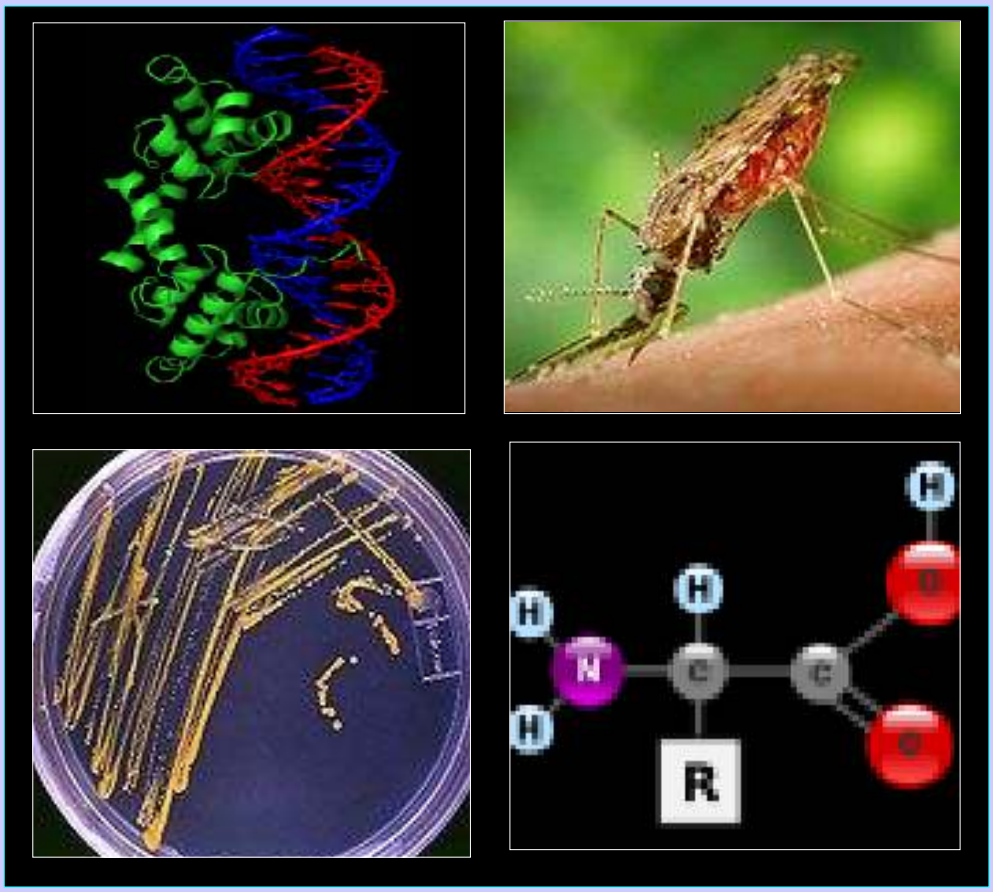
Nigerian Institute of Medical Research

2008/2009 Annual Report



Research for National Health

NIMR

Nigerian Institute of Medical Research

2008/2009 Annual Report

NIMR

NIGERIAN INSTITUTE OF MEDICAL RESEARCH

Edited by: D.P. Agomo Acting Director - General (July 2008 - May 2010)

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Content

Directors General's Foreword

I am glad to present to you NIMR 2008/2009 Annual Report. The quality of research work carried out at NIMR is obvious from this report. The Institute's research work broadly covers five areas; Biochemistry & Nutrition, Clinical Sciences, Microbiology, Molecular Biology & Biotechnology and Public Health.

The several research and non-research activities carried out in the Institute in the year 2008/2009 are highlighted in this annual report. In the years under report, 69 research programmes were carried out amongst the major five research teams in the Institute. These studies focused basically on diseases of greatest public health importance in the country, namely HIV/AIDS, Malaria, Tuberculosis, Hepatitis, Schistosomiasis, Helicobacter Pylori and Typhoid. Results of these various studies are included in this report.

The institute also improved and increased its networking and collaboration with other health related organizations and partners within and outside the country. As part of augmenting the limited funds from Government, the Institute, forwarded proposals to access national and international grants. All the grants obtained in the year 2008/2009 are included in the report. Vital Information on human resources of the institute, the activities of our library and financial reports as well as maintenance efforts over the two years are available in this report

In fulfilling one of the main mandates of the Institute in terms of generating and disseminating important health research findings to the Scientific and larger community, 54 Scientific papers published in peer-reviewed journals by staff of the Institute also form part of this report.

This report gives a detailed insight into the activities of the Institute in 2008/2009. I hope this report will be of interest and informative. I therefore wish to recommend it to the scientific community and other stake holders

Dr. P.U. Agomo
Acting Director-General

(July 2008 - May 2010)

Mission Statement

Vision

To be an institution of excellence in basic, applied and operational research for the promotion of national health and development

Mission

To conduct research into diseases of public health importance in Nigeria and develop structures for the dissemination of research findings while providing the enabling environment and facilities for health research and training in cooperation with the federal and state ministries of health and in collaboration with universities, allied institutions and organized private sector nationally and internationally.

Mandate

The mandate of the Institute under the enabling Act of 1977, stipulates that it shall conduct research into health problems in the country essentially in the following areas:

- Communicable Diseases of Public Health importance in the country.
- Non-Communicable Diseases prevalent in the country.
- Basic, applied and operational research for the prevention and control of diseases endemic in the country in co-operation with the Federal and State Ministries of Health.
- Develop human and infrastructural capacities for clinical and biomedical research in collaboration with Medical Schools, Universities and other Health-related Institutions, in and outside Nigeria.
- Disseminate the results of health research in the country through training courses, scientific publications, conferences, workshops and other communication channels to the Federal and States Ministries of Health, relevant stakeholders in the Public and Private Sectors as well as the general public.

Governing Board of the Institute

MEMBERS OF THE GOVERNING BOARD
from July, 2009

Professor, Edward 'B. Attah FRCP(C),FAS, OON	Chairman
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Hon M. Abdullahi (MON)	Member
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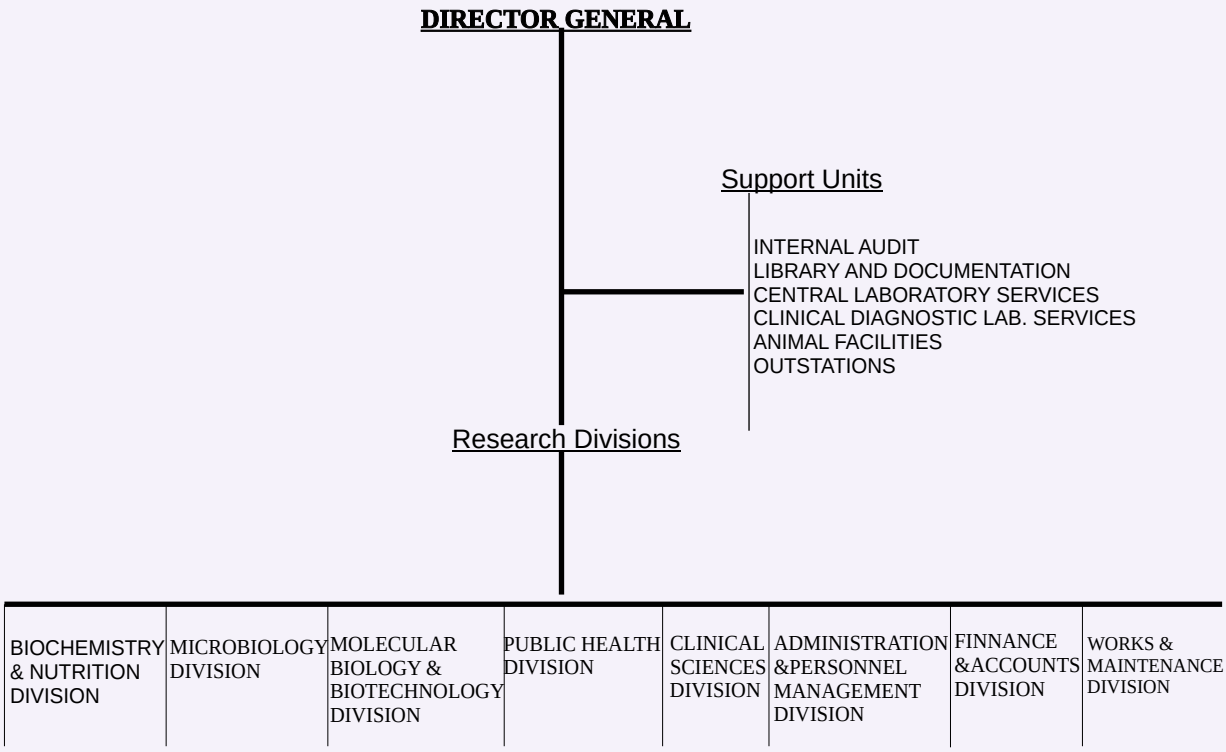
Bar. F.O Obi Director of Admin	Secretary

Organogram


DIRECTOR GENERAL
Support Units
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MICROBIOLOGY DIVISION
MOLECULAR BIOLOGY & BIOTECHNOLOGY DIVISION
PUBLIC HEALTH DIVISION
CLINICAL SCIENCES DIVISION
ADMINISTRATION &PERSONNEL MANAGEMENT DIVISION
FINNANCE &ACCOUNTS DIVISION
WORKS & MAINTENANCE DIVISION

Research focus at NIMR

Research at NIMR broadly focused on five scientific areas: Biochemistry and Nutrition, Clinical Science, Microbiology, Molecular Biology and Biotechnology and public Health.

Biochemistry and Nutrition

This Division conducts studies on the efficacy safety and cost-effectiveness of various antimalarial agents for the treatment of malaria in the country. Recently, various ACT combinations were evaluated with the view of advising appropriately what best combinations to be adapted under the current WHO directives on ACTs for the Clinical management of malaria in Nigeria. Studies on the molecular correlates of drugs-resistant P.falciparum in children in various Nigerian communities have also been carried out. Other areas of research-focus of the Division are on the impact of nutrition on predominant infectious diseases in Nigeria. Studies have focused on the impact of various nutritional strategies in patients with HIV/AIDS,Tuberculosis and Malaria.The roles of micronutrients and antioxidants have also been studied. In collaboration with other institutions, the Division is also carrying out studies on the antiprotozoal and anti-microbial properties of natural and synthetic organo-sulphur compounds.The Division is also providing operational research support to the on-going roll back malaria programme in the country and is supported by the Global Fund, the Federal Ministry of Health and some Pharmaceutical companies.

Clinical Science

The CSD conducts research with particular emphasis on Communicable diseases prevalent in the country e.g. HIV/AIDS,TB, major non-communicable disease prevalent in the country especially sickle cell disease, Hypertension , Diabetes , Malnutrition, Malignancies etc. Reproductive and Child health diseases as well as other related matters as may be determined from time to time. Social and laboratory-based research (including control interventions) on diseases such as TB, malaria reproductive and sexual health, and HIV/AIDS as well as nutrition research are also part of research focus. We also provide facilities for research in medicine in cooperation with medical schools, universities and other institutions in and outside Nigeria. Some of these research activities are conducted in collaboration with local and international collaborators such as APIN and Harvard PEPFAR.

Microbiology

The research activities of the Microbiology Division centre on communicable diseases. The division is comprised of four units namely; TB, Human Virology, Immunology, Diarrhea and General Bacteriology. These units investigate the prevalence of the different strains of micro organisms and the resistance patterns of the pathogens responsible for most of these communicable diseases (TB, HIV, Acute Respiratory Infections, Diarrhea, Viral and Fungal Infections). The HumanVirology Unit of the division also evaluates kits for HIV tests and monitors the HIV patients' response to the anti-retroviral drugs.

Molecular Biology & Biotechnology

The Division is involved in research activities of communicable and non-communicable diseases. The Units in the Division comprise Molecular Epidemiology, Biotechnology and Haematology.The Division researches into the molecular epidemiology of diseases such as Helicobacter pylori, Campylobacter jejuni, Salmonella typhi (the causative agent of typhoid fever), Enterohaemorrahagic E.coli (EHEC 0157:H7), and sexually transmitted infections including HIV/AIDS. Local foods are beIng bioengineered to control and prevent diarrhoeal diseases, as well as improve the shelf life.

The Division has also been involved in the local production of antisera against Neisseria meningitidis and ABO blood group. The Division has also been screening local fruits and vegetables for antioxidant properties. While conducting these researches, disease, status has been established and the appropriate local regimen effected. Proper and accurate diagnosis of disease has been established. The Division has also been in collaboration with various research divisions in addition to local and international bodies such as Federal Ministry of Education, Health, FHI, Alexander von Humboldt (AvH), Germany, INSERM, France, TWAS (ITALY), Roche, International Centre for Genetic Engineering & Biotechnology (ICGEB), International Foundation for Science (IFS) Sweden, Deutsch Forsdungs Gemeinscaff (DFC) Germany, KIT Biomedical Research , Royal Tropical Institute (Netherlands), Instituto V enezolano de investigaciones (IVIC), Caracas and SARETI, South Africa.

Public Health

The Public Health Division focuses on communicable and non-communicable diseases and other health problems that are of public health importance in the country. The Division conducts epidemiological (including control interventions), social and laboratory-based research on diseases such as onchocerciasis, schistosomiasis, filariasis, malaria and, in addition nutrition, reproductive and sexual health, and HIV/AIDS. These research activities are conducted in collaboration with and support of local and international bodies such as the States' ministries of Health (e.g. Ondo, Ogun, Borno, Osun and, Niger), National Control Programs (such as National Onchocerciasis Control Program, National Schistosomiasis Control Program, Malaria Vector Control Unit/Roll Back Malatia), the African Program on Onchocerciasis Control (APOC), the German Technical Cooperation (GTZ), the office of Population Research, Princeton University, USA and the Swiss Tropical Institute. Others include the Applied Research on Child Health (ARCH) project of Boston University School of Public Health under the auspices of USAID in Washington, the WHO, UNICEF, the National Institute for Communicable Diseases, the University of the Witwatersrand, Johannesburg, South Africa and the Centre de Recherche Entomologique du Benin, Cotonou.

Presently research activities are organised and conducted in NIMR in multi-dicisplinary and collaborative effort across the five divisions through the following six programs: Malaria, HIV/AIDS, Tuberculosis, Sexual reproductive and Childhood diseases, Non-Communicable Diseases, Neglected Tropical Diseases

Highlights of some achievedments

The Nigerian Institute of Medical Research has improved on its physical infrastructural facilities as well as provided state of the art equipment for research. For instance Polymerase Chain Reaction (PCR) machine is a common feature in most laboratories, as well as other major molecular biology and biotechnology research equipment such as: Microplate Reader, Electrophoretic apparatus, Thermal Cycler, Nanodrop spectrophotometer, Electrophoresis power pack, incubator, microcentrifuge, Eppendorf refridgerated centrifuge Fluorescent microscope etc. The Institute has also improved on human capital development. Staffs are continuously exposed to training, workshops and conferences which have impacted positively on productivity and performance. Some of the laboratories such as for Tuberculosis and HIV have gained recognition as reference laboratories. Some Notable milestones achievements of NIMR include:

- Contributed to evidence that informed policy change on malaria treatment from chloroquine to ACTs
- Developed technical platform and facilities in malaria vectors surveillance in Nigeria
- Developed capacity for monitoring resistance to insecticides for indoor residual spraying in Nigeria
- Established that mother-to-child transmission rate of HIV can be reduced to less 1% in a low income country (Nigeria) using an outreach/community approach (IAS 2006 Canada).
- Established through research that high HIV/HBV prevalence in Lagos emphasizes the need for immunization of all PLHWAs who are not vaccinated against HBV.
- Established that selenium as adjunct to ART boosts CD4 count of PLHWAs.
- Defined normal values of CD4 Count in healthy Nigerian adults and children have been defined
- Provided evidence to douse a national controversy by establishing the absence of Human Immunodeficiency virus in aliquots of oral Polio Virus used for national immunization.
- Facilitated importation and use of Cyflow Machine into the Country for monitoring CD4 Count in HIV Patients.
- Established assays for HIV-1, HCV and HBV Viral Load which hitherto was done abroad
- Evaluation of HIV Test Kits for national registration.
- Evaluated claims on HIV cure in the country.
- Contributed to evidence that informed policy change in some institutions on *H.pylori* treatment
- Established molecular techniques for diagnosis of S. Typhi;

National and Internatioanl collaborators

NIMR collaborates with virtually all States Ministry of Health in the Federation in pursuit of its mandate, as well many Universities and the private sector especially the Pharmaceutical industries. The Institute has also been able to establish some working relationship with the following international organizations / Institutions:

Ford Foundation
Harvard School of Public Health, Boston USA
University of Maryland, Baltimore, USA
North Western University Chicago, USA
National Reference Centre for Helicobacter Freiburg, Germany
World Health Organization
Geneva, GTZ, Germany
MacArthur Foundation
West African Health Organization
African Malaria Network Trust
Swiss Tropical Research Institute
University of Cocoody, Abidjan, Ivory Coast
Medical Research Council, The Gambia
Alexander von Humboldt, Germany
Welcome Trust, U.K
Family Health International, North Carolina, USA
Roche Foundation Lausanne, Switzerland
European Union and Developing Countries Clinical Trial Partnership, The Hague, Netherlands; The International Association of National Public Health Institutes, Atlanta, USA.
Liverpool School of Tropical Medicine, UK
European Network for Advanced Research on Malaria Transmitting Insect Control
Vector Control Reference Unit, South Africa National Institute of Communicable Diseases, Johannesburg, South Africa.
Laboratòrio de Imunologia Celular e Molecular, Centro de Pesquisas René Rachou, Fundaçao Oswaldo Cruz, FIOCRUZ. Belo Horizonte, MG, Brazil.
Wolfson Wellcome Biomedical Laboratories, Zoology Department, Natural History Museum, London, UK.
Coris BioConcept, Research and Development Department, Gembloux, Belgium.
International Centre for Genetic Engineering & Biotechnology (ICGEB)
International Foundation for Science (IFS) Sweden,
TWAS, Italy
Deutsch Forsdungs Gemeinscaff (DFC) Germany
KIT Biomedical Research , (Netherlands)
Royal Tropical Institute (Netherlands)
Instituto V enez olano de investigaciones (IVIC), Caracas
SARETI, South Africa.

Institutional grants received in NIMR 2008-2009

PEPFAR-APIN+NIMR	PI	Dr. D.I Onwujekwe
WHO-MIM/TDR	PI	Dr. T. S. Awolola
HIV-GLOBAL FUND-TRAINING/HCT TRAINING	PI	Dr. E.O. Idigbe
NASCAP	PI	Dr. E.O. Agomo
International Association of National Public Health Institutes (Grant)IANPHI	PI	Dr. P. U. Idigbe
AKANET (IRB Grant)	PI	Dr. P. U. Agomo
WHO-NIMR RTC Project 170481	PI	Dr. T. S. Awolola
International Center for Genetic Engineering and Biotechnology ICGEB	PI	Dr. S.I. Smith
Society for Family Health SHF Scalling up of malaria prevention	PI	Dr. P. U. Agomo
VIUSID Prospective trial	PI	Dr. N Odunukwe
West African Health	PI	Dr. P. U. Agomo
External Quality Assurance Project EQAP, IANPHI	PI	Dr. R. Audu
Vestergaerd Phase I trial	PI	Dr. T. S. Awolola
Systematics Research Grant by the Linnean Society/Systematics Association, UK, 2009.	PI	Dr. O.P. Akinwale
International Foundation for Science (IFS)	PI	Dr. S.I Smith
International Association of National Public Health Institutes (Grant)IANPHI	PI	Dr. O.P. Akinwale

*PI - Principal Investigator

Monthly Scientific Seminars organized in 2008-2009

SPEAKER	TITLE OF PRESENTATION	DATE
Dr. Audu R.A.	Nigeria"s HIV early infant diagnosis programme: lessons learnt	14/05/08
Dr. Ezechi	Development and writing of standard operating procedure for Biomedical research	11/06/08
Dr. Oyedeji, K.S	A pilot study on the prevalence of Helicobacter pylori infection among symptomatic children in Western Nigerian	09/07/08
Mrs Sulyman	The use of drugs in the control of Schistosomiasis	10/09/08
Dr. Oyedeji K.S	Publication ethics	11/02/09
Dr. Odunukwe, N.N	Research grantsmanship	11/03/09
Dr. Audu R.A	Establishment of reference value of CD4 & Cd8 lymphocyte subsets in Healthy Nigerian adult	08/04/09
BAYE Company Ltd.	Traditional medicine	10/06/09
Dr. Aina O.O.	Efficacy studies of dihydroartemisin plus mefloquine combination in children with uncomplicated falciparium in Lagos State, Nigeria	08/07/09
Dr. Amaize	Epidemiology of TB in mid-western Nigeria	12/08/09
Dr. Adejumo	"The ethical issues in health"	14/10/09

PhD theses awarded 2008-2009

Name:	Dr (Mrs) M. A. Sulyman
Division:	Public Health
Date:	2008
Title of thesis:	Studies on schistosoma haematobium infection in school aged children in four states of Nigeria

Name:	Dr. Olugbenga Aina
Division:	Biochemistry & Nutrition
Date:	2009
Title of thesis:	Efficacy studies of Dihydroartemisin plus mefloquine combination in Children with uncomplicated “plasmodium falciparum” malaria in Lagos State, Nigeria

Malaria reseach efforts at NIMR

The Nigerian Institute of Medical Research (NIMR) is the foremost medical research Institute in the country.Activities at the Institute date back to 1920 when foreign experts arrived to help curb the yellow fever scourge.
Concerted effort at Malaria research has increased in the last few years to incorporate the global trends towards integrated management in view of the fact that the disease has remained the number one killer in the country.
Today, directions are geared towards multidisciplinary collaborative efforts within and outside the Institute to tackle the different facets of malaria research. Of the five Research Divisions in NIMR, the Biochemistry, Nutrition and Public Health Division and also Clinical Sciences Division have worked together on projects to address the challenges.

The various activities have included health systems and policy research, social epidemiological, clinical studies of antimalarial efficacy and safety, molecular epidemiology, surveillance of molecular correlates of antimalarial drug resistance, molecular entomology and vector control studies. The World Health Organisation (WHO) funded projects in the area of health systems and policy include: Impact of health systems reform on the control of malaria in Umuahia local government area of Abia State, Nigeria (Grant No:HQ/94/171219), and Evaluation of an ongoing malaria control in Isiukwuato local government area of Abia State (Grant No:HQ/95/401786). Research scientists of the Institute have also participated in multi-center phase II and III studies involving interventions and evaluation of antimalaria drugs for rural dwellers(Home Management) through primary health care workers and community health committees (Grant No: ID960395 and ID 980272).

A recent health systems and policy research conducted in the Institute was on the evaluation of awareness, accessibility and use of malaria control interventions in the context of the roll back malaria programme (RBM) in Ogun State, Nigeria. In the study, the awareness and use of malaria control interventions was evaluated among at-risk groups and the availability and accessibility of malaria control interventions such as LLINs, ACTs and IPTp were examined in some communities of Ogun State with a year to the deadline of RBM targets and more than half the time to MDGs deadline now past. It was a survey of 262 women attending antenatal clinics and 233 mothers of under-five using questionnaire in Ogun State, Nigeria. Results showed poor awareness and low use of malaria control interventions in the study communities. The commodities of malaria control were grossly inadequate in supplies to the health facilities and the private health facilities were not involved in the implementation of the RBM programme in the study area. The results suggested that efforts need be intensified to make adequate information and materials relating to the different malaria control interventions more available and accessible at the community level. This is important if the RBM/MDG targets are to be realized in the study communities in particular and the Nigeria in general.

