk factors for the development of HPV infection included age, type of marriage, parity, history of genital infection and tobacco usage. Non circumcision of male partner was also found to be a risk factor.

Conclusion: The high prevalence of HPV DNA in abnormal cervical cytology and high level of serological positivity clearly showed why there is need for a holistic approach to the screening, vaccination methodologies and early detection of HPV infection in the country.

Effect of Schistosoma hematobium on metabolic disorders in endemic area of central Gabon

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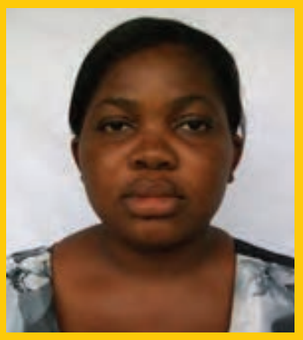
Background: Schistosoma hematobium infection is common in sub-Saharan Africa and remains a public health problem. The metabolic syndrome is prevalent and also increasing in developing countries. Recent data show helminth protective effect on metabolic markers in animal model.

Method: To determine a possible association between S.hematobium and metabolic disorders, a pilot cross sectional study was carried out in Lambarene and surrounding villages among adults infected and non-infected with S. hematobium. Three consecutive urine, single stool and blood samples were collected to assess the presence of S.hematobium, soil transmitted helminth (STH) and malaria parasites infection. The serum was collected to determine the level of lipids and derived as well as fasting blood glucose.

Results: In total 68 participants aged from 18 to 67 years were enrolled in this study. Among them, 47% was positive for S.hematobium, 17.5% for any soil transmitted helminthes and 11.1% for malaria. The mean (SD =14) age was 35 years old and the geometric mean eggs load was 20 eggs/10 mL of urine. Overall S. hematobium infected subjets have lower lipids derived level compared to those non-infected. The same trend was found for fasting blood glucose. However, this decreased level is statistically significant only for the total cholesterol infected 3.63 mmol/L (SD =0.76) group versus uninfected 4,41mmol/L (SD = 0.83) with p value = 0.02.

Conclusion: S.hematobium infection is associated with lower level of lipids and fasting blood glucose. This findings need to be confirmed in a more powerful sample size population with a further assessment of mechanism underlined this findings.



Occurrence of precancerous cervical lesions amongst HIV seropositive and seronegative women attending the University Teaching Hospital Yaounde, Cameroon

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Background: Precancerous cervical cancer lesion if left untreated can lead to cervical cancer and cervical cancer is the second most common cancer in sexually active women worldwide. Cervical cancer is one of the most causes of cancer death worldwide. Countries where women were women have been hit hardest with the AIDS epidemic have a high prevalence of human papilloma virus infection and hence high incidence of cervical cancer. Early detection of precancerous cells prevents progression of pre-invasive lesions hence preventing the development of cervical cancer.

Objectives: The aim of this study was to compare the occurrence of precancerous cervical lesions among HIV- infected and HIV-uninfected women as well as identify its associated risk factors.
Methodology: This study adopted a hospital based case control study, in which 76 participants were conveniently selected, 38 being HIV- Infected and the remaining 38 being HIV-uninfected attending the Yaounde teaching hospital between the periods of May to June 2016. After giving their consent to participate in the study, the participants were given questionnaire to fill and the pap smear test was carried out on the smear collected from the endo and exocervix of each participant.

Results: According to the findings in this study, 15(39.5%) out of the HIV-Infected women had precancerous cervical lesions while 2(5.3%) of the HIV-uninfected women were also positive. The difference in the occurrence of this disease between these 2 groups of women was statistically significant (P 0.05). Those who have had unprotected sexual intercourse recorded a higher occurrence of precancerous cervical lesions 12(15.8%) as compared to those with protected sexual behavior 5(6.6%). Those women who have had more than 3 children recorded a high occurrence of precancerous lesions 9(11.8%) as compared to those who had less than 3 children 8(10.5%) though the difference was not statistically significant (P 0.05). Those participants with no history of miscarriage recorded a high occurrence of precancerous cervical lesions 13(17.1%) as compared with those with a history of miscarriage 4(5.3%) though the difference was not statistically significant (P 0.05).Those who were not on contraceptives recorded a high occurrence of precancerous cervical cancer lesions 14(18.4%) as compared to those who were on contraceptives 3(3.9%).

Conclusion: Hence it can be concluded that the occurrence of precancerous cervical lesions which may lead to cervical cancer is higher among HIV-infected women as compared to HIV-uninfected women, hence a screening pap smear should be done as a routine test on HIV-infected women during visits. Risk factors identified were unprotected sexual intercourse and having multiple full term deliveries.

Microbiological assessment of cervical secretions among pregnant women at a public laboratory in Cotonou-Benin: a mixed study

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Abstract: Many pregnant women in low income settings are exposed to a number of infectious agents due to lack of hygiene resulting into severe consequences such as increased child mortality and UTI related complications. In order to promote hygiene and the health of pregnant women during prenatal consultations, the present study was undertaken to characterize microorganisms that could be isolated from their cervical secretions. This was a mixed study composed of a retrospective study that compiled results of five years (from 2007 to 2012) completed by a prospective study of three months. The study consisted of cervical secretions collection from pregnant women. The samples were then subjected to standard microbiological procedures for isolation of bacteria and fungi then the bacterial isolates were submitted to antibiotic profiling. Of the 32 sampled women in the prospective study, those aged of 22 to 30 years represented 65.21% of the study population and presented a high infection rate. The prevalence of infected women was 71.87%. The isolated microorganisms were Staphylococcus aureus, Candida albicans, Streptococcus sp, and Coagulase Negative Staphylococcus with Candida albicans the most encountered one (36.36%). About 21.21% of the women were suspected to have a vaginosis. All isolates were resistant to Erythromycin. The retrospective study conducted on 189 pregnant women revealed that those of 21 to 30 years had the highest infection rate. From May 2007 to March 2012 bacteriological analyses revealed an infection among 149 patients out of the 189 (78.83%). Seven bacteria species were isolated of which Candida albicans (29.10%) and Streptococcus agalactiae (19.04%) were the most frequent ones. There was suspicion of vaginosis in 7.4% of the cases. The isolates presented a resistance to Tetracycline and Gentamicin with 47.61% being MRSA.The study demonstrated an urgent need to sensitize pregnant women on basic good hygienic practices and the promotion of medicinal plants as alternatives to antibiotics.

Effect of fish oil omega-3 fatty acids on reduction of depressive symptoms among HIV-seropositive pregnant women: A randomized double-blind controlled trial

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Background: Globally, it is known that HIV-infected pregnant women are prone to depression. Evidences also suggest that nutrient deficiencies may enhance the depressive illness, and, that fish oil omega-3 fatty acids may alleviate the depressive symptoms. This study aimed at assessing the effect of fish oil omega-3 eicosapentanoic acid-rich supplements on depressive symptoms among HIV-seropositive pregnant women.

Methods: A randomized controlled trial, double-blinded to participants and those administering the intervention, was conducted with two parallel groups of fish oil omega-3 as intervention and soybean oil as control for eight weeks. Participants were HIV-seropositive pregnant women enrolled in prevention of mother-to-child transmission programs and attending antenatal clinics at selected Nairobi city county's health facilities. Recruitment was conducted from health records of HIV-infected pregnant women with support of health facility personnel. Data analysis followed per-protocol analysis method with participants who completed the 8-week trial included in the analysis of covariance statistical model with omega-3 as the main effect and participants' baseline characteristics and nutrient adequacy as covariates in change in BDI-II depressive symptom scores outcome.

Results: The study recruited 282 participants and randomized 109 to receive fish oil and 107 to receive soybean oil. Completion rate was 78.9% (n=86) in experimental group and 89.7% (n=96) in control group. Participants in both groups had mild to severe depressive symptoms (Fish oil: mild=43.1%, moderate=42.2%, severe=14.7%; soybean oil: mild=43.0%, 44.8%, 12.1%) before randomization. At the end of the trial, at week-8, more than 95% of participants in both intervention groups had minimal to mild depressive symptoms (Fish oil = 95.3%, Soybean oil=97.9%). The intervention effect, all baseline attributes held constant, was not statistically significant (1.01 (95% CI: -0.58 – 2.60), p=0.21).

Conclusion: Fish oil omega-3 eicosapentaenoic acid-rich supplementation with a daily dosage of 3.17 grams (eicosapentanoic acid=2.15 grams; docosahexaenoic acid=1.02 grams) is not effective in reduction of depressive symptoms among HIV-infected pregnant women with mild, moderate and severe depressive symptoms. The fish oil omega-3 supplements were however well tolerated, with no adverse side effects among the HIV-infected pregnant women.

Molecular heterogeneity of glucose-6-phosphate dehydrogenase deficiency in Burkina Faso: G-6-PD Betica Selma and Santamaria in people with symptomatic malaria in Ouagadougou G-6-PD and Malaria in Burkina Faso

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Introduction: The G-6-PD deficiency has an important polymorphism with several genotypic variants known in West African populations. It would confer protection against severe forms of malaria although certain mechanisms remain controversial. In this study we genotyped six SNPs of the G-6-PD gene in people with symptomatic malaria in Burkina Faso.

Method: One hundred and eighty-two (182) patients who tested positive using rapid detection test and microscopy were included in this study. A PCR with the GENESPARK G6PD African kit was run followed by electrophoresis, allowing initially to genotype six SNPs (G202A, A376G, A542T, G680T, C563T and T968C). Women carrying the mutations 202A and/or 376G were further typed by real-time PCR using TaqMan probes rs1050828 and rs1050829.

Results: The G-6-PD deficiency prevalence was 9.9%. In addition of G-6-PD A- (202A/376G) variants, 376G/542Tand 376G/968T were detected. There was no correlation between the G-6-PD deficiency or haemoglobinopathies and symptomatic malaria infections in this study.

Conclusion: Our study confirms that the G-6-PD deficiency does not confer protection against Plasmodium falciparum infections. As opposed to previous genotyping studies carried out in Burkina Faso, for the first time the variant A- (376G/968C) has been detected and warrants further investigation at the national level and in specific ethnic groups.

$CD4^+CD25^{hi}FOXP3^+$ cells in cord blood of neonates born from filaria infected mother are negatively associated with $CD4^+Tbet^+$ and $CD4^+RORγt^+$ T cells

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Background: Children who have been exposed in utero to maternal filarial infection are immunologically less responsive to filarial antigens, have less pathology, and are more susceptible to acquire infection than offspring of uninfected mothers. Moreover children from filaria infected mothers have been shown to be less responsive to vaccination as a consequence of an impairment of their immune response. However, it is not well known how in utero exposure to parasite antigens affects cellular immune responses.

Methodology: Here, 30 pregnant women were examined for the presence of microfilaria of Loa loa and Mansonella perstans in peripheral blood. At delivery, cord blood mononuclear cells (CBMC) were obtained and the CD4+T cells were phenotyped by expression of the transcription factors Tbet, RORγt, and FOXP3.

Results: No significant difference was observed between newborns from infected versus uninfected mothers in the frequencies of total CD4+T cells and CD4+T cells subsets including CD4+Tbet+, CD4+RORγt+ T and CD4+CD25hiFOXP3+ T cells. However, there was a negative association between CD4+CD25hiFOXP3+T cells and CD4+Tbet+ as well as CD4+RORγt+ T cells in the infected group only (B= -0.242, P=0.002; B= -0.178, P=0.013 respectively).

Conclusion: Our results suggest that filarial infection during pregnancy leads to an expansion of functionally active regulatory T cells that keep Th1 and Th17 in check.

Transmitted HIV-1 drug resistance in HAART-treated mothers and their infants during PMTCT in Ouagadougou, Burkina Faso

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Background: In Sub-Saharan Africa, mother-to-child transmission of HIV-1 (MTCT) remains a reality despite efforts already made in prevention policies (Linguissi et al., 2012; Soubeiga et al., 2015). Thus, mothers with HIV-1 drugs resistance can transmit resistant strains to their infants (Sagna et al., 2015). The objective of this study was to investigate the transmission of HIV-1 drugs resistant in mother-child pairs receiving highly active antiretroviral treatment (HAART) in Ouagadougou, Burkina Faso.

Methodology: This study included 50 mother-child pairs with treatment failure. The CD4 count and HIV-1 viral load were determined by using the FACSCount and Abbott m2000rt instruments respectively. HIV-1 drug resistance was determined by using ViroSeq HIV-1 Genotyping System kit on the 3130 Genetic Analyzer.

Results: Concerning treatment regimen, 82.0 % (41/50) of mothers were on 2 NRTI + 1 NNRTI, and 14.0 % (7/50) were on 2 NRTI + 1 PI ($p < 0.001$). In infants, 92.0 % (46/50) were on 2 NRTI + 1 NNRTI and 8.0 % (4/50) were on 2 NRTI + 1 PI ($p < 0.001$). Subtypes and circulating recombinant forms detected were CRF02_AG (66.67 %), CRF06_cpx (25.0 %) and subtype G (8.33 %). Predominant mutations associated with drug resistance were M184V (30.30 %) and T215F/Y (26.67 %), D67N/E (20.0 %), Y181C (12.12 %), K101Q/E (12.12 %) in the group of NRTI and NNRTI. But, mutations K20I, M36I, H69K/R and L89M were found with a same rate of 23.53 % in the PI group.

Conclusion: This study showed that MTCT of HIV-1 drug resistant is real. So, the therapeutic management must necessarily be strengthened to prevent HIV-1 drug resistance among mothers and consequently limit their transmission to their infants.

Variation of schistosomiasis and geo-helminth infections with participants' locality, age and sex in Lindi District Tanzania

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Background: There is no current information on the distribution and risk factors for schistosomiasis and soil-transmitted helminthiases (STHs) for most areas in southern Tanzania including Milola Ward in Lindi District. This study was thus initiated to establish the status of these infections in Milola Ward and assess how they vary with environmental and demographic factors.

Materials and Methods: From September to October 2014, stool and urine samples from 250 residents of Milola A, Milola B, Milola West and Mkanga Ulani villages in Lindi District southeast Tanzania were examined for parasites using Kato-Katz technique and filtration technique for urinary schistosomiasis. Levels of parasitic infection were related to environmental and demographic correlates such as locality, age and sex. Few samples were obtained in the second round of sampling, so analysis and subsequent discussion are based on first round samples

Results: Individuals aged 5-90 years were enrolled in the study with 196 of them providing urine samples and 158 giving faecal samples during the initial sampling exercise. Only 53 urine and 26 faecal samples were obtained in the second round of sampling, and due to marked inconsistencies, these have been excluded from the analysis. Three parasites were found, namely Schistosoma haematobium (23.4%), hookworms (6.8%) and Trichuris trichiura (2.8%). The prevalence of S. haematobium was higher in female participants (25.2%) compared to males (20.7%) although this variation was not different ($p = 0.5584$). Children had significantly higher prevalence of schistosomiasis (48.6%) compared to adults (17.1%) ($p < 0.001$). Milola B village was the most infected with S. haematobium (26.1%) and Milola B (19.6%) the least infected. The variation of S. mansoni prevalence and intensity between villages showed no significance (intensity: $p = 0.8776$; prevalence: $P = 0.5584$).

Conclusion: These findings confirm that average age of peak prevalence in a population decreases as transmission pressure increases. Age influences parasite transmission in Milola Ward where non-school children below 18 years old being most risk of acquiring parasitic infections compared to adults. This is the first baseline survey of parasitic infections in Milola Ward so, the results will be crucial for guiding control efforts for parasitic diseases in the area.

Malaria Prevalence and Drug Management in Pregnant Women Attending Remotely Located Daura General Hospital, North West Nigeria

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Abstract: Health authorities in Nigeria have for many years promoted national malaria control measures such as the use of insecticide treated bed nets (ITNs), indoor residual spray of insecticides (IRS), intermittent preventive treatment (IPTp) for pregnant women and children and the use of artemisinin combined therapy (ACT) as first line of treatment to reduce the prevalence of the disease in the country. In order to evaluate the effectiveness of these control measures there is the need for continued disease monitoring and management across different zones of the country, especially among high risk cohorts such as children and pregnant women at remote locations. A 13 months study (July 2014 to July 2015) was carried out to establish the current prevalence of malaria among female patients attending Daura General Hospital in North West Nigeria, using standard laboratory procedures. Daura is a remotely located town that lies in the savannah zone of northern Nigeria at the intersection of roads from Katsina, Kano and Zinder in Niger Republic, with coordinates of 1302'11'' North, 8019'4'' East and 1,558 feet (474 meters) above sea level. Of the 8413 patients that tested positive for malaria parasite during the period, 1119 (13.31%) were children, 3721 (44.22%) were women, 2609 (30.99%) were men and 966 (11.48%) were the elderly. Among the infected women population, 2105 (56.57%) were pregnant (PGW), while 1616 (43.23%) were non-pregnant (NPW) women, indicating statistical significance in malaria prevalence between the two cohorts ($p<0.05$). Age related prevalence was significantly higher ($p<0.05$) in the 11 – 20 years group (32.68%) of the PGW and 21 - 30 years group (34.34%) of the NPW than the 25.89% recorded in the 21 – 30 years group and 21.05 and 20.38% recorded in the 31 – 40 years and 41 – 50 years groups of the PGW respectively. The highest seasonal prevalence rate was recorded during the late rainy season (LRS) months of July to September (10.86% for PGW and 8.83% for NPW) followed by the 7.73% recorded for PGW and 7.24% recorded for NPW during the early dry season (EDS) months of October to December. The lowest rates (5.67 and 5.46% for PGW and 6.50% for NPW) were recorded during the early rainy (ERS, April - June) and late dry season (LDS, January – March) months respectively. Monthly prevalence rates were however highest during August (15.63%), September (15.11%) and October (11.26%) for the PGW, while corresponding prevalence figures for these months among the NPW were significantly lower ($p<0.05$) at 8.29, 9.22 and 7.80% respectively. Major malaria drugs prescribed for the prevention of the conditions during the second and third trimesters once foetal quickening is noticed include sulphadoxine/pyrimethamine given monthly, while for cure and treatment during all trimesters quinine SO4, arthessunate, α-β arteate and arthessunate/lumefantrim. Analgesics, electrolytes and vitamins are also indicated. Malaria is a major cause of hospital visits by young pregnant women especially during the rainy season months, indicating the need to improve advocacy on intervention control measures among these groups in the study area.

Anti-infective compounds from medicinal and aromatic plants of Madagascar

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Background: Medicinal plants are a validated source for the discovery of new leads and standardized herbal medicines. The aim of this research program was to validate scientifically the ethno-medical use of four plant species of Madagascar for their pharmaceutical application against tropical infectious pathologies like malaria and bacterial diseases.

Materials and Methods: Ethno-botanical surveys were conducted in the South of Madagascar (according to the convention on the biological diversity) and plant species were selected based on informant consensus factor among traditional healers. The bioassay-guided fractionation of plant extracts was carried out by the combination of chromatography techniques (TLC and column chromatography) and in vitro bioassay using P. falciparum and P388 leukemia cell lines as models. The structure of the biologically active pure compound was elucidated by 1D and 2D NMR spectroscopy and Mass spectrometry. Essential oil (EO) extractions were done by hydro-distillation using a Clevenger-type apparatus while; their quantification and analysis were done by GC-FID and GC/MS. The antimicrobial activity of the oil was assessed by both diffusion disc and micro-dilution tests. Bacillus subtilis ATCC 6633, Staphylococcus aureus ATCC 25923, Bacillus cereus ATCC 10876, Escherichia coli ATCC 25922, Salmonella typhii ATCC 13311, Pseudomonas aeruginosa ATCC 27853 and Enterobacter cloacae ATCC 13047, etc. as model systems for validating the bioactivity of EO. The density functional theory studies were used for predicting the cytotoxicity of the isolated compound.

Results and Discussion: Some major compounds were identified from the essential oils of Hazomalania voyronii: (-) Spathunelol (42.3%), Eucalyptol (22.0%), Limonene (10.3%), Borneol (10.2%), Myrtenal (2.0%), Perrylaldehyde (1.3%) and α-pinene (1.4%); Croton greveanus: 1,8 cineol (40.40%), linalol (23.81%) and α- terpineol (8.2%), sabinen transhydrate (10.17%), sabinen (6.87%) and finally terpinen-4-ol (1.52%); Croton borarium: β-phellandren (39.72%), α-terpineol (25.121%), and camphene (13.74%), α- pinene (10.70%). The minor compounds where terpinen-4-ol (1.71%), germacren-D (6.68%), α-copaen (4.71%), sabinen (3.63%), β-pinen (2.46%), limonene (2.31%), β- caryophylen (2.18%), α-hulemen (1.76%), p-cymen (1.051%), γ-terpinen (1.29%), β-myrcen (1.22%) and epoxy-caryophyllen (1.092%); Croton geayi: β-pinene (28.74%), limonene (22.92%) and secondarily by eucalyptol (10.42%), α-terpineol (8.2%), transhydrate of sabinen (5.67%), β-Phellandren (7.47%), β-caryophylen (4.80%), α-pinene (4.32%), trans-nerolidol (3.88%), β-myrcen (3.06%), germacren-D (2.56%), cis-nerolidol (2.50), aromadren (2.35%), fenchol (2.04%), sabinen and terpinen-4-ol (1.05%), caryophyllen oxide (1.09%). These EO displayed bactericidal activity. An antiplasmodial compound belonging to the chemical family of quinones methides was isolated from Salacia leptoclada with a therapeutic index of 0.788. Three cytotoxic campouns *Isodiospyrin, 6'ethoxy-1', 3'- dihydroxy-4, 6-dimethyl-1,2'-binaphthyl-2,5', 8, 8'tetraones, (E)-5,6-dimethyl-2-(2-methyl-3-(prop- 1-enyl) Phenyl)-2H-Chromene] were also isolated from the root bark of Diospyros quercina. The density functional theory studies on molecular structure and reactivity of quinone methide pentacyclic triterpenoid derivative isolated from Salacia leptoclada confirmed the cytotoxicity of this compound. Obviously, the intake of medicinal plants is life-long in endemic areas. Although acute toxicity rarely is missed by traditional healers and chronic toxicological risks pass unrecognized. The results of cytotoxicity test revealed that it would be too dangerous, if the plants are ingested daily for a long period of time.

Conclusions: The studied plants contain compounds of pharmaceutical relevance, evidencing their potential for drug discovery. Chemical modification of these lead compounds could generate a library of useful bioactive molecules. The development of standardized phytomedicine for the control of malaria and bacterial infections is a feasible goal. This work completed by several institutions is an example of collaboration making it possible to reinforce the capacities of research scientists of the third world while limiting the escape of brains out of Africa through technology transfer.

Discovery of vertically transmitted Spiroplasma in field populations of Anopheles gambiae

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Abstract: The endosymbiont Spiroplasma, which confers protection to its host against parasites, pathogens and other natural enemies and is vertically transmitted from mother to offspring, is one of the most promising for sustainable malaria control, but has been little studied. To investigate the presence of Spiroplasma in the mosquito Anopheles gambiae, a leading malarial vector, samples collected from two sites in Kenya were screened for Spiroplasma infection. Offspring from infected female mosquitoes were screened to determine vertical transmission of Spiroplasma. Of two Spiroplasma strains identified, one was confirmed to be vertically transmitted. The presence of vertically transmitted Spiroplasma in natural populations of Anopheles gambiae can form a basis for the possible use of Spiroplasma to block transmission of malaria.

Epidemiology of High Risk Human Papillomavirus infection in women in western Burkina Faso

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Background: The human papillomavirus (HPV) infection is one of the most common sexually transmitted infections in the world (Bruni et al., 2010). When high risk type (HR-HPV) is implicated, this infection may persist and lead to cervical cancer which is the most common cancer in women in sub-Saharan Africa (Ferlay et al., 2008). Screening for precancerous cervical lesions may help to reduce this cancer's incidence and there are also prophylactic vaccines against cervical cancer. But, vaccines which are available in Burkina Faso target only genotypes HPV 16 and HPV 18. However, previous studies shown theses genotypes are not often the most frequent in the capital city of Burkina Faso. What will be the distribution of HR-HPV in other cities?

Objectives: The aim of this study was to identify HR-HPV genotypes in women in two cities in western Burkina Faso and to determine the frequency of precancerous cervical lesions in these women.

Methods: From May to July 2015, three hundred and one (301) women have been included in this study: 181 women at the Souro Sanou University Hospital of Bobo-Dioulasso and 120 women at the sanitary district of Orodara. Uterine endocervical swabs have been taken in these women. Immediately after sampling, screening for precancerous lesions was done for all women by visual inspection with acetic acid and lugol's iodine (VIA/VILI). DNA obtained by extraction from the samples thus collected was used to determine the prevalence of high risk human papillomavirus genotypes through real-time PCR.

Results: Women's age ranged from 17 to 65 years with an average of 34.8 years. Among this women, 30,6% (92/301) were infected with HR-HPV and 4,7% (14/299) were positive to VIA/VILI. HPV 52 (21.19%), HPV 39 (11.86%) and HPV 33 (11.02%) were the most common genotypes of HPV. The genotype HPV 16 which is the most frequent in the world was not found in women in this study.

Conclusion: The results are consistent with those of other studies conducted in Burkina Faso, which showed that there was a predominance of high-risk HPV other than HPV 16 and HPV 18.

Effects of malaria infection at delivery on the profile of two biomarkers of the immune response in women living in Yaounde Cameroon.

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Introduction: Plasmodium falciparum infected erythrocytes in pregnant women can be sequestrated in the placenta, leading to placental malaria which might endanger the both mother and fetus lives. This study aimed to determine the effects of the chemokine CXCL-10 and the cytokine IL-19 in the pathogenesis of placental malaria.

Methodology: After obtaining Ethical Clearance, peripheral and placental blood were collected just after delivery from 140 women. Parasitemia and leukocyte differential counts were determined microscopically and Hemoglobin levels measured with Hemocue Hb 201 Analyzer. Plasma concentrations of CXCL-10 and IL-19 were measured by ELISA method.

Results: Parasitaemia correlated negatively with parity and with hemoglobin levels ($p<0.001$). The plasmatic levels of CXCL-10 in the placental site were significantly higher than those of peripheral site ($p<0.001$). Peripheral and placental levels of CXCL-10 were significantly higher in the infected women than at the non-infected, and positively correlated with parasitemia ($p<0.001$) and negatively with hemoglobin levels ($p=0.005$). There was no relationship between IL-19 levels and malaria infection, although its level was higher in placenta than peripheral plasma ($p=0.54$). Results also showed that levels of CXCL-10 correlated positively and significantly with monocytes and lymphocytes levels of placental impression smear.

Conclusion: These results suggest that the chemotactic effect of chemokine CXCL-10 might lead to the protection of mothers living in Yaoundé against the pathogenesis of this disease through the attraction of monocytes and lymphocytes into the placenta. In contrast, the cytokine IL-19 might have no effect on the placental malaria in the asymptomatic cases.

An Exploratory Study of the Observance of Bacterial Fish Lesions and Infection Risk among Women

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Background: Some bacteria that infect fish, such as species of Mycobacteria and Salmonella, are pathogenic to humans and may result in significant morbidity, including skin lesions of the extremities. Fish retailers and processers in Ghana, who are often women, are more directly exposed to fish and so are at a high risk for such infections. Furthermore, they may be burdened with the additional risk of high morbidity since routine clinical microbiological laboratories in Ghana do not consider their profession and so do not test for such uncommon infections. Therefore, this study was designed to obtain information that will inform the design of a laboratory based microbiological study. The prevalence of Mycobacterial, Salmonella and other such infections of fish and their prevalence in skin lesions among women working in the fish industry in Ghana will be studied therein.

Method: A questionnaire based exploratory cross-sectional study, with a convenience sampling procedure within a wide covering study area was used to obtain data from 116 persons working within the fish value chain in Ghana.

Results: A greater proportion of the predominately female participants had been involved with only retailing (26.5%) and processing (20.0%) of fish and most of them have been in the fish business for 6 or more years (55.5%) and worked with between 2 and 5 fishes (54.7%). About 55.6% of them had observed such lesions on fish and the observance was common among the retailers and processers of fish. A few of the participants (24.8%), who were mostly involved with retailing and processing fish, reported having had a rash.

Conclusion: The observance of skin rashes among most retailors and processers of fish, who are often women in Ghana, necessitates a study of the prevalence of the Mycobacterial and the emerging Shewanella bacterial infection among women in the fish business in the coastal region of Ghana.

High fecal carriage of antibiotic resistant Enterobacteriaceae strains among food handlers in The Gambia

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Background: Since their discovery, antibacterial drugs have been the first line of treatment for infectious diseases. Moreover, the introduction and development of sophisticated antibiotics like Cephalosporins have triggered complex versions of resistant genes such as Extended Spectrum Beta-Lactamase. Limited discovery of antibiotics makes this phenomenon a major public health threat. Studies show that Klebsiella pneumonia and Escherichia coli, main causative agents of Urinary Tract Infection, are the most common producers of resistant genes. This study aims to establish the fecal carriage rate of multidrug resistant Enterobacteriaceae strains among food handlers.

Method: Data was extracted from a cross-sectional prospective study – 'Prevalence and risk factors of fecal carriage of Extended Spectrum β-Lactamase producing Enterobacteriacea amongst food handlers in Lower Basic Schools in West Coast region of The Gambia'. The study enrolled 600 randomly selected food handlers (565 of which had complete data set) from 60 lower basic schools in 7 districts in the West Coast Region of The Gambia. Stool samples were collected from the participants and screened for resistance to Cefotaxim. Isolated organisms were further tested for susceptibility to Cephalosporins, Cabapenems, Fluoroquinolones and other families of antimicrobials as per Clinical Standard Laboratory Institute guideline. The association of risk factors to fecal carriage of resistant enterobacteriaceae was performed using Pearson Chi squared and fishers exact ($P<0.05$).

Results: Results confirmed that the prevalence of enterobacteriaceae by resistance to cefotaxime was 15.8%. 23 genuses and 89 species of resistant strains were isolated. All isolates were 100% resistant to Cephalosporins such as Ceftriazone, Cefotaxime and Cefuroxime, except Ceftazidime (92%). Resistance to Ciprofloxacin (Fluoroquinolone) was measured at 50%. Only 1.2% was resistant to imipenem (Carbapenem). Most isolates were resistant to Ampicillin, Nitrofurantoine, Erythromycin, Tetracycline and Cotrimaxole. Majority of the identified Enterobacteriaceae were Enterobacter aerogene (14%), Klebsiella pneumoniea (12%) and Escherichia coli (7%).

Conclusion: This study found a high prevalence of fecal carriage multi-drug resistant Enterobacteriaceae among food handlers, mostly women, in The Gambia. These findings led to the conclusion that the irrational prescription and use of antibiotics is a major risk factor for the proliferation of antibiotic resistance. Well-conducted surveillance is essential to implement effective control measures.

Serologic and molecular detection of Hepatitis C virus in Ogbomoso, Nigeria

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Introduction: The prevalence of Hepatitis C Virus (HCV) increases every year and this is of concern world-wide. Hence, this study focused on the prevalence of HCV antibodies and HCV RNA among apparently healthy individuals and pregnant women attending Bowen University Teaching Hospital, Ogbomoso, Oyo State.

Method: A total of two hundred and seventy nine (279) subjects, including one hundred and thirty-eight (138) pregnant women and one hundred and forty-one (141) apparently healthy individuals, attending Bowen University Teaching Hospital, Ogbomoso who consented voluntarily after thorough explanation of the purpose of the study were included in this study. All sera were tested serologically to detect the presence of antibodies against HCV using the third generation enzyme linked immunosorbent assay (ELISA) and analyzed by Reverse transcription Polymerase Chain Reaction (RT-PCR) for HCV RNA. Data on socio-demographic characteristics and potential risk factors were collected using structured questionnaire. Chi-square test was utilized to assess the association between the socio-demographic variables and HCV status as well as HCV RNA. Logistic regression was done to determine the strength of association between risk factors and HCV infection. Statistical significance was set at P 0.05.

Result: A total sero-prevalence of hepatitis C virus infection was found to be 1.79% (5/279). A prevalence of 0.36% was recorded among pregnant women as compared with the apparently healthy individuals (1.43%). None of the socio-demographic characteristics and potential risk factors among the study groups were significantly associated with hepatitis C virus infection and HCV RNA (P 0.05). HCV RNA was detectable in 5 of the HCV-positive samples and 2 of the sero-negative samples.

Conclusion: From the results obtained, none of the socio-demographic factors and potential risk factors were associated with acquiring HCV, hence, further research is recommended to ascertain the possible risk factors. However, strict blood screening and must be maintained.

Incidence of severe malaria syndromes and status of immune responses among Khat Chewer malaria patients in Ethiopia

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Abstract: Although more emphasis has been given to the genetic and environmental factors that determine host vulnerability to malaria, other factors that might have a crucial role in burdening the disease have not been evaluated yet. Therefore, this study was designed to assess the effect of khat chewing on the incidence of severe malaria syndromes and immune responses during malaria infection in an area where the two problems co-exist. Clinical, physical, demographic, hematological, biochemical and immunological data were collected from Plasmodium falciparum mono-infected malaria patients (age ≥ 10 years) seeking medication in Halaba Kulito and Jimma Health Centers. In addition, incidences of severe malaria symptoms were assessed.

The data were analyzed using SPSS (version 20) software. Prevalence of current khat chewer malaria patients was 57.38% (95%CI =53-61.56%). Malaria symptoms such as hyperpyrexia, prostration and hyper-parasitemia were significantly lower ($P<0.05$) among khat chewer malaria patients. However, relative risk to jaundice and renal failure were significantly higher ($P<0.05$) in khat chewers than in non-khat chewer malaria patients. Longer duration of khat use was positively associated with incidence of anemia. IgM and IgG antibody titers were significantly higher ($P<0.05$) among khat chewer malaria patients than among malaria positive non-chewers. Although levels of IgG subclasses in malaria patients did not show significant differences ($P>0.05$), IgG3 antibody was significantly higher ($P<0.001$) among khat chewer malaria patients. Moreover, IgM, IgG, IgG1and IgG3 antibodies had significant negative association ($P<0.001$) with parasite burden and clinical manifestations of severe malaria symptoms, but not with severe anemia and hypoglycemia. Additionally, a significant increment ($P<0.05$) in CD4+ T-lymphocyte population was observed among khat users. Khat might be an important risk factor for incidence of some severe malaria complications. Nevertheless, it can enhance induction of humoral immune response and CD4+ T-lymphocyte population during malaria infection.

Impact of prenatal multiple micronutrients versus iron folic acid supplementation on maternal and fetal outcomes in Nandi County, Kenya

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Introduction: Micronutrients deficiency during pregnancy increases lifelong, maternal-neonatal risk of infectious and non-infectious diseases. One's health is pegged on micronutrient levels being the critical probability of every pregnancy outcome (Shah 2009). The study administered multiple micronutrients supplements (MMS) and Iron Folic Acid (IFAS) to two groups of pregnant women respectively, to try and promote development in pregnancy, neonatal and infant health.

Specific Objectives: i. To establish the difference between MMS and IFAS group on pregnancy health, Hgb, Pica for foods ii. To determine variations on labor, birth duration, in hours and Apgar score among the groups iii. To establish the duration of puerperium and health outcomes between the groups iv. To establish the effect of MMS and IFAS on breast feeding intervals and substitution period in days.

Methodology: A Block Randomized Community Controlled study was implemented. Data collected using structured questionnaire and focus group discussions to establish pregnancy, postpartum, maternal neonatal health outcomes and perceptions.

Results: Based on the Institute of Medicine (IOM) USA recommendations, there was a significant inter-trimester weight gain among the MMS cohort in 30% of the women. Average difference in inter trimester weight gain was 2.12 kgs while in IFAS group was 1.2 kgs correspondingly (p value < 0.05). Within an average duration of fourteen (14) days, there was a reduced pica for ash, soil and charcoal among 80% of the pregnant women in MMS group but the IFAS group experienced it through their pregnancy gestation. Average labor duration was 3 hours in MMS and 8 hours in IFAS groups respectively. There was no difference in Apgar score between the groups. Average fetal birth weight was slightly elevated by 100-200g in the MMS compared to IFAS group. By forty two days postpartum; > 70% infants in MMS group had experienced the social smile and had improved neck control while the IFAS group hadn't achieved these milestones.

Conclusion: Multiple micronutrients use during pregnancy promotes maternal and neonatal health outcomes

The use of a community health worker model to improve early antenatal care uptake among pregnant mothers in Siaya County of western Kenya; results of a preliminary analysis, 2014- 2015

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Background: In Kenya, 40% of women attend their first ANC visit after 6 months of pregnancy; these women therefore do not fully optimize Ante Natal Care (ANC) services. Kenya Medical Research Institute Health Demographic and Surveillance System (HDSS), in Siaya County western Kenya, has a birth pregnancy notification system that does not routinely refer pregnant women and newborns to health facilities. We present the results of a community intervention that employs the existing HDSS pregnancy and birth notification system to facilitate referrals of pregnant mothers for ANC services.

Methods: 45 village reporters working within the HDSS in (Karemo) underwent one-day's training on study procedures. Health workers at the selected health facilities were informed of the study and inducted on the use of the study referral form. Between July 2014 and March 2015 they identified pregnant mothers within the community and referred them to a health facility of their choice for antenatal care using a study specific referral forms in triplicate; one copy was given to the mother to present at the health facility, another to a study assistant for verification of clinic attendance within two weeks of referral, while the third copy was retained by the village reporter. If the mother had not visited the clinic, the village reporter was notified to make a follow up visit to the mother to ask her to attend ANC.

Results: A total of 389 pregnant mothers were identified during the study period. The majority (87%) were referred for their 1st ANC visit. Within two weeks of referral, 237 (67%) of pregnant mothers referred for 1st ANC visits had visited a health facility. Of those who had not attended 1st ANC, 10 (10%) were traced of whom 8 later attended ANC increasing the number of mothers receiving early 1st ANC services to 245 (71%). Among those referred for the first ANC visit, 99% (235) received ANC services for the 1st ANC visit commensurate with their referral indication.

Conclusion: Our intervention provided an opportunity for early referral, identification of missed opportunities while maximizing the use of an existing resource at manageable cost to improve maternal outcomes. Community-based interventions can be employed to improve ANC attendance and subsequently maternal outcomes where ANC attendance is low or delayed.

Cervical cancer care readiness and treatment outcomes in Ethiopia: Evidences from population based survey and health facility assessment in Ethiopia

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Background: Cancer cervix is one of the most common malignancies in women. Worldwide cervical cancer is the second most common diagnosed cancer in women in both incidence & mortality. In Ethiopia, data on the preparedness of cervical cancer care and treatment outcome to cope with the rising epidemic of cervical cancer are insufficient. It is essential that the country health system is capable of delivering and quality-assuring cancer control services that are based on best practice internationally and based on the research findings accordingly. Therefore, this study is aimed to determine cervical cancer care readiness and treatment outcomes in Ethiopia using evidences from population based survey and health facility assessment in Ethiopia.

Methods: This is a two phased study including a cross sectional study design (phase one) data collection for this phase is already completed. Data was collected data from health facilities in Ethiopia and selected women in 15- 69 age group and a cohort study design (phase two) which is ongoing and will explore the survival rate and effect of nutritional status on treatment outcomes of cervical cancer among patients undergoing cervical cancer therapy in Ethiopia. The primary endpoints (outcomes) for the study will be overall survival (OS) and disease-free survival (DFS). Life Tables survival estimates and Kaplan Meier curves will be used to evaluate overall survival and disease-free survival. To ensure the protection of human subjects, approval to conduct the study was obtained from the Research Ethics Committee, University of South Africa and the Ethiopian Public Health Institute.

