NIGERIAN INSTITUTE OF MEDICAL RESEARCH

Federal Ministry of Health

NIMR Annual Report

2006

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NIMR Annual Report
2006 Edition

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ISSN 0331 - 4537

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.

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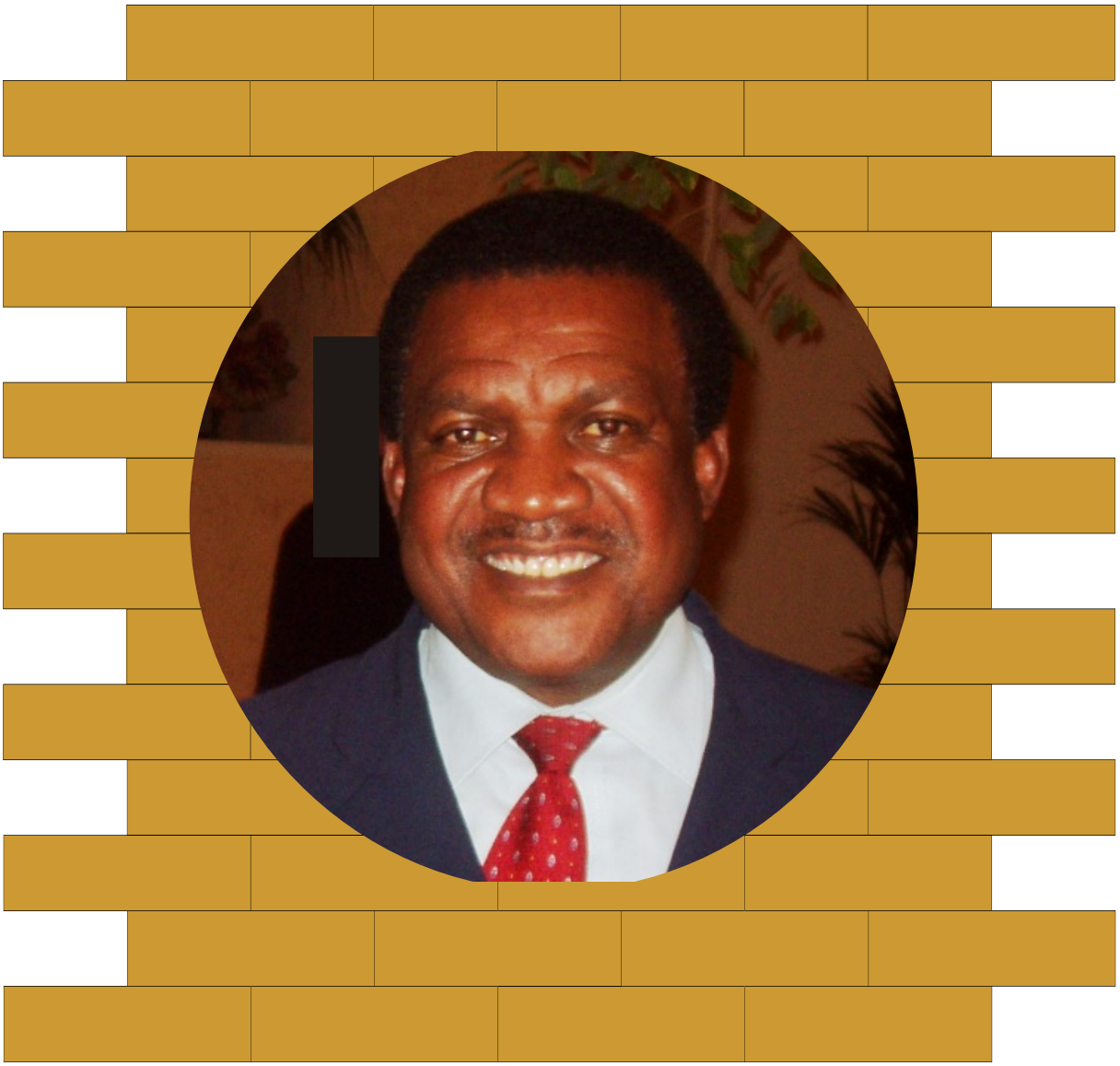

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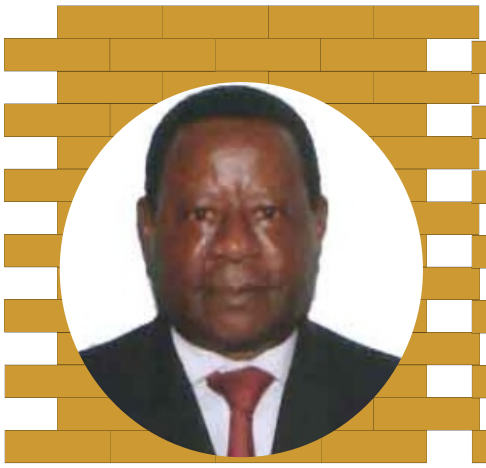
DIRECTOR-GENERAL



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FOREWORD

This report reflects the various activities carried out by the Nigerian Institute of Medical Research in 2006. The main corporate mandate of the Institute is to research into communicable and non-communicable diseases of public health importance in the country. In line with this, several research programmes were carried out withnin the various research divisions. Within the said year, 28 research studies were carried out with the following distribution; Biochemistry Division (6); Microbiology Division (2); Public Health Division (4); Clinical Sciences Division (10); Molecular Biology and Biotechnolgy Division (6). Most of these studies addressed areas with the greatest disease burden in the country. Foremost of these are HIV/AIDS, Tuberculosis, Malaria, Acute Respiratory Infections, Hepatitis, Schistosomiasis, Sexual Transmitted Infections and Onchocerciasis. The outcomes of these various resesarch programmes are reflected in this edition of the Institute's annual report. for the purpose of clarity, these reports are presented on Divisional basis.

Several other non-research activities which were carried out in the year under report are also contained in the annual report. These reports focus on personnel issues as well as available human and infrastructural resources and capacities in the institute. Adequate information on the financial activities of the Institutes and on our library Services are reflected in the report.

Part of the research output was that 33 Scientific articles on studies carried out in the institute were published in peer review journals during the year under report. Part of the institute's mandate is the dissemination of important health research findings to policy makers, researchers and the larger public. In line with this, the publications of the various staff of the institute are included in this annual report.

This Annual Report is therefore recommended for general reading by the public as this will give an informed insight on the various activities of the Institute in the year 2006

Wishing you a pleasant reading. For more information you can visit the institute website.

Dr. Oni Idigbe
Director - General

BIOCHEMISTRY DIVISION

DEFINITIVE DIAGNOSIS OF ACUTE RESPIRATORY INFECTIONS (ARIS) AND MALARIA AMONG CHILDREN UNDER 5 YEARS IN MASSEY STREET CHILDREN'S HOSPITAL, LAGOS.

Investigators: Enya VN, Agomo PU, Idika NN, Ibeh IN, Wemambu SNC

Introduction:

Malaria and Acute Respiratory Infections (ARIs) remain important causes of childhood morbidity and mortality in Nigeria despite the fact that both conditions are potentially treatable. This study was in order to distinguish between the two diseases using current laboratory techniques, and compare the laboratory findings with clinical diagnosis. The data obtained will be of immense help in managing febrile children under 5 years particularly in rural areas where laboratory facilities are not readily available.

Objectives:

To determine frequency of bacteria organisms associated with ARIs in the children less than 5 years of age and the extent of co-existence of ARIs and Malaria in the children.

To examine the anti-microbial sensitivity pattern of the bacterial isolates and check for the presence of plasmid in the multiple antimicrobial resistant isolates.

To probe the knowledge, attitude and practice of child care givers on malaria and ARIs.