Clinical studies in the last fifteen years have included:
Comparative efficacy of chloroquine (now phased out)and chloroquine/chlopheniramine in children suffering from acute uncomplicated falciparum malaria and molecular correlates of their resistance,

Comparative efficacy study of chloroquine, dihydroartemisinin and dihydroartemisinin plus mefloquine combination in children with acute uncomplicated falciparum Malaria at the Massey Street Children Hospital and Ijede Health Centre, Ijede,
Efficacy and safety of artesunate plus mefloquine (Artequin®) in the treatment of Uncomplicated falciparum malaria in Ijede community, Ikorodu LGA, Lagos State,

An Opened Label Trial of a combination of artesunate plus amodiaquine (GSUNATE KIT®) in the Treatment of Malaria in Lagos State, Nigeria was carried out, and

Intermittent preventive treatment with sulphadoxine-pyrimethamine during pregnancy and Plasmodium falciparum genetic diversity in peripheral, cord and placental blood of HIV infected and non-infected women in Lagos State, Nigeria.

GLOBAL FUND SPONSORED PROJECTS

Presently, NIMR is participating in the Global Fund sponsored on-going National ACT efficacy survey, covering the south-west component in the six geopolitical zones of Nigeria.

NIMR was a sub recipient in the Round 4 Phase 2 Global Fund training project to update health care providers on the prevention and treatment of malaria. These health care providers included medical doctors, pharmacists, private patent medicine vendors and role model mothers. The Round 8 of this training project for scale-up of comprehensive prevention and treatment of malaria in Nigeria commenced January 2010.

COLLABORATION WITH MRC, THE GAMBIA

Collaborative work with The Medical Research Council, The Gambia is also on-going in the area of "Characterization of molecular markers associated with Plasmodium falciparum resistance to antimalarial drugs and evaluation of PCR methods for parasite density estimation in a rural and semi-urban site in South-West Nigeria".

RAPID DIAGNOSTIC TEST (RDT)

Rapid diagnostic test (RDT) performances of locally available RDTs when compared to gold standard microscopy are routinely surveyed in NIMR and several publications attest to this. The possible use of some brands of RDTs in pregnant women attending antenatal clinics was also recently investigated in a pilot study on Comparative performance of malaria diagnostic and parasite quantitation techniques amongst patients attending antenatal clinics in Ikorodu local government area of Lagos.

VECTOR CONTROL RESEARCH

The Molecular Entomology and Vector Control Research Laboratory of the Institute has built up capacity to carry out molecular studies on the identification and molecular characterization of major mosequito groups associated with malaria transmission in different ecological zones in Nigeria.

Part of our activities also includes the use of ELISA techniques to determine circumsporozoite proteins in infected mosquitoes and also to determine the contribution of these vectors to malaria transmission in different epidemiological settings. The laboratory also serves as a reference center providing technical assistance at the State level and also to the National Malaria Control Programme in the implementation of indoor residual spraying in the country. The vector control unit routinely monitors insecticide resistance in field mosquito populations using the WHO susceptibility kits. Molecular markers have been used to identify resistant mechanisms associated with mutation and lately, the micro array technique is being used to determine differentially expressed genes associated with metabolic resistance in mosquito population. In conjunction with Vestergaard Frandsen (Disease control textile manufacturer) the laboratory is presently involved in the Phase I trial to determine the regeneration time and wash resistance of Permanet 2.0 and Olyset Long-

lasting insecticidal nets.The phase II component of the trial is commencing in the Institute's out-station in Niger State. Efforts are on-going with a consortium of other European partners under the European Network for Advanced Research on Olfaction for Malaria Transmitting Insect Control (ENAROMaTIC) in an innovative research project to test the potential of substances of natural and synthetic origin to hinder the female mosquito's capacity (disease vector) to detect the presence of human odours in its environment.This is expected to prevent the mosquito from obtaining a blood meal from the host and transmitting the malaria parasite in the process.

With the new global thrust gearing towards integrated control of malaria, NIMR occupies a strategic position to play a pivotal role in achieving this global goal in the country. Considering the size and population of the country in sub-Saharan Africa, activities of NIMR will contribute immensely to the success of these malaria control efforts particularly as it relates to the RollBack Malalria (RBM) and Millennium Development Goals (MDGs).

Biochemistry research team

Research Fellows

Agomo, P.U	Director of Research
Kathleen. N. Egbuna	Senior Research Fellow
Yetunde A. Olukosi	Senior Research Fellow
Bamidele A. Iwalokun	Senior Research Fellow
Samdi L. M	Research Fellow I
Olugbenga. O. Aina	Research Fellow II
Aloysius C. Ene	Research Fellow II
Hilary I. Okoh	Research Fellow II
Chimere O. Agomo	Research Fellow II
Olusola Ajibaye	Junior Research Fellow
Bassey Orok	Junior Research Fellow

Laboratory Scientists

Vera Enya	Principal Med. Lab. Scient.
Samuel Akindele	Principal Med. Lab. Scient.
Olajumoke Akinyele	Science Lab. Tech.

Comparative study of the efficacy of chloroquine, mefloquine and dihydroartemisinin in children with acute uncomplicated falciparum malaria

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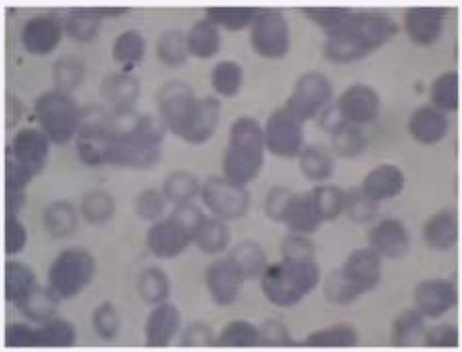
OKOH H I
AGOMO CO
AGOMO PU

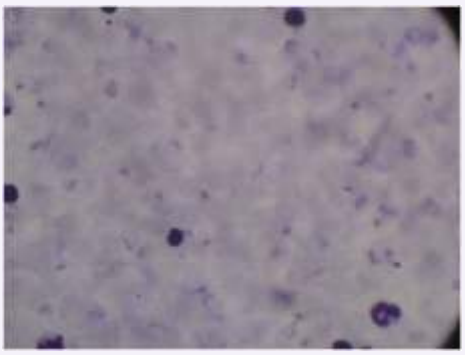
Malaria is a major parasitic disease with an estimated annual prevalence of 300-500 million clinical cases (WHO 1998). Over 2 million children below the age of 5 years are reported to die from malaria in Africa alone each year (WHO 1989), Chemotherapy and Chemoprophylaxis remains the mainstay in the global malaria control programme.

We aim is to evaluate the Parasite Clearance Time (PCT) and Fever Clearance Time (FCT), in children with falciparum malaria treated with dihydroartemisinin, mefloquine, chloroquine.

Children between the ages of 2-13 years attending the outpatient department of the health center were screened for malaria parasites. Subjects that were positive and fulfilled the inclusion criteria were allotted to one of the three treatment groups. One group was treated with chloroquine (25 mg/kg); the second group was treated with mefloquine (25 mg/kg) and the third group was treated with dihydroartemisin (2mg/kg).

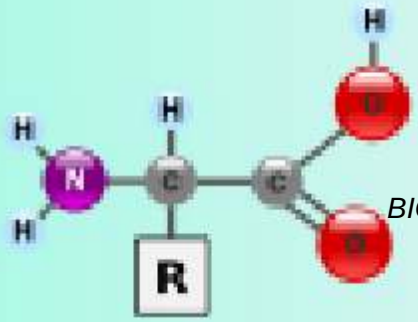


Malaria Parasite inside the Red Blood Cell



Malaria Parasite in a thick film

Results of the therapeutic responses of the subjects to the antimalarial drugs showed that the subjects in chloroquine, mefloquine and dihydroartemisinin groups had fever clearance time (FCT) of 25.3 ± 5.66; 19.6 ± 16.11 and 15.7 ± 9.27 hours respectively. The parasite clearance time (PCT) of the subjects in chloroquine, mefloquine and dihydroartemisinin groups were 73.5 ± 45.44; 48 ± 0.0 and 34.3 ± 12.83 hours respectively. This



shows that dihydroartemisinin had a faster FCT and PCT of all the antimalarial drugs used in this study. There was significant difference in the FCT and PCT between dihydroartemisinin and mefloquine and chloroquine group (P< 0.05). The subjects were monitored for 28 days; there was no report of any recrudescence or resistance in mefloquine and dihydroartemisinin group within the 28 days of monitoring the subjects. In chloroquine group however, a number of treatment failure were observed. Our study showed that dihydroartemisinin is the most effective of all the antimalarial drugs used, followed by mefloquine

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Effect of dihydroartemisinin plus mefloquine combination and dihydroartemisinin alone on electrocardiogram in healthy Nigerian subjects

The use of artemisinn combination therapy (ACT) in the treatment of malaria in most African countries especially in Nigeria has now been adopted (FMOH, 2004). This is due to chloroqune resistant parasite and failure of other antimalaria drugs to clear malaria parasite from the blood stream, when full dose have been taken. In fact ACT is now the first line drug for the treatment of malaria in Nigeria (FMOH, 2004). These include artemether plus lumefantrine combination, other combination therapies are artesunaate plus amodiaquine,dihydroartemisinin plus mefloquine and dihydroartemisinin plus piperaquine plus trimethoprim FMOH, 2004).

Objective is to evaluated the cardiotoxic effect of dihydroartemisinin (DHA) and the combination of dihydroartemisinin plus mefloquine (MQ) in healthy Nigerian volunteers.

Twenty health volunteers divided into two groups of 10 subjects each. Dihydroartemisinin (DHA) alone (group A) and combination of dihydroartemisinin plus mefloquine (group B) were used for the study. Pre drug assessment was carried out, each subject was weighed, a full physical examination was performed and a vital sign which baseline data includes heart rate, respiratory rate, standing systolic and diastolic blood pressure and electrocardiogram (ECG) was recorded. Initial PR interval, QRS complex, QT, QTC and QT/QTC ratio were recorded.

Dihydroartemisinin tablet (2mg/kg body weight containing 60mg per tablet) was administered to the subjects (Group A). They were given two tablets on day 0 and one tablet each on days 1 to 6.

Dihydroartemisinin tablet (2mg/kg body weight containing 60mg per tablet) and Mefloquine tablet (25mg/kg body weight containing 250mg per tablet) was administered to the subjects (Group B). They were given two tablets of dihydroartemisinin and one tablet of mefloquine on day 0 and day 1, while on day 2 they took one tablet of dihyroartemisinin and one tablet of Mefloquine.

Pulse and respiratory rates, lying and standing systolic and diastolic blood pressure was recorded on day 8 after drug administration.

Electrocardiogram (ECG) measures was performed with the subjects resting in bed at baseline (0 h) and on day 8 after drug administered in group1, while in group 2 ECG was performed with the subjects resting in bed at baseline (0 h) and on day 3 after drug administration.

Heart rates were comparable after treatment in DHA and DHA plus MQ combination groups, no clinically relevant study drug related changes in heart rate were observed after either treatment. The mean (±SD) baseline of QTc
Interval was 395ms (±25.2), there was a decrease in the QTc interval 72 hours after drug administration. The mean (±SD) ratio of QT/QTc at baseline was 0.91ms ((±0.03), this value increased to 0.96ms (±0.10) in the DHA plus MQ
group. In the DHA group, the mean (±SD) measurement of QTc at baseline was 393ms (±20.5), there was an increase in QTc to 397ms (±25.2) after drug administration. There was no change in the ratio of QT and QTc at base and after drug administration. It was 0.97ms (±0.1). There was no significant difference in pre-treatment and post-treatment of QTc values between the group in DHA and DHA plus MQ combination.There was no significant effect on the QTc interval when DHA was administered alone and in

Evaluation of the genotoxic effects of *hibiscus sabdariffa* flower calyx aqueous extract (zobo drink) and propoxur insecticide using the *allium cepa* test.

OKOH HI
ODEIGAH PGC
DON-PEDRO KN
AGOMO PU
EGBUNA KN
AJIBAYE O

There is an increasing awareness of the genotoxic potential of a wide range of drugs and chemicals to which the human population is exposed either environmentally or occupationally (Fiskejo, 1985b, 1988a, 1992 and 1997). This has led to a renewed interest in the use of cytological investigations in short-term tests for environmental monitoring resulting in the development of sensitive, specific and practical methods for detecting and estimating the genotoxicity of these substances.

The *allium cepa* test system which was first introduced by Levan in 1938 to examine the effect of colchicine (Levan, 1938) provides a rapid screening procedure for chemicals, pollutants, and contaminants, which may represent environmental hazards. It is easy to perform, highly sensitive and reproducible. It makes it possible for both macroscopic and microscopic affects to be observed and there is a good correlation between the two. The macroscopic effect assesses inhibition of root growth while the microscopic examination allows for assessment of chromosome damage and cell division disturbances, thus providing additional information as to the severity or mechanism of the toxic effect, or potential mutagenecity. When agricultural chemicals were studied by various plant cytogeneticists and comparisons made between animal and plant systems, it was shown that plants have excellent correlation with mammalian systems (Grant 1982, Umar, 2004).

Objective: to evaluate the genotoxic effects of Zobo drink and propoxur insecticide substances using the allium cepa test system.

Two widely used substances; *Hibiscus sabdariffa* flower calyx aqueous extract (zobo drink) and propoxur insecticide were investigated for their general toxicity (root growth inhibition) and genotoxicity (chromosome aberrations in root cells). A series of twelve (12) small bulbs of *Allium cepa L.* were cultivated in varying concentrations of the two test samples respectively. After 48 and 96 hours, one root tip from each bulb was harvested and processed for cytological studies by the aceto-orcein squash technique. Mean lengths of root bundles were obtained after 96 hours and the Effect Concentration (EC) values calculated. values of the two test samples were ranked as follows: Zobo drink: Day 2 (5%), Day 4 (5.2%), Propoxur Insecticide Day 2 (0.5%), and Day 4 (0.8%). A total phytotoxic effect was The EC_{50}

Allium bulbs in series

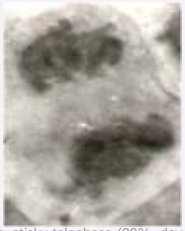
Induced at concentration of 20% and above for zobo drink and 5% and above for propoxur.

The two test samples were mitodepressive and caused significant increase in the frequency of chromosome aberrations. This result shows that these two widely utilized substances have potential for genotoxicity. Abstract of this work was published in the Nigerian Journal of Parasitology and Public Health Society of Nigeria (PPSN).

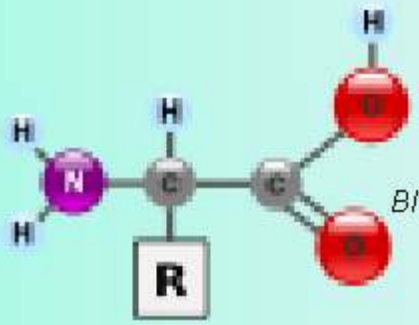
(a - c): Microscopic Effects on Allium roots exposed to different concentrations of zobo drink

a. vagrant chromosomes (12.5%, day 2)

b. c-mitosis (17.5%, day 2)



c. sticky telophase (20%, day 2)



Agomo CO
Oyibo WA
Fagbenro-Beyioku AF
Agomo PU

Intermittent preventive treatment of malaria during pregnancy (iptp) in Lagos, Nigeria.

Pregnant women in malaria endemic areas are giving a curative treatment dose of an effective antimalarial drug at predefined intervals beginnings after quickening in the second trimester (16-28 weeks of gestation) on the presumption that they are infected with malaria parasite. This is principally because the presentation is mostly asymptomatic. The objective of intermittent preventive treatment (IPT) in pregnancy using anaemia and pregnancy outcome (Shulman and Dorman, 2003; Greenwood, 2004).

We aim to evaluate the response to sulphadoxine-pyrimethamine (SP) used in IPTp and *P. falciparum* genotypic diversity so as to contribute in the case management of malaria in pregnancy in Nigeria.

Pregnant women recruited after quickening (16-22 weeks gestation) for the study were allocated to 2 main treatment groups. Group A (257) receives monthly SP while group B (400) receives the FMOH recommended 2 or 3 SP doses depending on HIV status. The monthly malaria parasitaemia is being monitored as well as the presence of malaria parasites in the placenta. Results are being collated for analysis. Molecular studies are yet to commence.

Olukosi AY
Iwalokun BA
Aina OO
Okoh HI
Egbuna KN
Akinyele OA
Agomo PU

Study of genetic variability and differentiation of recrudescence to chloroquin from re-infections

Strains of *Plasmodium* have been found to differ in their infection pattern, vector susceptibility cross immunity, incubation period and relapse pattern. Highly hyper variable molecular markers can be used to survey natural parasite populations so that extent of genetic variation that exists within a given species in a geographical location can be defined.

This study will enhance observations from the previous study; making finer scientific deduction possible for control measures in the spread of malaria.

The objective is to differentiate parasite resistant to chloroquine from reinfections molecular characterization of malaria parasites in circulation in Ijede, semi-urban study site.

Conclusion has been reached as to the true failure rates from the in-vivo study characterizing chloroquine efficacy. A combination of the two loci, msp11 and glurp differentiated between recrudescence and reinfection, adjusting the in-vivo failure rates in the CQ treated group from 40.7% to 39.4% and the CQCP treated group from 22.3% to 20.8%. Diversity studies indicated

Enya VN
Chimah UC
Agomo CO
Olukosi YA
Egbuna KN
Okoh HI
Aina OO

Antimalarial drugs prescribed by health personnel or self-administered by patients in Lagos

We set out to determine the types of antimalarial drugs prescribed by Health Personnel or self-administered by individuals in Lagos State. To determine the actions taken by patients who have malaria in Lagos State. To examine knowledge of various antimalarial drugs. To probe attitudes to use of Artemisinin-based combination drugs. To determine the knowledge of Health Personnel as regards the types of antimalarial drugs in the market and the types of antimalarial drugs that they currently prescribe for their patients. To know the level of awareness of clinicians and other Health Providers about ACTs. To probe the attitude of health providers to the recently-introduced first and second-line ACTs. To elicit from clinicians and other Health Providers, the way forward as regards management of malaria in Nigeria.

In 2005, the FMOH recommended artemisinin-based combination drugs (mainly Artemether +

Lumefantrine, Coartem) as the first-line drug. Knowledge, attitude and practices of both health personnel and patients have since differed tremendously. This project is designed to determine the extent to which sharp practices have abated or worsened in Lagos State. **R**esults of the findings will be of use in interventions and policy formulation by the Federal Government.

Two questionnaires were designed and pre-tested in NIMR Community Health Personnel and people in NIMR were visited and interviewed. At the visit, respondents were informed that the survey was about the types of drugs for treating malaria. The questionnaires were administered to all the respondents for completion.

A total of 38.5% of 13 health Personnel in NIMR prescribed Artemisinin-based Combination Therapies for malaria and 61.5% prescribed dihydroartemisinin (Cotexcin) only. All respondents have heard about ACTs through seminars and advertisements. Among the people in the community, majority of respondents have had malaria in the last 2 months with knowledge of signs and symptoms.

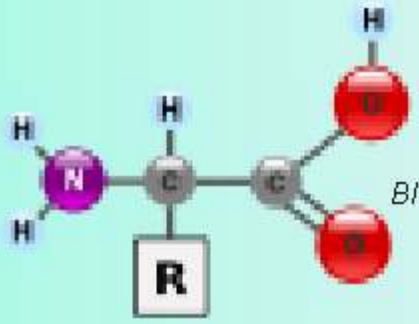
They also evaluate the efficacy of drug given based on the clearance of the symptoms cleared. A total of 44 people (36.4%) have heard about ACTs mainly from seminars and advertisements. 45.5% of people have used ACTs, 22.7% have used CQ, 9.1% have used SP while 20.4% have been treated with herbs and 2.3% don't know what was given. 36.4% of 11 people that have experienced drug adverse reaction did nothing, 27.3% saw doctor, 27.3% stopped the drug, and 9.1% said that they took piriton

Optimization of the protein nutritive value of wheat/cassava breadmix by supplementing with the limiting amino-acids *(L-lysine & l-methionine)*

Egbuna KN
Ajibaye O
Orok B
Iwalokun BA
Okoh HI
Enya VN
Akinyele OA

The study was carried out to investigate whether the current recommendation on Nigerian bread-mix: to incorporate 10% cassava flour into wheat flour for all bread baked for human consumption produces bread of adequate nutritional value, and whether further input of cassava flour can be accommodated without compromising nutritive value.

The research investigation employed a feeding trial and bioassay of tissues from albino wistar breed of rats to evaluate the effect of supplementing various levels of wheat/cassava breadmix feed with 0.1% Llysine + 0.1% Lmethionine. Nine different diet regimens were used, with four rats being employed in each diet group. Parameters used as 'markers' include: Food Conversion Ratio, Relative Protein Utilization, Haematological indices, Biochemical assessments, and Anthropometric measurements. Serial weight changes were recorded for 5 weeks at weekly intervals. Food intake was estimated from the difference between supplied food and excess food removed at cage cleaning. Faecal collection from the cages, drying and weighing of leftovers was done on a weekly basis. At the end of the five weeks feeding trial, the rats were subjected to overnight fasting, sacrificed by cervical dislocation, and blood samples collected into heparinized specimen bottles for storage, and centrifuge tubes for immediate centrifugation at 1200 rpm for 15 minutes to produce supernatant plasma for the biochemical assay of total protein, albumin, bilirubin, creatinine, urea, cortisol; and the enzymes: alanine aminotransferase (ALT), aspartate aminotransferase (AST), lactate dehydrogenase (LDH), and alkaline dehydrogenase (ADH). Haematological parameters [Haematocrit, PCV, transferin] were measured using whole blood samples. All biochemical and enzyme assays were performed using a spectrophotometer and Diagnostic kits following the manufacturer's protocol. Total plasma cortisol level is still to be determined using ELISA technique.



Results so far indicate that both 10% and 20% cassava input to wheatmeal support adequate growth and biochemical maturation of weanling rats although fortification of the wheat-cassava breadmix with 0.1% L-lysine + 0.1% L-methionine produce better results.

Akindele SK
Agomo PU
Aina OO
Brai BA
Agomo CO
Enya VN
Egbuna KN

Evaluation of the biochemical and haematological indices of safety in the treatment of *plasmodium berghei* malaria using artemisinin based combinations drugs

The emergence and spread of drug resistant malaria parasites is the major threat to effective malaria treatment and control. So far, malaria control has relied heavily on a restricted number of related drugs belonging to either the quinoline or the antifolate groups. Only recently have the artemisinin-type compound been used widely. Artemisinin have now gained popularity as short acting drugs which could be used in combination with drugs which have longhalf life. This study is to assess the safety of the artemisinin combination drugs in relation to liver and kidney of patients during and after treatment.

Objectives is to determine safety and tolerability of artemisinin based combination drugs in the treatment of acute uncomplicated malaria; to compare the pattern of recovery from infection on treatment with Chloroquine (CQ) and artemisinin (ACTs), to determine and to measure related indices of oxidative stress.