Outcomes of the study: As cervical cancer is a treatable and preventable disease shown by recent available evidence, which is practically demonstrated in different parts of the world, developing countries (most of which have high mortality and morbidity due to the disease) are trying to adopt suitable cervical cancer control strategies. This work will contribute to plan a cervical cancer treatment program. Much of the evidence were generated on the long-term effectiveness of modified or new treatment modalities, in terms of reduction in the mortality, will come from evaluation of the results of integrated and organized survey on health facilities, community based survey on women and hospital-based follow-ups.

Use, belief, and risk awareness to medication among pregnant women attending antenatal care unit at University of Gondar Teaching Hospital, North-west Ethiopia: Cross-sectional study

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Background: Drugs may have undesired and harmful effect on the fetus at any time during pregnancy. Most of the Studies on the use of drugs mainly focused on the potential teratogenicity effect. However, attitudes, risk awareness and beliefs of pregnant women on the medications may also influence mother and fetal well-being as well.

Objective: The aim of this study was to asses use, belief and risk awareness of medications among pregnant women attending Ante natal care in Gondar university teaching hospital.
Methods: Cross sectional study was employed on pregnant women who are attending for antenatal care visit at Gondar university hospital from March 5, 2016 to April 5 2016. Pretested structured interview questionnaire was used for data collection. P value less than 0.05 and 95% confidence interval considered as statically significance for determining associations between variables. Binary logistic regression was conducted to identify possible predictable variables associated with influencing the outcome variables.

Results: From the total of 423 interview questionnaires, 384 partici¬pants (90.8% response rate) were included in the analysis The mean age of participants was 27.22 years, with a standard deviation (SD) of 5.5 years. More than two third of the respondents had 2-3 pregnancy (46.1%) and more than 3 (25.8%) pregnancy histories. One third (33.3%) of the respondents were first trimester pregnant women, 45.6 % and 21.1% were on second trimester and third trimester, respectively. Majority (70%) of respondents think drugs are harmful if taken during pregnancy. Only 4.2 % of the participants never mind to take drugs without advice from professionals, with this regard most (90 %) of the respondents are not willing to take drugs without professional advice. Significant association was found between pregnant women residency and level of education with drug use and risk awareness of medications. Pregnant women from rural are 25% less likely to take medication without prescription paper. An illiterate pregnant women as compared with college and university attendant pregnant women has less risk awareness to drugs that should be avoided during pregnancy AOR 0.126 (0.041, 0.73).

Conclusion: Women were more conservative to take medications during pregnancy and literacy level affect their belief and drug use practices. Health-care professionals should aware of such attitudes and consider the level of education during counseling.

Characterization of Drug Resistance Molecular Markers of Plasmodium falciparum among the Kambaris, a Neglected Ethnic Group in Niger State, Nigeria

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A study on molecular markers of drug resistance to anti-malaria (chloroquine and sulphadoxine/pyrimethamine) was carried out between June 2014 and June 2016 among 1,930 participants among the Kambaris, an ethnic group in northern Nigeria.

The conclusive diagnosis of Plasmodium falciparum from the blood specimens of the participants was by finding the characteristic asexual stage of the parasite in Giemsa-stained blood smears, examined under a compound microscope. For the molecular studies and genotyping, DNA was extracted from Plasmodium falciparum positive blood using Chelex extraction method followed by PCR-genotyping, targeting Msp1 (block 2) and Msp2 (block 3) allelic families. Nested polymerase Chain Reaction followed by Restriction Fragment Length Polymorphisms (PCR/RFLP) were used for the detection of Plasmodium falciparum chloroquine resistance transporter (pfcrt), Plasmodium falciparum multidrug resistance 1 (pfmdr 1), Plasmodium falciparum dihydrofolate reductase (pfdhfr) and Plasmodium falciparum dihydropteroate synthase (pfdhps). Of the 1,930 blood samples examined, 1,483(76.8.9%) were positive for Plasmodium falciparum. Prevalence of infection correlated with age, level of education and housing pattern of the participants. Plasmodium falciparum isolates demonstrated highly diverse nature of field isolates in respect to Msp1 (block 2) and Msp2 (block 3). All the families of Msp1 (K1, MAD 20 and RO33) and Msp2 (FC27 and 3D7) were observed. K1 (64.0%) was the predominant genotype of Msp1 allelic family while 3D7 genotype 77.5% showed higher frequency than FC27 genotype 56.3%. The allelic families were detected either alone or in combination with other families. All possible combinations were seen. Overall, multiplicity of infection with Msp1 and Msp2 markers was 1.32 and 1.24 respectively. Poly-infections were 50.6% and 33.8% for Msp1 and Msp2 respectively. Analysis of well characterized molecular markers of Plasmodium falciparum resistance to the 4- aminoquinolines and the antifolates drugs revealed a high prevalence of resistance, 41%, 60%, 51%, 55% and 47% of Plasmodium falciparum isolates at codons N86Y, K76T, S108N, N51I and A437G respectively. Thus, these mutants are suggestive of a persistent drug pressure and continuing inefficacy of Chloroquine, Sulphadoxine/pyrimethamine as antimalarial drugs. There is an urgent need to re-evaluate antimalarial drug policy in Nigeria by effective legislation so as to justify the motive behind the withdrawal of some (like chloroquine) and the replacement of the new drugs to enhance effective fight against malaria. Research on drug discovery and re-evaluation of efficacy of the existing drugs should be made mandatory at intervals since the parasite has consistently demonstrated mutations for self-sustainability in its host.

HBV/HIV co-infection and APOBEC3G polymorphisms in a population from Burkina Faso

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Background: Apolipoprotein B mRNA editing enzyme catalytic polypeptide-like 3G (APOBEC3G) is a potent host defense factor, which interferes with HIV-1 and HBV. Our study had three objectives, to screen a population of HIV-1 infected and uninfected patients in Burkina Faso for HBV, to screen the population for APOBEC3G variants rs6001417, rs8177832, and rs35228531 previously described, and to analyze the effect of these three variants and their haplotypes on HIV-1/HBV co-infection in Burkina Faso.

Methods: HBV detection was performed on samples from HIV-1 infected and uninfected subjects using rapid detection tests and real-time PCR. APOBEC3 genotyping was done by the TaqMan allelic discrimination method. Fisher Exact test, Odds ratio (OR), confidence intervals (CI) at 95%, Linkage disequilibrium (LD) summary statistics and haplotype frequencies were calculated.

Results: The prevalence of HBV was 56.7% among HIV-1 positive patients of our study while it was about 12.8% among HIV-1 seronegative subjects. Genotype E was the genotype of HBV present in our hepatitis B positive samples. Minor allele frequencies of rs6001417, rs8177832, and rs35228531 were higher in seronegative subjects. The T minor allele of variant rs35228531 was protective against HIV-1/HBV co-infection with OR = 0.61, 95% CI (0.42-0.90), p=0.013. There was also an association between the GGT haplotype and protection against HIV-1/HBV co-infection, OR= 0.57, 95% CI (0.33-0.99), p=0.050. The other haplotypes present in the population were not statistically significant. There minor allele T of the rs35228531 was protective against HIV mono-infection OR=0.53, 95% CI (0.3 – 0.93), P=0.030. But there was no effect of protection against HBV mono-infection.

Conclusion: APOBEC3G through its variants rs6001417, rs8177832, and rs35228531, in this study interferes with HIV-1/HBV co-infection could be due the HIV-1 mono-infection in a population from Burkina Faso.

Field evaluation of point of care Cepheid GeneXpert HIV Qual for early infant diagnosis

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Background: Loss to follow-up and delayed result turn-around times has been indicated to be the main barrier to linkage to care and treatment among HIV infected children. Diagnosis of HIV infection among children is often conducted using advanced polymerase chain reaction (PCR) procedures which are only centralized to specific regions in Kenya. There are point of care (POC) early infant diagnosis (EID) technologies in the pipeline but none has been evaluated in Kenya despite the urgent need of data that can be used in policy making. The POC GeneXpert for EID offers a positive direction towards ensuring that the high morbidity and mortality rates are minimized through decentralization of testing, at the same time ensuring that results are given back to patients within the shortest time possible thus facilitating prompt linkage of HIV-infected children to treatment.

Objective: We evaluated the GeneXpert HIV Qual EID POC in Homabay County against the standard of care platform at the HIV research laboratory, Kisumu, using dried blood spots (DBS).

Methods: Performance of the POC was evaluated against the Roche CAP/CTM HIV-1 qualitative PCR for EID using DBS samples collected from HIV- exposed children. Samples were collected from children of women who were known HIV positive (KP) and those who were newly diagnosed (ND) as HIV positive. The women were accessed at four different service points; the immunization clinic, outpatient and in-patient department and the maternity. All samples were tested using both platforms. Repeat testing was performed to confirm any discrepant results between the two platforms.

Results: A total of 968 women with children aged <18 months of age were included in the study; ND women comprised of 4.1% (n=40) while 95.9% (n=928) were KPs. Out of the 968 POC tests performed on children, 34 (3.5%) were concordantly positive using both platforms. GeneXpert yielded a sensitivity of 97.1% and specificity of 99.9% with an overall machine error rate of 2.1%. After repeat testing to exclude any discrepant results, the POC assay had a sensitivity and specificity of 100%.

Conclusion, recommendations and Implications: POC GeneXpert performs well when compared with the conventional CAP/CTM using DBS therefore indicating promising results of a technology that can be adopted in the laboratory as a near POC and used in the quick diagnosis and linkage to care of children who are found to be HIV exposed; at the same time supplementing the progress of EID in the region.

Molecular Epidemiology of Human Papillomavirus potentially causing cervical cancer in Ethiopia

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Background: Cervical cancer (CC) is the second most common cancer in women worldwide. In Ethiopia, CC is the second most frequent cancer among the entire female population. Persistent infection with high-risk Human Papillomavirus (hrHPV) types is the main risk factor for cervical cancer development. The aim of this study was to determine the HPV prevalence and distribution in a population of Ethiopian women visiting a gynecology clinic.

Methods: Cervical swabs were collected using PapCone® and stored in preservCyt buffer. Nine hundred twenty two women aged ≥ 18 years who consented, had gynecological complaints, and visited gynecological and/or family guidance clinics in Addis Ababa, Bahir Dar, Dessie, Gondar, and Mekelle from September 2015 to February 2016. Total DNA was extracted using Maxwell blood kit (Promega). The L1 gene of HPV was amplified by multiplex PCR using GP5+/6+ generic broad spectrum primers and genotyping was performed using Luminex xMAP 200 technology detecting 18 high risk and 9 low risk (HPV6, 11, 16, 18, 26, 31, 33, 35, 39, 42, 43, 45, 51, 52, 53, 54, 56, 57, 58, 59, 66, 68a, 68b, 70, 72, 73, 82, 90).

Results: Overall, HPV DNA was detected in 34.4% of women (317/922) with mean age of 38.06 (Std dev 10.5). HPV genotyping revealed the presence of 28 distinct HPV-genotypes covered by the method. The high-risk HPV genotype positivity was 70.2% (325/463). The high-risk HPV detected includes HPV 16 (27.69%),18,31,33,35,39,45,51,52,53,58,59,66, 68a and 68b. The rate of low risk HPV infection was 29.8% (138/463) of which HPV82 account for 22.5% (31/138). About 43.5% (138/317) of the women had multiple infections, a maximum of 11 HPV genotypes.

Conclusion: The results indicate that HPV 16 and 18 account for 31.1% of the high-risk infection within the investigated population. The other hrHPV genotypes account for 68.9% of the infection. Infections with multiple HPV types were common. Screening strategies including HPV genotyping and vaccination would be effective in preventing cervical cancer in Ethiopia.

Demographic and Mortality Analysis of Hospitalized Children at Zewditu Memorial Hospital, Referral Hospital, in Addis Ababa, Ethiopia

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Background: Global childhood mortality rates remain high. Millennium Development Goal 4 focused efforts on reducing rates by two-thirds between 1990 and 2015. In Ethiopia, child mortality rates dropped 71% from1990 to 2015, however it is estimated that 184,000 Ethiopian children die each year. There is limited information about pediatric hospital admissions in Ethiopia. Our aims were to examine the temporal relationship of mortality to admission, describe the demographics, and identify cause-mortality of children admitted to the Zewditu Memorial Hospital (ZMH).

Methods: A four-year retrospective review of pediatric admissions was conducted at the pediatric emergency room and pediatric hospital ward at ZMH in Addis Ababa, Ethiopia. Admission entries from 2011-2014 of children age 29 days-14 years were reviewed. Age, gender, admission date, disease classification, discharge status and date were obtained. Patient gender was compared using Chi-square analysis. A descriptive analysis was used for age and cause mortality.

Results: A total of 6,866 patient entries were reviewed. The proportion of admissions younger than age 5 was 0.747 (95%CI 0.736-0.757). Overall mortality was 0.042 (95%CI, 0.037-0.047). The proportion of recorded deaths occurring within 2 days of admission was 0.437 (95%CI 0.380-0.494). The proportion of male admissions was significantly higher than female admissions in all age groups (male 0.575, $p<0.0001$, 95%CI 0.562-0.586). The main causes of mortality were pneumonia (0.253, 95% CI, 0.203-0.303), severe acute malnutrition (0.222, 95% CI 0.174-0.27), HIV/AIDS-related complications (0.056, 95% CI 0.029-0.083), spina bifida (0.049, 95% CI 0.024-0.074), and hydrocephalus (0.045, 95% CI 0.021-0.069).

Conclusions: Our study revealed a lower mortality rate than previously reported in Ethiopia. Despite this, 44% of pediatric hospital mortality occurred early during hospitalization, higher than reported at other Ethiopian hospitals. This adds further evidence that systematic efforts should be dedicated to improve pediatric emergency care. Admissions included 58% male patients, similar to other reports in Ethiopia implying that this may be a nation-wide phenomenon. The observed disparity may be due to societal factors regarding care-seeking behaviors or male predilection for respiratory illness warranting further investigation. Cause mortality patterns were similar to reports in analogous settings.

HIV treatment optimism and fertility intention among people living with HIV in South-west Nigeria

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Background: The effect of HIV treatment optimism on the reproductive decisions of people living with the human immunodeficiency virus (PLHIV) may counter the protective effect of antiretroviral therapy (ART) on reducing transmissibility of HIV. Little discussion about the possible role of HIV treatment optimism on fertility intention of PLHIV exists. This study was conducted to determine the association between HIV treatment optimism and fertility intention as well as the predictors of the HIV treatment optimism among PLHIV attending a resource-constraint ART site in Nigeria.

Methods: A cross-sectional study of reproductive age group heterosexual adults living with HIV was carried out using a mixed-method approach [questionnaire survey and focus group discussion (FGD)]. HIV treatment optimism scores ranged from 5 to 20, scores ≤14 were considered as realistic and >14 as optimistic. Quantitative data were analysed using descriptive statistics and qualitative data by thematic approach.

Results: Mean age of the respondents was 35.2 ± 7.4years, 77.5% were females and 24.0% had completed senior secondary school. About half (52.3%) were optimistic about HIV treatment and 56.3% intended pregnancy. Optimism about HIV treatment was associated with fertility intention ($p<0.05$). Having less than senior secondary education [OR 1.9 (95% CI: 1.072 – 3.272)] and discussion of reproductive decision with health care provider twice [OR 12.1 (95% CI: 5.562 – 26.296)] or more than twice [OR 45.2 (95% CI: 20.991 – 97.502)] in the preceding 12 months predicted optimism about HIV treatment. FGD revealed that some respondents were optimistic about HIV treatment, were undertaking risky sexual and reproductive behaviours to ensure conception and some of these information were provided by health care workers.

Conclusion: To sustain the current gains in the fight against HIV during this era of ART roll out, adequate information, education, communication and training that will bring about safer and healthier reproductive decisions and behaviours are of value and advocated.

Prevalence of toxoplasmosis infections in women from the North West Region and West Region of Cameroon

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Abstract: Parasites among which toxoplasmosis cause a wide range of diseases that range from acute to chronic conditions and in some cases may even lead to death. In Cameroon and precisely in the North West and West regions, the actual situation of toxoplasmosis is not clearly understood. The aim of this work was to investigate the prevalence of toxoplasmosis infections in Tubah and Bafut sub-division of the North West Region and Mbouda subdivision of the West Region. In this regard, hospitals data were collected from Bambui district hospital (Tubah), Presbyterian Health Center Nsem (Bafut), Mbouda district hospital, Mbou and Ad-lucem hospitals (Mbouda) for a period of six years, from January 2010 to December 2015. The data were analyzed using SPSS 20 software. Results showed a general prevalence of toxoplasmosis 5.9% with Bambui hospital, Presbyterian Health Center and Mbouda hospitals (Mbouda district and Mbou and Ad-lucem hospitals) having toxoplasmosis prevalence of 4.26 % (80 cases), 4.44% (249 positive cases) and 13.25% (234 positive cases), respectively. Respective to age ranges, the age 15 – 30 years had the highest toxoplasmosis prevalence of 40% of the positive cases. Conclusively these results illustrated considerable levels of toxoplasmosis infection in women from West and North West Regions of Cameroon with the more serious impact on the women of active reproductive ranges of 15 – 30 years. There is need for better sensitization at the level of population and especially women concerning parasitic infection called toxoplasmosis.

Water, Sanitation and Hygiene (WASH) conditions and Infection Control Practices (ICPs) in Traditional Birth Centres in Abeokuta, Southwest Nigeria and Implication on Maternal and Neonatal Health

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Abstract: The perinatal period is a time of increased vulnerability for women. Globally, about 289,000 women die from complications during pregnancy, delivery and the postnatal period (UNICEF, WHO, World Bank and UNDP, 2014). Nigeria accounts for about one-quarter of Africa's maternal and newborn deaths (Save the Children, 2013). Infections arising during the perinatal period contribute to the maternal and neonatal health challenge. Many of these preventable infection-related deaths occur in low-income countries where many births still takes place in domestic environments that are often plagued by lack of basic WASH facilities and infection control practices (Velleman et al., 2014).This qualitative study was conducted to explore essential environmental health standards including WASH conditions and ICPs available to women during childbirth in fifty Traditional Birth Centres in Abeokuta, Southwest Nigeria. Established tools (JHPIEGO, 2003; WHO, 2008) were adapted to the setting and used to conduct in-depth interview and observe for conditions and practices relating to WASH and ICPs. The study identified gaps relating to WASH and Infection control. Most of these birth centres lacked access to basic water and sanitation facilities. All TBAs reported routine use of gloves and hand washing. Most centres (90%) had designated delivery and post-delivery rooms. Surfaces and equipments in many centres were covered with dirt, cobwebs and dust. Hand washing points were found in six centres; five were located near the delivery unit and one near the toilet. There were no standard protocols for healthcare waste disposal in all the centres. Many of the facilities were also confronted with the erratic electricity supply and about 70% of the centres had inadequate lighting and aeration within the delivery units. Most of the centres did not comply with universal guidelines on sterilization techniques. The unsafe conditions and practices found in these centres predispose and increase the vulnerability of mothers to life-threatening infections. These poor conditions and practices may explain the high rates of perinatal infections in this setting. The study revealed the need for effective strategies to improve conditions in which domestic births occurs. Interventions targeted towards improving WASH conditions should be embedded in strategies for tackling perinatal deaths. Appropriate policies and protocols for infection control at all levels of healthcare should be developed. Public health education to create awareness on clean delivery practices would also be a valuable tool in reducing maternal morbidity and mortality in this setting.

A retrospective study of causative / etiologic agents of sexually transmitted infections (STIs) isolated from women referred to STIs and gynaecology clinics in Kuje General Hospital, Abuja, Nigeria.

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Background: The women reproductive structure predisposes them to STIs more than men. Therefore, it has become a great health concern as STIs could lead to increased mortality rate if left untreated. Negligence, poor hygiene, poor diagnosis and treatment of sexually transmitted diseases have devastating effects on women's health. These could lead to poor health conditions and complications like pelvic inflammatory diseases, ectopic pregnancy, infertility, and cervical cancer. Common etiologic agents of sexually transmitted infections along women reproductive tracts include: Chlamydiae, Human Papillomavirus, Trichomonas vaginalis, Treponema pallidum, Gardnerella vaginalis, Neisseria gonorrhoeae, Candida albican and Bacterial vaginosis.
This study was aimed at determining the prevalence of these etiologic agents of STIs in women of different age groups and how this could help improve the health of women through adequate education on good sexual lifestyle and standard hygiene practice.

Methods: Ethical approval was obtained from Federal Capital Territory Health Research Ethics Committee (FHREC/2016/01/54/29-07-16) to analyze Laboratory data on pathogens isolated from high vaginal swabs and endocervical swabs samples from January 2013 to July 2016. Patient's information were fully anonymised and re-identified with numbers. The subjects were categorized into four age groups: 0 - 15 years, 16 – 30 years, 31 – 45 years, and 46 – 60. We analyzed a total of 586 cases of isolated pathogens by comparing the percentage of each etiologic agent according to the age of the referred patients using SPSS Statistics, IBM SPSS-2015. These samples were aseptically collected and analyzed using direct wet smear microscopy, Gram-stained smear microscopy, and standard culture techniques: sabouraud and dextrose agar, and chocolate agar as inoculating media. Biochemical tests like coagulase, catalase, bile esculin agar, optochin sensitivity test were also performed for identification of isolates.

Results: Out of 586 etiologic agents analyzed, Candida albican had the highest percentage of infection 504(86%), followed by Staphylococcus aureus 49(8.4%), Escherichia coli 12(2.1%), Coliforms 7(1.2%), Streptococcus spp 7(1.2%), Enteroccocus faecalis 4(0.7%), and Trichomonas vaginalis 3(0.5%). Highest infection was recorded among women of age group between 16 to 30 years, with a mean age of 30.5 years. The prevalence rate of infections were inversely associated with increase in age and sexual activities.

Conclusion: Increased routine screening for STIs and education on standard hygiene practice and sexual lifestyle are essential in prevention and reduction of complications among sexually active women. Targeted education on implication of multiple sex partners/unprotected sex, contraceptive abuse, poor hygiene, and non-adherence to treatments should be initiated at STIs and Gynecology clinics.

Implant contraceptive associated adverse events and satisfaction among female HIV positive users

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Background: Over the past decade, there has been increasing use of modern, long-acting, reversible contraceptive methods, including progestin-releasing subdermal implants. Implants are well-tolerated based on satisfaction surveys among HIV-negative individuals in the developed world. We present data on adverse events and satisfaction related to the levonorgestrel implant among HIV-positive women at an urban sexual and reproductive health clinic in Kampala, Uganda.

Methods: 60 consenting adult women of reproductive age were enrolled in a pharmacokinetic study and followed for one year. Women were on efavirenz-based antiretroviral therapy (ART; n=20), nevirapine-based ART (n=20), or were ART naïve (n=20). A contraceptive satisfaction questionnaire using a Likert scale was administered at each visit post-implant insertion. Clients were also asked about levonorgestrel-associated side effects including: nausea, headache, weight gain, acne, breast tenderness, fluid retention, bleeding irregularities and implant site reactions. Descriptive statistics summarized baseline characteristics, side effects, and implant satisfaction at week 24, the study's primary endpoint. Differences between ART groups were assessed using a chi-square test.

Results: Participants were a median of 32 years (interquartile range [IQR]; 27.8-34.6 years), with a parity of 3 (IQR 2-4). Most women were cohabiting with partners (26%), while 15% were married, 16% were single and 1% were separated. Statistically significant differences between ART groups were not observed, so data are presented for the combined study population. All reported adverse events were mild (Grade 1), except two patients, one each in the ART naïve and efavirenz groups, who reported moderate (Grade 2) weight gain. Amenorrhea was the most frequently reported menstrual irregularity in 31% of study participants. Of those who menstruated since the week 12 visit (n=33), 58% felt the duration and 69% felt the flow was similar to their experience prior to the implant. Mild menorrhagia was reported by 18% of participants. General side effects included weight gain (32%), headache (22%), nausea (5%) and breast tenderness (3%). All implant site reactions resolved by week 24. 78% of participants reported being "very satisfied" with menstrual cycle symptoms, 98% of participants described the implant as very convenient, and 90% were very confident in the implant's contraceptive effectiveness.

Conclusion: Side effects associated with the levonorgesterel implant were generally mild, did not vary significantly by ART use, and did not influence participant satisfaction with the implant. The high levels of satisfaction suggest a possible increase in demand and uptake of the method among HIV-positive Ugandan women.

Viral Load suppression and its influencing factors among women on HIV PMTCT intervention in Benue, Nigeria.

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Introduction: Viral load suppression is key to achieving prevention of mother to child transmission (PMTCT) of HIV infection. Globally, the number of women dying from AIDS related causes during pregnancy or within 42 days after pregnancy was estimated to be 37 million. Nigeria has an estimated 3.1 million people living with HIV/AIDS, with an annual HIV positive births of 56, 681. The reports also showed that an estimate of 281, 180 new HIV-infections were recorded; 126, 260 were adults, and 154, 920 children. However, women constituted 57% of adults infected (NACA, 2011, FMOH and NASI, 2006). In order to ameliorate this trends, PMTCT-interventions were intensified in area with high-burden, aimed at achieving viral-load-suppression. In order to promote activities/behaviors influencing viral-load-suppression, it is important to understand factors affecting viral-load-suppression in low-income setting. This study was designed to investigate factors associated with HIV suppression among PMTCT-patients in Benue State, Nigeria.

Methodology: This study was hospital-based-prospective cohort study, using a three-stage random sampling technique, 248 women on PMTCT-HIV-intervention in 6-primary health Centre from 7 priority LGA, were recruited for the study and followed-up over a period of 6-months. A pre-tested, interviewer-administered questionnaire was used to collect data on socio-demographics, adherence to HIV/AIDS care/treatment, disclosure of status, lifestyle/risk behaviors, HIV/AIDS support group membership, treatment belief and knowledge on ART treatment. Blood samples were collected from each participants for viral load assay. Descriptive statistics, Chi-square test and logistic regression were used for data analysis at 5% level of significance.

Result: Mean age of mothers was 29.7±5.6 years, 49.5% and 50.5% were pregnant and breastfeeding women respectively. Two-hundred and forty-four completed the study. Viral-Load-suppression rate was 90.98%, while 9.02% were unsuppressed. Sixty-five percent, 30% and 5% had good, fair and poor ARVs medication adherence-levels respectively. In addition, ARVs-adherence-level, disclosure-of-status, knowledge on ART treatment and support group membership were significant influencing factors at ($p< 0.05$, OR=1.51; 95% CI=1.03, 2.22) ($p<0.05$, OR=1.72, CI=0.39, 0.91), ($p<0.05$, OR=2.21, CI=1.25, 2.46) and $p<0.05$, OR=1.63, CI=0.42, 0.94) level of significant respectively.

Conclusion: Viral-load-suppression was strongly associated with disclosure of status, knowledge on ART treatment and support group membership and worsened with poor-adherence-level. Therefore, there is need to design HIV/AIDS intervention program that promotes the factors listed above.

Assessing sub-microscopic gametocytes in asymptomatic patient in to different transmission season in longitudinal studies in Ghana

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Abstract: Plasmodium gametocyte carriage by the human host is vital in sustaining malaria transmission. Measurements of the prevalence of Plasmodium sp. gametocytes may serve as a tool to monitor the success of malaria eradication efforts. Here we intend to will assess the prevalence of gametocytes in asymptomatic Plasmodium falciparum infections in a longitudinal study of school children aged between six to twelve years in a longitudinal study in two different zones in Ghana. Microscopic evaluation of Giemsa stained thin blood films, host seroprevalence of antibodies against Pfs48/45, host RBC polymorphism PCR genotyping and submicroscopic gametocyte detection by Pfs25 reverse transcriptase polymerase chain reaction will be used to measure gametocyte prevalence. The diversity of Pfg377 using PCR gel band sizes difference on cDNA will also be assess between the two populations and seasons. The findings from the study will be used to support identification of gametocyte carriers in a natural population as a tool to measure exposure/transmission to help in malaria elimination efforts.

The gender dimensions of managing stigma by HIV+ persons in Ghana's most HIV concentrated district

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Background: Women's comparative increased vulnerability, as against men's, shows forth clearly when it comes to living with and coping with HIV+ status. In Sub-Saharan Africa particularly, women who are HIV+ are confronted with the nearly-natural double vulnerability of being female and living with HIV+ status. Our study compared the contexts of, experiences and coping strategies with living with HIV+ status in Ghana's most HIV infected district—Lower Manya Krobo (LMKD). While stigma is a big challenge in HIV treatment and control, little data exist on the perceptions, experience of and managing stigma among persons living with HIV/AIDS (PLWHAs) in Ghana. The focus of this paper is on the experiences of the female HIV+ persons versus those of the male HIV+ persons.

Methods: We use in-depth interviews of 38 HIV+ persons purposively selected from two hospitals with special care for HIV+ persons situated in LMKD to study how the infected persons manage their health and day to day lives in the midst of extreme stigma.

Results: There were outstanding differences in the experiences of the males, compared to the females, with implications for worse self-reported health status for the females. Among these, the majority of the males felt housing secured, while only one of the females did; none of the males faced stigmatization and discrimination in their home settings; the vast majority of the females did. The males were less likely to hide their HIV+ status. Most of the males, expected, demanded, and had support from their spouses (wives) whiles the females were mostly single—never married or widowed, or put away/divorced due to the HIV+ status. The primary confident and caretaker of most of the males were their wives; females were mostly supported by and confided in a female biological sibling. Also, the females were most likely to be saddled with the support/care of their biological and other non-biological children who served as sources of further psychological and financial distress to them.

Conclusion: Our findings provide support for dealing with stigma to improve health the status and livelihoods of female PLWHAs particularly in Ghana. The Government is urged to provide housing and other tangible forms of socio-economic support to female PLWHAs particularly, to improve their health and socio-economic well-being.

Beyond childhood: Lifetime intervention against vaccine preventable diseases in a low income country

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Introduction: According to the WHO, about 20% of all cancer cases worldwide are related to chronic infections where up to 15% of them have a viral etiology. These are viruses such as Human Papilloma Virus (HPV) which accounts for 5.2% of all cancers in the sub-Saharan region. Cervical Cancer is a major public health concern in sub-Saharan Africa due to its high prevalence, and correspondingly high morbidity and mortality. This is a reflection of the deficiencies in Human Papilloma Virus (HPV) prevention strategies as well as the ineffective screening programs that result in late diagnosis of the disease. Recently, Kenya became the first of seven countries to offer HPV vaccines to young girls and women. However, there are unanswered questions that need to be addressed such as the magnitude of immune responses and the long-term protection conferred by the HPV vaccines. Aims: To evaluate the magnitude and duration of the immune response conferred by the prophylactic HPV vaccine that was administered to young women and adolescent girls in Kenya. Furthermore, to assess the impact of sexual activity (exposure and re-exposure to natural HPV infection) on the antibody levels over time.

Methodology: Venous blood from our cohort of young girls and women was drawn for analyses for HPV-6/11/16/18 antibodies. Cervical samples from our cohort of sexually active young women age > 18 years were assessed for type-specific HPV DNA. Participants were invited for follow-up every quarter year for the next 5 years to determine the magnitude and duration of the immune response to qHPV and the impact of qHPV vaccine on HPV acquired after sexual exposure. HPV neutralizing antibody titers and antibody avidity following HPV vaccination were measured and correlated against neutralizing antibody titers.

Results: Preliminary data from this study has shown a very rapid decline of antibodies levels following vaccination with the qHPV vaccine. Memory B cell responses were also detected following HPV vaccination. High levels of HPV-specific neutralizing serum antibodies which are key in immunological protection were detected in the vaccinated group.

Conclusion: A long term surveillance >8years in the HPV vaccinated population is needed to identify waning immunity and to evaluate the need for booster immunizations over time. This will then address our understanding of the dynamics of protection and inform policy of boosters which will facilitate an effective national wide rollout program to ultimately reduce the rising burden of Cervical Cancers in the sub-Saharan region.

Numerical modeling of inserted microwave heating probe in polymer loaded drug for cervical cancer treatment

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Abstract: This paper presents the results of computational study of inserted microwave heating probe into anticancer loaded polymer for localized hyperthermia and chemotherapeutic effect on cervical cancer. Finite element models of electromagnetic waves, heat transfer and mass transport concepts was used to simulate the temperature changes and drug release from the probe/polymer system to the surrounding environment that mimics the cervical cancer/healthy tissue. The predicted temperature ranges and released anticancer drug concentrations in abnormal tissue (cervical cancer cells) are shown to be in the range in which the combination of localized drug delivery and hyperthermia can a synergistically improve the therapeutic effects on cervical cancer. The implications of the results are also discussed for the design of implantable devices for localized chemotherapy and hyperthermia.

Epidemiology of anti-cancer herbal medicines in dual management of viral infections and gynecologic cancers

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Abstract: Gynecologic cancers are the fourth most common type of cancers affecting approximately 1 in 20 women in the world1. Women in the WHO African Region had the highest incidence of cancer of the cervix uteri1. Interventions and viable solutions to gynaecological cancers are needed urgently in order to stem its tide of devastation especially in the African region where there is dearth of good health care systems even at the primary level. Viral infections are now known to lead to certain cancers, A few types of Human Papilloma Virus (HPV) are the main causes of cervical cancer, which is the second most common cancer among women worldwide.Thousands of people in Africa, an estimated 80% of the total population depend on herbal medicines for their primary health care needs. Dioscorea spp. tubers and leaves are in use in local communities for a range of ailments. Anti-bacterial, Antioxidative, Hypolipidemic activities etc., have been reported. Extracts from Dioscorea ameliorates menopausal symptoms3 also and are implicated in management of certain infections and tumors2. Three Dioscorea species; Dioscorea composita, Dioscorea floribunda and Dioscorea alata were analysed for their anticancer potentials using Allium cepa cytotoxicity assays. The extracts demonstrated inhibited root growth and cell division in the A. cepa root tips with the highest inhibitory effect at 0.2mg/ml and 0.6mg/ml. Chromosomal aberrations are a sign of cytotoxicity of extract, those observed in the treated root tips are binucleate chromosomes, sticky chromosomes, c-mitosis, bridged anaphase, vagrant and attached chromosomes. Induced chromosomal aberrations were significant at all concentrations of the extracts. These results confirm the cytotoxic effect of Dioscorea extracts as published for species other the ones used in the present studies. Further anticancer and anti-viral assays will be carried out using human cell lines to develop the findings.

Diversity and antibiotic resistance pattern of uropathogens from pregnant women in Ibadan metropolis South-western Nigeria

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Introduction: Urinary tract infection (UTI) often characterized by significant bacteriuria (asymptomatic or symptomatic) is one of the commonest infectious diseases of women worldwide including developing countries. Pregnant women are predisposed to UTI due to the physiologic and hormonal changes that occur during pregnancy. The emergence of multidrug resistant uropathogens with virulent traits has led to adverse obstetric and neonatal outcomes.

Objectives: This prospective experimental study, based in southwestern Nigeria aimed to determine the prevalence of bacterial infecting agents in UTI during pregnancy and to establish their antimicrobial susceptibility profiles. The study also aimed to identify socio-economic factors that promote UTI.

Methods: Clean catch mid-stream urine samples were collected, processed and analyzed from a total of six hundred and fifty (650) women on their first visit to antenatal clinics of three major health facilities in Ibadan metropolis, Nigeria. Demographic information was collected using a structured questionnaire. Dip-stick leucocyte esterase test was performed and urinary isolates were identified using standard biochemical tests and further confirmed with Microbact® identification kits (Oxoid). Kirby-Bauer disc diffusion method was used to determine the antibiotic susceptibility profile and interpreted as specified by the clinical laboratory standard institute.

Results: Significant bacteriuria was observed in 246(37.8%) antenatal patients. Staphylococcus epidermidis 54(21.9%) was the most prevalent uropathogen, followed by Escherichia coli 52(21.1%). Other bacterial species recovered include Staphylococcus aureus 28(11.4%), Providencia stuartii 15(6.1%), Proteus mirabilis 13(5.3%), Staphyloccocus saprophyticus 12(4.9%), Enterobacter agglomerans 9(3.7%), Staphylococcus haemolyticus 6(2.3%). Morganella morganii 4(1.6%), Staphylococcus capitis subsp.ureolyticus 4(1.6%), Staphylococcus simulans 4(1.6%), Klebsiella pneumoniae 3(1.2%), Pseudomonas aeruginosa 3(1.2%), Serratia marcescens 3(1.2%), and Staphylococcus lugdenensis 3(1.2%). The highest prevalence of bacteriuria with respect to gestational age, women's age group, occupational status and educational level were 131(53.2) third trimester, 101(44.2%) 25-30 years, 87(35.3%) housewives, and women with no formal education 79(32.1%) respectively and were statistically significant at $P<0.05$. Antimicrobial resistance, including multiple antibiotic resistance was common.

Conclusion: Bacteriuria (asymptomatic or symptomatic) in pregnancy is common in Ibadan, Nigeria. A wide range of bacterial etiologic agents can be implicated and majority of these uropathogens are resistant to commonly prescribed antibiotics that are safe in pregnancy. Risk factors for bacteriuria include gestational age, age group, occupational status and educational level.

Plasmodium falciparum parasite dynamics determined by qPCR after controlled human malaria infection in Semi-Immunes from Gabon.

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Background: Characterising the effect of natural acquired immunity and sickle cell anaemia on the pattern of Plasmodium falciparum parasitemia may be useful to understand the pathophysiological mechanisms of protection against malaria. Controlled human malaria infection (CHMI) by direct venous inoculation of aseptic, purified, cryopreserved sporozoites (PfSPZ Challenge) is a new tool which can be used to investigate the pathophysiology of malaria, since the timepoint of infection and the inoculum size is known.

Methods: The study was performed in Lambaréné, Gabon, one of seven African partners in the EDCTP-funded CHMI platform. Adults aged 18-35 from three groups NI: 5 non-immune (NI), 11 semi-immunes with haemoglobin AA (IA), and 9 semi-immunes with haemoglobin AS (IS) received 3200 sporozoites (PfSPZ) after a curative treatment course with clindamycin. Capillary blood samples were taken daily up to Day 28 to determine parasitemia by real time quantitative polymerase chain reaction (RT-qPCR). Treatment was administered for a malaria episode or at Day 28, whichever came first.

Results: Parasitemia was detected in 5 (100%) subjects in the NI group, 9 (82%) in the IA group and 7 (78%) in the IS group. All volunteers in the NI group showed similar patterns with parasitemia starting on Day 12 and rising quickly. Patterns for parasitemia in the immune groups (IA and IS) were highly heterogeneous. Although timepoints of initial parasitemia and duration of parasitemia were varied, all semi-immunes managed to control parasitemia for at least several days. There were no discernible differences in patterns between the IS and IA group.

Conclusion: No parasitemia was detected in 20% of the semi-immunes, likely due to liver stage immunity. The highly variable patterns of parasitemia do not allow us to discern immune mechanisms against blood stages. Hemoglobin AS had no visible effect on parasite dynamics at the low parasitemia encountered.