To screen for the species of Plasmodium falciparum associated with malaria fever in the children.

Materials and method:

Blood samples, throat swabs, ear swabs, nasal swabs were collected from the children for culture, microscopy and sensitivity tests; malaria parasite and PCV tests.

Result:

202 febrile children under 5 years of age and 202 care givers were studied within 6 months.Plasmodium falciparumm malaria was indicated by 56.9% of the children. Streptococcus pneumonine was isolated from 20.9%.
The KAP study showed that 29.2% of the care givers only could identify malaria fever while only 5.0% correctly identified ARIs in their children.

Conclusion:

The project has been completed and the scientific papers are being prepared for publication.

GENETIC VARIABILITY AND DIFFERENTIATION OF RECRUDESCENCE TO CHLOROQUINE FROM RE-INFECTIONS

Investigator: Olukosi AY

Introduction

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 is a follow up to the one that has been concluded. It will enhance observations from the previous study making finer scientific deduction possible for control measures in the spread of malaria.

Objectives:

To differenciate parasites resistant to chloroquine from re-infections.

Molecular characterization of malaria parasites in circulation in Ijede: a semi-urban study site.

Result /Conclusion:

Conclusions were reached as to the true failure rates from the in-vivo study characterizing chloroquine efficacy. A combination of the two loci: mspII and glurp, differentiated between recrudescence and re-infection, 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 at Ijede region of Lagos.

COMPARATIVE STUDY OF THE EFFICACY CHLOROQUINE, MEFLOQUINE AND DIHYDROARTEMISININ IN CHILDREN WITH ACUTE UNCOMPLICATED FALCIPARUM MALARIA

Investigators: AINA OO, OLUKOSI YA, OKOH HI, AGOMO CO, AGOMO PU

Introduction:

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.

Objective:

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

Materials and Method:

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 dihydroartemisinin (2mg/kg).

Result:

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.

Conclusion:

Our study showed that dihydroartemisinin is the most effective of all the antimalarial drugs used, followed by mefloquine and lastly chloroquine.

EVALUATION OF THE BIOCHEMICAL AND HAEMATOLOGICAL INDICES OF SAFETY IN THE TREATMENT OFPLASMODIUM BERGHEI MALARIA USING ARTEMISININ BASED COMBINATIONS DRUGS

Investigators: Akindele SK, Agomo PU, Aina OO, Brai BIC, Iwalokun BA, Agomo CO, Enya VN, Egbuna KN

Introduction:

The emergence and spread of drug resistant malaria parasites is the major threat to effective malaria treatment and control. So far, malaria control relies heavily on a restricted number of chemically 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 long half life (Okoye, et al., 1977). As a follow- up of work done by Agomo et al., 2006 on ACTs (Artequin and Gsunate Kit) in Ijede Local Government Area of Lagos State, this work is to assess the safety of the drugs in relation to liver and kidney of the patients during and after treatment using laboratory animal models.

Objectives:

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). 3. To determine the level and activities of some blood enzymes and some measure the indices of oxidative stress.

Materials and method:

Young Swiss albino mice were used for this experiments and their weight noted. They were divided into 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®

The treatment was done according to the manufacturers instruction of 3 days treatment after establishment of malaria parasite in the applicable groups. The blood was collected into EDTA and Lithium heparin bottles for haematology and Biochemical Assays.

Result and conclusion:

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) can serve as a means of detecting exposure to Xenobiotics that induce oxidative stress. All the antioxidant enzymes tested for were not significantly different from the control subjects ($P>0.05$).

INTERMITTENT PREVENTIVE TREATMENT OF MALARIA DURING PREGNANCY (IPTP) IN LAGOS. (ON-GOING)

Investigators: Agomo CO, Oyibo WA, Fagbenro-Beyioku AF, Agomo PU

Introduction:

Pregnant women in malaria endemic areas are given curative treatment dose of effective antimalarial drug at predefined intervals beginning after quickening in the second trimester (16-28 weeks of gestation) on the presumption that they are infected with malaria parasites. This is principally because the presentation is mostly asymptomatic. The objective of intermittent preventive treatment (IPT) in pregnancy using sulphadoxine-pyrimethamine (SP) is to reduce the adverse effects of malaria on maternal anaemia and pregnancy outcome.

Objective:

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.

Methodology:

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.

EVALUATING A NEW EFFECTIVE THERAPY, WHICH ALLOWS FOR LESS RIGID GLYCEMIC CONTROL, FOR PROTECTING AGAINST CLINICAL COMPLICATIONS IN TYPE 2 DIABETIC PATIENTS. (ON-GOING)

Investigators: Egbuna KN, Afolabi AS, Niemogha MT

Introduction:

Conventional intensive therapies for improving blood-glucose control in diabetics

significantly slow the onset of diabetic complications, but are often associated with very high frequencies of hypoglycemia which itself is unacceptable. The goal of this study is to provide the Nigerian Healthcare System with information on the impact of antioxidant/anti-diabetic combination therapy in Nigerian type-2 diabetic patients.

Objectives:

To evaluate antioxidant supplementation as complementary prophylactic treatment for degenerative damage in type 11 diabetic patients with or at risk of clinical diabetic complications.

To prevent the initiation and delay the development and progression of diabetic complications by achieving better blood-glucose control/insulin sensitivity.

To examine the prospects for eliminating or minimizing diabetic tissue damage complications with convenient antioxidant therapy

To examine the impact of combination therapy in type 2 diabetes; To investigate the modulation of oxidant stress by antioxidant control in the body of the type-2 diabetic

Methodology:

Health information, fasting venous blood samples/early morning urine samples, and other relevant data are being collected from 200 adult male and female diabetic patients with 50 age and sex-related non-diabetic volunteer persons randomly selected from Lagos serving as control group. A diversity of experimental techniques are being used to quantify markers of type 2 diabetes, oxidative stress, antioxidant status, tissue damage and clinical complications. Relevant parameters, including anthropometric, hematological, nutritional, patho-physiological, clinical, and biochemical parameters are being used in various aspects of the investigation. Data that has been generated from this study is being collated, processed and evaluated.

Preliminary Result:

Results from this research study will help clarify the fundamental metabolic events whose disruption trigger and encourage the development and progression of diabetic complications. It should find practical application in the pharmaceutical industry, and also have special appeal for researchers and practitioners of clinical medicine, nutrition and biochemistry.

MICROBIOLOGY DIVISION

RANDOMIZED CONTROL TRIAL OF SAVVY AND HIV IN NIGERIA.

Investigators: Adeiga A, Oyekunle O, Oladele O, Smith S, Idika N, Oyedeji KSO, Niemogha MT, Otuonye MN.

Introduction:

HIV/AIDS epidemic still constitutes a serious public health problem in Nigeria. Prevalence rate was estimated to be at 5% in the year 2003 sentinel survey. Heterosexual contact was documented to account for more than 70% of all HIV infections worldwide and this mode of transmission is most predominant in Nigeria.

The control methods which are Abstinence Behavioural change and use of condoms adopted to reduce HIV transmission are still associated with some short falls. This therefore informed the need to find alternative means of control for which has resulted in the development topical microbicide.

Tropical microbicides are products designed to inhibit the sexual transmission of HIV and other sexually transmitted disease (STI) pathogens. Potentially, they can be applied in the vagina to prevent both male to female to male transmission. It can be used as an option in cases when male condom cannot be negotiated.

SAVVY (C31G) is a potential microbicide and found to have ability to inactivate HIV. Its mode of action is its lying effect on the cell membranes of microorganisms.

For this product to be used in human subjects, there is the need to subject if to a full clinical trial. Phases 1 and 2 of the trial are conducted for acceptability and safety, while phase 3 is conducted for effectiveness to prevent and control the organism which is HIV in this study.

