



**NIGERIAN
INSTITUTE OF
MEDICAL RESEARCH**

Annual
Report 2005

NIMR

NIGERIAN INSTITUTE OF
MEDICAL RESEARCH

© Copyright Nigerian Institute of Medical Research

NIMR Annual Report
2005 Edition

©2005 Nigerian Institute of Medical Research. All Rights Reserved.

Nigerian Institute of Medical Research
6, Edmond Crescent, (Off Murtala Mohammed Way),
P.M.B 2013, Yaba,
Lagos - Nigeria

Phone: 01-7744723
Fax: 01-3425171
E-mail: info_nimr@yahoo.com
Website: www.nimr-nig.org

This Documentation is copyrighted. You are not authorized to make additional copies or distribute this documentation without written permission from NIMR. You may reproduced this documentation solely with a valid permission of NIMR

ISSN 0331 - 4537



Annual report

2005

CONTENTS

| | |
|--------------------------------------|--------------|
| Administrative Report | 5-7 |
| Research Programme Activities | 8 |
| Biochemistry | 9-22 |
| Microbiology | 14-18 |
| Clinical Science | 19-28 |
| Public Health | 29-36 |
| Molecular Biology & Biotechnology | 37-41 |
| Publications | 42-46 |
| Library Report | 47-48 |
| Maintenance | 49-50 |
| Seminars | 51-52 |

ADMINISTRATION

□

MEMBERS OF THE INSTITUTE'S GOVERNING BOARD 2005

| | | |
|--|------------------------|-------------|
| Chairman | Dr. I. Egboja | Benue |
| Director-General, NIMR | Dr. E.O. Idigbe | Delta |
| Member | Prof. (Mrs.) Akinkugbe | Ondo |
| Member | Dr. B.U. Udofia | Akwa-Ibom |
| Member | Dr. A. Fari | Adamawa |
| Member | Alhaji S. Danjuma | Katsina |
| Member | Mr. E. Nte Nasiekanem | Cross River |
| Member | Mr. G. Adeyoola | Ogun |
| Director of Administration and Secretary to the Board | Mr. F.A. Obi | Anambra |

SENIOR STAFF APPOINTMENT IN 2005

| <u>NAME</u> | <u>DESIGNATION</u> | <u>W.E.F</u> |
|--------------------|-------------------------------|---------------------|
| Dr. S.A. Adesida | Research Fellow | 29/03/05 |
| Mr. O.B Salu | Junior Reserch Fellow | 01/07/05 |
| Mrs. H.A. Goodluck | Junior Research Fellow | 28/11/05 |
| Mr. L .D. Abiola | Senior Confidential Secretary | 04/10/05 |
| Mrs. J.O Wilhelm | Senior Confidential Secretary | 04/10/05 |

SENIOR STAFF THAT LEFT THE SERVICE IN 2005

| <u>NAME</u> | <u>DESIGNATION</u> | <u>REASON FOR LEAVING</u> | <u>W.E.F</u> |
|---------------------|----------------------------|----------------------------------|---------------------|
| Prof. T. A. Adewole | Deputy Director (Research) | Sabbatical Leave | 23/02/05 |
| Dr. A.E.J. Abohere | Chief Research Fellow | Withdrawal of Service | 01/11/05 |
| Dr. I.D Araoyinbo | Research Fellow II | Termination | 29/03/05 |

**RESEARCH PROGRAMME ACTIVITIES
DIVISIONAL REPORTS 2005**

BIOCHEMISTRY AND NUTRITION DIVISION

Study: **COMPARATIVE EFFICACY STUDY OF CHLOROQUINE, DIHYDROARTEMISININ AND DIHYDROARTEMISININ PLUS MEFLOQUINE COMBINATION IN CHILDREN WITH ACUTE UNCOMPLICATED FALCIPARUM MALARIA.**

Investigators: **AINA, O.O, Emeka PM, Akintonwa A, and Agomo PU (2005)**

Objective:

To determine the efficacy of dihydroartemisinin, chloroquine and combination of dihydroartemisinin plus mefloquine in children with acute uncomplicated falciparum malaria.

Key accomplishment:

We were able to complete the study. Our result shows that the use of dihydroartemisinin alone and dihydroartemisinin plus mefloquine combination in treating children with acute uncomplicated falciparum malaria was better than using chloroquine.

Our study showed that dihydroartemisinin is the most effective of all the antimalarial drugs used in this study, followed by combination of dihydroartemisinin with mefloquine and finally chloroquine. Our result shows that chloroquine was the least effective of all the antimalarial drugs used in the study. With this result there is need for Policy makers in Nigeria to change their first-line drug for treating malaria to a more effective antimalarial drug.

Study: **COMPARATIVE EFFICACY STUDY OF DIHYDROARTEMISININ, CHLOROQUINE, AND COMBINATION OF DIHYDROARTEMISININ PLUS CHLOROQUINE OR MEFLOQUINE IN MICE INFECTED WITH *PLASMODIUM BERGHEI*.**

Investigators: **AINA, O.O, Emeka PM, Akintonwa A, and Agomo PU (2005)**

Objective:

To evaluate the efficacy of dihydroartemisinin, chloroquine and the combination of dihydroartemisinin plus mefloquine or chloroquine in mice infected with *P. berghei*.

Method:

Seventy-five mice were randomly allocated into five groups of fifteen mice each. One group of infected mice was not treated and served as control Group I and was given 0.5ml of 0.9% normal saline (Placebo). The remaining 4 groups (II-V) of mice were treated with different doses of dihydroartemisinin Group II (4mg/kg on day 0 then 2mg/kg on days 1-6), Chloroquine Group III (10mg/kg on days 1&2 then 5mg/kg on day 3), combination of dihydroartemisinin (4mg/kg on day 0) plus Mefloquine Group IV (15mg/kg on day 1) and combination of dihydroartemisinin (4mg/kg on day 0) plus Chloroquine Group V (10mg/kg on day 1, 5mg/kg on day 2). The drugs

were dissolved in 0.9% normal saline and Dimethyl-sulfoxide (DMSO) then administered orally with oral canular.

Accomplishment:

Parasite clearance time was very short in mice treated with dihydroartemisinin alone mean \pm SD PCT was (1.64- \pm 0.50 days). This was followed by combination of dihydroartemisinin with mefloquine (2.73 \pm 0.47), Then combination of dihydroartemisinin with chloroquine (2.84 \pm 0.50). The mice that were treated with chloroquine alone had PCT of 4.0 \pm 2.32. There was significant difference between the dihydroartemisinin group and the chloroquine group ($P < 0.0002$). There was also significant difference between the dihydroartemisinin group and combination of dihydroartemisinin plus mefloquine and also combination of dihydroartemisinin plus chloroquine ($P < 0.005$). The combination therapy was more effective than when chloroquine was administered alone.

Discussion:

The result from this study showed that dihydroartemisinin was the most effective antimalaria drug of all the drugs used. It also showed the synergistic effect of dihydroartemisinin when combined with either mefloquine or chloroquine than when the chloroquine was used alone.

Future development/upcoming studies:

Monitoring of malaria parasite resistance to dihydroartemisinin alone and dihydroartemisinin plus mefloquine combination in children with acute uncomplicated falciparum malaria.

**Study: GAMETOCYTAEMIA IN SEVERELY ILL CHILDREN: IMPLICATIONS FOR
MALARIA VECTOR INFECTIVITY AND TRANSMISSION IN
NORTHERN NIGERIA.**

**Investigators: Samdi L.M, Oguche S, Molta N.B, Agomo P.U. and Watitla
I.M. (2005)**

Introduction:

Background: Malaria is the most important vector borne disease in the tropics and sub-tropics. Transmission of the parasites responsible for this disease occurs all-year-round in most parts of Nigeria, but demonstrates strong seasonality especially in the dry Northern region.

Objectives:

This study was designed to examine the prevalence of sexual and asexual stage parasites among severely ill children and the possible implications for mosquito infectivity and malaria transmission in northeastern Nigeria.

Accomplishments:

In all 49 out of 143 severely ill patients were positive for asexual stages of malaria parasites during

June-September, 2003 equivalent to the rainy season, while 63 out of 258 patients screened in the cold dry season (October-January, 2004) were positive for the asexual stage of the parasites. Data on gametocyte indicated a different trend, 65 out of 153 patient were positive for gametocyte in the rainy season while 116 out of 258 patients were positive in the dry season with the highest gametocyte densities seen shortly after the rainy season. Difference in number of malaria positive cases and gametocytaemia between the two seasons did not reach significance ($p>0.05$). there was no significant difference ($p>0.05$) between age groups and sex with respect to gametocytaemia. Generally, more males and females were infected. Children aged 12-60 months had the highest rate of trophozoites (77.7%) and differed significantly from other age groups. On the other hand, there was no statistical difference between age groups with respect to gametocytes. In all, 99% of children had gametocytes of less than 100 gametocytes/ μ l of whole blood.

Conclusion:

The seasonality of malaria transmission is obvious from the results of this study. However, differences in actual malaria cases between the two seasons did not reach statistical significance. The results suggest that more children come down with malaria with higher asexual parasite densities in the rainy season. Gametocytaemias, although generally low, could lead to stable malaria with availability of the mosquito vectors.