Young Swiss albino mice were used. Five groups each group contained 10 mice.
Group A Negative control: Not infected, not treated Group B Positive control: Infected, Not treated. Group C Standard CQ: Infected and treated with CQ Group D Artequin™: Infected and treated with Artequin™ Group E Gsunate Kit®: Infected and treated with Gsunate Kit® Treatment was given according to manufacturer's instruction. Haematology & Biochemical assays for liver/renal tests were carried out.

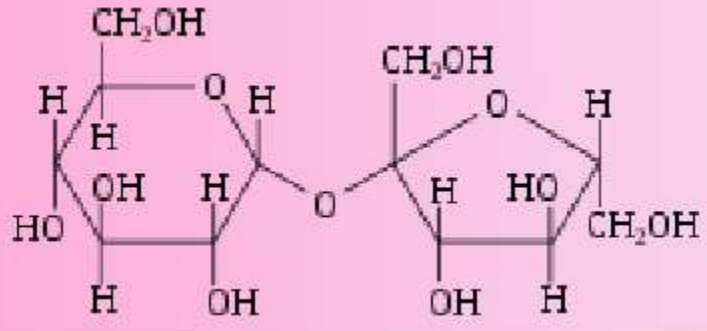
Artequin® and Gsunate Kit® from this study was safe and well tolerated. The results were not significantly different in pre-and post treatment. The liver and the renal function tests were relatively stable following successful treatment with the ACTs. Measurements of antioxidant enzymes (antioxidant defenses) serve as a means of detecting exposure to Xenobiotics that induce oxidative stress. All the antioxidant enzymes tested for were not significantly differ from the control subjects (P>0.05).

Agomo PU
Aina OO
Akindele SK
Agomo CO
Egbuna KN
Olukosi YA
Okoh HI
Iwalokun BA
Enya VN
Akinyele O
Ajibaye O
Orok B
Okechukwu O.

Therapeutic efficacy study of Artemisinin-lumenfantrine versus Artesunate-Amodiaquine in patients with uncomplication falciparum malaria in Ijede, Ikorodu local government area of Lagos State.

Malaria is a major parasitic disease with an estimated annual prevalence of 300-500 million clinical cases (WHO 1998). Over 2 million children below the age of 5 years are reported to die from malaria in Africa alone each year. Chemotherapy & Chemoprophylaxis remains the mainstay in the global malaria control programme.

We aim to investigate the therapeutic efficacy of two Artemisinin based combination therapy (ACTs) anti-malaria drugs in two geopolitical zones of Nigeria by evaluating the therapeutic efficacy of a combination of artesunate plus amodiaquine (AA) versus artemether plus lumefantrine (AL) using the modified WHO 7-day *in vivo* test extended to 28 day follow-up period, determining the parasite clearance time and the fever clearance time of the two ACTs in the two geopolitical



zone of Nigeria, determining if there is any resistance to the two ACTs in the two geopolitical zone of Nigeria and ascertain the safety and tolerability of the artesunate plus amodiaquine and artemther plus lumefantrine in the treatment of acute uncomplicated malaria.
Adults and children attending the outpatient department of the health center at Ijede General Hospital were screened for malaria parasites. Patients that were positive and fulfilled the inclusion criteria were allotted to one of the two treatment groups. A randomized sampling method was used to allocate recruited patients into two treatment groups AA or AL. Dose received was based on two weight grouping: Group 1 weighing 10-34kg and Group 2 weighing = 35kg. Participation was voluntary after obtaining an informed consent; Follow-up was done on Days 0,

Olukosi YA
Aina OO
Akindele SK
Agomo CO
Iwalokun BA
Egbuna KN
Okoh HI
Enya VN
Akinyele O
Ajibaye O
Orok B
Agomo PU

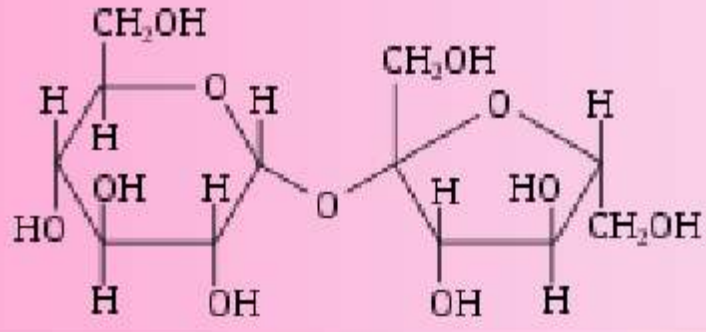
Characteristics of molecular markers associated with plasmodium falciparum resistance to antimalarial drugs and evaluation of pcr methods for parasite density estimation in rural and semi-urban site in South Western Nigeria

1, 2,3,7,14,21 and 28 for each patient. A total of 1235 patients were screened for malaria parasite and 242 patients were recruited for the study: 120 into the AL group and 122 into the AA group.

Drug resistance is usually first evident in the genes before parasitological and clinical resistance. Therefore, molecular correlates of antimalarial drug resistance could provide early warning signals of impending drug failure. We seek to determine prevalence and changes in the frequencies of resistance associated mutations to 4-amino-quinolines (chloroquine, quinine, amodiaquine) and the antifolates survey of at two different sites could reveal potential markers associated with parasite (pyrimethamine, cycloguanil, chlorcycloguanil, sulphonamides). Cross sectional molecular populations artemisinin resistance or tolerance. Antimalarial drug usage patterns should be evident in the associated mutations. Quantification of parasitemia using a high-throughput method will be evaluated as compared to the gold standard microscopy method to determine the feasibility of its routine use, with the aim of increasing accuracy and reducing time and labour costs.

Our aim is to determination of baseline frequencies of drug resistance associated mutations in the study sites: investigate differences in allele frequencies at the two study sites and evaluate performance of real time quantitative PCR method for parasite density estimation.
Examine parasite population diversity using a variable gene loci, the mspII. Determination of baseline frequencies of drug resistant associated mutations in study sites. Investigate differences in allele frequencies at the two study sites. Evaluate performance of real time quantitative PCR method for parasite density estimation. To examine parasite population diversity using a variable gene loci, the mspII. To provide a complementary method of monitoring antimalarial drug efficacy tests and develop a method of parasite quantitation in participants in clinical trials so as to determine baseline frequencies of drug resistance-associated mutations in study sites, Investigate differences in allele frequencies at the two study sites and examine parasite population diversity using a variable gene loci: msp II.

Hospital prevalence rates so far are 25% in Ijede, one of the sites. Work is continuing with the project which was initiated and is to run until 2011 [3 years programme]. Preliminary data shows that true failure rates from the in-vivo study characterizing chloroquine efficacy has been ascribe to a combination of the two loci, msp11 and glurp differentiated between recrudescence and reinfection, adjusting the in-vivo failure rates in the CQ treated group from 40.7% to 39.4% and the CQCP treated group from 22.3% to 20.8%. Diversity studies indicated up to 23 strains of *P. falciparum* in circulation in Ijede region of Lagos.
This study will helps to provide support information to antimalarial drug failure and thus inform public health policy decisions regarding malaria treatment in these regions. It will also be a quantitative diagnostic tool available for antimalarial vaccine and drug therapeutic efficacy studies.



Enya VNV
Olukosi YA
Agomo CO
Akindele SK
Ajibaye O
Bassey O
Egbuna KN
Agomo PU.

Evaluation of efficacy of plasmodium aldolase antigen (dr.greg's) malaria kit® for the in vitro diagnosis of malaria

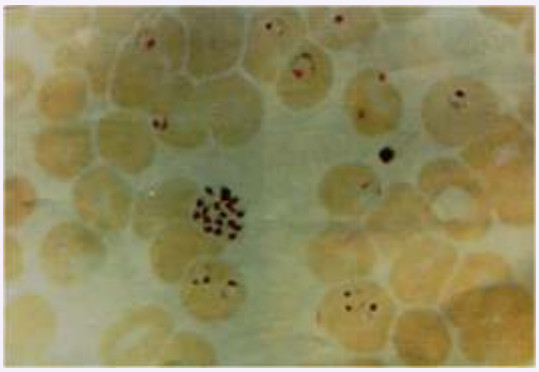
Early case detection and treatment of malaria is a major aspect of malaria control efforts. Symptom-based diagnosis is well demonstrated to have poor accuracy. Rapid diagnostic tests (RDTs) have been proposed as an important option in parasite-based diagnosis of malaria especially in resource-poor countries where malaria microscopy is difficult to be implemented. *Plasmodium* aldolase is an enzyme of the parasite glycolytic pathway expressed by the blood stages of *Plasmodium falciparum* as well as the non-falciparum malaria parasities. Monoclonal antibodies against *Plasmodium* aldolase are pan-specific in their reaction, have been used in a combined Pf/Pv immunochromatoraphic test that targets the pan monoclonial antigen (PMA) along with PfHRP2.

In continuation with our evaluation studies on current RDTs for malaria, to ascertain their sensitivity and specificity as concerning suitability for use in Nigeria, it becomes imperative that we evaluate Dr. Greg's malaria kit®.

Our is to determine the sensitivity and specificity of the kit with reference to the 'gold standard' method, microscopy.

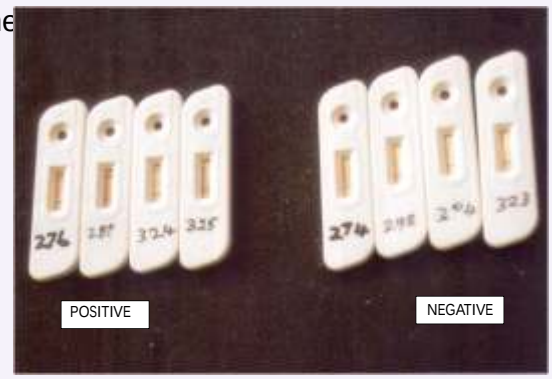
A total of 243 febrile children and 107 febrile pregnant women were recruited after voluntary submission of written informed consent. They had history of fever/ or auxiliary = 37.5°C. The febrile children were not on antimalarial drugs 7 days before presentation to the clinic.

The febrile pregnant women were tested before they commenced the intermittent preventive tre



Giemsa stained thin blood film from a febrile patient showing plasmodium falciparum

atme



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Mrs. EC Herbertson	Pharmacist
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Mrs. DD Oladipo	Nurse
Mrs. EE Anyasi	Nurse
Mrs. C. Okerekeocha	Lab Asst./counselor
Mrs. F. Ajayi	CHO

Prevalence and outcome of severe anaemia in HIV infected persons accessing medicare in Lagos

Odunukwe NN
Ezeobi PM
Gbajabiamila T
Onwujekwe DI
Musa AZ

Anaemia in HIV-infected patients can have serious implications, since it is associated with increased morbidity and mortality and is a predictor of progression to AIDS. It is also independently associated with an increased risk of death. This report describes the prevalence and outcome of severe anaemia on HIV infected individuals on HAART, in Lagos Nigeria.

Three thousand, three hundred and fifty-four (3354) HIV infected previously antiretroviral naive adult Nigerians, aged 18-71 years (1120 males and 2234 females) enrolled for HIV management between June 2004 and December 2006 were studied. Haematological parameters as well as CD4 cell counts were analyzed at baseline and repeated at 24weeks intervals, after commencement of treatment. The data was analyzed using Epi-info version 6.4D. Severe anaemia was defined as Haemoglobin level < 7.5 g/dl.

The mean haemoglobin level was 10.2g/dL for both males and females. Haemoglobin range were 2.1g/dl -13.8 g/dl, and 3.2 g/dl -13,9 g/dl (males and females respectively). Among males 82% had haemoglobin levels below 11.9g/l, females 42.8% had haemoglobin level below 9.9g/dL. At baseline, 10% of the patients have severe anaemia. Eighty percent of the males and 31% of the females had haemoglobins less than 7.5 g/dl. Within 96 weeks of this study 10.5% of those with severe anaemia died. 15% had more than four units of blood transfused within the first 4weeks of enrollment, 0.03% had renal dialysis, 0.2% were treated with erythropoietin, others had only haematinics, vitamins andART.

Fifty percent of those with haemoglobin < 9g/dl and <8g/dL (males and females respectively) had tuberculosis. Eighty-eight percent of those reported dead had haemoglobin levels below < 9g/dl. Ninety percent of those that needed admission had haemoglobin levels below 10g/dL. All those treated with erythropoietin, had haemoglobin <7.5g/dl and none of them died but recovered and are still on ART. Malaria, malnutrition, tuberculosis and renal failure were the identified possible causes of severe anaemia in this study. Severe anaemia is common, and is strongly associated with disease progression, high morbidity, and low survival among the *HIV-infected patients* in Lagos. Treatment with erythropoietin, decreases morbidity and mortality associated with anaemia in HIV. This study has established the gravity of severe anaemia in the management of PLWHA, and recommendations of making available erythropoietin, for better management of HIV anaemia in Nigeria.

Effect of pregnancy disorders on blood lipid profile

Ezechi OC
Gab-Okafor CV
Oladele D
Oke BO
Somefun EO
David AN
Onwujekwe DI
Odunukwe NN

Diabetes mellitus, hypertension and malnutrition have been shown by several reports to affect lipid

One hundred and forty consecutive pregnant women with anaemia (30), gestational diabetes mellitus (10), preeclampsia (30) and normal pregnancy (70) seen at the Havana Specialist Hospital Surulere Lagos were studied during the late third trimester. About 5ml of blood was taken from antecubital vein after an overnight fast in a plastic EDTA bottles. Total Cholesterol, Triglycerides, HDL and LDL were analyzed using standard techniques.

The total cholesterol, triglyceride and HDL concentration in preeclamptic women were significantly lower and LDL significantly higher compared to the controls. It was only in total cholesterol concentration that there was statistical significant difference between anaemic women and the normal controls ($p<0.001$). In gestational diabetes the concentration of total cholesterol, triglyceride and LDL were significantly elevated in comparison to the controls and the HDL concentration was significantly reduced ($p = 0.000$).

Ezechi OC
Gab-Okafor CV
OLadele D
Oke BO
Somefun EO
David AN
Onwujekwe DI
Odunukwe NN

Prevalence and risk factors for menstrual dysfunction Among HIV positive women

We aim to determine the effect of HIV-1 infection, advancing immunosuppression and HAART on the menstrual function of Nigerian Women.

A cross-sectional study of 627 HIV-1 positive and 651 HIV negative consecutive and consenting women aged 18-40 years seen at the VCT and ARV centres of 2 tertiary HIV treatment centres in Nigeria. Information was obtained on sociodemographic characteristics and menstrual function in the preceding 6 months using a structured questionnaire designed for the study. Also obtained were anthropometric measurements, CD4 and viral load values.

Menstrual dysfunction was significantly commoner in PLWHAS (28.4%) than in their HIV negative (14.8%) women ($P=0.000$). The proportions of women in the two groups with intermenstrual bleeding, menorrhagia, hypomenorrhoea, and postcoital bleeding were similar ($p>0.005$), however amenorrhea, oligomenorrhoea, irregular periods and secondary dysmenorrhoea were commoner in the HIV positive women ($p<0.02$). Primary dysmenorrhoea was less common in HIV positives ($P<0.03$). Among the HIV positives, menstrual dysfunctions were commoner in PLWHAs with OIs, CD4 count less than 200, not on therapy, symptomatic disease and BMI <20, however after controlling for cofounder only CD4 <200 (OR: 3.65; CI: 1.18-6.7), BMI < 20 (OR: 2.1; CI: 1.2-3.2) and not on ARV drugs (OR: 1.9; CI: 1.47-7.7) were associated with menstrual abnormalities of amenorrhea, oligomenorrhoea, irregular periods and secondary dysmenorrhoea. This study established baseline finding on menstrual morbidity associated with HIV/AIDS and confirms the need not to waste scarce resources on treating menstrual morbidity associated with HIV/AIDS since starting ARV reverses it.

Odunukwe NN
Onwujekwe DI
Anyanwu RC
Ezeobi PM
GbajabiamilaT
Musa AZ

Prospective trial of selenium in the clinical management of HIV/AIDS in adult Nigerians who are not eligible for ART.

In developing countries, HIV-1 infection impact on people is devastating. Poor nutrition and HIV-related adverse health outcomes contribute to a vicious cycle that should be slowed down by nutritional supplements. Low serum micronutrient levels in HIV-positive individuals have been associated with immune impairment, disease progression, and increased mortality. Past studies document decreased levels of antioxidants and selenium in people living with HIV/AIDS.
In particular the section on nutrition and HIV/AIDS stressed the importance of a focused nutrition intervention based on evidence from randomized controlled clinical trial. This study is t**o** determine the efficacy of Selenium as an immune booster in the management of HIV/AIDS in adult Nigerians.

Prospective randomized study of 1000 *HIV infected* individuals aged =18 years, with recent CD4+ lymphocyte count >350 cells/µl of fresh whole blood (Measured by Cyflow), with no AIDS defining symptoms or signs, *who will give signed informed consent.* All

recruited patients are adult males or females, confirmed by Western Blot or a licensed double ELISA procedure, antiretroviral drug naïve and ineligible for HAART. Their baseline haematological, clinical chemistry, CD4+ lymphocyte counts were evaluated and viral loads quantified and repeated every 24th week.

Five hundred subjects for each of the two arms (A & B) of the study: A. Selenium one caplet, daily only for the duration of the study. B. Immunace (ie Selenium plus Vitamin B complex, and Vitamin C) one daily for the duration of study. This seeks to study should improve the management of PLWHA and may postpone the time for ART initiation. This will minimize ART side effects and reduce the very huge money spent on ART.

Tb modified DOT cohort review for TB/HIV Co-infection.

Onwujekwe DI
Ezechi OC
Oladele D
Ezeobi PM
Gbajabiamila T
Gab-Okafor VN
Oke BA
Somefun EO
David AN

NIMR TB DOTS Clinic became functional in July 2005, as the first of such treatment facilities with direct linkage to an HAART Centre. It provides a unique opportunity for piloting studies of health systems in the management of TB/HIV. Most of the patients attending the clinic are HIV +ve and are on care at the nearby Out-patient Clinic. Because most of them live far from the clinic, and refuse referral to TB DOTS clinics nearest to their abodes for fear of stigmatization and discrimination, and because most staff at DOTS centres are not familiar with the intricacies of TB/HIV co management, strict DOTS protocol is not feasible with TB/HIV treatment. Periodic cohort review of patients treated with this modified procedure will provide a window on the effectiveness of this system.

The modified DOTS protocol involves weekly attendance of the TB clinic during the Intensive Phase of TB treatment, and monthly attendance in the Continuation Phase. Adherence talks and health education on TB and HIV, as well as counseling are provided to the patients during each visit. Anti-TB drugs are issued on these visits, and patients swallow their drugs under the direct observation of a health worker only on those days. Cohort reviews will be done on 15 month cohorts of patients who have been treated with this protocol, and various outcomes compared with those of centres where standard daily DOTS are in practice. Study is on-going and evolving

Prevalence and management of HBV/HIV Co-infection in Lagos, Nigeria.

Odunukwe NN
Somefun EO
Musa AZ
Ezeobi PM
Gbajabiamila T
Ezechi O
Kalejaiye. OOC
Gab Okafor CV
Oladele D
Oke BO
Onwujekwe DI
Nwogbe OA
Amaize EI,

Hepatitis B infection and HIV are endemic in the same world region`s and share routes of transmission. Co-infection with both viruses is common, with most co-infected individuals living in sub-Saharan Africa and in the Far East. Liver disease due to chronic hepatitis B infection is a leading cause of mortality and morbidity in HIV positive persons globally, therefore treatment of chronic HBV is generally recommended for all HBV/HIV co-infected patients.
Hepatitis B is 100-times more transmissible than HIV because of the high “viral load” in HBV infected blood and body fluids. Unlike HIV, HBV virus can survive for days in dried blood.
Management of viral hepatitis in patients with HIV disease is quite challenging, though effective treatment for HBV and HCV are available, pharmacologic therapy for co-infected patients is complex. Best strategy for management of HBV/HIV is yet to be defined.

This study was to assess the prevalence of hepatitis B virus and possible risk factors for this disease among PLWHA accessing care in Lagos. It also evaluated the effect of selenium as adjunct to HAART and the need for HBV DNA viral load as a marker of efficacy during treatment in resource limited setting.

A cross sectional study of HIV infected consented individuals aged 18 years and above was carried out between 2006 and 2008. A questionnaire to collect demography and possible risk factors was administered

to each participant. They were all screened for HBsAg and positive ones were followed up for 18 months. The participants were also screened for Tuberculosis (TB) by chest X-ray and sputum AFB smear. They were placed either on HAART (Truvada and Nevirapine) only or HAART and selenium for those who were eligible for ART, and Selenium alone for those who were not eligible for ART. Eligibility was based on the 2005 National ART guidelines. Hepatitis B markers studied were HBsAg, and HBV DNA. The diagnosis of chronic hepatitis B was based on HBV DNA positive results, and /or elevated ALT level. HIV viral load, CD4 cell count, Haematological and Biochemical indices were also analysed at base line and at the end of the study.

so far: eight thousand three hundred and nine HIV infected persons were screened. HIV/HBV seroprevalence among the studied population was 10%. The commonest risk factor volunteered by the participants was heterosexual transmission (table 1). One hundred and forty-nine (149) HBV/HIV patients were enrolled for the second phase of study and were followed up for 18 months.

David AN
Medu AO
Odunukwe NN

A general overview of live singleton deliveries in a big private hospital in Lagos,

Most studies of deliveries in Nigeria emanate from tertiary centres with very few reports from private hospitals. Considering that a significant number of babies are delivered in private hospitals and maternity homes, reports from all sectors are necessary for a complete national picture.

A descriptive retrospective study carried out over a 28-month period (Jan 2006-April 2008) at R-Jolad Hospital in Lagos. The hospital takes about 150 deliveries a month.

There were 3901 live, singleton deliveries. Almost all the mothers (96.78%) were booked for antenatal care. Majority (81.8%) of the mothers were aged between 20-34years, 0.69% were teenage mothers while mothers aged $\geq$ 35 years constituted 17.5% of cases. The proportions of primiparous, multiparous and grand multiparous women were 46.8%, 48.5% and 4.7% respectively. Majority (73.78%) of births were spontaneous vertex while 21.99% were born through caesarian section. Slightly more than half of the babies (52.6%) were boys while 47.3% were girls. The overall preterm delivery rate was 12%. The preterm rate in teenagers, those between 20-34years and those 35 years and above was 7.4%, 11.7% and 13.6% respectively. The mean term birth weight was higher for boys than girls (3497 ± 476gm Vs 3358 ± 466gm: t=8.54, p=0.000). Low birth weight babies made up 4% of the population. Of the 161 low birth weight babies 73.9% were delivered preterm while 26.1% were term small-for-dates babies.

The mean birth weight, low birth weight rate and proportion of term babies among low birth weights are within the ranges cited for developed countries. This suggests that given the right conditions, Nigerian infants would grow as well as their Western counterparts.

Success rate of patient performed artificial insemination after ovarian stimulation in serodiscondant - male negative couple.

Ezechi OC
GabOkafor CV
Oladele D
Oke BO
Somefun EO
David AN
Onwujekwe DI
Odunukwe NN

Artificial insemination (AIH) using male partner semen is the recommended pregnancy planning choice, in other to prevent transmission of HIV to the uninfected male partner in

The objective is to determine the effect of HIV-1 infection, advancing immunosuppression and HAART on the menstrual function of Nigerian women.