Objective:

It is to determine the effectiveness and safety of 1% C31G (SAVVY) vaginal gel for the prevention of HIV infection in women at risk.

Material and method:

Eligible participants who were HIV negative and at risk of becoming infected and were willing to use a vaginal microbicide each time they had intercourse throughout 12 months of study. Pparticipation were recruited in Lagos. One thousand and seventy one (1,071) women were enrolled. Half of those enrolled use 1% SAVVY with male condom and other half use placebo with male condoms, Enrollment phase lasted 12 months.

Enrolled participant were randomized into either the SAVVY gel or placebo arm on 1:1 allocation ratio. Participants had monthly follow-up visits at Outreach offices. At each visits they;

- received additional study products i.e. SAVVY gel or placebo;
- went through structured interview;
- gave urine for pregnancy test;
- received HIV risk reducing counseling
- were giving Oral Mucosa Transudase specimen for HIV test.
- Record of adverse reaction or serious adverse reaction due to the drugs were noted.

Result:

(1) In the course of study, promotion of the use of condom increased as there was increase demand more than expected. Those that ignored use of condom were encouraged through constant counseling at each visit and also with the quality of condom given.

(2) The monthly follow-up and opportunity of pelvic examination at the clinic sites revealed those that had sexually transmitted infections (STI) of various types and they were adequately treated. Ten percent of those enrolled had these STIs.

(3) As at the end of December 2006;

- A total of 1,841 participants were screened.
  - Actual Enrollment = 1082
  - Evaluated for effectiveness = 1042.
  - Evaluated for safety = 1044
  - Discontinued due to study termination = 239.
  - Discontinued for other reasons =35
  - Effectiveness Result:
  - (HIV Con version rate)
  - Seroconversion: 21
  - SAVVY group:12(1.1%)
  - Placebo group 9 (.8%)

(4) The C31G microbicide gel was found to be safe to use as less than 2% of those enrolled had adverse reaction to the study product.

Twenty participants suffered serious adverse events which were not related to the study product. Such events included ailment due to peptic ulcer, typhoid fever,

motorcycle accidents.

5) The findings of the effectiveness of C31G microbicide gel indicated that 12 (1.1%) of the women enrolled in the SAVVY group seroconverted with HIV. This was compared with 9(.8%) subjects placed on placebo. Statistical analysis shared that SAVVY gel cannot protect against acquisition of HIV.

Conclusion:

Although SAVVY (c3G) gel is safe to use, it can not protect against HIV acquisition

STUDY OF THE BACTERIAL, FUNGAL AND PARASITIC PATHOGENS FROM STOOL AND THROAT SWABS OF FEBRILE CHILDREN UNDER 5 YEARS IN IJEDE, LAGOS STATE. (On-going)

Investigators: Idika N, Ezeugwu SMC, Bankole M, Ogbonna FN, Victor-Enya V, Agomo PU.

Introduction:

Infections especially malaria, acute respiratory tract infections are the leading causes of children morbidity and morality in the developing countries. Since fever is a symptom of many acute children illness and there is considerable overlap in signs and symptoms of several other major childhood diseases, there is the need to identify other pathogens apart from malaria, in febrile children under five years of age so as not to overlook other life threatening conditions.

Objective:

To identify other pathogens apart from malaria parasites that could be present in febrile children under five years of age.

Methodology:

A total of 234 children under 5years visiting the General Hospital Ijede were recruited into the study. Informed Consent was obtained from parents/caregivers of the children. Throat renal swabs and blood samples were collected from the children. Their weight, height and left mid-arm circumference were also recoded. The clinical samples were processed within 6hrs of collection according to identify the parasites, bacteria and fungal pathogeus present. Antibiotic susceptibility patterns of the bacteria pathogeus were determined. Data obtained will be analyzed statistically using the EPI-INFOR 2002 packages.

Key Accomplishment:
Bacterial, Fungal and Parasitic pathogens have been isolated and identified from stool and sputum samples of febrile children less than five years.

PUBLIC HEALTH DIVISION

SQUAMOUS CELL ABNORMALITIES IN EXFOLIATED CELLS FROM THE URINE OF SCHISTOSOMA HAEMATOBIUM INFECTED ADULTS IN A RURAL FISHING COMMUNITY IN NIGERIA

Investigators: Akinwale OP, Oliveira GC, Ajayi MB, Akande DO, Oyebadejo AS, Okereke KC.

Introduction:

Schistosoma haematobium infection is endemic in Nigeria with substantial transmissions in all the states of the federation and a high prevalence rate in schools. Literature has linked bladder cancer, mostly squamous cell type, with long-term S. haematobium infections.

Objective:

The objective of this descriptive study was to screen exfoliated cells in the urine of S. haematobium infected patients for squamous cell abnormalities through cytopathological examinations.

Materials and Method:

This study was carried out in Imala Odo, a rural, isolated community in Abeokuta North Local Government Area of Ogun state, South-West of Nigeria with no basic infrastructure. The study participants were drawn from Imala Odo, a community near Oyan Dam in Abeokuta North Local Government Area, Ogun state, South West, Nigeria. Due to a considerable day-to-day variation of S. haematobium eggs in urine, 3 rounds of 200ml of urine samples were collected on three different days from 32 infected patients and 10 uninfected controls and examined. Cytological preparations of the infected 15 males and 8 females and 10 controls (5 males and 5 females) were screened for squamous cell abnormalities. Severely dysplastic to frankly malignant squamous cells were observed in 1 (3.1%) male and 2 (6.3%) females, while no abnormality was observed in the controls.

Result:

The results of this study support those from a study in Kenya that showed an association between urinary tract hyperplasia and S. haematobium infection (Hodder et al. 2000). Three (9.4%) of the 32 infected patients who participated in this study had malignant squamous cells of the bladder. Koss et al. (1985) noted that the basis of inflammation in urinary schistosomiasis is chronic inflammation associated with egg deposition in the bladder wall.

Cytology was used in this pilot study because the study was designed to characterize

exfoliated cells in the urine of the participants. However, it can miss up to 50% of tumors especially the low grade and low stage ones and bladder cancer detection at an early stage is very crucial to patients' survival.

Conclusion:
We recommend that these patients would benefit from a careful follow up using a diagnostic method that is more efficient than cytology. We therefore suggest to the state ministry of health that efforts should be made to follow up these patients using cystoscopy, which is the “gold standard” for diagnosis of bladder cancer, so as to be able to identify cases that might have been missed by cytology, the method used in this descriptive study.

EVALUATION OF THE ACCEPTABILITY OF INSECTICIDE TREATED NETS (ITNS) FOR MALARIA CONTROL IN THE KAINJI LAKE AREA, NIGER STATE

Investigators: Mafe MA, Adeneye AK, Idowu ET, Awolola TS

Introduction:
The study is a follow-up to a control-experimental research that involved the distribution of insecticide treated nets (ITNs) in selected communities of Kainji Lake area of Niger State in 2001.

Objective:
The study evaluated the use of ITNs in the study communities with the aim of providing information on acceptability, the actual usage and social marketing potentials of ITNs in malaria endemic communities to support their extensive use in the context of rolling back malaria in the country.

Materials and Method:
Data for the study were collected through household survey using semi-structured questionnaire, focus group discussions among men and women and in-depth interviews with the local government Malaria Control Officer, community leaders and health care providers in the communities studied.

Result:
Results showed that more (92.4%) respondents knew mosquito bite as cause of malaria than 79.4% reported in the previous study. 95.3%(94.7% control vs 92.0% test) of respondents interviewed knew about ITNs compared with none and 88.2% knowing about ITNs in control and test communities in the pre- and post-intervention phases of the previous study respectively.