Leishmanicidal, anti-inflammatory and antioxidant activities of Omphalocarpum ahia A. Chev

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Abstract: Omphalocarpum ahia (A. Chev.) is a green tree of about 30 m tall. A whitish exudate emanates from its bark when it is cut through. In Ghanaian traditional medicine, O. ahia is used for treating pain and inflammation and in some instances used against some parasitic infections. Human cutaneous leishmaniasis is an emerging disease in the Volta Region of Ghana like most developing countries. The disease, since 1999, has recorded estimates of high prevalence in some communities. Reports on current drugs used against all forms of leishmaniasis indicate high toxicity and cost. The study aimed to analyse the anti-leishmanial, anti-inflammatory and antioxidant properties of the bark of O. ahia. The anti-leishmanial activity was evaluated in vitro against promastigote forms of Leishmania donovani using a haemocytometer counting chamber and a light microscope. The extract was tested at concentrations between 15.6-500 µg/mL. Oedema was induced in the foot of chicks with carrageenan to test for anti-inflammatory activity whereas 2-diphenyl-1-picrylhydrazyl was used to test for antioxidant activity. The anti-leishmanial activity of O. ahia was potentially non active (IC =124.0±0.67 µg/mL) in comparison with amphotericin B, the standard drug (2.4± 0.67 µg/mL). Anti-inflammatory activity was moderate (ED =75.9±0.667 mg/kg BDW) compared to diclofenac (ED =3.74±0.333). The radical scavenging activity of O. ahia was only three times less-effective than Vitamin E, positive control.

Evaluation of intermittent preventive treatment adhesion of pregnant women and prevalence of resistance markers to Sulfadoxine Pyrimethamine, in rural areas at Fougamou

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Context: Pregnant malaria remains one of complexes forms of malaria. To fight it, several African countries adopted intermittent preventive treatment with Sulfadoxine-Pyrimethamine (IPT-SP). But, resistance against SP was reported and it is associated with mutations and haplotypes on genes P. falciparum Dihydropteorate synthase (PfDHPS) and P. falciparum Dydrofolate reductase (PfDHFR). The aim of this study was to investigate the pregnant women adhesion level of IPT-SP and the prevalence of mutations on PfDHFR and PfDHPS.
Material and methods: Retrospective (including women at the delivery between January 05 2014 and January 31, 2016) and cross sectional survey (with women seen for antenatal car and all febrile patients consulting, between February 02, and May 31, 2016). Malaria was diagnosed using rapid diagnostic test. Patient DNAs were extracted and genes PfDHFR and PfDHPS were genotyped using PCR-RFLP.

Results: We included 427 women at the time of delivery. Women from 20 to 25 years old were the most prevalent (37.26%, n=60). Among them, 74.53% were unemployed and 47.21% living in the villages near Fougamou. The rate of adhesion to IPT-SP was 94.37% (n=403). Among them, 47.89% (n=193) received 3 doses of IPT.For pregnant women including during cross sectional survey, only 8.7% (n=14) were infected with plasmodium. Bednet was used by 80.12% (n=129) of them. The malaria prevalence from febrile patients was 60.40% (n=61). The prevalence of triples mutations of PfDHFR VIRNI and AIRNI were 12.07% and 84.48% respectively. An undescribed profile of genotype 59 of PfDHFR was reported. The prevalence of mutant haplotypes of PfDHPS were SGEA, SGKA and AGEA was 37.93%, 25.86% and 12.07% respectively.

Conclusion: Data showed the adhesion rate of IPT-SP is next to 100%. The highest prevalence of genotypes associated with SP drug resistance was found. Clinical trials to investigate the efficacy of ITP-SP are needed.

Predictors of late HIV diagnosis among Adult people living with HIV/AIDS who undertake an initial CD4 T cell evaluation, Northern Ethiopia

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Introduction: Early HIV testing and timely initiation of ART is critical for the improved quality of life of PLWHIV. Having identified a higher rates of Late HIV diagnosis, this study was aimed to determine Determinants of late diagnosis of HIV among adult HIV patients in Bahir Dar, Northern Ethiopia.
Methods: A case control study was conducted between January 2010 to December 2011 at Bahir Dar Felege Hiwot Referral Hospital. The study subjects consisted of 267 cases and 267 controls. Cases were adult people living with HIV/AIDS whose initial CD4 T cell count was < 200/µl of blood. Controls were those with a CD4 T cell count of greater than 200/ µl. Trained staff nurses were involved in data collection using a semi-structured questionnaire. Data was entered and analyzed using SPSS version 20. Descriptive statistics and Binary logistic regression were performed.

Results: Subjects who hold a certificate and above (AOR=0.26; 95% CI = 0.13. 0.54), being initiated by friends, families and other socials to undertake HIV testing (AOR=0.65; 95% CI = 0.29, 1.48), who reported a medium and high knowledge score about HIV/AIDS and who undertake HIV testing while visiting a clinic for ANC (AOR =0.40; 95% CI =0.19, 0.83) were less likely to be diagnosed late. Subjects who undertake HIV testing due to providers' initiation (AOR =1.70; 95%CI =1.08, 2.68), who reported a medium internalized stigma (AOR=4.94; 95% CI =3.13, 7.80) and who reported a high internalized stigma score towards HIV/AIDS (AOR =16.64; 95% CI =8.29, 33.4) had a high odds of being diagnosed late compared to their counterparts.

Conclusion: Internalized stigma, low knowledge level about HIV/AIDS, not to have attended formal education and failure to undertake HIV testing by own initiation were significant determinant factors associated with Late HIV diagnosis. Education about HIV/AIDS, promotion of general education, and encouraging people to motivate their social mates to undertake HIV testing are highly recommended.

Skin snip survey results revealed absence of human onchocerciasis in Bale, Borenna and West Arsi zones of Eastern Ethiopia

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Introduction: Onchocerciasis is used to be one of the most important public health problems in Ethiopia. However with the intensified interventions over the last decade mainly of community based ivermectin drug distribution it is possible to control the disease. Hence, the programme changed its objective from control to elimination in 2012. The disease is believed to be found mainly in the western, northern and south western part of Ethiopia and there was no evidence in the eastern part of the country although the presence of transmission was predicted in Bale, West Arsi and Borenna zones. Therefore, this study is conducted to assess the presence of onchocerciasis transmission and its magnitude in the area.

Methods: In 2014, a cross sectional microfilarial survey of onchocerciasis was undertaken in 19 villages and examined 2560 people from10 districts of Bale, Borenna and West Arsi zones. The study sites (villages) are selected based on the proximity to the rivers (possible breeding sites) and representation to the programme implementation unite (district) and vegetation cover. The study participants are all village residents with age >5 years, permanence residence in the areas and with good health condition.

Results: In this study a total of 2560 study participants were surveyed of which 1332 were female (52%) and 122 male (48%). From the total study participants the age group >51 years were the lowest (3%) and 21-30 years were the highest participants (34%). Of these females with age range 21-30 years highest (30.4%) and age<10 years were lowest participants (4%). Whereas male with age range >51 years had low participation (1.6%) and 21-30 years had high participation (38%) in the study. The survey result revealed that none of the study participants demonstrated skinsnip onchocercal microfilariae in all systematically selected study sites out of all examined 2560 people. The prevalence of microfilariae and community microfilarial load (CMFL) by district, zone and out of total all study participants was 0% in all 19 villages.3

Conclusion: The finding of this survey implies that there is no onchocerciasis case and transmission in the area and therefore no need of implementing interventions unless further study evident the cases.

Intestinal Helminthic Infection and Anemia among Pregnant Women Attending Ante-natal Care (ANC) in East Wollega, Oromia, Ethiopia

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Background: Ethiopia is a developing country where IPIs are major public health problems. The burden of intestinal parasites, particularly the soil transmitted helminthes (STHs), is often very high in school children and pregnant women. Anemia, associated with STH, is a major factor in women's health, especially during pregnancy; it is an important contributor to maternal mortality. The aim of this study was to determine the prevalence of intestinal helminthic infection and anemia among pregnant women attending ANC in East Wollega Zone, Ethiopia.

Materials and Methods: A cross sectional study was carried out in five health centers of East Wollega Zone of Oromia Region between November 2015 and January 2016. Pregnant women were selected consecutively using proportional stratified sampling. Stool specimens were collected and processed using direct wet mount and formol-ether concentration techniques to detect intestinal helminthes in accordance with structured questionnaires. Logistic regression models were applied to assess the association between predictors and outcome variables. P values less than 0.05 were taken as significant levels. Results were presented in tables and figures. Based on the findings, conclusions and recommendations provided.

Results: A total of 372 pregnant women were participated in this study with a median age of 25 years (17-40 years). The total prevalence of intestinal helminthes was 24.7% (92/372) with the predominance of Hook worm (15.1%) followed by Ascaris lumbricoides (6.5%). Illiteracy [AOR, 95% CI: 2.2(1.3, 4.8), P, 0.05], absence of latrine [AOR, 95% CI: 4.6(1.7, 8.3), P, 0.05] and consumption of raw and/or unwashed fruit [AOR, 95% CI: 3.3(1.2, 6.3), P, 0.05] were significant predictors of intestinal helminthes. The overall prevalence of anemia was 17.5% (65/372) where mild anemia accounts for 80% of the total anemia. Anemia was significantly associated with first trimester of pregnancy [AOR, 95% CI: 2.8(1.3, 6.2), P, 0.05], previous malaria infection [AOR, 95% CI: 2.3(1.3, 5.3), P, 0.05], failing to take iron folate regularly [AOR, 95% CI: 1.8(1.1, 4.8), P, 0.05] and infection with intestinal helminthes [AOR, 95% CI: 3.1(1.4, 7.3), P, 0.05]. Hook worm and Ascaris lumbricoides were specific geo-helminthes that significantly cause anemia.

Conclusion: The prevalence of intestinal helminthes and anemia is significantly high in this study. Different socio-demographic, life style and maternal factors were identified as significant contributors of intestinal helminthic infection and anemia among pregnant women. Therefore public health measures and regular ANC actions are vital to promote safe pregnancy.

High Prevalence of HIV Low Abundance Drug-Resistant Variants in a Treatment-Naïve Population in North Rift Kenya

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Abstract: The advent of antiretroviral treatment (ART) has resulted in a dramatic reduction in AIDS-related morbidity and mortality. However, the emergence and spread of antiretroviral drug resistance (DR) threaten to negatively impact treatment regimens and compromise efforts to control the epidemic. It is recommended that surveillance of drug resistance occur in conjunction with scale-up efforts to ensure that appropriate first-line therapy is offered relative to the resistance that exists. However, standard resistance testing methods used in Sub-Saharan Africa rely on techniques that do not include low abundance DR variants (LADRVs) that have been documented to contribute to treatment failure. The use of next generation sequencing (NGS) has been shown to be more sensitive to LADRVS. We have carried out a preliminary investigation using NGS to determine the prevalence of LDRVS among a drug naïve population in North Rift Kenya. Antiretroviral-naive patients attending a care clinic in North Rift Kenya were requested to provide and with consent provided blood samples for DR analysis. DNA was extracted and amplified and nested PCR was conducted on the pol RT region using primers tagged with multiplex identifiers (MID). Resulting PCR amplicons were purified, quantified, and pyrosequenced using a GS FLX Titanium PicoTiterPlate (Roche). Valid pyrosequencing reads were aligned with HXB-2 and the frequency and distribution of nucleotide and amino acid changes were determined using an in-house Perl script. DR mutations were identified using the IAS-USA HIV DR mutation database. Sixty samples were successfully sequenced of which 26 were subtype A, 9 were subtype D, 2 were subtype C, and the remaining were recombinants. Forty-six (76.6%) had at least one drug resistance mutation, with 25 (41.6%) indicated as major and the remaining 21 (35%) indicated as minor. Samples from female patients had the highest number (34/46, 73.9%).The most prevalent mutation was NRTI position K219Q/R (11/46, 24%) followed by NRTI M184V (5/46, 11%) and NNRTI K103N (4/46, 9%). Our use of NGS technology revealed a high prevalence of LADRVs among drug-naïve populations in Kenya, a region with predominantly non-B subtypes. The impact of these mutations on the clinical outcome of ART can be ascertained only through long-term follow-up.

Magnitude and correlates of tuberculosis among HIV patients at Felege Hiwot Referral Hospital, Bahir Dar city, North-west Ethiopia

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Background: Tuberculosis and HIV have been closely linked since the emergence of AIDS. The aim of this study is to assess magnitude of Tuberculosis and its associated factors among HIV patients at Felege Hiwot Referral Hospital in Bahir Dar city. Methods: Institutional based Cross-sectional study was conducted in September 2012 in Bahir Dar city. Systematic sampling technique was employed to collect the data; both primary and secondary data were collected by interviewing HIV cases and reviewing their cards. The data were analyzed in bivariate and multivariate analysis using SPSS version 20.

Result: The study was conducted among a total of 385 HIV cases. The prevalence of Tuberculosis was 10.1%. This study declared that body mass index (BMI), CD4 count and functional status were significant predictors of tuberculosis (TB). Besides, HIV cases whose BMI less than 18.5 were more than five times more likely to develop TB compared to those with BMI greater than 24.5 (AOR= 5.24, 95%CI:1.01-27.13), individual HIV cases whose CD4 count less than 200 were more than seven times likely to develop Tuberculosis compared to those whose CD4 count greater than 500 (AOR= 7.33, 95%CI:1.57-34.28), besides, the study explored that respondents who were bed redden and ambulatory were more than eight and six times more likely to develop Tuberculosis compared to those respondents who were able to work respectively (AOR=8.61, 95%CI: 1.83-40.40 and AOR=6.22, 95%CI: 1.40-7.65).

Conclusion: This study showed that magnitude of TB among HIV cases was 10.1%. HIV patients, whose BMI less than 18.5, CD4 count <200/μL, ambulatory and bedridden patients should be closely supervised by increasing patient round frequency and providing special nutritious food. TB/HIV co-infected patients should get all services in TB clinic. The Hospital should provide fast triaging systems for coughing patients and reducing their waiting time for services.

Assessment on bypassing of lower level health care facilities with delivery services in Amhara Region Referral Hospitals

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Background: Bypassing of nearby lower level health care facility is frequent among women in many areas, which brings impact for the successful implementation of health sector reform. It is seen as a powerful expression of people's preference for health care, and its high rates of bypassing have important implications for health system efficiency and actual coverage of health services.

Objective: The main objective of this study was to assess bypassing of lower level health care facilities with delivery service in Amhara Region Referral Hospitals, Ethiopia.

Methods: Facility based cross-sectional study employing exit interviews with postpartum women was conducted. By using single population proportion formula, a total of 422 mothers were proportionally taken from each of referral hospitals. By taking every other postnatal woman who was receiving delivery care in each hospital was interviewed until sample size is met. Data was edited, cleaned, coded, and analyzed using SPSS version 16.0. Bivariate and multivariate logistic regressions were applied to identify the effect of each explanatory variable on the outcome variable. Explanatory variables whose p-values less than 0.05 in the bivariate analysis were transferred in the multivariate logistic regression to see the prediction power of those variables

Results: A total of 422 women participated in the study. The overall bypass rate was 48.1%. Final predictors of women bypassing nearby lower level facility were: Education status: women who are unable to read and write (AOR=0.37,95% CI:0.14,0.99),Parity: women with single parity (AOR=0.35, 95% CI:0.18,0.6995),and also women with 2-5 parity (AOR=0.21,95%CI:0.1,0.47), Distance: women who live in a distance less than 5kms from the referral hospitals (AOR=8.07,95%CI:3.86,16.8) and also distance between 5-10kms (AOR=6.01,CI:2.81,12.8),Women's reasons to bypass nearby facilities: women perceived as both inadequate drugs, medical supplies & equipment and incompetent health care providers (AOR=17.8, 95% CI 7.67,41.3),Diagnostic setup: women perceived as there is adequate diagnostic setup, (AOR=0.216,95% CI: 0.11,0.42),no suggestions about diagnostic setup (AOR=0.24,95% CI:0.11,0.53), women perception to health care providers, women who perceived as there is competent providers (AOR=0.27, 95% CI: 0.14,0.52).

Conclusions: This study showed that the overall rate of women bypassed was high due to factors such as women's perception, educational level, distance and parity, so the findings have important policy implications. The current efforts in first level health care facilities should consider and quality of care in line with quantity. This would also improve equity in health care access since the poor who cannot afford travelling costs will then get access to quality services at their nearby health care facilities.

Prevalence of bacteriuria, associated risk factors and germs involved in pregnant women attending antenatal clinic of 3 Hospitals in Douala

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Background: Pregnancy increases the risk of bacteriuria which is associated with significant maternal and fetal risks. The prevalence of bacteriuria varies worldwide. This study aims to determine the prevalence, risk factors and microorganism responsible of bacteriuria in pregnant women of Douala city.

Methods: A cross-sectional study was conducted in 3 hospitals of Douala from January to April 2015. We consecutively recruited all consented pregnant women aged 18years and above attending antenatal clinics. Socio-demographic characteristics, medical and obstetrical past history and obstetric characteristics of the index pregnancy were collected. After the interview, urine were collected aseptically and subjected to routine macroscopy, microscopy examination and culture. The culture was obtained by inoculation of 10µl of urine on the appropriate medium. Identification of pathogens was done automatically using the VITEK2™ (BioMerieux-France).

Results: Overall, 354 pregnant women were enrolled with mean of age 28.18 ± 4.4. The prevalence of significant bacteriuria was 9.9% (35 out of 354). The prevalence of bacteriuria in women who were asymptomatic was 5.7%. Cystitis and pyelo-nephritis were observed in 3.6 and 0.6% respectively. The most commonly isolated organism was E. coli (48.6%). History of UTI (p=0.035, OR=2.183, CI=1.055-4.518) was significantly associated to bacteriuria. High level of education was protector.

Conclusions: Bacteriuria was frequent in pregnant women and significantly increased with the past history of UTI and low level of education. E coli was the most frequent uropathogen. Education and proper treatment of UTI should be provided to reduce the burden of this pathology in order to prevent its severe complications.

Rate of HIV transmission and associated factors among HIV exposed infants in selected health facilities of East and West Gojjam Zones, North West Ethiopia. Retrospective follows up study

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Introduction: In 2014 there were 170,000 new infections among children, rate of HIV transmission from mother to child in Ethiopia is 18%. Though there are number of HIV related studies done in Ethiopia, there is scarcity of evidence on mother to child transmission especially after the initiation of the new strategy of option B+. Hence, the aim of this study was to determine rate of HIV transmission and associated factors among HIV exposed infants in selected health facilities of east and west Gojjam zone, northwest Ethiopia.

Methods: Retrospective cohort study design was used to collect data from all complete registrations of HIV exposed infant-mother cards were taken from seven health facilities (Debre Markos referral hospital, Finote Selam hospital, Debre Markos, Amanuel, Dembecha, Dejen and Bichena health centers). Data were collected using checklists developed from clinic working documents. Data were entered using epidata version3.5 and analyzed by SPSS version 22. Odds ratio at 95% CI and p-value <0.05 were used to declare statistical association.

Result: Three hundred five infant-mother pair registrations were studied. Maternal mean age is 27.4 (+SD 4.3). One hundred ninety four (63.6%) were married and 145 (47.5%) were cannot read and write. About 96.4% of infants before 6 month were exclusive breast feeding. Rate of HIV transmission is 18 (5.9%) at 95% CI of 3.88%-7.9%). And 10 out 24 (41.67%) were HIV positive while 8 out of 281 (2.85%) were HIV positive from those on ARV prophylaxis. Based on program shift from option B to option B+ there 14 children were positive out of 136 (10.29%) before option B+ and only 4 out of 169 (2.37%) after option B+. Children born from older mothers were 5.4 times more likely to be HIV positive (AOR=5.4, 95% CI=1.15-25.70), Infant whose mother with no PMTCT intervention was 16 times more likely to become HIV positive compared to their counter parts with intervention (AOR=15.95, 95% CI=3.35-75). Mother who become pregnant after they were known HIV positive were less likely to have HIV positive children (AOR=0.22, 95%CI=0.049-096).

Conclusion: There is significant progress on decrease of rate of HIV transmission from mother to child. Older age mother, status of the mother at entry to prevention of mother to child care and mother to child prevention interventions were significant factors. Hence, government and clinicians should keep their effort and tackle maternal factors that favor HIV transmission from mother to child so as to realize "HIV free generation by 2030".

Skilled delivery service utilization and its association with the establishment of women's health development army in Yeky District, South West Ethiopia: A multilevel analysis

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Background: In response for the high maternal and perinatal morbidity and mortality, the government of Ethiopia has established health extension program with a community based network involving health extension workers (HEWs) and a community level women organization which is known as "women's health development army" (WHDA). Currently the HEWs and WHDA network is the approach preferred by the government to register pregnant women and encourage them to link in the health care system. However, its association with skilled delivery service utilization is not well known.

Methods: A community based cross sectional study was conducted from January to February 2015. Within 380 clusters of WHDA, a total of 748 reproductive age women who gave birth in one year preceding the study, were included using multi stage sampling technique. The data were entered into EPI info version 7 statistical software and exported to STATA version 11 for analysis. Multilevel analysis technique was applied to check for association of selected variables with utilization of skilled delivery service.

Results: About 45% of women have received skilled delivery care. A significant heterogeneity was observed between "women's health development teams (clusters)" for skilled delivery care service utilization which explains about 62% of the total variation. Individual-level predictors including urban residence [AOR (95%CI) = 35.10 (4.62, 266.52)], previous exposure of complications [AOR (95%CI) = 3.81 (1.60, 9.08)], at least four ANC visits [AOR (95%CI) = 7.44 (1.48, 37.42)] and preference of skilled personnel [AOR (95%CI) = 8.11 (2.61, 25.15)] were significantly associated with skilled delivery service use. Among cluster level variables, distance of clusters within 2KMs radius from the nearest health facility was significantly associated [AOR (95%CI) = 6.03 (1.92, 18.93)] with skilled delivery service utilization.

Conclusions: In this study, significant variation among clusters of WHDA was observed. Both individual and cluster level variables were identified to predict skilled delivery service utilization. Encouraging women to have frequent ANC visits (-four and above), enhancing awareness creation towards skilled delivery care attendance and making accessible facilities and transport services are recommended.

Activation and degranulation of neutrophils and monocytes in cutaneous leishmaniasis patients

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Background: Cutaneous leishmaniasis in Ethiopia caused by L. aethiopica and has a public health importance affecting both male and female in the rural areas. It affects the social life of females more than males due to its disfiguring effect and their low treatment seeking behavior. Recent studies indicate an essential role of neutrophils in the early course of Leishmania infection. In fact, neutrophils are the first cells to be recruited to the site of Leishmania infection and phagocytose the parasites. Therefore, the initial response of neutrophils to the parasites appears to be crucial for the protective defense and/or to disease development. The working hypothesis of our study was that neutrophils in cutaneous leishmaniasis (CL) patients have intrinsic dysfunction resulting in compromised activation by Leishmania parasites. Such a dysfunction could lead to compromised neutrophil-mediated defense and, consequently, to disease development.

Methods: The response of neutrophils to Leishmania aethiopica and to the TLR 40 agonists LPS and MALP-2 was investigated by assessing the cell surface expression of CD62L and CD66b as well as phagocytic activity in a whole blood assay in vitro. Since monocytes migrate also rapidly into the infected skin the activation of monocytes was also assessed.

Results: In most assays a comparable response to LPS and MALP-2 was observed by neutrophils and monocytes from CL patients and controls, no impairment of function of neutrophils and monocytes regarding their response to these activating stimuli was observed. Unexpectedly, neutrophils and monocytes from CL patients responded stronger to Leishmania in the applied whole blood assay than cells from healthy individuals.

Conclusions: The experimental findings do not support the hypothesis regarding a possible intrinsic dysfunction of neutrophils and monocytes in cutaneous leishmaniasis. In contrary, neutrophils and monocytes from CL patients appear to have an enhanced response to Leishmania in the applied whole blood-based assay.

Epidemiological profile and determinants of HIV infection among Beninese prisoners (West Africa)

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Abstract: AIDS is a serious disease in the world. Many people are infected and each day new cases are recorded. This pandemic disease is taking the heaviest toll in Sub-Saharan Africa. The various measures implemented to take care of people affected by HIV and AIDS, so as the public awareness campaigns on AIDS and its prevention measures do not always involve all the populations exposed to these risk situations. Prisoners constitute a marginalized population at risk of AIDS.

This analytical cross-sectional study aimed to determine the contributive factors to the risk of transmission of HIV in 9 civil prisons of Benin in 2010. This study was done on 1211 prisoners. It comes out of this study that Benin's prisons are characterized by the over population and the existence of inadequate structures. The youngest prisoner is 12 years old and the eldest is 90. Most of them are male (83.8%) and almost all of them have never gone to University (92.9% [n=652]). The prevalence of HIV infection in prisons is estimated at 2.9% with95% CI [1.9 – 4.0]. The incarceration rate per Department ranges from 77 to 202 per 100,000 inhabitants. Added to the prevalence of HIV in the overall population of each old Department by EDS, it is proper to notice that the prevalence in each prison is relatively higher, particularity in the prisons of Borgou/Alibori/Ouémé/Plateau and Zou/Collines. ¾ HIV infected prisoners are more than 24 years old; this shows that the youth remains the most exposed stratum to HIV infection.

Resistance of Staphylococcus aureus to antimicrobial agents in Ethiopia: A meta-analysis

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Background: Development of antimicrobial resistance by Staphylococcus aureus has limited treatment options against its infections. The purpose of this study was to determine the pooled prevalence of resistance to different antimicrobial agents by Staphylococcus aureus in Ethiopia.

Methods: Web-based search was conducted in the databases of PubMed, Google Scholar, Hinari, Scopus and the Directory of Open Access Journals (DOAJ) to identify potentially eligible published studies. Google search was used to identify unpublished works. Required data were extracted and entered into Excel spread sheet. Statistical analyses were performed using Stata version 13.0. The metaprop Stata command was used to pool prevalence values. Twenty-one separate meta-analysis were done to estimate the pooled prevalence of the resistance of Staphylococcus aureus to twenty-one different antimicrobial agents. Heterogeneity among the studies was assessed using the I2 statistic and chi-square test for heterogeneity and publication bias was assessed using Egger's test. Because of significant heterogeneity amongst the studies, the random effects model was used to pool prevalence values.

Results: The electronic database (including Google) search yielded 1317 studies among which 45 studies met our inclusion criteria. Our analyses demonstrated very high level of resistance to amoxicillin (77% [95% confidence interval (CI): 68%, 0.85%]), penicillin (76% [95% CI: 67%, 84%]), ampicillin (75% [95% CI: 65%, 85%]) and tetracycline (62% [95% CI: 55%, 68%]). . Medium level of resistance was seen to methicillin (47% [95% CI: 33%, 61%]), cotrimoxaziole (47% [95% CI: 40%, 55%]), doxycycline (43% [95% CI: 26%, 60%]), and erythromycin (41% [95% CI: 29%, 54%]). . Relatively low prevalence of resistance was observed with vancomycin (11% [95% CI: 4%, 20%]), kanamycin (14% [95% CI: 5%, 25%]) and ciprofloxacin (19% [95% CI: 13%, 26%]). High heterogeneity was observed for each of the meta-analysis performed (I2 ranging from 79.36% to 95.93%; all p-values ≤ 0.01). Eggers' test
did not show a significant publication bias for all antimicrobial agents except for erythromycin and ampicillin.

Conclusions: Staphylococcus aureus in Ethiopia has gotten notoriously resistant to penicillin, cephalosporins, tetracyclines, chloramphenicol, and sulphonamides. The findings revealed that glycopeptides, floroquinolones, and aminoglycosides are the preferred agents for the treatment of staphylococcal infection in Ethiopia. It is mandatory to include newer agents like linezolid in the national drug list.

Baseline Bone Mineral Density in a Cohort of Young HIV infected Women Using Tenofovir and Depo-provera

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Background: Wide spread use of antiretroviral therapy (ART) over the past two decades has led to improved life expectancy of human immunodeficiency virus (HIV) infected individual with newer treatment options like tenofovir (TDF) based ART promise even further increases in survival. However some of these medications particularly TDF have been associated accelerated bone loss, and subsequent risk of fractures. And among women of reproductive age, the choice of contraception may also impact bone health. Depot medroxyprogesterone acetate (DMPA, Depo Provera) a very effective and most widely available contraceptive has been independently associated with bone loss. Although reduced BMD has been a concern for both TDF and DMPA use, no studies have examined the combined impact of both. Through a recent NIH R01 grant award, we are conducting the first study to globally assess the combined effect of TDF and DMPA on BMD and bone turn over in a two year follow-up period among young women aged 18 to 30 years.

Methods: This study was based at Makerere University-Johns Hopkins University (MU-JHU) Research Collaboration. Women are recruited from HIV care centers and general health facilities in and around Kampala, Uganda. BMD is measured at baseline, 6, 12, 18, and 24 months using dual energy x-ray absorptiometry. We present baseline data on BMD among this cohort of young women compared to a non-infected comparison group.

Results: A total of 126 women, 84% of whom are infected have been enrolled and are at various stages of follow. The mean age was 24 years (SD, 2.2) and mean body mass index (BMI), 24.8 kg/m2 (SD, 4.6). After controlling for age, BMI, and level of physical activity, HIV infected women had significantly lower mean LS BMD (0.910, SD 0.111), compared to HIV uninfected women (0.959, SD 0.086) mean difference (0.049, 95% CI 0.021, 0.101), p-value 0.04. There were no significant differences in mean hip, and total BMD between HIV infected and uninfected women.

Conclusion: Baseline data from this cohort provides background BMD levels among HIV-infected women with HIV infected women having lower LS BMD compared to uninfected women. Final project results are expected to contribute novel and important clinically relevant information about BMD loss in a vulnerable population of young HIV infected women concurrently using DMPA and TDF based ART. The study has potential to inform policy on ART treatment and contraceptive guidelines for HIV infected women particularly in resource limited settings.

Utilization of provider-initiated HIV testing and counseling and associated factors among adult outpatient department patients in Wenchi Woreda, South West Shewa Zone, Central Ethiopia

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Background: Currently, in health facilities, provider-initiated HIV testing is the gateway to prevention, care, treatment, and support services, but most people remain unaware of their HIV status due to various reasons. In many high HIV-prevalent countries, fewer than one in ten people with HIV know their status. HIV/AIDS has become one of the world's most seri¬ous health and development challenges. Reaching individuals with HIV who do not know their sero-status is a global public health priority. This study was aimed to assess utilization of provider-initiated HIV testing and counseling (PITC) and associated factors among adults in the outpatient departments (OPDs).

Materials and methods: A facility-based cross-sectional study was conducted on 392 adults in the OPDs in Wenchi Woreda from February to March 2013. A structured interviewer-administered questionnaire was used to obtain all important variables from study participants, and multiple logistic regression analysis was used.

Results: A total of 371 adults in the OPDs aged between 15 and 64 years participated in the study; 291 (78.4%) participants utilized PITC, and 80 (21.6%) refused. Knowledge on HIV was low in the study population; 64.6% of the participants did not have comprehensive knowledge and 35.3% had misconceptions about means of HIV transmission and prevention. PITC were statistically significant with respect to marital status (adjusted odds ratio [AOR] [95% confidence interval, CI] =0.32 [0.15, 0.69]), sex (AOR [95% CI] =1.81 [1.01, 3.24]), knowledge about HIV (AOR [95% CI] =0.408 [0.220, 0.759]), awareness about PITC (AOR [95% CI] =2.89 [1.48, 5.66]), and receiving test on HIV before (AOR [95% CI] =4.15 [2.30, 7.47]).

Conclusion: Utilization of PITC among adults in the OPDs in Wenchi Woreda public health facilities was 78.4%. Strengthening health information through mass media and peer education on HIV to address low awareness on PITC and supporting health extension workers to address the issue of HIV are necessary.

Saving the future mothers: Learning from the Rwandan success in vaccinating HPV and preventing cervical cancer, in 2011

Dushime Jackson

Motivation / Problem statement: HPV is a sexually transmitted infection but which leads to many types of cancers. WHO has already pre-qualified two HPV vaccines namely Gardasil and GlaxoSmithKline's bivalent Cervarix to fight against cervical cancer that has become a burden to developing countries. However, a staggering number of deaths (266, 000 globally in 2011) and 527,624 of new cases in 2012 of cervical cancers continue to pose a considerable threat to women's health especially those living in developing countries. The critical question is why a disease with a vaccine could claim so many lives?

Aims of the study: The objectives of this study is to share with the world important lessons from the Rwandan government experience in 2011 when it successfully vaccinated more than 970,000 adolescent girls in a school-based program. What could be the attributes of this coverage of 93.23% and to which extent could the program be replicated in other countries to achieve desired results? If other governments wanted to apply the same process would it be practical in their context? Lessons can be shared and learned. Other governments can learn from Rwanda experience to elaborate more effective strategies especially in their vaccination programs to prevent many deaths.

Methods / Approach: This study employs a critical review of 20 journals, articles, and reports on the HPV vaccination programs in Rwanda. Online materials (website) from major health players and organizations like WHO, CDC, and others were visited to get a wider perspective on this important issue. However, we gave more credibility to the official report of those involved in the planning, implementation, and evaluation of the HPV vaccination program.

Results / Findings: Rwanda has made many remarkable achievements in health sector, and this program was of course one of them. With 93.23% coverage, the program could not be much effective. The major attributes to success was in preparation, communication, and good use of available resources. Rwanda has a health system that is well organized in levels. This type of organization allowed efficiency and good results.

Conclusion: While there is enough evidence that HPV is a highly transmissible and a potentially health burden because it cause various cancers, there are relatively negligible efforts to increase awareness and knowledge of this infection where it is prominent (compared to HIV and other STDs). A focus on HIV, Malaria, and TB in developing countries has also caused a neglect of other potentially dangerous infectious diseases including HPV. More than 10% of all women globally are already infected with HPV according to recent studies. There needs to be strong advocacy on HPV as it threatens quality of life of 2,716 million women aged 15 years and older who are at risk of cervical cancer. Organizations who are directly involved in the undertaking of such programs must build result-driven partnerships to address this issue as a global concern.

Input of PMTCT services to Zero New HIV Infection in Rwanda: A case of Muhima District Hospital's HIV center, in Kigali City

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Background: Viral load testing is the only way to accurately assess the level of viral replication in HIV-positive patients. The Rwanda overall HIV prevalence is 3%; 7.3% in Kigali city and women are more affected (3.7%) than men (2.2%) according to 2014-2015 Demographic health survey. Ministry of Health launched a -Zero new HIV infection campaign-whereby everyone is recommended to facilitate success of all programs inaugurated against HIV. PMTCT is among them and we can consider its contribution to that goal.
The Aim: of this study was to illustrate the advancement of PMTCT and determine its input to Zero-new HIV infection in Rwanda.

Method used: we reviewed the country reports on PMTCT since 2010, National strategic plan on HIV and we made a retrospective descriptive study on HIV+ pregnant women consulted MUHIMA District Hospital in PMTCT services in four months of 2015 (From 22nd August 2015 to 31st December 2015). All data has been proccessed using Epi Info 7.

Results: MTCT of HIV has reduced significantly to 12 % countrywide in 2015 and Male partner involvement in PMTCT has made significant progress since start of current National strategic plan on HIV in 2013. In 100 HIV + patients cases consulted, followed and delivered at Muhima DH in a 4 months period, average age was 30.07; 31% had detectable viral load with a therapeutic failure of 13% whereas 69% don't, after a 6 months period of therapy with good adherence, so the tendency of failure is 26.3%. Patient on: 3rd line=1%, 2nd line=1% and 98% on first line of Antiretroviral Drugs (ARVs). Until August, 2016, only one baby has been confirmed to be HIV positive in 73 babies, yet born from those mothers and upon investigation, she has been infected through breastfeeding.

Discussion and conclusion: The use of ARVs with virological monitoring is a way to minimize avoidable harm and improve women and their babies' lives. Despite the therapeutic failure of 13% at this center where HIV prevalence is 7.3%, the prevention is almost achieved, zero new infection is possible if Policy makers can start elimination step of MTCT. During 2018, no new pediatric infection could be observed.

Quality of life among breast cancer patients in Khartoum State

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Background: Breast cancer is the commonest worldwide malignancy plaguing women and is the commonest cause of death due to cancer in Sudanese women. Its effects on the quality of life are many and complex. Objective: The main aim of this research was to identify the common factors affecting specific domains of life and the overall quality of life of Sudanese breast cancer patients, in terms of patient characteristics and aspects of therapy.

Materials and Methods: An observational case-finding hospital-based study that was conducted in oncology clinics and covered 104 patients diagnosed with breast cancer within Khartoum state. Questionnaires were filled in the form of interviews.

Results: The average age of the patients was 46 years of age and the monthly income was between 100SDG and 5000 SDG. Housewives were found to have a significantly higher quality of life in the social domain (p= 0.037). Foreigners whose original residence was not in Khartoum were found to have a higher quality of life in the social domain (p=0.027). Patients who were diagnosed with breast cancer for 7-12 months were found to have a higher quality of life in the physical domain when compared to other durations of time elapsed since diagnosis. There was a positive correlation between income and the environmental domain; the higher the income the higher the quality of life environmentally. Regarding the surgical treatment, women who underwent lumpectomies, were found to have a higher quality of life in the physical domain when compared to their counterparts who underwent mastectomies. Ultimately, joining a support group was one factor of therapy that was found to have the most profound effects, in increasing the quality of life regarding social (p=0.004), physical (p=0.044) and environmental (p=0.006) health

Malaria in Pregnancy: A Case of Ruhengeri District Hospital in Rwanda

Alice Umuhoza

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Background: The increased susceptibility of pregnant women to malaria infection has long been recognized as a burden worldwide particularly in Sub-Saharan Africa. Globally, 125 million women are at risk to malaria every year and 10,000 deaths occur during pregnancy. In Rwanda, there was a significant increase of prevalence in 2014. Pregnant women from malaria endemic areas experience a variety of adverse complications such as maternal anemia and miscarriage and deaths. The aim of this study is to evaluate the management and understand the outcomes of pregnant women admitted to Ruhengeri District Hospital in Rwanda for malaria. Ruhengeri District Hospital receives patients from a big catchment area near volcanoes, where malaria has been observed to be prevalent.

Methods: Different methods has been employed including document review of articles and reports on malaria prevalence and outcomes in pregnant women from Rwanda. I have made observations and informal interviews in the hospitals during my clerkship, with pregnant women admitted for malaria. All Data was analyzed using Epi Info 7.

Results: The total number of patients is 31, average age was 27.8 years old, while Gravidae (G) were: G1= 13(41.9%), G2=10(32.3%), G3= 6(19.3%), G4=1(3.2%) and G5=1(3.2%). The gestation week's average was 23 weeks and 35% was admitted in June (41%) has severe malaria where12.9% had aborted. 80% have been treated by Artesmin combination and 19.3% by Quinine. The average of hospitalized pregnant women was 3.9 days (94.4 Hours) and no death case. Most of the cases are in the rainy season. Primigravidic women are at an increased risk of getting Malaria and almost in the second trimester. This increased cases of severe malaria can be explained by low awareness, poor infrastructures, lack of insurance which causes them some times to consult traditional healers, and the way Malaria is devastating in pregnant women.
Conclusion. The treatment that is now available is efficient as many get cured and no many complications. The needed intervention in this area could be preventive and focusing on primigravidic women and women in second trimester of gestation age. Pregnant women as everyone else, is required to consult early as possible if symptoms of malaria starts.