A cross-sectional study of 627 HIV-1 positive and 651 HIV negative consecutive and consenting women aged 18-40 years seen at the VCT and ARV centres of 2 tertiary HIV treatment centres in Nigeria. Information was obtained on sociodemographic characteristics and menstrual function in the preceding 6 months using a structured questionnaire designed for the study. Also obtained were anthropometric measurements, CD4 and viral Load values.

Menstrual dysfunction was significantly commoner in PLWHAS (28.4%) than in their HIV negative (14.8%) women (P=0.000). The proportions of women in the two groups with intermenstrual bleeding, menorrhagia, hypomenorrhoea, and postcoital bleeding were similar (p>0.005), however amenorrhea, oligomenorrhoea, irregular periods and secondary dysmenorrhoea were commoner in the HIV positive women (p<0.02). Primary dysmenorrhoea was less common in HIV positives (P<0.03). Among the HIV positives, menstrual dysfunctions were commoner in PLWHAs with OIs, CD4 count less than 200, not on therapy, symptomatic disease and BMI <20, however after controlling for cofounder only CD4 <200 (OR: 3.65; CI: 1.18-6.7), BMI < 20 (OR: 2.1; CI: 1.2-3.2) and not on ARV drugs (OR: 1.9; CI: 1.47-7.7) were associated with menstrual abnormalities of amenorrhea, oligomenorrhoea, irregular periods and secondary dysmenorrhoea.

Prevalence and risk factors for menstrual dysfunction among HIV positive

Ezechi OC
GabOkafor CV
Oladele D
Oke BO
Somefun EO
David AN
Onwujekwe DI
Odunukwe NN

IObjectives: to determine the effect of HIV-1 infection, advancing immunosuppression and HAART on the menstrual function of Nigerian women. A cross-sectional study of 627 HIV-1 positive and 651 HIV negative consecutive and consenting women aged 18-40 years seen at the VCT and ARV centres of 2 tertiary HIV treatment centres in Nigeria. Information was obtained on sociodemographic characteristics and menstrual function in the preceding 6 months using a structured questionnaire designed for the study. Also obtained were anthropometric measurements, CD4 and viral load values

Menstrual dysfunction was significantly commoner in PLWHAS (28.4%) than in their HIV negative (14.8%) women (P=0.000). The proportions of women in the two groups with intermenstrual bleeding, menorrhagia, hypomenorrhoea, and postcoital bleeding were similar (p>0.005), however amenorrhea, oligomenorrhoea, irregular periods and secondary dysmenorrhoea were commoner in the HIV positive women (p<0.02). Primary dysmenorrhoea was less common in HIV positives (P<0.03). Among the HIV positives, menstrual dysfunctions were commoner in PLWHAs with OIs, CD4 count less than 200, not on therapy, symptomatic disease and BMI <20, however after controlling for cofounder only CD4 <200 (OR: 3.65; CI: 1.18-6.7), BMI < 20 (OR: 2.1; CI: 1.2-3.2) and not on ARV drugs (OR: 1.9; CI: 1.47-7.7) were associated with menstrual abnormalities of amenorrhea, oligomenorrhoea, irregular periods and secondary dysmenorrhoea.

Impact on the national health programme:
Established baseline finding on menstrual morbidity associated with HIV/AIDS.
Confirms the need not to waste scarce resources on treating menstrual morbidity associated with HIV/AIDS since comment of ARV reverses it.
Reduction of disease burden

Effectiveness of private public patnership in pmtct programming

Ezechi OC
Gab-Okafor CV
Oladele D
Oke BO
Somefun EO
David AN
Onwujekwe DI
Odunukwe NN

The national PMTCT programme set two twin goals of increasing access to VCT and PMTCT services by 50% at the end of 2010. However these services are only available in few governments, NGOs and FBOs that are into HIV care. A large percentage of pregnant Nigerian receives care in centers without these facilities. Meaningful plan to increase access to VCT and PMTCT should involve these centres.

We set out to evaluate the effectiveness and success of Public private partnership in PMTCT programming; by mapping of private, NGO, CBO and FBOs health organizations that provide care for pregnant women and willing to partner with NIMR PMTCT unit in areas of VCT and delivery services since NIMR do not have in patient facility. Training in areas of VCT, HIV care, treatment and support and PMTCT were conducted both in NIMR at some facilities. Free test kits were provided for the centre for conduction of C&T at the centres. HIV positive clients are then referred to NIMR for PMTCT services except delivery services. Clients are sent back to the center for delivery with a SOP for in labour care. They are followed up after delivery and referred appropriately to paediatric unit and adult HIV clinic.

From only one centre at inception, the number of partners have grown to over fifteen, with 7704 clients receiving counseling and testing and of which 2511 were pregnant women. Presently 486 pregnant women have received PMTCT service through this partnership with a MTCT rate of only 0.6% as at Jan 07. Study is going

Sexual and contraceptive behaviour of Nigerian living with HIV/AIDS.

Ezechi OC
GabOkafor CV
Oladele D
Oke BO
Somefun EO
David AN
Onwujekwe DI
Odunukwe NN

Responsible sexual behaviour and use of effective contraceptive device has been shown to be an effective HIV prevention strategy. The development of an effective behavioural change instrument requires an in-depth knowledge of the behavioural characteristics and its determinants. However little or no information exist on the behavioural characteristics and contraceptive use of Nigerians living with HIV/AIDS.

Our objective is to determine the prevalence, practices and determinants of contraceptive use and to identify the sexual behaviour and its determinants among the PLWHAS

A Crossectional and descriptive study conducted among the people living with HIV/AIDS receiving care at Nigerian Institute of medical Research, Yaba Antiretroviral Clinic. The first 502 consecutive patients seen from 3rd of July to 28th of August 2006 and consented to participating in the study were recruited. Data was collected from the patients using a structured questionnaire designed for the study and piloted before the main study. Information obtained was coded and entered into the computer and analysed using EPI info 2002.
The ages of the respondents ranged from 18 to 78 years with a mean of 38.5±10.13 years. The majority (41.4%) of the respondents were between the age group 30 to 39 years, females (57.2%), married (62.4%), completed at least secondary education (81.9%), working (74.1%) and Christians (80.1%). The number of living children by the respondents ranged from none to nine with a mean of 1.96±2.0 and 35.1% of respondents had less than two children. The time of HIV diagnosis among the respondents ranged from 1 o 116 months with a mean of 24.8±23.3 months. In the majority (55.4%) of the respondents diagnosis was made between 12 to 60 months. HIV type 1 was the commonest serotype diagnosed (99.4%). The major route of transmission was the sexual route (74.3%). Blood transfusion accounted for 16.3%. Over two third of the respondents (75.3%) were on antiretroviral drugs with a mean

Prospective trial of Viusid® and Bio-Strath in clinical management of HIV in adult Nigerians who are not eligible for HAART.

Odunukwe NN...etal

In developing countries, HIV-1 infection impact on people is devastating. Poor nutrition and HIV-related adverse health outcomes contribute to a vicious cycle that should be slowed down by nutritional supplements. Low serum micronutrient levels in HIV-positive individuals have been associated with immune impairment, disease progression, and increased mortality. Past studies document decreased levels of antioxidants and selenium in people living with HIV/AIDS.

A multi vitamin and mineral supplement trial study done in Thailand Bangkok and published in the journal of AIDS in 2003 was found to enhance survival of HIV positive people with less than CD4 cell count of 200 cell/µl and who were unable to access HAART. HAART is expensive and also has some unpleasant side effects hence the need for a search of a way of postponing the use of HAART using food supplements.

The objective of this study is to determine the efficacy of VIUSID in the management of HIV/AIDS in adult Nigerians who are not eligible for ART with CD4 greater than 400 cell/µl.

A randomize and placebo-controlled clinical trial of VIUSID among 200 *HIV infected* individuals aged =18 years, with recent CD4+ lymphocyte count >400 cells/µl of fresh whole blood (Measured by Cyflow), with no AIDS defining symptoms or signs, *who will give signed informed consent.* All recruited patients will be adult males and females, confirmed by Western Blot or a licensed double ELISA procedure, antiretroviral drug naïve and ineligible for HAART. Their baseline haematological, clinical chemistry, CD4+ lymphocyte counts will be evaluated and viral loads quantified or specimen already taken.

One hundred participants for each of the two arms of the study (VIUSID test group and BIO-STRATH, control group) shall be used for this study. They will be followed up for 6 months with a repeat analysis of all the baseline data 12th week and 24th week. Data from our pilot observational studies at NIMR HIV clinic suggests that interventions with selenium and several vitamins may decrease disease progression and OI's.v Study is on-going Sponsors:FIDSON HEALTHCARE LTD/SWIPHA

Impact on National health programme:
This study should improve the management of PLWHA and may postpone the time for ART initiation. This will minimize ART side effects and reduce the very huge money spent on ART.spent on ART.

Early diagnosis of tuberculosis disease among adult PLWHA on first contact with HIV/AIDS care and treatment at NIMR.

Onwujekwe DI
Ezechi OC
Oladele D
Ezeobi PM
Gbajabiamila T
Gab-Okafor VN
Oke BA
Somefu EO
David AN
Amaize EI
Odunukwe NN

The prevalence of HIV among TB patients has been estimated in Nigeria only through anonymous, unlinked surveys at sentinel sites. Easier access to HIV/AIDS treatment and care since 2002, especially at some treatment sites supported by Harvard School of Public Health PEPFAR programme, has further facilitated monitoring of the dual epidemic through routine TB diagnosis and treatment. Moreover, early diagnosis of TB in PLWHA is essential in the planning of treatment and care. Early diagnosis and treatment of TB in PLWHA reduces the risk of severe Immune Reconstitution Inflammatory Syndrome (IRIS) on commencing anti-retroviral therapy. This report covers a three month period June to September, 2006.
All ambulant HIV+ve adults presenting for the first time in the clinic from June 2006 were screened for TB disease on registration. Three screening methods were used:

?Symptom-based questionnaire was for active TB
?Direct Sputum Smear Microscopy on three serial sputum specimens
?Chest radiography

Baseline haematological and virological investigations were also carried out at the same day. The results of TB screening tests were reviewed and used clinical decision on individualized treatment and care. Very sick adults who needed hospitalization were excluded from the study, as they are usually referred out.

Six hundred and twenty (620) adults were eligible for inclusion and were screened for TB disease during the three month period covered in this report. 43.7% of them belonged to the age group 30-39 years. 60% of them were females. 54.4 % were married. 74.0% were either unemployed (16.5%), in school (5.7%), or engaged in non-skilled occupations (51) (%) at the time of entry into the programme. Mean CD4 + lymphocyte count of the subjects was 240 cells ± 102.

Effectiveness of private public patnership in pmtct programming

Ezechi OC
Gab-Okafor CV
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Clients are then referred to NIMR for PMTCT services except delivery services. Clients are sent back to the center for delivery with a SOP for in labour care. They are followed up after delivery and referred appropriately to paediatric unit and adult HIV clinic.

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The occurrence of HIV associated tuberculosis disease in Lagos

Kunle Ope CN
Onubogu CC
Onyejepu N
Raheem TY
Igbasi UT
Nwokoye NN
Tochekwu NE
Ejezie CO
Omoloye RM
Onwujekwe DI

The estimated prevalence rate of HIV among TB patients is 27%. Part of the stop TB strategy is addressing TB/HIV co-infection and MDR-TB/HIV co-infection and MDRTB. The aim of this study is to assess the rate of HIV associated TB disease in Lagos

HIV infected Nigerians with clinical presentations suggestive of TB were tested for TB using microscopy and culture techniques. A total of 833 HIV infected patients with clinical presentation suggestive of pulmonary TB comprising 378 males and 455 females were assessed for TB disease. A total of 128 males and 152 females had TB. The point prevalence obtained for HIV associated TB disease is 31.2%. The study patients were aged 10 -70 years and 91.55% of TB disease occurred within the age group of 20-21 years.

This is an on going study to determine the determination of the rate at which the 2 diseases are co- infected and the need for effective treatment strategy for both diseases

Investigation of aspergillus co-infection with tuberculosis in tuberculosis treatment failure

Adeiga AA
Onyewuche JI
Akintunde GB
Awoderu OB
Faneye AO

Aspergillosis is a fungal infection caused by Aspergillus species of which A. fumigatus and *A. flavus* are of medical importance. This disease is commonly reported among the immune-compromised patients like those on immune suppressive drugs, immune compromised as result of chronic disease condition such as HIV/AIDS, Tuberculosis or HIV/TB. Aspergillosis can engage the lungs either as a single infection or as a co-infection while treatment failure is frequently reported in TB treatment and conclusion of drug-resistance is mostly made. Hypothetically if there is a co-infection with tuberculosis, TB drugs will not be able to cure the co-infection.

Treatment failure in TB case management is frequently reported. Being a chronic disease TB or even HIV/TB causes immunosuppression. Due to this, other opportunistic infection such as Aspergillosis can complex the disease condition. This can make the case management difficult if not investigated. This is to get the assurance that if there is any drug-resistance, the issue of Aspergillosis must be first being ruled out. It is on the premise of investigating possible co-infection that cannot be contained by TB drugs that led to exploring the presence of Aspergillosis thereby elucidating other causes of treatment failure in TB other than drug resistance.

We aim to detect the presence of antibodies to Aspergillosis in TB treatment failure, to determine presence of Aspergillosis among HIV/TB or AIDS patients, assess pattern of distribution of the co-infection if any and to determine social factors that can predispose patients to co-infections.

Two cohorts were studied and they were patients with active TB disease that were having treatment failure and TB/HIV patients attending DOTS clinic. Semi structured questionnaire were administered to establish the demography, socio-economic status and the literacy level of the patients. It was also designed to know when failing treatment started and types of drugs involved. Blood specimen obtained was processed to get the serum for immunodetection of Aspergillosis.

Thirty two patients were screened with 20 males and 12 females. Out of this 32 patients screened, 9 (28%) were HIV positive with 4 males and 5 females. Twenty nine 29(90.6%) of the 32 patients screened were TB treatment failures. Out of this 29 with treatment failure 15(51.7%) were positive for Aspergillosis. Of this 15, 6(40%) were HIV positive (2 males and 4 females), and 9 were TB patients.

scientist working on Aspergillius

The study is still on going and we are yet to relate the finding to socio-economic factors and level of literacy as it affects drug compliance that could generate treatment failure to the level of Co-infection with opportunistic infection like Aspergillosis. However, the fact is now established that among treatment failure in TB patients studied in Lagos, Aspergillosis is established as co-infection. This finding is pointing to TB drug resistance beyond the era of development of TB drug resistance strains to era of co-infection.

Tuberculosis case detection and monitoring of treatment by microscopy and culture.

Onubogu CC
Onyejepu N
Kunle Ope CN
Nwokoye NN
Raheem TY
Igbasi UT
Tochukwu NE
Ejezie CO
Omoloye RM
Idigbe EO

Nigeria ranked 4th among the 22 countries in the world with high TB burden. Patients with TB are usually sick, and much more likely to die if they are untreated. Detection and treatment of infectious cases reduces the spread of tuberculosis. The estimated case detection rate for effective TB control is 70% as against the current 30.3%. Efficient microscopy combined with

culture is expected to drastically improve case detection rate and as a result enhance effective Treatments. We aim to identify the number of Broncho Pulmonary TB patients that are positive for TB using direct sputum smear microscopy or culture or by both methods and also monitor the treatment outcome. Sputum and other clinical specimens obtained from Nigerians presenting with respiratory
illnesses and other cases of suspected TB are tested using Microscopy and culture methods. Out of 2,542 patient samples Analysed,588 patient samples were positive for mycobacterium species.

The study is on going. The study has helped to scale -up case detection and effective treatment monitoring thereby impacting on National Health programmes

Diagnosis of TB and multi drug resistance TB (mdr TB) using molecular technique.

Idigbe EO
Alozieuwa CI
Wahab M
Omotayo T
Efere L
Onubogu CC
Nwokoye NN
Kunle Ope CN
Onyejepu N
Raheem TY

In Nigeria, the estimated new cases of MDR-TB are 1.7%. Molecular technique (Hain's) gives faster results usually within 48hours unlike the conventional method which usually lasted up to 8 weeks. The aim of this study is to establish the resistance pattern of TB isolates to the major first line anti TB drugs of isoniazid and rifampicin leading to the MDR TB prevalence pattern. This will also lead to evidence based data information for accessing the second line drugs for the management of MDR TB patients.
Sputum and other clinical specimens obtained from Nigerians presenting with respiratory illnesses and other cases of suspected TB are tested using Microscopy methods and those that are smear positive are tested for MDRTB using the Hain's Molecular PCR based technique.

A total of 345 TB positive samples were processed for MDR TB using HAINS molecular technique. 9 samples were MDR TB cases. The study is still on going. The study has enhanced faster detection of MDRTB cases. The data obtained so far will go a long way in helping with the Nations application to Green Light Committee for second line drugs for TB management. IANPHI GRANT and NIMR

HIV associated tuberculosis disease at national TB reference Laboratory in Lagos, Nigeria

Onubogu CC
Kunle Ope CN
Onyejepu N
Nwokoye NN
Raheem TY
Igbasi UT
Tochukwu NE
Ejezie CO
Omoloye RM
Onwujekwe DI

The estimated prevalence rate of HIV among TB patients is 27%. Part of the stop TB strategy is addressing TB/HIV co-infection and MDRTB. The aim of this study is to establish the prevalence of pulmonary tuberculosis (PTB) and HIV infections.
Patients with clinical presentations suggestive of PTB were tested for TB using microscopy and culture techniques. Information on HIV status was obtained from medical records of the DOTS clinic. 1280 patient with clinical presentation suggestive of pulmonary TB comprising of 499 males and 588 females were assessed for TB disease. 318 (24.8%) were positive for PTB. 1037 (81%) were positive for HIV while 236 of the 318 (18.4%) positive for PTB were also found to be positive for HIV. The study patients were aged 10 70 years.

The study will enhance the determination of the rate at which the 2 diseases are co-infected and the need for effective treatment strategy for both diseases

Processing TB samples in Biosafty cabinet

Assessment of health seeking behavior among persons

Onubogu CC
Nwokoye NN
Kunle Ope CN
Onyejepu N
Igbasi UT
Azike OG

The Health seeking behaviours of Nigerians is a factor of how effectively the outcome of case detection and treatments of patients with TB would be. It is therefore of need to assess these parameters among Nigerians with tuberculosis.
This study is to assess and estimate barriers affecting TB patients receiving treatment at DOTS Centres. Nigerians with Broncho Pulmonary diseases who tested positive for TB using microscopy and culture techniques were administered with structured questionnaires. A total of 153 TB patients receiving treatment at NIMR DOTS Centres were interviewed. Data collected are being analysed.

Sensitivity of culture method over direct smear microscopy for the diagnosis of TB in high HIV prevalent population

Onubogu CC
Kunle Ope CN
Nwokoye, NN
Onyejepu N
Raheem TY
Igbasi UT
Tochukwu NE
Ejezie CO
Omoloye RM

HIV infection is a great challenge in TB diagnosis and treatment. Diagnosis of tuberculosis in high prevalent settings is hampered by increased frequency of sputum smear negative results. There is a high possibility that a good number of TB patients co-infected with HIV would be missed out by direct smear microscopy.
We aim to compare the sensitivity of culture method over direct smear microscopy for the diagnosis of TB in HIV positive patients.
Patients with clinical presentations suggestive of PTB were tested for TB using microscopy and culture techniques. Information on HIV status was obtained from medical records of the DOTS clinic.
A total of 673 HIV positive and negative patients were seen. Out of this, 515 were HIV- positive while 158 were HIV negative. Among the HIV-positive patients, 45(8%) were TB positive by microscopy while 131 (25%) were TB positive by culture. Thirty-three (21%) of the HIV-negative population were TB positive by microscopy and 51(32%) were TB positive by culture. There was a high significant difference between the two methods among the two populations. At 95% confidence interval p value for HIV-positive population was <0.0001, while that for HIV-negative population was <0.02. The study suggests that approximately 88 HIV-positive patients with tuberculosis would have been missed by using only direct smear microscopy for TB diagnosis. Hence culture is recommended to augment direct smear microscopy for TB diagnosis in high HIV prevalence setting

Gamma Interferon TB ELISA procedure

LJ slopes for liquid culture bt MG 17 machine

The positivity rate of the early morning sputum sample for diagnosis of pulmonary tuberculosis.

Onubogu CC
Kunle Ope CN
Nwokoye, NN
Onyejepu N
Raheem TY
Igbasi UT
Tochukwu NE
Ejezie CO
Omoloye RM

From a public health context, emphasis on AFB microscopy for TB diagnosis is justified in resource-poor setting for detecting active TB among transmitters of the infection. AFB microscopy detects 95% of the infectious cases. Target 8 - The Millennium Development Goals 6 is to halt transmission of TB and begin to reverse its incidence by the year 2015. The guidelines to diagnose pulmonary TB in resource constrained setting advocates for 2 sputum samples.

Our objective is to assess the usefulness (relevance) of early morning sputum sample (2nd sample) in AFB direct smear microscopy in order to reduce the number of visits the TB suspects make to the lab for diagnosis, reduce the work load for busy laboratories and also reduce the cost of TB diagnosis.

We retrospectively reviewed the AFB direct smear result of 2,821 TB suspects that submitted 3 sputum samples (spot, early morning and spot) for AFB direct smear microscopy in the National TB Reference Laboratory, Lagos.

The data source is our laboratory register.

Out of 450 smear positive cases studied, 328 (72.9%) of the spot sample (1st sample) were positive for AFB while 378 (83.1%) of the early morning samples (2nd sample) were positive for AFB and 325 (72.2%) of 2nd spot (3rd sample) were positive for AFB. P Value: x^2 -18.42; df = 2; P = 0.0001.

This study revalidates the use of early morning sample for AFB direct smear microscopy. A good sputum sample is required for accurate result. The best sputum sample is obtained early morning because secretions have accumulated overnight.

Examination of sputum samples under microscope in TB Laboratory

Prevalence of viruses in sexually transmitted infection and the status of their co-infection with other STI organisms in patients attending STI clinic in Lagos and Ibadan.

Adeiga AA
Onyewuche JI
Akintunde GB
Faneye AO
Awoderu OB

Sexually transmitted infections (STI) are infections transmitted by sexual contact with a carrier or infected patients showing symptoms or asymptomatic. They cause large proportion of global burden of sexual ill-health. The viruses involved in sexually transmitted infections include Herpes Simplex Virus 2(HSV-2), Human Papilloma Virus (HPV), Hepatitis C Virus (HCV), Hepatitis B virus (HBV) and Human Immunodeficiency Virus (HIV). Many studies have been carried out on HIV especially its co-infection with other organisms. Studies of other viral STIs, have been given less attention especially their prevalence and co-infections with each other or other bacterial and fungal STIs organisms. Some of these viral STIs such as HPV have been linked with cervical cancer in women; HBV and HCV infection can also lead to hepatocellular carcinoma. These viral STIs have been shown to predispose people to HIV infections. All these information led to the need to know the prevalence and patterns of viral co-infections existing either with each other or other bacterial and fungal STIs.