Generally, only 39.7% of the respondents use ITNs with an average duration of use of 6.6 years. 19.8% and 51.7% in control and test communities use ITNs in their households against none and 90.2% respectively in the pre- and post-intervention phases of the previous study. 95.3% indicated willingness to buy more treated nets and pay an average of N292.00 with a median of N200.00. Most (47.7%) preferred public hospitals compared to the village chief's house (21.4%), market vendors (12.6%), wholesale/retail shops (9.0%), pharmacy shops (3.2%) and private hospitals (0.4%). Of the 110 respondents that use ITNs, only 10.8% had re-treated their ITNs in the last six months prior to the survey. 55.0% of those who had not re-treated their ITNs at the time of the survey attributed their reason to inaccessibility of re-treatment kits in the locality.

With an average of 2 children less than five years old and 1 pregnant woman per household surveyed, only an average of 1 under-five child and no pregnant woman sleep under a treated net.

Conclusion:
Overall, the results showed improved knowledge of mosquito bite being cause of malaria and ITN being a measure of preventing mosquito bites. However, it is disturbing that the rate of ITN use in the study communities is far below expectation of the 60.0%ITN use among populations at risk targeted for 2005 at the Abuja malaria summit in 2000 and barely three years to the end of the 2001-2010 United Nations decade to roll back malaria. Efforts therefore need be renewed and intensified to ensure more effective distribution of ITNs with adequate information, education and communication (IEC) activities to enhance usage.

BASE LINE MALARIA ENTOMOLOGICAL INDICES AT NEW BUSSA, NIGER STATE

Investigators: Awolola TS, Idowu ET, Adeneye KA and Oduola A.

Objective:
This study was predicated on the need to provide base line malaria entomological indices prior to insecticide treated bed nets (ITNs) control intervention in two malaria endemic communities in New Bussa.

Introduction:
Accurate vector identification and determination of the insecticide resistance status of major malaria vectors have become integral component to be considered in any vector control programme involving the usage of insecticide based interventions.

Materials and methods

Adult Anopheles mosquitoes were sampled using standard WHO procedures. Mosquito samples for Molecular identification and ELISA determination of Plasmodium sporozoite infection rates were knockdown by chloroform and preserved on dessicuted silica gel 1-4days old. Adult Anopheles mosquitoes reared from larvae were bioassayed using WHO insecticide susceptibility tests Kits.

Result:

Malaria vector survey showed only the presence of the Anopheles gambiae complex. Further analysis using PCR revealed two members of the An. gambiae complex in both communities. Anopheles arabiensis was the predominant species constituting >75% of the vector population, the remaining were An. gambiae s.s. ELISA analysis of Plasmodium sporozoites infection showed an overall Plasmodium falciparum infection rate of 2.4% and 3.2% in An. arabiensis and An. gambiae respectively. Plasmodium malariae and Plasmodium ovale infections were tested negative. Pyrethroid, carbamate and organochlorine insecticides susceptibility test carried out using standard WHO procedures and test kits showed 100% susceptibility of the local vector species to the three classes of insecticides.

Conclusion:

These baseline data sets would be of importance for monitoring post ITNs intervention infection rate of Plasmodium in the vector species and the status of insecticide susceptibility in the local vector after 2-3 years period of ITNs control intervention in the communities.

MALARIA VECTOR IDENTIFICATION AND INSECTICIDE RESISTANCE STUDIES

Investigators: Awolola TS, Oduola A.

Introduction:

The Roll Back Malaria programme has made the use of pyrethroid insecticide treated nets one of its cornerstones to reduce malaria related mortality among the most vulnerable groups. However, resistance to pyrethroid insecticide has emerged in the malaria vector: Anopheles gambiae sensu stricto particularly in West and East Africa, but there has been very little information on pyrethroid resistance in Nigeria.

Objective:

The objective of this study is to bridge this gap and impact on control policy.

Result / Conclusion:

Studies carried out in the last 12 months have shown up to 30% permethrin resistance in a field population of Anopheles gambiae s.s. around Lagos, So far as we know, pyrethroid resistance in Nigeria is restricted to a few localities in peri-urban and knock down resistance appears not to be the only resistant mechanism. This is in addition to resistance recorded for organochlorine, organophosphates and carbamates compounds.

Our research team also undertook a collaborative research work with the National Institute for Communicable Diseases in Johannesburg, South Africa to study the biology of the Anopheles funestus group consisting of 9 morphologically similar species that contain both vector and non-vector species. Using a PCR assay, the study identified three species of the group: Anopheles funestus s.s., An. rivulorum and An. leesoni from 10 out the 16 sites surveyed in southwestern Nigeria. Only An. funestus s.s was found to be involved in malaria transmission. This is the first molecular characterization of this important group of mosquito in Nigeria.

EXTERNALLY FUNDED PROJECTS IN THE PUBLIC HEALTH DIVISION

1. Characterization of exfoliated cells from the urine of Schistosoma haematobium infected patients.
   Funding agency: UNICEF/UNDP/World Bank/WHO/TDR.

2. Field and Laboratory investigation on pyrethoid resistance in the malaria vector Anopheles gambiae.
   Funding agency: WHO/MIN-TDR

CLINICAL SCIENCE DIVISION

PREVALENCE AND OUTCOME OF SEVERE ANAEMIA IN HIV INFECTED PERSONS ACCESSING MEDICARE IN LAGOS.

Investigators: Odunukwe NN, Ezeobi PM, Gbaja-biamila T, Herbertson EC, Musa AZ

Introduction:
Anaemia in HIV-infected patients can have serious implications, and 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.

Objective:
To determine the prevalence and outcome of severe anaemia on HIV infected individuals on HAART.

Materials and method:
Three thousand, three undred and fifty-four (3354) HIV/AIDS infected previously antiretroviral naive adult Nigerians, aged 18-71 years (1120 males and 2234females) 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.

Result:
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% was treated with erythropoietin, and others had only haematinics, vitamins and ART.

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.

Conclusion:
Severe anaemia is common, and is strongly associated with disease progression, high morbidity, and low survival among the HIV-infected patients in Lagos. Malaria, malnutrition, tuberculosis and renal failure were the identified possible causes of

severe anaemia in this study.

Impact on the National Health programmes: This study will establish the gravity of severe anaemia in the management of PLWHA, and make recommendation for better management.

PREVALENCE AND MANAGEMENT OF HBV/HIV CO-INFECTION IN LAGOS, Nigeria. (ON-GOING)

Investigators: Odunukwe NN, Onwujekwe DI, Ezeobi PM, Gbaja-Biamila T, Okwuzu JO, Musa AZ, Somefun EO

Introduction:

HBV and HIV are endemic in the same world regions 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. Because liver disease due to chronic hepatitis B infection is a leading cause of mortality and morbidity in HIV positive persons in the western world and in developing countries treatment of chronic HBV is generally recommended for all HBV/HIV co infected patients. Nevertheless best strategy for management HBV/HIV is yet to be defined.

Objective:

To determine the prevalence of HBV/HIV co-infection in Lagos and assess their survival in relation to HAART.

Methodology:

Prospective study of 160 HIV /HBV co-infected individuals aged 18 years and above and 160 control group, whom will give signed informed consent. All recruited

patients will be on HAART if eligible. Hepatitis B markers to be studied are HBsAg, HBe antigen/anti-HBe antibodies and HBV DNA. The diagnosis of chronic hepatitis B will be based on HBV DNA positive results and elevated ALT level. Viral loads, CD4 cell count, Haematological and Biochemical indices will be analysed at base line and 12 weekly intervals until the end of the study.

Result so far: One thousand seven hundred and nine HIV infected persons have been screened as at 30/12/2006. One hundred and fifty were found to be co-infected with HBV. HBV DNA is yet to start.