Co-immobilization by DNA binding protein Tags

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Abstract: The development of improved protein immobilization approaches is a significant step for many biotechnological applications. A large array of different protein immobilization approaches have been developed based on physical, covalent and bioaffinity interactions. Most of these immobilization techniques only allow for the immobilization on the surface of a single target protein and do not allow the controlled co-immobilization of several proteins. Therefore, we aspire to develop a system that allows controlling the structure of a multiple protein complex both in solution and on surfaces. To do this we propose to use several DNA binding proteins with different sequence specificities and high binding affinities as fusion tags to the target proteins to be immobilized. In this system, the co-immobilization of the target proteins is controlled by the localization of specific sequences on a double stranded DNA molecule. In this work, we performed experiments as a proof of concept for the proposed novel immobilization system based on DNA binding proteins tags. Specifically, two different DNA binding proteins were selected (scCro16 and SpoIIID) as candidates for the role of DNA binding protein tags. These proteins were successfully expressed in E.coli and purified using ion exchange chromatography and we optimized and performed an Electrophoretic Mobility Shift Assay (EMSA) to assess the suitability of the selected DNA binding proteins to work as DNA binding tags in the context of the proposed immobilization system. The EMSA assay showed that scCro16 and SpoIIID works as expected binding to its specific DNA binding sequence.

Bacterial etiology of sexually transmitted infections at a STI clinic in Ghana; use of multiplex real time PCR

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Background: Most sexually transmitted infection (STI) management efforts focus on the syndromic approach to diagnose and treat patients. However, most women with STIs have been shown to be entirely asymptomatic, or if symptoms exist, are often missed when either clinical or conventional bacteriologic diagnostic tools are employed.

Methods: We assessed the performance of a multiplex real time PCR assay to describe other potential pathogens that could be missed by conventional bacteriological techniques in 200 women attending a routine STI clinic in Kumasi, Ghana.

Results: Although a total 78.00% of the women were asymptomatic, 77.1% of them tested positive for at least one bacterial STI pathogen. Mycoplasma genitalium was the most commonly detectable pathogen present in 67.5% of all women. Of those testing positive, 25.0% had single infections, while 38.0% and 19.5% had double and triple infections respectively. Altogether, 86.54% and 90.91% of the symptomatic and asymptomatic women respectively tested positive for at least one pathogen ($p<0.05$). There were no significant associations ($p<0.05$) between the clinical manifestations of the symptomatic women and the pathogens detected in their samples.

Conclusions: Our study confirmed the importance of complementing the syndromic approach to STI management with pathogen detection and most importantly recognise that STIs in women are asymptomatic and regular empirical testing even for both symptomatic and asymptomatic patients is critical for complete clinical treatment.

Factors associated with acute presentation of health services for pediatric patients in Addis Ababa, Ethiopia

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Background: Communicable and infectious disease accounts for the majority of mortality and illness burden in Ethiopia. Many studies provide insight into the epidemiology of disease; however, little is known about factors associated with presentation to health clinics and hospitals due to acute disease. This study provides insight into modifiable risk factors associated with acute illness before presentation to pediatric clinics in Addis Ababa, Ethiopia.

Objective: To identify factors associated with acute presentation to healthcare facilities for families with children age 15 months to 15 years in Addis Ababa, Ethiopia
Methods: A case-control study was conducted via convenience sample in health facility (case) and community (control) settings. Fifty-seven patients in the case group and 150 individuals in the control group were surveyed from June 2014-August 2015. Surveys were administered to parents or guardians of study subjects. De-identified data were recorded and assessed with a descriptive analysis including chi-squared and crude odds ratios. Significance was declared with p-value < 0.05 and 95% CI. Both United States-based and Ethiopian ethical review boards approved this study.

Results: The median age were 64 months (40% female, 60% male) and 65 months (41% female, 59% male) in case and control groups, respectively. There was no difference in highest level of household education, used as a surrogate for socioeconomic status, or reported immunodeficiency. Patients presented with pulmonary (cough), gastrointestinal (nausea and vomiting), constitutional (fever), and musculoskeletal (rash, swelling) chief complaints. Eighteen of 21 (86%) questions yielded significant differences. Thirty-two of 139 (23%) statistically significant crude odds ratios were generated. Factors were classified as risk (N=17, OR > 1) or protective (N=15, OR < 1) of presentation for health services. For example, risk factors included identification of a father as the primary caregiver, no history of breastfeeding during weaning period, use of a communal kitchen, and a dog or chicken living in the home. Some protective factors included vaccination (MMR) at 12-15 months age, history of breastfeeding until six-months of age, a kitchen separate from the living space, and no animal living in the home. The entire data set and further analysis will be presented.

Conclusion: Overall, this study identified 32 modifiable factors associated with presentation at health facilities for acute illness. Understanding these behaviors may help healthcare professionals individualize treatment based on cultural practices, guide strategies for community outreach, and support educational programs aimed at prevention of communicable disease.

Improving the DMPK properties of antimalarial 3,5 diarylaminopyridines and 3,5-diarylaminopyrazines leading to clinical candidate nomination

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Abstract: Malaria is one of the major causes of death due to an infectious disease. It is estimated to cause between 236,000–635,000 deaths per year with Sub-Saharan Africa carrying the heaviest burden (WHO, 2015). Children and pregnant women are disproportionally affected by the disease and approximately 70% of those who die from malaria are children under 5 years of age. It is therefore an important public health concern, necessitating the discovery of novel antimalarial drugs, which are not prone to resistance, to be fed into the drug discovery pipeline. Over the past two decades, the characterisation and in-depth understanding of how in vitro properties translate in vivo have been recognised as important in small molecule drug discovery and development. This has led to a significant improvement in the prediction of human absorption, distribution, metabolism, excretion, and toxicology (ADMET), and a substantial decrease in attrition due to poor pharmacokinetic properties in humans. The major objective is to select compounds with potentially safe and efficacious doses, which is a key factor influencing the ultimate success of clinical trials.As part of our antimalarial drug discovery programme, we identified novel anti-plasmodial hits belonging to a series of 3,5-diaryl-2-amino pyridines from phenotypic whole cell high throughput screening of a commercially available SoftFocus kinase library. Subsequently, structure activity relationship (SAR) studies led to the identification of diarylamino pyrazines. This study shows how ADMET properties were used to drive the drug discovery program and further optimise the aforementioned series of -amino-pyridines and -pyrazines. We conducted a series of in vitro drug metabolism and pharmacokinetics (DMPK) assays, including solubility, metabolic stability, permeability, plasma protein binding, and metabolite identification, as well as in vivo pharmacokinetics and efficacy studies in both P. berghei and P. falciparum humanised (SCID) mouse models for malaria. This resulted in compound progression through lead optimisation to the identification and nomination of anti-malarial pre-clinical candidates with optimal ADMET and toxicology properties.

Assessment of renal function in HIV infected patients on combination antiretroviral therapy at Tikur Anbessa Specialized Teaching Hospital, Addis Ababa, Ethiopia.

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Background: Acquired immunodeficiency syndrome (AIDS) is a spectrum of disease states characterized by progressive immunosuppression. Sub-Saharan Africa is heavily affected by human immunodeficiency virus (HIV) and AIDS than any other region of the world. Renal complications are important component of advanced HIV disease, and these complications significantly contribute to morbidity and mortality in HIV/ AIDS patients.

Aim of the Study: To assess renal function abnormalities in HIV infected patients and compare with treatment- naïve and HIV- negative control groups.

Materials and methods: Cross sectional study with comparative nature was designed from July1/2012 to February1/2013 in patients attending the ART clinic at Tikur Anbessa Specialized Teaching Hospital. Renal functions of 180 participants were assessed. The data obtained were analyzed using SPSS version 16.0.

Result: A total of 180 participants grouped as HIV-negative controls (n=60), HIV+ treatment-naive (n=60) and HIV+ on HAART were recruited to participate in this study. Out of 180 participants included in the study, 59 (32.78%) were males and the remaining 121 (67.22%) were females. Mean serum total protein was higher in patients on HAART groups (5.78 ± 1.39) than treatment-naive (4.76 ± 2.19). There was significant reduction ($p < 0.05$) in serum total protein in both HIV + groups as compared with the control groups. The mean serum creatinine level was not significantly different among three groups. The mean serum creatinine clearance in treatment-naïve groups (111.05±11.33) was lower than the control groups (115.05±44.41) and patients on HAART (114.76±28.54). There was a positive and significant correlation of glomerular filtration rate with BMI on treatment-naïve groups.

Conclusion: There are no statistically significant differences in the levels of Creatinine clearance and eGFR in HIV positive patients (naïve as well as treated) as compared to the negative controls. The prevalence of renal impairment as defined by CrCl< 60mL/min is higher in treatment-naive participants than those on HAART and HIV-negative control groups.

Risk factors for malaria infections in fever hot spots and c old spots in a high transmission region in Western Kenya

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Background: Infectious diseases often display heterogeneity in transmission and malaria is no exception. Studies have shown that malaria risk may vary even on a very small scale. This heterogeneity in malaria transmission reduces the efficacy of malaria control strategies which may result in persistence of malaria in an area. Identifying and understanding the risk factors for malaria heterogeneity especially in a high transmission setting is important for targeting control measures to the local situation. This study sought to determine malaria transmission indices and risk factors for malaria in fever hotspots and coldspots within a high transmission region.

Methods: We conducted a prospective closed cohort study in Bungoma East Sub County, a region with persistently high malaria. A total of 400 participants in randomly selected households in six sentinel villages were followed up longitudinally and tested for malaria using malaria rapid diagnostic tests at quarterly intervals for a period of one year. Multi-level mixed effects modelling was used to estimate the risk of malaria infections.

Results: A total of 870 malaria vectors were captured out of which 73.6% (no=640) were identified as members of Anopheles gambiae group. The member species of An. gambiae group were identified by polymerase chain reaction as follows; 24.5% (no=117) were An. arabiensis while An. gambiae ss consisted of 75.5% (no=483) of the total collection. Parasite prevalence by RDT in the fever cold spot was was:17.3%, 9.6%, 13.6%, 13.9% and 22.8% per survey respectively while in the fever hotspots, parasite prevalence was: 20.3%, 7.5%, 9.4%, 11.9% and 35.7% per survey respectively. The person-time incidence rate of malaria was not significantly different between the two regions. However, incidence significantly varied between the villages and was significantly correlated with entomological risk factors such as the number of larval sites and the mosquito counts in some of the villages. Other risk factors for malaria infections include age; younger children (below five years) are at greater risk of malaria, (A.O.R: 0.5; C.I: 0.351 - 0.811), Not sleeping under the net the previous night (A.O.R; 2.2 C.I. 1.301 - 3.887) and open eaves (A.O.R; 1.5 C.I: 1.121 - 2.096).

Conclusion: There is a slightly higher risk of malaria infection for individuals living in the fever hotspots although this does not reach significance level. There is marked heterogeneity in malaria transmission among the villages mainly associated with entomological risk factors.

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SELECTED POSTER PRESENTATIONS

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PATRICIA RANTSHABENG

Merck Foundation

Prevalence of oncogenic Human Papillomavirus genotypes in women with vulvar and cervical squamous cell carcinoma in Botswana

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UNIVERSITY of BOTSWANA

BACKGROUND

Increasing evidence worldwide shows that HR HPV causes invasive cervical SCC and its and its precursor lesions. Studies have also shown that HPV infection is associated with other genital cancers such as vulvar, anal and penile SCC with HPV 16 being the mostly commonly isolated in the developed world. Knowledge on the prevalence of high risk HPV in HPV associated SCC is crucial for selecting appropriate vaccines in cervical and anogenital cancer prevention programs for a particular region.

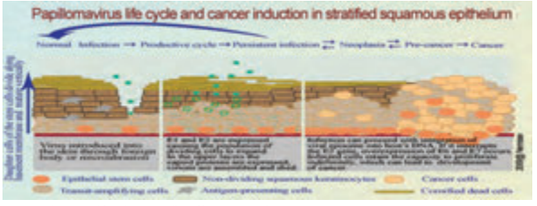

Figure 1 *shows HPV lifecycle. Source; (http://www.oscp.org).*

AIMS

To determine the prevalence of HR HPV genotypes in the patients diagnosed with anogenital SCC in Botswana and its distribution patterns.

METHODS

FFPE cervical and vulval tissue blocks diagnosed with SCC from 141 women were used. DNA was extracted from tissue sections and genotyped for the 14 high risk HPV types using Abbott *m*2000 Real time PCR platform. This assay is a qualitative test that is able to detect all the 14 high risk HPV but differentiates between HPV 16, HPV 18 genotypes. Other 12 HR HPV genotypes were reported as Other HR HPV and were genotyped using an in-house qPCR method.

Abbott

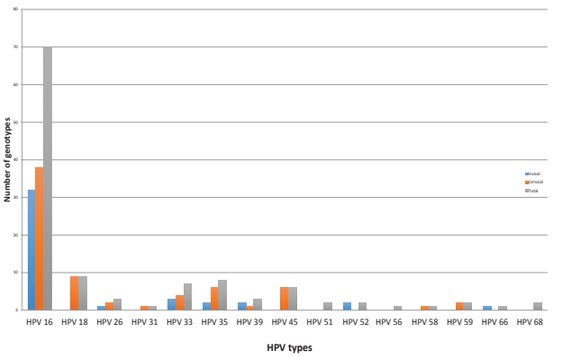

Figure 2 *shows HR HPV prevalence in the study.*

CONCLUSIONS

HPV 16 and other HR HPV were the most prevalent HPV genotypes in women with vulvar and cervical SCC and accounted for 65% of the HPV associated anogenital SCC in the study. HPV 18 was also seen in significant numbers in cervical SCC. This information will assist HPV vaccination strategies and selecting the best vaccine design for this study population in Botswana.

ACKNOWLEDGEMENTS

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BOTSWANA HARVARD AIDS INSTITUTE PARTNERSHIP FOR HIV RESEARCH AND EDUCATION

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CONSTANTINE TANYWE ASAHNGWA

The experiences of women living with trachoma in Africa: A qualitative systematic review

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Background

- Trachoma remains the second leading cause of blindness in the world
- Majority of the cases occur in the Middle East, Asia and Africa
- Africa is the most affected with 18 million cases (WHO, 2013)
- Although women are the most affected, current intervention strategies have ignored a gender dimension in tackling the disease

Objectives

- Synthesize the best available evidence on the experiences of women living with trachoma in Africa that could inform policy and practice

Method

- We searched for studies with qualitative methodologies on Africans
- Searched data bases were not limited to PubMed , Psych-Info and Google Scholar etc.
- Eligible studies were critically appraised for methodological rigor , and synthesized by two independent reviewers using JBI QARI tool

Results

Economic burden	• The disease drains family resources and causes poverty • Women are unable to work and earn money. • Women with the disease are unable to engage in many income generating activities
Social burden	• Women suffer from social exclusion, isolation, public embarrassment, stigma, ridicule, deprivation from sexual pleasures , loss of marital partners etc
Psychological burden	• Women suffer from stress, depression, trauma and the desire to commit suicide

Conclusion

- Management of trachoma goes beyond clinical aspects to include economic, socio-cultural and psychological factors
- More qualitative primary studies are needed on WLWT
- A gendered approach should be included in all interventions

TINASHE KENNY NYAZIKA

Cryptococcus neoformans population diversity is not associated with clinical outcomes of HIV-associated cryptococcal meningitis patients in Zimbabwe

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Introduction

HIV and cryptococcal meningitis coinfection are a major public health problem in most developing countries. *Cryptococcus neoformans sensu stricto* is responsible for the majority of HIV-associated cryptococcosis cases in sub-Saharan Africa.

The HIV epidemic has raised the profile of *Cryptococcus neoformans sensu stricto* from a rare yeast to one of the most important fungal cause of morbidity and mortality worldwide. *Cryptococcus neoformans sensu stricto* is a major cause of HIV- associated cryptococcal meningitis (CM) globally.

Despite the available information, little is known about cryptococcal population diversity and its association with clinical outcomes in patients with HIV-associated cryptococcal meningitis in sub-Saharan Africa.

Objectives

1. To determine the prevalence of *Cryptococcus neoformans sensu stricto* molecular types AFLP1/VNI, AFLP1A/VNB/VNII and AFLP1B/VNII in the cohort (*n*= 55) of Zimbabwean patients.

2. To determine the genetic diversity of *Cryptococcus neoformans* isolates and clinical outcomes of Zimbabwean patients with HIV associated cryptococcal meningitis.

3. To determine genetic diversity of *C. neoformans* from the current cohort when compared by microsatellite typing with those of isolates collected from other countries within sub-Saharan Africa.

Methodology

This was a cohort study which investigated *Cryptococcus* isolated during the laboratory diagnostic process from adult HIV-CM co-infected patients. The study was conducted at a central hospital in Harare, Zimbabwe between September 2013 and September 2014.

Patients were followed up for the duration of their hospital stay to determine their clinical outcomes. Molecular typing was done using amplified fragment length polymorphism (AFLP) genotyping and microsatellite typing.

Results

Demographics of the cohort

The majority of patients with HIV-associated *C. neoformans sensu stricto* meningitis in this cohort were males (*n*=33/55; 60.0%). The age of the patients ranged from 18–58 years with a median age of 36 years.

All but one of the patients (*n*=54/55; 98.2%) was admitted with headache and were treated empirically with 2 g ceftriaxone (*n*=51/54; 94.4%) before final diagnosis of cryptoccal meningitis was made.

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Table 1. Patient demographic characteristics

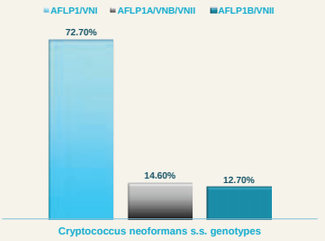
Characteristic	Patients' n= 55 (%)	Median (IQR)
Age (years)	54 (98.2)	36 (IQR 30 – 43)
Headache duration (days)	54 (98.2)	14 (IQR 7 – 21)
CD4⁺ cell count cells/mm³	47 (87.5)	24 (IQR 12 – 40)
Weeks since HIV diagnosis	54 (98.2)	8 (IQR 2 – 104)
Hospital stay (days)	54 (98.2)	17.5 (IQR 10 – 22)

IQR – Interquartile range

Cryptococcus neoformans genotyping

After genotyping the majority of the isolates were mating-type α (*n*=51; 92.7%) and only 4 (7.3%) were mating-type **a**.

Figure 1: Prevalence of *C. neoformans sensu stricto* molecular types



The association of *C. neoformans sensu stricto* genotype and clinical outcome of patients

Overall in-hospital mortality was 55.6% (*n*=30) and no difference between infecting genotype and clinical outcome of patient (*P*=0.73) or CD4⁺ counts (*P*=0.79) was observed.

Genetic relatedness of Zimbabwean and other African *C. neoformans sensu stricto* isolates

Figure 2: Minimum spanning tree analysis representing the genotypes of 141 *C. neoformans sensu stricto* isolates from Africa based on a nine-locus microsatellite typing panel

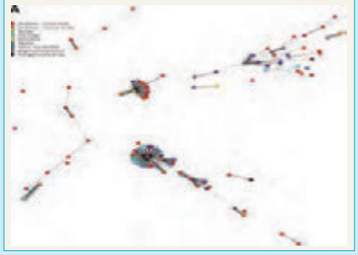


Table 2. Simpson's Diversity Index

	$n_{ISOLATES}$	$n_{GENOTYPES}$	Simpson's *D*	Isolates from study
Africa	141	103	0.9930	This study
Zimbabwe (current study)	55	51	0.9953	This study
D.R. Congo	20	12	0.9211	Swinne *et al.*, 1986
Rwanda	26	22	0.9846	Bogaerts *et al.*, 1999

The Simpson's Diversity index was 0.9930 for all the African isolates (*n*=141) with 101 genotypes and the Zimbabwean *C. neoformans sensu stricto* had 51 genotypes present with a Simpson's Diversity index of 0.9953

Conclusion

- In summary, this study presents the first molecular epidemiological survey in Africa to compare the genotypic diversity of *C. neoformans sensu stricto* from clinical, environment and veterinary samples.
- Zimbabwean *C. neoformans sensu stricto* genotypes demonstrated a high level of genetic diversity by microsatellite typing and 51 genotypes within the main molecular types AFLP1/VNI, AFLP1A/VNB/VNII and AFLP1B/VNII were identified.
- This study demonstrate that *C. neoformans sensu stricto* in Zimbabwe has a high level of genetic diversity when compared to other regional isolates

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Acknowledgements

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Finally, we would like to extend our gratitude to the staff of the Departments of Chemical Pathology and Medical Microbiology, College of Health Sciences, University of Zimbabwe for all the support they gave throughout the whole project.

LAMIN
B. CHAM

Merck Foundation

Qualitative detection of *proviral-DNA* of *HIV-1* in infants to determine the efficacy of antiretroviral therapy in the prevention of vertical transmission of *HIV-1* in the Gambia.

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Background

The priority of the Gambia government is to eliminate maternal to child transmission of HIV and in line with this priority, the country implemented an antiretroviral therapy (ART) program. With this, all HIV infected pregnant and breastfeeding mothers and infants have access to ARV drugs. This study aims to determine the prevalence of vertical transmission of HIV among women receiving the ARV drugs.

Method

Dried blood spot samples were collected from 109 HIV-exposed infants enrolled in 13 PMTCT sites across the country. A qualitative detection of proviral-DNA of HIV-1 was performed using the RealTime Abbott PCR assay. Data from 105 mothers were analyzed using SPSS version 16.0 and association of risk factors to PCR results were analyzed using (Crosstabs) Pearson Chi-Square. The p-value of significant was set at **p<0.05.**

Results

This study has found the prevalence of vertical transmission of HIV is **0.0% (0/64)** among women that received the ARV prophylaxis then started ART**, 7.1% (2/28)** among mothers that received HIV prophylaxis only, and **38.4% (5/13)** among women who neither receive HIV-prophylaxis nor ART during pregnancy or breastfeeding as described in table 1.

The table 2 below shows other risk factors of vertical transmission such as late initiation of treatment, default during treatment and first born of twins were found to be significantly associated with vertical transmission p=0.001, p=0.022 and p=0.000 respectively.

Table 1	Total	HIV +	HIV--	Rate %
Mother received HIV-prophylaxis then started ART during pregnancy and breastfeeding	64	0	64	0.0%
Mother received only HIV-prophylaxis during pregnancy and breastfeeding	28	2	26	7.1%
Mother never receive HIV-prophylaxis or ART during pregnancy or first 03 months of breastfeeding	13	5	8	38.4 %

Table 2	Total	HIV +	HIV--	Rate %	p-value
Mother late to start prophylaxis or ARV (after 03 months of breastfeeding)	16	5	11	31.2%	p=0.001
Mother defaulted treatment at some time during pregnancy or breastfeeding	19	3	16	15.8%	p=0.022
First born of a twins	5	2	3	40%	p=0.000
Exclusive breastfeeding	109	7	102	_	Not Sig

Conclusion

This study has found that the early intervention of ART at the onset of pregnancy through breastfeeding can eliminates Maternal to Child transmission of HIV and a high risk of vertical transmission was found among women who neither receive prophylaxis nor ART. If the effectiveness of the antiretroviral therapy is maintain, the Gambia, in the near future will attain the WHO's goal to eliminate Maternal to Child transmission of HIV.

Acknowledgement

The authors wish to thank the National AIDS Secretarait, the Gambia for funding this study. We wish to thank the study team from the National Public Health Laboratories and everyone that participatted directly or indirectly.

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BEATRICE ACHIENG NYAGOL

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Clinicians' experiences and insights in conducting an intra-vaginal ring study among young women in Kisumu, Kenya, 2015 -Lessons learned

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Background

- Women account for 50% of all adults living with HIV worldwide, *UNAIDS,2015*
- In SSA, young women between 15 and 24 years of age are twice as likely to be HIV infected than their male counterparts
  - Overall adult HIV prevalence in Kisumu County is 18.7%,with prevalence among women at 20.5% compared to 14.2% among men
- There is need for an integrated approach to women's sexual and reproductive health,
  - Multipurpose prevention technologies (MPTs) may offer the best immediate solution

Figure 1: Africa, Kenya- Study area

Issue

- No intravaginal rings (IVRs) are currently licensed for use in Kenya and pelvic examinations are not routinely done in family planning clinics.
- Clinicians in Kenya often lack experience with introducing MPTs,
  - However, current microbicide trials are using novel biomedical technologies and procedures, while testing use of technology in HIV infection prevention.

Microbicides

Design

- In a single arm clinical-trial of a contraceptive intravaginal ring (IVR), NuvaRing® in Kisumu Kenya.
  - To augment our understandings of IVR use, we undertook textual analysis of handwritten clinicians' notes.
- Study participants were;
  - HIV-uninfected
  - Sexually-active females 18-34 years of age
  - Documented contraceptive method
  - Undergo routine pelvic examinations.

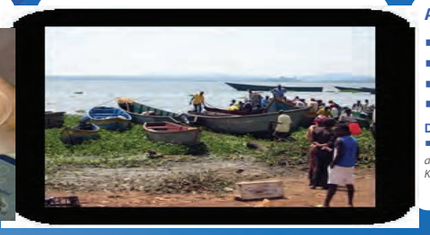
Results

- Lack of readily available Contraceptive documentation.
- Over-the-counter purchases by women.
- Participants self-reported injectable or oral contraceptive use; while on examination, implants and other IUS were observed.
- Among those reporting oral use, Some ONLY take when sexual intercourse would be occurring ("I take pills only when my husband is around")
- Clinicians providing privacy and reassurance was useful as concerns pelvic examinations fears.
- Genital modification such as labial elongation (not commonly practiced in the region) was observed
- Preference to female clinicians was noted

Lessons learnt and Insights

- Anecdotal information is important for clinical management and understanding of participants' practices .
- Increased clinician knowledge and insights regarding motivations for omitting or providing incorrect information may have implications for study procedures and outcomes.
- Clinicians may require additional time to address patients concerns or misinformation , as well as understand how contraceptives are accessed outside of a clinic setting.
- Lastly, contraceptive use may be inconsistent, not used as intended, and change within a given period; hence, ongoing contraceptive education and monitoring may be required

The NuvaRing®



Acknowledgments

- NuvaRing® Study clinicians
- KEMRI/CGHR
- Study participants
- UNESCO SUMMIT 2016

Disclaimer:

- *The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of KEMRI Centre for Global Health Research*

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2nd UNESCO-Merck Africa Research Summit,
November, 28th and 29th 2016, Addis Ababa, Ethiopia

Molecular diagnosis of Cytomegalovirus (CMV), human herpes virus type 6 and Epstein Barr virus (EBV) by real-time PCR in HIV infected or uninfected pregnant women at Ouagadougou, Burkina Faso

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Laboratory of Molecular Biology and Genetics (LABIOGENE), University Ouaga I PJKZ – Web: **www.labiogene.org**

Background: The herpes virus EBV, CMV and HHV-6 are viruses which evolve under the pandemic model and are responsible for congenital infections being able to cause serious after-effects at the newborns (babies). The objective of this study was to determine the prevalence of CMV, EBV and HHV-6 in pregnant women HIV (+) and HIV (-) in Ouagadougou, Burkina Faso.

Methodology: In this study 200 samples of blood plasma from pregnant women whose 100 women HIV (+) and 100 women HIV (-) were diagnosed by multiplex real time PCR for three infections (EBV, CMV and HHV-6).

Figure 1: SaCycler-96 Real Time PCR v.7.3 (Sacace Biotechnology)

Results: On all 200 analyzed samples tested, 18 (9.0%) were positive for at least one of the three viruses, 12 (6.0%) were positive for EBV, 13 (6.5%) and CMV 12 (6.0%) positive for HHV-6. Among 18 cases of infections, we found 10 cases (55.6%) from co-infections including 90.0% (9/10) of multiple infection EBV/CMV/ HHV6 and 10.0% of coinfection EBV / HHV6. The rate of HHVs infection was higher among women HIV (-) than HIV (+) (12.0% versus 6.0%). Among the HIV (+), PCR revealed 7.1% (or 6/85) of HHVs infection at those who were not under ARV against 0% in those under ARVs.

Table I: Infections HHV by pregnant women HIV serology and the impact of antiretroviral treatment

	HHV+ n (%)	EBV+ n (%)	CMV+ n (%)	HHV6+ n (%)	coinfection n (%)	Total
HIV						
HIV (-)	12 (12)	7(7)	8(8)	8(8)	6 (6)	100
HIV (+)	6 (6)	5(5)	5(5)	4(4)	4 (4)	100
ARV						
Without ARV	6 (7,06)	5(5,88)	5(5,88)	4(4,71)	10(11,76)	85
With ARV	0 (0)	0(0)	0 (0)	0 (0)	0 (0)	15

Conclusion: This study showed that the herpes viruses (CMV, EBV and HHV6) are frequent among pregnant women in Burkina Faso and could constitute a threat in the last because of complications and of the risks of infection for the newborn (babies).

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SANDRINE
LYDIE
OYEGUE

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Pro- and anti-inflammatory cytokines in children with malaria in Franceville, Gabon

Sandrine L. OYEGUE LIABAGUI.....Jean-Bernard LEKANA-DOUKI

RATIONALE

Severe *Plasmodium falciparum* malaria anemia (SMA) is a major cause of mortality in pediatric wards. Variations in inflammatory mediator production play an essential role in disease outcomes. Indeed, several studies have shown the involvement of pro- and anti-inflammatory cytokines such as IFN-γ, IL-6, TNF-α and IL-10 in malaria immunopathology. In other hand, a role of Th17 cytokines such as IL-17, IL-22 and IL-21 has been reported in inflammatory responses and host defense mechanisms in protozoan infections. However, the exact role of Th17 cytokines such as IL-17, IL-22 and IL-21 in malaria remains poorly documented. Despite the importance of the pro and anti-inflammatory cytokines production in human immune responses to *Plasmodium falciparum* malaria infection, the immune response to Gabonese children malaria is not well documented. Hence, the objective of this study was to investigate IFN-γ, TNF-α, IL-6, IL-12, IL-10, IL-4, IL-13, IL-17, IL-22 and IL-21 circulating levels and their association with malaria anemia and parasitemia in Gabonese children.

Study design

Study samples

- Children from Franceville region, southeastern of Gabon
- P. Falciparum –exposed children with negative thick blood smears served as uninfected controls
- Infected children were classified according to their hemoglobin level:
  - No malarial anemia (UMA): ≥ 11.0 g/dL
  - Mild malaria anemia (MMA): 5.0 to 10.9 g/dL
  - Severe malaria anemia (SMA): < 5.0 g/dL

	Children	
	Malaria-infected (n = 122)	Malaria-uninfected (n = 128)
Age mean, month	64.2 ± 2.8	60.5 ± 3.6
Hemoglobin (g/dL)	8.2 ± 0.2*	8.9 ± 0.3
Platelets (cells/mm^3)	150,000 ± 10,000***	280,000 ± 10,000
Red blood cell count (cells/mm^3)	3,100,000 ± 100,000**	4,800,000 ± 400,000
White blood cell count (cells/mm^3)	7700 ± 400	8400 ± 500
Parasitemia (parasites/µL)	46277 ± 8188	0

Blood assays

- Venous blood collection in EDTA tubes
- Staining of blood smears
- Measurement of blood components

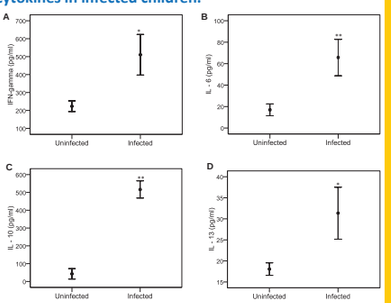
Cytokine assays and statistical analysis

- Dosage of circulating cytokines by ELISA
- Measurement of the optical density at 450 nm
- Use SPSS version 17.0 for windows for all statistical tests
- P value ≤ 0.05 is considered statistically significant

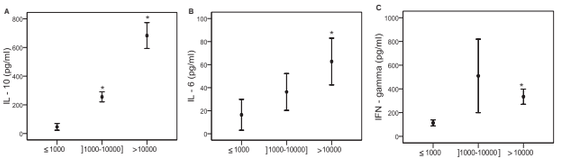
RESULTS

1. Increased plasma levels of pro (INF-γ and IL-6) and anti-inflammatory (IL-10 and IL-13) cytokines in infected children.

Levels of IFN-γ (500 ± 100 pg/ml), IL-6 (64 ± 14.2 pg/ml) , IL-10 (505 ± 35 pg/ml) and IL-13 (30.6 ± 5.6 pg/ml) were significantly higher in *P. falciparum*-infected children than in uninfected children (210 ± 20 pg/ml for IFN-γ, 17.5 ± 2.5 pg/ml for IL-6, 50 ± 25.9 pg/ml for IL-10 and 17.48 ± 1.58 pg/ml for IL-13), p = 0.02; 0.00001; 0.00001 and 0.03 respectively.



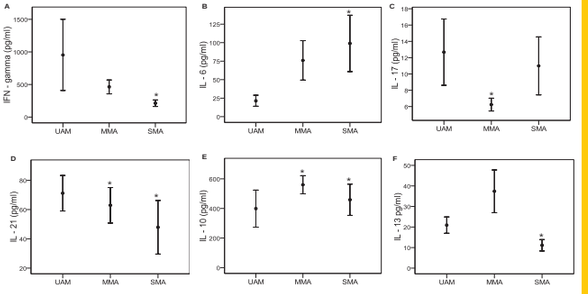
2. *Plasmodium falciparum* parasitemia is strongly associated with IL-10 levels.



Infected children were divided into three groups according to mean *P. falciparum* density: low (≤ 1000), medium (] 1000 - 10 000]) and high (> 10 000). IL-10 levels increased significantly with the degree of parasitemia (49.6 ± 5.3 pg/ml, 298.4 ± 22.4 pg/ml and 720.0 ± 50.0 pg/ml), p<0.0001. IFN-γ levels were higher in children with medium parasite density (509.5 ± 300 pg/ml) than in those with low parasite density (113.37 ± 25.3 pg/ml) or high parasite density (334.4 ± 63.9 pg/ml), p = 0.03. IL-6 levels were significantly higher in children with medium (36.3 ± 15.9 pg/ml) and high parasite density (62.7 ± 20.7 pg/ml) than in those with low parasite density (16.5 ± 13.4 pg/ml); p = 0.05.

3. Cytokine levels according to anemia.

IFN-γ levels decreased with increasing anemia severity; p = 0.05. In contrast, IL-6 levels increased with increasing anemia severity; p = 0.03. IL-17 levels were highest in the UAM and SMA groups and lowest in the MMA group; p = 0.012. IL-21 levels fell significantly with increasing anemia severity; p = 0.05 (the UAM and MMA groups) and p = 0.028 (the UAM and SMA groups). IL-10 levels differed significantly across the groups (p < 0.01 in the MMA group. IL-13 levels were significantly higher in the MMA group than in the UAM (21 ± 4 pg/ml) and SMA groups; p = 0.03.



CONCLUSIONS

1. INF-γ cytokine may contribute to protection against severe malaria anemia and parasite clearance.
2. increased IL-6 and Il-10 levels in *P. falciparum* infection might be involved in pathogenesis of severe malaria anemia
3. the role of IL-22 and IL-17 in *P. falciparum* malaria infection should be investigated

MERCK

MARIA SARAH NABAGGALA

Merck Foundation

Understanding outcomes of HIV positive patient tracking following a missed appointment in rural Uganda

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XXXXXXXXX

Background

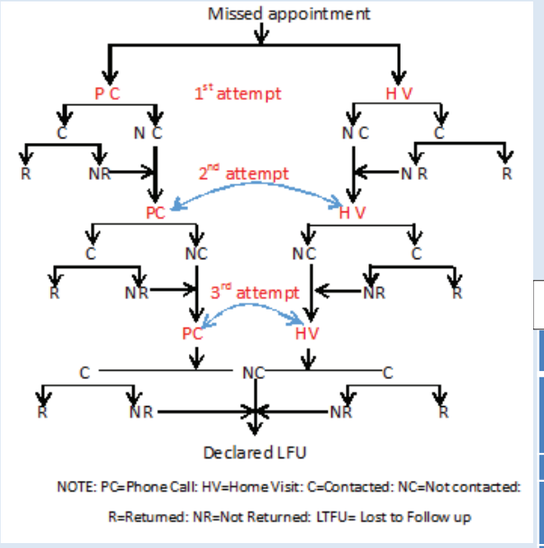
Retention into HIV care has both individual and public health implications since it is associated with HIV viral suppression and survival[1, 2].Missed scheduled HIV appointments lead to increased mortality, resistance to antiretroviral therapy and suboptimal viralogical response[3]. We sought to assess the effect of patient tracking on return to care among HIV positive patients that miss their scheduled visits in a rural resource limited setting.

Methods

Patient tracking involved a monthly phone call and/or home visit for any patient that missed a scheduled appointment visit for three successive months. Retrospectively reviewed patients' information from the Ministry of Health follow-up register for the period January 2014 to August 2015.Using logistic regression; we examined the factors associated with returning to care after a missed appointment. Dead patients at time of contact were excluded from the analysis.

Results

Of the 650 patients in the clinic, 381 patients ever missed a scheduled appointment in the period, of which 259(68%) are female. Overall, 598 phone calls and 472 home visits were made. Among the patients contacted, 267 (70%) returned to care.



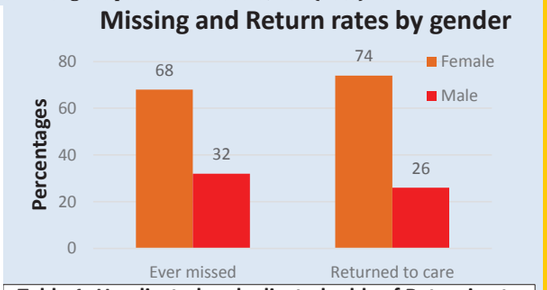


Table 1: Unadjusted and adjusted odds of Returning to Care after a missed appointment

Patient characteristics	Unadjusted OR (95% CI)	P	Adjusted OR (95% CI)	P
Gender				
Male	1.00		1.00	
Female	2.49(1.57-3.94)	0.000	2.31(1.36-3.92)	0.002
Age in years	0.97(0.95-0.99)	0.001	0.98(0.96-1.01)	0.223
Follow up form				
Home visit	1.00		1.00	
Phone call	0.66(0.42-1.04)	0.073	1.05(0.62-1.78)	0.866
Missing reason				
Other	1.00		1.00	
Travelled	0.39(0.23-0.68)	0.001	0.44(0.24-0.79)	0.006
Unavailable	0.09(0.04-0.17)	0.000	0.09(0.04-0.18)	0.000
ART status				
ART naïve	1.00		1.00	
On ART	1.27(0.29-3.67)	0.003	1.81(1.01-3.25)	0.047

Adjusted for gender, age, contact form, ART status and reason for missing appointment. Females (OR=2.31,95% CI=1.36-3.92) and patients on ART (OR=1.81, 95%CI=1.01-3.25) had increase odds of returning to care. Patients that were unavailable (OR=0.09 95%CI=0.04-0.18) and those that had travelled (OR=0.44, 95%CI=0.24-0.79) at time of tracking had reduced odds of returning to care. There were no differences in return to care by age or contact form used.

Conclusions

Despite high percentages of patients returning to care the findings emphasize the need for additional measures geared towards contacting patients particularly HIV positive males after a missed scheduled appointment as a strategy to retain them into care.

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MERCK

MARTHA ZEWDIE

Ex-vivo Characterization of Regulatory T Cells in Pulmonary Tuberculosis Patients, Latently Infected Persons, and Healthy Endemic Controls.

