NIGERIAN INSTITUTE OF MEDICAL RESEARCH

Federal Ministry of Health

NIMR Annual Report

2007

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NIMR Annual Report
2007 Edition

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NIGERIAN INSTITUTE OF MEDICAL RESEARCH

Federal Ministry of Health

NIMR Annual Report

2007

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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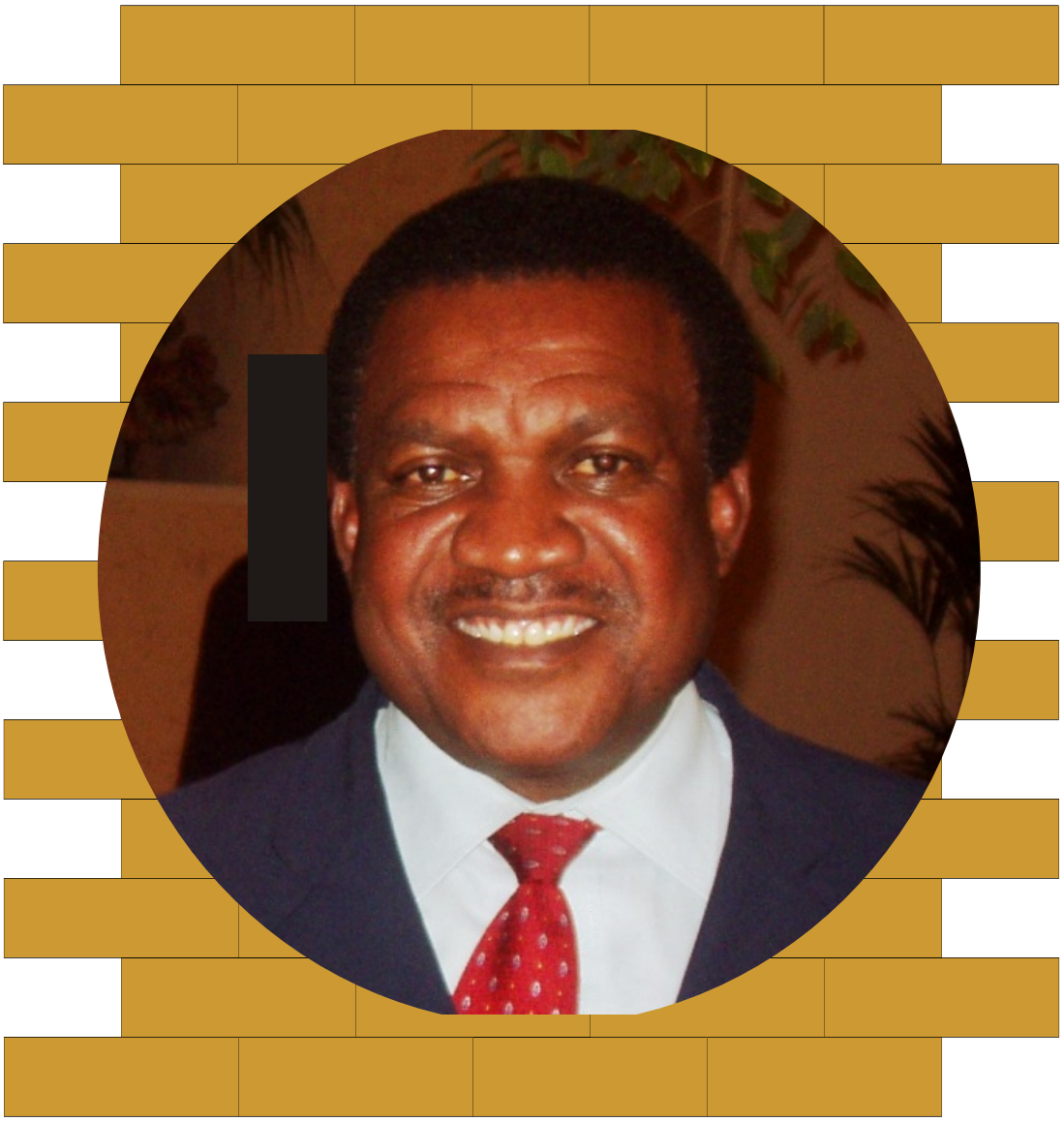
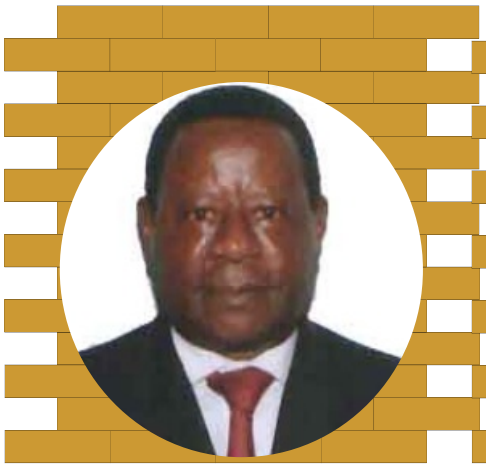


IDIGBE EMMANUEL ONI
DIRECTOR-GENERAL



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FOREWORD

The Nigerian Institute of Medical Research was established in its present form through the Science and Technology Act of 1977. One of its main corporate mandate is to research into communicable and non-communicable diseases of public health importance in the country. Over the years the Institute has implemented its mandate, through various research, training and service oriented programmes.

The several research and non-research activities carried out in the Institute in the year 2007 are highlighted in this annual report. In the year under report 29 research programmes were carried out in the five research divisions of the Institute. These studies focused essentially on diseases of greatest public health importance in the country, namely HIV/AIDS, Malaria, Tuberculosis, Hepatitis, Schistosomiasis, Helicobacter Pylori and Typhoid. Results of theses various studies are included in the report.

The report also focused on the various networking and collaboration between the Institute and other health related organizations within and outside the country. As part of augmenting the limited funds from Government, the Institute, forward proposals to access national and international grants. All the grants obtained in the year 2007 are included in the report. Also adequate information on human resources of the institute, the activities of our library and financial reports for the said year are reflected.

