



CARE, TREATMENT, TRAINING & RESEARCH

# HOPE FOR NIGERIA

*IHV-Nigeria provides excellence in care and treatment, training and research; respect for the dignity of the person; and hope for the people of Nigeria.*

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## IHV-Nigeria Board of Directors



**PROF. EMERITUS UMARU SHEHU, CFR**, distinguished physician, academic, administrator and holder of Nigeria’s prestigious national award of the Commander of the Federal Republic (CFR). Prof. Shehu is chair of the IHVN Board of Directors.



**BARRISTER KANU GODWIN AGABI, SAN, CON**, one of Nigeria’s foremost legal practitioners and former Attorney-General and Minister of Justice for the Federal Republic of Nigeria and holder of the national Commander of the Order of the Niger (CON).



**DR. PATRICK OLABIYI MATEMILOLA**, an inspiring leader, scientist, pediatrician and former Acting Commandant of Nigerian Army Medical Corps Training School and pioneer National Coordinator of Network of People Living with HIV and AIDS in Nigeria (NEPWHAN)



**PROF. ABA OMOTUNDE SAGOE**, a renowned Consultant in Hematology and Blood Transfusion was instrumental in the completion of the National Blood Transfusion Policy for Nigeria and draft legislation for the National Blood Program.



**PROF. WILLIAM BLATTNER**, an internationally renowned expert on AIDs and the viral epidemiology of cancer and Professor of Medicine and Epidemiology and co-founder of the Institute of Human Virology based in Baltimore, USA. Prof. Blattner is the founder of IHV-Nigeria and has been involved in developing Nigeria’s capacity to implement the US President’s Emergency Plan for AIDS Relief in the country. He has 30 plus years of expertise and engagement in Nigerian health matters.



**DR. PATRICK DAKUM**, a well-known expert in Public Health, Governance and Inter-Governmental Relations is the Chief Executive Officer and Project Director of the Institute.



**MR. CHARLES MENSAH**, an internationally certified accountant and financial expert and the Managing Director/ Chief Operating Officer, Corporate Operations of the Institute is an Ex-Officio Member.

## Board of Directors Inaugural Meeting



Professor Emeritus Umaru Shehu being applauded after his remark during the inauguration



CDC Nigeria Country Director, Dr. Okey Nwanyanwu with the former Executive Director, National Primary Healthcare Development Agency (NPHDCA), Professor Muhammad Pate, now Nigeria’s Minister of State for Health.



Right to Left, Dr. Patrick Dakum, Mr. Kanu Godwin Agabi and a guest at the inaugural meeting.



Board Members, Professor William Blattner and Mr. Kanu Godwin Agabi SAN



Right to Left, Dr. Okey Nwanyanwu, Mr. Charles Mensah, Mr. Paul S. Bartley and Dr. Patrick Dakum

## IHV-Nigeria Executives

### Dr. Patrick Dakum, Chief Executive Officer



Dr. Patrick Dakum is the Chief of Party & Project Director of the Institute of Human Virology, Nigeria. He coordinates the interdisciplinary responsibilities of the Institute for effective program output in addition to providing overall management of the Nigerian team in implementing the AIDS Care and Treatment in Nigeria (ACTION) Project.

He also liaises with other US Government partners and the Government of Nigeria partners to ensure the success of the US President's Emergency Plan for AIDS Relief (PEPFAR) ACTION Project in the country. He is also an Assistant Professor in the Department of Epidemiology and Preventive Medicine in the University of Maryland School of Medicine, Baltimore. Through the Fogarty-sponsored UM-IHV AITRP research training grant, Dr. Dakum is brokering a research training agenda to build the capacity of IHVN and several academic and research partners linked through the PEPFAR program.

Former Information and later Health Commissioner in the Government of Plateau State of Nigeria, Dr. Dakum trained as a medical doctor at the Ahmadu Bello University, Zaria in Nigeria and Lagos University Teaching Hospital where he earned a Masters Degree in Public Health. His public health career has spanned through the telecommunication industry (NITEL), multilateral agencies (UNFPA), bilateral agencies implementing partners (AVSC, CEDPA, CIDA) and local NGOs (Help International).