Keywords: Gametocytaemia, Malaria, northeastern Nigeria

Study: **ACQUISITION OF PFCRT T76 AND PFMDR-1Y86 ALLELES BY *P. FALCIPARUM* ISOLATES IS ASSOCIATED WITH REDUCED EFFICACY OF CQCP IN NIGERIAN CHILDREN WITH ACUTE MALARIA.**

Investigators: **Olukosi YA, Iwalokun BA, Magbagbeola EO, Adewole TA,, Agomo PU and Awolola ST (2005)**

Introduction:

Chlorpheniramine (cp) has been found effective in reversing chloroquine (cq) resistance in treatment failures due to either pfcrT76 or pfmdr-1Y86 in children with acute uncomplicated malaria. Effect of these mutant genes when jointly acquired on the pharmacokinetics of cq and efficacy of cq-cp in children with acute uncomplicated falciparum malaria is poorly understood and has compromised strategies that may support optimization of cq as an antimalarial or its replacement by alternative drugs.

Accomplishments:

Sixty-three (66.3%) of the 95 blood stage *P. falciparum* isolate harboured pfcrT76T/pfmdr-1N86Y alleles in children with pretreatment mean CQ concentration of 318.4+16.2 nmol/L and 6h post treatment level of 560-710 nmol/L. 22.1% and 11.6% of cases were due to pfcrT76T and pfmdr-1N86Y mutations in children with plasma CQ

pre-and post-treatment profiles of 285.2 ± 9.6 nmol/L; $580.4-870$ nmol/L and 218.2 ± 17.3 nmol/L; $572-910$ nmol/L ($p < 0.05$), respectively. On day 14, CQ-CP cure rates in children infected with double, pfcrk76T and pfmdr-1N86T mutant strains were of 15.8%, 71.4% and 72.7%, respectively. Msp2 and glurp analysis showed that treatment failures were due to days 3-7 recrudescence and less diverse parasite clonality in pfcrk76T or pfmdr-1N86Y infections in these children.

Conclusion:

Pf infection due to pfcrk76T and pfmdr-1N86Y parasitaemia is associated with greater clonal diversity and early recrudescence-mediated cq-cp treatment failure in Nigerian children with acute uncomplicated falciparum malaria.

Study: **FACTORS THAT FACILITATE INFANT SURVIVAL IN A LOW SOCIO-ECONOMIC COMMUNITY IN LAGOS STATE, NIGERIA.**

Investigators: **Agomo CO, Idika N, Obomanu D, Agomo PU, Idigbe EO (2005)**

Summary:

Objective: To identify factors which promote infant survival during illness episodes.

Introduction:

Infants are delicate, relying mostly on caregivers for their survival. Their survival is plagued by diseases, poverty, behavioural habits and cultural beliefs of the caregivers in the developing countries. For strategies to improve infant survival, the health seeking behaviour and home care practices of caregivers during infant illness episodes were studied.

Result:

Sixty-two (8.4%) of those interviewed lost their infants; 51.6% of children who died did so in hospitals; 35.5% at home and 12.9% at unspecified places. The notable causes of death were malaria (22.6%), acute respiratory infections (14.5%) and diarrhea (12.9%). Majority of the caregivers (60.0%) whose infants died did not seek external help until 24hrs or more after onset of illness signs. Infant's tendency to survive an illness episode was significantly dependent full term delivery, ($P < 0.01$); birth weight ($P < 0.01$); treatment sources ($P < 0.05$) and infant feeding methods ($P < 0.05$).

Conclusion:

Appropriate antenatal care and infant feeding practices including exclusive breast feeding, early recognition of danger signs and timely health seeking will significantly improve child survival in Nigeria.

MICROBIOLOGY

Study: SEROPREVALENCE SURVEY OF SEXUALLY TRANSMITTED INFECTIONS IN FEMALES ATTENDING STI CLINIC IN LAGOS.

Investigators: Adeiga AA, Smith SI, Akintunde G.

Objective:

To update the types of STIs prevailing in the environment and determine the status of each organism and age distribution of infected females tested.

Status:

Organisms identified were *Neisseria gonorrhoea*, Syphilis, *Chlamydia trachomatis*, HIV and Herpes Simplex type 2. Project is on going.

Key Accomplishment:

Co-Infections were identified among the organisms especially with HIV. Herpes simplex type 2 and *Chlamydia trachomatis* were observed to be more associated with HIV. This situation can make treatment for HIV difficult as the co-infecting organisms can prolong recovery.

Study: RANDOMIZED CONTROL TRIAL OF SAVVY MICROBICIDE GEL AND HIV IN NIGERIA: A PHASE 3 STUDY AND MULTICENTRE, DOUBLE MASKED RANDOMIZED PLACEBO CONTROL TRIAL.

Investigation: Adeiga AA, Smith SI, Oyekunle BO, Oladele D, Obadaki F.

Objective:

To determine the effectiveness and safety of 1% C3IG (SAVVY) vaginal gel for the prevention of HIV infection.

Key Accomplishment:

The gel has been found acceptable judging from the use and demand. Safety has been so far established due to very low report of adverse reaction to the drug.

Study: STUDY ON THE POSSIBLE PREDISPOSING FACTORS TO *HELICOBACTER PYLORI* INFECTIONS AMONG DYSPEPTIC NIGERIANS.

Investigators: Oyedeji KSO, Smith SI, Coker AO, Arigbabu AO.

Key Accomplishments:

Establishment of a rapid non invasive diagnostic method (HpSA) for *Helicobacter pylori* diagnosis in NIMR. HpSA is *Helicobacter pylori* stool antigen test which makes use of stool in

detecting *H.pylori* infection. NIMR remains the only center where this test is performed in Nigeria.

Future Developments/Upcoming Studies:

Study on the prevalence of *Helicobacter pylori* infection among children in Western Nigeria.

Study: STUDY ON BACTERIAL AND FUNGAL OPPORTUNISTIC PATHOGENS IN HIV/AIDS PATIENTS IN LAGOS.

Investigators: Idika N, Anadobe M, Onwujekwe DI, Idigbe EO.

Key Accomplishments:

Respiratory infections most prevalent opportunistic infections reported (86.5%) in HIV/AIDS diarrhea 8.6% and oral infections 3.3%. Prevalent respiratory pathogens *M. catarrhalis*, *Staphylococcus (aureus and coagulase negative species)*. *Streptococcus pneumoniae* as well as enteric pathogens sensitive to *ofloxacin*, *ciprofloxacin* and *gentimicin*. Fungal pathogens *C. tropicalis* 26%, *C. stellatoidea* 22%, *Cryptococcus neoformans* 10%. Pathogens in oral infections mainly *fungi*. Poor drinking water source and refuse disposal methods influenced opportunistic infections in HIV/AIDS in Lagos.

Study: FLUCONAZOLE RESISTANCE PROFILE OF OPPORTUNISTIC BRONCHO-OROPHARYNGEAL CANDIDA ISOLATES FROM HIV/AIDS PATIENTS ATTENDING 3 ARV CLINICS IN LAGOS, NIGERIA

Key Accomplishment:

Investigated the existence of oral candidiasis species distribution and fluconazole (Diflucan the most frequently used antifungal agent) susceptibility profile of various candida isolates from HIV/AIDS patients.

Having speciated our isolates to level of about 96% and having established the existence of fluconazole resistant strains to about 10% of the isolates. The study recommended routine fluconazole sensitivity testing on candida isolates from HIV/AIDS patients attending ARV clinics.

Future Development:

There is need for further study to further employ more modern specification methods to bring the species level to 99.9%, particularly the use of CHROMAGAL specific for identification of candida dubliniensis which is one of the most implicated opportunistic candida species amongst HIV/AIDS patients in Europe and America. This species is yet to be reported in Nigeria due to the singular problem of speciation.

Furthermore, susceptibility profile of other alternative antigungal agents need to be conducted as a possible alternative when resistance occur e.g. Ketoconazole (imidazole) voriconazole, 5-flucytosine, Aniphoteriein B and others.

These procedures will provide safe ground for containing opportunistic infections which is one of key problems associated with effective HIV/AIDS management.

Studies: COMPARATIVE STUDY BETWEEN CYFLOW COUNTER AND DYNAL T4 QUANT METHODS OF CD4 ENUMERATION.

HEPATITIS B VIRUS CO-INFECTION IN PEOPLE LIVING WITH HIV/AIDS (PLWHA)

THE IMPACT OF SOCIO-ECONOMIC FACTORS ON MAJOR CLINICAL AND LABORATORY FOLLOW UP VARIABLES IN HIV PATIENTS.

IMMUNODEFICIENCY AND IMMUNE/HAEMATOLOGICAL CHANGES IN HEPATITIS B AND HIV CO-INFECTED PATIENTS.

HIV CONFIRMATORY TEST ALGORITHM IN LAGOS, NIGERIA.

ASSESSMENT OF METABOLIC DERANGEMENT IN GLUCOSE AND LIPID METABOLISM IN HIV-INFECTED INDIVIDUALS ON HIGHLY ACTIVE ANTIRETROVIRAL THERAPY IN LAGOS, NIGERIA

Investigators: Audu RA, Idigbe EO et al.

Future developments/upcoming studies:

- CD4 Lymphocyte Baseline in Nigeria
- National survey on the level of resistance to antiretroviral drugs in Nigeria.

Key accomplishments:

1. **Preliminary report of the national survey on the level of resistance to antiretroviral drugs in Nigeria.**
 - a) Data from our studies indicated that some of the patients on ARV treatment in the country have started developing some resistant strains of the virus.
 - b) The results strongly suggested some possible problems of adherence to drug intake amongst these patients.
 - c) Results of resistance tests against the second drug and the protease inhibitors were also

very significant. The data gave some indication that a very significant number of the samples that showed resistance to one, two, three of the first line drugs were still susceptible to Abacavir Zidovudine, Didanosine and TDF.