As one of the main mandates of the Institute is the generation and dissemination of important health research findings to the Scientific and larger community, the 23 Scientific papers published in peer-review journals by staff of the Institute are included in this report.

This report gives a detailed insight of the activities of the Institute in 2007. I therefore wish to recommend that the scientific and larger public should find time and read the report.

Dr. Oni Idigbe
Director-General

BIOCHEMISTRY DIVISION

OVIPOSITION HABITAT SELECTION BASED ON COLOUR CUES BY FEMALE ANOPHELE GAMBIAE (THE MALARIA VECTOR)

Investigators: Okoh HI, Don-Pedro KN, Agomo PU

Introduction:

Mosquitoes use a variety of physical and chemical cues when selecting oviposition habitats (Bates 1949, Benty & Day, 1989) and many species show preference for specific habitat colour (Frank 1985, 1986). Much of the mosquito research on colour attraction have been in relation to host-seeking behaviour and very few studies have been carried out on the effect of colour on selection of oviposition habitat. This study examines the effects of container colour on colonization by mosquitoes under laboratory conditions.

Objective:

To determine the influence of container colour on oviposition in the female Anopheles gambiae.

Materials and Method:

30 carefully selected gravid female Anopheles gambiae were exposed to five distinctly coloured (white, yellow, green, blue, and black) 250ml plastic containers place in a 50cm x 50cm mosquito cage for oviposition. Each coloured container had four replicates in the cage. The water in the containers were assessed for eggs and first instar larvae 96 hours. The number of eggs and first instar larvae observed in all replicates of coloured containers were collated and recorded.

Result:

Black containers acted as the preferred oviposition stimulant with 48% of eggs laid. This was followed by green (21%), red (11%), blue (8%), yellow (7%) and white (5%).

Conclusion:

We conclude that container colour play a role in habitant selection in mosquitoes and also affect their composition, species riches, and abundance.

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OPTIMIZATION OF THE NUTRITIVE VALUE OF WHEAT/CASSAVA BREAD MIX BY SUPPLEMENTING WITH LIMITING AMINO-ACIDS

Investigators: Egbuna KN, Ajibaye OO, Igbasi TU

Objective:

To investigate whether the current recommendation on Nigerian bread-mix: to incorporate 10% cassava flour into wheat flour for bread, can accommodate further input of cassava without compromising nutritive value.

Materials and Method:

The research investigation employed a feeding trial and bioassay of tissues from albino wistar breed rats to evaluate 100% wheat, 10%cassava/90%wheat, 20%cassava/80%wheat, and 100% cassava bread-mix. A protein-free diet group was the primary control; and secondary controls for each group were fortified with 0.1% L-lysine + 0.1% L-methionine.

Parameters used in the experimental procedure as 'markers' of nutritive value include: Food Conversion Ratio, Relative Protein Utilization, Haematological indices, Total Plasma Protein and Albumin, Anthropometric measurements. The biochemical assessments were made from food intake, faeces output, weight changes, and blood/organ/carcass analyses.

Result:

Results indicate that both 10% and 20% cassava input supported adequate biochemical maturation of the rats although fortification of diets with 0.1% L-lysine + 0.1% L-methionine gave better biochemical development as well as improved state of anaemia in all those on supplement .

Conclusion:

The study provides information which approves the current national policy on bread as a good strategy for improving family food security. It also shows that further input of cassava into breadmix is possible especially when fortified with the limiting amino-acids.

EVALUATION OF THE BIOCHEMICAL AND HAEMATOLOGICAL INDICES OF SAFETY IN THE TREATMENT OF PLASMODIUM BERGHEI MALARIA USING

ARTEMISININ BASED COMBINATIONS DRUGS

Investigators: Akindele SK, Agomo PU, Aina OO, Brai 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 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 artemisin combination drugs in relation to liver and kidney of patients during and after treatment.

Objective:

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.

Materials and Methods:

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.

Result:

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) serves 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).

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

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

Introduction:

Pregnant women in malaria emdemic 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 preganancy outcome (Shulman and Dorman, 2003; Greenwood, 2004).

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.

STUDY OF GENETIC VARIABILITY AND DIFFERENTIATION OF RECRUDESCENCE TO CHLOROQUIN FROM RE-INFECTIONS (ON GOING)

Investigator: Olukosi YA

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

Objective:
To differentiate parasite resistant to chloroquine from reinfections molecular characterization of malaria parasites in circulation in Ijede, semi-urban study site.

Preliminary result:
Conclusion have 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 up to 23 strains of P. falciparum in circulation in Ijede region of Lagos.

ANTIMALARIAL DRUGS PRESCRIBED BY HEALTH PERSONNEL OR SELF-ADMINISTERED BY PATIENTS IN LAGOS. (ON- GOING)

Investigators: Enya VN, Chimah UC, Agomo CO, Raji I, Olukosi YA, Egbuna KN, Okoh HI Aina OO

Introduction:
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. Results of the findings will be of use in interventions and policy formulation by the Federal Government.

Objectives:
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.

Methodology:

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. The data generated were analyzed using various softwares (EPI-INFO, SPSS).

Preliminary result:

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.

MICROBIOLOGY DIVISION

USE OF GENOMIC ANTIGENS FOR IMMUNODIAGNOSIS OF TUBERCULOSIS. (ON-GOING)

Investigators: Adeiga AA , Kazeem AA, Onyewuche J, Akintunde GA.

Introduction:

Tuberculosis is one of the major causes of morbidity and mortality in the world especially in poor developing countries where poverty is thriving. There were 9 million TB cases and approximately 2 million deaths in 2004 (WHO Report 2006).

It is caused by Mycobacterium tuberculosis. This remains the single most fatal infection with or without HIV in man. Nigeria positions as 5th highest TB burden globally and 2nd highest in Africa, with a detection rate of 450/100,000 and 798,000 new smear positive cases of TB. HIV poses greatest risk factor for the progression of latent and recent TB infection to active TB disease.

Fast and accurate diagnosis of TB is necessary for effective control of global TB and HIV/TB endemic. The inability of AFB microscopy and culture to detect latent and extra pulmonary TB made the proposal for the use of genomic antigens for immunodetection of TB being undertaken as an option.