### Mr. Charles Mensah, Chief Operating officer/Managing Director



Mr. Charles Olalekan Mensah is an Ex-Officio member of the Board of Directors of Institute of Human Virology, Nigeria. As the Managing Director/Chief Operating Officer, Corporate Operations, he is responsible for the effective and efficient operations of the Institute including administration, finance, and logistics to support treatment, care and support activities for thousands of people living with HIV/AIDS, TB, Malaria and other diseases in Nigeria.

Mr. Mensah serves as the link between the Institute (as a business affiliate of the University of Maryland, Baltimore) and the University. In this position, he is responsible for developing short-term and medium-term strategic plans; management of resources; operating budgets and cash flow projections; compliance with all relevant policies and procedures and managing the human resource needs in support of all the University's programs in Nigeria.

Charles Mensah is a Fellow of the Institute of Chartered Accountants of Nigeria and member of the American Institute of Certified Public Accountants. He trained at the Federal Polytechnic, Ado Ekiti, Nigeria and the University of Baltimore, where he earned a Master of Business Administration degree in 2001. He is presently working for his doctorate degree in Public Administration at the University of Baltimore. He loves to play soccer, badminton, table tennis and lawn tennis.

# IHV NIGERIA

## EXECUTIVE SUMMARY



## IHV-Nigeria Executive Summary

The Institute of Human Virology – Nigeria (IHV-Nigeria) is a not-for-profit organization registered and established in Nigeria in 2004 to implement scale-up of the PEPFAR program and conduct research and training to promote quality evidence based health systems strengthening. IHV-Nigeria has grown into an organization with over 349 staff members, 95% of whom are Nigerians. IHV-Nigeria’s activities have expanded to meet the growing public health challenges in Nigeria. Our mission is to provide excellence in care and treatment, training and research; respect for the dignity of the person; and hope for the people of Nigeria.

IHV-N supports a network of 139 prevention, care and treatment sites located primarily in public federal and state primary, secondary and tertiary health facilities. In addition, we have partnerships with over 48 non-governmental community-based organizations in 24 states throughout Nigeria for the implementation of a model of care that brings prevention, care and support to people infected and affected by HIV/AIDS, tuberculosis and malaria in their homes and communities. We have provided care and support to over 180,000 HIV-positive individuals, antiretroviral drugs to over 117,000 patients and HIV counseling and testing to over 1.39 million individuals including over 620,000 pregnant women for the prevention-of-mother-to-child transmission (PMTCT).

IHV-Nigeria is committed to creating a model of health care delivery that develops sustainable local capacity and empowers health care workers with quality training and mentoring. This model of health system strengthening encompasses all areas of health care delivery and human resource development with an emphasis on task shifting, healthcare technologies, health information support, health system governance and healthcare financing. To achieve sustainable impacts IHV-Nigeria is developing local experts in treatment, care and laboratory disciplines through regional and national clinical and laboratory training centers, including three specialty laboratories that support indigenous quality control and assurance activities and advanced laboratory training. Specialized laboratories also support genetic sequencing for HIV drug resistance determination and the establishment of a BL-3 laboratory at the National TB and Leprosy Training Center - Zaria addresses the emerging threat of drug resistant TB, fueled by the HIV epidemic.

# IHV NIGERIA OVERVIEW





## IHV-Nigeria Overview

### 📍 Nigeria

Nigeria, the most populous nation in Africa with an estimated 140 million people, is second in the world for HIV infection, first for malaria deaths, and fifth for TB infection. With a human development index of 0.448, Nigeria ranks 159 out of 177 countries in poverty and has an estimated 2,900,000 people living with HIV.

There are many challenges to scaling up comprehensive and integrated health care systems in resource limited settings. To meet the significant challenges of health system strengthening, IHV-Nigeria employs ongoing analysis at the site level to understand barriers to effective quality care and treatment and to improve program implementation. Some of these hurdles are confronting inadequate training of physicians, resistance of the medical establishment to new approaches like nurse empowerment. In order to create a lasting impact, IHV-Nigeria is committed to being an agent of change that is prepared to serve and meet the current and future needs of millions of individuals infected with HIV tuberculosis and malaria.

“PEPFAR has saved millions of lives. Now that we know that scale up is feasible, the next challenge is securing a generation of resources to sustain this life-giving to capacity.”