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Introduction

Regulatory T cells (Treg) are an essential arm of adaptive immunity not only in tolerance and autoimmunity but also in infectious diseases. In Tuberculosis (TB), it has been suggested that the frequency of Tregs is higher in the blood of TB patients when compared to healthy controls (HC) or latent TB infection (LTBI) and contributes to suppression of the Th1 immune response in patients. However, the discovery that FOXP3, the hallmark marker of Tregs is not exclusive to Tregs and the lack of specific markers for Tregs, have made it a challenge to fully understand the role of Tregs in TB. More recently, the activation marker Ki-67 and memory/primed T cell marker (CD45RO) were shown to delineate regulatory T cells into functional subsets of effector like (activated primed) Treg and naïve Treg. In this study, we used a combination of six markers to identify and characterize regulatory T cells in TB patients (active disease and cure), LTBI persons, and healthy controls in a TB endemic area.

Materials and Methods

Study sites
- Health centers in Addis Ababa
- AHRI

Study participants:

TB patients (TB, N=13): Newly diagnosed, smear positive.

Latent infection (LTBI, N=8): QuantiFeron Positive

Healthy endemic controls (EC, N=9): QuantiFeron negative

All participants:
- Age 18 to 65 years old
- No previous history of TB

Workflow

Blood collected in Heparin Vacutainer tube → PBMC isolated and frozen → Intracellular Flowcytometry (CD4,CD8,CD25,CD127, CD45RO,FOXP3,Ki-67) → - Data acquisition - FACSCanto; - Data analysis – FlowJo & GraphPad Prism

Results and Conclusions

Gating strategy

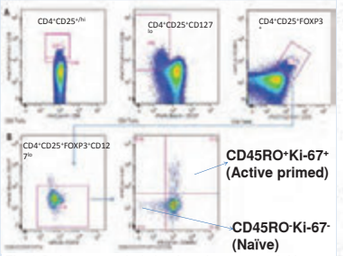

Fig. 1 Gating strategy includes: Lymphocyte gate → Live cells → CD4 T cells → Treg populations.

Treg gates

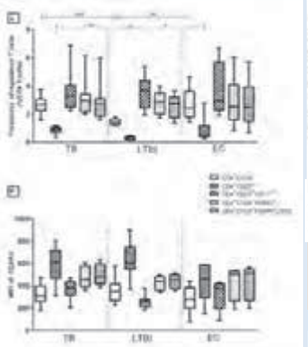

Fig. 2 Treg gates. Box-plots represent IQR with Min to Max values, line at median. Significant results of Kruskal-Wallis test are indicated by dashed lines.

- CD4+CD25hi cells have the highest intensity of FOXP3; and their frequency is higher in TB patients than LTBI persons.
- No difference in the frequency of Treg (defined by CD4+CD25+FOXP3+CD127lo) among TB, LTBI, and EC.

Change in Treg subsets in TB patients after treatment

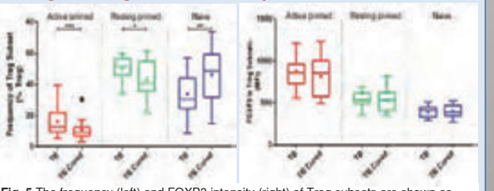

Fig. 5 The frequency (left) and FOXP3 intensity (right) of Treg subsets are shown as Active Primed (Red), Resting Primed (Green), or Naïve Treg (Blue) in TB patients before and after treatment. Box plots show median and inter-quartile range. P value of Wilcoxon signed rank test are indicated as * (*P<0.05*), ** (*P<0.01*), and *** (*P<0.001*).

- Activated primed subset of Treg (CD45RO+Ki-67+) are higher in TB disease and decline in frequency after treatment.
- Naïve subset of Treg are lower in active TB disease and increase after treatment.
- No change in the intensity of FOXP3 in Treg subsets after treatment.

FOXP3 expression in Treg subsets.

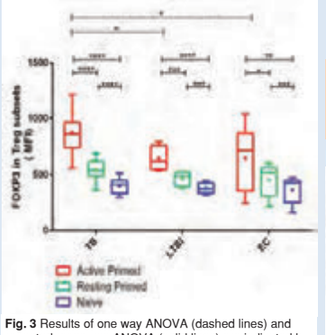

Fig. 3 Results of one way ANOVA (dashed lines) and repeated measures ANOVA (solid lines) are indicated by (*P<0.05*), **(*P<0.01*),*** (*P<0.001*), and **** (*P<0.0001*).

- FOXP3 MFI is higher in activated primed Treg of TB patients than LTBI and EC.

Frequency of Treg subsets.

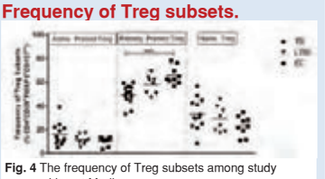

Fig. 4 The frequency of Treg subsets among study groups, Line at Median.

- No difference in the frequency of Active Primed and Naïve Treg subsets among TB, LTBI, and EC.
- Resting Primed Treg subset higher in EC than TB patients.

Conclusions & Discussion

❖ **Association of Treg frequency with TB varies depending on the phenotypic markers used.**

❖ Ki-67 and CD45RO enable identification of functional subsets of Treg where there is a dynamic change in TB disease and cure.

❖ **Activated primed Treg (highly suppressive) are higher In active TB disease and decline after treatment.**

❖ No difference in frequency of FOXP3+Treg among TB, LTBI, and EC.

Limitations:
- Small sample size
- Resting primed Treg population include FOXP3loKi-67- non-regulatory and pro-inflammatory cytokine producing T cells.

Recommendations for Future Studies:
- Consider confounding factors common in TB endemic areas (nutritional status, co-infection with helminth, and exposure to Non-Tuberculous Mycobacteria).

Acknowledgements

- Health Centers and Nurses at the TB Clinics
- Study participants

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COCEKA
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Trends in maternal deaths in HIV-infected women, on a background of changing HIV management guidelines in South Africa: 1997 to 2015

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Background: South Africa made no progress towards the MDG 5 target of decreasing the maternal mortality ratio (MMR) by 75% between 1990 and 2015. The country saw a reversal in gains made, largely to the HIV epidemic. The HIV prevalence among women accessing antenatal care in South Africa increased dramatically from less than 1% in 1990 to 22.8% by 1998, and the prevalence has plateaued at around 29%.

The estimated MMR in 1990 was **108** per 100 000 live births, and for 2015, it was estimated to be **138** per 100 000 live births. Hence, the aim of the study was to assess trends in maternal mortality and leading causes of death in HIV-infected women, at Chris Hani Baragwanath Academic Hospital (CHBAH), a large referral hospital in Johannesburg, South Africa, with over 20 000 deliveries per annum.

Method: This was a retrospective record review of maternal deaths at CHBAH, from 1997 to 2015. Data were extracted on timing of HIV diagnosis and management during pregnancy; antenatal and admission details; and details about the death. Classification for causes of maternal deaths used was the same used in the South African Confidential Enquiries into Maternal Deaths. The analysis time periods for the study coincide with major prevention of mother-to-child transmission of HIV (PMTCT) and antiretroviral therapy (ART) guideline changes in South Africa – Figure 1.

Results: From January 1997 to December 2015, 692 women died at CHBAH; 490 (70.8%) had a documented HIV status, and 335 (68.4%) were HIV-infected. The HIV testing rate increased from 48.4% (101/208) in 1997-2003, to 84.3% (86/102) in 2013-2015 (p<0.001). Overall, **83.8% (281/335) were diagnosed as HIV-infected during pregnancy.**

The iMMR in HIV-infected women peaked in the period 2004-2009 at 379 (95% CI 319-446) per 100 000 live births, with a decline to 267 (95% CI 198-353) per 100 000 live births in 2013-2015, p<0.05 – Figure 2. Non-pregnancy related infections were the leading cause of death throughout the review period, accounting for 61.5% (206/355) of maternal deaths in HIV-infected women. The other leading causes of death were obstetric haemorrhage, pregnancy-related sepsis, hypertensive disorders, and medical and surgical disorders – Table 1.

sdNVP=single dose nevirapine; PMTCT= prevention of mother-to-child infection of HIV; AZT=zidovudine; FDC= fixed dose combination; Option B and B+ =triple ART for all HIV-infected pregnant and breastfeeding women, and with Option B+, treatment is for life

Figure 1: Analysis time periods and major changes in South African PMTCT and ART guidelines

Table 1: Leading causes of maternal death among HIV-infected women

Causes of death, n (%)	1997-2003 (n=71)	2004-2009 (n=144)	2010-2012 (n=71)	2013-2015 (n=49)
Non-pregnancy related infections	49 (69.0)	93 (64.6)	42 (59.2)	22 (44.9)
Obstetric haemorrhage	3 (4.2)	16 (11.1)	7 (9.9)	4 (8.2)
Pregnancy-related sepsis	3 (4.2)	11 (7.6)	5 (7.0)	6 (12.2)
Hypertensive disorders	2 (2.8)	9 (6.3)	2 (2.8)	9 (18.4)
Medical and surgical disorders	2 (2.8)	3 (2.1)	10 (14.1)	4 (8.2)

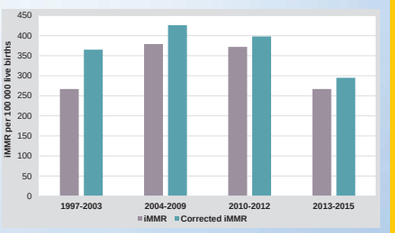

Figure 2: Institutional maternal mortality ratio (iMMR) – 1997-2015

Among the non-pregnancy related infections, the leading cause of deaths were respiratory infections, accounting for 56.3% of maternal deaths due to non-pregnancy related infections. Only 22.3% (46/206) of the women who died of non-pregnancy related infections were on ART at the time of death, despite advanced immune suppression. Of those assessed for ART, 79.3% (65/82) had a CD4 count ≤200 cells/µl. Overall, only 23.3% (78/335) were on antiretroviral therapy (ART) at the time of death, despite a median CD4 count of 136 cells/µl (IQR 45-301). In 2013-2015, 38.8% of women who died were not on ART, despite widespread availability of ART and recommendations for triple therapy for all HIV-infected pregnant women. There was a fall-off at all stages of the HIV diagnosis and treatment cascade – Figure 3.

The majority of deaths, 60.9%, occurred in the age group 25-35 years. In women with antenatal details (309), the median gestational age at booking was 21 weeks, and 19.1% of the HIV-infected women who died did not access any antenatal care. The majority, 75.2%, of women were still pregnant at the time of admission, but most deaths, 79.1%, occurred postpartum.

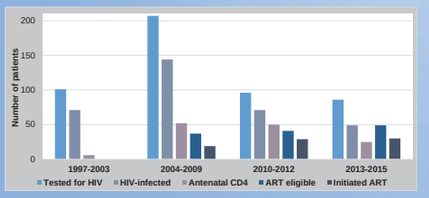

Figure 3: HIV diagnosis and management cascade – 1997-2015

Discussion: There was a cascade of events that ultimately led to maternal deaths in HIV-infected women. This started with delayed access or no antenatal care, leading to delayed HIV diagnosis and ART initiation, and delayed diagnosis and inappropriate management of underlying HIV-related comorbidities. In those initiated on ART during pregnancy, the duration of ART prior to delivery was short, not enough to reverse advanced immune suppression.

Conclusion: The iMMR in HIV-infected women remains unacceptably high. Drivers of mortality and barriers to accessing antenatal care and ART early need to be addressed if we are to achieve the Sustainable Development Goal target of a MMR of 70 per 100 000 live births by 2030.

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Merck Foundation

2nd UNESCO-Merck Africa Research Summit,
November, 28th and 29th 2016, Addis Ababa, Ethiopia

Epidemiology of high risk Human Papillomavirus infection in women in western Burkina Faso

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Background: The human papillomavirus (HPV) infection is one of the most common sexually transmitted infections in the world (Bruni et *al.*, 2010). When high risk type (HR-HPV) is implicated, this infection may persist and lead to cervical cancer which is the most common cancer in women in sub-saharian Africa (Ferlay et *al.*, 2008). Screening for precancerous cervical lesions may help to reduce this cancer's incidence and there are also prophylactic vaccines against cervical cancer. But, vaccines which are available in Burkina Faso target only genotypes HPV 16 and HPV 18. However, previous studies shown theses genotypes are not often the most frequent in the capital city of Burkina Faso. What will be the distribution of HR-HPV in other cities ?

Methods:From May to July 2015, three hundred and one (301) women have been included in this study : 181 women at the Souro Sanou University Hospital of Bobo-Dioulasso and 120 women at the sanitary district of Orodara. Uterine endocervical swabs have been taken in these women. Immediately after sampling, screening for precancerous lesions was done for all women by visual inspection with acetic acid and lugol's iodine (VIA/VILI). DNA obtained by extraction from the samples thus collected was used to determine the prevalence of high risk human papillomavirus genotypes through real-time PCR.

Figure 1: Burkina Faso map, Study area in red circle

Results:Women's age ranged from 17 to 65 years with an average of 34.8 years. Among this women, 30,6% (92/301) were infected with HR-HPV and 4,7% (14/299) were positive to VIA/VILI. HPV 52 (21.19%), HPV 39 (11.86%) and HPV 33 (11.02%) were the most common genotypes of HPV. The genotype HPV 16 which is the most frequent in the world was not found in women in this study.

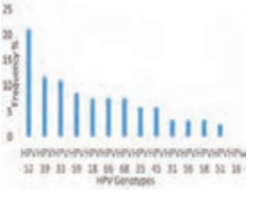

Figure 2: Frequency of high risk HPV among women

Conclusion: The results are consistent with those of other studies conducted in Burkina Faso, which showed that there was a predominance of high-risk HPV other than HPV 16 and HPV 18.

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BAKARY SANNEH

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FIELD EVALUATION OF A SCHISTOSOME CIRCULATING CATHODIC ANTIGEN RAPID TEST KIT AT POINT- OF-CARE FOR MAPPING SCHISTOSOMIASIS ENDEMIC DISTRICTS IN THE GAMBIA

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Background

- Traditional parasitological methods have been found to be less sensitive in detecting schistosomiasis
- Studies in Sub Saharan Africa have shown that Circulating Cathodic Antigen point-of-care test (POC-CCA) is more accurate for the detection of *Schistosoma mansoni* than the microscopic kato-katz method
- Less information is known about the accuracy of this rapid test in detecting *S.haematobium* infections
- This study evaluated the field accuracy of POC-CCA as a rapid test kits for mapping/ schistosomiasis

Method

- A cross sectional study was conducted in 4 regions namely; Central River Region (CRR) , Upper River Region(URR), Lower River Region(LRR) and North Bank Region(NBR).
- A total of 1954 participants aged 7 to 14 years were randomly selected and enrolled
- Stool and urine samples were examined for schistosomiasis
- POC-CCA, kato-katz, urine filtration and dip-stick methods were used
- Data was collected using the LINKS software, an in-built electronic questionnaire in a smart phone

Fig 1: Enrolment of participants by data collectors using LINKS system

Fig. 2: Kato-katz technique

Fig. 3: Reading urine filtration slides using a field microscope

Fig .4: Test outcome; positive and negative results

Results

- Of the 1954 participants with complete data, the mean age was 9.9 (± 0.05) years.
- The prevalence of children infected with *S. haematobium* and *S. mansoni* in the 4 regions using urine filtration and kato-katz methods were10.13% and 0.3% respectively
- The sensitivity and specificity of POC-CCA were 47.69% and 75.81% respectively using urine filtration as a reference standard

Fig 1: Regional Prevalence of urinary schistosomiasis, The Gambia, 2015

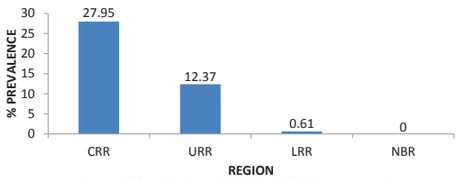

Fig. 3:* A distribution map showing co-endemicity of *S. haematobium* and *S. mansoni

Reference standard	Sensitivity (%)	Specificity (%)
Urine filtration	47.69	75.81
Kato-katz	60.00	71.24

Fig. 2: Sensitivity and specificity of POC-CCA using urine filtration and kato-katz methods as reference standards

Conclusion

This study showed lower sensitivity of POC-CCA in detecting *S. haematobium* compared to *S.mansoni*. Therefore, POC-CCA is less ideal for rapid diagnosis of urinary schistosomiasis.

Acknowledgement

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APHRODITE CHOUMESSI TCHEWONPI

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PREVALENCE OF TOXOPLASMOSIS INFECTIONS IN WOMEN FROM THE NORTH WEST REGION AND WEST REGION OF CAMEROON

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1. INTRODUCTION

Toxoplasmosis is a zoonotic protozoal disease of humans and animals caused by the coccidian parasite, Toxoplasma gondii. Infection by *T. gondii* is widely prevalent in humans, and nearly one-third of humanity has been exposed to this parasite (Dubey, 2010). It can cause congenital infections and may lead to permanent disability or defects in the fetus for whole life (Remington, 1995). Though the disease is widely prevalent in developing countries, very limited studies have intended to actually assess the problem in Cameroon. This study then aimed to evaluate the prevalence of toxoplasmosis in West and North West Region of Cameroon using retrospective analysis. To this end data of toxoplasmosis laboratory results were collected in North West (Bafut district hospital) and West (Mbouda district hospital, Ad-Lucem Mbouda hospital, hospital protestant de Montchio-Mbouda) Regions of Cameroon in females from 5 years period that is from 2010 – 2014. This study will be providing data to understand the actual epidemiologic situation and the impact of this disease in our local population. Such results may help encourage different stakeholders to undertake actions for better prevention and treatment of toxoplasmosis in our regions.

2. Methodology

Hospitals and health centers of large consultation located in capitals of divisions in West and North West Regions were considered as studied sites namely:

- The Presbyterian Health Center Nsem, Bafut (Mezam division, North West Cameroon)
- The Mbouda district hospital, Mbou and Ad-Lucem hospitals in Mbouda (Bamboutos division, West Region Cameroon).

Laboratory results concerning females patients were collected on a period a 5 years from 2010 to 2014 in different health centers from laboratory records.
The data were entered in Microsoft excel 2010 and analyzed using SPSS 20.0. The results are presented in the tables and figures.

3. RESULTS

TOXOPLASMOSIS INFECTION CASES IN THE LOCALITIES

Table 1: Toxoplasmosis cases in localities

Year	NW		West	
	+ cases	Total	+ cases	Total
2010	104	1146	52	121
2011	18	1336	60	140
2012	18	1460	60	260
2013	93	1522	114	341
2014	20	1336	120	466

Though the locality of the West region received less patients, the cases of *T. gondii* infections are more important in that region than in North West Region. This gap in infection could be due to the difference in the hygienic conditions in the 2 localities.

MONTHLY DISTRIBUTION OF TOXOPLASMOSIS

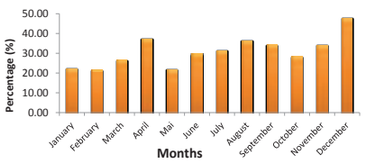

Figure 1: Cumulative monthly toxoplasmosis seroprevalence in WR .

The prevalence of toxoplasmosis varied throughout the months. April, August, September, November and December scored the highest infection rates with 37.29, 36.27, 34.18, 33.86 and 47.62% , respectively. The monthly variation of the prevalence of this diseases could be attributed to seasonal climatic condition and abundant consumption of raw and not well cooked foods during certain periods of the year. Similar rates were however observed in some African countries per year including Benin (47%), Egypt (36%), Morocco (44%) and Sudan (36%) (Flegr et al., 2014).

TOXOPLASMOSIS PREVALENCE ACCORDING TO THE AGE

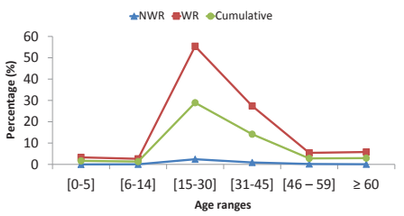

Figure 2: Prevalence of toxoplasmosis according to age ranges in West and North West regions of Cameroon.

According to age ranges, the highest prevalence of toxoplasmosis was noted in women of 15 – 30 years old in both localities (WR : 55.4%, NWR: 2.42%) with cumulative prevalence of 28.91%. The high infection rate in this age group could be justified by the active reproductive activity at such ages. This is consistent to the seroprevalence among pregnant women in Asian (0.8% - 28.3%) and is in line with the prevalence observed in African countries (23 - 84%) (Agmas et al., 2015). Independent to the region, *T. gondii* infection is practically negligible before 14 and after 46 years old.

TOXOPLASMOSIS INFECTION OVER THE YEARS

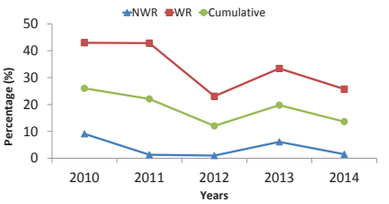

Figure 3: Evolution of the prevalence of toxoplasmosis over the years in West and NW regions of Cameroon.

In general the 2 regions do not present the same infection rate and trend from 2010. The NWR prevalence peaked in 2010 (9.1%) and 2013 (6.1%). In the West region (WR), toxoplasmosis rates peaked in 2011 (42.86%) and 2010 (42.98%). In general Toxoplasmosis rate remained constantly high in the WR while its evolution varied in the NWR over years. Together the West and North West Regions of Cameroon showed evolution of toxoplasmosis infection varying from 26.04 to 13.63% from 2010 to 2014. Such results indicates that data should be collected on a more longer period of time for a better appreciation of the prevalence of this parasitic infection in the localities. Such prevalence are lower than the ones obtained In Europe (20% to 85%) but close to the prevalence in United States (12% to 41%) (Jones et al., 2003) and higher than the prevalence in Japan (8-10%) and China (11%) (Flegr et al., 2014).

4. CONCLUSIONS

- ✓ Toxoplasmosis is largely prevalent in West and North Regions of Cameroon with an infection rate varying from 13.63 to 26.04% over the years, and . April and December are the months with highest infection rates in the West region.
- ✓ Indications from the past 5 years showed that *T. gondii* is quite constant.
- ✓ The most affected age group for toxoplasmosis is from 15-30 years old with prevalence of 2.42 to 55.4 % in the NWR and WR, respectively.
- ✓ There is therefore an urgent need for more sensitization (for prevention) concomitantly with an effective treatment of the diseases.

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CHUKWUEMEKA JOSEPH ANI

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NUMERICAL MODELING OF INSERTED MICROWAVE HEATING PROBE IN POLYMER LOADED DRUG FOR CERVICAL CANCER TREATMENT

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ABSTRACT

This paper presents the results of computational study of inserted microwave heating probe into anticancer loaded polymer for localized hyperthermia and chemotherapeutic effect on cervical cancer. Finite element models of electromagnetic waves, heat transfer and mass transport concepts was used to simulate the temperature changes and drug release from the probe/polymer system to the surrounding environment that mimics the cervical cancer/healthy tissue. The predicted temperature ranges and released anticancer drug concentrations in abnormal tissue (cervical cancer cells) are shown to be in the range in which the combination of localized drug delivery and hyperthermia can a synergistically improve the therapeutic effects on cervical cancer. The implications of the results are also discussed for the design of implantable devices for localized chemotherapy and hyperthermia.

INTRODUCTION

Cervical cancer is the second most common cancer in women worldwide and is the most frequent cancer in many developing countries. Every year, 470.000 new cases of cervical cancer are diagnosed worldwide, and about half of the afflicted women will die. Although cervical screening has dramatically reduced the incidence of this disease in the developed world, it is still estimated that there will be 5.000 deaths from cervical cancer in the U.S. per year. In areas of the world where most women do not have access to regular gynecological care and screening, cervical cancer is second only to breast cancer as a cancer related cause of death. Cervical cancer discovered to be linked with Human PapillomaVirus which is transmitted through sexual intercourse, in most cases the male is a career of the papilloma virus that infects and generates in females. Despite the risks of the HPV virus both males and females are are hardly aware of the virus and the risks it carries.

MODELING

I. Hyperthermia Modeling

$$\nabla \times \left(\left(\varepsilon' - \frac{j\sigma_{el}}{\omega \varepsilon_0} \right)^{-1} \nabla \times \overrightarrow{H_\varphi} \right) - \mu_r k_0^2 \overrightarrow{H_\varphi} = 0 \qquad (1)$$

$$\rho C \frac{\partial T}{\partial t} = \nabla \cdot (k \nabla T) + \rho_b C_b \omega_b (T_b - T) + Q_{met} + Q_{gen} \qquad (2a)$$

$$Q_{gen} = \frac{1}{2} \sigma \left| \vec{E} \right|^2 \qquad (2b)$$

$$\Omega(t) = \ln \left(\frac{C(0)}{C(t)} \right) = \int_0^t A \, e^{\frac{-\Delta E}{RT(t)}} dt \qquad (3)$$

II. Modeling of Drug Release

$$\frac{\partial C}{\partial t} + \nabla \cdot (D \nabla C) = 0 \qquad (4)$$

$$D = D_0 exp \left(- \frac{E_a}{R \, T(r,Z)} \right) \qquad (5)$$

RESULTS

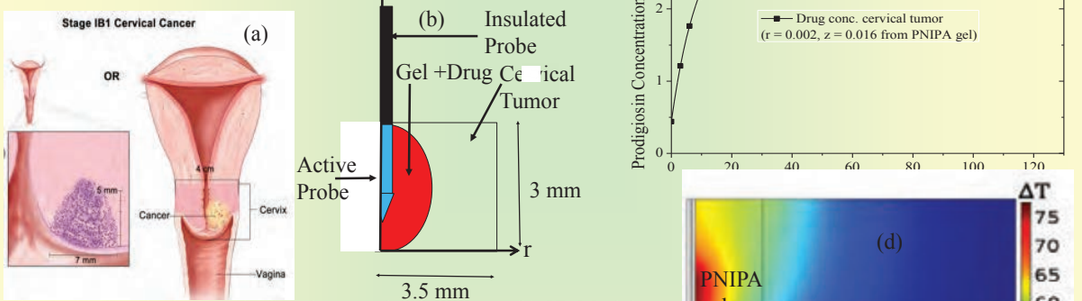

Fig. 1: (a) Cervical tumor in female reproductive organ, (b) 2D Model for FEM ,(c) Drug released in tumor, (d) Temperature distribution in PNIPA gel and cervical tumor, (e) Fractional thermal damage in tumor

CONCLUSION

The simulation result for prodigiosin (anti-cancer drug) released into the cervical tumor from the temperature sensitive P(NIPA) gel in Figure 1c shows a peck concentration of $\sim 0.03 \, \mu mol/m^3$ in 30 min. The drug release profile indicates potential clinical relevant for effective localized chemotherapy. The predictions of temperature distribution (Figure 1d) in the cervical tumor domain are high enough to kill the cervical tumor cells. The fractional thermal damage results shows that above 0.99 of the cervical tumor model is damaged. The simulation results of the microwave heating probe/drug loaded PNIPA implanted in cervical tumor show potential application for combine localized treatment of cancer.

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2nd United Nations Educational, Scientific and Cultural Organisation-Merck Africa Research Summit (UNESCO-MARS), 2016

An Exploratory Study of the Observance of Bacterial Fish Lesions and Infection Risk among Women

Edna Dzifa Doe[1] Adolf K Awua[1], Kingsley Kwame Nsowah[1], Kofi Bedzra[1] and Oti Kwasi Gyamfi[1].

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BACKGROUND: Some bacteria that infect fish, such as species of *Mycobacteria* and *Salmonella,* are pathogenic to humans and may result in significant morbidity, including skin lesions of the extremities. Fish retailers and processers in Ghana, who are often women, are more directly exposed to fish and so are at a high risk for such infections. Furthermore, they may be burdened with the additional risk of high morbidity since routine clinical microbiological laboratories in Ghana do not consider their profession and so do not test for such uncommon infections. Therefore, this study was designed to obtain information that will inform the design of a laboratory based microbiological study. The prevalence of *Mycobacterial, Salmonella* and other such infections of fish and their prevalence in skin lesions among women working in the fish industry in Ghana will be studied therein.

METHOD: An exploratory cross-sectional study conducted in the urban communities of the Greater Accra Region of Ghana (study population), one of the three coastal regions and has a high proportion of both marine and inland fish business in Ghana. In order to recruit the 117 participants in this study, purposive and passive-search sampling of persons working with fish were employed in this study. Structured questionnaires were used, by an interviewer-administration method, to collect information from participants on their experience in the fish business, the observance of lesions on the fish and rashes on the participants as well as their customers' perception of the observed lesions. These pictures, presented as figure 1, were used with the questionnaire to help in the identification of the lesions of interest on fish. Collected data were entered in Ms. Excel transferred to and analyzed by SPSS version 20.

RESULTS: A greater proportion of the predominately female participants had been involved with only retailing (26.5%) and processing (20.0%) of fish and most of them have been in the fish business for 6 or more years (55.5%) and worked with between 2 and 5 fishes (54.7%). About **55.6%** had observed such lesions on fish and the observance was common among the **retailers and processers** of fish. Additionally **24.8%**, who were mostly involved with retailing and processing fish, reported having had a rash.

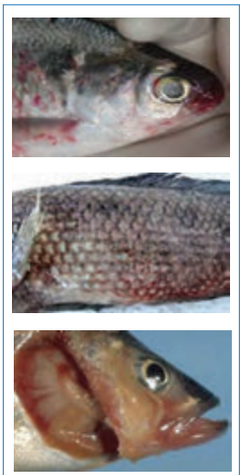

Figure 1. Picture of fish showing lesions

Table 1: Distribution of skin rash in relation to fish work among the participants

Fresh fish business	No. who had Rash (%)
Buy	0 (0.0)
Wholesale	0 (0.0)
Retail	9 (31.0)
Process	6 (20.7)
Buy and Retail	3 (10.3)
Buy and Process	1 (3.4)
Wholesale and Retail	1 (3.4)
Retail and Process	8 (27.6)
Buy, Wholesale and Retail	1 (3.4)
Buy, Retail and Process	0 (0.0)
Fishermen	0 (0.0)
Total	29 (100)

DISCUSSION: The findings that slightly more than half of the participants (55.5%) had been working with fish for between 6 years and more than 20 years, suggests a high likelihood that the participants may recognise such lesions if they had seen them or were present on fish they have worked with. The association of skin conditions with working with fish have been reported (Janda, 2014; Abowei and Briyai, 2011; Holt *et al.*, 2005), however, the experience of a rash was common among those who were involved with retailing and processing of fresh fish. Even among the participants who were involved in only one type of business, it was only those who were involved with retailing and/or processing that reported having had a rash.

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CONCLUSION: The observance of fish lesions mostly by and the occurrence of skin rashes mostly among retailors and processers of fish, who are often women in Ghana, necessitates a study of the prevalence of the *Mycobacterial* and the emerging *Shewanella* bacterial infection among women in the fish business in the coastal region of Ghana.

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Microbiological assessment of cervical secretions among pregnant women at a public laboratory in Cotonou-Benin: a mixed study.

Esther Déguénon, Ariane Agboton, Théodora A. Ahoyo and Yaovi M. G. Hounmanou

OBJECTIVE

To promote hygiene and the health of pregnant women during prenatal consultations, the present study was undertaken to characterize microorganisms that could be isolated from their cervical secretions.

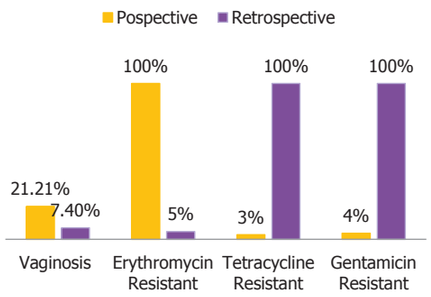
METHODOLOGY

This was a mixed study composed of a retrospective study that compiled results of five years (from 2007 to 2012) completed by a prospective study of three months. The study consisted of cervical secretions collection from pregnant women. The samples were then subjected to standard microbiological procedures for isolation of bacteria and fungi then the bacterial isolates were submitted to antibiotic profiling.

RESULTS & DISCUSSION

From May 2007 to March 2012 analyses revealed infection among 149 patients out of the 189 (78.83%). The prevalence of infected women in the prospective study (from May to July 2012) was 71.87%. Woman of 20 to 30 years old are at higher risk.

Comparison between parameters



Predominant isolates (Prospective)	Predominant isolates (Retrospective)
Candida albicans	*Candida albicans*
Staphylococcus aureus	*Streptococcus agalactiae*

***Klebsiella pneumoniae and Escherichia coli* were also isolated. This is a sign of lack of hygiene**

CONCLUSION: The study demonstrated an urgent need to sensitize pregnant women on basic good hygienic practices and the promotion of medicinal plants as alternatives to

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TITLE: Tuberculosis and the risk of opportunistic infections in HIV-infected patients starting ART in BURUNDI

By Ficard NDAYIMIRIJE, Legal Representantive of AIBTL

OBJECTIVES:
To study the incidence of opportunistic infections (OIs) and cancers and the role history of tuberculosis (TB) as a risk factor for developing these conditions in patients infected with HIV who start antiretroviral (ARV) Burundi

METHODS: Five ARV programs in Gitega, Ngozi, Kayanza, RUMONGE, Bujumbura Mairie of the largest cities of Burundi participated. The results were the extrapulmonary cryptococcal disease (CM), pneumonia caused by Pneumocystis jirovecii (PCP), Kaposi's sarcoma and nonHodgkin lymphoma. A history of tuberculosis was defined as a diagnosis of tuberculosis before or at the start of ART. We used Cox models adjusted for age, sex, CD4 cell count at the start site and ART, the presentation of results that the adjusted risk ratios (PA) with confidence intervals of 95% (IC)

RESULTS: We analyzed data from 175,212 patients enrolled between 2000 and 2010 and identified 702 patients with CM incidents (of which 205 with a history of tuberculosis) and 487 with the incident PCP (including 179 with a history of tuberculosis) . The incidence per 100 person-years during the first year of ART was 0.48 (95% CI 0.44 to 52) for CM, 0.35 (95% CI of 0.32 to 0 , 38) for the PCP, 0.31 (95% CI from 0.29 to 0.35) for Kaposi's sarcoma and 0.02 (CI 0.01-0.03 95%) for non-Hodgkin lymphoma. A history of tuberculosis was associated with cryptococcosis (AHR 1.28, CI 1.05 to 1.55 95%) and Pneumocystis jirovecii (AHR 1.61, 95% CI 1.27 to 2.4), but not with non-Hodgkin lymphoma (AHR 1.09, 95% CI 0.45 to 2.65) or Kaposi's sarcoma (AHR 1.02, CI 0.81 to 1.27 95%

CONCLUSIONS:
Our study suggests that there may be interactions between the various opportunistic infections in patients infected with HIV

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JARED SYLIVESTER BAKUZA

Title: Enhancing Neglected Tropical Diseases Control Through Geospatial Technology in Southern Tanzania

By

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Dr. E. Mwita – Geography Dept, Dar es Salaam University College of Education, Tanzania
Ms G. Stanley – GIS Unit, National Institute for Medical Research, Dar es Salaam Tanzania
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1. Summary

- **Funding source:** World Health Organization (WHO-2015/16) & Tanzania Partnership Programme
- **Objectives:** Improve local communities' health in Lindi and Mtwara Districts Tanzania by incorporating geospatial analysis in disease mapping at the focal level and produce data that would guide treatments and other control measures**.**
- **Benefits:** Production of information on disease burden and Geospatial mapping to enhance disease control in Lindi and Mtwara Districts.

- **Implementation stages:** Obtaining GPS coordinates and distance of waterbodies/farms from residential areas and analyze their association to disease burden in the 1st quarter of the study period.
- Establish disease burden within half of the study period through stool/urine analysis and snail survey
- Report writing and submission of final report to funders to be conducted in the project's last quarter period.
- Hold workshop on data dissemination and assessment of project success during the study's last month

- **Ongoing activities:** Systematic sampling of stool and urine from 2250 people to establish levels of disease infection and map their distribution patterns.
- **Activities achieved so far:** Stool and urine samples obtained from 250 adults and non-school children from Milola Ward in Lindi District analysed for parasites and treatment provided to infected participants

2. Background

- Geographical Information Systems (GIS) technology is a speedy, efficient and affordable means for disease mapping
- However, its use in disease control in Tanzania has not been properly implemented.
- This study was initiated to (1) determine infection status of neglected tropical diseases (NTDs) and their major risk factors in Lindi and Mtwara Districts
- (2) integrate GIS in mapping the distribution, burden and risk factors for NTDs in southern Tanzania and (3) provide data for Tanzania's NTD control and elimination programme.

3. Materials and Methods

- Fieldwork research conducted in Lindi and Mtwara Districts (Fig. 1)
- Research conducted during Sept-Oct. 2014, March-May 2016 and July-Sept. 2016 involving:
  - Faecal and urine sampling and environmental variable (GIS) analysis
  - Risk factors assessment through questionnaires
  - Snails survey to establish transmission points or foci for schistosomiasis in the villages
- Data analysis in QGIS and R to be conducted Oct-Nov. 2016
- Report writing and final report submission by Dec. 2016

Figure 1: Location of Lindi and Mtwara Districts in southeastern Tanzania

4. Preliminary Results and Conclusion

- Baseline data on parasitic infections obtained for Milola Ward Lindi District by April 2016
- Main parasites found; *Schistosoma haematobium* (23.4%), hookworms (6.8%) and *Trichuris trichiura* (2.8%).
- Data analysis indicated age to influence parasite transmission in Milola Ward where non-children below 18 years old are at the risk of acquiring the infections compared to adults
- The findings confirm widely known relationship between prevalence and age
- Average age of peak prevalence in a population decreases as transmission pressure increases.

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6. Acknowledgements

• WHO and Tanzania Partnership Programme (TPP) for funding
•Government leaders in Lindi and Mtwara Districts for logistics and support.
•The residents of Lindi and Mtwara Districts for cooperation and participation in the study

FLEURAMIE MIREMBOU BOUKOUMBA

EVALUATION OF PREGNANT WOMEN ANTIMALARIAL INTERMITENT PRESUMPTIVE TREATMENT AND PREVALENCE OF SULFADOXINE-PYRIMETHAMINE RESISTANCE MARKERS IN FOUGAMOU, A GABONESE RURAL AREA

Fleuramie MIREMBOU BOUKOUMBA[1,2], Nancy Diamela MOUKODOUM[1], Pierre Blaise MATSIEGUI[2], Jean Bernard LEKANA-DOUKI[1,3]

ABSTRACT:

Pregnant malaria remains one of complexes forms of malaria. Despite the adoption of intermittent preventive treatment with Sulfadoxine-Pyrimethamine (IPT-SP), SP resistance emerged and haplotypes of *P. falciparum Dihydropteorate synthase (PfDHPS)* and *P. falciparum Dydrofolate reductase (PfDHFR)* associated with resistance increased.

Retrospective and cross sectional survey were done to investigate the IPT adhesion. Malaria was diagnosed using rapid diagnostic test and *PfDHFR* and *PfDHPS* were genotyped using PCR-RFLP.

We included 427 women at the time of delivery. The rate of adhesion to IPT-SP was 94.37% (n=403). For pregnant women including during cross sectional survey, only 8.7% (n=14) were infected with plasmodium.. The prevalence of triples mutations of PfDHFR VIRNI and AIRNI were 12.07% and 84.48% respectively. An undescribed profile of genotype 59 of PfDHFR was reported. The prevalence of mutant haplotypes of PfDHPS were SGEA, SGKA and AGEA was 37.93%, 25.86% and 12.07% respectively.

Data call for clinical trials to investigate the efficacy of ITP-SP.