Objectives:

To use genomic antigens, ESAT-6, CFP-10 and derived from Mycobacterium tuberculosis

- To detect active tuberculosis (TB) in suspected TB patients.
- To diagnose active TB in HIV patients suspected to have symptoms of TB.
- To detect latent TB in HIV patients that are asymptomatic of TB.
- To detect latent TB in TB contacts such as in healthcare providers, laboratory staff processing TB samples and household contacts.

Methodology:

Genomic antigens ESAT-6, CFP-10 and ELLI antigens were used to stimulate T-cells in whole blood culture in CO_2 incubator for 72 hours in micro culture plates. Supernatant taken from the cultured blood after stimulation was used for gamma interferon assay

using ELISA technique.
Tuberculosis detection was made by the measure of gamma interferon produced from the stimulation with a cut off value of 10pg/ml.

Preliminary results:

The study is proving that detection of TB in patients suspected to have active TB and HIV patients with symptoms of TB is possible within 4 days. The specific nature of this test to detect M. tuberculosis made it laudable, because it is shortening the period of TB diagnosis.

The technique of using blood as a tool is making it possible to detect TB in HIV patients that were finding it difficult to produce sputum and even with low lymphocyte count (CD_4/CD_8).

Favourably, the unit cost of this test is affordable and feasible in developing countries.

Interestingly too, results obtained so far showed a good correlation of the technique with culture.

TRAINING OF TRADITIONAL BIRTH ATTENDANTS ON KEY HOUSEHOLD AND COMMUNITY HEALTH PRACTICES FOR MOTHER AND CHILD SURVIVAL INCLUDING CHILD GROWTH AND DEVELOPMENT.

Investigators: Adeiga AA, Temiye E O, Ahmed, AO, Ositelu O, Ajanaku O.

Introduction:

In Nigeria maternal and child health is given attention at every tier of health care delivery for mother and child survival. Maternal and Child mortality is very high due to causes that can be prevented by improving the skill and knowledge of health care providers and also providing functional facilities.

Traditional Birth Attendants (TBAs) play major role in healthcare delivery at the grassroot, especially handling of major child delivery of our women.
Their inadequacies in knowledge and skill have caused many maternal deaths.

The recognition of these inadequacies called for training organized to improve their

knowledge, with recognition of severe cases and when to refer them.

Objective:
To reduce maternal and child death and illnesses.

Results:
Training conducted was able to improve the skill of the Traditional Birth Attendants (TBAs).

The Pre-training test and one-on-one discussion conducted exposed the inadequacies of the TBAs which informed the need for the training.

During the training, questions asked and contributions from them showed an improvement in the knowledge of child delivery and health care services.
A follow-up after the training showed an improvement in the following areas:

Quick referral of patients to secondary and tertiary health institutions, instead of delaying as before. This has improved the survival rate of women in critical conditions during child delivery.

Many have improved the facilities in their local clinics. This has improved the safety of their clients.

There was reduction in the use of concortion for pregnant women which usually endangers the baby in the womb.

STUDY OF BACTERIAL, FUNGAL AND PARASITIC PATHOGENS FROM STOOL AND THROAT SWABS OF FEBRILE CHILDREN UNDER 5 YEARS IN EBUTE METTA, LAGOS. (ON-GOING)

Investigators: Idika N, Ezeugwu SMC, Bankole M, Enwuru C, Ogbonna F.

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 improve the syndromic management of febrile children under five by investigating for other possible bacterial, fungal and parasitic agents.

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 pathogens present. Antibiotic susceptibility patterns of the bacteria pathogens were determined. Data obtained will be analyzed statistically using the EPI-INFOR 2002 packages.

CLINICAL SCIENCE DIVISION

PREVALENCE OF HBV/HIV CO-INFECTIONAND THE EFFECT OF SELENIUM AS ADJUNCT TO HAART IN MANAGEMENT OF THE CO-INFECTION IN LAGOS, NIGERIA. (ON-GOING)

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

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:

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

Methodology:

A cross sectional study of HIV infected individuals aged 18 years and above whom gave signed informed consent. All recruited patients are either on HAART only or HAART and selenium if not eligible. Hepatitis B markers to be studied are HBsAg, 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 at the end of the study.

Preliminary result:

One thousand seven hundred and nine HIV infected persons have been screened. One hundred and fifty were found to be co-infected with HBV. Samples collected for HBV DNA are being analysed.

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.

Investigators: Odunukwe NN, Ezeobi PM, Onwujekwe DI, Gbaja-Biamila T, Musa AZ

Introduction:

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.

Past studies document decreased levels of antioxidants and selenium in people living with HIV/AIDS.
Low serum micronutrient levels in HIV-positive individuals have been associated with immune impairment, disease progression, and increased mortality.

Objective:

This study examined the role of selenium supplement among HIV-positive individuals who were advanced in their disease and are receiving HAART.

Materials and method:

A follow-up study of all HIV positive individuals with advanced disease recruited for HAART programme between February 2002 and June 2005. One hundred and seventy were on HAART + Selenium supplement and 170 were on HAART only. Their viral load, CD4 cell count, Haematological and Biochemical indices were analysed at base line and 12 weekly intervals. At each visit adherence was given. Data analysed was by SPSS statistical software.

Result:

Of the 340 subjects recruited, 66% had CD4 cell counts = 50cells/µl. A comparison between those on HAART plus Selenium and those on HAART only showed that the rate of CD4 cell recovery was higher among the HAART plus Selenium group. The median CD4 increments from baseline to 64 weeks were +120cells/µl and +50cells/µl (P=0.02). Less hospital visits for treatment of OIs were recorded for individuals on HAART plus Selenium. Weight gain was significantly higher in Selenium group (P =0.004). Median Haemoglobin increments were +30g/l and +10g/l (HAART+ Selenium, HAART only

respectively). The median time for undetectable viral load was similar for both groups (P =0.2).