- d) The survey also confirmed that the recombinant form CRF02 and subtype G are the most prevalent subtypes circulating in the country.

2. **Development of various training modules**

- a) Background document for clinical training
- b) Training modules/manuals for clinical personnel
- c) Background document for laboratory training
- d) Training modules/manuals for laboratory training
- e) Background document for training manuals on the use of ARVs in Nigeria
- f) Training manual for nurses on the use of antiretroviral drugs in Nigeria
- g) Training manuals for doctors on the use of antiretroviral drugs in Nigeria
- H) Training manuals for pharmacists on the use of antiretroviral drugs in Nigeria.

CLINICAL SCIENCE

Study: **THE ROLE OF SELENIUM AS ADJUNCT TO HAART AMONG HIV INFECTED INDIVIDUALS WHO ARE ADVANCED IN THEIR DISEASE**

Investigators: Odunukwe, NN; Onwujekwe, DI; Musa, AZ; Ezechi, OC; Ezeobi, PM; Gbaja-Biamila, T; Audu, R; Njemanze, O; Anyanwu, R; Akinbami, O; Iloka, E; Nwogbe, O; Hebertson, E; Adu, R; Idigbe, E.

Activities

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

A follow-up study of 340 HIV-1 positive individuals with advanced disease recruited for HAART programme between February 2002 and June 2005.

Only those who met the inclusion criteria as outline in the National Protocol, enrolled for ART and gave informed consent were studied.

One hundred and seventy were on HAART + Selenium supplement, 200g daily and 170 were on HAART only.

Their viral load, CD4 cell count, Haematological and Biochemical indices were analysed at baseline and 12 weekly intervals for 72 weeks.

At each visit adherence counseling was given. Data analysis was by SPSS statistical software.

This pilot study suggests that:

Selenium supplement results in higher Haemoglobin level and CD4 counts.

Selenium status may be important for clinical outcomes related to HIV disease.

There is need for Selenium supplement as an adjunct to HAART in HIV positive individuals with severe immune suppression.

Future Development

Further studies with larger populations are needed to better understand the role of selenium as adjunct to HAART.

Study **FOOD AND WATER CONSUMPTION HABITS OF PEOPLE LIVING WITH HIV/AIDS ATTENDING NIMR/PEPFAR CLINIC**

Investigators: Anyanwu, RC; Odunukwe, NN; Agomo, PU; Onwujekwe, DI; Ezechi, OC; Sowemimor-Coker, OM; Okerekeocha, C; Igbokwe, DU; Ajani, A; Ricketts, A; Kalu, IK; Akinyele, MO

Activities

To assess the food and water consumption habits of all new HIV positive patients attending NIMR/PEPFAR Clinic, using a one-page structured questionnaire.

To screen and document all diet-related symptoms and complaints presented on first visit.

To record the weight and height of the patient and determine the Body Mass Index (BMI) and

wasting.

To counsel the patient on proper diet for positive living

Discussions

This is an on-going project and has reached advanced stage. About 2,000 patients have been documented and by August 2006, we expect to start analyzing the data already collected.

Key Achievement

Almost all patients attending the clinic, fill our questionnaire on their first visit. They are also counselled on proper nutrition and given dietary/counseling handouts the same day. We have observed that most patients have become aware of the importance of nutrition in the management of HIV/AIDS and common symptoms associated with HIV/AIDS. Most have introduced good nutrition in their ARV treatment.

Future Development

To fully integrate Nutrition into the management and control of major infectious diseases like HIV, TB and others.

Study: **MONITORING AND EVALUATION OF NUTRITION INTERVENTION, COUNSELLING AND MANAGEMENT OF PEOPLE LIVING WITH HIV/AIDS ATTENDING NIMR/PEPFAR CLINIC**

Investigators: Anyanwu, RC; Odunukwe, NN; Agomo, PU; Onwujekwe, DI;
Ezechi, OC, Ezeobi, P; Gbaja-Bioamila, T; Audu, R;
Nwogbe, O; Musa, AZ.

Activities

To monitor and evaluate the outcome of nutrition counseling and intervention in the nutrition behaviour modification and health improvement of HIV positive patients attending NIMR/PEPFAR clinic, using structured questionnaire and BMI.

To evaluate the outcome of nutrition intervention in the management of HIV-nutrition related problems like Lipid problems, Blood sugar problems, Liver problems, wasting and other common symptoms using three monthly laboratory investigation records, a nutrition focused physical examination and BMI-Tool.

Discussion

This project is on-going and results will soon be put together.

Key Achievement

All patients who enrolled in the NIMR/PEPFAR project went for 3-monthly or 6-monthly a laboratory evaluation which includes clinical examination and counseling, CD4 counts, viral loads, lipid profile, blood sugars, and other necessary chemistry were evaluated. Based on the out-come of the laboratory result, patients were referred for dietary/nutrition intervention, management and follow-up for any nutrition related problems. Through the use of BMI and other physical examinations, preliminary results show that many clients who had excessive weight loss have regained back their weights. Also through the use of CD4 count and viral loads laboratory-evaluations, preliminary results show that patients that came in with low CD4 cell counts now had higher CD4 counts, even as they were yet to start ARV drugs.

Study: **MISCONCEPTIONS AND REALITIES OF EXCLUSIVE BREASTFEEDING OF INFANT BY MOTHERS INFECTED WITH HIV VIRUS IN NIGERIA**

Investigators Anyanwu, RC; Ezechi, OC; Njepuome, N

Activities

To redefine the goals and objectives of exclusive breastfeeding in the Era of HIV/AIDS.
 To collate data that will help formulate the best feeding options for infants of HIV positive mothers in Nigeria.
 To remove misconceptions and strengthen educational best feeding practices for HIV positive mothers.
 To help prevent mother-to-child transmission of HIV virus.

Discussion

Project was done with a structured questionnaire administered to women of child bearing age (both HIV positive and none HIV-positive persons). A total of 1,000 women were interviewed. Data is being collated currently and result will be published in a scientific journal

Study: **MONITORING AND EVALUATION OF NUTRITION INTERVENTION, COUNSELLING AND MANAGEMENT OF PEOPLE LIVING WITH HIV/AIDS ATTENDING NIMR/PEPFAR CLINIC**

Investigators: Anyanwu, RC; Odunukwe, NN; Agomo, PU; Onwujekwe, DI; Ezechi, OC, Ezeobi, P; Gbaja-Bioamila, T; Audu, R; Nwogbe, O; Musa, AZ.

Activities

To monitor and evaluate the outcome of nutrition counseling and intervention in the nutrition

behaviour modification and health improvement of HIV positive patients attending NIMR/PEPFAR clinic, using structured questionnaire and BMI.

To evaluate the outcome of nutrition intervention in the management of HIV-nutrition related problems like Lipid problems, Blood sugar problems, Liver problems, wasting and other common symptoms using three monthly laboratory investigation records, a nutrition focused physical examination and BMI-Tool.

Discussion

This project is on-going and results will soon be put together.

Key Achievement

All patients who enrolled in the NIMR/PEPFAR project went for 3-monthly or 6-monthly a laboratory evaluation which includes clinical examination and counseling, CD4 counts, viral loads, lipid profile, blood sugars, and other necessary chemistry were evaluated. Based on the out-come of the laboratory result, patients were referred for dietary/nutrition intervention, management and follow-up for any nutrition related problems. Through the use of BMI and other physical examinations, preliminary results show that many clients who had excessive weight loss have regained back their weights. Also through the use of CD4 count and viral loads laboratory-evaluations, preliminary results show that patients that came in with low CD4 cell counts now had higher CD4 counts, even as they were yet to start ARV drugs.

Study: MISCONCEPTIONS AND REALITIES OF EXCLUSIVE BREASTFEEDING OF INFANT BY MOTHERS INFECTED WITH HIV VIRUS IN NIGERIA

Investigators Anyanwu, RC; Ezechi, OC; Njebuome, N

Activities

To redefine the goals and objectives of exclusive breastfeeding in the Era of HIV/AIDS.

To collate data that will help formulate the best feeding options for infants of HIV positive mothers in Nigeria.

To remove misconceptions and strengthen educational best feeding practices for HIV positive mothers.

To help prevent mother-to-child transmission of HIV virus.

Discussion

Project was done with a structured questionnaire administered to women of child bearing age (both HIV positive and none HIV-positive persons). A total of 1,000 women were interviewed. Data is being collated currently and result will be published in a scientific journal

Study: HAEMATOLOGICAL AND BIOLOGICAL RESPONSE TO TREATMENT OF HIV-1 INFECTION WITH COMBINATION OF NEVIRAPINE + STAVUDINE + LAMIVUDINE IN LAGOS, NIGERIA.

Investigators: Odunukwe, NN; Idigbe, EO; Adewaole, TA; Onwujekwe, DI; Audu, R; Onyewuche, J.