INTRODUCTION

Despite upgrade of malaria fight, pregnant associated (PAM) malaria remains one of complex forms of malaria. PAM induces severe consequences for mother and newborn. So, several African countries adopted Intermitent Presumtive Treatment with Sulfadoxine Pyrimethamine (IPT-SP) to roll back PAM. But, some data reported highest level of markers of SP resistance in Africa: Haplotypes PfDHFR-(16- 51-59-108-164) VIRNI and AIRNI and SGEA, SGKA and AGEA of PfDHPS.

In Gabon, decrease of PAM burden were reported in urban areas, after implementation of IPT-SP. Nothing is known about pregnant women IPT-SP adhesion and prevalence of SP resistance markers in rural areas.

MATERIAL AND METHODS

Study site: Health Center of Fougamou (HFC)

Study population and inclusion criteria

Pop1: Pregnant women and after labour

- **Delivery at HCF**
- **Seeing in antenatal consultation at HCF**

Pop2: febrile patients

- **Fever (T° ≥37,5°C)**
- **Fever story during lasted 48H before consultation**

Statistical analysis: Epi Info sofware

RESULTS

I. IPT-SP Adhesion level of pregnant women at the delivery

Among 427 women who deliveried at HCF 403 (94.4%) took IPT-SP during pregnancy. The distribution of the number of taking doses is showing in table 1.

Table 1: DISTRIBUTION OF WOMEN ACCORDING TO THE NUMBER OF TAKING DOSES

Number of ttaking Doses	1	2	3	ND
Women	65 (16.12%)	119 (29.52%)	193 (47.89%)	26 (6.45%)

The socio-demographical parameters of these included women correspond to the rural area: 74.53% without work and 47.2% live in villages around Fougamou.

II. IPT-SP and pregnant malaria

During the cross sectionnal study, 161 pregnant women were included. The prevalence of malaria was 8.7% (n=14). A positive impact of IPT-SP was observed. The prevalence of malaria was higher in women with parity ≤ 1 (17.65%) than whose with parity ≥ 2 (2.15%), p=0.001. (Table 2).

Table 2: DISTRIBUTION OF MALARIA ACCORDING TO THE PARITY

Parity	0	1	2	3	≥ 5
numbers	36	32	30	26	18
P. falciparum infected women (%)	3 (8,33)	9 (28,12)	0 (0)	1 (3,85)	1 (5,55)
	17.65%		2.7%		

Data showed that antimalarial prevention measures were highly followed: 80.2 % (n=129) slept under bed net, 66.45% (n=107) received information and education on malaria basis

III. Malaria in all febrile patients

We investigated malaria in all febrile consulted patients at HCF. We included 101 patients. The malaria prevalence was 60.4% (n=61) with a mean of parasitemia of 52,374±81,151 Pf/µL. In this context, malaria affected blood cell level (Table 3). TABLE 3: COMPARISON OF BLOOD CELLS LEVELS ACCORDING MALARIA

Blood cells	Mean ± SD		
	Plasmodium +	Plasmodium -	*p-value*
White cells .10^3 / mm^3	8.13 ± 4.22	8.25 ± 5.49	0.85
Red blood 10^6/ mm^3	4.03 ± 0.78	4.46 ± 0.67	0.003
Haemoglobin (g/dl)	9.61 ± 1.71	11.18 ± 1.96	0.0001
Platelet.10^3/ mm^3	121.76 ± 73.32	190.99 ± 125.53	0.002

IV. High level of molecular markers of SP resistance

TABLE 4: PREVALENCE OF RESISTANCE PfDHFR AND PfDHPS GENOTYPES

Genes	Codons	Genotypes	Prevalences
PfDHFR	16	A16	91,37%(n=53/58)
		V16	8,62%(n=5/58)
	51	I51	100% (n=58/58)
	59	R59	96,55% (n=56/58)
		X59	3,44% (n=2/58)
	108	N108	100%(n=58/58)
	164	I164	100%(n=58/58)
PfDHPS	436	A436	15,51% (n=9/58)
		S436	77,58% (n=45/58)
		A/S436	6,89% (n=4/58)
	437	G437	100%(n=58/58)
	540	E540	53,44%(n=31/58)
		K540	37,93%(n=22/58)
		E/K540	8,62%(n=5/58)
	613	A613	98,27% (n=57/58
		S613	1,72% (n=1/58)

High levels of mutation associated with SP resistance was found! In the codon 59 of PfDHFR, we found 2 isolates with undescribed genotype, named X59 which gave undescribed profil by previously described PCR-RFLP assay.

TABLE 5: PREVALENCE OF HAPLOTYPES

Genes	Haplotypes	Prevalences % (n)
PfDHFR	$V_{51}I_{59}R_{108}N_{164}I_{164}$	12,07 (7/58)
	$A_{16}I_{51}R_{108}N_{164}I_{164}$	84,48 (49/58)
	$A_{16}I_{51}X_{59}N_{108}I_{164}$	3,45% (2/58)
PfDHPS	$S_{436}G_{437}E_{540}A_{613}$	37,93% (n=22/58)
	$S_{436}G_{437}K_{540}A_{613}$	25,86% (n=15/58)
	$A_{436}G_{437}E_{540}A_{613}$	12,07% (n=7/58)

CONCLUSION:

Data showed the high IPT-SP adhesion is next to 100%. The highest prevalence of genotypes associated with SP drug resistance found call for clinical trials to investigate the efficacy of ITP-SP.

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JEAN CLAUDE DEJON AGOBÉ

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Effect of *Schistosoma Haematobium* Infection on *Plasmodium Falciparum* Malaria Burden in Lambaréné, Gabon

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BACKGROUND

Malaria remains the main cause of mortality in children living in sub-Saharan Africa where Plasmodium spp. usually share the same spatial distribution with other parasites such as helminths and often co-infect the same host. There are studies suggesting the interaction between both infections and conclusions are conflicting. Data on the influence of *S. haematobium (Sh)* on *P. falciparum* (*Pf*) parasite remains scarce. Additional studies are needed to assess the epidemiology of helminths and Plasmodium spp. coinfection and its consequence in affected population. In this study, our objectives were to assess the effect of *Sh* on asymptomatic *Pf* parasite carriage in an area where helminths and malaria are highly endemic.

METHODS

The study was cross sectional and was conducted in school children aged from 6 to 16 years old. Detection of *Pf* parasites was done by TBS using Lambaréné method (Kremsner et al, 1988; Planche et al, 2000). The presence of *Sh* eggs was assess by urine filtration in three urine samples collected every morning during three consecutive days. Chi square test and generalized linear model have been used to compare the risk to be infected by *Pf* parasite.

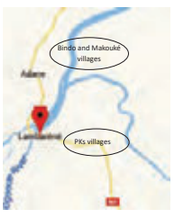

Figure1: Study sites

Table1: Risk factors associated with asymptomatic *P. falciparum* infection

	Crude analysis			Adjusted analysis		
	OR	95%CI(OR)	P-value	aOR	95%CI(aOR)	P-value
***S.haematobium* status**			0.002			0.06
Negative	1			1		
Positive	1.77	[1.23-2.53]		1.47	[0.98-2.18]	
Locality			<0.001			0.02
BM	1			1		
PK	1.86	[1.32-2.64]		1.61	[1.09-2.37]	
Sex			0.14			0.38
Female	1			1		
Male	1.30	[0.92-1.84]		1.18	[0.82-1.72]	
Age	1.05	[0.99-1.11]	0.09	0.95	[0.89-1.01]	0.08
T. trichiura			0.06			0.09
Negative	1			1		
Positive	1.51	[0.98-2.28]		1.50	[0.94-2.38]	
A. lumbricoide			0.93			0.72
Negative	1			1		
Positive	1.02	[0.64-1.59]		0.91	[0.55-1.49]	
Hookworm			0.72			0.76
Negative	1			1		
Positive	1.14	[0.54-2.25]		0.88	[0.39-1.88]	

Table 2: Risk fators associated with asymptomatic *P. falciparum* infection stratified for *T. trichiura* and Hookworm infetion

	Crude analysis *			Adjusted analysis*		
	OR	95%CI(OR)	P-value	aOR	95%CI(aOR)	P-value
***T. trichiura* and hookworm negative**						
***S. haematobium* status**			0.27			0.84
Negative	1			1		
Positive	1.29	[0.83-2.01]		1.05	[0.65-1.67]	
***T. trichiura* and hookworm positive**						
***S. haematobium* status**			0.002			<0.001
Negative	1			1		
Positive	3.06	[1.48-6.44]		3.92	[1.75.-9.19]	

*Breslow-Day test, p-value=0.046
*Adjusted to age, sex, locality and A. lumbricoides infection

RESULTS

1-Study site and population

The study was conducted in two localities from Lambaréné (figure 1). A total of 739 school aged children have been included. 420 (57%) were living in Bindo-Makouké villages and 351 (47%) were female.

2-Prevalence of asymptomatic *P. falciparum* infection and *S. haematobium* infection

2.1-Overall prevalence for:

Asymptomatic *P. falciparum* infection : **23%** [19.6-25.6]
S. haematobium infection : **36%** [33.1-39.7]

2.2-Prevalence of *Sh-Pf* co-infection : 9%

2.3-Prevalence per locality, PK villages vs Makouké-Bindo villages for:

S. haematobium: **45%** [39.6-50.6] *vs* **19%** [15.2-22.8], *P-value*<0.001
P. falciparum : **29%** [23.8-33.8] *vs* **18%** [14.4-21.8], *P-value*<0.001

3-Characteristics of study groups

The two study groups in regard of Schistosomaisis status were comparable for sex, age and STH infection. Contrariwise, the prevalence of asymptomatic *Pf* infection was statisticaly higher in individuals infected by *Sh* by comparison with to those free of schistosomiasis.

4–Effect of *S. haematobium* infection on asymptomatic *P. falciparum* parasite carriage risk

A univariate analysis, we found a significant association between S*h* status, locality and *Pf* parasite and a trend of association for Trichirus infection. Children infected by schistosomiais have a 1.77 odds to carry *Pf* parasite compared to the non-infected children (See table1).

At multivariate analysis, we found that both hookworm and *Trichuris trichiura* infections modifiy the risk to be infected by *Pf* parasite when positive for *Sh*. We therefore stratify our analysis on these infections and our results reveal that, adjusted to the other factors, in children free of Trichirus and hookworm infection there is no effet of *Sh* on *P. falciparum* parasite carriage while in infected children by trichirus or/and hookworm, the risk to be infected by *Pf* parasite is high (aOR=3.92, P-value<0.001) (See table 2).

CONCLUSION

In our study population, *S. haematobium* infection doesn't increase the risk of *P. falciparum* parasite carriage. However, co-infection of *S. haematobium* with Hookworm and/or *Trichirus trichiura* worms increases the risk of being asymptomatic infected with *P. falciparum* parasite.

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Effect of *Schistosoma hematobium* on metabolic disorders in endemic area of central Gabon

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Background: Approximately two and three hundred million people worldwide are exposed to Schistosomiasis especially in low- and middle-income countries (1) and this remains a public health problem. Beside it, Soil-transmitted helminths affect more than two billion people worldwide (2,3). Obesity is a growing problem in the Western World as well as in developing countries. According to the World Health Organization, in 2014, 13% of the world´s adult population has been affected (4) and this cause a concern. High blood pressure, elevated fasting plasma glucose and abnormal cholesterol levels, abdominal obesity contribute to one of the medical conditions clustered in what has been called metabolic syndrome, which is also associated with the risk of developing diabetes and cardiovascular diseases. Recent data show helminth protective effect on metabolic markers in animal model.

Methods: To determine a possible association between S.hematobium and metabolic disorders, a pilot cross sectional study was carried out in Lambarene and surrounding villages among adults infected and non-infected with S. hematobium. Three consecutive urine, single stool and blood samples were collected to assess the presence of S.hematobium, soil transmitted helminth (STH) and malaria parasites infection using respectively filtration method, kato katz technique and slide reading. The serum was collected to determine the level of lipids and derived as well as fasting blood glucose.

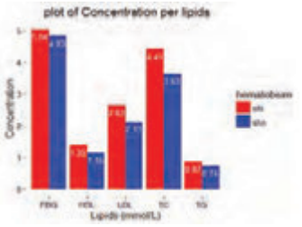
Results:

Fifty two participants aged from 18 to 67 years were enrolled in this pilote study. Among them, 50% were infected by schistosomiasis, 17,1% for any Soil Transmitted helminth and 10% positive for *plasmodium falciparum* infection. The difference between both infected and non infected by Schistosoma hematobium people is described in table 1.

Conclusion: Our findings show that *S.hematobium* infection is associated with lower level of lipids and fasting blood glucose. This need to be confirmed in a more powerful sample size population with a further assessement of mechanism underlined

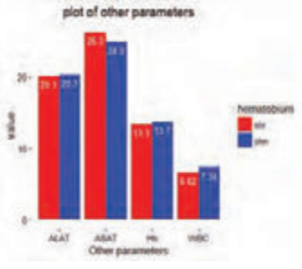
Table 1: Characteristics of population

	Infectious status	
Characteristics	*S. h* uninfected	*S. h* infected
Age (mean, SD)	38.6 (18-67)	31.0 (18-58)
Urine eggs (mean, SD)	0	90 (162)
Ascaris lumbricoides (%)	0	7.7
Trichirus trichiura (%)	3.8	15.4
Hookworms (%)	0	7.7
P.f infection (%)	3.8	15.4
Any helminths (%)	7.7	34.6



S. h infected subjets have lower lipids derived level compared to those non infected. The same trend was found for fasting blood glucose. However, this decreased level is statistically significant only for the total cholesterol infected 3.63 mmol/L (SD =0.76) group versus uninfected 4,41mmol/L (SD = 0.83) with *p* val-

Figure 1: Fasting blood glucose and lipidic markers in both populations



ALAT; ASAT ; HB AND WBC levels were comparable in both groups

Fifure 2: Other parameters in both groups

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Prevalence, Risk factors of Human Papillomavirus Infection and Papanicolaou Smear Pattern Among Women Attending a Tertiary Health Facility in South-West Nigeria

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Abstract Cervical cancer amongst Nigerian women has been on the increase in the past decade. Thus, this study was aimed at determining the prevalence, risk factors of HPV infection, Papanicolaou smear pattern and presence of HPV DNA in abnormal cytology amongst women in Ekiti, Nigeria. This was a cross-sectional study involving the screening of women between the ages of 15-64 years for cervical intraepithelial neoplasia using Papanicolaou smear staining technique, serological diagnosis using IgG enzyme linked immunosorbent assay kits and molecular analyses by means of DNA isolation techniques and polymerase chain reaction (PCR). Results showed that 135 (67.5%) women were sero-positive. For cervical cytology using Papanicolaou smear, 14 (7%) were positive, and all 14 samples contained HPV DNA.

Introduction

Cervical cancer is one of the most critical health issues, affecting women in developing countries. It is regarded as the commonest malignancy of the female genital tract in Nigeria. There are 36.59 million Nigerians, aged 15 years and older, who are at risk of cervical cancer. Cervical cancer is regarded as the second most common cancer amongst women worldwide, and it accounts for 250,000 deaths and 500,000 new patients worldwide, annually.The main risk factors contributory to HPV infection and cervical cancer in Nigeria included being unmarried, illiteracy, being positive for anti-Herpes Simplex virus antibodies; also tobacco use multiple sex partners of women and their spouses extramarital affairs.

Objective

This study was aimed at determining the prevalence, risk factors of HPV infection, and Papanicolaou smear pattern amongst a cohort of women attending the Gynaecology clinic of a tertiary health facility in Ido-Ekiti, South west Nigeria. And to also determining the presence of HPV DNA in abnormal cervical cytology of a group of women who were screened using Papanicolaou staining technique.

Methods and Materials

This was a cross-sectional study involving the screening of 200 women between the ages of 15-64 years for cervical intraepithelial neoplasia using Papanicolaou smear staining technique and serological diagnosis using IgG enzyme linked immunosorbent assay kits. While positive samples were subjected to molecular analyses using DNA isolation techniques and polymerase chain reaction (PCR). Respondents were selected through convenience sampling of subjects, while interviewer- administered questionnaire and clinical report form were also used to collect data, and data was analyzed using SPSS version 17.

Results

Results revealed that 14 (7%) of the subjects were positive for abnormal cytology.Abnormalities found among the subjects included; low grade squamous intraepithelial lesions (LSIL) which constituted 50 % of the total abnormal smears, high grade squamous intraepithelial lesion (HSIL) and atypical squamous cells of undetermined significance (ASCUS) which were 28.6% and 21.4% respectively.

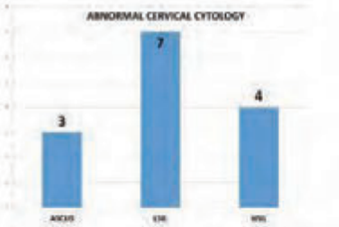
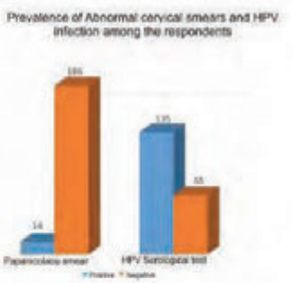


Figure 1: Distribution of abnormal cervical cytology types amongst subjects in relation to acquisition of HPV infection
ASCUS- Atypical cells of uncertain significance
LSIL- Low grade squamous intraepithelial lesion
HSIL-High grade squamous intraepithelial lesion

Figure 2: Positive PCR bands with corresponding HPV genotypes
(1kb plus DNA ladder, 0.9% agarose gel stained with ethidium bromide)
Lane 1 represents (M) Highranger 1kb DNA Ladder,
lanes 2-15 are amplified HPV genome;
1,2,3,4,5,6,7,8,9,10,11,12,13,14 and
lane 16 represents negative control (NC).
Left hand side: molecular size of marker's bands



Of the 200 blood samples examined for HPV infection, 135 (67.5%) were sero-positive while 65 (32.5%) were sero-negative. Result showed a direct relationship between seropositivity, development of cervical intraepithelial neoplasia and Human papillomavirus infection. The risk factors for the development of HPV infection found in this study include included age, type of marriage, parity, history of genital infection and tobacco usage. Non circumcision of male partner was also found to be a risk factor.

Results of molecular analyses showed that all the samples from abnormal cervical cytology subjected to HPV DNA extraction and gene amplification all contained the HPV DNA.

Conclusion

The high prevalence of HPV DNA in abnormal cervical cytology and high level of serological positivity clearly showed why there is need for a holistic approach to the screening, vaccination methodologies and early detection of HPV infection in the country.

Acknowledgment

I wish to acknowledge the Director general/CEO NIPRD Prof K.S. Gamaniel and my supervisors Dr. O.M. Kolawole and Dr. K.A. Durowade.

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BONE MINERAL DENSITY AMONG HIV-INFECTED AND UN-INFECTED YOUNG WOMEN IN UGANDA

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Background

- HIV burden among young women is high in sub Saharan Africa is high.
- Limited data on burden of metabolic diseases in resource limited settings.
- As more people access anti-retroviral therapy (ART) and live longer with HIV, ART related complications are expected to increase.
- Low bone mass is an independent risk factor for fractures **later on in life.**
- We compared the prevalence of low bone mass among 18 to 30 year old HIV-infected ART naïve women compared to HIV-uninfected women, Kampala, Uganda.

Methodology

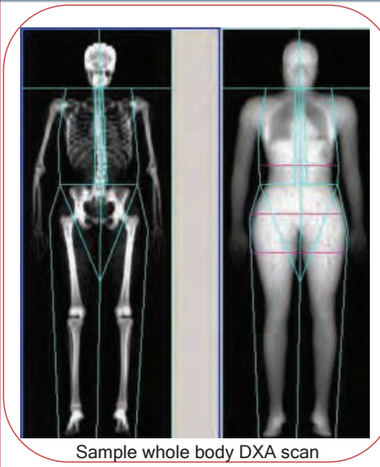
Study area: Kampala, Uganda

Study design: Cross sectional study of 179 HIV-infected (154) and uninfected (25) women.

Whole body DXA position

- Primary exposure variable was HIV infection.
- Primary outcome was lumbar spine bone mineral density (g/cm2).
- BMD of the lumbar spine (L1- L4) (LS), total hip (TH), neck femur (NF), and whole body (WB) were measured with dual energy x-ray absorptiometry (DXA; Hologic Explorer).
- Used STATA version 13.1 to generate frequency distributions and assessed associations using logistic regression.

Results



Sample whole body DXA scan

Table 1: Baseline Characteristics of study participants by HIV Status

Characteristic (mean/ median or percent)	Total (N=179)	HIV-infected (N=154)	HIV-uninfected (N=25)	p-value
Mean age	24.1 (3.3)	24.4 (3.1)	22.3 (3.7)	0.234
Married	78 (43.6)	73 (47.4)	05 (20.0)	0.010
Secondary education not complete	107 (59.8)	99 (64.3)	08 (32.0)	0.002
Parity	1.6 (1.3)	1.8 (1.2)	0.8 (01.2)	0.582
Ever pregnant	143 (79.9)	133 (86.4)	10 (40.0)	<0.001
Cumulative lactation	20 (21 - 33)	19 (12 - 33)	22 (12 - 34)	0.299
BMI (kg/m2	24.3 (4.1)	24.5 (4.1)	23.2 (4.1)	0.949
CD4 (cells/uL)	712(383-927)	712(383-927)	N/A	N/A
BMD (g/cm2)				
Lumbar Spine	0.920(0.109)	0.915 (0.112	0.954 (0.091)	0.209
Total Hip	0.942(0.116)	0.937(0.118)	0.976 (0.102)	0.368
Neck Femur	0.851(0.121)	0.847(0.125)	0.879 (0.096)	0.124
Whole Body	0.983(0.072)	0.983(0.073)	0.988 (0.061)	0.279
Z-Score LS				
Osteoporosis	25 (14.45)	23 (15.5)	02 (8.0)	
Osteopenia	65 (37.57)	57 (38.5)	08 (32.0)	0.375
Normal	83 (47.98)	68 (45.9)	15 (60.0)	

Osteoporosis (≤-2.0SD), Osteopenia (-2.0 to -1.1 SD) , Normal (≥-1.0)

Table 2: BMD mean difference among HIV-infected and Un-infected women, g/m² (95% CI)

Body site	Crude BMD mean difference	p-value	*Adjusted mean difference	p-value
Lumbar spine	-0.040 (-0.086, -0.007)	0.953	-0.050 (-0.098, -0.003)	0.037
Total hip	-0.034 (-0.088, -0.010)	0.939	-0.050 (-0.099,-0.001)	0.044
Neck femur	-0.032 (-0.084, -0.012)	0.888	-0.0397 (-0.011,-0.091)	0.127
Whole body	-0.005 (-0.037, -0.026)	0.630	-0.014 (-0.047, -0.019)	0.392

*Adjusted for age, parity, and body mass index

Conclusions

- Relatively high proportions of low bone mineral density were observed among both HIV infected and uninfected women
- HIV infected ART naïve women had significantly lower lumbar spine and total hip mean bone mineral density compared HIV negative women.
- Primary prevention and screening for low bone mass is crucial in reducing future risk of fractures among HIV infected individuals.

The investigators gratefully acknowledge study participants, research team & funders

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MARIA IMAOBONG IBEGU

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CORRELATION OF HBsAg TITRES and HBV DNA LEVELS IN PATIENTS WITH CHRONIC HEPATITIS B INFECTION SEEN AT THE UNIVERSITY OF BENIN TEACHING HOSPITAL, BENIN CITY, NIGERIA

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BACKGROUND

Hepatitis B virus infection is a global public health problem, affecting as many as 400 million of the world's population.[1] It is increasingly becoming a major cause of morbidity and mortality in Nigeria and other developing countries, as it leads to a wide array of clinical consequences. This infection has also been shown to be the leading cause of Chronic Liver Disease in Nigeria.[2]

HBV DNA assay and HBsAg quantification are available serological markers which are useful in the management of CHB; however HBV DNA assay is much more expensive than qHBsAg and has been a drawback in the management of patients with CHB in a resource poor setting such as ours, with many patients being unable to afford it.

This study set out to identify the possibility of the HBsAg titres being a surrogate marker for HBV DNA in the course of management of patients with CHB.

OBJECTIVE

To determine the correlation between serum HBsAg titres and HBV DNA levels in our cohort of patients with chronic hepatitis B.

MATERIALS AND METHODS

A total of 178 consecutively presenting patients with Chronic hepatitis B who attended the Gastroenterology clinic were enrolled in this cross-sectional study. The diagnosis of CHB was made in patients with continuous HBsAg sero-positivity for at least 6 months, or subjects who were seropositive for HBsAg and anti-HBc (total), but seronegative for anti-HBc IgM and anti-HBs. Subjects who were not on treatment were recruited for the study, during the period of 12 months.

Patients who were co-infected with HCV and/or HIV were excluded. Patients were categorized according to the phase of CHB. Serum HBsAg titres were quantified by chemiluminescence assay, using the Elecsys HBsAg II quant assay (Roche Diagnostics) and HBV DNA concentrations determined by realtime polymerase chain reaction, using the COBAS ampli prep / COBAS Taqman (Roche diagnostics). The Spearman Correlation coefficient was used to estimate the correlation between HBsAg levels and HBV DNA. A p value of < 0.05 was taken as being statistically significant, while a strong correlation between two variables was defined at a Spearman rank correlation coefficient of 0.4 or higher.

RESULTS

Of 178 patients, 111 were male (62%) and 67 (38%) were female. The mean age of study patients was 38 ± 13 years, with the males having a mean age of 36.1 ± 11.2 and the females, 42.0 ± 14.9. One hundred and sixty-five patients (93%) were HBeAg negative, while 13 (7%) were HBeAg positive.

There was a statistically significant positive correlation between HBsAg titre and HBV DNA amongst all study patients ($r = 0.412$, $p < 0.05$). HBsAg titre correlated better with HBV DNA in HBeAg positive than HBeAg negative patients ($r = 0.551$ / $r = 0.388$, $p < 0.05$).

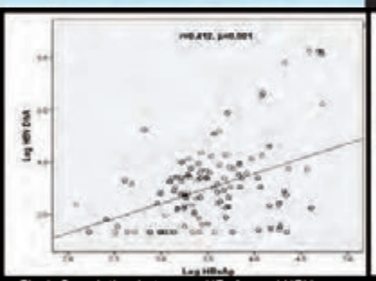

Fig 1. Correlation between qHBsAg and HBV DNA titre (HBeAg Positive and Negative)

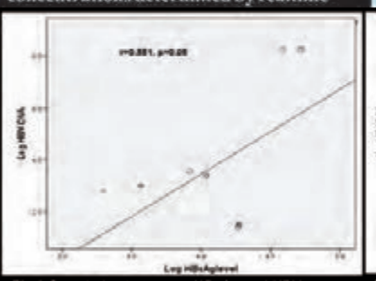

Fig 2 Correlation between qHBsAg and HBV DNA titre (HBeAg Positive patients)

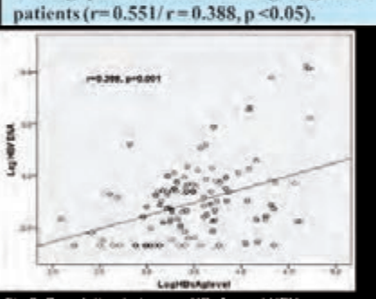

Fig 3. Correlation between qHBsAg and HBV DNA titre (HBeAg negative patients)

DISCUSSION

Several studies have investigated the correlation between serum HBsAg titres and HBV DNA concentrations, with some recent studies showing a significant positive correlation between HBsAg titres and HBV DNA concentrations across different phases of CHB.[3,4]

There was a statistically significant positive correlation between HBsAg titres and HBV DNA levels ($r = 0.412$, $p < 0.05$) in our entire study population, just as seen in several other studies.[3,5]

The correlation between HBsAg titres and HBV DNA levels are however found to become stronger, weaker, or even absent when analysing the different phase of CHB separately.

In this study, the correlation between HBsAg titres and DNA levels became strongest in the immune clearance phase ($r = 0.885$, $p = 0.046$).

The reactivation phase had a weak correlation ($r = 0.205$, $p = 0.088$), while the inactive phase showed no correlation ($r = -0.029$, $p = 0.077$). The correlation values for patients in the immune tolerant phase could not be computed due to paucity of study subjects in this phase of CHB.

Other studies by Nguyen et al[4] and Chung et al [5] ($r = 0.770$, $r = 0.773$ respectively), have also demonstrated strong correlation between HBsAg titres and HBV DNA levels in the immune clearance phase of CHB. Zeng et al[6] had similar findings ($r = 0.683$).

This finding was however not replicated in the study by Jaroszewicz et al[3] in their whole cohort of CHB patients with genotype A and D. They however found a modest correlation in the subset of study subjects with genotype D in the immune clearance phase ($r = -0.24$, $p = 0.44$ and $r = 0.46$, $p = 0.05$ for genotypes A and D respectively).

CONCLUSION

In conclusion, quantitative HBsAg titres measured using the Roche Elecsys found a positive correlation between HBsAg titres and viral load in the whole cohort of patients. There was however a stronger correlation in the HBeAg positive patients than in the HBeAg negative patients.

Quantitative HBsAg titres may be used in place of HBV DNA as a monitoring index in HBeAg positive CHB patients in a resource poor setting such as ours.

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SEROPREVALENCE OF HSV-1 AND HSV-2 AMONG WOMEN ATTENDING ROUTINE CERVICARE CLINICS IN GHANA

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Introduction

Herpes simplex virus infection is a global health concern. Herpes simplex virus has been characterized into two distinct serotypes: **HSV-1** (associated with orofacial infections) and **HSV-2** (associated with genital infections). Sixty to ninety five percent of mature humans are either carrying HSV viruses or are affected by associated diseases which are usually present in the host as latent infections. The large majority of persons with herpes do not know they have the disease.

Both types are highly infectious and can be transmitted from mother to the neonates and increase the mortality rate. Infection with HSV-2 increases the risk of HIV and HPV acquisition, and in association with HPV infection increase the risk of invasive cervical cancer. Estimation of the burden of infection is important in appreciating the scale of the epidemic. Although, HSV infection is not curable, there are effective medications available to treat symptoms and prevent outbreaks. Unfortunately, no vaccine exist to prevent infection of the disease. The data on prevalence of HSV infection in Ghana is very scarce.

Aim

To provide relevant and up-to-date data on sero-prevalence of HSV-1 and HSV-2 infection and associated risk factors among women attending routine cervicare clinics in Ghana so as to address health policy issues on the infection.

Method

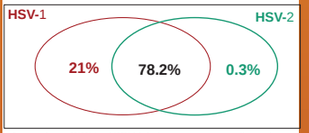
A cross-sectional descriptive study, in which **380** women attending the Cervicare clinics at Regional Hospitals in Kumasi and Accra, Ghana were enrolled. No observable symptoms of cervical ulcers were present among subjects at the time of gynecological examination and no subject with orofacial ulcer was recruited into the study.

The serum HSV-1 IgG and HSV-2 IgG were determined by ELISA method (Calbiotech Inc., CA, USA). The SPSS version 22 was used for statistical calculations. Statistical significance was accepted for p<0.05.

Results

The study showed that HSV-1 sero-prevalence among women were **99.2%** (95% CI: 98.0% - 100.0%) where for HSV-2 were **78.4%** (95% CI: 74.5% - 81.8%).

The cross-positive prevalence of HSV-1 and HSV-2 of study participants was **78.2%** (95% CI: 73.9% – 81.6%).



Seroprevalence of HSV-1 and HSV-2 infection among women attending cervicare clinics in Ghana

Table 1.Study population behavioral factors and sero-prevalence of HSV

Characteristic	No. (%)	Prevalence of HSV: HSV 1 (N, %)	HSV 2 (N, %)	Both (N, %)
Age of coitarche (years)				
≤ 15	28 (7.4)	28 (7.4)	23 (6.1)	23 (6.1)
16 - 20	192 (50.5)	192 (50.5)	157 (41.3)	157 (41.3)
21 - 25	53 (13.9)	51 (13.4)	38 (10.0)	38 (10.0)
≥ 26	24 (6.3)	24 (6.3)	13 (3.4)	13 (3.4)
Do not remember	83 (21.8)	82 (21.6)	67 (17.6)	66 (17.4)
p-value		0.086	0.021	0.004
Number of life time sex partners				
1	155 (40.8)	154 (40.5)	110 (28.9)	110 (28.9)
2	91 (23.9)	90 (23.7)	73 (19.2)	73 (19.2)
3-9	127 (33.4)	126 (33.2)	109 (28.7)	108 (28.4)
10+	7 (1.8)	7 (1.8)	6 (1.6)	6 (1.6)
p-value		0.976	0.022	0.137

The mean age of participants was **40.83** years (SD ± 11.12). The age group from 25 to 44 years was the most represented (63.2%). Herpes infection increase with age. Our study showed that there was no correlation between age and HSV-1 and HSV-2 (p=0.799 and p= 0.895 respectively).

Majority of the participants were married (58.7%). The literacy among the women were very high (91.1%), among which educated up to the tertiary level were 22.6 % and up to primary- 11.6%.

There was significant differences between number of life sex partners and the prevalence of HSV-2 (p=0.022) (Table 1). The higher proportion of women (57.9%) had the first sexual relationship before 20 years. The study showed that the prevalence of HSV-2 decreased as the age at coitarche increased. This association was statistically significant (p=0.021). Multiple infection was associated with age of first sexual debut (p=0.004), but not with multiple sexual partners (p=0.137).

Discussion

The present study is the first report of sero-prevalence of HSV-1 among women in Ghana. The high prevalence of this infection (fig. 1) is not surprising. In 2012, the WHO 2012 reported a global prevalence of HSV-1 of 68%, with the highest prevalence in Africa (87%) (Looker et al., 2012a). Our findings on HSV-1 infection is similar to those reported on some African countries. A study conducted among urban women in Uganda and among pregnant women in Benin city of Nigeria also showed very high prevalence of HSV-1 infection 98% and 96.6% respectively (Nakku-Joloba et al., 2014; Iche, 2013). Prevalence of HSV-1 infection among pregnant women in Vanuatu was 100% (Haddow et al., 2001).

In the case of HSV-2 infection our findings is consistent with a few previous studies done in Africa (LeGoff et al., 2008; Kwofie et al., 2015). Those studies focused on a small series of participants. One of the studies showed a sero-prevalence of HSV-2 infection among women attending STD clinics in Accra and Kumasi (Ghana) of 71% (n=278) (LeGoff et al., 2008).

The other study conducted at KBTH in Ghana among 91 pregnant women also reported a high prevalence of HSV-2 (68%) which similar to our findings. WHO worldwide prevalence of HSV-2 infection was estimated to be 11.3% and highest was in Africa (31.5%) (Kwofie et al., 2015).

The prevalence of HSV-2 in this study was higher compared to the prevalence with other African countries. The prevalence of infection among women was 58% in Uganda, 68% in Zimbabwe, 55% in Zambia and 28% in Gambia (Nakku-Joloba et al., 2014). A study conducted in Sudan among pregnant women reported a prevalence rate of 34.6% for HSV-2 infection and 20.7 % in Tanzania. Two independent studies from Nigeria reported lower sero-prevalence of HSV-2 infection among pregnant women, 44.3% and 47.3% (Iche, 2013; Kalu et al., 2014). However, higher prevalence rate was found among pregnant women in Cote D'ivoire -96.5%. The high prevalence of HSV-2 infection of this study could be due to the high transmission of the virus. The lack of awareness of some viral infections among the population and environmental factors could also be contributed factors.

The sexual behavioral factors associated with HSV-2 were young age at sexual debut and multiple sexual partners. Other research supports our findings that earlier age of sexual intercourse is associated with prevalence of HSV-2 infection. Early research works done in USA and Sweden showed that the early age at first sexual exposure was associated with STD and cervical atypia.

Conclusion

The prevalence of HSV-1 and HSV-2 among the women attending the Cervicare clinics in Accra and Kumasi, the two major cities in Ghana was high. The high estimate of HSV infection highlights the critical need for development of vaccines, microbicides, and other new HSV prevention strategies.

The major observed factor found to be associated with sero-prevalence of HSV-2 was age at coitarche and number of life time sexual partners. Public health concern must be geared towards educating women on herpes infection and mode of transmission.

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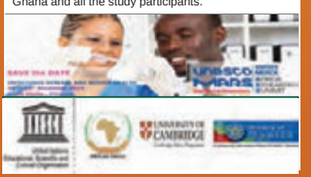

OLLIEMATTOU SAGNIA

High Fecal Carriage of Antibiotic Resistant *Enterobacteriaceae* Strains among Food Handlers in the West Coast Region of The Gambia

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Background

The introduction and development of sophisticated antibiotics, has triggered the emergence of multi drug resistance (MDR) among bacterial pathogens, mainly owing to the production of β-lactamase enzymes. Rapidly emerging β-lactamases include diverse ESBL, AmpC β-lactamases, and carbapenem-hydrolyzing β-lactamases. Studies have shown *Klebsiella pneumoniae* and *Escherichia coli* to be the most common producers of resistant genes. Limited discovery of antibiotics makes this phenomenon a major public health threat. The study evaluated the fecal carriage rate of multidrug resistant *Enterobacteriaceae* strains among food handlers.

Fig. 1 Field worker administering a questionnaire

Fig. 2 Lab scientists culturing samples on drigalski agar

Fig. 2 Sample in peptone water prior to culturing

Methods

- **600** participants were enrolled but only 565 participants with complete data set were selected
- Stool samples were homogenized in enrichment media (**peptone water)** and streaked on chromogenic agar (**Drigalski agar & 2mg cefotaxime)** to screen for resistance.
- Bacterial susceptibility of isolates to other classes of antibiotics was determined by **double disk diffusion method**.
- Resistant strains were identified using **Api 20E system**
- Data was analyzed using SPSS and Epi Info.

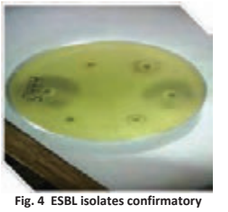
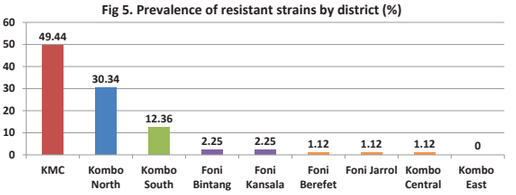


Fig. 4 ESBL isolates confirmatory tests

Fig 5. Prevalence of resistant strains by district (%)



Results

- Prevalence rate of MDR was measured at **15.8%**
- Prevalence was highest in the cosmopolitan district of KMC (**49.44%)**
- **23 genuses and 89 species** of resistant strains were isolated.
- Majority of the identified strains were ***Enterobacter aerogene*** (13.5%), ***Klebsiella pneumoniea*** (13.5%) and ***Escherichia coli*** (9%)
- **ESBL, AmpC** and **carbapenemase** production was **20.22%, 46.07%** and **15.17%**, respectively.

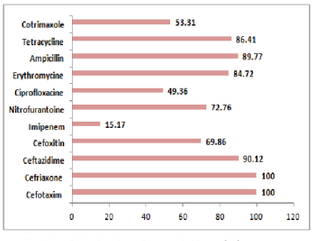


Fig. 6 Antibiotic Resistance Pattern (%)

Discussion

- The study confirms the presence of MDR *Enterobacteriaceae* strains among carriers in the country and in the subregion
- ***K. pneumoniae*** and ***E. coli*** were among the most dominant strains which studies confirm to be the main causative agents of UTI. ***E. aerogenes*** strains were also dominant though intrinsically resistant
- Isolation of highly multi resistant ***Salmonella*** among food handlers poses a great threat to the food industry

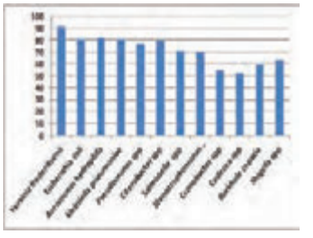


Fig. 7 Resistance pattern of isolates (%)

Conclusion

The study concludes that the high burden of MDR among food handlers is associated with irrational use of antibiotics, bad health seeking behaviors and lack of food safety knowledge. Therefore there is need to screen and educate food handlers on food safety measures.