This study aim to determine the prevalence of viral STIs among the population at risk, identifying the strains and serotypes of these viral STIs circulating in South-West Nigeria, investigating the pattern of co-infection with each other and other bacterial and fungal STIs, assessing the effect of their co-infections on the management of other STIs. Also to provide information on the status of prevalence of viral STIs studied across the population at risk and the cohorts. It is also to establish the presence, pattern and magnitude of their co-infections with each other or other bacterial and fungal STIs and their effects on the management of STIs.

Patients attending STI clinics at Lagos and Ibadan were accessed. Semi structured questionnaire was administered to obtain relevant information relating to demography and past experiences of the patients that consented to participate in the study. Thereafter, whole blood samples were obtained and separated through centrifugation. The sera obtained were screened for specific antibodies and antigens of the viruses using ELISA test kits.

Preliminary result: so far, 110 samples were assayed, 78(70.9%) were positive for viral STIs (HSV-2, HPV and HBV). Of the 78, 53(67.9%) were positive for single viral infection, most of which was HSV-2, 20(25.6%) were positive for double viral infections, most common observed combinations were HSV-2 and HPV. 5(6.4%), were positive for multiple viral infections with combination of HBV, HSV and HPV being observed.

There was low prevalence of HBV and HCV, and no co-infection was observed with these 2 viruses, and no gender preferences of the viruses were observed.

Further information is being collected to establish the status and pattern of co-infection of these viruses with bacterial and fungal STIs, and how the co-infection can be affecting the management of the STIs diseases. Also further work will be carried out on the samples to determine the circulating strains of these viruses in the community.

Study of the bacterial, fungal and parasite pathogens from stool, throat swabs and blood of febrile children under the age of five in some communities of Lagos state.

Idika N
Ezeugwu SMC
Enwuru C.A
Ogbonna FN
Bankole M *et al*

Infections, especially malaria and acute respiratory infections (ARI) are the leading causes of childhood mortality and morbidity in developing countries. In Nigeria, over 90% morbidity and 80% of mortality in children under 5 yrs arise from malaria, vaccine preventable diseases, diarrhoeal diseases and ARI, all of which can be prevented or treated at little cost. Since fever is a symptom of many acute childhood illnesses, this study was designed to identify other pathogens, apart from malaria parasite in febrile children <5 yrs in some communities in Lagos State.

We aimed to identify other pathogens apart from malaria parasite that could be responsible for febrile condition in children under five years. The consent of the caregiver/parents of the children was obtained. Throat, anal swabs and blood samples (200) were collected from febrile children <5 yrs presenting at the General Hospital Ijede and PHC Ebute Meta. Some samples were collected from 100 apparently healthy children <5 yrs in 2 nursery schools in Yaba as control.

The samples were processed using standard microbiological techniques to identify parasitic, fungal and bacterial pathogens.Using questionnaire, anthrometric parameters of the children and socio-economic characteristics of the parents were recorded.

Antibiotic susceptibility of a bacteria pathogen

49.2% of the study subjects were females 45.5% of the blood samples were positive for malaria parasites. 37.7% of throat swabs grew bacteria mostly *Staphylococcus aureus,* followed by *Streptococcus pneumoniae* and *Streptococcus pyogenes* . 45.5% grew yeasts. 77.7% of the stool samples grew pathogens mainly *Escherichia coli* while a few grew *Salmonella paratyphi S. typhi and S. arizona.* 24.6% had the cysts of *Entamoeba coli, E. histolytica* and the trophozoites of *E. coli.* Study shows that only about half of the febrile conditions were due to malaria parasites.

Study of prevalence of rotavirus in diarrhoeal infections among children under five years of age in Lagos Nigeria

Idika N
Anochie P
Afocha E
Adesanmi A
Ezeugwu SMC
Audu R
David N
Enwuru CA
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Bankole M
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Attat P

Rotavirus is the leading single cause of severe diarrhoea among infants and young children Each year, rotavirus causes millions of cases of diarrhoea in developing countries, almost 2 million resulting in hospitalizations. With so much global attention in vaccine development and the introduction of Rotarix vaccine for diarrhoea in Nigeria in 2006, this study was designed to highlight the importance of Rotavirus as an aetiological agent of acute gastroenteritis among children under five years and identify the circulating strains in Lagos, Nigeria.

The research aimed at determining the prevalence of rotavirus and identifying the circulating serotypes in children less than five years with diarrhoea to reduce its incidence in rural communities.

With informed consent, diarrhoeal stool samples were collected from children under five years and information on the socio-economic characteristics of their caregivers were collected using semi-structured questionnaire. Samples were processed for parasites, bacteria and rotavirus using std microbiological methods. Another set of questionnaire was used to collect information on the prevalence of diarrhoea in children 2 years- 5 years immunized and non-immunized with the Rotarix vaccine in Lagos.

An evaluation of the concordance of diagnostic results obtained for the HIV-1 proviral DNA using dried blood spots or whole blood specimens and different sample preparatory methods in Lagos Nigeria

Onwuamah CK
Salu OB
Okwuriawe AP
Amaizu OM
Audu RA
Idigbe EO

The use of ARV's amongst other interventions to prevent mother to child transmission (PMTCT) of HIV has been on-going at the NIMR HAART Clinic. To evaluate the success of the PMTCT programme, it became expedient to ascertain the HIV status of children early enough and to enable mothers take informed-decisions on their children's feeding and care methods. The Roche Amplicor HIV-1 DNA PCR assay is used to qualitatively detect HIV infection in children by detecting integrated HIV-1 proviral DNA in peripheral blood mononuclear cells (PBMC). However, the manufacturer preferred specimen is whole blood but issues with transportation, temperature dependence and quality assurance limit its widespread use. Thus CDC-GAP lab Atlanta developed an alternative protocol to utilize dry blood spots (DBS). This has enabled even primary health care centres to collect samples for early infant diagnosis of HIV and send (even via post/couriers) to the tertiary laboratories performing this PCR-based assay.

Our aim is to simultaneously obtain sets of DBS samples and the whole blood samples from study subjects, assay them blindly and evaluates the level of concordance between results obtained using the standard whole blood processing method and the DBS processing method.

Both DBS and whole blood samples were obtained from study subjects. Each sample was treated as separate routine samples, given unique lab IDs and assays carried out. The starting material (i.e. sample used) and the processing method were the difference between the two arms as all assays was done using the PCR-based kit from Roche Diagnostics. Thus beyond the sample preparation methods to obtain PBMCs, both arms followed the same protocol. The whole blood samples were assayed first and laboratory personnel were not preview to results obtained from the other arm prior to assaying.

80 sets of samples have been assayed thus far. One sample was positive, 2 samples were indeterminate while 77 samples were negative using the whole blood as specimen. DBS as the specimen gave one positive sample and 79 negative samples. The positive sample was concordance using either whole blood or DBS. However, the 2 indeterminate samples using whole blood (500µl of blood) were negative using DBS as specimen (about 20µl of blood). Both indeterminate samples from the whole blood samples were later confirmed negative using whole blood samples obtained 3 and 4 months after. We hope to assay more positive samples before we conclude the study

Evaluation of national HIV Testing algorithim in a HCT Centre in Lagos

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Idigbe EO

Antigens used in HIV diagnostic tests must be appropriately specific and are usually purified antigens from viral lysates or antigens produced through recombinant or synthetic peptide technology. The use of such antigens allows HIV screening tests to possess both sensitivity, to detect infection and specificity, to detect non infection. Although most accepted HIV screening tests possesses exquisite sensitivity, their specificity is never 100%. Consequently, confirmatory assays are designed to be more specific to rule out non infection or increase the predictive value that a reactive screening test result is from an infected person. Western blot or line immunoassays or indirect immunofluorescence assays rely on the use of specific antigens that disclose the exact antibodies present or use virally infected cells to indicate specific reactivity to the virus. Because they are expensive or required an increase in personnel

expertise, they are not generally used for screening.

In view of the national algorithm (double rapid tests) for the diagnosis of HIV and the rapid scale up of HCT sites, it is important to determine how the results of this algorithm compare with the gold standard (Western blot) as it will have public health importance if there is high rate of false negatives. Data compilation and analysis is in progress.
In aspiration to provide external quality assurance for other laboratories, there are some technical challenges that need to be addressed. These include: understanding sample banking, quality assurance sample preparation, packaging and distribution procedures as well as data analysis and reporting. In view of these challenges, the main thrust of this project is to develop technical competence of the available human resources in order to discharge duties required of this programme.

Establishing an external quality assesment programme in Nigeria

Audu RA
Onubogu C
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Oriaku C
Idigbe O

The aim is to establish a national quality assurance programme for HIV, malaria and mycobacterium tuberculosis in Nigeria in order to improve and strengthen the capacity of the laboratories in providing effective and qualitative services.

This project will be carried out in phases. The first phase will be a questionnaire survey of laboratories to determine the services rendered, the methods in use and their interest in participating in an external quality assessment programme. The second phase will be the training of the CDL and TB to operate in accordance to the ISO 9001:2000 and ISO/IEC 15189 standards. Intensive trainings by CLSI towards the WHO accreditation of HVL and the capacity strengthening towards establishing the national EQAP will be the third phase. The final phase will involve the field studies, which include the local preparation of the panels and sending them out to participating laboratories in Nigeria. Personnel from the CDL and TB labs have been trained on ISO 9001:2008 standards and are being mentored. The questionnaire study is in progress. It is a two year project and it is on-going.

Physico-chemical properties of municipal refuse in Lagos metropolis and cellulolytic activities of resident microorganisms associated with organic matter degradation

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Amund O
Okpuzor J
Adeiga A
Idika N
Ahmed O

This study investigated the activities of micro organisms involved in the degradation of organic matter in solid wastes and their potential to produce cellulolytic enzymes. Soil samples of decomposing waste piles were collected from four designated landfill sites in Lagos metropolis and analyzed for physicochemical properties, toxic heavy metal content and microbial populations. Findings revealed that the moisture content of the soils ranged from 7.6 - 10.0% in all the locations sampled. Ojota-Olusosun site had the highest organic matter content of 10.65%. The highest viable bacterial counts were 28.2 ± 3.0 x 106 cfu/g while fungi were

47.0 ± 4.0 x 104 cfu/g respectively. A similar pattern was observed for phosphate and chloride levels while some heavy metals were also detected in varying and high amounts. There was a significant positive correlation at 5% level between fungal

viable counts and phosphate ion while a significant negative correlation was observed for total hydrocarbon. The bacteria associated with the soil samples were identified as Escherichia coli, Bacillus spp, Klebisella spp, Micrococcus spp. and Acinetobacter spp while the resident fungal species were mostly the Aspergillus spp and an isolate identified as Mucor spp. The moulds were found to be capable of utilising lignin and cellulosic substrates for growth and for production of cellulolytic enzymes. Results from this study suggest that such micro organisms could be useful in bioconversion of cellulosic substrates and solid wastes to cellulolytic enzymes for industrial processes.

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Molecular methods for the detection of *Helicobacter Pylori* and epidemiology of enteric helicobacter Infections from Patients in Nigeria: comparism with Phenotypic tests

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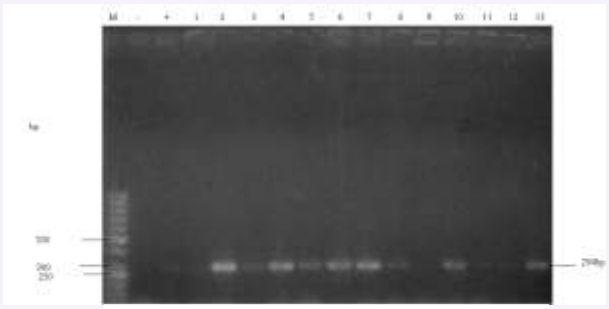
Helicobacter pylori is the causative agent of gastritis, peptic ulcer disease and is a risk factor in the development of gastric cancer. The International Agency for Research on Cancer (IARC), an arm of WHO has grouped H. *pylori* as a class I carcinogen. *H. pylori* grows at 37 ^{0}C and within 72h to 12 days and due to the fastidiuos nature of *H.pylori* various diagnostic tests have been developed for the detection of the microorganism. Culture of the microorganism is the gold standard and due to power outages rapid and efficient methods that would help to detect up to 80% of H. pylori inspite of the power outages are sought for. Concomittantly, intestinal *Helicobacter* spp will be screened for from asymptomatic subjects and those presenting with diarrhoea.

The general objectives are to isolate and characterize *H.pylori* using molecular techniques and or phenotypic techniques that would provide cheaper diagnosis of the disease as well as proffering early diagnosis; to establish if any, a relationship between intestinal *Helicobacter* spp and diarrhoea. The study was carried out within the South-West zone using three public hospitals in Lagos, Ibadan and Ife and a private hospital in Lagos.

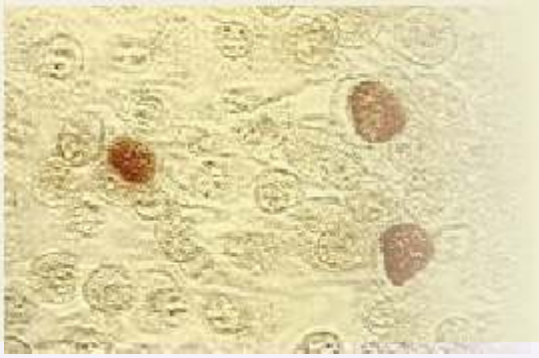


PCR amplification of the *glm*M primer from *Helicobacter pylori* DNA from biopsies.The size is 294 bp

Sample size was obtained using the following formula: n= Z2(P(1-P)/D2 (UNDP/World Bank/WHO 2001) where n = sample size, Z=1.96, P= expected prevalence, D=0.05 The prevalence rate from our previous study was 34%, therefore the sample size is 197, but we would use 200 samples. Biopsies were obtained from patients (200), (after obtaining informed consent), presenting with various gastrointestinal disorders and isolates and or biopsies would be used for various experiments such as stool antigen tests, direct gram stain, serology, CLO test kit and PCR using primers targeting the following genes: ureA, cagA, glmM and SSA. Characterization of the isolates: This would be done using the method of Cowan (1993). Antibiotic suceptibility testing on also done on the isolates.

Various phenotypic methods such as CLO test, direct gram stain, serology, culture, HpSA and histology were used in comparison to molecular methods.

Culture was positive in 15.4% of the patients, while blood serology was positive in 40% of cases. Using the CLO test kit, 25% of cases were positive for *H.pylori* , while the direct gram stain of biopsy and HpSA kit showed that 24.2% and 34.7% respectively were



positive for *H. pylori* , histology results of 63 biopsies showed that 36.5% were positive for *H.pylori* . *Helicobacter plyori* was resistant to metronidazole, ampicillin and tetracycline. Using molecular methods such as cagA, ureA, glmM and SSA, *H.pylori* was present in 12% of cagA and 3% respectively of other methods. In conclusion, although culture is the gold standard, the constant power outages in our environment were always a hindering factor in the accurate isolation of H. pylori a fastidious organism. This is quite alarming because the actual culture of *H.pylori* will aid in the proper management and diagnosis of the infection. However, from the few results obtained with histology, when histology was taken as the gold standard, the CLO test and HpSA kit were found to be more accurate. Further work is on-going to look into the molecular methods and see which method accurately detects H. pylori . Challenges are still being faced with the use of the fluorescent microscope for the FISH technique due to the unavailability of a good Technician to accurately set up the equipment for proper functioning. Sponsors: ICGEB and NIMR

Niemogha MT
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Oduyebo O
Afolabi A
Anorlu R
Odunukwe NN
Okoye RN
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Agomo CU
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Chlamymia and vaginitis in sexually active female: incidence, diagnostic methods and possible controls

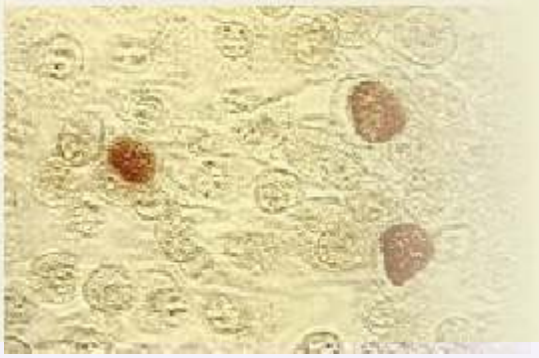
Chlamydia trachomatis is the most common cause of sexually transmitted venereal infection in the world. Chlamydial infection and vaginitis constitute problem in the female genital tract. They cause ulcerative lesions of the genital organs (adenopathies, strictures). *Candida albicans, Trichomonas vaginalis,* organisms that constitute Bacterial Vaginosis and other sexually transmitted pathogens are associated with risk for HIV infection. Identification methods are a major problem, harnessing identification methods will help proper and prompt diagnosis which will reduce HIV transmission in our predominantly heterosexual communities.

Chlamydia and Vaginitis constitute problem in the female genital tract, sometimes *Chlamydia* may present in assymptomatic form. It is therefore necessary to adapt a common method for identification of such problems.

Specifically we aim check for *Chlamydia* and other pathogens associated with *vagintis* in females attending Obstetrics/Gynaecology (O/G) clinic, STI, family planning and females from hotels and brothels. To ascertain if Microscopy combined with immunoassay in relation to Embryonated Hen's culture can serve for prompt diagnosis. To map out operational studies on sexual and reproductive Health. To collate data for policy issues on STI's HIV and AIDS in Nigeria.

A total of 1000 participants will be sampled, for now 600 participants from various female groups have been sampled. They include family planning clinic, STI clinics, Brothels and hotels, Obstetrics and Gynaecology clinics and females from higher institutions. Endocervical and high vaginal swabs were collected from each participant and investigated by microscopy, immunoassay and culture.

Of the 1800 vaginal swabs investigated; 769 (43%) infections were identified. Of these Chlamydia 90 (30%), Candida albicans 260 (43%), Bacterial Vaginosis (BV) 285 (48%) and *Trichomonas* was 44 (7%). Chlamydia 50 (55%) co-existed with yeast and Bacterial Vaginosis. The P-value ($P>0.05$) showed that female sexual group is not a factor in the isolation of Chlamydia and *Candida albicans*. The F-value (7.805) increases as $P<0.05$ decreases indicating always a significant detection of Chlamydia, Candida, *Trichomonas* and BV in syndromic females. The following observations were recorded; High prevalence of *Chlamydia* and *Candida* identified as focus group for therapy. Microscopy combined with immunoassay for prompt and accurate diagnosis. Surveys on female Sexual Health and laboratory findings identified for policy on STI's and HIV/AIDS control.



Sex abuse and HIV / STIS in young girls and women trends and association in western Nigeria.

Otuonye NM
Onwuatelo IR
Smith SI
Onwuamah CK
Okwuzu JO
Adeneye AK
Oparaugo CT
Akintunde GB
Fowora MA
Idigbe EO

Sex abuse is a cruel and violent sexual act by a person who is perceived to hold power over another. Women, young girls and children are especially at risk. The sexual violations can have lasting consequences on their sexual and reproductive health, unwanted pregnancies and HIV/AIDs. This study investigated the incidence of sexual abuse, the trend of sexual exploitation and to identify the perpetrators of sex abuse in young girls and women in Nigeria.

The study was carried out amongs the in and out young women and school girls in Western part of Nigeria. Four hundred young women aged < 10- 28 who gave informed consents were randomly selected and interviewed using questionnaire. Data was collected from Focus group discussions and individual discussions using semi-structured questionnaire. These include socio-demographic characteristics, knowledge of STIs, knowledge of HIV status, knowledge and experience of sex abuse, the frequency of different sexual activities, prostitution and sex debut were covered. Other information that was sought included number of cases reported and not reported to the authorities, number of cases withdrawn from authorities and why the cases were withdrawn. In addition, information on infections with STIs/HIV and pregnancies, who was responsible for the sex abuse, other sexual practices, knowledge and use of condom were collated and analyzed using EPI INFO 2002 software.

About 40% of the respondents had experienced a combination of sexual violence, rape and harassment up-to 10 times, assault or molestation up-to 8 times. Incest was reported twice for a girl of seven years. About 59.1% of the respondent who were sexually abused was infected with HIV/STIs. A significant association was found between sex abuse STIs/HIV in young girls and women (p=0.05). It is therefore our collective responsibility to ensure that we expose rapist and report any form of sexual violence, ensuring that violators are prosecuted.

Evaluating Adolescents' Attitude and Perception in HIV Vaccine Trial in Lagos, Nigeria

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Okwuzu JO
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Adolescents worldwide are at risk of HIV/AIDS infection which makes them essential candidates for HIV Vaccine Trials. Young people aged 1524 accounted for about 40% of new HIV infections in 2008, and 4.9 million young men and women are currently living with HIV. National sero-prevalence surveys estimate the prevalence of HIV among 15-24 years old to be 5.2%. Including adolescents in HIV vaccine trials makes them an important target for research in primary prevention of HIV infection which they are increasingly at risk of due to multiple risk behaviors. To include them in future trial is a challenging and controversial issue since they require proxy consent in addition to their assent.

We aimed to evaluate the various challenges that may face HIV vaccine researchers in the planning, design and implementation of HIV vaccine trail involving the adolescents in Nigeria; To identify the willingness of adolescent to participate in the hypothetical HIV vaccine trail, To assess their ability to obtain parents/guidance consent, and to determine whether participating will expose them to HIV infection and stigmatization.

Two hundred and eighty six adolescents aged 13 to 22 years were randomly selected and interviewed using semi-structured questionnaire after informed consent was obtained. Information was obtained from knowledge of HIV status, willingness and invitation of friends to participate, stigmatization, obtaining parental consent/or participation without parental approval and perceived self risk from HIV infection through immunization. All these were collated and analyzed using EPI INFO 2002 software. Of the 286 respondents interviewed, 96% were single and 31.3% knew their HIV status. Of the 72.7% who were willing to participate in the HIV vaccine trial, 97.5% were educated, 73.5%

have Knowledge of HIV vaccine and 76.0% have no perceived risk of HIV infection from immunization. Contrarily, 66.2% out of 72.7% respondents willing to participate, would seek parental permission which significantly reduce willingness to participate ($p>0.05$) while, 25.6% of the respondents will participate without parental approval.

Sustained education campaigns in future HIV vaccine involving adolescents and their parents are required to reduce potential obstacle to hypothetical vaccine acceptance and believe. Other ethical and social issues need to be addressed before the commencing adolescent s' HIV trials in Nigeria.

Implications for microbicides acceptability and clinical trial amongst women in Nigeria.

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Okwuzu JO
Adeneye AK
Chigbo RC
Fowora MA
Idigbe EO.

Vaginal douching and washing is the process of intra-vaginal cleansing with a liquid solution. It is an ancient practice; millions of women around the world do it. In Nigeria, it is estimated that 50-60% of women douche regularly using disinfectants, antiseptic soaps, mixture of medical herbs and other douching products and water. This is usually done to clean the vagina after menstruation, sex or prevent pregnancy. Some do it to improve health, self treatment for discharge and odour / infection. Other women insert substances such as natural herbs, alum, Vaseline, other vaginal lubricants, stones or leaves to warm, tighten or lubricate the vagina before sex. However, evidence on whether intra vaginal insertion of substances increases the risk for HIV acquisition is conflicting.

We identified the types of vaginal practices that are common among the reproductive aged women in Lagos, Nigeria; to determine whether the choice of vaginal products inserted during sex can influence vaginal microbicides acceptability, to evaluate the level of hygiene practiced by women in Lagos, Nigeria.