Conclusion:
Selenium supplementation resulted in higher CD4. This supports Selenium supplement as an adjunct to HAART in HIV positive individuals with severe immune suppression.

Impact on National health programme: This study should improve the management of PLWHA

PROSPECTIVE TRIAL OF SELENIUM IN THE CLINICAL MANAGEMENT OF HIV/AIDS IN ADULT NIGERIANS WHO ARE NOT ELIGIBLE FOR ART.

(ON-GOING)

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

Introduction:
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.
Data from our pilot observational studies at NIMR out patient clinic suggests that interventions with selenium and several vitamins may decrease disease progression and OI's. A multi vitamin and mineral supplement trial study done in Thailand Bangkok 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.

Objective:
This study is to determine the efficacy of Selenium as an immune booster in the management of HIV/AIDS in adult Nigerians with CD4 count = 350 cells/µl, who are not eligible for ART.

Methodology:
Nonrandomized concurrent control study of 128 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 participants 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.

Sixty four subjects for each of the two arms of the study (selenium 200mcg, daily, test group and Vitamin B complex one tablet daily, control group) for the duration of study shall be used for this study.

Clinical and laboratory data generated from this trial will be analyzed using EPI-INFO Version 6.04.

Conclusion and recommendations will be based on the results of analyses of these data.

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

Investigators: Ezechi OC, Ezeobi PM, Gbaja-Biamila T, Adu RA, Somefun EO, Herbertson EC, Musa AZ, Idigbe OE.

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

DOMESTIC VIOLENCE AGAINST HIV POSITIVE PREGNANT WOMEN

Investigators: Ezech OC, Onwujekwe DI, Ezeobi PM, Gbaja-Biamila T, Adu RA, Somefun EO, Herbertson EO, Musa AZ, Idigbe OE.

Objectives:
To determine the prevalence and pattern of domestic violence among HIV positive pregnant Nigeria

Materials and Method:
A cross-sectional study of 399 HIV-1 positive and 651 HIV negative consecutive and consenting pregnant women receiving care at the ARV centres NIMR Lagos. Information was obtained on socio-demographic characteristics, pattern and determinants of domestic violence using a structured questionnaire.

Result:
387 (97.0%) accepted to participate in the study and thus constituted the study population. Two hundred and forty seven (65.7%) of the three hundred and seventy six women with returned completed questionnaire, reported history of abuse. Among the women that reported history of abuse, while the abused pre-dated HIV diagnosis in sixty four (25.9%) cases, in the majority of the women (74.1%) abuse started after diagnosis of HIV . In the 64 women that history of abuse predated HIV diagnosis, 34 (53.1%) reported that abuse has increased since they were diagnosis HIV positive, nineteen (29.4%) reported no change and eleven (17.2%) reported no abuse since diagnosis. Thus 236 (62.8%) of the 376 respondents had been abused since HIV diagnosis compared to 64(17.0%). Women in serodiscordant relationship were three times at an increased risk of abuse after HIV diagnosis than there counterpart with HIV positive partners. Thirty six (9.6%) of the women have not disclosed their status because of fear of stigma and rejection by their spouse. Verbal abuse was the commonest (122; 51.7%) form of abuse reported by the women. Other forms reported included economic deprivation in 37(15.7%), physical abuse in 19(8.1%), sexual deprivation in 51(21.6%), threat of violence in 49(20.8%), husband parking out of the

house/eloping with their kids in 7(3.0%), informing relations of her HIV sero-status in 5(2.1%) and forced to leave her home in 4(1.7%). The commonest type of violence reported was verbal abuse in 52.3 %(103) of the respondents. The perpetrators of the violence were the husband in majority of cases (66.0%). The boy friend(12.7%) , mother in law(18.8%), father in law(7.6%), husband 's siblings(5.1%), parents(2.5%) and other relations(3.6%).

EFFECTIVENESS OF PRIVATE PUBLIC PATNERSHIP IN PMTCT PROGRAMMING (ON-GOING)

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

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.

Methodology:
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.

Preliminary Results:
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 required

CHILDBEARING DESIRES AND INTENTIONS OF NIGERIANS LIVING WITH HIV INFECTION (ON-GOING)

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

Introduction:
The complex relationship between fertility and HIV threatens the preventive strategies With increasing access to ARV drugs and improved health status, fertility issues have taken a new turn in the last few years. It is against this background that we conducted this study

Objective:
To assess the childbearing desires, intentions and its determinants among HIV positive Nigerians. This will enable us to plan for effective HIV preventive strategies.

Methodology:
Questionnaire based interviews were conducted among 3743 HIV infected adults receiving care at the Nigerian Institute of Medical Research, Lagos on their fertility desires, intentions and determinants. Clinical information was also obtained from subjects their clinical records. Statistical analysis was with SPSS version 10.0.

Preliminary Result:
The current and future desires for children were 57% and 63% in men and women respectively. Among those desiring children, 78% expect to have at least 3 children, 19.7% two kids and remaining one child. Desire to have children were found to be associated with young age, female sex, absence of OIs, ARV therapy, having fewer than 3 living children, been single, unknown HIV status of partner, subjective good health rating , sexually active and non use of condom on bivariate analysis. However after controlling for potential confounding variables only age less than 30 years, having less than 3 living children, subjective good health rating, use of ARV for more than 6 months and non use of condom were associated with strong desire to have children.

Conclusion:
A significant proportion of PLWHAs expressed strong desire in raising children either currently or in near future. This desire was strongly associated with being less than 30 years, having less than 3 living children, subjective good health rating, on ARV drugs for more than 6 months and non use of condom.

INFANT FEEDING PRACTICES OF HIV-INFECTED AND UNINFECTED WOMEN IN LAGOS NIGERIA. (ON GOING)

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

Introduction:

Breastfeeding has been estimated to cause between one third and one half of transmission with up to 20% of infants born to HIV infected mothers acquiring the virus from breast milk. While debate keep ranging on in Nigeria on the appropriate infant feeding practices in HIV positive women, little or no evidence exists on the feeding practices of Nigerian women, only the assumption that breastfeeding is universal.

Objective:

To assess the infant feeding practices of HIV-infected and uninfected Nigerian women.