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SAIMONI ELIAMEN AMANI

MERK AFRIKA RESEARCH SUMMIT 2016

ASSESMENT OF URINARY SCHISTOSOMISIS PREVALENCE IN SCHOOL CHILDREN AGED BETWEEN 6 TO 17YEARS. A CASE STUDY OF NGAITI VILLAGE IN MANYONI DISTRICT / SINGIDA REGION IN TANZANIA.

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INTRODUCTION

Schistosomiasis is endemic in seventy five countries affecting more than 200 million people mostly those living in rural and agricultural areas near the water reservoir. Schistosomiasis causes long-term illness and significant economic burden. The available evidence indicates that, urinary schistosomiasis are still highly endemic in Tanzania and cause significant morbidity. Mass drug administration using praziquantel, currently used as a key intervention measure, has not been successful in decreasing prevalence (persistent rate) of urinary schistosomiasis among school children at Ngaiti village in Manyoni district,Singida region .

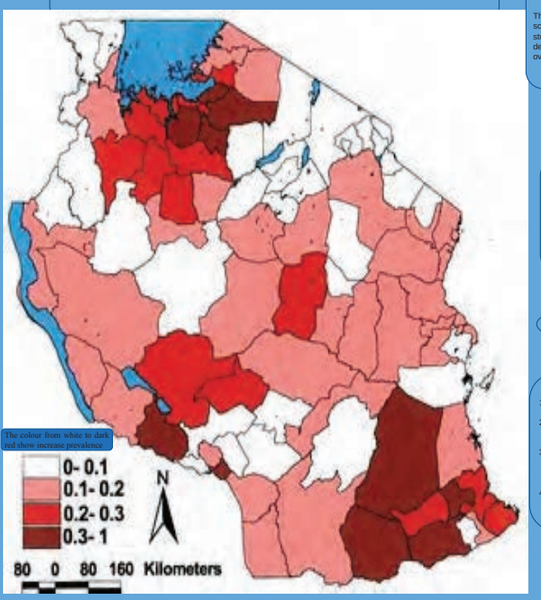
METHODS

A cross sectional study was conducted among primary school children at Ngaiti village in Manyoni district-Singida region .A multi stage random sampling techniques was conducted to select the name of one village out of three villages of mvumi ward, one primary school was selected and 217 pupils participated in the study.

0BJECTIVES

1. Find out the prevalence of urinary schistosomiasis among school children, aged between 6 to 17 years at Ngaiti in Manyoni district.
2. To identify possible risk factors that may be associated with high persistence rate of urinary schistosomiasis at Ngaiti village.
3. To explore social, domestic and economic activities that may predispose school children from acquiring urinary schistosomiasis.
4. .To determine the incidence and magnitude of urinary schistosomiasis in school children at Ngaiti village in Manyoni district. .

MAP SHOWING DISTRIBUTION OF URINARY SCHISTOSOMIASIS IN TANZANIA .



CONCLUSION

The study draws attention to the health hazards posed by urinary schistosomiasis among school children in the studied area and how the student perceive about urinary schostosomiasisi. The urgent need for a decisive control intervention to stem this problem cannot be overemphasized .

LIMITATION

1. Inability to attain the minimum required sample size was of the limitations of the study.
2. Another major limitation was lack of financial support to aid this study including data collection and data analysis.
3. Some pupils were reluctant to participate in the study.
4. Also some pupils were not able to read and write

RECOMMENDATION

1. Financial support in order to carry out research which can cover a whole district or national wise .
2. Promoting the pupils to attend mass health education classes in schools will create awareness among them and thus avoid risk behaviors that may predispose them from acquiring the infection.
3. Community participation in providing health education to children while at home and frequent mass drug administration of Praziquantel to reduce or eradicate the transmission of the disease are very important.
4. The research to be carried out in whole district and national wise in order to find out the actual situation of urinary schostosomiasis and made an intervention..

RESULTS

An overall prevalence of 41.5 % (90 pupils) of schistosomiasis was observed among the 217 children who participated in the study. Males had statistically higher prevalence rate than females. Student had low knowledge and wrong perception about schistosomiasis only 50% had understand about schostosomiasis while other percept haematuria (blood in urine) like menstrual blood flow(26.7%) ,witchcraft(4.6%) and 45% reported other causes, . The significant difference was observed between the different classes, class (standard) three had higher prevalence than all classes e.g. class four, class five class six and class seven. Children that played/bathed and collected fresh water snails had higher risks of infection with urinary schistosomiasis in the area.Among 217 student about 117(55.7%) had experienced blood in urine. Also the result showed that 173(79.7%) student had affected by schostosomiasis.And only 17.1% of student had taken the preziquetil past 6 month while 82.9% did not take the preziquentil as prophlaxisis of schostosomiasis..Due to this factors might be the cause of high prevalence of urinary schosomiasis of about 41.5% of primary school children in Ngaiti village in Manyoni District.

JOIN ME TO FIGHT AGAIST SCHOSTOSOMIASIS

SALSABIL HAMDI

Knowledge of Human Papillomavirus and Acceptability to Vaccinate in Adolescents and Young Adults of the Moroccan Population

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Abstract

Study Objective: Human papillomavirus (HPV) infection is estimated to play an etiologic role in 99.7% of cervical cancer. Vaccines can prevent up to 70% of the cervical cancer caused by HPV 16 and 18. The present study was designed to define the knowledge of HPV and HPV vaccine acceptability among Moroccan youth.

Design, Setting, Participants, Interventions, and Main Outcome Measures: A nationwide anonymous questionnaire with a sample of 688 adolescents (12-17 years) and 356 young adults (18-30 years) was organized, that asked about HPV, origin of cervical cancer, Papanicolaou (Pap) test, and acceptability of HPV vaccine. Data were analyzed using univariate and multivariate logistic regression methods.

Results: Overall, a low frequency (213/1044 5 20%) of HPV knowledge was observed among the studied population. A multivariate model analysis showed that age, educational level, and knowledge of the Pap test remained significantly associated factors with HPV knowledge. Additionally, only 27% (282/1044) of participants were willing to accept HPV vaccination. Highest acceptability was observed among young adults compared with adolescents (166/356 5 46.6% vs 116/688 5 16.9%). Sixty-two percent (103/165) of male participants accepted the HPV vaccine compared with only 20.4% (179/879) of female participants. Educational level, type of school, and knowledge of the Pap test were associated factors with HPV vaccine acceptability in a multivariate model analysis.

Conclusion: The present study showed a low level of HPV knowledge and HPV vaccine acceptability among Moroccan youth. Promotion of activities and sensitization are required to maximize public awareness in the future. This objective can be achieved with the use of media, active efforts by health care providers, and introduction of sexual education in school programs.

Key Words: Human papillomavirus vaccine, Adolescents, Knowledge, Acceptability

INTRODUCTION

Cervical cancer (CxCa) rates third as the most common cause of cancer among women worldwide. Human papillomavirus (HPV) is estimated to play an etiologic role in 99.7% of CxCa worldwide. More than 70% of these cancers are caused by HPV 16 and HPV 18 genotypes [1].

In Morocco, CxCa is considered a major public health problem and it is the second most common cancer among women after breast cancer with approximately 2258 new cases and 1076 deaths each year [2]. The incidence of CxCa could be much higher than reported, because published data are limited to a number of cases registered in some oncology centers in the absence of a national cancer registry [3]. The initiation of a National Cancer Control Plan was implemented in 2010, to start organized screening programs for CxCa detection [4].

Two prophylactic HPV vaccines, Gardasil (Merck & Co, White House Station, NJ) and Cervarix (GlaxoSmithKline Biologicals, Rixensart, Belgium) were approved in the United States and Europe, respectively, and have been introduced in more than 100 countries worldwide to offer protection against HPV types 16 and 18, which are responsible for most CxCa [2]. The HPV vaccine has been licensed in Morocco since 2008 to reduce the incidence of HPV. The HPV vaccine cost approximately $147 US (price of 3-dose) constitutes approximately half a month's income for 40% of Moroccan families. In the absence of any state funded vaccination program, it is beyond the means of many people [5].

To date, there is an absence of data regarding the overall awareness of HPV and the acceptance of the HPV vaccine among adolescents and young adults aged 12-30 years in Morocco. Despite the high prevalence of HPV infection among Moroccan women and the availability of a prophylactic HPV vaccine, we expected a low level of HPV awareness and vaccine acceptability among adolescents and young adults because of socioreligious and cultural barriers, and non introduction of the vaccine in the Expanded Program on Immunization. The present study was designed to outline the HPV knowledge level, the acceptance of HPV vaccine, and factors associated with them among adolescents and young adults in Morocco.

Materials and Methods

Study Participants: 1290 unmarried subjects aged 12-30 years selected randomly from schools and work or universities.

Study Instruments: Two methods were adopted to collect data : face to face interviews and completion of an electronic version of the questionnaire. Participants were interviewed about their sociodemographic and cultural data. The knowledge and the acceptability of HPV and HPV vaccine was also assessed.

Statistical Analyses: The relation between HPV knowledge, acceptability of the HPV vaccine, and the possible associated factors were evaluated. All variables for which a P value of <0.05 was obtained in the univariate analysis were included in the multivariate logistic model.

Conclusion

Our findings show a low level of HPV knowledge and acceptance of the vaccine among Moroccan youth. There is an urgent need to inform the Moroccan population about HPV risks and the HPV vaccine. Thus, activities to promote vaccine acceptance and awareness of HPV are required and can be achieved using media and introduction of health education in scholarly programs to maximize public awareness of CxCa prevention.

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Results

Table 1: Demographic and Cultural Variables among Adolescents and Young Adults

Variables	Adolescents Effective n P (%)	Young adults Effective n P (%)
Gender		
Male	65 (9.4)	100 (28.1)
Female	623 (90.6)	256 (71.9)
Age	16.01	25.39
School		
Private	30 (4.4)	92 (25.8)
Public	658 (95.6)	264 (74.2)
Educational level		
Secondary	542 (78.8)	168 (47.2)
High school	146 (21.2)	188 (52.8)
Heard of HPV		
Yes	93 (13.5)	120 (33.7)
No	595 (86.5)	236 (66.3)
Origin of cervical cancer		
Yes	88 (12.8)	102 (28.7)
No	600 (87.2)	254 (71.3)
HPV infected males and females*		
Yes	58 (62.3)	54 (45)
No	35 (37.7)	66 (55)
Heard of Pap test		
Yes	72 (10.5)	74 (20.8)
No	616 (89.5)	282 (79.2)
HPV prophylactic vaccine exist*		
Yes	65 (69.9)	80 (66.6)
No	28 (30.1)	40 (33.4)
Accepted the vaccination against HPV		
Yes	116 (16.9)	166 (46.6)
No	572 (83.1)	190 (53.4)
Parents recommended vaccination against HPV*		
Yes	14 (15.1)	2 (1.6)
No	79 (84.9)	118 (98.4)

Table 2: Positive Answers About HPV Knowledge and Vaccine Acceptability on the Basis of Variables among all Participants

	Knowledge N %	Acceptability N %
Gender		
Male	61 (36.9)	103(62.4)
Female	152(17.3)	179 (20.4)
Age		
Adolescent	93(13.5)	116(16.9)
Young Adult	120(33.7)	166(46.6)
School		
Private	29(23.7)	56(45.9)
Public	184(19.9)	226(24.5)
Educational level		
Secondary	20(2.8)	76(10.7)
High school	193(57.7)	206(61.7)
Origin of cervical cancer		
Yes	175(92.1)	120(63.2)
No	38(4.4)	162(19)
Heard of Pap test		
Yes	111(76)	100(68.5)
No	102(11.3)	182(20.3)
HPV knowledge		
Yes	-	132(62)
No	-	150(18.1)

- HPV:Human papillomavirus, Pap: Papanicolaou
- Data are given as n (%).
- The percentage was calculated only for the participants who had knowledge of HPV.

Table 3: HPV Knowledge among Moroccan Youth (Adolescent & Young Adults; N 5 1044)

Age								
Adolescent	688	65.9	1			1		
Young adults	356	34.1	3.253	2.386-4.435	<0.001	2.073	1.108-3.879	**0.023**
Gender								
Female	879	84.2	1					
Male	165	15.8	2.805	1.955-4.026	<0.001			
School								
Public	922	88.3	1					
Private	122	11.7	1.251	0.800 -1.956	0.327			
Educational level								
Secondary	910	68	1			1		
High school	334	32	47.223	28.793-77.451	<0.001	21.008	10.262-43.008	**<0.001**
Origin of cervical cancer								
Yes	190	18.2	250.526	134.829-465.503	<0.001	131.602	64.382-269.007	**<0.001**
No	854	81.8	1			1		
Heard of Pap test								
Yes	146	14	24.750	16.063-38.133	< 0.001			
No	898	86	1					

Table 4 HPV Acceptability of Vaccine among Moroccan Youth (Adolescent & Young Adults; N 5 1044)

Variable	Effective Number	%	Univariate analysis OR	(95%CI)	*p*-Value	Multivariate analysis OR	(95%CI)	*p*-Value
Age								
Adolescent	688	65.9	1			1		
Young adults	356	34.1	4.308	3.229-5.749	<0.001	1.906	1.321-2.751	**0.001**
Gender								
Female	879	84.2	1			1		
Male	165	15.8	6.497	4.554-9.268	<0.001	3.092	2.051-4.662	**<0.001**
School								
Public	922	88.3	1			1		
Private	122	11.7	2.613	1.776 -3.846	<0.001	3.994	2.390-6.675	**<0.001**
Educational level								
Secondary	910	68	1			1		
High school	334	32	13.426	9.706-18.571	<0.001	9.537	6.141-14.812	**<0.001**
Origin of cervical cancer								
Yes	190	18.2	7.323	5.208-10.296	<0.001			
No	854	81.8	1					
Heard of Pap test								
Yes	146	14	8.552	5.818-12.571	< 0.001	2.092	1.299-3.368	**0.002**
No	898	86	1					
Heard of HPV								
Yes	213	20.4	7.399	5.328-10.274	< 0.001			
No	831	79.6	1					

SAMUEL IFEDIORANMA OGENYI

Merck Foundation

2nd UNESCO-Merck Africa Research Summit
28th and 29th November 2016
Addis Ababa, Ethiopia

Prevalence and distribution pattern of cervical epithelial dysplasia amongst HIV sero- positive pregnant mothers attending the prevention from mother to child transmission (PMTCT) clinic at Nnamdi Azikiwe University Teaching Hospital Nnewi-Nigeria

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ABSTRACT

Cervical epithelial dysplasia refers to abnormal changes in the epithelial cells of the cervix. These abnormal cells are premalignant cells and could transform to cervical cancer if not detected and treated. Most often, cervical epithelial dysplasia is caused by infection with human papillomavirus (HPV). Risk factors include individuals who had sex before the age of 16 years, multiple sexual partners and HIV sero-positivity. Early detection through regular Pap smear tests enables early intervention which may reverse progression to malignant lesion. Prevalence and distribution pattern of cervical epithelial dysplasia amongst HIV sero- positive pregnant mothers attending the prevention from mother to child transmission (PMTCT) clinic at Nnamdi Azikiwe University Teaching Hospital Nnewi was determined. Fifty nine subjects (59) with no history of malignancy were recruited by simple random sampling. Questionnaire aimed at elucidating the bio-demographic and risk factor data was administered to each participant, who read and signed informed consent forms. Cervical smears were obtained by scraping the transformation zone of the cervix, using wooden Ayre spatula. Monolayer smears were made on pre-labelled slides and immediately inserted into jars of 95% ethyl alcohol fixative for 15 minutes. The smears were stained by Papanicolaou staining method and each slide examined under optical microscope. The cytomorphologic pattern was based on the Bethesda reporting system. Results obtained showed epithelial cell dysplasia in 79.5% of the smears. Atypical cells of undetermined significance (ASCUS) were 22.8%, atypical squamous cells (cannot rule out high grade squamous intraepithelial lesions) (ASC-H) were 12.9%, low grade squamous intraepithelial lesions (LSIL) were 23.7% and high-grade squamous intraepithelial lesions (HSIL) were 21.8%. Mean age of patients with diagnosis of LSIL and ASC-H was 31years and that in HSIL was 38 years. Majority of patients diagnosed with HSIL were in their third trimester of pregnancy and 53% of them had multiple sexual partners prior to marriage, hence establishing positive association between multiple sexual partners and cervical epithelial cell dysplasia. This study shows high prevalence of cervical epithelial dysplasia amongst the study population. Therefore, regular Pap smear test for HIV sero-positive pregnant mothers and non positive mothers alike is recommended.

Key Words: Dysplasia, Sero-positive, Bethesda, Cervix, Papanicolaou

INTRODUCTION

Cervical cancer is the most prevalent cancer of the female genital tract and one of the leading causes of mortality amongst the female population [1]. The author also reported that it is the fifth common cancers worldwide with 80% of affected population found in developing countries. It is the most common cancer of the Nigerian female population, with an incidence of 250/100,000 [1, 2]. The high incidence of course is due to lack of screening programme and early intervention of any sort. Invasive cervical cancer is a progression from premalignant stages called cervical epithelial cell dysplasia. Cervical epithelial dysplasia refers to abnormal changes in the epithelial cells of the cervix most often caused by infection with human papilloma virus (HPV). Possible risk factors of cervical dysplasia include, sex at early age (below 16 years), infection with HPV and immune suppression. Early intervention, through detection by cervical smear screening, possibly prevents progression from cervical dysplasia to invasive cancer. This study was aimed at elucidating the prevalence and distribution pattern of cervical epithelial cell dysplasia amongst this high risk study group.

Materials and Methods

Study Site: The study was carried out at Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi-Nigeria.

Study Design: This is a cross sectional study.

Study Population/Subject Recruitment: The study population comprised of HIV sero positive pregnant mothers attending Prevention from Mother to Child Transmission (PMTCT) clinic of NAUTH Nnewi. Fifty nine (59) volunteers were randomly selected. The minimum sample size was determined by Yaro Yamane formula according to Ogenyi et al., [3]. Ethical approval was obtained from the Ethics Committee of Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi-Nigeria. Written informed consent of each participant was sought and obtained.

Sample Collection:

Blood: Two milliliters (2ml) of venous blood was collected from each subject into ethylene diamine tetraacetic acid (EDTA) bottles. The blood samples were tested to confirm HIV sero positivity using the National HIV testing algorithm [4].

Cervical Smear: Cervical smear of each participant was collected, processed and reported by a method described by Ogenyi et al., [3].

Results

Cervical epithelial cell dysplasia of varied grades was observed in 79.5% (32) of the subjects while 20.5% (19) showed normal cells (Figure 1). Fifty three percent (53%) of subjects with high grade lesion (HSIL) had multiple sex partners prior to marriage (Figure 2).

The morphologies of the cells are as shown in figure 3.

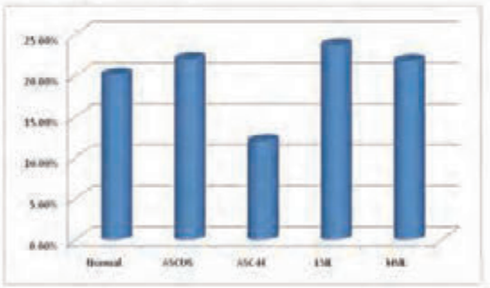

Figure 1: Distribution pattern of cervical epithelial dysplasia amongst the study group

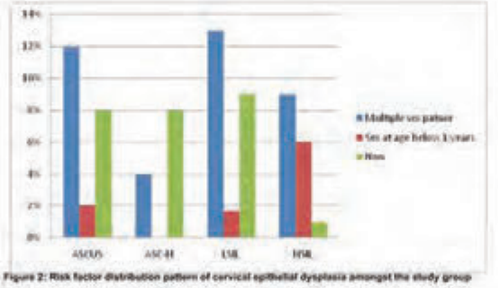

Figure 2: Risk factor distribution pattern of cervical epithelial dysplasia amongst the study group

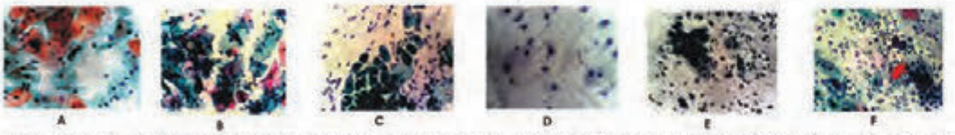

Figure 3 (A-F): Morphological pattern of cervical epithelial dysplasia amongst the study group (PAP X 400) (A): Normal, (B): ASCUS, (C): ASC-H, (D): LSIL, (E&F): HSIL

Discussion

The paucity of report in the Prevalence and distribution pattern of cervical epithelial dysplasia amongst HIV sero- positive pregnant mothers is obvious. The high prevalence of cervical epithelial dysplasia amongst the study group agrees with studies of other researchers (1). Cervical cell dysplasia is considered a premalignant cervical lesion, most often progressing to invasive cancer if not treated. This therefore, reveals the vulnerability of HIV sero positive pregnant mothers to cervical cancer. It may also be deduced from this study immune- suppression and multiple sexual partners are high risk factors of cervical epithelial dysplasia vis-à-vis cervical cancer.

Conclusion

Sequel to the findings of this study, one could conclude that this already troubled population are at high risk of developing cervical cancer. Therefore, regular Pap smear test for HIV sero- positive pregnant mothers and non positive mothers alike is recommended, for prompt detection pre malignant lesions and intervention.

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SUZANNE HIPPOLITE MAGAGOUM

Effects of malaria infection at delivery on the profile of two biomarkers of the immune response in women living in Yaoundé, Cameroon.

Presented at the UNESCO-Merck African Research Summit, 2016. Venue Addis Ababa, Ethiopia.

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Introduction /background:

❖ *Plasmodium falciparum* infected erythrocytes (IEs) in pregnant women can be sequestered in the placenta and this leads to placental malaria which might endanger the both mother and foetus lives [1], [2], [3].

❖ The sequestration of these infected erytrocytes in the placenta tissu would be at the origin of imbalance of the secretion's profil of chemokines and cytokines at this site.

❖ Chemokine CXCL-10 has the particularity to act mainly on the T helper cells 1 by attracting them on the infected sites [4] and, Interleukin IL-19 stimulates the production of T helpers cells 2 which down regulate the exaggerate action of pro inflammatory cytokines [5].

Aims:

This study aimed to determine the effects of the chemokine CXCL-10 and the cytokine IL-19 in the pathogenesis of placental malaria.

Methods:

- After obtaining an Ethical Clearance, peripheral and placental blood and, a biopsy of placental tissue (for impression smear) were collected just after delivery from 140 women (infected or no).
- Parasitemia and leukocyte differential counts were determined microscopically, and Hemoglobin levels were measured with Hemocue.
- Plasma concentrations of CXCL-10 and IL-19 were measured by ELISA method.
- Statistical analysis was performed using Sigma Stat software and the difference was significant for $P < 0,05$.

Results :

➢ The proportion of pregnant women at delivery who had placental malaria was 19.3 %.

➢ **About CXCL-10**

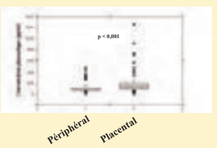

Figure 1 :Comparison between plasmatic peripheral and placental level of CXCL-10.

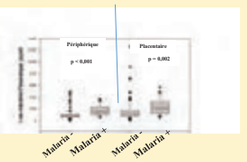

Figure 2: Peripheral and placental levels of CXCL-10 were significantly higher in the infected women than the non-infected.

Some placental leukocytes	CXCL-10			
	Peripheral		Placental	
	rs	Valeur de P	rs	Valeur de P
Monocytes impression	0,19	0,02	0,17	0,04
Lymphocytes impression	0,25	0,03	0,09	0,24
Neutrophiles impression	- 0,37	<0,001	-0,20	0,02

Correlation between some placental leukocytes and CXCL-10

➢ **About IL-19**: There was no significant relationship between IL-19 levels and malaria infection and leukocytes count, although its level was higher in placenta than peripheral plasma, it was not significant (p=0.54).

Conclusion:

These results suggest that the chemotactic effect of chemokine CXCL-10 might lead to the protection of mothers living in Yaoundé against the pathogenesis of this disease through the attraction of monocytes and lymphocytes into the placenta. For more information, see Megnekou et al., 2015. Acta tropica.

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Acknowledgment: We thanks:

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- All the women who participated by giving the sample. Great thank to them;
- Institute of Medical Research and Medicinal Plant Studies (IMPM), Cameroon. For partial financial support.

TAMEGNON VICTORIEN DOUGNON

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UNESCO-MERCK AFRICA RESEARCH SUMMIT, 28-29 NOVEMBER 2016 • ETHIOPIA

EPIDEMIOLOGICAL PROFILE AND DETERMINANTS OF HIV INFECTION AMONG BENINESE PRISONERS (WEST AFRICA)

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BACKGROUND & OBJECTIVE: Existing HIV control programs and public awareness campaigns do not always involve all the exposed populations. Prisoners constitute a marginalized population at risk of AIDS. This study aimed to determine risk factors that encourage the transmission of HIV in civil prisons of Benin

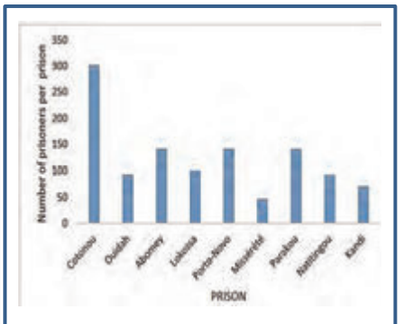
STUDY AREA: 9 prisons of Benin: Abomey, Cotonou, Kandi, Lokossa, Misserete, Natitingou, Parakou, Porto-Novo and Ouidah

DATA COLLECTION:
- One-on-one interviews using semi-structured questionnaire (1209 prisoners)
- Blood sampling for HIV screening test (1211 prisoners)

RESULTS & DISCUSSION

The youngest prisoner was 12 years old and the eldest 90. Most of them are male (83.8%) and almost all of them have never gone to University (92.9% [n=652]). The prevalence of HIV infection in prisons is estimated at 2.9% with95% CI [1.9 – 4.0]. The incarceration rate per Department ranges from 77 to 202 per 100,000 inhabitants. ¾ HIV infected prisoners are more than 24 years old; this shows that the youth remains the most exposed stratum to HIV infection

Public Prisons	Frequency	HIV +	HIV Prevalence (%)
Cotonou	302	7	2.3
Ouidah	94	2	2.1
Abomey	142	7	4.9
Lokossa	101	1	1.0
Porto-Novo	142	6	4.2
Missérété	47	1	2.1
Parakou	141	6	4.3
Natitingou	91	2	2.2
Kandi	71	1	1.4
Total	1133	33	2.9



CONCLUSION

There are poor and overcrowded incarceration conditions in Benin that represent important risk factors of HIV infection among prisoners. The prevalence of HIV was 2.9% and higher than the one of the general population. Particular attention need to be paid to prisoners that are at high risk of HIV infection

TEGWINDE REBECA COMPAORE

Merck Foundation

2nd UNESCO-Merck Africa Research Summit,
November, 28th and 29th 2016, Addis Ababa, Ethiopia

HBV/HIV co-infection and APOBEC3G polymorphisms in a population from Burkina Faso

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Background: Apolipoprotein B mRNA editing enzyme catalytic polypeptide-like 3G (APOBEC3G) is a potent host defense factor, which interferes with HIV-1 and HBV. Our study had three objectives, to screen a population of HIV-1 infected and uninfected patients in Burkina Faso for HBV, to screen the population for APOBEC3G variants rs6001417, rs8177832, and rs35228531 previously described, and to analyze the effect of these three variants and their haplotypes on HIV-1/HBV co-infection in Burkina Faso.

Methods: HBV detection was performed on samples from HIV-1 infected and uninfected subjects using rapid detection tests and real-time PCR. APOBEC3G genotyping was done by the TaqMan allelic discrimination method. Fisher Exact test, Odds ratio (OR), confidence intervals (CI) at 95%, Linkage disequilibrium (LD) summary statistics and haplotype frequencies were calculated.

Results: The prevalence of HBV was 56.7% among HIV-1 positive patients of our study while it was about 12.8% among HIV-1 seronegative subjects. Genotype E was the genotype of HBV present in our hepatitis B positive samples. Minor allele frequencies of rs6001417, rs8177832, and rs35228531 were higher in seronegative subjects. The T minor allele of variant rs35228531 was protective against HIV-1/HBV co-infection with OR = 0.61, 95% CI (0.42-0.90), p=0.013. There was also an association between the GGT haplotype and protection against HIV-1/HBV co-infection, OR= 0.57, 95% CI (0.33-0.99), p=0.050. There minor allele T of the rs35228531 was protective against HIV mono-infection OR=0.53, 95% CI (0.3 – 0.93), p=0.030. But there was no effect of protection against HBV mono-infection.

Conclusion: APOBEC3G through its variants rs6001417, rs8177832, and rs35228531, in this study interferes with HIV-1/HBV co-infection. The ladder could be due the HIV-1 mono-infection in a population from Burkina Faso.

Fig 1. *SaCycler-96 Real-time PCR (Sacace Biotechnologies, Italy)*

Table I : Study participants' baselines data

	HIV(+)/HBV(+)	HIV(+)	HBV(+)	HIV(-)/ HBV(-)
	n=85	(n=35)	(n=65)	n=239
Detectable HBV Viral Load	35	-	20	-
Mean HIV-1 Viral Loads	65,963.68 +/- 20,2480	6,758.13+/- 30368.61	-	-
Mean CD4 counts	423.45 +/-300.33	375.12 +/- 277,20	N/A	N/A
HBV genotypes E n (%)	100	-	100	-

a. VHB+/VIH+ b. Control

Fig 2. *Linkage desequilibrium of 3 variants of APOBEC3G of cases and control*

Table II: Haplotypes of HIV/HBV+ cases and controls

	HIV(+)/HBV(+)	HIV(-)/HBV(-)	OR	CI	p-Value
CAC	0.54	0.51	1.27	0.77 - 2.1	0.38
GGC	0.11	0.11	1.45	0.62 - 3.73	0.37
GGT	0.27	0.31	0.57	0.33 - 0.99	0.05
CGC	0.04	0.02	2.15	0.47 - 9.81	0.40
GAT	0.02	0.02	1.41	0.25 - 7.87	0.65
GAC	0.01	0.01	0.94	0.1 - 9.1	1

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Malaria in pregnancy:A case of Ruhengeri district hospital in Rwanda

Umuhoza Alice
University of Rwanda
College of medicine and sciences

Background

The increased susceptibility of pregnant women to malaria infection has long been recognized as a burden worldwide particularly in sub Saharan Africa. Globally, 125 million women are at risk to malaria every year and 10000 deaths occur during pregnancy. In Rwanda there was a significant increase of prevalence in 2014.pregnant women from malaria endemic areas experience a variety of diverse complications such as maternal anemia, miscarriage and deaths.

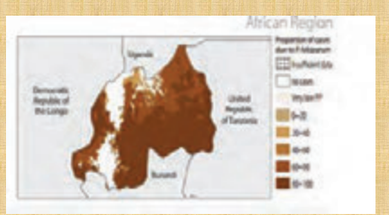


Figure: malaria endemic regions in Rwanda

Objectives

understand the outcomes and evaluate the management of pregnant women admitted to Ruhengeri District Hospital in Rwanda for malaria.

Significance of study

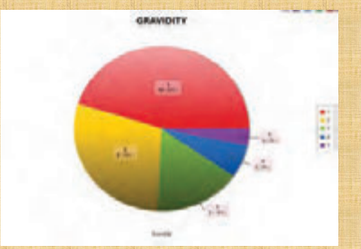
Malaria prevention and control through education (cutting bushes, closing windows early, avoiding stagnant water, sleeping under bed nets),distribution of mosquito insecticide treated nets in Mountainous region of Rwanda, specifically in pregnant women.

Methods

- document review of articles and reports on malaria prevalence and outcomes in pregnant women from Rwanda.
- Clinical observations during my medical clerkship
- Patients records review at RH district Hospital (Feb-August, 2016).
- All Data was analyzed using Epi Info 7.

Results

- The average age was 27.8 years old,
- Gravidae (G) were: G1=41.9%, G2=32.3%, G3=19.3%, G4=3.2% and G5=3.2%.
- The gestation week's average was 22.6 weeks and 35% was admitted in June (41%) has severe malaria where12.9% had aborted.
- 80% have been treated by Artesmin combination and 19.3% by Quinine.
- The average of hospitalized pregnant women was 3.9 days (94.4 Hours) and no death case. Most of the cases are in the rainy season.



Discussion

- Primigravidic women(first trimester) they may not be able to differentiate the malaria symptoms from pregnancy symptoms?
- Teenager pregnancy who may be fearing parents?
- Late consultation can it be related to self medication vs lack of insurance
- This Increased Cases Of Severe Malaria Can Be Explained By Low Awareness, Poor Infrastructures, Lack Of Insurance

Conclusion &Recommendation

➢ patients can get cured with less complications once they reached Hospitals
➢As Malaria's treatment is now available and efficient,
➢The needed intervention for Prevention and control SHOULD BE MUCH DIRECTED TO COMMUNITY
➢Focusing on primigravidic women,
➢ Students association, Policy makers, NGOs can Do Education, Advocacy and financial issues
➢ further researches to be done

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- Rwanda Demographic and Health surveys 2014-2015

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VERNON MOCHACHE OYARO

Merck Foundation

Long term non-progressors, viremic and elite controllers among women infected with non-subtype B HIV-1 in Mombasa, Kenya

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ABSTRACT

Background: Studies have reported ART-naïve individuals who show no apparent disease progression despite prolonged infection (long-term non-progressors; LTNPs), or spontaneously control viral replication (HIV controllers). Few of these studies have assessed their presence among populations predominantly infected with non-subtype-B HIV-1.

Methods: We conducted data analysis of a prospective cohort of HIV-1 seropositive women in Mombasa, Kenya with estimated dates of seroconversion to determine the proportion of unique HIV-1 phenotypes. Long-term non-progression was defined as duration of infection ≥10 years without ART, characterized by majority CD4+ counts within normal range (≥500 cells/mL for LTNPs-10 and ≥600 cells/mL for LTNPs-7). HIV controllers maintained plasma viral loads (PVLs) below 2000 copies/mL (viremic controllers; VCs) or below 100 copies/mL (elite controllers; ECs).

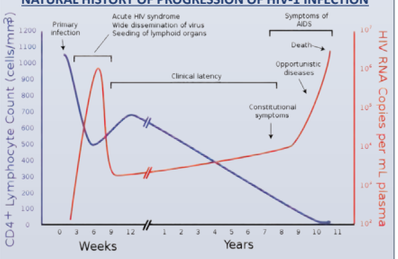
Results: There were 332 HIV-1 seroconverters between February 1993 and March 2014. Of 157 with infecting subtype data available, 121 (77%) were infected with subtype A, 20 (12.7%) subtype D, 11 (7%) subtype C, and 5 (3.1%) had inter-subtype recombinant forms. We identified 21 (6%) seroconverters with unique phenotypes. Seventeen (21%) of 83 ART-naïve women with at least 7 years of follow-up were classified as LTNP-7, while 6 (21%) of 29 women who accrued further follow-up to 10 years were classified as LTNP-10. Among women with >3 PVLs over at least 1 year of follow up post-seroconversion, we classified 7 (23%) and 1 (3%) as VCs and EC, respectively. The odds of being classified as a LTNP-7 were lower for participants who had a viral load set point higher than 4.2 log copies (OR = 0.69, 95% CI: 0.62-0.77, P <0.001) and who took longer than 168 days to achieve this set point (OR =0.73, 95% CI: 0.65-0.82, P<0.001).

Conclusion: Unique phenotypes of HIV-1 infection were identified in a population predominantly infected with non-subtype B strains of HIV-1 in Mombasa, Kenya. Long-term non-progression appears to be likely with lower viral load set point and shorter duration to achieve this.

OBJECTIVE

To determine the prevalence and characteristics of these unique HIV-1 phenotypes among women in the Mombasa Cohort; a prospective cohort study of female sex workers (FSWs) established in 1993 to characterize the incidence and correlates of HIV-1. The predominant HIV-1 subtypes previously identified in this cohort include A, C and D.

NATURAL HISTORY OF PROGRESSION OF HIV-1 INFECTION



BACKGROUND

LTNPs = ART-naïve, no apparent disease progression despite prolonged infection while **HIV controllers** = Spontaneous control over viral replication. Unique phenotypes of HIV-1 infection mainly evaluated in populations predominantly infected with subtype-B HIV-1. They form an important study group in understanding pathogenesis of natural HIV-1 infection for development of novel HIV-1 interventions including immunotherapy or a functional vaccine/cure.

METHODOLOGY

Descriptive analysis aimed at determining the presence and characteristics of these unique HIV-1 phenotypes. Study population = HIV-1 positive participants with estimated dates of seroconversion (HIV-1 seroconverters) in a prospective cohort study of FSWs in Mombasa. Study procedures included regular CD4+ lymphocyte counts (CD4+ count), plasma HIV-1 RNA/viral load (PVL). Infecting HIV-1 subtype determined by back-testing samples collected at estimated time of infection.