Activities

To evaluate the effect of a combination of Nevirapine + Stavudine + Lamivudine on Haematological and Biochemical values of HIV-1 positive patients in Lagos. Fifty patients who met the enrollment criteria for accelerated clinical trial were studied. Ten millimeters of blood was taken from each patient at first visit for basic haematological and biochemical values. Viral load and CD4 cell counts were also analyzed. All the values were repeated at 12 weeks, and 24 weeks, after patient were placed on drug treatment regimen. All the data were analyzed using Epi-Info version 6.4D. The mean erythrocyte sedimentation rate (ESR) results were 53.3 ± 41.8 mm/1 hr, 48.2 ± 40.6 mm/1 hr and 28.6 ± 20.7 mm/1 hr. Haemoglobin (Hb) 123 ± 15 g/L, 124 ± 21 g/L and 132 ± 14 g/L. Packed cell volume $36.8 \pm 4.5\%$, $37.6 \pm 4.8\%$, and $40.3 \pm 3.3\%$. Total white blood cell (WBC) 4.2 ± 1.0 , 5.0 ± 1.5 and 4.6 ± 1.0 baseline, 12 weeks and 24 weeks respectively). Creatinine, 1.2 ± 0.68 g/L, 1.2 ± 0.7 g/L and 1.04 ± 0.3 g/L at (baseline, 12 weeks and 24 weeks respectively). Serum amylase 37.9 ± 15.1 IU/L, 38 ± 23.9 IU/L and 24.3 ± 11.6 IU/L. Triglyceride 95.2 ± 48.3 IU/L, 92.38 ± 54.3 IU/L, and 78.0 ± 35.6 IU/L. serum bilirubin 0.18 ± 0.09 μ mol/L and 0.33 ± 0.24 μ mol/L. Alanine transaminase (ALT) 9.9 ± 3.3 IU/L, 15.1 ± 9.0 IU/L and 14.1 ± 9.3 IU/L. Serum aspartate transaminase (AST) 8.2 ± 6.2 IU/L, 9.4 ± 5.2 IU/L and 9.1 ± 6.0 IU/L. On comparison of the results between baseline and 12th week, all parameter were similar except PCV, Hb, serum bilirubin, serum ALT, and total WBC, which were significantly high at 12th week. ($p= 0.05$). On comparison of results between 12th week and 24th week all parameters were similar except Hb and PCV (which were significantly higher at 24th week) while ESR, was significantly lower at 24th ($p= 0.05$).

Conclusion

It was concluded that Nevirapine + Stavudine + Lamivudine combination results in improved haematological values of HV/AIDS patients. The effect of the drug combination on biochemical parameter in a short period of 24 weeks may not be much. Clinical response and haematological response alone may be used for patient monitoring in a resource poor setting where CD4 count and viral load analysis is impossible.

Study: COMPLIANCE OF PHYSICIANS IN ENUGU URBAN NIGERIA WITH THE NATIONAL MALARIA TREATMENT GUIDELINES.

Investigators: Harrison, NE; Ikoma, CK; Odunukwe, NN; Agomo, CO

Activities:

In correct use of antimalarial drugs undermines therapeutic Effectiveness and promotes emergence and spread of drug-resistant malaria. Strategies for improving compliance require accurate information about current practices. This is a survey of the attitudes and practices in the treatment of malaria among doctors practicing in Enugu urban, Nigeria. Standard questionnaire technique was used among 300 doctors practicing in Enugu urban. Chloroquine and sulfadoxine-pyrimethamine were the commonest drugs for treating uncomplicated malaria, while quinine was the commonest drug used for treating severe malaria. More than 60% of the doctors prescribed intramuscular chloroquine in the dosage of 5ml (=200mg) daily for 3 days for adults and 5mg/kg/daily for 3 days for children. Recommended dosage of quinine was used by 41.8% of the doctors in treating children, and 50% of doctors in treating adults. Only 40% of the doctors utilized the National guidelines for treatment of malaria. Comparison between duration of practice, or area of specialization with this incorrect prescription pattern of intramuscular chloroquine and intravenous quinine showed no significance difference with p values >0.05.

Study: SELF-REPORTED ADHERENCE TO HAART IS A RELIABLE AND COST EFFECTIVE TOOL IN LOW RESOURCE SETTING

Investigators: Ezechi, O; Onwujekwe, D; Odunukwe, N; Adewole, T; Aboweyere, J; Ezeobi, P; Gbajabiamila, T; Herbertson, E; Adu, R; Musa, S; Rabi, O; Adu, R; Lemoha, E; Idigbe, O; Ekong, EE.

Activities:

In low resource setting, self reported adherence is the only available adherence monitoring tool because of cost constraint. Questions have been raised on its reliability. We therefore assess the reliability of Self-reported adherence to antiretroviral therapy in such a setting. All patients On HAART for at least 12 months up to January 2005 and consented were interviewed for adherence after health talks and education. Assessment of adherence included last three days and one month recall of missed doses, self report, side effect and toxicities monitoring. Information on baseline and current CD4 count and viral load were extracted from their case notes. Two hundred and fifteen patients were recruited. The median age, duration of therapy, baseline CD4 count, baseline viral load, duration of therapy, current CD4 count and current viral load were 38.0 years, 58months, 180cells/ml, 5.08HIV-1RNA log copies, 420cells/ml and undetectable viral load respectively. While 31.2% of patients have never missed any pill, 31.6% and 37.2% of the patients reported missing at least one pill in the last 3 days or one month. Further analysis showed 62(92.5%) of the 67 patients that reported never missed a pill had undetectable current viral load as against 13(8.8%) of the 148 that reported missed pills (Spearman correlation P= 0.000). None of the patients that reported missed in the last 3 days had undetectable viral load. About 64.2% of the never missed pill group had CD4 count above 500cells/ml compared to 25% in the ever missed pill patients (P = 0.000).

Future Development

This study demonstrates that self reported adherence is a useful adherence monitoring tool in low resource setting and therefore should be adopted as method of choice until other high tech

methods become available.

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

Investigators:

Ezechi, OC; Onwujekwe, DI; Odunukwe, NN; Ezeobi, PM; Gbajabiamila, T; Adu, RA; Akinbami, OA; Njemanze, O; Somefun, SO; Anyanwu, R; Herbertson, E; Musa, AZ; Idigbe, EO.

Activities

In order to prevent transmission of HIV to the uninfected male partner in serodiscordant couple, artificial insemination using male partner semen is recommended. However because most of PLWHAS in our centre are unable to afford Gynaecologist assisted AID we started a novel method of self insemination. HIV Serodiscordant -male negative couple with normal reproductive functions after infertility evaluation were educated on how to perform AID using the male partner semen at home using 2 cc injection syringes. Ovulation is induced using clomiphene citrate and couple performs AID at home on days 12th, 14th and 16th of each cycle until pregnancy is achieved. Presently twenty five couple have benefited from the programme. There were 20 pregnancies in 76 AID cycles (26.3%) patients. The number of cycles before becoming pregnant ranges from 1- 9 with a median of 3. All patients were below 35 years and nulliparous. All patients were receiving ARV at the time of insemination.

Future Development

Self AID after ovarian stimulation with clomiphene citrate is a useful and cost effective tool in HIV serodiscordant male negative couple planning pregnancy

Study: SAFETY OF CAESAREAN SECTION IN PREGNANT HIV -1 POSITIVE NIGERIANS

Investigators: OC Ezechi; DI Onwujekwe; Edet A; Gbadegesin; Njemanze O; NN Odunukwe; P M Ezeobi; T Gbajabiamila; R Adu; Akinbami OA; Somefun EO; R Anyanwu; E Herbertson; S Musa; Akinlade R; Nwokoro CA; EE Ekong; OE Idigbe.

Activities

Though caesarean section have been shown to reduced mother to child transmission of HIV infection, its safety in presence of immunodeficiency and in developing countries have been a source of concern. A prospective study of the effect of caesarean section outcome in HIV -1 positive pregnant Nigerians. A comparative study of caesarean section outcome in 71 HIV-1 positive and 142 consecutive HIV negative pregnant Nigerian women over a period of 15 months. There was no statistically significant difference between the 2 groups in all the parameters studied. Though the mean operation time was longer in PLWHAS' group (39.7±21.5

Future Development

This study has shown that caesarean section in PLWHAS is not associated with increased morbidity and mortality. However a larger sample size is required to validate this finding.

Study: **MENSTRUAL FUNCTION IN NIGERIAN WOMEN INFECTED WITH HUMAN IMMUNODEFICIENCY VIRUS**

Investigators: OC Ezechi; Jogo A; DI Onwujekwe; Njemanze O; NN Odunukwe; P M Ezeobi; T Gbajabiamila; R Adu; Akinbami OA; Somefun EO; R Anyanwu; E Herbertson; S Musa; OE Idigbe.

Activities

This study was conducted to determine the menstrual function in Nigerian women infected with human immunodeficiency virus (HIV) and the impact of immunosuppression on menstruation in HIV-infected women. A cross-sectional study of 313 HIV-infected and 325 HIV-uninfected women was conducted over a period of 12 months. The women were interviewed about their menstrual function during the previous 6 months using a structured questionnaire. Information on sociodemographic, anthropometric and CD4 cell count were also obtained and analysed using SPSS version 10.0. The number and duration of menses in HIV-infected women were significantly different from those of uninfected women. During a 6-month period, 154 (78%) of 197 HIV-infected women and 150 (80%) of 188 uninfected women had 4-7 menses ($P = 0.74$). The proportions of women with no bleeding ($P = 0.03$) and post coital bleeding ($P = 0.04$) during the period was significantly higher in the HIV infected women, but not in intermenstrual bleeding ($P = 0.13$). In HIV-infected women, menstruation and the prevalence of abnormal vaginal bleeding were significantly different by CD4+ T-lymphocyte level and body mass index.

Future Development

The results of this study suggest that HIV infection has a clinically significant effect on menstruation and other abnormal vaginal bleeding.

Study: **UTERINE INCISION CLOSURE AT CAESAREAN SECTION: A RANDOMISED COMPARATIVE STUDY OF INTERPERITONEAL CLOSURE AND CLOSURE AFTER TEMPORARY EXTERIORIZATION**

Investigators: Ezechi, OC; Kalu, BK; Njokanma, FO; Nwokoro, CA; Okeke, GC.