Methodology:

Mothers of known HIV status with babies more than 6 months of age seen at Nigerian Institute of Medical Research, Lagos and its associated/affiliated health institutions were interviewed using a structured questionnaire on their infant feeding practices. Information obtained were analysed using SPSS version 10.

Preliminary Result:

One thousand fifty five mothers were interviewed, of which 304 were HIV infected and 757 were uninfected. The sociodemographic and obstetric characteristics of the women in both groups were similar ($P > 0.05$). While all the HIV uninfected women breastfeed, only 5.3 %(16) of HIV infected women breastfeed ($p < 0.001$). Among the uninfected women only 30.0 %(227) claimed to have practices exclusive breast feeding, however further analysis showed that only 9.8% (74) actually practiced exclusive breast feeding compared to 9 (56.3%) among the 16 HIV infected women that claim to have practiced exclusive breastfeeding ($p<0.001$).Although majority (94.7%) of the HIV infected women practiced exclusive breast feeding , they experienced challenges of cost of infant formula, family pressures and one woman lost the baby to diarrhoea illness. Thirteen (81.3%) of the sixteen HIV infected women who breastfeed had not disclosed their status to their spouse.

Conclusion:

Though breastfeeding is universal in Nigeria, only 11.0% of women of known HIV status practice exclusive breastfeeding with significantly more number of HIV infected women (56.3%) practicing exclusive breastfeeding compared to 9.8% of their HIV uninfected counterpart.

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

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

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.

Conclusion:

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 AND EVOLVING)

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

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.

Methodology:

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.

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.

PUBLIC HEALTH DIVISION

POPULATION GENETICS OF SCHISTOSOMA SPECIES IN ENDEMIC AREAS OF BRAZIL AND NIGERIA. (ON-GOING)

Investigators: Oliveira G, Akinwale OP, Barnarbe N, Ajayi MB, Akande DO.

The goal of this project was to understand the genetic structure of endemic populations of human infecting Schistosoma species and the impact of anti-schistosomiasis drug, Praziquantel (PZQ) treatment on the genetic diversity of the parasite populations.

We aimed to determine if the parasites isolated from infected human populations represent the diversity of the parasites present at the endemic site.

Objectives:

Verify the genetic structure of human infecting S. mansoni and S. haematobium at endemic sites in Brazil and Nigeria;
Verify the impact of PZQ treatment on the genetic diversity of these parasite populations.

Methodology:

The Brazilian endemic site investigated is the village of Virgem das Graças (VDG) in the northeastern region of the State of Minas Gerais. The prevalence of schistosomiasis mansoni is 58% and the average parasite load is of 234 eggs per gram of feces. The Nigerian site is Ibaro, a fishing community near Oyan dam in the southwest region of the country. Urinary schistosomiasis is hyperendemic with a prevalence rate of about 74% among school-aged children. In Ibaro a total of 162 individuals residing in 42 different households were sampled. Both urine and stool samples were collected. All of the purified eggs from both sites were stored at -20oC upon collection. All of the infected residents at both sites were treated.

Several markers were tested in individuals of endemic areas and shown to be polymorphic. The development of microsatellite markers involved testing each locus in at least 100 individuals and shown not to be linked. Markers for S. haematobium were selected among those used for S. mansoni. A set of five markers worked for both species but the reaction needs to be further optimized for S. haematobium. We have further identified one minisatellite region and 3 other microsatellite markers and tested them on 9 different species of Schistosoma patterns in the species tested. The pattern

of amplification of the SmBR18 locus yielded four distinct genotypes.

We evaluated if the human infecting parasite population is panmitic. We accomplished this aim by comparing the parasite diversity in naturally infected snails against the parasites infecting humans and among infected individuals.

DETECTION OF SCHISTOSOMES PCR AMPLIFIED DNA BY OLIGOCHROMATOGRAPHIC DIPSTICK (ON-GOING)

Investigators: Akinwale OP, Laurent T, Mertens P, Leclipteux T, Rollinson D, Kane R, Emery A, Ajayi MB, Akande DO, Fesobi TW

Introduction:

The applications of highly specific and sensitive molecular techniques based on PCR have constituted a valuable tool for the diagnosis of schistosomiasis and also for the detection of schistosome infections in the snail intermediate hosts. The common method of detecting PCR amplicons is gel electrophoresis in the presence of ehidium bromide, a carcinogen, which is followed by UV transillumination. Other methods, which are available for detecting PCR products, are real-time PCR, PCR-enzyme-linked immunosorbent assay and mass spectrometry but they are cumbersome while they are sometimes complex and expensive. Therefore, a simple method of PCR product detection would be a welcome idea and a most valuable tool particularly in disease endemic countries with limited research facilities and resources.

Objective:

To determine the specificity and sensitivity of the oligochromatographic (OC) dipstick for the detection of schistosomes PCR amplified DNA.

Methodology:

We applied a simple and rapid method for the detection of Schistosoma haematobium and Schitosoma mansoni PCR amplified DNA products using oligochromatographic (OC) dipstick. The amplicons are visualized by hybridization with a gold conjugated probe, while a control for the chromatographic migration is incorporated in the assay. Sensitivity and specificity assays were run for the two species and other schistosome species that could cross hybridize with each species and the OC dipstick was found to be

very sensitive and species specific. The lower detection limit observed was 10fg of genomic DNA from each of the two species, which corresponds to 0.03 parasite equivalent.

Result:
The OC dipstick test is a simple molecular test for easy, rapid and sensitive detection of PCR amplified gDNA of S. haematobium and S. mansoni as the result is visible to the naked eye within 10 minutes. The test does not involve various steps of preparation of PCR amplicons for visualization, neither does it require any sophisticated equipment unlike the conventional amplicon detection methods. The OC dipstick test is both sensitive very sensitive since he is able to detect up to 10fg of gDNA which corresponds to about 1/30 of a parasite DNA content (according to the reported total genome size of 270MB, ref = Sanger institute S. mansoni genome project). Further work is planned to test several clinical samples using the OC dipsticks and also to evaluate the sensitivity using concentration of gDNA between 10 and 1fg to really ascertain the detection limit. A PCR internal control will also be included to check for any PCR inhibitors in extracted DNA.