Three hundred and fifty women who are sexually active and of reproductive age were randomly selected and interviewed using structured questionnaire. Their ages ranged from 25 35 years. Each participant completed a questionnaire in order to provide biographical data. Information on perception of HIV/AIDS, use of male / female condom, sexual practices, vaginal hygiene, use of vaginal products and douching habits were collated and analyzed. Also, introduction to female microbicides as implemented through this study.

A total of 60% of women accepted the use of vaginal products gel, herbs, Vaseline and water to either tighten or lubricate the vagina to increase sexual pleasure while 50% of the women insert herbs before sex to protect themselves from infections and pregnancy since their partners refuse to use condom. For vaginal hygiene, 70% take their bath twice daily during menstruation period (morning and night), 50% bath before sex, 30% clean up with water and soap, 10% with water, others with tissue paper. 20% insert canesten vagina ovule after menstruation to protect them from vaginal itching. 97% of their sexual partners are not informed of these practices. About 80% of the women are anxiously waiting for the introduction of Microbicides in Nigeria.

The success of phase III clinical trial of Microbicides will largely depend on the acceptability of intra vaginal product and vaginal hygiene, which is frequently practiced among the women population. This could positively influence the study of vaginal Microbicides. The understanding of this factor will help in the design, planning and implementation of Microbicides clinical trial in Nigeria

Microbial infections in HIV/AIDS women with abnormal vaginal discharge in Lagos Nigeria

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Oparagwu C
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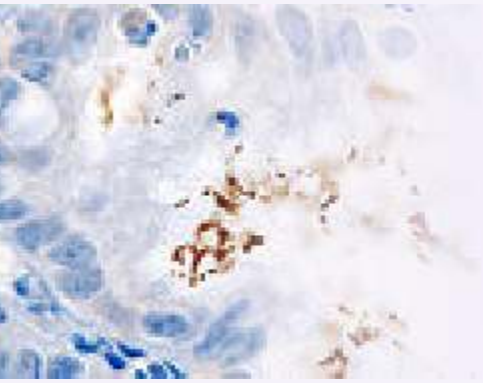
Okoye R
Gab-Okafor C
Chigbo RC
Bankole MN

Vaginal infections; bacterial vaginosis (BV), bacteria pathogens (BP) trichomoniasis (TV), and yeast vaginitis, are common among HIV-infected women in Nigeria. This study investigated HIV/AIDS women with symptoms of abnormal vaginal discharge in HIV clinic of the Nigerian Institute Medical Research, Yaba, Lagos, Nigeria.



To identify the etiologic agents responsible for abnormal vaginal discharge in HIV/AIDS women in Lagos State

To investigate antimicrobial susceptibility patterns of the isolates

To identify the microbial isolates resistant to antimicrobial agents

All patients who presented to the HIV clinic with symptoms of lower abdominal pain, itching and abnormal vaginal discharge were selected after obtaining written informed consent from them. A total of 387 clients participated in the study. Patients on oral or vaginal medications for vaginitis were excluded. High vaginal (HVS) and cervical swabs (CS) were collected, cultured and processed using standard microbiological methods using agar diffusion methods.

Anti-microbial sensitivity patterns of the isolates were determined. The characteristics of the discharge, vaginal pH >4.5, presence of 'clue cell' and Amine test with 10% KOH were used for Bacterial vaginosis (BV) investigations. The age range of study population was between 20 45 years with mean of 24+. All patients complained of abnormal vaginal discharge. One hundred and twenty (38.46%) had lower abdominal pain, itching / irritation 200 (64.10%) and 30 (9.61%) had sore and blisters on the genitals. Vaginal pH > 5.0 was recorded in 215 (68.91%) of the patients. A total of 80.6% of HIV/AIDS women were infected with microbial infection. Microbial agents isolated were as follows: Candida species 163 (52.2%), BV 77 (24.6%), bacterial pathogens 66 (21.2%) and Trichomonas vaginalis 6 (2.0%) (Table.1). Thirty bacterial isolates co-infected with Candida species while 3 T. vaginalis co-infected with Candida species, 15 BV co-infected with other bacterial pathogens. About 4 patients had triple infection of BV, yeast and bacterial pathogens. Most of the bacterial isolates were sensitive to Ciprofloxacin, Ofloxacin, levofloxacin and gentamicin antibiotics.

Microbial infections in HIV/AIDS women was statistical significant (p>5.0). The presence of vaginal mucosal inflammation may result in increased shedding of HIV in sero-positive women thereby putting their uninfected partner at higher risk. Therefore, treating an HIV positive woman presenting with abnormal vaginal discharge would reduce transmission of HIV virus to her sexual partners and perinatal HIV transmission.

Diagnostic methods for the diagnosis of *helicobacter pylori* and epidemiology of enteric *helicobacter* infections from patients in Nigeria

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Fowora MA
Omonigbehin EA
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Helicobacter pylori is the causative agent of gastritis, peptic ulcer disease and is a risk factor in the development of gastric cancer. The International Agency for Research on Cancer (IARC), an arm of WHO has grouped *H. pylori* as a class I carcinogen. *H. pylori* grows at 37 ^{0}C and within 72h to 12 days and due to the fastidious nature of *H. pylori* various diagnostic tests have been developed for the detection of the microorganism. Culture of the microorganism is the gold standard but due to power outages, culture of *H. pylori* in Nigeria is difficult or impossible and so methods that would provide rapid and efficient diagnosis for detection of up to 80% of *H. pylori* inspite of the power outages are sought for.

However, it should be noted that for monitoring treatment failure, culture is still relevant.
Concomitantly, intestinal *Helicobacter* spp will be screened for from asymptomatic subjects and those presenting with diarrhoea. We isolate and characterize *H. pylori* using molecular techniques and or phenotypic techniques that would provide cheaper diagnosis of the disease as well as proffering early diagnosis. To establish if any a relationship between intestinal *Helicobacter* spp and diarrhoea.

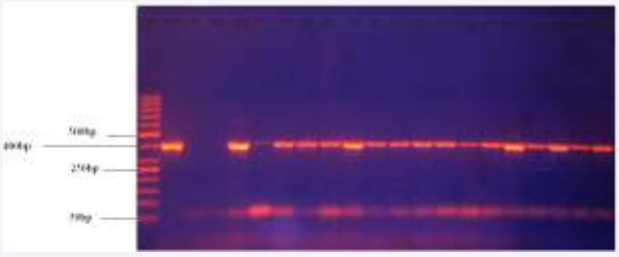
The study was carried out within the South-West zone using three public hospitals in Lagos (LASUTH), Ibadan (UCH) and Ife (OAUTHC). Sample size: Sample size was obtained using the following formula: n= Z2(P(1-P)/D2 (UNDP/World Bank/WHO 2001) where n = sample size, Z=1.96, P= expected prevalence, D=0.05

The prevalence rate from our previous study was 34%, therefore the sample size is 197, but we would use 200 samples. Three biopsies each were obtained from patients (84), (after obtaining informed consent), total (252) presenting with various gastroduodenal pathology disorders and isolates and or biopsies were used for various experiments such as direct gram stain, serology, CLO test kit, PCR using primers targeting the following genes: *ureA, cagA*, *glmM* and SSA and the fluorescent in situ hybridization (FISH). While the stool samples obtained from the patients were screened for H. pylori stool antigen test (HpSA) and occult blood. Characterization of the isolates: This would be done using the method of Cowan (1993).

Concomittantly, 77 stool samples from patients suffering from diarrhoea were collected from various hopsitals, such as Ebute Health Centre, Unilag Health Centre, Ikotun Diagnostic Lab and Clinical Diagnosic Lab, NIMR, while stool samples (51) were collected from patients presenting with various gastroduodenal pathology in LUTH. The patients at LUTH were also screened for *H. pylori* using the non-invasive gold standard for the diagnosis of *H. pylori* i.e. the urea breath test (UBT). The stool samples collected from both sources were subjected to PCR specific for *Helicobacter* 16S rRNA gene (399bp), the *glmM* gene (294 bp) and the *cag A* gene (128 bp). A positive control DNA was always included in the PCR run.

Out of 84 patients screened for *H. pylori* for the various tests, only two were suspected positive out of eight biopsies cultured due to the fact that culture was discontinued as a result of the constant power outages. Serology was done on 6 (54.5%) out of 11 samples tested due to the fact that the samples were not processed the same day and storage conditions from the lab were not favourable for serology to be carried out. *H. pylori* was positive using the HpSA in 32 (54.2%) out of 59 stool samples collected, 28 (63.6%) out of 44 samples tested were positive for CLO test while 8 (42%) out of 19 samples were positive by direct gram stain. Occult blood test showed that 11 (41%) out of 27 were positive for occult blood. The PCR results using *ureA, cagA*, *glmM* and SSA were 8%, 10%, 3% and 1% respectively.

The FISH results showed that out of 33 samples screened so far for *H. pylori* 16srRNAgene and resistance to clarithromycin and tetracycline,

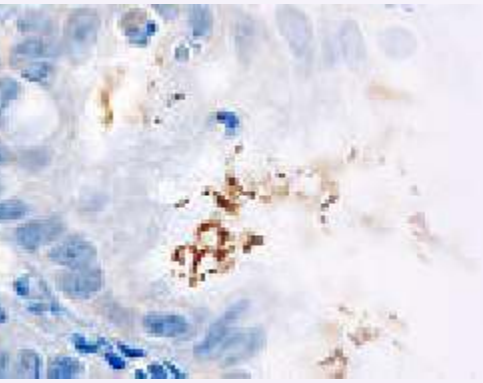


PCR showing 16S rRNA gene primer for identification of *Helicobacter* spp from stool of patients presenting with diarrhoea. The size is 399 bp.

21(63.6%) were positive for *H. pylori*, of those 12 (57.1%) were resistant to tetracycline, while only 3 (14.3%) was resistant to clarithromycin. Out of 77 diarrhoeic samplestested for *Helicobacter* genus specific PCR 48 (62.3%) were positive for Helicobacter spp.

Out of the 48 positive for *Helicobacter* spp, 7 (15%) and 4 (8.3%) respsectively were positive for *H. pylori glmM* and *cagA* gene. Out of 51 stool samples collected from UBT patients, 28 (54.9%) amplified for *Helicobacter* genus specific PCR while two (7.1%) and six (21.4%) samples amplified for *H. pylori glmM* and *cagA* gene respectively.

From our study, the best and cheapest method for the diagnosis of *H. pylori* in our environment would be the HpSA. Although, the UBT which is the gold standard for non invasive detection was not used in the first study, UBT is an expensive test and not within the reach of most Nigerians. In addition, the inability to culture *H. pylori* could be a problem in the long run when treatment failures occur and one cannot be able to monitor treatment failures, because culture is the gold standard. However, due to the fact that *H. pylori* is fastidious it requires that one has a favourable environment to support its growth. The FISH technique is meant to



attend to some problems associated with diagnosis and antibiotic resistance, although only the tetracycline genes and clarithromycin genes have been employed for FISH technique. In other words, resistance to other antibiotics such as metronidazole or amoxycillin would not be captured as this tehnique does not detect it.

The PCR results from the biopsies were not encouraging as it is obvious that some of the patients have been on prior antibiotic before samples were taken and that could have affected diagnosis. The diagnosis of Helicobacter spp (62.3%) from diarrhoea samples that hitherto are not usually screened for Helciobacter spp in our environment is an eye opener, as there could be some relatinship between the diarrhoea cases in our environment and helicobacter.

Challenges include Lack of adequate funding (inability of the funds getting to the Researchers in good time), power outages, which hopefully the latter would be a thing of the past with the current priority feeder line in the Institute. The computer for FISH documentation needs upgrading. Even when the fund is there, it usually comes late. The latter aspect of the work was funded solely from ICGEB grant.

Evaluation of parameters for effective diagnosis of typhoid fever: genotypic and phenotypic typing of *salmonella enterica* serovar *typhi* from different sources in Lagos, Nigeria.

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Typhoid fever causes an annual occurrence of approximately 22 million cases with approximately 500,000 deaths. Humans are the only natural hosts and reservoir of *S. Typhi* and it is transmitted by contaminated food and water. Typhoid fever, a disease of high economic importance in Nigeria, does not always present a distinct clinical picture, and other bacterial, viral and even protozoan infections may mimic its presentation. This febrile disease is among the major widely spread diseases affecting both young children and young adults in their productive years. Rapid and sensitive laboratory methods for diagnosis of typhoid fever are essential for prompt and effective therapy. In Nigeria, the most commonly used test for typhoid fever is the Widal. Although it is recommended to apply the Widal test on paired serum samples for the demonstration of a significant rise in antibody titers in practice treatment is commenced based on a single widal test result and without confirmation by the isolation of the pathogen.

Widal test has been shown to be an inaccurate method of diagnosis of *S. enterica* serovar *Typhi* in Nigeria and culture, which is the gold standard, is not done in most laboratories.

We plan to evaluate the phenotypic methods of diagnosis of *S. enterica* serovar *Typhi* with molecular methods to proffer faster and accurate diagnosis of typhoid fever in Nigeria in order to reduce mortality and improving disease management.

In total 177 blood samples and 26 stool and water samples were collected during this period. The hospitals visited were Ebute Health Centre, Mushin General Hospital and Mushin Public Health Centres. They were chosen because of proximity to the Institute. The samples were screened for various parameters such as blood culture, PCV, widal, DNA analysis, malaria parasite (MP), Tubex TF and Typhi Dri Dot (TDD). Out of 183 blood samples, widal was positive in 44 (25%) widal of =1:80 for typhi O antigen, and 52 (29%) for H antigen. PCV range was 21% 50% . TDD was positive in 23 (65.7%) out of 35 samples screened . Out of 14 samples tested for MP, one (7.1%) was positive. No samples yielded culture of *S. Typhi* from blood, stool and water. The nested PCR was negative for *Salmonella* spp.

It is very interesting to note that none of the samples yielded culture of *S. Typhi* and this is rather disturing because most people in this environment would have

used either herbs or antibiotic and when both fail, they go to the hospital. The main problem for non culture of salmonella spp is due to abuse and misuse of antibiotics. The TDD supplied to us in collaboration with our colleagues from Netherlands have been exhausted, however, a publication is underway for part of the study that included TDD.

Our challenges include patients unwillingness to bring their stool and water samples and lack of funding to move to the rural areas to screen for S. Typhi amongst the rural populace that might have not been on prior antibiotic therapy. Another main challenge was the microhaematocrit which the division does not have and we borrowed from other divisions who were using it for their project. *S. Typhi* from our environment is obtained mainly from stool and the patients never come back to give us stool samples for culture. The commercially prepared blood culture and locally prepared ones still yield no growth. An on-going project

Nontyphoidal salmonella infections in Nigerian infants and children

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Non-typhoidal salmonellosis refers to the disease caused by serotypes of *almonella* other than *Salmonella enterica* serotype *Typhi*. Generally, transmission is via the fecal-oral route, with infection occurring following the consumption of directly or indirectly contaminated food products and water. Although infection with these strains usually results in a self-limiting gastroenteritis that does not require antibiotic therapy, severe clinical consequences could include septicemia, meningitis, and pneumonia and evidence of increasing antimicrobial resistance has become a great concerning when treating these extraintestinal infections. Nontyphoidal salmonellosis in the elderly, human immunodeficiency virus-infected individuals and children younger than five years can results in complications or death. Among these patients, the reported occurrence of bacteraemia or extra intestinal infection varies from 2%45%. In sub saharan Africa, NTS are the commonest or second-commonest cause of bacteraemia in children under 5 years of age. NTS are the second commonest causes of neonatal meningitis in children over two months of age in Malawi, and neonatal sepsis. Of all admissions with febrile illness, NTS constitute 18% of cases and result in 28% mortality compared to 5.7% mortality in children that do not have bacteraemia.
Our aim is to gain an understanding of the risk factors, prevalence and clonal distribution of non-typhoidal salmonella species isolated from Nigerian Children.

Children under 15 years of age were recruited for this study after informed consent was obtained from parent or guardian. A total of 19 samples (blood), stool (12) and water have been collected from children. The samples were subjected to cultureand characterization and PCR analysis of the isolates and direct detection from the samples using PCR . The following genes were employed for the study; *inv* and *spv* genes So far out of 19 samples collected, one (5.2%) was positive for the stool, water and blood of the patient by culture and also by PCR of inv genes. The result is promising but there were various challenges encountered in this study. There is lack of cooperation amongst those collecting samples from children as samples are collected for other purposes and none is collected most times for the project and this has made analysis difficult.

Evaluation of chlamydia test kits relative to assured culture standard

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Chlamydia trachomatis is the most common cause of sexually transmitted venereal infection in the world, with an incidence estimate at 3 to 4 million cases per year in the United States. *Chlamydia* are composed of elementary bodies (the infectious form) and reticulate or inclusion bodies (the replicating forms) and comprise of 15 known sero variants. Although *Chlamydia* has high prevalence there is paucity in data concerning this organism in Nigeria. It's intracellular existence makes study on *Chlamydia* even more difficult. Apart from that, asymptomatic carriage rate has made its presence often ignored. There are however various methods for the diagnosis of *Chlamydial* infection. Conventional isolation of *Chlamydia* involves culturing in cell lines or Embryonated hen's egg and stained for visual examination with *Giemsa*, iodine or fluorecein conjugated antibodies. More recently, rapid immunoassays using antibodies to Chlamydia antigen have also been developed. These methods include direct fluorescence assays and enzyme immuno assays. Analysis of various serogical kits may give insight into better and easier methods of detecting *Chlamydial* infections. *Chlamydia,* a known common cause of sexually transmitted infection will be evaluated by making use of Test Kits. This will involve screening methods and isolation to estimate quantity of elementary bodies and inclusion bodies in order to know the degree of infective particles that can be picked by the kit when there is an infection.

We set out to screen for Chlamydia making use of various kits, culture Chlamydia and make use of cell lines and embryonated Hen's eggs, identify and characterize Chlamydia Type Chlamydia making use of monoclonal antibodies and assess the various kits using comparative methods.

Participants included those from Obstetrics/Gynaecology clinic, STI Clinic, Family Planning Clinic, those for pap smear, and Assymptomatic females. They were first consented and endocervical samples collected from them. Four endocervical swabs were collected from each participant. Each swab was tested against Chlamydia test kits. Centres where samples were collected included Lagos University Teaching Hospital (LUTH), Sexually Transmitted Disease Clinic - Harvey Road, Clinical Diagnostic Laboratory NIMR, St. Kizito Lekki and surulere, Infirmang Laboratory, Egbada Diagnostic Centre, RAMPS Diagnostic Centre Ejigbo, Manna Hospital Egbeda. Informed consent were read to participants prior to collection of samples. Endocervical swabs and High Vaginal swabs were then collected. Samples collected at the medical centres were transported to the laboratory in NIMR in Hank's transport medium. They processed immediately. Evaluation of test kits for Chlamydia was done following manufacturer's instruction. Reactions were recorded. For the Embryonated Hen's eggs, the Vaginal Samples were expressed in 2 sucrose phosphate buffer (medium for Chlamydia) after drilling the egg the fluid was introduced using needle and syringe. For investigation of HVS, Amstel criteria were applied. PH of the vagina was also taken after collection of sample. Thereafter the steps below were followed.

Immuno-assay: The Assay kits used were Diaspot Rapid Diagnostic test for Chlamydia, Grandmedical Diagnostic and Quick Vue (Quikel Deuschel GMBA). A qualitative assays was carried out following the manufacturer's instructions. *Microscopy:*Staining of smears made on slides are; Smears from Endocervical swabs, High Vaginal Swab (HVS) and smears from Embryonated Hen's Egg (EHE) Culture was stained with Giemsa stains. They are the observed for inclusion bodies. *Culture:* One swab is kept aside for culture in Embryonated Hen's egg. Each batch of eggs is candled daily for two weeks. Samples from Embryos were taken on the 3rd and 5th and 9th for staining and examination. Samples showing inclusion bodies were stored in 2Sp-buffer at -25°C.

Observations seen from the kit showed that not many of the samples collected were discretely positive, they showed weak positive which from the instruction are false positive. So far from 100 samples tested, Quickvue

gave 7% positivity, Diaspot 6% positivity while Grand Medical gave 4% positivity. The Embryonated Hen's egg culture gave 5% relatedness with Quickvue, 4% with Diaspot and 3% with Grand Medical. The study is on-going; further investigations will probably reveal better results; for now it is inconclusive.

The challenges faced were multifaceted. Sample collection: The areas where we were supposed to reach were unreached because of poor funding for field work. If enough money is allocated, a nurse or medical support staff should be paid to ensure proper and adequate number of samples per week. This will in turn depend on the field worker who should be adequately trained and financially supported especially in the area of transportation. Unavailability of power supply is a natural problem. The kits for evaluation should be kept under adequate temperature (4 10°C) constantly this is to avoid break in cold chain, so that potency will remain for a long time. Further work sometimes Chlamydia may be present in minute amount necessitating more sensitive technique e.g. PCR. The area of Embryonated Hen's egg culture should be enhanced. A farm where eggs are hatched (hatching) should be collaborated with so that there should be continuous supply of egg, as one batch is finishing or any mistake observed, the set of eggs should be changed. Just like it is done in Vom Veterinary where poultry farming is in high use. If this is done many lapses will be corrected. The summary of the challenges is funding

Chlamydia and vaginitis in sexually active female incidence, diagnostic methods and possible controls

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Chlamydia trachomatis is the most common cause of sexually transmitted venereal infection in the world. Chlamydial infection and vaginitis constitute problem in the female genital tract. They cause ulcerative lesions of the genital organs (adenopathies, strictures). *Candida albicans, Trichomonas vaginalis,* organisms that constitute Bacterial Vaginosis and other sexually transmitted pathogens are associated with risk for HIV infection. Identification methods are a major problem, harnessing identification methods will help proper and prompt diagnosis which will reduce HIV transmission in our predominantly heterosexual communities. *Chlamydia* and Vaginitis constitute problem in the female genital tract, sometimes *Chlamydia* may present in asymptomatic form. It is therefore necessary to adapt a common method for identification of such problems.

A total of 1000 participants will be sampled, for this year, 200 participants from various female groups have been sampled. They include family planning clinic, STI clinics, Brothels and hotels, Obstetrics and Gynaecology clinics and females from higher institutions. Endocervical and high vaginal swabs were collected from each participant and investigated by microscopy, immunoassay and culture.

Of the 600 vaginal swabs investigated; 252 (14.3%) infections were identified. Of these Chlamydia 30 (10%), Candida albicans 67 (14%), Bacterial Vaginosis (BV) 95 (16%) and *Trichomonas* was 15 (2%). Chlamydia 17 (18.7%) co-existed with yeast and Bacterial Vaginosis. The P-value (P>0.05) showed that

Chlamydia and *Candida albicans*. The F-value (7.805) increases as P<0.05 decreases indicating always a significant detection of Chlamydia, Candida, *Trichomonas* and BV in syndromic females. The following observations were recorded; High prevalence of *Chlamydia* and *Candida* identified as focus group for therapy. Microscopy combined with immunoassay for prompt and accurate diagnosis. Surveys on female Sexual Health and laboratory findings identified for policy on STI's and HIV/AIDS control
Women's genital hygiene is highly valued, and

Vaginal products and hygiene practices: implications for microbicides acceptability amongs Nigerian women

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women are expected to achieve a moderate amount of vaginal lubrication during sex that is neither excessive nor inadequate. Women may try to achieve this by engaging in a wide variety of vaginal practices. One of these practices is vaginal douching or washing. It is the process of vaginal cleansing with a liquid solution. It is an ancient practice and millions of women around the world practice it. However, these practices have been linked to the presence of bacterial vaginosis, pelvic inflammatory disease and could be linked to Human Immunodeficiency Virus acquisition.