Activities

The safety of the technique of uterine exteriorization at caesarean section though popular among obstetricians, remains controversial. This study evaluated the influence of exteriorization of uterus during uterine repair on caesarean morbidity. A randomized comparative study of 136 women undergoing primary caesarean delivery at Havana Specialist Hospital Lagos Nigeria.

Data on operation time, estimated blood loss, postoperative morbidities were collected and analysed with comparison between the two groups using chi square, Fischer's exact test and t-test as appropriate. The mean operative time, estimated blood loss, transfusion rate and postoperative anemia rate were significantly less in the exteriorized group than the intraperitoneal group ($p = 0.000, 0.009, 0.048, 0.038$ and 0.028 respectively), but not in other outcome measures.

Future Development

With shorter operative time, less blood loss and similar morbidity profile exteriorization of uterus during caesarean section seems to be preferred except where it is not possible because of adhesions and surgeons inexperience.

Study: EXPANDING ACCESS TO PMTCT SERVICES THROUGH PUBLIC

PRIVATE PARTNERSHIP: EXPERIENCE FROM LAGOS NIGERIA

Investigators: OC Ezechi; Njemanze O; Gab-Okafor C; DI Onwujekwe; NN Odunukwe; PM Ezeobi; T Gbajabiamila; EC Herbertson; RA Adu; OA Akinbami; Somefun OE; AZ Musa; RAAudu; Nwogbe OA; OE Idigbe,

Activities

In Nigeria a significant proportion of pregnant women seek antenatal care in private facilities. However PMTCT programme are not available in the private hospitals (PH) thus a great majority of HIV positive women are uncovered. In 2004 July we started a PMTCT access initiative aimed at providing quality services to women in PH. Advocacy visits were made to several PH and consenting hospital were admitted into the partnership. Staffs of hospital were trained on PMTCT services. Our facility provided training services, ARV drugs, laboratory services and infant post exposure prophylaxis and the PH provided VCT, intrapartum and services. At 36weeks a delivery management plan is draw by the institute in conjunction with patients and her private doctor. After delivery they are referred back to the institute for continued HIV care. The number of hospitals in the partnership has increased to 15 with some public hospitals with out ARV facilities listing. Eight other institutions are awaiting training. The acceptability of VCT and referral to the institute has increased from and less than 2 per month in the first month to over 10 per month presently. Since inception over 300 pregnant have received care under this scheme. Better care to HIV positive women ensured increased partner testing, follow-up, better adherence as well as treatment and better care for their children.

Future Development

Way forward: When rapid up-scaling of PMTCT programs is on the cards involvement of private sectors through public private partnership is an effective strategy.

PUBLIC HEALTH

Study: MALARIA VECTOR IDENTIFICATION AND INSECTICIDE RESISTANCE STUDIES

Investigators: T. S. Awolola, E. T. Idowu, A. Oduola, M. B. Ajayi

Activities:

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

Key Accomplishments:

In the course of the year under review, our studies 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. In addition to the above, we are undertaking collaborative work with the National Institute for Communicable Diseases in Johannesburg, South Africa to study the biology of the *Anopheles funestus* group in Nigeria. This anopheline group consists of 9 morphologically similar species containing both vector and non-vector species. Using a PCR assay, our study has identified three species of the group: *Anopheles funestus s.s.*, *An. rivulorum* and *An. lesoni* 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.

Upcoming Studies:

Efforts are being made to extend this work to other ecological zones in Nigeria.

Study: THE IMPACT OF IMPREGNATED TREATED BED NET USE ON COMMUNITY MALARIAL INDICES IN THE KAINJI LAKE AREA, NIGER STATE, NIGERIA.

Investigaors: E. T. Idowu, T. S. Awolola, A. K. Adeneye, M. A. Mafe

Activities:

Although a number of studies have documented the usefulness of ITNs including Nigeria however there are no detail or few report involving both parasitological and entomological indices from Nigeria. The study assessed impact of pyrethroid treated bednet on malaria prevalence and on the vector mosquito in 4 communities all situated around the Kainji Lake Area which serves as the main hydroelectric power supply for Nigeria.

Key Accomplishments:

The findings revealed *An gambiae* and *An Arabiensis*, the principal vector in the area and

demonstrate the effectiveness of pyrethroid treated bed nets in reducing malaria infection.

Upcoming Studies:

Efforts are being made to extend the work to other States in the country.

Study: **PERCEPTION OF STAKEHOLDERS ON USE OF ARTEMISININ-BASED COMBINATION THERAPIES (ACTS)**

Investigators: M. A. Mafe, E. T. Idowu, A. K. Adeneye

Activities:

Sequel to recent national policy change from chloroquine to ACTs as more effective first-line drugs for the treatment of malaria in Nigeria and given the unavailability of precise and relevant data on the patients' utilization of ACTs for malaria treatment in Nigeria, the need arises to investigate the level of awareness of stakeholders on ACTs, in addition to their fears and wishes; feasibility, acceptability and safety of the use of ACTs in the context of HMM in the country; and monitor the impact of ACTs on malaria parasite index in the community. The outcomes of this 3-phase study will provide baseline information not only to Nigeria but will also contribute to the global strategy towards optimizing affordability of highly effective antimalarial and the overall HMM in affected countries such as Nigeria.

Key Accomplishments:

Questionnaires have been administered to stakeholders in Niger State and the data obtained are currently being analysed.

Upcoming Studies:

The study will be extended to Federal Capital Territory (FCT), Lagos, Borno and Enugu States for national representation and enrichment of the data.

Study: **HEIGHT AS A SUBSTITUTE TO WEIGHT FOR THE ESTIMATION PRAZIQUANTEL DOSOGE**

Investigators: E. T. Idowu, M. A. Mafe, B. Appelt, B. Adewale, A. K. Adeneye, O. P. Akinwale, O. U. Manafa, D. O. Akande.

Activities:

Schistosomiasis is a disease of poverty, and there is a dearth of both health facilities and health workers in such affected rural communities, it is essential that means of distributing Praziquantel, the drug of choice through community based approach should be encouraged to ensure that treatment reaches these poor and affected communities. Given the low literacy level in most endemic communities affected by schistosomiasis in Nigeria and the unlikelihood of having and correctly using a weighing scale, there is need for an alternate way of determining

drug dosage. The study evaluated the use of height in lieu of weight in determining dosage of praziquantel by trained distributors in of 5 rural communities in south western Nigeria

Key Accomplishments:

Evaluation of distributors performance by the research team gave correlation coefficient value, $r = 0.97$. A correlation coefficient value, $r = 0.87$ was obtained on weight and height measurements by the distributors showing that height can be used by community distributors in lieu of weight for dose determination.

Upcoming Studies:

Efforts are being made to extend the work to other States in the country

Study: **DETECTION AND GENOMIC CHARACTERIZATION OF EXFOLIATED CELLS IN BLADDER CANCER IN SCHISTOSOMA HAEMATOBIIUM INFECTIONS.**

Investigators: O. P. Akinwale, G. C. Oliveira, M. B. Ajayi, D. O. Akande, A. S. Oyebadejo and K. C. Okereke.

Activities:

In this project, genomic DNA from blood and urine samples collected from study participants is being analysed using microsatellites (loss of heterozygosity). We also performed cytological examinations on the urine collected from some of the study participants for cytopathological abnormalities.

Key accomplishments:

Many of the infected study participants were found to have cytopathological abnormalities, while three of them (1 male and 2 females) have been found to have malignant squamous cells in their cytological smears.

Microsatellite Analysis of the DNA from blood and urine of the participants is on-going.

Upcoming Studies:

1. To examine *S. haematobium* infected patients using cystoscopy, which is the "Gold standard" method for the diagnosis of bladder cancer.
2. To evaluate the diagnostic potentials of the genetic markers vis a vis cystoscopy.

Study: **ANTHROPOMETRIC INDICES OF CHILDREN INFECTED WITH SCHISTOSOMIASIS IN RELATION TO INTENSITY OF INFECTION IN ABEOKUTA NORTH LOCAL GOVERNMENT AREA, OGUN STATE, NIGERIA.**

Investigators: Sulyman M.A., Fagbenro-Beyioku A.F., Mafe M.A., Omotola B.D., Adedoyin J.A., Akande O.D.

Activities:

Schistosomiasis is a considerable public health problem especially in Nigerian affecting children. It is associated with malnutrition, which impairs the growth of the developing child. This study determines the nutritional status of children infected with urinary schistosomiasis. Anthropometric indices of these children were obtained and related to the intensity of *S. haematobium* infection harboured by these children. The anthropometric indices included weight and height.

Key Accomplishments:

A total of 200 children were studied 150 of whom formed the test group with the rest in the control group. Based on height for age z scores 21 (36.80%) of the children with light infection and 55 (36.9%) with heavy infections were severely malnourished. P. value was significant at $P < 0.05$. This indicates that the higher the intensity of infection, the more malnourished is the child. However, nutritional status of the children based on weight for age z scores showed that P-value was not significant at $P < 0.05$, indicating that there is no significant difference between level of infectivity and weight for age indices of nutritional status. Of the three indices namely HAZ, WHZ and WAZ used, height for age was the most sensitive index in determining nutritional status.