MONITORING PRAZIQUANTEL USE IN THE CONTROL OF SCHISTOSOMIAIS

Investigators: Mafe MA, Adewale B, Idowu ET, Sulyman MA, Ajay MB
Akande DO.

Introduction:
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.

Objective:
To assess current status of urinary schistosomiasis and intestinal helminthiases in Ipogun a rural agrarian community in Nigeria as part of a longitudinal study to monitor praziquantel resistance in the control of schistosomiasis.

Methodology:
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 10mls of urine. The katokatz technique was used in examining the faecal samples. Individual egg output was expressed as eggs per gram faeces.

Preliminary result:
Of the 430 children aged 5 and 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/10ml but <500 eggs/10ml of urine) while the remaining had low intensity (<50 eggs/10ml of urine). Intensity of infection based on geometric mean egg count per 10ml of urine was higher in females (18.2 eggs/10ml urine) than in males (11.7 eggs/10ml 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.

The post-treatment assessment will be done in due time to assess effectiveness of praziquantel in the control of schistosomiasis.

EVALUATION OF ROLL BACK MALARIA PROGRAMME WITH REFERENCE TO PREVENTION AND CARE OF THOSE AT RISK IN EKITI STATE (ON-GOING)

Investigators: Mafe MA, Adeneye AK, Idowu ET

Objective:
The study is aimed at assessing the awareness, accessibility and use of the malaria control strategies that include insecticide treated bednets (ITNs), home management/treatment of malaria, intermittent preventive treatment 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.

Methodology:

It is designed as a longitudinal study. However, the descriptive cross-sectional aspect of the 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. Indepth interview guide developed is being used among other stakeholders such as programme implementation officers at the State and local government levels, and public and private health care providers.

Six local government areas (LGAs) were randomly selected in the State for the study. The selected LGAs are: Emure; Ekiti South-West; Ekiti East; Oye; Efon and Moba LGAs. The outcome of this study will contribute to the effective and successful implementation of malaria control measures in the State in particular and Nigeria in general. The study will be carried out in three stages. The first stage will involve 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.

Presently, the data collection for first stage of the study is on-going..

BASE LINE MALARIA ENTOMOLOGICAL INDICES AT NEW BUSSA, NIGER STATE

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

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.

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.

Materials and method:

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.

Preliminary 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. 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.

MECHANISMS OF INSECTICIDE RESISTANCE IN THE MAJOR MALARIA VECTOR ANOPHELES GAMBIAE IN NIGERIA

Investigators: Awolola TS, Oduola A, Obasa J

Introduction:

Insecticide resistance is an increasing problem in Malaria vector control programs. In Nigeria, resistance of the major malaria vector to organophosphate, organochlorine, carbamates, cyclodiene and pyrethroid insecticides is well documented. Pyrethroid resistance in particular is becoming a challenge to Insecticide Treated Nets interventions. The main defense against resistance is close surveillance of susceptibility of vector populations. An evidence base vector control and resistance management implies an up to date knowledge of the local vector, including their insecticide resistance status and the mechanism underlying resistance.

Objectives:
To characterized the major vectors of malaria
To determine the susceptibility status of A gambice to different classes of insecticides
To identify the insecticide resistance mechanisms
To identify the metabolic genes involved in insecticide resistance.

aterial and Methods:
Studies carried out in 17 localities in the 6 main ecological zones revealed a high level of dieldrin and organophosphate resistance and low level of DDT and pyrethroid resistance. Changes in frequencies of pyrethroid resistance genes in An. gambiae were monitored with no significant increase over a three year period (2005-2007). Synergists, molecular, biochemical and micro array analysis of underlying resistance mechanisms revealed that insecticide resistance in the malaria vector Anopheles gambiae from Nigeria is multifactoral and include components other than the currently described knock down resistance (kdr). Microarray analysis of metabolic resistance genes identified four major insecticide detoxification genes including GST and P450 genes. Rotational use of class of insecticides, insecticides mosaics and mixtures of insecticides would assist in resistance management.

Result:
A high level of dieldrin and organophosphate resistance and low level of DDT and pyrethroid resistance. Changes in frequencies of pyrethroid resistance genes in An. gambiae were monitored with no significant increase over a three year period (2005-2007). Synergists, molecular, biochemical and micro array analysis of underlying resistance mechanisms revealed that insecticide resistance in the malaria vector Anopheles gambiae from Nigeria is multifactoral and include components other than the currently described knock down resistance (kdr). Microarray analysis of metabolic resistance genes identified four major insecticide detoxification genes including GST and P450 genes

ETHICAL CONSIDERATIONS IN HEALTH RESEARCH: KNOWLEDGE, ATTITUDE AND PRACTICE OF HEALTH PROFESSIONALS IN NIGERIA

Investigators: Adewale B, Mafe MA

Introduction:
Little or no attention is given ethical considerations by researchers in developing

countries. Possible reasons that could be adduced for this deficiency are that the researchers are not well grounded in ethical issues as regards respect for human participants or that they choose to neglect that aspect of research.

Objective:
This study assessed the knowledge, attitude and practice of health professionals on ethical considerations.

Material and method:
Multi-stage sampling technique was adopted in the selection of respondents from two tertiary health facilities and a research Institute in the North-Eastern and South-Western zones of the country that completed self-administered questionnaires.

Preliminary result:
One hundred researchers responded to the questions. Within the last 12 months, 62% (62) have been involved in research, of which 77% (48) received ethical clearance. All the respondents from Northeast have never participated in ethical issues workshop while 93.1% of Southwest respondents have participated. 12% of the respondents are not aware of the existence of Institutional Review Board (IRB) in their Institutions. There is significant difference ($p < 0.5$) between the levels of awareness of this existence in the 2 zones. 52% of the respondents agreed that they have institutional guidelines for review of protocols while 19% noted that the guidelines are inaccessible. There was no correlation between the existence of IRB and submission of proposals for IRB's approval. Only 47.4% of respondents with IRBs have ever submitted proposals to IRB.