Impact on National health programme: It is expected that this study will provide prevalence of HBV/HIV and recommendation of an effective and affordable protocol, for its management in Nigeria

THE ROLE OF SELENIUM AS ADJUNCT TO HAART AMONG HIV INFECTED INDIVIDUALS WHO ARE ADVANCED IN THEIR DISEASE. (ON-GOING.)

Investigators: Odunukwe NN, Onwujekwe DI, Musa AZ, Ezechi OC, Ezeobi PM, Audu RA, Gbaja-Biamila T, Dan-Peters RC, Nwogbe OA, Herbertson EC, Adu RA, Idigbe EO.

Introduction:

In developing countries, HIV-1 infection impact on people is . 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.

Objective:

To determine the efficacy of Selenium as an immune booster in the management of HIV/AIDS in adult Nigerians.

Methodology:

Prospective randomized study of 100 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 will be 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 will be evaluated and viral loads quantified or specimen already taken.

Fifty subjects for each of the two arms of the study (selenium one caplet, daily for and Vitamin B complex one tablet daily + Tablet Vitamin C 100mg daily for the duration of

study) shall be used for the trial. However, extra 50 subjects will be recruited for each arm to allow for drop out.

This study should improve the management of PLWHA and postpone the time for ART initiation which has side effect.

SUCCESS RATE OF PATIENT PERFORMED ARTIFICIAL INSEMINATION AFTER OVARIAN STIMULATION IN SERODISCONDANT - MALE NEGATIVE COUPLE.

Investigators: Ezechi OC, Onwujekwe DI, Musa AZ, Nwogbe OA, Gab-Okafor CV, Ezeobi PM, Gbaja-Biamila T,Adu RA, Somefun EO

Introduction:

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 serodiscordant couple. However most of PLWHAS in our centre and Nigeria may not be able to afford Gynaecologist assisted AID. To tackle this challenge we started a novel patient assisted self insemination using partner's semen.

Objective:

To evaluate the success rate of patient assisted artificial insemination.

Materials and Method:

HIV Serodiscordant-male negative couple with normal reproductive functions after infertility evaluation were educated on how to perform AIH using the male partner semen at home using 2 cc injection syringes. Ovulation is induced using clomiphene citrate and couple performs AIH at home on days 12th, 14th and 16th of each cycle until pregnancy is achieved.

Result:

Presently thirty seven couples have benefited from the programme. There were 31 pregnancies in 109 AIH cycles (33.9%) patients. The number of cycles before becoming pregnant ranges from 1- 9 with a median of 3. All the patients were below 36 years of age and 67.6% has less than two living children. Majority (73.0%) of the patients were receiving ARV at the time of insemination.

Conclusion:

Patient assisted AIH is effective in achieving pregnancy in serodiscordant couple and is affordable. Futhermore, this study established the need for the following :

Primary prevention of HIV infection in the HIV negative partner.

Reduction of HIV disease burden in the country

Reduction of reproductive health morbidity of childlessness.

Improvement of the quality of life.

PREVALENCE AND RISK FACTORS FOR MENSTRUAL DYSFUNCTION AMONG HIV POSITIVE WOMEN

Investigators: Ezechi OC, Onwujekwe DI, Musa AZ, Nwogbe OA, Gab-Okafor CV, Ezeobi PM, Gbaja-Biamila T, Adu RA, Somefun EO

Objective:
To determine the effect of HIV-1 infection, advancing immunosuppression and HAART on the menstrual function of Nigerian women.

Materials and Method:
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 socio-demographic characteristics and menstrual function in the preceding 6 months using a structured questionnaire designed for the study. Also obtained was Anthropometric measurements, CD4 and viral load values. Data entry and analysis was with SPSS for windows Version 10.

Result:
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.

Conclusion:
Menstrual dysfunction is common in HIV positive persons and is associated with low CD4 count, not on ARV use and body mass index less than 20. This study has also established the following:
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 comencement of ARV reverses it.
Reduction of disease burden

EFFECTIVENESS OF PRIVATE PUBLIC PATNERSHIP IN PMTCT PROGRAMMING

Investigators: Ezechi OC, Onwujekwe DI, Musa AZ, Nwogbe OA, Gab-Okafor CV, Ezeobi PM, Gbaja-Biamila T, Adu RA, Somefun EA

Introduction:

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.

Objective:

To evaluate the effectiveness and success of Public private partnership in PMTCT programming.

Materials and Method:

Involves 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.

Result:

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.

Conclusion:

PPP is not only feasible but effective when rapid scale up in VCT and PMTCT services

Impact on the national health programme:

- Increase access to VCT
- Increase access to quality PMTCT services
- Reduction of paediatric HIV infection by over 32.4%
- Increase public private partnership in health care delivery

EFFECT OF PREGNANCY DISORDERS ON BLOOD LIPID PROFILE

Investigators: Ezechi LO, Ezechi OC, Ebuehi OAT

Introduction:
Diabetes mellitus, hypertension and malnutrition have been shown by several reports to affect lipid profile. Similar effect in pregnancy is expected, however few reports in our environment has evaluated this.

Objective:
To determine the effect of some pregnancy disorder on lipid profile

Materials and Method:
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.

Result:
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 was there 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 ($p = 0.000$).

Conclusion:
There is a significant hyperlipidaemia in pregnancy complicated by gestational dm and PIH. Impact on the national health programme:
·Established the health burden associated with non communicable disease in pregnancy

SEXUAL AND CONTRACEPTIVE BEHAVIOUR OF NIGERIAN LIVING WITH HIV/AIDS.

Investigators: Ezechi OC, Onwujekwe DI, Musa AZ, Nwogbe OA, Gab-Okafor CV, Ezeobi PM, Gbaja-Biamila T, Adu RA, Somefun EO

Introduction:
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.

Objective:
To determine the prevalence, practices and determinants of contraceptive use and to identify the sexual behaviour and its determinants among the PLWHAS

Materials and Method:
A Cross sectional 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.

Result:
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 duration of 20.1±17.7 months. Three hundred and four (60.6%) of the respondents had disclosed their HIV status to their spouse or partner. The serodiscordant rate among these respondents was 34.7%. Three hundred and fifty three (70.3%) respondents were sexually active and the majority (57.3%) had sexual intercourse within the last 4 weeks. Of the sexually active population 19.5% had multiple sexual partners. Though a large percentage of the respondents were sexually active 71.5% interested in sex have reduced since diagnosis of HIV infection. Among the respondents increasing age was significantly associated with decreasing sexual activity ($p = 0.009$).The males ($p = 0.0003$) and the married ($p = 0.00002$) respondents were sexually more active. Religious affiliation, educational level and duration of treatment had no effect on the level of sexual activity; however being employed, having less than 2 living children and not being on ARV drugs were significantly associated with sexual activity. Having an HIV negative partner was associated with reduced sexual activity ($p = 0.02$). The analysis of condom use pre and post HIV diagnosis showed a statistically significant increase in condom use from a “never used” rate of 59.2% to 14.2% ($p < 0.0001$). The respondent's reasons for using condoms for protection against pregnancy (50.8%), protection against STI (31.4%) protection against re-infection with other HIV strains (27.7%) and partner protection from HIV (23.8%). Consistent use of condom

was associated with increasing age (p = 0.002), male sex (p = 0.006), having formal education (p <0.0001), having a job (p = 0.0000), not been a catholic (p = 0.01), having a HIV negative partner (p = 0.01), having more than two children (p<0.0001).

Conclusion:
Routine counseling at the clinics are associated with improved and responsible sexual behaviour, however some patient still engage in risky behaviour warranting continued health education at each visit.
Impact on the national health programme:
Established the positive role counseling and secondary preventive message has on responsible sexual and contraceptive behaviour.