This study therefore aimed at identifying the type of vaginal practices that are common amongst women of reproductive age and to determine whether the choice of vaginal inserts before sex can influence vaginal microbicide acceptability among Nigerian women.

Three hundred and seventy women aged 19-45 were randomly selected and interviewed using questionnaire. Each participant completed a questionnaire to provide information on demography, knowledge and use of male/female condom, vaginal hygiene practices and use of intra-vaginal products. Also, Knowledge and willingness to use microbicides when available were assessed. This information was collated and analysed using EPI INFO 2002 software.

Of the 370 respondents, 51.6% were married, 61.4% had tertiary education, 60% partners use male condom, 45.7% women receives co-operation when they insist on condom use, 21.1% uses condom consistently. Similarly, 9.5% uses female condom consistently, 19.2% uses other lubricants beside male/female condom, 12.4% inserts tightening substances to increase sexual pleasure. On microbicides, 62.2% have knowledge, 81.0% indicated willingness to use when it is available. On hygiene practices, 64% douche actively, 49.5% cleans up with water and soap after sexual act. To prevent pregnancy, 24.9% use local herbs, 16.2% uses natural method, 34.1% family planning and 19.5% uses condom.

The use of lubricated inserts and use of local herbs indicate willingness to use lubricated and contraceptive microbicides, contrarily, douching and use of tightening substances indicate negative implication for microbicides and calls for public health intervention.

Molecular epidemiology of thalassaemia as predisposing /predictive factor for HIV and malaria in south Western Nigeria

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Up till date, the relationship of thalassaemia and possibly as a predisposing factor to HIV and malaria in South Western Nigeria has not been elaborately studied especially the public health implications.

This study attempts to examine the associations of thalassaemia genotypes and microcytosis with hemoglobin levels in malaria and HIV infected and non infected children and adult as well as evaluate the public health effect of this hemoglobinopathy on the Nigeria population especially its prevalence among the blood donors in Nigeria. It will help highlight the public health problem associated with thalassaemia in relationship to poverty related diseases in Nigeria. General Objective is to determine the prevalence of thalassaemia in relationship to HIV and malaria in South Western Nigeria
The blood of the participants was collected in EDTA bottles after successfully obtaining their consent to participate in the study, stating their rights of willful and voluntary withdrawal at any stage of the study. The hematological parameters was determined, and the participants were screened for malaria parasite, HIV and thalassaemia using microscopy and PCR assays, rapid HIV test methods and PCR assays respectively. Their relationships or correlations will be determined statistically. Furthermore, the participants were subjected to questionnaire interview to document some relevant information about the progress of the disease in them, if there is any. For the determination of the α-globin genotypes, a PCR assay was employed. DNA was extracted from the peripheral blood leukocytes and PCR performed for the identification of the several thalassaemia genotypes.

A total of 119 samples have been collected till date, 46 males and 73 females. The hemoglobin genotype showed the following profile; 30-AS (19 males and 11 females), 81-AA (23 males and 58 females), 1-AC (male) and 7-SS (3 males and 4 females). The HIV status of the119 participants revealed 75 positive cases and 44 negative. The age range 1519 and 2024 recorded no HIV positive case; while age range 30-34 showed the highest rate (31) of HIV positive cases.

Using rapid detection kit; 61 samples were positive for malaria parasite while 58 were negative. Although lower positive cases were detected using microscopic method (39) about twenty nine of the 119 participants had malaria and HIV co infection, based on microscopy technique detection method.

No conclusion can be drawn yet as the study is ongoing. But the molecular detection performed on the collected blood samples showed the absence of any thalassaemia genotype in all the assayed samples. It was a multiplex PCR assay using a combination of primers that could detect array of genes at the same time.

Challenges include non availability of positive and negative thalassaemia samples to be used as controls in the molecular assay. Although attempts has been made to contact a researcher in Israel who has done similar work to send the controls he used for his own study. Lack of fund to buy enough kits required for the study is another challenge

Epidemiological survey of the impact of Helicobacter pylori infections among children in western Nigeria

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Young children have many behavioral characteristics that increase the risk for transmission of infectious diseases and childhood is known to be a time of high risk for *H.pylori* acquisition. Nevertheless the natural history of *H.pylori* infections remains poorly understood. A better understanding of the epidemiology of *H.pylori* infection in pediatrics patients is required to understand the natural history of *H.pylori* infection and to identify the most common mode(s) of transmission, as well as how, when, and where to break the chain of transmission.

There has not been any documented study on *H.pylori* infection among children in Nigeria. All the available data have been on the adult. The importance of *H.pylori* infection and the fact that the adenocarcinoma effect of the infection increases as the infection progresses with age cannot be over emphasized. This study was designed to determine the prevalence of *H.pylori* among children in Nigeria and to proffer the possible control measures to reduce the rate of the infection.

Our objective is to determine the prevalence and impact of *H.pylori* infections among Nigerian children so as to generate useful epidemiological data for eradication/control of *H.pylori* early in life in Nigeria

The consents of the participants in the study were sought from their parents (consent) as well as the participants themselves (assent). The parents of the participants were interviewed for the participants and data on age, sex, type of drinking water etc were collected to help in determining the predisposing factors to the infection. Stool and blood samples were collected from the children who assented to the study.

The inclusion criterion was asymptomatic children within the age range 1-16years as well as those having symptoms of constipation, vomiting, stomach pains etc, suggesting stomach ulcer. This included preschool and school aged children. The study was carried out in children from Massey street children Hospital, LASUTH and Nigerian Institute of Medical Research (NIMR) Yaba, Lagos.

Serology was performed using the one step *H.pylori* Device (Diagnostic automation inc. USA), while packed cell volume (PCV) was done using the microhaematocrit analyzer. The stool was analyzed for *H.pylori* infection by the rapid immunoassay method for *H.pylori* stool antigen (HPSA, Meridian Bioscience, Europe).

The stools in addition were screened for parasites and possible occult blood. This is to rule out other forms of blood loss. Finally, the body mass index (BMI) of the children was also determined to correlate infection with growth rate in the children.

Thirty-two percent (32%) of the 135 children screened were positive to detection of *H.pylori.* Male: female is 1.5:1. The most affected age group is 11-16yrs. Most of the infected children have a PCV below 25% and were mostly free of occult blood (3%) and parasites (6%). About 73% of the children were underweight and only about 27% were normal.

Out of the 73% underweight, 22% tested positive to *H. pylori* serology and 3% tested positive for occult blood. PCV was low in almost all the participants (15 25% in 96.9%) and 40 41% (3.1%).Participants with normal PCV neither tested positive for *H. pylori* serology nor occult blood but had low BMI values.

Out of the stool samples collected, 37.5% were positive by stool antigen test (HpSA) while 25% of the cultured samples (on Dent's medium) showed growth characteristic of *Helicobacter pylori*. Generally, there has been a very poor response from the participants, with respect to stool sample collection.

In as much as it is difficult to conclude at this juncture, it is obvious that the prevalence of *H.pylori* infection is high among the children already screened. The low PCV level needs to be seriously addressed as this could lead to impaired immunity in this children and consequent exposure to other opportunistic infections.

The major challenge is getting the participants to bring their stool samples. However, plans are underway to alleviate this problem. Funding is another challenge, the HpSA kit is very costly and is not available locally.

Review of the health research ethics committees in South-Western Nigeria

Oyedeji Kolawole
Mariana Kruger

Ethics review committees have a public responsibility whose fulfillment requires good practices for ethical review as well as the ongoing education of their members; therefore as part of good practices, there should be a system of quality assurance for all ethics review process performed by these Ethics review committees. Ethics review committees are relatively new in Nigeria, thus we do not know how they are functioning and there backgroung experience in ethics review.

These ERCs are established to provide ethical advice to researchers in order to assist decision making on the adequacy of proposed research projects regarding the protection of potential and actual human participants. Hitherto, there have been a lot of concerted responses to the ethical complexities of conducting research in developing countries and these initiatives have been aimed at increasing capacity for ethical review of health research in such countries. Despite these initiatives, not much study has been conducted to evaluate the Ethics review committees capacity to conduct a proper or standard review of protocols especially ethics review of clinical trials.

Therefore, in order to facilitate and support procedures for assisting the improvement of quality and transparency in ethical review in Nigeria, this study was designed to evaluate how the Ethics review committees in South Western, Nigeria apply national, international and self ethical guidelines, regulatory requirements, policies, and procedures in reviewing protocols at convened meetings. The study will also assess the material resources and training needs of these committees to be able to meet the required standard.

General Objective is to evaluate the ethical review capacity of ERCs in South Western Nigeria by determining the training and physical needs at these Ethics review committees.

The study was submitted for ethical approval from Nigerian Institute of Medical Research, Institutional Review Board and University of KwaZulu Natal ethics review Committee. The participants were selected randomly (simple random sampling method) based on the members list as presented by The ethics review board. Five members were selected per the selected ethics committee. This is in addition to the chairperson and the secretary of the ERC. Total members proposed to be interviewed per ethics committee are 7. The participants at the different ERCs have been selected randomly with the secretaries and the chairmen. Seven members were selected per the selected ethics committee. Total number of respondents earmarked to be surveyed was 77.

The study sites were as stated below; List of ERC in the Study area

1	Association for Reproductive and Family Health IRB	IBADAN
2	College of Medicine Unilag. Idi-Araba IRB	LAGOS
3	Centre for Development and Conflict Management Studies IRB	ILE-IFE
4	Centre for Research On Family Health Promotion IRB	ILE-IFE
5	University College Hospital, Ibadan IRB	IBADAN
6	Lagos State University Teaching Hospital IRB – Biomedical	LAGOS
7	Lautech College of Health Sciences Ethical Committee IRB	OSHOGBO
8	OAUTHC IRB	ILE-IFE
9	Nigerian Institute of Medical Research (NIMR) IRB	YABA, LAGOS
10	Nigerian Institute of Social and Economic Research (NISER) IRB	IBADAN
11	University of Ibadan IRB	IBADAN

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Mr A. K. Adeneye	Research Fellow 11
Mr A. O. Oduola	Research Fellow 11
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Use of molecular techniques to discriminate freshwater intermediate snail hosts and their parasites in Nigeria

Akinwale OP
Rollinson D
Kane R
Stothard R
Ajayi MB
Akande DO
Ogungbemi MO
Duker C
Gyang PV
Adeleke MA

Urinary schistosomiasis caused by the trematode parasite *Schistosoma haematobium*, is endemic throughout the states of the Nigerian Federation. Freshwater pulmonate snails of the genus *Bulinus* act as the intermediate hosts for *S. haematobium* and related species and occur commonly throughout much of Africa and adjacent regions. *Knowledge of the geographical distribution of Bulinus species present in Nigeria as well as their frequency of occurrence is key in the design of schistosomiasis treatment and control programs. Linked to information concerning the level of parasite infection, such data can be valuable in the assessment of likely levels of disease in a particular region and may also highlight areas which may be at greater risk of infection.*

We set out identify the freshwater pulmonate snails of the genus *Bulinus, which are* involved in the transmission of *Schistosoma haematobium* in Nigeria using current molecular techniques.

This study, which took place between 2007 and 2009, is the first to be carried out using DNA sequencing to characterize Nigerian populations of freshwater snail species belonging to the genus *Bulinus*. We applied a molecular method based on DNA sequence variations within the mitochondrial cytochrome oxidase subunit I (*cox1*) gene to identify the snail species responsible for the transmission of schistosomiasis in some endemic areas in Nigeria. Partial sequencing of the *cox1* gene from 37 out of 138 *Bulinus* snails from 23 areas was carried out. Restriction fragment analysis of the ribosomal internal transcribed spacer (*its*) was performed on all the snails and they were also screened for schistosome infection by PCR amplification of schistosome *Dra1* repeat. Sequencing of the *cox1* gene from 37 infected isolates showed that 35 were *Bulinus truncatus* while 2 were *Bulinus globosus* while the sequences have been submitted to the European Molecular Biology Laboratory (EMBL) database. PCR-RFLP analysis also showed that 136 snails were *B. truncatus* while two were *B. globosus*. PCR amplification of the schistosome *Dra1* repeat showed that 41 (29.7%) isolates spread across all the 23 study sites were positive for schistosome infection including 34 (*B. truncatus* 32; *B. globosus* - 2) out of the 37 snails sequenced. We observed that the dominant species in the study areas was *B. truncatus* and we also observed that PCR-RFLP of the ribosomal *its* could be a cheaper and more rapid method than sequencing and could also be a promising technique for differentiating between *B. globosus* and *B. truncatus* species.

For the first time in Nigeria, we successfully applied DNA barcoding of the mitochondrial *cox1* gene to identify various species of snails of the genus Bulinus, responsible for *S. haematobium* transmission in 28 endemic areas. This pilot study has contributed significantly to discovering the true identity of the snail species and has also revealed the dominant snail species intermediate hosts in these regions, which is *Bulinus truncatus*. We were also able to confirm that restriction fragment length polymorphism (RFLP) of the *its1*, when applied to snail identification, is a cheaper and more rapid method than sequencing and shows promise as a technique for differentiating between *B. globossus* and *B. truncatus* species. We observed that

this method will be particularly useful to laboratories with no sequencing facilities especially those located in developing countries such as Nigeria.

Molecular survey of urinary schistosomiasis in Umuowele Agulu Community, Anambra State

Ude EAG
Akinwale OP
Ukaga CN
Ajayi MB
Akande DO
Adeleke MA
Gyang PV
Dike AA

Urine samples from 108 school age pupils were screened for *Schistosoma haematobium* infection using heamaturia and Polymerase Chain Reaction (PCR) amplification of schistosome Dra1 repeat. The snail intermediate hosts were also screened for schistosome infection by PCR amplification of the Dra1 repeat. PCR-RFLP was performed on six snails collected from the study site for species identification.

Heamaturia and PCR showed that 52 (48.1%) and 63 (58.3%) of the 108 pupils were infected respectively. One of the six snails was identified as *Bulinus truncatus* while the remaining five belonged to the genus *Physa*. More than half of the study participants (58.3%) and three out of the six snails were infected with schistosomes. We report for the first time in this study community, schistosome infection in snails belonging to the genus *Physa*. We also confirmed earlier observations by other researchers, the higher sensitivity of PCR over heamaturia for schistosomiasis detection.

Further work is planned to determine the type of schistosome species that infect the snails of the genus *Physa* in this community and also to verify if the infection develops beyond pre-patent up to patent stage in the snails.

Urinary schistosomiasis and intestinal helminthiases among School children and out-of-School children in anEndemic Community, Nigeria

Adewale B
Mafe MA
Idowu ET
Sulyman MA
Ajayi MB
Akande DO

The current status of urinary schistosomiasis and intestinal helminthiases was assessed in Ipogun, a rural agrarian community in Nigeria as part of a longitudinal study to monitor praziquantel resistance in the control of schistosomiasis. Urine and faecal samples were collected from children in the community to determine the parasites prevalence and intensity. Filtration technique using swinnex filter was employed in examining the urine specimen and the intensity of infection was recorded as egg output per 10 mls of urine. The kato-katz technique was used in examining the faecal samples. Individual egg output was expressed as eggs per gram faeces.

Of the 430 children aged 5-18 years examined for *Schistosoma haematobium* and other intestinal helminthic infections, 25.1% of the children were infected with *S. haematobium*. The prevalence of infection of *S. haematobium* was 26.1% for the school children and 18.6% for the out-of-school children. Only 17.6% of the children had moderate intensity of infection (>50 eggs/10 ml but <500 eggs/10 ml of urine) while the remaining had low intensity (<50 eggs/10 ml of urine). Intensity of infection based on geometric mean egg count per 10ml of urine was higher in females (18.2 eggs/10 ml urine) than in males (11.7 eggs/10 ml urine). There was no significant difference in the prevalence of infection between the males (26.7%) and females (23%) in the study group (p = 0.3). 26.3% had single infection of the intestinal helminthes while 4.7% had multiple infection. Among the children examined, 13.7% had severe infections (<400 eggs/gram faeces) of the intestinal helminthes. The immediate and long-term public health and socioeconomic implications of this on the cognitive ability of these children, school absenteeism and higher drop-out rates could be enormous. This could result to a yield of generation of adults that are disadvantaged by irreversible sequelae of infection.

Does pollution increase the chances of Insecticide resistance in the malara vector *Anopheles Gambiae?*

Obansa JB
Awolola TS
Oyibo W
Oduola AO
Oyewole IO
Fagbenro-Beyioku

Anopheles gambiae, the major Afro tropical malaria vector is resistant to pyrethroid insecticide and this is threatening the efficacy of insecticide treated net programs. In this study An. gambiae from polluted water bodies and their susceptibility status to pyrethroid insecticide was determined in urban Lagos.

The results of this study represent the first baseline data for the distribution of malaria vectors and pyrethroid resistance in Idiaraba, Akoka and Okobaba. The result of this study reveals that An. gambiae s.l populations from the area studied are resistant to permethrin and lambdacyhalothrin. The only exceptions were samples from Akoka that were susceptible to lambdacyhalothrin. The results obtained from this study will enable informed choice of insecticides for use in vector control programs in the areas concerned. The result of the water analysis also had parameters that suggest high level of water pollution which ordinarily will not favor the survival of the vector. This in addition to insecticide resistance could be responsible for the rise in urban malaria. Efforts are being made to extend the study to determine if there is a correlation between pollution and insecticide resistance.

Exposure of *Anopheles* mosquitoes to different classes of insecticides commonly used for malaria vector control.

Insecticide metabolism: a possible additional resistance mechanism in pyrethroid resistance in *anopheles gambiae* s.s. from Nigeria, West Africa?

Oduola AO
Awolola S
Otubanjo O
Strode C
Ranson H

Pyrethroid insecticide resistance is widespread in West Africa and presents a major challenge facing malaria vector control. Resistance detection and evaluation of their operational implications are integral part of vector control. Pyrethroid knock down resistance (kdr) had previously been shown to be the major resistance mechanisms in *Anopheles gambiae sensu stricto* from Nigeria. Here we provide evidence of the involvement of a metabolic component. Anopheles mosquitoes collected from rural and urban localities in southwestern Nigeria were assayed using the WHO insecticide susceptbility test kit. The West and East African Kdr alleles were determined in all specimens using Polymerase Chain Reaction assays. Micro-arrray analysis for expression of detoxifying genes were carried out on sub populations of *Anopheles gambiae* from the same localities while another population within 100 km distances fully susceptible to pyrethroid was used as control..

The result of this study indicated a variation in the time required to 50% knockdown (KdT_{50}) in the *Anopheles* population. A KdT_{50} of 10-20 and 15-50 minutes was observed in mosquitoes collected from the rural and urban communities respectively. The 24-hr post exposure mortality of *Anopheles gambiae* in all the rural communities was between 85% and 100%. While a sharp reduction in mortality 53.6-74.5% was observed in some urban communities others recorded not less than 90% mortality. Both the West and East African Kdr were absent in all samples tested. Preliminary microarray analysis using the *Anopheles gambiae* detox-chip for expression of detoxifying genes showed a number of over expressed genes in some of the resistant mosquitoes when compared to the

susceptible population although the cut off level were not significant. There are indications of insecticide metabolism in pyrethroid resistant *Anopheles* from Nigeria. These results are relevant for resistance management for vector control in Nigeria. However, future studies intend to colonize *Anopheles gambiae* from areas with reduced susceptibility. We also intend to monitor the rate of selection of these metabolic genes by artificially exposing these field populations to pyrethroid insecticide pressure. Through further micro array analysis we intend to determine the expression of these detoxifying genes

Evaluation of roll back malaria programme with reference to prevention and care of those at risk in Ekiti State

Mafe MA
Adeneye AK
Idowu ET

The study aimed at assessing the awareness, accessibility and use of the malaria control strategies that include insecticide treated bednets/long lasting treated nets (ITNs/LLINs), home management/treatment of malaria, intermittent preventive treatment (IPT) for pregnant women and artemisinin-based combination therapy (ACT) among at risk groups within the context of roll back malaria (RBM) in communities of Ekiti State. The study was designed as a longitudinal study to be carried out in three stages. The first stage which has been completed involved investigation into the level of awareness of stakeholders, preparedness, tears and wishes which need be given due consideration in the change in the use of antimalarials i.e. from chloroquine to artemisinin-based combination therapy (ACT). The second stage will be carried out to assess the affordability, acceptability and monitoring the side-effects of ACTs. The third stage will involve monitoring the impact of ACTs on malaria parasite index. The first stage which is the descriptive cross-sectional aspect of the study involved both household and clinic survey of mothers of children less than five years old and registered pregnant women attending antenatal clinics respectively using questionnaires and focus group discussions. Indepth interview guide developed was used among other stakeholders such as programme implementation officers at the State and local government levels, and public and private health care providers. Four local government areas (LGAs) were randomly selected in the State for the study. The selected LGAs were: Emure; Oye; Efon and Moba LGAs. The outcome of this study is expected to contribute to the effective and successful implementation of malaria control Measures in the State in particular and Nigeria in General.

Results showed that 48.6% of the 428 respondents interviewed were pregnant women while 51.4% were mothers of children under five years. Of the 428 respondents, only 43.4% had ever used any artemisinin-based therapy (ACT) drug. (54.3% mothers of children under five vs. 45.7% pregnant women). Few (45.6%) respondents (44.1% mothers of children under five vs. 55.9% pregnant women) reported sleeping under a treated net. Local government area of residence significantly affected the use of ACT ($\chi^2 = 67.08$, df=3, $p<0.05$) and ITNs/LLINs among respondents as it ranged from 11.8% in Oye to 42.1% in Emure ($\chi^2 = 88.44$, df=3, $p<0.05$). Of the 208 pregnant women interviewed. 62.0% had received at least a dose of IPT drug while only 30.3% had taken at 2 doses of IPT. The number of IPT doses received ranged from 1 to 4 with an average and median of 2 doses respectively. The results showed that the low proportion of ACT, ITN/LLIN and IPT use presented are no where near the target of 60% of populations at risk of malaria expected to be achieved by 2005 not to mention the 80% target expected for 2010 as set at the Abuja Malaria Summit in April 2000. Efforts therefore need be intensified to make the different malaria control strategies more available and accessible for those at risk of malaria if the RBM targets are to be realized in Ekiti State

Phase I trial: regeneration time and wash resistance of long lasting insecticidal nets

Awolola TA
Obansa JB
Adeogun A
Oduola AO

The malaria unit in the Public Health Division is presently collaborating with Vestergaard Frandsen Nigeria to determine the regeneration time and wash resistance of Long Lasting insecticidal nets (LLIN).

Molecular assessment of urinary schistosomiasis among school pupils in Epe, Lagos State, Nigeria

Akpunonu VN
Akinwale OP
Ajayi MB
Akande DO
Adeleke MA
Gyang PV
Adebayo MO
Dike AA.