This study shows that there are very few functional IRBs and the awareness of researchers regarding ethical guidelines is low.

EXTERNALLY FUNDED PROJECTS IN THE PUBLIC HEALTH DIVISION

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

2. Population genetics of schistosome species from schistosomiasis endemic sites in Brazil and Nigeria.

Funding agency: UNICEF/UNDP/World Bank/WHO/TDR.

3. Detection of schistosomes' polymerase chain reaction (PCR) amplified DNA by oligochromatographic dipstick.

Funding agency: Coris BioConcept, Gembloux, Belgium and Wolfson Wellcome Biomedical Laboratories, Zoology Department, Natural History Museum, London, UK.

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.

Investigators: Smith SI (PI), 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%. H. pylori is the risk factor in the development of gastric cancer. It has been recommended to test and treat patients with dyspepsia in countries where the prevalence of infection is more than 20%. The clinical implications of this organism are still being investigated.

Objective:

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.

Result:

Twelve (20.68%) out of 58 biopsies were positive for H. pylori by culture out of which a common resistance pattern (70%) of ApSMetTet prevailed among the isolates. All isolates were sensitive to clarithromycin; ofloxacin, ciprofloxacin (the 4-amino-quinolones). Out of a total of 350 patients screened for H. pylori antigen using the stool antigen test, 214 (61.14%) were positive. The males comprised 53.8% while the females comprised 46.2%. DNA has been extracted from the 12 isolates and PCR for Cag A and Ure A has confirmed the isolates as H. pylori.

Conclusion:

The alarming rate of resistance of H. pylori to the commonly used drugs for treatment is of utmost concern and this also shows the importance of the culture technique which is a very sensitive method and difficult due to the power outages in the country and the fact that only very few laboratories actually culture H. pylori. The use of the FISH technique will help to further solve this problem as the organism as well as antibiotic

susceptibility can be concluded within a few hours.

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

Investigators: Smith SI (PI) and all members of staff, Agomo CO (Statistician) and Idigbe EO (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.

Objectives:

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.

Result:

Out of a total of 165 blood samples there was no growth by blood culture. Widal test from the 165 blood samples showed that 30 (78%) had a significant O titre of 1:80 with 5/30 (16.7%) being 1:160. In collaboration with a group from Netherlands, sera of patients with a 1:80 widal titre were screened using the Typhi Dri Dot (TDD) method and out of 30 only 20 were screened, and from the 20 screened 16 (80%) were positive for S. Typhi.

Out of the 30 with significant O titre by widal, 13 (43.3%) were positive for MP.

Out of 52 stool samples only 4 (7.7%) were positive for S. Typhi by culture

The clinical isolates obtained so far have been typed using the primers 784, 787 and 1254, while the flagellin gene primer confirmed the isolates to be S. Typhi.

Conclusion:

Although, the results show that typhoid fever caused by S. Typhi is on the samples as Almost all the blood culture showed no growth. The collaboration with the group from Netherlands show that the typhi dri dot (TDD) method is reliable and may replace widal test but since we
lack actual culture of S. Typhi from blood, it could still remain a problem.

Constraints:

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.

ISOLATION AND MOLECULAR CHARACTERISTICS OF S. TYPHI, ISOLATED FROM FOOD HANDLERS IN BUKKA AND SALMONELLA SP FROM FARM ANIMALS.

Principal Investigator: Smith SI

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 patients. In addition, there are no documented studies of S. Typhi from food handlers as carrier state in Nigeria this is important because a great proportion of low income earners in Nigeria eat in bukka's where food is cheaper.

Methodology:

A total of 206 stool samples were collected from food handlers and 100 faecal samples collected each from cattle and goat.

Result:

13 of 206 (6.3%) stool samples of food handlers had S. Typhi. Three (1.5%) comprised S. paratyphi A, 16 (2.9%) S. Choleraesuis, 10 (4.9%) comprised S. Enteritidis and 1 (0.5%) S. Arizona. Antibiotic susceptibility pattern, of the human strains showed there were resistant mainly to chloramphenicol and tetracycline.

Plasmid profile analysis showed that only 4 (31%) of the strains harbored detectable plasmids. PCR analysis of the human isolates using flagellin gene, 784, 787 and 1254 primers yielded bands that could distinguish between the strains. Some strains showed similar patterns, evidenced from the fact that the source of infection could be from the same place.

- The animal strains showed S. Enteritidis to be the main pathogen from our cattle and accounted for 12% of isolation, while only 3% of our cattle were colonized By S. Typhinurium
- Plasmid profiles showed that 5 (33.3%) harbored detectable plasmids.
- The PCR analysis using 784, 787, and 1254 was able to subtype the isolates into 5 distinguishable subtypes.
- No Salmonella spp was isolated from goats in our Lagos environment.
- Further work is needed to be able to conclude if the animal isolates have an epidemiological link with the human isolates.

Conclusion:

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.

EVALUATION OF SEROLOGICAL KITS AVAILABLE FOR CHLAMYDIA (ON-GOING)

Investigators: Niemogha MT(PI), Brai BIC, Fesobi T, Smith SI

Introduction:

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 infections 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 confugated 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 serological kits may give insight into better method of detecting Chlamydial infections.

Objective:

To screen 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 reactive infection.

Preliminary result:

Out of a total of 150 samples tested for Chlamydia antigen using 3 different kits, 32 (21%) were positive for Chlamydia antigen with the Quick vue, 18% Diaspot and 6% Grand Medical. When the samples were cultured on embryonated hen's egg, 5 of the 150 samples in Quick vue were positive for inclusion bodies and 2 each for diaspot and Grand Medical.

Comment:

Results of the three Test Kits showed that Quickvue had higher Chlamydia positive (21%) as compared to Grandmedical (5%). Although the first 30 samples were done using Quickvue alone. The gold standard which is culture is yet to be accomplished. Subsequent results will reveal further which test kit is most sensitive.