EARLY DIAGNOSIS OF TUBERCULOSIS DISEASE AMONG ADULT PLWHA ON FIRST CONTACT WITH HIV/AIDS CARE AND TREATMENT AT NIMR.

Investigators: Odunukwe NN, Ezechi OE, Onwujekwe DI, Adu RA, Ezeobi PM, Gbaja-Biamila T, Musa AZ, Nwogbe OA.

Introduction:
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.

Materials and Method:
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.

Result:
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.

160 of these subjects (25.8 %) had TB disease using these three screening tests, and were commenced on anti-TB therapy. 67.7% of the subjects had a low CD4 count of <200. 154 (97.5%) of them had pulmonary TB, and out of these, 113 (71.6%) were sputum-smear positive. Chest radiography was suggestive of active TB disease in only 50.6% of the TB cases. 66.5 % of the TB patients belonged to treatment category I (NEW CASES). Cough lasting for >2weeks was the most common single symptom of TB disease (44.3%).Cough +weight loss + prolonged fever were found in only 14 (18.9%) of the TB patients.

IMPACT ON NATIONAL HEALTH PROGRAMMES:
This is perhaps the first estimate of the prevalence of active TB disease among PLWHA seeking care for HIV infection in Nigeria. The results show that HIV infected adults in Nigeria constitute a large pool of active TB cases requiring urgent diagnosis and treatment. Since majority of them were found to have SS+ve TB, all HIV treatment and -care settings in Nigeria should ideally be designed and built with TB infection control in mind. Engineering control to reduce spread of TB among this highly susceptible group must be part of these preventive measures, at the design stage.
All HAART centres should also be equipped and staffed to provide TB DOTS to their patients with TB.
The burden of disease from TB in Nigeria is most likely to be higher than has previously been estimated when the impact of HIV infection is factored in, and the National Control Programmes for TB and HIV should intensify collaboration to mitigate the varied impacts of the two epidemics.

TB MODIFIED DOT: COHORT REVIEW FOR TB/HIV CO-INFECTION. (ON-GOING)

Investigators: Odunukwe NN, Ezechi OC, Onwujekwe DI, Adu RA, Ezeobi PM, Gbajabiamila T, Musa AZ, Nwogbe OA.

Introduction:

The 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.

PROTOCOL: 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.

Result:

Cumulative number of HIV +ve patients screened for TB at NIMR, with data captured in HIV database as at 31st January was 1537. Out of these, 899 had TB disease, and were referred to the TB clinic for treatment.

From the TB DOTS clinic, cumulative number of patients who registered for TB treatment from July 2005 to December 2006 was 876. 231 patients registered in 2005, and 641 in 2006.

From the data available so far: (As at end February 2007)

	2005	2006	2007
Total No. of Patients	231	641	163

Smear Positive		265
Smear Negative		266
Completed Treatment		120
Defaulted	30	57
Cured	134	99
Deaths	11	8
Transferred out	-	-
Transferred in	-	-

Conclusion:

This periodic review will provide essential data for evidence-based strategy for TB management and control that takes into consideration the various sub-groups of patients, who for one reason or the other, may not qualify for strict TB DOTS strategy.

MOLECULAR BIOLOGY & BIOTECHNOLOGY DIVISION

MOLECULAR METHODS FOR THE DIAGNOSIS OF HELICOBACTER PYLORI FROM GASTRITIS, PEPTIC ULCER AND GASTRIC CANCER PATIENTS IN WESTERN NIGERIA: A COMPARISON WITH PHENOTYPIC METHODS (ON-GOING)

Investigators: Smith SI (PI), Oyedeji KS, Goodluck HT, Omonigbehin EA, Fowora MN, Bamidele M, Akinsinde KA, Coker AO, Arigbabu AO.

Introduction:

Gastric H. pylori infections are common throughout the tropics and reports have indicated that H. pylori may be a causative factor in upper digestive pathology. The seroprevalence in developing countries is 85%. It has been recommended to test and treat patients with dyspepsia in countries where the prevalence of infection is more than 20%. Recently, (2005), a test and treat policy has been recommended for patients with iron deficiency anaemia and idiopathic thrombocytopaenia when other sources of illness have been eliminated. The clinical implications of this organism are still being investigated.

Objectives:

To isolate and characterize H. pylori using molecular techniques with the aim of proffering early diagnosis, therapeutic regimens and tracing routes of transmission for the purposes of preventing spread. The possibility of clonality amongst families could also be traced.

Methodology:

Isolation and characterisation of H. pylori from patients presenting with dyspepsia from biopsies.

Screening of stool of patients presenting with dyspepsia for ocult blood and also HpSA.

Carrying out antimicrobial susceptibility testing on isolates.

Screening the blood of patients for iron deficiency anaemia after ruling out other causes of anaemia.

Prelinary Result:

Out of 177 patients screened for iron deficiency anaemia (IDA) H. pylori was positive in 139 (78.5%). Occult blood was positive in 7 (4%), PCV ranged from 17 48.

Twenty-one out of 153 (14%) had low ferritin levels out of which 12/21 (57%) were from males while 9/21 (43%) were from females. Five males, one female had low ferritin levels with negative H. pylori and occult blood, while the remaining were positive (71%).

Only 14 biopsies were collected for culture of H. pylori and only one was positive, due to constant power outages.

Out of 209 patients screened for H. pylori stool antigen test, 169 (80.1%) were positive for H. pylori.

Findings:
This study so far with a few positive samples for ferritin is still on-going, for now one cannot categorically state that H. pylori is linked to IDA, however 71% of the patients with low ferritin levels, negative parasite and occult blood were positive for H. pylori.

PREVALENCE OF HELICOBACTER PYLORI INFECTION AMONG CHILDREN IN NIGERIA (ON-GOING)

Investigators: Oyedeji KS (PI), Smith SI, Coker AO, Arigbabu AO.

Introduction:
Helicobacter pylori as common cause of gastritis in children have not been properly documented in Nigeria. They may present in asymptomatic cases and it is not often detected until ailment progresses to ulcer and other complications.

Objective:
The aim is to investigate the age bracket where it is predominant to aid early diagnosis and prevention.

Methodology:
Study population:
Between February and August 2006, a cross sectional study was carried out on asymptomatic preschool and school aged children between 1 and 16 years.

Participants:
Participants were drawn from Massey street children Hospital, LASUTH and Nigerian Institute of Medical Research (NIMR) Yaba, Lagos. Their informed consent and assent were duly sought before participation

Questionnaire:
Structured questionnaires were given to parents of the children to obtain information that could help in determining the predisposing factors to the infection in their children.

Sample collection and analysis:
Stool and blood samples were collected from 102 asymptomatic children using any child above 16years of age and having symptoms of dyspepsia as the exclusion criteria. Serology was performed using the one step H.pylori Device (Diagnostic automation inc. USA)

Packed cell volume (PCV) was done on the collected blood using the Microhaematocrit analyzer, and the stools were analyzed for H.pylori infection by the rapid immunoassay method for H.pylori stool antigen (HPSA, Meridian Bioscience, Europe), and also screened for parasites and possible occult blood. This is to rule out other forms of blood loss.

Finally, the body mass index of the children was also determined to correlate infection with growth rate in the children.

Preliminary Result:
Asymptomatic 19% of 102 children screened were positive for H. pylori. Males: Female is 1:51. The most affected age group is 11 16years. Fifty percent were positive in this age group. The infection rate is relatively low among the 1-5 age groups (10%). Most of the infected children have a PCV below 25% and they were free of occult blood and parasites. H. pylori infection is common in childhood (19%) in Western Nigeria with a prevalence rate of about 50% by the age of 13.