Literature has shown that schistosomiasis is a worldwide public health problem affecting 200 million people in the third world while *Schistosoma haematobium infection* causes urinary schistosomiasis in about 150 million people in 53 countries in Africa and the Middle East. As efforts to enhance schistosomiasis diagnosis lingered on, the use of polymerase chain reaction (PCR) was adapted for the detection of urinary schistosomiasis with the identification of a tandemly repeated DNA sequence termed *Dra1* in the genome of *S. heamatobium*. The present study therefore utilized both molecular and parasitological methods to diagnose urinary schistosomiasis among school-aged children in two public schools in Epe, Lagos state, Southwest Nigeria with a view to generate a more reliable data on the current status of urinary schistosomiasis in this area.

Objective is to produce a reliable data on the prevalence of urinary schistosomiasis among school pupils in Epe, Epe Local Government Area of Lagos State, southwest Nigeria, using parasitological and molecular techniques.

Urine samples were collected from 100 pupils randomly selected from each school thereby bringing the total number of pupils screened to 200 [109 (54.5%) males; 91 (45.5%) females] aged between 6 and 13 years. The samples were examined for haematuria using reagent strips (Boehringer, Germany) while presence of *S. haematobium* ova in urine was determined applying sedimentation by gravity method. All the urine samples were also screened for the presence of infection through Polymerase Chain Reaction (PCR) amplification of schistosome Dra1 repeat. All the infected pupils were also treated with a single dose of praziquantel at 40mg/kg body weight. In Anglican primary school, Ebute Afuye and Community primary school Erepoto, 16% and 29% were positive for haematuria, while 16% and 17% had schistosome eggs in their urine respectively. However, PCR amplification of schistosome Dra1 repeat from the urine samples of the pupils showed that 57% were positive for the infection in Anglican primary school, Ebute Afuye while 40% were positive in Community primary school Erepoto. The presence of urinary schistosomiasis in almost half of the 200 pupils, 97(48.5%), as detected by PCR, suggested that the study area is endemic for the infection. The PCR method was able to detect schistosome infection in cases otherwise shown to be negative by parasitological examinations. Hence we were able to extend chemotherapy to those who might have been left out if only parasitological methods were applied in the study. We recommend an urgent intervention by the authorities in providing pipe borne water and safe waste disposal system to the communities in order to curb the transmission of the infection in the study area. This should also be accompanied with appropriate health education, as this, together with the basic facilities will help to improve the hygiene of the inhabitants and impact on their general well being. The PCR method was able to detect schistosome infection in cases otherwise shown to be negative by parasitological examinations. Hence we were able to extend chemotherapy to those who might have been left out if only parasitological methods were applied in the study.

Urinary schistosomiasis around Oyan reservoir: Twenty years after the outbreak was first

Akinwale OP
Ajayi MB
Akande DO
Gyang PV
Adeleke MA
Adeneye AK
Adebayo MO
Dike AA

The upsurge in dam construction in Nigeria in response to the Sahelian drought of the 1970s has contributed largely to the shift in the disease transmission bionomics, with a shift from flowing rivers, streams and ponds to artificial lakes and dams. Of 325 registered dams in Nigeria, over 246 (77%) were constructed since 1970. More than 200 (62%) of these dams were built in 10 most endemic states, the rest in the other 26 less endemic states. One of such dams is Oyan reservoir in Ogun state, southwest Nigeria. The reservoir was constructed in 1984 and within four years

of its construction, an outbreak of urinary schistosomiasis was reported in two resettlement communities (Abule-titun and Ibaro) located around the reservoir. According to the record made available to this research team by the Disease Control Unit of Ogun State Ministry of Health, a mass treatment with praziquantel tablets was conducted about eight years (2001) ago in just two of the communities, which are Imala and Imala Odo.

In this study, we aimed at investigating the status of *Schistosoma haematobium* infection around Oyan Reservoir, Ogun State, Southwest Nigeria. Urine samples from 536 participants drawn from five communities were examined for micro-haematuria using semi quantitative reagent strips (Hemastix; Boehringer Mannheim, Germany). Presence of *S. haematobium* ova was determined using the nucleopore filtration method. The participants were drawn as follows: Abule Tuntun (n = 115), Ibaro (n = 156), Imala Odo (n = 88), Imala (n = 103) and Apojula (n = 74) and the study was carried out between October 2006 and March 2008. Overall infection rate determined by haematuria was 44.03% (Abule Tuntun - 33.04%; Ibaro - 84.35%; Imala Odo - 60.23%; Imala - 7.77%; Apojula - 54.05%). Mean intensity of infection determined by egg counts was 39.3% (Abule Tuntun - 52.17%; Ibaro - 73.08%; Imala odo 62.5%; Imala - 20.38%; Apojula - 9.5%). Our results showed that urinary schistosomiasis transmission has been sustained in the reservoir since the outbreak was first reported by other researchers in 1988. Mass drug administration was conducted 8 years ago (2001) in two of the communities, however, the infection has persisted due to lack of pipe borne water and safe waste disposal system. We were able to confirm that urinary schistosomiasis transmission has been sustained in the reservoir since the outbreak was first reported by other researchers in 1988.

Identification of genetic markers associated with Urinary *schistosoma haematobium* infection

Akinwale OP
Ajayi MB
Akande DO
Gyang PV
Adeleke MA
Adeneye AK
Adebayo MO
Dike AA

Schistosoma haematobium infection is widespread in Nigeria and literature has shown that bladder cancer, of squamous cell carcinoma (SCC) type, could be associated with long-term *S. haematobium* infection. Molecular markers such as cytokeratin, CD44, mucin genes and microsatellites have been used in previous studies to detect exfoliated cancer cells and genomic instability in the urine of patients suffering from transitional cells carcinoma (TCC) of the bladder. In this study, we will carry out genomic analysis of blood and urine samples from schistosomiasis patients using microsatellite markers such as D9S905 and PKY3 among others. Baseline data: the previous cytopathological analysis of the exfoliated cells in the urine of 2 individuals showed some squamous cell abnormalities. We observed that the change in allelic size reflected genomic instability which is a feature of urinary bladder cancer.

Investigation of DDT and pyrethroid resistance in *Anopheles gambiae s.l* in rural, semi urban and urban communities in Nigeria.

Oduola AO
Obansa JB
Adeogun A
Otubanjo OA
Awolola TS

Interruption of malaria transmission four decades ago solely relied on indoor residual spraying with Dichlorodiphenyltrichloroethane (DDT) during the Global Malaria Eradication programmes implemented in different parts of Africa. The re-adoption of this strategy in Nigeria will require baseline entomological data on the insecticide susceptibility status of major vectors. The ongoing large survey is aimed at determining the susceptibility status of *A. gambiae* mosquito to DDT and Pyrethroids in 3 epidemiological settings spread over 12 local Government areas within 3 states (Lagos Oyo state and Niger state) in Nigeria . Susceptibility tests will be carried out on *A gambiae* populations sampled from all the study communities using the WHO Susceptibility test kits.

Another phase of the study will be to characterize the species composition of the surviving populations using the PCR species specific assays. Further investigations will include the use of the microarray technique to characterize the metabolic genes in DDT resistance.

Interruption of malaria transmission four decades ago solely relied on indoor residual spraying with Dichlorodiphenyltrichloroethane (DDT) during the Global Malaria Eradication programmes implemented in different parts of Africa. The re-adoption of this strategy in Nigeria will require baseline entomological data on the insecticide susceptibility status of major vectors. The ongoing large survey is aimed at determining the susceptibility status of *A. gambiae* mosquito to DDT and Pyrethroids in 3 epidemiological settings spread over 12 local Government areas within 3 states (Lagos Oyo state and Niger state) in Nigeria . Susceptibility tests will be carried out on *A gambiae* populations sampled from all the study communities using the WHO Susceptibility test kits.

Another phase of the study will be to characterize the species composition of the surviving populations using the PCR species specific assays. Further investigations will include the use of the microarray technique to characterize the metabolic genes in DDT resistance. This will be carried out at the Liverpool School of Tropical Medicine United Kingdom. The overall significance of these activities is to provide information which can be utilized by vector control managers and also create direction on the choice of insecticides to be adopted for indoor residual spraying (IRS) intervention in Nigeria.

Evaluation of awareness, accessibility and use of malaria Control interventions in Ogun State, Nigeria

Adeneye AK
Jegede AS
Mafe MA
Nwokocha EE

The study is aimed at examining the knowledge, attitude, and practices related to malaria control strategies that include insecticide treated bed nets (ITNs), home management/treatment of malaria (HMM), intermittent preventive treatment for pregnant women and artemisinin-based combination therapy (ACT) within the context of roll back malaria (RBM) among providers and the most vulnerable groups in communities of Ogun State. This is aimed at providing important information in support of the RBM thrust in the country.

It is designed as a descriptive cross-sectional study of registered pregnant women attending antenatal clinics and mothers of children less than five years old in the households using questionnaires and focus group discussions. Focus group discussions (FGDs) were held among mothers of children less than five years old and other categories of care-givers within the selected communities. In-depth interview guide developed was used among other stakeholders such as programme implementation officers at the State and local government levels, and public and private health care providers. Yewa and Ijebu North local government areas (LGAs) were randomly selected in the State for the study.

The total sample size for the household survey was 233 mothers of children less than five years old of selected communities while the total sample size for the clinic survey was 262 pregnant women attending antenatal clinics in selected communities. A total of twelve FGDs and sixteen in-depth interviews were held among key informants such as health workers in the community in form of formative/baseline qualitative data preceding the quantitative data collection. The breakdown of all the in-depth interviews conducted is: 4 health policy makers at the State and Local government levels and 6 health care providers (3 public and 3 private) were interviewed.

Awareness and use of malaria control interventions was evaluated among at-risk groups in Nigeria with a year to the deadline of RBM targets and more than half the time to MDGs deadline now past**.** It was a survey of 262 women attending antenatal clinics and 233 mothers of under-five using questionnaire in Ogun State, Nigeria. 32.7% and 23.0% of 495 respondents knew about home management of malaria (HMM) (33.0% mothers of under-five vs. 32.4% pregnant women) and ACTs (26.2% mothers of under-five vs. 20.2% pregnant women) respectively. Only 30.3% had received health education on HMM. For malaria treatment, 48.3%, 22.6%, 18.0% and 0.6% preferred analgesics, sulphadoxine-pyrimethamine, chloroquine and ACTs respectively. Age and education influenced their awareness of HMM and ACTs ($p<0.05$). While 45.5% (46.4% mothers of under-five vs. 44.7% pregnant women) knew ITN/LLIN, only 23.6% (27.9% mothers of under-five vs. 19.8% pregnant women) used ITN/LLIN. Reasons for ITN/LLIN non-use included: “didn't know” (71.3%), “prefer house

spraying" (9.0%), "no money" (7.4%), "causes heat" (3.5%), and "unavailable around" (2.1%). 47.3% of women attending antenatal clinics (32.4% private vs. 57.3% public) knew about IPT, while 43.5% (30.5% private vs. 52.2% public) had received at least one dose. Results showed poor awareness and low use of malaria control interventions in study communities. Efforts need be intensified to make adequate information and materials relating to the different malaria control interventions more available and accessible at the community level. This is important if the RBM/MDG targets are to be realized in Ogun State.

Utilisation of national health insurance scheme (NHIS) among Federal Civil Servants in Lagos

Akinwale OP
Sulyman MA
Adeneye AK
Oduola AO
Obansa JB
Adeleke MA
Gyang PV

Access to healthcare is severely limited in Nigeria. This may be attributable to factors such as inability of consumers to pay for the services, problem of fake drugs and inequitable health care provision. Part of the reforms of government in the health sector aimed at improving efficiency in both public and private sectors and covering the marginalized poor is introduction of the National Health Insurance Scheme (NHIS) to help spread the risks and minimize the costs of health care. It is therefore based on this that this study is designed with the general objective of investigating the extent to which federal civil servants access the NHIS for their health care needs. The specific objectives are to: find out the knowledge and perception of NHIS workers of federal parastatals in Lagos; assess the acceptance rate among them and the extent of NHIS use for their health care needs; and identify factors that affect access and utilization of the scheme among workers.

This is an on-going descriptive cross-sectional study of three hundred and eighty-four (384) workers of randomly selected Federal parastatals in Lagos area using semi-structured questionnaires following their informed consent. In addition, health care providers at selected NHIS designated health facilities in Lagos area will be interviewed on issues relating to utilization of their facilities by clients registered under the NHIS. The outcome of this study will in the long run contribute to the effective and successful implementation of the NHIS programme in Nigeria.

Library Report

The Library unit as presently constituted has its services divided into two major areas (1) Library services (2) Computer and documentation services. The unit operates from two locations; the third and fourth floor of the Administrative building housed the library collections while the Computer Section is located on the second floor of the Laboratory Complex. The library activities are divided into three sections: Circulation/Readers services section, Serials/Journal Section and Technical Services Section while the Computer and Documentation services operate in a Section. This report highlights the activities of the various sections for the period January 2008 to December 2009.

Circulation/Readers Services Section

The unit provided current awareness services, reference/bibliographic services and provision of information to researchers, medical students as well as well as academic visitors to the institute. The library catalogue was well managed to support easy accessibility to library materials for prompt retrieval and loaning. The unit also carried out major shelves reading activities with a view to determine the relevance of books and journals to research focus of the institute. Reference services to research staff of the institute and scientist from outside the institute continued in this section during this period. The ongoing automation of the card catalogue imparted positively on the performance of this section, users can now consult the computer workstation in the reading room to access the library collections electronically especially books.

Journal/Serial Section

The services offered here include selective dissemination of information current awareness services, compilation and production of bibliographic list and the answering of reference question. During the period under consideration, more than 300 volumes of journals, WHO technical report and bulletin were acquired through purchase and donations. The automation of the journal card kadex using CDS/ISIS software continued during this period.

Technical Services Section

Electronic literature search using the internet and databases on CD-ROM continued in this section. Medline is one of the major CD-ROM databases in this section; it was the only electronic literature search device available in the library before the institute was connected to the internet. This electronic literature search services has made it possible for researchers to obtain information quickly.

This section also offers other technical services like photocopying services, Audio Visual services and management of the library dailies which includes press cuttings and indexing. The Audio Visual services involve participation in the institute training programmes, TV and CD player are also available in this section for staff that are interested in viewing the

available health information on video. Scanning of relevant health information in the dailies for keep electronically has also commenced, the continuation is however subject to the acquisition of needed software.

Computer and Documentation Section

This section continued with the Documentation and Management of the Library Databases, the management of the institute website, internet services, Computation and Documentation of Research Articles, Desktop Publishing, Electronic Indexing and Abstracting Services and finally the Design and Management of Computer-Based Medical Record. As well as Database Management support to Clinical Sciences division.

The old and obsolete computers, photocopiers, printers and scanners were replaced with new ones during this period and this improved the services rendered in this section coupled with the provision of a small internet connection by Galaxy backbone that serve the computer room and small section of the lab complex. With the improved services via computer, there is a growing demand in the use of the library services both from staff and its students and other scientist outside the institute for the period under consideration.

Report from Administration Division

The Administration Division continued during the period under review to provide the enabling environment required for the prosecution of Institute's research mandate. This involved the interpretation and enforcement of Public Service Rules, provision of secretarial services to the Institute's management committees, provision of legal services, security and insurance cover for all of its assets; keeping of policy files and updating of staff records.

Approved Establishment
The division succeeded in updating the Institute's approved establishment in 2008 from 272 to 599. Seventy percent upward adjustment in the approved establishment provided for additional senior research and scientific positions. This is in anticipation of growth in research activities in current and new subject areas. The new approved establishment also provides opportunities for career growth of research and non research staff.

Staff Promotion
23 senior staff promotions were approved by the Honorable Minister of Health in the absence of Board under the 2007 promotion exercise. The said promotions were with effect from 1st January, 2008. 20 junior staff promotions were effected during the period. List of successful staff are as attached and marked **Annexure 1A** and **1B** for senior and junior staff promotions respectively.

Staff Appointment
25 New Staff appointments sequel to the senior research and administrative advertised positions were effected during the year. A total of 22 junior staff also joined the Institute in 2008. All successful candidates assumed duty during the year. A list of new appointments in question for senior staff duly approved by the Honourable Minister of Health in the absence of Board is herewith attached and marked **Annexure 2A** while list of junior staff approved within the period is marked **Annexure 2B**.

Absorption into Permanent Establishment
A total of 40 project staff were absorbed into permanent establishment of the Institute in 2008 on the approval of the Honourable Minister of Health in the absence of Board. This was to ensure the retention of a Corp of highly trained and experienced Human Virology personnel who were instrumental to the award of the first laboratory ISO certification to the country and some other projects staff found to be qualified and useful. List of affected staff is as attached and marked Annexure 3.

Induction Course
The division organized an induction course for all newly engaged staff and former project staff absorbed into permanent establishment during the year. Older staff who joined the Institute since the last induction course was organized also participated in the 2008 edition. The five day Course in senior and junior staff categories was meant to acquaint staff with the work culture of the public service, the Institute's research mandate; organisational structure and functions of the various divisions of NIMR. A total of 23 junior staff and 49 senior staff participated and benefited from the programme. List of staff participants are also enclosed and marked as **Annexure 4A** and **4B**.

Left the Service
The Institute lost a staff Mr. Kehinde A. Olajide, a Senior Personnel Officer on Contiss 09 in a ghastly motor accident on the 14th September 2008, along Ilorin Ogbomosho road while returning from an official assignment. He had since been buried. One other staff Mr. G. O. Otuboye an Executive Officer - Store retired from service with effect from 11th July, 2008 on the attainment of the mandatory age of 60 years.

Senior Admin Staff Training
8 senior Admin staff attended skill improvement Courses, seminars and workshops in 2008. List of staff involved and Courses attended including dates are stated in **Annexure 6** herewith attached.

NIGERIAN INSTITUTE OF MEDICAL RESEARCH
FINANCIAL STATEMENT FOR THE YEAR ENDED
31ST DECEMBER, 2008 AND 2009

FINANCIAL HIGHLIGHTS

	2009 =N=	2008 =N=
Total Net assets	549,393,760	503,273,206
Capital expenditure	36,979,255	143,186,948
Working capital	275,893,416	203,287,134
Accumulated fund	495,088,273	457,183,125
Revolving fund	16,750,000	16,750,000
Gross income	505,116,232	335,063,565
Operating surplus/(deficit) for the year	(25,094,852)	(279,678,307)

Report from Maintenance Division

The under listed activities were implemented and accomplished in the just concluded year 2009. These activities are categorized into three, namely:

A. ROUTINE SERVICING / MAINTENANCE
B. SERVICE / MAINTENANCE CONTRACTS
C. STAFF DEVELOPMENT THROUGH TRAINING AND RE-TRAINING.
D. CAPITAL PROJECTS IMPLEMENTATION PROGRAM

A. ROUTINE SERVICE / MAINTENANCE

This is purely servicing and maintenance of the existing Institute's Infrastructures by the regular and normal duty schedules of the Civil (Carpentry, Masonry and Plumbing), Electrical / Electronics, Refrigeration and Air conditioning units of the Works and Maintenance Division through approved various work orders.

Works implemented under this category are quite enormous and range from repairs of weak block walls replacement of sanitary wares and appurtenances, replacement of burnt electrical fittings such as fluorescent tubes, chokes, starters, sockets, plugs, cable etc.

The routine service maintenance cut across all the building Infrastructures e.g. Administration Block, Auditorium Building, Main Laboratory Complex, Works and Maintenance Building, Human Virology, Molecular Biology and Biotechnology, Clinical Science Research, Clinical Diagnostic Laboratory Buildings; DOT Clinic and the Residential Quarters.

CONDITION OF THE GENERATORS

The Institute's three main power generators namely 300KVA, 350KVA and 500KVA Perkins engines were observed to have run for minimum of 5,000 hours each. This running hour level gives an indication for overhauling as clearly advised in their respective operation manuals and hence were respectively overhauled.

The 300KVA and 350KVA were purchased over ten years ago while the 500KVA set was purchased about three years ago.

The 300KVA and the 350KVA sets had their efficiencies dropped to about 40% and hence were recommended for boarding which may come up this year 2010.

The 500KVA set after overhauling had its efficiency restored to about 95% because all its engine components as well as cylinder head were completely replaced with new ones. Hence, its still in full use.

B. SERVICING MAINTENANCE CONTRACTS

Under this, the following were accomplished.

(i) 500KVA Perkins Engine Generator was regularly serviced at every 2000Hrs by Jubaili Bros. Engineering (Nig) Ltd.

(ii) Incinerator
The FS50 Biomedical Waste Incinerator was regularly serviced by Messrs Sankey Nig Ltd through out the four quarters of 2009.

(iii) Cleaning Services
Regular cleaning of Offices, Laboratories and Surroundings was carried out by Messrs Ranstojam Nig. Ltd. However, this contractor was on a more workable program of activities for more efficient cleaning, its annual service contract fee having been increased.

(iv). Intercom Telephone
The service contract fee for this facility was reviewed per annum was reviewed upward. It was serviced by the contractor, Luvlyn ltd.

(v). Sewage Disposal Van Operation
This Operation which was commissioned through signed agreement to Messrs Hamtech Abraham Ventures, commenced on 18/12/08. However this contract was revoked in December 2009 following the contractor asking to offer a tariff of N600, 000.00 per annum.

(vi). Fumigation Service Control
The service contract year also commenced on 18/12/08 with Messrs Hamtech Abraham Ventures to fumigate the Institute as clearly spelt out in the signed agreement.

This contract was also revoked in September 2009 for inefficiency while the Malaria and Vector Control unit of the FMH was approved to take off for free services.

C. TRAINING

As part of staff technical capacity and capability building in the Works and Maintenance Division, the following training / Workshops / Seminar / Conference Programs were undertaken in the year 2009

Names	Description of Training Undertaken	Duration	Remarks
Transport Staff Mr. Kayode Akiode Mr. Godwin Udomkpa Mr. K. Akintunde	Safe Driving course for Drivers 10 -11 July 2009 at Lagos	2 days	Training Conducted.

Report from Maintenance Division

D. 2009 CAPITAL PROJECTS

1ST AND 2ND QUARRTERS 2009

A	B	C	E	F	G	H
PROJECT	**PROJECT DESCRIPTION**	**NAME OF CONTRACTOR**	**% IMPLEMENTED/ PHYSICAL ACHIEVEMENT TO DATE**	**OUTSTAND-ING COMPONENT TO DATE (physical components)**	**PROBLEMS**	**REMARKS**
			Based on Bill of Measurement and Physical Observation			
(1) Supply and Installation of 100KVA Gen Set,,	Supply and Installation of new 100KVA gen to serve auditorium.	Elvic Professional services ltd	100%	Nil	None	Completed
(2) supply and Installation of 250KVA Gen. set.	Supply and installation of a new 250KVA gen to serve HVL	DAT Investment & Company	100%	Nil	None	Completed
(3) purchase of a project vehicle	Supply and delivery of 1no of Hyundai 4WD Tucson 2010 model	Hyundai motors Nigeria ltd	100%	Nil	None	Completed
(4)Priority Electrical Feeder Line phase 3	Supply and installation of H.T panel, high tension cables on poles between PHCN sub-station transmission switch room to the hot station built within NIMR	DAT Investment & Company	100%	Nil	None	Completed
(5) Construction of New Library Building Phase 3	Construction of land scape and sundry works.	Lasar-Ray Nigeria Ltd	100%	Nil	None	Completed

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