SOME OF THE SCIENTIFIC EQUIPMENTS ACQUIRED IN 2007

-80^{0}C REVCO FREEZER

DRY BATH

SONICATOR

SOXHLET APPARATUS

ROTARY EVAPORATOR

THERMOCOOL HAUER(2) HRF REFRIGIRATOR

CECIL SPECTROPHOTOMETER CE 2021 INVISIBLE

FLAME PHOTOMETER

LABORATORY OVEN (UNISCOPE SM 9053)

MUFFLE FURNACE (UNISCOPE SM 9080)

DESICCATORS [4]

MICROSCOPE LINKED TO MONITOR 316/12

WATERBATH CZ12107 44

PCR HOOD

TOPLOADING BALANCE[2]

FILTERATION APPARATUS

SPECTROPHOTOMETER NAMODROP 1000 MODEL D 1000

22000ML VOLATILE OIL DISTILLER FLORA GERIC SYSTEM

PH METER OMEGA PH 722 PH/M V/TEMP +

SPEED VAL (BLORAD W18

LOCAL & INTERNATIONAL RESEARCH COLLABORATORS

- Obafemi Awolowo UniversityTeaching hospital (OAUTHC), Ile-Ife
- Lagos University Teaching Hospital (LUTH), Lagos
- ICGEB, Italy
- Lagos State Teaching hospital (LASUTH), Lagos
- IFS, Sweden
- Vector Group, Liverpool School of Tropical Medicine and Hygiene, UK.
- NICD 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

Prevalence pattern on the management of TB in HIV/TB co – infection in Lagos State	**Dr. Onwujekwe**	**April 2007**
Effect of cold chain facility status on vaccine distribution and infant immunization coverage in Etada Local Government Area of Sokoto State	**Dr. A. A. Adeiga**	**May 2007**
Application of the micro-array technology for monitoring metabolic-base insecticide resistance in the malaria vector: Anopheles gambiaes.s	**Dr. Awolola T. S.**	**December 2007**

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

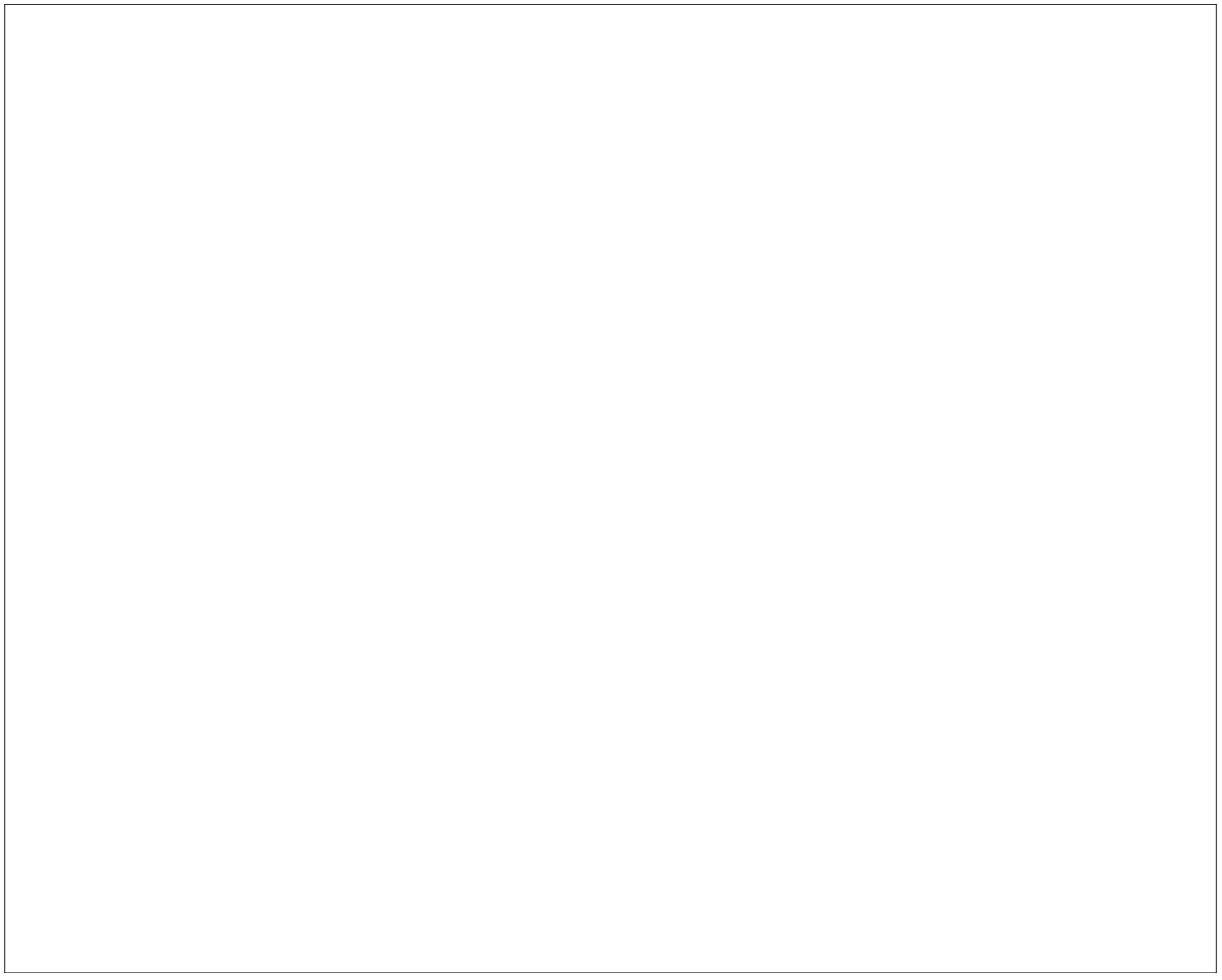
LancetVol. 370, No. 9584

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

STAFF STRENGHT

QUALIFICATION	NO	%
PHD	20	9
MSC	37	17
BSC/HND/MBBS/BA/AIMLT	45	20
OND/NCE/DIPLOMA	49	23
GCE/WAEC	34	15
OTHERS	35	16