EVALUATION OF PARAMETERS FOR EFFECTIVE DIAGNOSIS OF TYPHOID FEVER: GENOTYPIC AND PHENOTYPIC TYPING OF SALMONELLA ENTERICA SEROVAR TYPHI FROM DIFFERENT SOURCES IN LAGOS, NIGERIA (ON-GOING)

Investigators: Smith SI (PI) and all members of staff, Mr. C. Agomo (Statician) and Dr. EO Idigbe (Project Adviser)

Introduction:
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.
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.

Objective:
The study is aimed at evaluating the phenotypic methods of diagnosis of S. enterica serovar typhi with molecular methods to proffer faster and accurate diagnosis of typhoid fever in Nigeria.

Methodology:
- Isolation and characterisation of S. Typhi from stool and blood of patients presenting with febrile cases.
- Screening of the blood samples of patients for widal test and malaria parasite
- Characterising the isolates for the antimicrobial susceptibility patterns
- Plasmid profile analysis of the isolates using the alkaline lysis method

Prelimanry Results:
There was 26% prevalence from our study amongst febrile patients. Questionnaires distributed showed that the main sources of drinking water were from “pure water” and tap water. The isolates were grouped into nine according to their antibiotic susceptibility patterns.
From our studies 7.2% of the patients have typhoid and the interesting result is that 80% of the isolates have a Widal reaction of <1:20. The problem of misdiagnosis therefore is paramount as only a Widal test of 1:80 is used as presumptive for typhoid fever in our environment.
Plasmid profile analysis of the isolates showed that 55% harbored large molecular weight plasmids.

ISOLATION AND MOLECULAR CHARACTERISTICS OF SALMONELLA ENTERICA TYPHI ISOLATED FROM FOOD HANDLERS IN BUKKAS AND SALMONELLA SPP FROM FARM ANIMALS. (ON-GOING)

Funding agency: International Foundation for Science (IFS)

Investigator: Dr. SI Smith

Introduction:

Salmonella enterica serovar Typhi is an important food borne pathogen world-wide and has been implicated as the cause of typhoid fever. In Nigeria, the prevalence of S. Typhi rose from 5.9% to 34.3% in recent study (Oboegbulam et al. 1995; Ngwu and Agbo 2003). Molecular epidemiology studies have not been done extensively in typhoid fever patients and even nothing has been reported about their isolation from animals. In addition, there are no documented studies of S. Typhi from food handlers in Nigeria. This is important because a greater proportion of Nigerians eat in 'bukkas' which normally sell foods at lower prices presumably because most often than not they do not have to pay for their stalls or less money is paid for the place.

Objective:

To develop a simple and rapid molecular method for epidemiological typing of S. enterica serovar Typhi isolated from faeces of food handlers that are possibly carriers of S. enterica serovar Typhi.

Materials and Method:

- Isolation and Characterisation of S. Typhi from stool of food handlers.
- Isolation and characterisation of Salmonella spp from farm animals such as goats and cattle.

Preliminary Result:

Out of a total of 100 faecal samples from food handlers, 6 (6%) were positive for S. Typhi while out of 100 faecal samples from cattle, 15 (15%) were positive for Salmonella spp. S. Enteritidis comprised 80%, while S. Typhimurium comprised 20%.

Findings:

The isolation of S. Typhi from these apparently healthy but chronic S. Typhi carriage food handlers is of utmost health importance as these food handlers stand the risk of transmission of S. Typhi to the populace. The Health/Sanitary Inspectors and NAFDAC should set up health policies and health education for the control and management of typhoid fever in our environment.

KNOWLEDGE, PERCEPTION AND ACCEPTABILITY OF MICROBICIDES AMONG NON -HEALTH CARE WORKERS IN LAGOS, NIGERIA.

Investigators: Smith SI (PI) , Adesina A, Agomo C

Result:

Out of 200 respondents, 120 (60%) were women while 80 (40%) were males. The respondents included journalists, drivers, hair-dressers, clerks, technicians, students,

and secretary/typist.

Those that heard about microbicides accounted for 22.5%, while the respondents that did not hear accounted for 77.5%. Out of the 22.5% that heard about microbicides, 46% believed that it could be used to prevent HIV transmission while 54% did not. When assessed according to sex, 5% and 35% respectively of males and females had heard about microbicides. The respondents felt that the product should be accessed over-the counter in pharmacies.

Conclusion:
It is worrisome from this study to see that those at high risk of HIV acquisition, hairdressers and truck drivers (for spouses and partners) were not willing to use the microbicide and did not believe it could prevent transmission of HIV/AIDS. However, it is believed that with the various enlightenment programmes and the current on-going microbicide study, greater information would have been passed and hence a different view about microbicides.

INVIVO EVALUATION OF THE HEPATOPROTECTIVE ACTIVITY OF PERSEA AMERICANA LEAF EXTRACT (ON-GOING)

Investigators: Brai C B (PI), Agomo PU, Smith SI, Fesobi TW

Introduction:

Objective:
To determine the ability of the extract of Persea Americana leaves to protect against liver damage in carbon tetrachloride (CCL 4) intoxicated male albino rats was instestigated.

Hepatocellular damage was induced in male albino rats by subcutaneons administration of CCL4.

Preliminary Result:
Pre-treatment of rats with aqueous extract of Persea Americana leaves produced significant ($P < 0.05$) reduction in the activities of aspartate aminotransferase and total bilirubin.

The calculated percentage hepatoprotection shows that the administration of aqueous extract restored serum and liver protein to levels comparable to normal rats. This further elucidates the hepatoprotective effect of Persea Americana.

Triglycerides were also substantially reduced in pre-treated rats, compared to normal and there was restoration of WBC and neutrophil counts by (99% and 48% respectively) and reduced the lymphocyte count by 13%.

SOME OF THE SCIENTIFIC EQUIPMENTS ACQUIRED IN 2006

Co_2 Incubator Biorad
Uniscope Lab incubator
Olympus CX 21 binocular Microscope
-20 Chest freezer
DEIONIZER
PCR MACHINE
AUTOMATIC MICROPIPETTE 20PD
AUTOMATIC MICROPIPETTE 100PD
DIGITAL THERMOMETER
DISSECTING KIT
2000V STABILIZER
STEREO MICROSCOPE
LIGHT MICROSCOPE
PHASE CONTRAST MICROSCOPE
DIGITALIZED PH METER
MICRO ANALYTICAL BALANCE
REFRIGERATED CENTRIFUGE
DEIONIZER
(A) ELECTROPHORESIS APPARATUS (MIDI-GEL) + POWER PACK
(B) MAXI-GEL + POWER PACK
DEIONIZER
ELECTROPHORETIC TANK (MIDI)
EPPENDORF MICROCENTRIFUGE
WATER BATH WITH SHAKER
ICE MAKING MACHINE
THERMOCYCLER (TECHNE)

LOCAL & INTERNATIONAL RESEARCH COLLABORATORS

- IFS, Sweden
- TWAS, Italy
- OAUTHC, Ile-Ife
- LUTH, Lagos
- Vector Group, Liverpool School of Tropical Medicine and Hygiene, UK.
- NCID University of Witwatersrand, Johannesburg, South Africa.
- National Malaria Vector Control Unit, Federal Ministry of Health, Abuja, Nigeria.
- 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.
- Harvard School of Public Health, Boston, USA.