Study: CHARACTERISATION OF ONCHOCERCA VOLVULUS AND MOLECULAR IDENTIFICATION OF SIMULIUM DAMNOSUM COMPLEX FOR MONITORING IMPACT OF LONG TERM IVERMECTIN ADMINISTRATION ON ONCHOCERCIASIS TRANSMISSION IN NIGERIA

Investigators: B. Adewale, E. T. Idowu, T. S. Awolola, M. A. Mafe

Activities:

Onchocerciasis (Riverblindness) is a significant public health and socioeconomic problem in Africa. In Nigeria, there are 3.3million people infected with the disease, 22 million living at risk of infection in endemic areas, over 100,000 cases of blindness and many thousands with other disabling complications of the disease are widely spread across the country (WHO, 1995). Currently, no drug safe enough for mass chemotherapy is available to kill the adult worms (i.e macrofilaricidal). There is therefore the need to use sensitive and specific methods such as the DNA technique, to characterize the parasites and vectors of the disease. This will aid the determination of the epidemiological patterns of the disease, monitor the impact of the current control strategy, as well as determine recrudescence and incidence of infection in control areas.

Key Accomplishments:

Three members of *S. damnosum complex*: *S. yahense*, *S. sirbanum* and *S. damnosum ss* have been identified using PCR assay and Restriction fragment length polymorphism (RFLP). This study provides baseline data for future monitoring of major vectors and parasite strains of human onchocerciasis in Nigeria.

Upcoming Studies:

Characterization of the parasite will be done using DNA technique to determine the

epidemiological pattern of the disease in the country.

Study: **WILLINGNESS TO SEEK VOLUNTARY HIV COUNSELING AND TESTING (VCT) AMONG PREGNANT WOMEN IN OGUN STATE, NIGERIA.**

Investigators: A. K. Adeneye, M. A. Mafe, A. A. Adeneye, K. K. Salami, T. A. Adewole

Activities:

Consequent to VCT services being slowly introduced in Nigeria to prevent mother-to-child transmission of HIV. This study was designed to assess the willingness of women attending antenatal clinics (ANC) to seek and undergo VCT. A cross-sectional survey of 804 women attending ANC in Ogun State, Nigeria was carried out using questionnaires.

Key Accomplishments:

The study showed low awareness of the availability of VCT services among pregnant women attending antenatal clinics and determined their willingness to seek VCT services to know their HIV status. The women were found to have better knowledge of HIV/AIDS as it relates to transmission mechanisms, signs/symptoms and prevention, and believed in the reality of AIDS. The results however showed low self-perceived risk of HIV infection among the women. The study identified four key factors that were associated with willingness to seek VCT: belief in AIDS reality, perceptions that clinic offered privacy, knowledge of HIV spreads and perceived social support.

Upcoming Study:

Investigation to ascertain actual willingness to seek VCT services among women attending antenatal clinics with the provision VCT services alongside survey.

Name of Study: **COMMUNITY PERCEPTION OF VOLUNTARY HIV COUNSELING AND TESTING (VCT) IN IJEBU COMMUNITIES OF OGUN STATE, SOUTH-WEST NIGERIA.**

Investigators: A. K. Adeneye, K. K. Salami, M. A. Mafe, A. A. Adeneye, P. U. Agomo

Activities:

This investigation on community perceptions about VCT was prompted by the fact that VCT is slowly evolving as a component of the comprehensive package of HIV/AIDS prevention and care in Nigeria. Twelve focus group discussions (FGDs) were held among men and women in six communities of Ijebu areas of Ogun State, Nigeria.

Key Accomplishments:

The study showed that all the FGD participants had heard and believed in the reality of HIV/AIDS. Only a few of them had seen cases of full-blown AIDS. Some of them knew how HIV spreads and its prevention; there were misconceptions among others. There was a low self-

perceived susceptibility to HIV infection among the participants. In the communities, the participants had no inclination to relate with HIV positive people. The people were willing in principle to seek VCT services. Those willing to seek VCT reasoned that knowing ones HIV status would give early opportunity of knowing if infected and enable one to seek treatment and care to help cope with the condition, and if negative, it would enable one to know how to prevent infection. Almost all the participants advocated for the availability and accessibility of VCT services at affordable costs in their localities. Some of those not willing to seek VCT highlighted their reasons: the issue of suspicion and its social consequences if the intention to seek testing is made known among couples and relations. Others not interested in seeking VCT had the fears and misconceptions regarding VCT. They were concerned about the confidentiality of test result if tested positive which they feared may predispose them to stigmatization, discrimination and rejection. The reality of stigma associated with the disease is yet to start manifesting in the study area. It is possible that when services are actually available for use; actual willingness may wane. The results showed the urgent need for community mobilization and sensitization to boost knowledge about HIV/AIDS and VCT and its benefits in HIV/AIDS control in the country.

Study: **AFFORDABILITY OF ANTI-RETROVIRAL DRUGS (ARV) AMONG HIV POSITIVE PERSONS IN RURAL AREAS OF ONDO STATE, SOUTH-WEST NIGERIA.**

Investigators: P. S. Ogunro, A. K. Adeneye, T. A. Adewole, T. Ogungbamigbe, A. Musa, D. Oparinde

Activities:

To assess the ability to pay for anti-retroviral drugs (ARV) and treatment of opportunistic infections (OIs) among HIV positive persons. 154 consented HIV positive persons seeking ARV at the Daughter of Charity German Leprosy and Tuberculosis Centre, Iwaro-Oka in Ondo State, South-West Nigeria were interviewed using questionnaires.

Key Accomplishments:

The results showed the different places of treatment among HIV positive persons before seeking ARV: private hospitals, public hospitals, traditional healers and NGOs. Respondents' sources of information about ARV were found to include electronic media, family doctors, newspapers, friends/neighbours and relations. It was found that the respondents believed treatment would prolong their lives, anticipated the cure for HIV/AIDS, and had strong fears of stigmatization and discrimination consequent to ARV use. The respondents perceived the drugs unaffordable, many wanted them for free, and few wanted to pay a maximum of N2,000.00 (US\$15.15) monthly compared to N13,000.00 (US\$98.48) charged. Their average affordable price was N1,034.00 (US\$7.83). Respondents' knowledge on HIV/AIDS was positively associated with education ($p < 0.05$). Those who had sought care elsewhere and those who perceived ARV as laudable earned higher income than those who had not sought care, and perceived ARV unaffordable. Similarly, more of those unwilling to seek ARV were older than those willing. In contrast, those unwilling to seek treatment of OIs had a lower age score and earned lower income than those willing. Overall, most respondents who knew the benefits lauded ARV provision. Overall the study showed that the drugs need be made affordable

particularly for the majority earning low income to enhance accessibility. The results offered insights for ARV programme planning and operationalisation emphasizing the benefits and reducing stigmatization.

Upcoming Studies:

It is hoped that similar studies are replicated at HIV/AIDS treatment centres across the country.

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

Investigators: B. Adewale, M. A. Mafe

Activities:

Respect for the rights of subjects (Human participants) in research is highly important and it is considered to be a crucial aspect of research to form a major criterion in the approval of protocols by Institutional Review Boards (IRBs). Unfortunately in developing countries, little or no attention is given to this aspect. According to Hyder *et al.* (2004), Ethical Review Boards in developing countries are not promoting high ethical standards for human subject research, as a result of poor funding, lack of properly trained staff and absence or lack of sensitization on ethical issues. A number of institutions such as the Nigerian Institute of Medical Research have Ethical Review Boards that are operational but there is still the need for the sensitization of the research communities in the Country. This study seeks to assess the knowledge, attitude and practice of health professionals on ethical issues in the six geopolitical zones of Nigeria. The study population consists of health researchers in tertiary health facilities and research institutes including policy makers. The study is expected to reveal the level of awareness and practices of health researchers on the protection of the rights of human participants and the status of ethical considerations in research. It will also sensitize researchers on the need for ethical considerations in planning and execution of research projects. Finally, ways by which researchers can be educated on ethical issues in research as well as promotion of ethical practice by health institutions will be proffered.

Key Accomplishments:

A pilot study has commenced in Lagos State. The results of which are being analysed.

Upcoming Studies:

It is hoped that the result of this study will be a pointer to areas for training of researchers through workshops.

MOLECULAR BIOLOGY & BIOTECHNOLOGY

Study: **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, Oyedeji KSO, Omonigbehin EA, Fowora M, Goodluck HA, Bamidele M, Akinsinde KA, Arigbabu AO, Coker AO.**

- Isolation and characterization *H. pylori* from patients presenting with dyspepsia
 - Screening of stool antigen in stool of patients presenting with dyspepsia
 - Analyzing of clo, G-stain and antibiotic susceptibility patterns on the isolates.
 - Carrying out FISH on the biopsies of patients.

Key Achievements:

- Seroprevalence has been found to be 85%
 - High resistance to the commonly used antibiotics have been noted and changes in some regimen have been effected, e.g., the use of ciprofloxacin in place of flagyl.
 - PCR techniques have been found to be useful in detecting Hp DNA directly from the biopsies where culture is becoming increasing difficult due to power outages.

Future Projection:

Future Projection is mainly in the area of diagnosis. Although culture is still the gold standard and at last two tests is required to confirm presence of *H. pylori*, four hundred samples of biopsies would be collected from patients suffering from dyspepsia and culture. Questionnaires would be distributed to the patients. Study area includes Lagos, Ibadan and Ife. The same number of patients will after their informed consent, have their stools taken for stool antigen test to screen for active *H. pylori* infection, while part of the biopsies will be prepared for FISH technique. The other diagnostic methods include both phenotypic (stool antigen test which is on-going, CLO, gram stain, antibiotic susceptibility) and genotypic (using fluorescent *in situ hybridization* (FISH) technique, where a grant is needed to be able to purchase fluorescent microscope and the reagents necessary for work). The FISH technique is most important right now, especially since there are constant power outages and culture of Hp is impossible. The project will compare culture, stool antigen test, FISH, susceptibility patterns, CLO, gram stain as a means to proffering early diagnosis of *H. pylori*. In addition, for storage of samples, nitrogen tank and accessories will be required.