To estimate time of HIV-1 infection, stored plasma samples obtained during visits prior to sero-conversion were back-tested to identify any that were HIV-1 RNA positive. If one or more of these pre-seroconversion samples was positive for HIV-1 RNA, the estimated date of infection was considered to be 17 days prior to the first RNA-positive sample. If none of the pre-seroconversion samples was positive for HIV-1 RNA, the estimated date of HIV-1 infection was the mid-point between the last HIV-1-seronegative visit and the first HIV-1-seropositive visit

DEFINITION OF UNIQUE PHENOTYPES

LTNP-7

- ≥2 CD4+ counts over ≥7 years
- Majority CD4 counts ≥600 cells/mL
- No prior ART
- Non-progressive CD4+ lymphocyte pattern over time

LTNP-10

- ≥2 CD4+ counts over ≥10 years
- Majority CD4 ≥500 cells/mL
- No prior ART
- Non-progressive CD4+ lymphocyte pattern over time

Viremic Controllers

- ≥3 PVLs over ≥12 months post-seroconversion
- Majority PVL measures detectable but ≤2000 copies/mL
- No prior ART
- Pattern of virologic control over time

Elite Controllers

- ≥3 PVLs over ≥12 months post-seroconversion
- Majority PVL measures undetectable using standard assays
- No prior ART
- Pattern of virologic control over time

FINDINGS

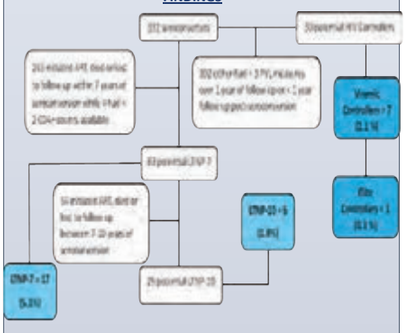


Fig. 1: Proportion of unique HIV-1 phenotypes

Fig. 2: LTNP showing progression after super-infection

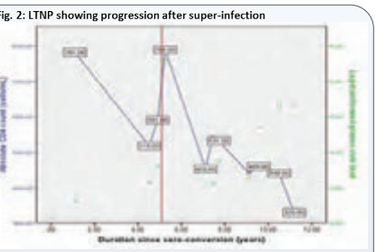
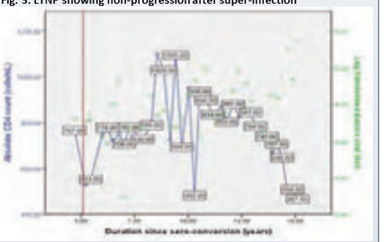


Fig. 3: LTNP showing non-progression after super-infection



Characteristic	All HIV-1 sero-converters in cohort (N=332)		Sero-converters who are not unique (N=311)		Sero-converters who are unique phenotypes (N=21)	
Demographic characteristics						
	Median	IQR	Median	IQR	Median	IQR
Age at sexual debut	17	15-18	17	15-18	18	17-18
Age at sero-conversion	29	26-35	29	25-35	33	26-36
Number of live births	1	1-2	2	1-2	1	1-2
Years of education	8	7-10	8	7-10	8	7-11
Years working as sex worker	4	2-7	4	2-7	5	3-8
Behavioral characteristics						
Sexual risk practices in the week prior to sero-conversion	N	%	N	%	N	%
No intercourse	125	38	117	38	8	38
100% condom use	122	36	115	37	7	33
Unprotected intercourse	85	26	79	25	6	29
	Median	IQR	Median	IQR	Median	IQR
Frequency of sexual intercourse	1	0-2	1	0-2	1	0-2
Number of sex partners	1	0-1	1	0-1	1	0-1
Laboratory characteristics						
Genital infections at SC	N	%	N	%	N	%
Herpes simplex virus type-2	285	89	267	89	18	90
Trichomoniasis	27	8	27	9	-	-
Vulvovaginal candidiasis	74	23	71	23	3	14
Bacterial vaginosis	140	43	133	44	7	33
Gonorrhea	27	8	27	9	-	-
Genital ulcer disease	10	3	10	3	-	-
Infecting HIV subtype						
Subtype A	121	77	115	77	6	75
CRF A/C	1	1	-	-	1	12.5
CRF A/D	4	3	4	3	-	-
Subtype C	11	7	11	7	-	-
Subtype D	20	12	19	13	1	12.5
	Median	IQR	Median	IQR	Median	IQR
Viral load set point	4.7	4-5.3	4.7	4.1-5.3	4.2	3.3-4.8
Days to viral load set point	185	154-264	187	153-283	168	164-231

Table 1: Characteristics of different categories of HIV seroconverters

CONCLUSIONS & RECOMMENDATIONS

We identified unique HIV-1 phenotypes among women predominantly infected with non-subtype B HIV-1 who were more likely to have a lower viral load set point and took a shorter duration to achieve this. We intend to further study their immuno-genetic and epidemiologic correlates at estimated time of HIV-1 infection.

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HIV treatment optimism and fertility intention among people living with HIV in South-west Nigeria

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Background

Antiretroviral therapy has the potential to influence the fertility intention of PLHIV through improvement in health, quality of life, survival and HIV treatment optimism.

However, the effect of HIV treatment optimism on the reproductive decisions of people living with the human immunodeficiency virus (PLHIV) may counter the protective effect of antiretroviral therapy (ART) on reducing transmissibility of HIV.

In the context of HIV and highly active antiretroviral therapy (HAART), optimism represent some shifts in attitudes and beliefs (realistic or optimistic) about the sexual and reproductive risk related with HIV/AIDS due to the availability of HAART.

HIV treatment optimism reflect individuals' optimism about the use and efficacy of HAART and corresponding attitude and beliefs concerning sexual and reproductive behaviours.

It also represents the potential negative consequences of having an optimistic view of HIV/AIDS as a less severe and less dangerous disease.

This form of perception creates a potential for increased sexual transmission of HIV and other sexually transmitted infections.

Little discussion about the possible role of HIV treatment optimism on fertility intention of PLHIV in resource poor settings - like Nigeria where assisted reproductive technology, treatment as prevention (TasP) and pre-exposure prophylaxis (PrEP) are in short supply - exists.

This study was therefore conducted to determine the association between HIV treatment optimism and fertility intention as well as the predictors of the HIV treatment optimism among PLHIV attending a resource-constraint ART site in South-western, Nigeria.

Methods

A cross-sectional study of 405 reproductive age group heterosexual adults living with HIV was carried out using a mixed-method approach [questionnaire survey and focus group discussion (FGD)].

HIV treatment optimism scores ranged from 5 to 20, scores ≤14 were considered as realistic and >14 as optimistic.

Quantitative data was analysed using descriptive and inferential statistics.

Predictors of HIV treatment optimism were determined using logistic regression.

Level of statistical significance was set at 5%.

Qualitative data was analysed using thematic approach.

Results

Mean age of the respondents was 35.2 ± 7.4years, 77.5% were females and 24.0% had completed senior secondary school. (Table 1)

About half (52.3%) were optimistic about HIV treatment. (Table 2)

More than half (56.3%) intended pregnancy. (Table 2)

Optimism about HIV treatment was associated with fertility intention (p<0.05). (Table 4)

Having less than senior secondary education [OR 1.9 (95% CI: 1.072 – 3.272)] and discussion of reproductive decision with health care provider twice [OR 12.1 (95% CI: 5.562 – 26.296)] or more than twice [OR 45.2 (95% CI: 20.991 – 97.502)] in the preceding 12 months predicted optimism about HIV treatment. (Table 5)

The FGD revealed that some respondents were optimistic about HIV treatment, do not have adequate information on methods of conception for PLHIV, were undertaking risky sexual and reproductive behaviours to ensure conception and some of these information were provided by health care workers. (Table 6)

Table 1. Socio-demographic characteristics of respondents

Variable	Frequencies N=405	Percentage (%)
Age (Years)	129	31.9
≤30	276	68.1
> 30		
Age: mean ± S.D[a]	35.2 ± 7.1	
Gender		
Male	91	22.5
Female	314	77.5
Highest level of		
None		
Primary	103	25.4
Junior Secondary	92	22.7
Senior Secondary	71	17.5
Tertiary	97	24.0
	42	10.4
Religion		
Christianity	153	37.8
Islam	246	60.7
Traditional	6	1.5
Tribe		
Yoruba	349	86.2
Hausa	20	4.9
Igbo	23	5.7
Non-nationals[b]	4	1.0
Others[c]	9	2.2
Occupation		
Unskilled/Unemployed	11	2.7
Skilled manual	50	12.3
Skilled non-manual	300	74.1
Professional/Managerial	44	10.9
Monthly income (in (n = 798)		
< 18,000		
≥18,000	108	26.9
	294	73.1

[a] Standard deviation [b] Ghana, Togo, Sierre-Leone [c] Baruba, Edo, Igala, Ijaw, Taraba

Table 2. HIV treatment optimism and fertility intention of respondents

Variable	Frequencies N=405	Percentage (%)
HIV treatment optimism		
Realistic	193	47.7
Optimistic	212	52.3
Fertility intention		
No intention	177	43.7
Intends pregnancy	228	56.3

Table 3. HIV health care provider interaction on respondents' fertility options

Variable	Frequencies	Percentage (%)
Has your health care provider ever asked your reproductive decision		
No	20	4.9
Yes	385	95.1
Has your health care provider ever talked about pregnancy planning (n = 228)		
No	30	13.2
Yes	198	86.8
Satisfaction with pregnancy planning information received (n = 198)		
No	7	3.5
Yes	191	96.5
Has your health care provider ever talked about contraception		
No	94	23.2
Yes	311	76.9
Satisfaction with contraceptive received (n = 311)		
No	13	4.2
Yes	298	95.8
Number of times respondent discussed reproductive decision with health care in the past 12 months		
Never	133	32.8
Once	66	16.3
Twice	58	14.3
More than two times	148	36.5

Table 4. Association between HIV treatment optimism and fertility intention

Variable	Fertility intention		P-value
	No intention n (%)	Intends pregnancy n (%)	
HIV treatment optimism			
Realistic	98 (50.8)	95 (49.2)	**0.006**
Optimistic	79 (37.3)	133 (62.7)	

Table 5. Bivariate and multivariate analysis of factors associated with HIV treatment optimism

Variable	HIV treatment optimism		P-value[a]	Adjusted OR (CI)[b]	Adjusted P-value
	Realistic n (%)	Optimistic n (%)			
Age (Years)					
≤30	71 (55.0)	58 (45.0)	**0.042**	0.968 (0.552 -1.697)	0.910
> 30	122 (44.2)	154 (55.8)		1 (reference)	
Gender					
Male	44 (48.4)	47 (51.6)	0.880		
Female	149 (47.5)	165 (52.5)			
Highest level of education					
< Senior secondary					
≥Senior secondary	107 (40.2)	159 (59.8)	**<0.001**	1.873 (1.072 – 3.273)	**0.028**
	86 (61.9)	53 (38.1)		1 (reference)	
Religion					
Islam	123 (50.0)	123 (50.0)	0.240		
Others	70 (44.0)	89 (56.0)			
Tribe					
Yoruba	169 (48.4)	180 (51.6)	0.439		
Others	24 (42.9)	32 (57.1)			
Occupation					
Unskilled/ Unemployed	6 (54.5)	5 (45.5)	0.834		
Skilled manual	22 (44.0)	28 (56.0)			
Skilled non-manual	142 (47.3)	158 (52.7)			
Professional/ Managerial	23 (52.3)	21 (47.7)			
Monthly income (in naira)					
< 18,000	58 (53.7)	50 (46.3)	0.117		
≥18,000	132 (44.9)	162 (55.1)			
Has your health care provider ever asked about your reproductive					
No					
Yes	16 (80.0)	4 (20.0)	**0.003**	1 (reference)	
	177 (46.0)	208 (54.0)		0.986 (0.285 –3.409)	0.982
Has your health care provider ever talked about pregnancy planning					
No	22 (73.3)	8 (26.7)	**<0.001**	1 (reference)	
Yes	73 (36.9)	125 (63.1)		0 .965 (0.253 –3.682)	0.958
Satisfaction with pregnancy planning information					
No					
Yes	7 (100.0)	0 (0.00)	**<0.001[c]**	1.035 (0.296 – 3.620)	0.957
	66 (34.6)	125 (65.4)		1 (reference)	
Has your health care provider ever talked about contraception					
No	61 (64.9)	33 (35.1)	**<0.001**	1 (reference)	
Yes	132 (42.4)	179 (57.6)		0.999 (0.512 – 1.951)	0.998
Satisfaction with contraceptive information					
No					
Yes	8 (61.5)	5 (38.5)	0.155		
	124 (41.6)	174 (58.4)			
Number of times respondent reproductive with health care provider in the past months					
Never					
Once	112 (84.2)	21 (15.8)	**<0.001**	1 (reference)	
Twice	48 (72.7)	18 (27.3)		2.019 (0.980 - 4.163)	0.057
More than two	18 (31.0)	40 (69.0)		12.094 (5.562 - 26.296)	**<0.001**
times	15 (10.1)	133 (89.9)		45.240 (20.991 - 97.502)	**<0.001**

[a] P-value in chi-square test [b] Adjusted odds ratio in logistic regression analysis; CI: Confidence interval [c] P-value in fisher's exact test

Table 6. Exact words of some FGD participants

''If you take your drug as normal as you are supposed to, it will help you help you seriously. It will help you live as normal as other people outside outside without HIV are living. You can reproduce and live as other normal other normal people without HIV are living'' **(Participant with a HIV negative partner)**

''On care, we get care of a truth. But by my own reasoning, there is not is not enough information for me on having children or not. This is because is because when my menstruation first ceased, I explained to the doctors. For doctors. For a whole year, they were contemplating whether it was pregnancy pregnancy or not. Till now, there has not been any definite treatment or treatment or encouragement on conception. They are trying, we are healthy, healthy, but not much encouragement on conception'' ''If you take your drug your drug as normal as you are supposed to, it will help you seriously. It will seriously. It will help you live as normal as other people outside without HIV without HIV are living. You can reproduce and live as other normal people people without HIV are living'' **(Participant with a HIV negative partner)**

''…………..I had delay in conception. When it was getting to a year, I went went to see the doctor, I told him I needed to conceive that I hope it is not the it is not the disease that is affecting me. They now told me it was not the was not the disease that after all I can see pregnant women around. So when I around. So when I wanted to conceive, doctor said we should inform him inform him when we are ready. I now called the doctor aside that you asked us you asked us to use condom but I need to conceive. They then said I can create said I can create a hole in it before use'' **(Participant with a HIV negative negative partner)**

Conclusion

People living with HIV are optimistic about HIV treatment and intend to get pregnant

To sustain the current gains in the fight against HIV during this era of ART roll out, adequate information, education, communication and training that will bring about safer and healthier reproductive decisions and behaviours are of value and advocated.

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UNESCO-MERCK AFRICA RESEARCH SUMMIT, 28-29 NOVEMBER 2016 • ETHIOPIA

INVOLVEMENT OF HUSBANDS OF HIV POSITIVE WOMEN IN THE TREATMENT OF THEIR WIVES AT AN HIV CARE CENTRE IN COTONOU: IMPACT ON MEDICAL AND SOCIOECONOMIC STATUS OF THE HIV POSITIVE WOMEN

Arsène Adiffon[1], Yaovi M.G. Hounmanou[2], Parfait Houngbégnon[3] and Tamègnon V. Dougnon[2]

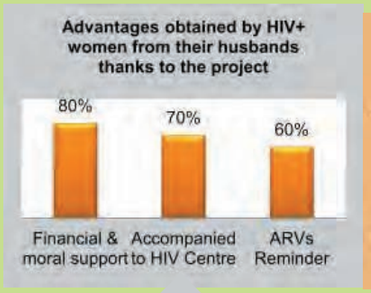
BACKGROUND & OBJECTIVE:

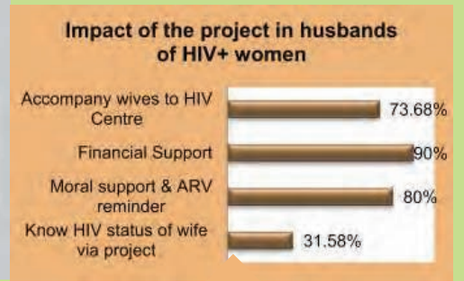
HIV+ women from developing countries are frightened of being stigmatised and divorced. They are therefore unable to share their HIV status with their husbands. They live with that stress where they hardly take ARVs and visits to health centres become irregular. Therefore, a project was instituted to help these women share their status with their husbands and to encourage their supports for an effective care. After 2 years execution, the present study was conducted in December 2015 to probe the perception of the beneficiaries, and to appreciate their level of satisfaction and analyse the obtained results.

METHODOLOGY

Questionnaires were administered to 81 HIV+ women and 76 husbands. 4 focus group discussions of 8 participants each were also conducted and data were analysed in SPSS 20

RESULTS & DISCUSSION





Four women out of five had a child after the knowledge of their HIV status and 69% of such children are taken care of at the centre

Half of the husbands continued to have unprotected sexual intercourse after the discovery of their wife's status. 57.89% husbands are HIV+ and taken care of at the centre

CONCLUSION

The total implication of couples in the care of HIV+ women is very important for the prevention of mother to child transmission, for the maintenance of tranquillity and peace in couples, for the limitation of the propagation of the virus and for the survival of the HIV+ women and their children.

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SANARIA
MALARIA ERADICATION THROUGH VACCINATION

Plasmodium falciparum parasite dynamics determined by qPCR after Controlled Human Malaria Infection in Semi-Immunes from Gabon.

Honkpehedji J[1], Dejon Agobe JC[1], Zinsou J[1], Mengue J[2], Bouyoukou Hounkpatin A[2] , Held J, Adegnika AA[1,2], Richie T[3], Mordmüller B[1,2], Kremsner PG[1,2], Hoffman SL[3], Lell B[1,2].

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[3] Sanaria Inc., Rockville, MD, United States.

BACKGROUND

Sanaria has developed aseptic, purified, cryopreserved infectious *Plasmodium falciparum* (Pf) sporozoites (SPZ) called Sanaria® PfSPZ Challenge as a tool for Controlled Human Malaria Infections (CHMI) to study protective efficacy of antimalarial vaccines, and to allow refinement of the method of administration of the highly protective PfSPZ Vaccine. A critical component of the CHMI studies with PfSPZ Challenge is the diagnosis of malaria parasites in the blood. Characterising the effect of natural acquired immunity and sickle cell anaemia on the pattern of *Pf* parasitemia may be useful in understanding the pathophysiological mechanisms of protection against malaria. CHMI by direct venous inoculation of PfSPZ Challenge is a new tool which can be used to investigate the pathophysiology of malaria.

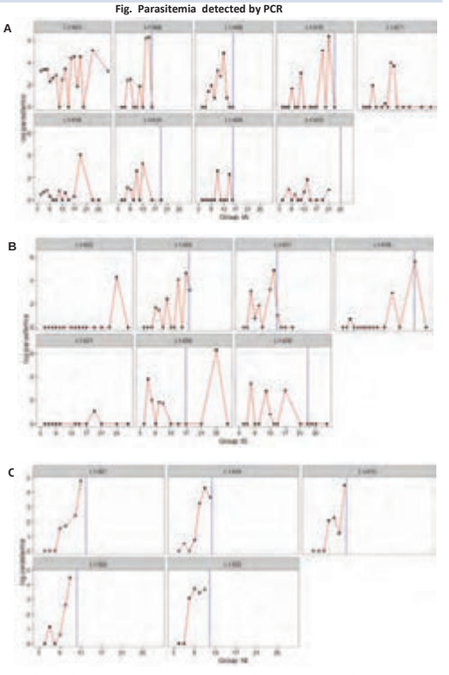
METHODS

The study was performed in Lambaréné, Gabon, one of seven African partners in the EDCTP-funded CHMI platform. Adults aged 18-35 from three groups : 5 non-immune (NI), 11 semi-immunes with hemoglobin AA (IA), and 9 semi-immunes with hemoglobin AS (IS) received 3200 sporozoites after a curative treatment cure with clindamycin. Capillary blood samples were taken daily up to Day 28 to determine parasitemia by real time quantitative polymerase chain reaction (RT-qPCR) as described by Hermsen CC et al (2001) . Treatment was administered for a malaria episode or at Day 28, whichever came first.

RESULTS

Parasitemia was detected in 5 (100%) subjects in the NI group, 9 (82%) in the IA group and 7 (78%) in the IS group. All volunteers in the NI group showed similar patterns with parasitemia starting around Day 8 and rising quickly. Patterns for parasitemia in the immune groups (IA and IS) were highly heterogeneous. Although time-points of initial parasitemia and duration of parasitemia were varied, all semi-immunes managed to control parasitemia for at least several days. There were no discernible differences in patterns between the IS and IA group, including the area under curve of parasitemia over time.

Fig. Parasitemia detected by PCR



The vertical blue line shows the time points of onset of symptoms

CONCLUSION

No parasitemia was detected in 20% of the semi-immunes, likely due to liver stage immunity. The highly variable patterns of parasitemia do not allow us to discern immune mechanisms against blood stages. Hemoglobin AS had no visible effect on parasite dynamics at the low parasitemia encountered.

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Quality of Life among Breast Cancer Patients in Khartoum State (Between October and November 2012)

Background

Breast cancer is the commonest worldwide malignancy plaguing women and is the commonest cause of death due to cancer in Sudanese women. Its effects on the quality of life are many and complex.

"Quality of life is more important than life itself."
Alexis Carrel

Objectives

The main aim of this research was to identify the common factors affecting specific domains of life and the overall quality of life of Sudanese breast cancer patients, in terms of patient characteristics and aspects of therapy.

Materials and Methods

An observational case-finding hospital-based study that was conducted in oncology clinics and covered 104 patients diagnosed with breast cancer within Khartoum state. Questionnaires were filled in the form of interviews.

Results

The average age of the patients was 46 years of age and the monthly income was between 100SDG and 5000 SDG. Housewives were found to have a significantly higher quality of life in the social domain (p= 0.037). Foreigners whose original residence was not in Khartoum were found to have a higher quality of life in the social domain (p=0.027). Patients who were diagnosed with breast cancer for 7-12 months were found to have a higher quality of life in the physical domain when compared to other durations of time elapsed since diagnosis. There was a positive correlation between income and the environmental domain; the higher the income the higher the quality of life environmentally. Regarding the surgical treatment, women who underwent lumpectomies, were found to have a higher quality of life in the physical domain when compared to their counterparts who underwent mastectomies. Ultimately, joining a support group was one factor of therapy that was found to have the most profound effects, in increasing the quality of life regarding social (p=0.004), physical (p=0.044) and environmental (p=0.006) health.

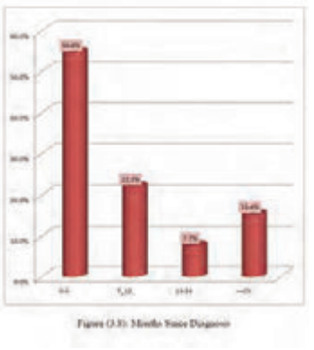
Domain
Relevant Questions in the WHOQOL-BREF

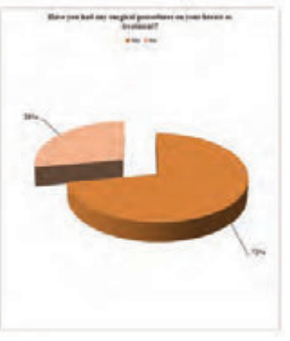
Physical
1. To what extent does physical pain prevent you from doing what you need to do?
2. How much do you need medical treatment to function in your daily life?
3. Do you have enough energy for everyday life?
4. How well are you able to get around?
5. How satisfied are you with your sleep?
6. How satisfied are you with your ability to perform your daily living activities?
7. How satisfied are you with your capacity for work?

Psychological
1. How much do you enjoy life?
2. To what extent do you feel your life to be meaningful?
3. How well are you able to concentrate?
4. Are you able to accept your bodily appearance?
5. How satisfied are you with yourself?
6. How often do you have negative feelings such as blue mood, despair, anxiety or depression?

Social
1. How satisfied are you with your personal relationships?
2. How satisfied are you with your sex life?
3. How satisfied are you with the support you get from your friends?

Environment
1. How safe do you feel in your daily life?
2. How healthy is your physical environment?
3. Have you enough money to meet your needs?
4. How available to you is the information that you need in your day-to-day life?
5. To what extent do you have the opportunity for leisure activities?
6. How satisfied are you with the conditions of your living place?
7. How satisfied are you with your access to health services?





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BLAISE NTACYABUKURA

INPUT OF PMTCT TO ZERO NEW HIV INFECTION-CAMPAIGN IN RWANDA: CASE OF MUHIMA DISTRICT HOSPITAL

By NTACYABUKURA Blaise, University of Rwanda, college of medicine and health science.

Background

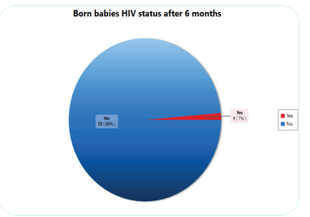
- The Rwanda overall HIV prevalence since 2010
- In the absence of interventions, the risk of MTCT is 20-45%,
- Over 90% of new infections in infants and young children occur through MTCT.
- Ministry of Health launched a -Zero new HIV infection in 2015
- The risk of MTCT can be reduced to less than 2% with a package of evidence-based

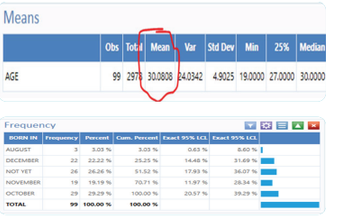
Objectives of the study

- Evaluate the INPUT of PMTCT in reduction of pediatric HIV new infections.
- prevalence of HIV in new bones
- Adherence of ARVs in pregnant women

Methods

- Systematic review of the MoH, RBC reports.
- National strategic plan on HIV, 2013.
- retrospective study on HIV+ pregnant women consulted MUHIMA District Hospital for PMTCT services From 22nd August 2015 to 31st December 2015.
- All data has been proccessed using Epi Info 7.





Results

- MTCT of HIV has reduced significantly to 12 % countrywide in 2015
- In 100 mothers followed and delivered at Muhima DH, average age was 30.07;
- 31% had detectable viral load with a therapeutic failure of 13% after a 6 months period of therapy with good adherence,
- The tendency of failure is 26.3%.
- Patient on: 3rd line=1%, 2nd line=1% and 98% on first line of Antiretroviral Drugs (ARVs).
- Until August, 2016, only one baby has been confirmed to be HIV positive in 73 babies, yet born

DISCUSSION

- Patients knowledge and acceptance plays a role on adherence on ARVs
- Recording is still not respected
- Availability of services and men contribution are being improved
- The high risk remains during breast feeding

Conclusion and recommendation

- ARVs with virological monitoring is a good strategy **to minimize avoidable harm and improve** women and their babies' lives
- Despite the therapeutic failure of 13% at this center, where HIV prevalence of 7.3%, **the prevention is almost achieved**
- **zero new infection is possible.**
- Policies for sustainability are recommended.

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CEDRIC EBONG EWOUGO

Merck Foundation

Prevalence of bacteriuria, associated risk factors and germs involved in pregnant women attending antenatal clinic of 3 Hospitals in Douala

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Background

Pregnancy increases the risk of bacteriuria which is associated with significant maternal and fetal risks. The prevalence of bacteriuria varies worldwide. This study aims to determine the prevalence, risk factors and microorganism responsible of bacteriuria in pregnant women of Douala.

Methods

A cross-sectional study was conducted in 3 hospitals of Douala (CAMEROON) from January to April 2015. We consecutively recruited all consented pregnant women aged 18years and above attending antenatal clinics. Socio-demographic characteristics, medical and obstetrical past history and obstetric characteristics of the index pregnancy were collected.

After the interview, urine were collected aseptically and subjected to routine macroscopy, microscopy examination and culture. The culture was obtained by inoculation of 10µl of urine on the appropriate medium. Identification of pathogens was done automatically using the VITEK2™ (BioMérieux- France).

CS Pro 6.0 and SPAD had analyze data with significant P <0.05.

Table 2 Association between socio-demographic factors and bacteriuria in pregnancy

Characteristics		Bacteriuria n(%)		Total n(%)	OR (CI : 95%)	P
		Positive	Negative			
Age	18-22	5(11.1)	40(88. 9)	45(12.7)	1	
	23-27	12(10.2)	106(89.8)	118(33.3)	0.906 (0.3 - 2.734)	0.86
	28-32	13(10.8)	107(89.2)	120(33.9)	0.972 (0.326 - 2.901)	0.95
	33-37	3(5.4)	53(94.6)	56(15.8)	0.453 (0.102 - 2.008)	0.29
	38-42	2(13.3)	13(86.7)	15(4.2)	1.231 (0.213 - 7.12)	0.81
Marital status	Single	17(13.8)	106(86.2)	123(65.3)		
	Mary	18(7.8)	213(92.2)	231(34.7)	0.537 (0.252 - 1.145)	0.11
	illiterate	2(50)	2(50)	4(1.1)	1	
Education	Primary	3(7.9)	35(92.1)	38(10.7)	0.088 (0.009 - 0.872)	0.037
	Secondary	14(10.1)	124(89.9)	138(39)	0.113 (0.015 - 0.874)	0.036
	University	16(9.2)	158(90.8)	174(49.2)	0.106 (0.014 - 0.81)	0.03
Income / Month	No income	17(8.6)	180(91.4)	197(55.6)	1	
	≤35000	5(10.6)	42(89.4)	47(13.3)	1.237 (0.409 - 3.74)	0.70
	>35000	13(11.8)	97(88.2)	110(31.1)	0.738 (0.255 - 2.135)	0.57

Conclusion

Bacteriuria was frequent in pregnant women and significantly increased. Education and proper treatment of UTI should be provided to reduce the burden of this pathology in order to prevent its severe complications.

Results

Overall, 354 pregnant women were enrolled with mean of age 28.18±4.4. The prevalence of significant bacteriuria was 9.9% (35out of354). The prevalence of bacteriuria in women who were asymptomatic was 5.7%. Cystitis and pyelonephritis were observed in 3.6% and 0.6% respectively. The most commonly isolated organism was E. coli (48.6%). History of UTI (p=0.035, OR=2.183, CI=1.055-4.518) was significantly associated to bacteriuria. High level of education was protector.

Table 1: Prevalence of germs involved

Bacteria	Symptomatic bacteriuria	Asymptomatic bacteriuria	N (%)
Gram Negative			
E. coli	7(41.18)	10(58.82)	17(48.57)
K. pneumoniae	4(80)	1(20)	5(14.29)
E. cloacae	1(25)	3(75)	4(11.43)
P mirabilis	0	1(100)	1(2.86)
S. odorifera	0	1(100)	1(2.86)
E. aerogenes	0	1(100)	1(2.86)
Gram Positive			
S. aureus	1(33.33)	2(66.67)	3(8.57)
S. xylosus	2(100)	0	2(5.71)
Streptococcus sp.	0	1(100)	1(2.85)
Total	**15(42.9)**	**20(57.1)**	**35(100)**

Table 3: Association between obstetrical factors and bacteriuria

Characteristics	Bacteriuria n (%)		Total n (%)	OR (CI : 95%)	P
	Positive	Negative			
Gestationnal age					
1st Trimester	5(6.9)	67(93.1)	72(20.3)	1	
2nd Trimester	16(11.9)	118(88.1)	134(37.9)	0.82 (0.43 – 1.57)	0.55
3rd Trimester	14(9.5)	143(90.5)	148(41.8)	0.75 (0.40 – 1.42)	0.37
Parity					
Parity 0	17(11.9)	126(88.1)	143(40.4)	1	
Parity 1	8(9.2)	79(90.8)	87(24.6)	0.797 (0.317 - 2.003)	0.62
Parity 2	5(7.6)	61(92.4)	66(18.6)	0.65 (0.22 - 1.919)	0.43
Parity 3	2(5.4)	35(94.6)	37(10.5)	0.486 (0.096 - 2.454)	0.38
Parity 4	2(13.3)	13(86.7)	15(4.2)	1.362 (0.238 - 7.783)	0.72
Parity 5	1(20)	4(80)	5(1.4)	2.207 (0.206 - 23.605)	0.51
Parity 6	0(0.0)	1(100)	1(0.3)	0.023 (0.001 – 129.25)	0.99

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DOROTHEAH OBIRI

Circulating Endothelial Progenitor Cells in Women with Placental Malaria

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Introduction

Placental malaria is a major complication of pregnancy, associated with maternal/foetal morbidity and sometimes mortality worldwide[1]. Sequestration, systemic inflammation and endothelial activation/dysfunction [assessed by the levels of circulating endothelial cells (cECs)][2] during *Plasmodium* infections have been associated with disease pathogenesis and endothelial health. Circulating Endothelial Progenitor Cells (cEPCs) are known to be mobilized from the bone marrow to sites of endothelial damage to augment local response in this damage repair[3,4]. The relationship between *Plasmodium* induced inflammation, subsequent endothelial activation/damage and the levels of cECs/cEPCs on endothelial repair in placental malaria is the focus of this study.

Objective

To determine the levels of cECs and cEPCs from cord blood samples of pregnant women at delivery.

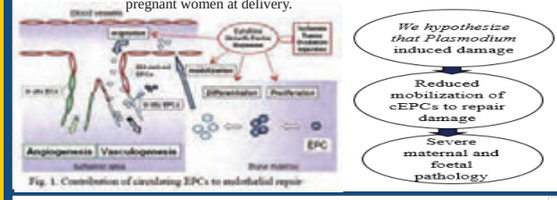


Fig. 1. Contribution of circulating EPCs to endothelial repair

Methods

Cord blood sampling (ongoing) → Diagnosis by microscopy, PCR and Histology (ongoing) → Surface staining of cEC and cEPC markers by flow cytometry (Fig 2.)

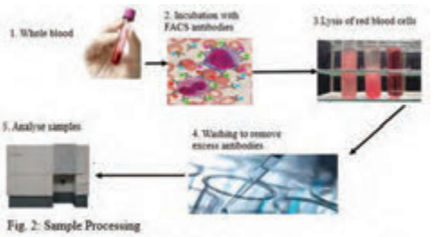


Fig. 2: Sample Processing

Preliminary Results

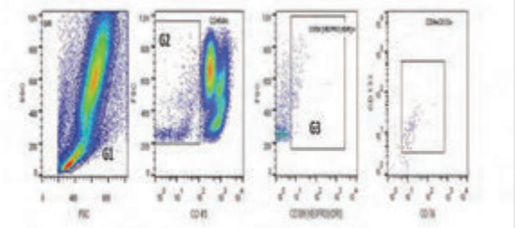
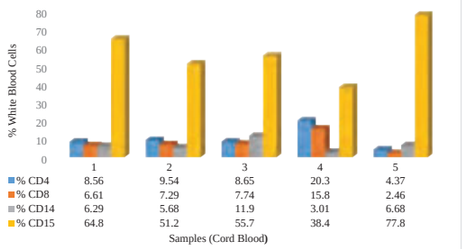


Fig. 3. cEPC gating strategy and elimination



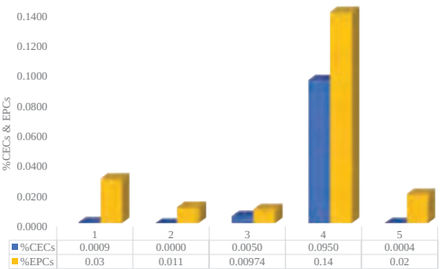
	1	2	3	4	5
% CD4	8.56	9.54	8.65	20.3	4.37
% CD8	6.61	7.29	7.74	15.8	2.46
% CD14	6.29	5.68	11.9	3.01	6.68
% CD15	64.8	51.2	55.7	38.4	77.8

Fig. 4 Comparing White Blood Cells in Cord Blood

Enumeration of cEPC levels by flow cytometry: Surface staining with receptor-specific fluorescent-labeled antibodies and expressed as percentage of CD45dim/VEGFR2+/CD34+/CD133+ cells in total leukocyte gate (G1) as shown in Fig 3.

Initial gating on all three major populations of WBCs (Lymphocytes, monocytes and granulocytes) (G1). Fig. 4 shows percentage population of WBC in each sample. Gating on CD45 dim population from initial gate G1, to exclude cells such as hematopoietic stem cells and leukocytes (G2). CD309 (VEGFR2) population within CD45dim population were gated (G3). Final gating of CD34+ and CD133+ population from G3 to enumerate cEPCs as CD45dim/VEGFR2/CD34+/CD133.

Similar gating strategy was carried out for cECs with receptor-specific fluorescent-labeled antibodies and expressed as percentage of CD11b-/CD34+/CD31bright/CD133+ cells in a total leucocyte gate (Fig 5).



	1	2	3	4	5
%CECs	0.0009	0.0000	0.0050	0.0950	0.0004
%EPCs	0.03	0.011	0.00974	0.14	0.02

Fig. 5 Comparing CECs and EPCs in cord blood

Insights

- CECs and cEPCs represent a tiny and heterogeneous cell population making flow cytometry a good tool to expression analysis in whole blood
- Result indicate cord blood samples diagnosed as microscopy negative for *Plasmodium* infections and indicating the proportion of white blood cells per sample. PCR for submicroscopic infection will be ideal.
- In a healthy individuals, the levels of cECs should be lower than that of cEPCs. Disequilibrium between malaria induced endothelial damage and host mediated repair may underpin the pathophysiology of placental malaria as shown in another phenotype of severe malaria (cerebral malaria)[4].
- A possible circulatory impairment during *Plasmodium* infections especially *Plasmodium falciparum* and host's response to this impairment will lead to a paradigm shift in disease pathogenesis, management and therapeutics.

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ANTIINFECTIVE COMPOUNDS FROM MEDICINAL AND AROMATIC PLANTS OF MADAGASCAR

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INTRODUCTION

Medicinal plants are a validated source for the discovery of new leads and standardized herbal medicines. The aim of this research program was to validate scientifically the ethno-medical use of four plant species of Madagascar for their pharmaceutical application against tropical infectious pathologies like malaria and bacterial diseases.

MATERIALS AND METHODS

Ethno-botanical surveys were conducted in the South of Madagascar (according to the convention on the biological diversity) and plant species were selected based on informant consensus factor among traditional healers.

The bioassay-guided fractionation of plant extracts was carried out by the combination of chromatography techniques (TLC and column chromatography) and *in vitro* bioassay using *P. falciparum* and P388 leukemia cell lines as models.

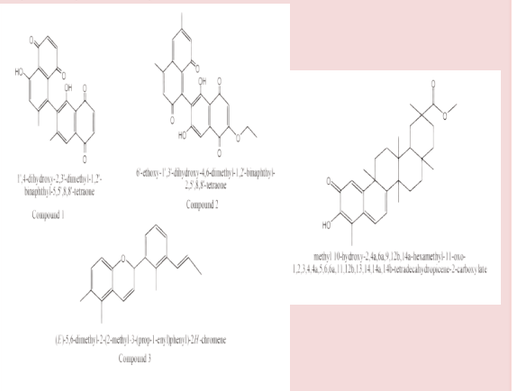
The structure of the biologically active pure compound was elucidated by 1D and 2D NMR spectroscopy and Mass spectrometry. Essential oil (EO) extractions were done by hydro-distillation while; their quantification and analysis were done by GC-FID and GC/MS.

The antimicrobial activity of the oil was assessed by both diffusion disc and micro-dilution tests. *Bacillus subtilis* ATCC 6633, *Staphylococcus aureus* ATCC 25923, *Bacillus cereus* ATCC 10876, *Escherichia coli* ATCC 25922, *Salmonella typhii* ATCC 13311, *Pseudomonas aeruginosa* ATCC 27853 and *Enterobacter cloacae* ATCC 13047, etc. as model systems for validating the bioactivity of EO.

The density functional theory studies were used for predicting the cytotoxicity of the isolated compound.

RESULTS AND DISCUSSION

Essential oils from *Hazomalania voyronii, Croton greveanus, C. borarium* and *C. geayi* displayed bactericidal activity. An antiplasmodial compound belonging to the chemical family of quinones methides was isolated from *Salacia leptoclada* with a therapeutic index of 0.788. Three cytotoxic campounds *Isodiospyrin, 6'ethoxy-1', 3'- dihydroxy-4, 6-dimethyl-1,2'-binaphthyl-2,5', 8, 8'tetraones, (E)-5,6-dimethyl-2-(2-methyl-3-(prop- 1-enyl) Phenyl)-2H-Chromene] were also isolated from the root bark of *Diospyros quercina*. The density functional theory studies on molecular structure and reactivity of quinone methide pentacyclic triterpenoid derivative isolated from *Salacia leptoclada* confirmed the cytotoxicity of this compound.



Obviously, the intake of medicinal plants is life-long in endemic areas. Although acute toxicity rarely is missed by traditional healers and chronic toxicological risks pass unrecognized. The results of cytotoxicity test revealed that it would be too dangerous, if the plants are ingested daily for a long period of time.

CONCLUSION

The studied plants contain compounds of pharmaceutical relevance, evidencing their potential for drug discovery. Chemical modification of these lead compounds could generate a library of useful bioactive molecules. The development of standardized phytomedicines for the control of malaria and bacterial infections is a feasible goal. This work completed by several institutions is an example of collaboration making it possible to reinforce the capacities of research scientists of the third world while limiting the escape of brains out of Africa through technology transfer.

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