NIMR SCIENTIFIC SEMINARS

2006 NIMR SCIENTIFIC SEMINARS

TITLE	PRESENTER	MONTH/YEAR
Effective project planning and evaluation in biomedical research	**Dr. Oyedeji**	**August 2006**
Bioethics :Current trends in biomedical research.	**Dr. Wellington**	**September 2006**
Preliminary evaluation of malaria control strategies in Ogun State	**Mr. Adeneye**	**November 2006**
Proposal writing and writing of scientific seminars (A 2 day workshop)	**Dr. Oni Idigbe**	**December 2006**

LIBRARY & DOCUMENTATION UNIT

The Library serves and caters for the literature as well as bibliographic requirements of staff of the institute and other researchers who use the Library from time to time. The services offered by NIMR Library includes the following:

1. Reference and bibliographic services.
2. Loans of books.
3. Current Awareness services.
4. Internet services
5. Computer / Inernet aided Literature Search Services – (Medline, HINARY etc).

The Library have access to about 2,700 journals and some full text on CD Rom. .

The Library is out to assist clients by providing them with current, up-to-date and comprehensive information in health and related subjects regardless of their interest profile. During year 2006, the Management was able to procure some foreign journals through the use of UNESCO Coupons. Attached is list of some Journals received in the Library: January – December, 2006.

American Journal of Tropical Medicine and HygieneVol.76, Nos 1-6, 77, Nos. 1-3

Archives of Internal MedicineVol. 167, Nos. 10-19

BMJVols. 334 & 335

LancetVol. 370, No. 9584

LancetVols. 357, Nos 9-15, 369, Nos. 9564-9580, 370,

New England Journal of MedicineVols. 357, Nos. 9-15

Translational Research: Journal of Lab. & Clinical MedicineVol. 147, Nos. 3-6

ADMINISTRATION DIVISION

SENIOR STAFF PROMOTIONS / UPGRADING

NAME	DESIGNATION	DIVISION/UNIT	DESIGNATION ON PROMOTION	W.E.F
Dr. S.M.C. Ezeugwu	Senior Res. Fellow	Microbiology	Chief Res. Fellow	15/02/06
Dr. B. Adewale	Research Fellow 1	Public Health	Senior Res. Fellow	1/1/2006
Miss O. Ojerinola	Prin. Med. Lab. Scientist	Clinical Diagnostic Lab.	Asst. Chief Med. Lab. Scientist	1/1/2006
Mr. J.C. Nwokeji	Prin. Technical Officer I	Works & Maintenance	Asst. Chief Tech. Officer	1/1/2006
Mr. C.O. Agomo	Junior Res. Fellow	Biochemistry	Research Fellow II	1/1/2006
Dr. S.A. Adesida	Junior Res. Fellow	Biochemistry	Research Fellow II	1/1/2006
Mr. B.O. Aina	Higher Exec. Officer (A/c)	Finance & Accounts	Senior Accountant	1/1/2006
Miss N.N. Onyejepu	Junior Res. Fellow	Biochemistry	Research Fellow II	1/1/2006
Mr. O.T. Kokumo	Higher Technical Officer	Works & Maintenance	Prin. Techn. Officer II	1/1/2006
Dr. (Mrs) T.A. Gbaja-Biamila	Junior Res. Fellow	Clinical Sciences	Research Fellow II	1/1/2006
Mrs. T. Fesobi	Sience Lab. Techn.	Mol. Biology & Biotech	Snr. Sci. Lab Technologist	1/1/2006
Mr. O.A. Kehinde	Personnel Officer I	Administration	Senior Pers. Officer	1/1/2006
Mr. B.N. Osuji	Higher Exec. Officer	Administration	Prin. Exec. Officer II	1/1/2006
Dr, P.M. Ezeobi	Junior Res. Fellow	Clinical Sciences	Research Fellow II	1/1/2006
Mrs. N.M. Aniedobe	Medical Lab. Scientist II	Human Virology Lab.	Medical Lab. Scientist I	1/1/2006
Mrs. Q.M. Aderounmu	Higher Exec. Officer	Administration	Senior Exec. Officer	1/1/2006
Mrs. F.N. Ogbonna	Science Lab. Techn. II	Microbiology	Science Lab. Techn. I	1/1/2006
Mr. A.S. Afolabi	Science Lab. Techn. II	Biochemistry	Science Lab. Techn. I	1/1/2006
Mrs. I.O.Edu-Muyideen	Science Lab. Techn. II	Clinical Diagnostic Lab.	Science Lab. Techn. I	1/1/2006

SENIOR STAFF PROMOTIONS / UPGRADING CON.

NAME	DESIGNATION	DIVISION/UNIT	DESIGNATION ON PROMOTION	W.E.F
Mrs. M. Fowora	Science Lab. Techn. II	Mol. Bio.& Biotech	Science Lab. Techn. I	1/1/2006
Mr. I.P. Anochie	Senior Laboratory Assistant	Biochemistry	Junior Research Fellow	1/1/2006
Mr. D. Ugochukwu	Technical Officer	Works & Maintenance	Higher Techn. Officer	1/1/2006
Mrs. F.Adeniyi	Executive Officer	Administration	Higher Exec. Officer	1/1/2006
Mr. J. Opara	Chief Motor Driver Mechanic	Works & Maintenance	Transport Suprintendent	1/1/2006
Mr. D. T. Johnson	Computer Sys. Techn. Analyst	Director General's Office	Higher Compu. Sys. Techn.	1/1/2006

NAME	DESIGNATION	DIVISION/UNIT	DESIGNATION ON PROMOTION	W.E.F
Mrs. M.A. Olatunji	Executive Officer (Accounts)	Finance & Accounts	Higher Exec. Officer. (A/c)	1/1/2006
Mrs. Y.A. Oyelakin	Asst. Exec. Officer	Director General's Office	Executive Officer	1/1/2006
Mr. H. Sanni	Asst. Exec. Officer (Audit)	Internal Audit	Executive Officer	1/1/2006
Mr. S.O. Ezeigbo	Asst. Exec. Officer (Audit)	Internal Audit	Executive Officer	1/1/2006

SENIOR STAFF EXIT FROM SERVICE IN 2006

NAME	DESIGNATION	SALARY GRADE	DIVISION /UINT	DATE OF ENTRY INTO SDERVICE	EFFECTIVE DATE OF EXIT	MODE OF EXIT
Prof. T. A. Adewole	Deputy Director (Research) Clinical Science	HATISS 14	Clinical Science	15/6/87	21/2/2006	Transfer of Service to the Ladoke Akintola University

SENIOR STAFF APPOINTMENTS IN 2006

NAME	DESIGNATION	QUALIFICATION	SALARY GRADE	DIVISION/UINT	EFFECTIVE DATE
Dr. N. N. Odunukwe	Deputy Director (Research) Clinical Science	MBBCH; FWACP	14	Clinical Science	15/2/2006
Mrs. C. N. Kunle-ope	Junior Research Fellow	B.Sc. Microbiology & Brewing M.Sc. Microbiology & Brewing	08/1	Microbiology	16/1/2006
Engr. E. O. Adedeji	Chief Engineer	B.Sc. Civil Engineering	13/1	Works & Maintenance	01/3/2006
Mrs. E. H. Meschack	Junior Research Fellow	M.Sc. Water Resources & Environmental Engineering	08/1	Microbiology	14/6/2006
Mrs. J. O. Okwuzu	Junior Research Fellow	B. Tech. Zoology M.Sc. Med. Parasitology & Microbiology	08/1	Clinical Science	14/6/2006
Mr. C. K. Onwuamah		B.Sc. Parasitology & Entomology M.Sc. Parasitology & Entomology		Microbiology	
		B. Sc. Zoology M.Sc. Cell Biology & Genetics			

NIMR STAFF STRENGTH

QUALIFICATION	NO	%
PHD	20	9
MSC	37	17
BSC/HND/MBBS/BA/AIMLT	45	20
OND/NCE/DIPLOMA	48	21
GCE/WAEC	34	16
OTHERS	34	16