Study: **MOLECULAR EPIDEMIOLOGY OF ENTEROHAEMORRHAGIC *E. COLI* (EHEC) FROM DIARRHOEIC PATIENTS AND APPARENTLY HEALTHY ANIMALS.**

Investigators: Smith SI, Goodluck HA, Omonigbehin EA, Bamidele M, Akinsinde KA.

Current Activities:

Evaluation of molecular methods for diagnosing of EHEC 0157 :H7 from humans, animals and water

Key Accomplishment :

Two hundred faecal samples (100 each) of diarrhoeic humans and apparently healthy animals in Lagos were screened for EHEC 0157 :H7. Five out of the 100 (5%) were positive for EHEC from the humans after confirmation using serology kits, while 17% were positive from the animals. The animals screened were cattle, pigs, rams and goats from various farm houses in Lagos and Ogun State. Antibiotic susceptibility tests showed the isolates to be susceptible to the various antibiotics screened with a few showing multiple antibiotic resistance (17%) from the animal isolates and none from the human isolates. The antibiotic patterns from Zaria were also similar to those from Lagos. Only one of the human isolates possessed detectable plasmids of size 23.13 kb, while 8/17 (47%) of the animal isolates possessed detectable plasmids of size range 0.564 k to > 23 kb. A comparison of plasmid patterns with those from Zaria showed that the Northern strain only had one plasmid of size 2.322 kb.

The study shows the alarming rate of EHEC amongst the most commonly consumed animals in our society. Although only one human isolate possessed detectable plasmid of size similar to that of cow isolate, the plasmids were of large molecular weight and large molecular weight plasmids have been associated with toxigenic strains.

Future Projection:

Further tests are underway using PCR to detect these virulence factors which can lead to possible transfer to humans since one of the routes of transmission is animal-to-person

Study : PREVALENCE OF STIS/HIV AMONGST ADOLESCENT PROSTITUTES IN LAGOS, NIGERIA

Investigators: Otuonye MN, Smith SI, Omonigbehin E, Bamidele M, Idigbe EO.

Current Activities:

450 prostitutes were recruited for the study
Mean age 23+4

Key Accomplishments:

Bacteria, fungal, parasite and virus were identified or isolated from 450 samples with the following frequency %
Candida 81(32.53%)

HIV 77(30.92%)

Trichomonads 58(23.3%)

Gonorrhoea being the least 9(2%)

- The prevalence of STI/HIV amongst the prostitutes was high 55.3%
- Consistent use of condom was low 149 (33.1%)
- Anal and oral sexual practices were low 150(33.3%) and 120(26.6%) but
- These sexual practices significantly exposed them to HIV infections $p=0.0000$

Study: ***IN-VITRO ACTIVITIES OF CEPHALOSPORINS AGAINST KLEBSIELLA PNEUMONIAE, ACINETOBACTER SP., PSEUDOMONAS AERUGINOSA AND OTHER AEROBIC GRAM-NEGATIVE BACILLI IN LUTH***

Investigators: **Niemogha MT, Ogunshola FT, Odugbemi Tolu**

Current Activities:

To determine antimicrobial susceptibility of *cephalosporins* for gram-negative aerobic bacteria isolated from in-patients at the Lagos University Teaching Hospital (LUTH) and compare with those of other antimicrobials.

Key Accomplishment:

Of the agents tested *ceftaxone*, *cefuroxime* and *ceftazime*, the susceptibility rates were between 30-70% for all aerobic pathogens tested with exception of *ceftazidime* which recorded 80% to 90% for *Providencia rettgeri*, *Ps. aeruginosa* and *Acinetobacter baumannii*. In conclusion, isolates were resistant to several other antibiotics. However, based on the results of this study, *ceftazidime* can be used for treatment of *nosocomial* infections caused by aerobic bacterial pathogens including those resistant to *gentamicin*.

Study: ***EVALUATION OF THE EFFECTS OF PERSEA AMERICANA LEAF EXTRACTS ON LIPID PEROXIDATION AND ANTIOXIDANT STATUS IN RATS.***

Investigators: **Brai BIC, Fesobi T, Agoo PU.**

Current Activities:

To determine the antiperoxidative and antioxidative potential of *P. americana* leaf extracts.

Key Accomplishment:

Hyperlipidaemic rats were treated with aqueous and alcoholic extracts of *P. americana*. Results from the study indicate that the leaf extracts of *P. Americana*, as used in this study, have antihyperlipidaemic and antihyperglycemic properties. The extracts also caused some modification of the antioxidant status in the rats.

Study: STUDY OF FACTORS ASSOCIATED WITH TRANSMISSION OF HIV FROM MOTHER TO CHILD.

Investigators: Ahmed OA, Esumeh FI, Adesesan A. Idigbe EO.

Current Activities:

- To determine the knowledge, attitudes and practice of the pregnant women as regards HIV/STIs, for the purpose of intervention
 - To offer voluntary HIV pre and post test counseling and screen pregnant women for HIV antibodies and identify the HIV positive pregnant women for the purpose of providing intervention.
 - To detect presence or absence of STIs e.g hepatitis and syphilis etc
 - To monitor immunological status and haemological indices of the HIV positive pregnant women.

Key Accomplishments

We have screened more than 2500. 2500 is the targeted number since the inception of the programme 2003. But very difficult to follow (100 mother & baby so far) mother and baby to get the final outcome of babies HIV status hence we are still working and hopefully will get the 150 187 targeted mother and babies result for meaningful statistical analysis.

However it is already noted that the prevention of mother to child transmission of HIV is yielding positive result i.e many babies (over 60%) born to HIV the mother are HIV negative even when both father and mother are positive.

The success of this is attributed to non-breast feeding of the baby, antiretroviral administration to both mother and babies born to these women at birth. Because some of the HIV positive women have had HIV negative babies in the course of accessing PMTCT quite a few of them have had 2 to 3 babies or are carrying pregnancies since the programme started in LUTH.

Future Projection:

DNA-PCR typing of blood from mother and baby

PUBLICATIONS

2005 PAPERS ACCEPTED FOR PUBLICATION IN JOURNALS

Aboaba OO and Smith SI (2005). Occurrence of *Campylobacter* species in poultry forms in Lagos area of Nigeria. *J Environ Biol*. 2005 Jun;26(2 Suppl):403-8.

Adeiga, A; Omilabu, S. A; Audu, R. A., Sanni, F; Lakehinde, G. P., Balogun. O., Olagbaju, O. Infant Immunization coverage in difficult to reach area of Lagos metropolis. *African J. Clinical and Experimental Microbiology* 2005 6(3) 227-231.

Adeiga, A; Omilabu, S. A., Audu, R. A.; Sanni, F; Lakehinde, G. P; Balogun, O., Olagbaju, O. Tetanus toxoid Immunization coverage among mothers of children less than one year of age in difficult to reach area of Lagos metropolis. *African Journal of Clinical and Experimental Microbiology*. 2005 6(3) 233-237

Adeiga, A; and Harry, T. Cold-chain facility status and potency of Animal rabies vaccine used in Nigeria. *Nigerian Journal of Health and Biomedical Science(s)* 2005. 4 (2) 112-116.

Adeiga A, Omilabu SA, Audu RA, Sanni F, Lakehinde GP, Balogun O and Olagbaju O (2005): Tetanus Toxoid Immunization Coverage Among Mothers of Children below One Year of Age in Difficult-To- Reach Area of Lagos Metropolis. *Afr. J. Clin & Exp. Micro.* 6(2): 233-237.

Adeiga A, Omilabu SA, Audu RA, Sanni F, Lakehinde GP, Balogun O and Olagbaju O (2005): Infant Immunization Coverage in Difficult-To-Reach Area of Lagos Metropolis. *Afr. J. Clin & Exp. Micro.* 6(2): 227-231.

Adesida, S, Boelens,H; Bamiro B, Amisu K, Snijders, S; VanLeeuwen,W., Coker,A., Verbrugh, H. and Alex VanBelkum (2005). Major Epidemic Clones of *Staphylococcus aureus* in Nigeria. *Microbial Drug Resistance*, . 11: 115 121

Adewale, B., Mafe, M.A., Oyerinde, J.P.O. (2005). Identification of Forest strain of *Onchocerca volvulus* using the Polymerase Chain Reaction technique. *West African Journal of Medicine* Vol.24 No. 1 pp 21 25.

Afolabi A. S., Iwuanyan S. A., Anumlidu C. A., Onwuamah C. K., Aina O. O., Okoh H. I., Olukosi Y. A., Iwalokun B. A. Akindele S, Agomo C.O., Adewole T.A., and Agomo P. U. (2005): Development of chloroquine resistance by cyclical passaging of *plasmodium berghei* sub curatively treated mice (in press).

Agomo, C.O; Idika,N, Obomanu, D, Agomo P.U and Idigbe E.O. Factors that Facilitate infant survival in a Low Socio-Economic Community in Lagos, Nigeria. *Nigerian Journal of Health and Biomedical Sciences*, 2005 4(2): 125-129.

Agomo P. U. (2005). The use of Non-Chloroquine Based Drugs in Malaria Management - *Medical Digest* Vol. 32 34..

Agomo CO, Idika N, Obomanu D, Agomo PU, Idigbe EO (2005). Factors that facilitate infant survival in a low socio-economic area of Lagos, Nigeria. *Nigerian Journal of Health and Biomedical Sciences* 4(2): 125-129

Aina O.O., Emeka P.M., Akintonwa A., Agomo P. U., (2005) Comparative Efficacy Study of Dihydroartemisinin, Chloroquine, and combination of Dihydroartemisinin plus Chloroquine or Mefloquine in Mice infected with *Plasmodium berghei*. *Nigerian Journal of Health and Biomedical Sciences*, Vol. 5, 64-67.

Aina O. O., Emeka P.M., Akintonwa A., and Agomo P. U; (2005 Comparative Efficacy Study of Chloroquine, Dihydroartemisinin and Dihydroartemisinin plus Mefloquine combination in Children with acute uncomplicated falciparum malaria. *Nig. Quarterly Journal of Hospital Medicine*. Vol. 15(2) pp. 59-63.

Akinyemi KO, Smith SI, Oyefolu B and Coker AO. (2005). Multidrug resistance in *Salmonella enterica* serovar *typhi* isolated from patients with typhoid fever complications in Lagos, Nigeria. *Public Health* 119: 321-7.

Anjorin C.O , Buba F. and Ene A.C (2005): Myocardial Infarction at the University of Maiduguri Teaching Hospital, Northeastern Nigeria: A long- term review. *J. Med. Sci. (ANSInet)*, 5(4):358- 362.

Audu RA, Onwujekwe DI, Onubogu CC, Adedoyin JA, Onyejebu N, Mafe AG, et al (2005): Possible Impact of Co-Infections of Tuberculosis and Malaria on The CD4+ Cell Counts of HIV Patients in Nigeria. *Annals of African Medicine*. Vol 4(1): 10-13.

Awolola, T.S., Oyewole, I.O., Amajoh, C.N., Idowu, E.T., Ajayi, M.B., Oduola, A., Manafa, O.U., Ibrahim, K., Koekemoer, L.L.. & Coetzee, M. (2005). Distribution of the molecular forms of *Anopheles gambiae* and pyrethroid knock down resistance gene in Nigeria, *Acta Tropica*, 95: 204-209.

Awolola, T.S., Oyewole, I.O., Koekemoer, L.L.. & Coetzee, M. (2005). Identification of three members within the *Anopheles funestus* (Diptera: Culicidae) group and their role in malaria transmission in two ecological zones in Nigeria, *Transactions of the Royal Societies of Tropical Medicine & Hygiene*, 99: 525-531.

Ebuehi OAT, Balogun M, Ebuehi OM, Audu RA and Idigbe EO (2005): Urinary Creatinine Levels in HIV/AIDS Disease. *European Journal of Scientific Research* 10 (1): 60-65.

Ene A.C and Milala M.A(2005): The effects of different Doses of Black Caraway (*Carum carvi* L.) oil on the Liver Enzymes of Alloxan Induced Diabetic Rats. *J. Med. Sci.(ANSInet)*, Vol. 5: pp 00-00.

- Ene A.C, Bukbuk D.N. and Ogunmola O.O (2005): The effects of Different Doses of Black caraway (*Carum carvi* L) oil on the Levels of Serum Creatinine in Alloxan-induced Diabetic Rats. *J. Med. Sci.(ANSInet)*, Vol. 5: pp 00-00.
- Daini OA, Balogun SO and Smith SI (2005). Isolation, characterization and multiple antibiotic resistance patterns of clinical isolates of *Klebsiella* species. *Nig. J. Biochem. Mol. Biol.* 19: 97-102.
- Du, W., Awolola, T.S., Howell, P., Koekemoer, L.L., Brooke, B., Benedict, M.Q., Coetzee, M. & Zheng L (2005). Independent mutations in the Rdl locus confer dieldrin resistance to *Anopheles gambiae* and *An. arabiensis*. *Insect Molecular Biology*, 14: 179-183.
- Ibidapo, C.A., Mafe, M.A., and Awobimpe, O.L. (2005). Comparison of three diagnostic methods for the determination of prevalence of urinary schistosomiasis among residents and pupils of Badagry Area of Lagos State, Nigeria. *African Journal of Biotechnology* 4: 1325-1328.
- Idigbe EO, Adewole T, Kanki P, Eisien G, Odunukwe DI, Audu RA, Araoyinbo I, Salu OB, Adedoyin JA and Musa AZ (2005): Management of HIV-1 Infection With a Combination of Nevirapine, Stavudine, Lamivudine: A Preliminary Report on the Nigerian ARV Program. *J. Acquir. Immune Defic. Syndr* 40(1):65-69.
- Idika, N, Odugbemi, Tolu and Ekanam, E.E. An Evaluation of the Bacteriological Quality of water consumed by the inhabitants of some Rural areas of Lagos state. *Nigerian Journal of Health and Biomedical sciences* 2005 4 (1) 61-66.
- Iwalokun B.A., Olukosi Y.A., Aina O.O., Afolabi A.S., Bukola A,F, Sessan B. Y., (2005): A rodent malaria model for the development of pyrimethamine and SP resistant plasmodium berghei malaria in mice (in press).
- Iwalokun BA., Olukosi YA., Ogunledun A (2005). Interactions of elevated nitric oxide with platelet parameters in Nigerian children with asymptomatic and symptomatic *Plasmodium falciparum* malaria (MIM-IA-164511).
- Mafe MA, Appelt B, Adewale B, Idowu ET, Akinwale OP, Adeneye AK, Manafa OU, Sulyman MA, Akande DO and Omotola BD. Effectiveness of different approaches to mass delivery of praziquantel among school-aged children in rural communities in Nigeria. *Acta Tropica* 2005; 93: 181-190.
- Odunukwe N, Idigbe O, Kanki P, Adewole T, Onwujekwe D, Audu R and Onyewuche J (2005): Haematological And Biochemical Response to Treatment of HIV-1 Infection with Combination of Nevirapine + Stavudine + Lamivudine in Lagos Nigeria. *Turk J Haematol* 22(3): 125-131.

Olukosi Y, Iwalokun BA., Magbagbeola EO., Akinwande AI., Adewole TA., Agomo PU., and Awolola ST. (2005) Pattern of rural urban acquisition of pfert 176 allele among Nigerian children with acute uncomplicated *Plasmodium falciparum* malaria. *African Journal of Biotechnology* 4(4). 361-366

Olukosi YA, Iwalokun BA, Magbagbeola EO, Adewole TA., Agomo PU and Awolola ST (2005). Acquisition of Pfert T76 and Pfmdr1 Y86 alleles by *P. falciparum* isolates is associated with reduced efficacy of CQCP in Nigerian children with acute malaria. Abstracts Acta Tropic O-144 MIM YO-193312 from the fourth MIM PAN African Malaria Conference.

Omotola BD, Grange AO, Adedoyin JA, Brai BIC, Omotola EB, and Njepuome, N (2005). Breastfeeding practice in the first six months of life in Epe Local Government Area of Lagos State. *Nig. J. Nutr. Sci.* 26(2): 16 22

Samdi L.M, S. Oguche, N.B Molta, I.M. Watila, P.U. Agomo and Ene A.C. (2005): Plasmodium Infection in Severely ill Children Aged 0-8 years in Maiduguri Metropolis, North-Eastern Nigeria. *J. Med. Sci.(ANSInet)*, 5(4): 294-297.

Samdi L.M., Oguche.S.Molta N.B.Watila I.M. Agomo P.U and Ene A.C (2005) *Plasmodium* infection in severely ill children aged 0-8years n Maiduguri metropolis, Northeastern Nigeria *Journal of Medical Science* 5(4)294-297.

Samdi L.M. Oguche .S. Molta N.B. Kalu M.K Watila I.M., Anyanwu G.I. and Agomo PU (2005) A comparative longitudinal study of seasonal variation of Malaria parasite and vector density in the sahel, Northeastern Nigeria Nigerian *Journal of Experimental and Applied Biology* 6:77-85

Samdi L.M.Oguche S Molta N.B Agomo PU and Watila I.M (2005) Gametocytaemia in severely ill children: implication for malaria vector infectivity and transmission in Northeastern Nigeria. *Journal of Experimental and Applied Biology* 6:87-93

Taiwo SS, Bamidele M, Omonigbehin EA, Akinsinde KA, Smith SI, Onile BA and Olowe AO (2005). Molecular epidemiology of methicillin-resistant *Staphylococcus aureus* in Ilorin, Nigeria. *W. Afr. J. Med.* 24: 100 -6.

LIBRARY

MAINTAINANCE DIVISION

MAINTENANCE AND CONSTRUCTION WORK

Renovation of the Main Laboratory Building Complex

Construction of NIMR Library Complex (Under-development)

Continued Renovation of the proposed 30 Bed Clinical Centre

Renovation of TB Laboratory building.

Repair/ Renovation work at residential quarters.

Renovation of the Conference Centre and Power House

Storm water drainage scheme phase II

**SEMINARS, TRAININGS & OTHER RESEARCH
ACTIVITIES**

CONTRIBUTIONS TO SCIENTIFIC MEETINGS

| | | |
|--|------------------------|------------|
| Possible Predisposing Factors to H. PYLORI Infections among Dyspeptic Nigerians | Dr. K.S.O. Oyedeji | March 2005 |
| Evaluation of the antiperoxidative and antioxidant properties of Persea americana leaf extract | Mr. B.I.C Brai | April 2005 |
| Molecular Identification of Simulin Damnum S.L in Ondo State, Nigeria | Dr. E.T. Idowu | May 2005 |
| HIV/AIDS Awareness for NIMR Staff. | Dr. (Mrs) N.N Odunukwe | June 2005 |