W. Blattner, MD



📍 IHV Nigeria Staff

## 🎯 IHV-Nigeria History and Mission

The Institute for Human Virology Nigeria (IHV-Nigeria) was established in 2004 as an affiliate of the Institute of Human Virology, University of Maryland School of Medicine and incorporated in March 2004 as a fully Nigerian indigenous non-governmental organization with a majority Nigerian Board of Directors. The story of IHV-Nigeria's inception started with Dr. William Blattner and Dr. Alash'le Abimiku, both working at the National Institutes of Health, conducted early studies to track the emerging HIV epidemic in Nigeria. In 1995 Dr. Blattner, in partnership with Dr. Robert C. Gallo and Dr. Robert R. Redfield, co-founded the Institute of Human Virology (IHV), University of Maryland School of Medicine, Baltimore. Drs. Blattner and Abimiku successfully competed for international funding from the US Military, the Bill and Melinda Gates Foundation and the CDC Global AIDS Program for a University Technical Assistance Program (UTAP) award to support the establishment and growth of IHV-Nigeria. Since 2004, the President's Emergency Plan For AIDS Relief (PEPFAR) has supported delivery of comprehensive prevention, care and treatment services through IHV-Nigeria's AIDS Care and Treatment In Nigeria (ACTION) project. Within the ensuing six years, IHV-Nigeria has emerged as a highly respected free standing indigenous organization and the largest PEPFAR treatment partner in Nigeria.

### IHV-NIGERIA: Objectives

- To provide and build technical and human resources to create capacity to effectively respond to the HIV/AIDS, Malaria, TB and other diseases in Nigeria
- To build local health system infrastructure to support a long-term commitment to Nigeria's fight against HIV/AIDS, TB, malaria and other public health threats
- To establish academic and research relationships that enhance collaborations between the University of Maryland and academic, governmental and non-governmental institutions in Nigeria and foster training and research opportunities for Nigerians
- To implement the goals of the US President's Emergency Plan for AIDS Relief (PEPFAR), Global Fund to fight HIV/AIDS, TB and malaria, and other funders through partnership with the government of Nigerian public, private and non-governmental organizations.

"IHV-Nigeria has built a very effective and efficient administrative and financial management system which has culminated into successful PriceWaterCooper's audit covering the years 2004 through 2008. Through regular trainings for finance, logistics and administrative officers of over 130 supported health care facilities as well as 52 CBOs, NGOs and FBOs, IHV-Nigeria is creating a large pool of Nigerians who are trained in the management of funds and commodities sourced locally or through international donors."

C. Mensah, MBA, CPA, IHV-Nigeria

## ● Governance and Funding

With strategic leadership and technical guidance from Dr. Blattner, Associate Director of Institute of Human Virology, UMD, Dr. Patrick Dakum, IHV-Nigeria's Chief Executive Officer has created a fiscally sound, technically sophisticated and outcome oriented organization able to respond and adapt to shifting externalities. As the visionary leader in developing IHV-Nigeria, Dr. William Blattner maintains a Board position and lends his 30 plus years of expertise and engagement in Nigerian health matters to facilitate the continued growth of IHV-Nigeria as a major indigenous resource to addressing Nigeria's multifaceted HIV epidemic tuberculosis and malaria burden. IHV-Nigeria has placed emphasis on building a strong financial management system as an essential base for program sustainability. The following provide a snap-shot of some of the major grant awards received or administered by IHV-Nigeria. Support from the UTAP award supported technical assistance and infrastructural capacity building from four major grants.

- **UTAP:** IHV-Nigeria directly administered over 80% of \$59 million received by the University of Maryland School of Medicine to support clinical, strategic information and laboratory technical assistance and infra-structural capacity building in Nigeria.
- **PEPFAR:** IHV-Nigeria directly administered over 80% of \$178 million received by University of Maryland School of Medicine over five years for program implementation of comprehensive prevention, care and treatment services as part of the ACTION project.
- **AITRP:** IHV-Nigeria is directly implementing over 75% of \$6.5 million in funding received from the NIH to develop training capacity in HIV/AIDS research.
- **Global Fund:** Under the Global Fund (GF) Round 8 funding to Nigeria, IHV-Nigeria is a sub-grantee to the National Agency for the Control of AIDS (NACA) for two awards: 1) Health Systems Strengthening (HSS) of primary health care (PHC) institutions; 2) and National Malaria Control Program (NMCP) for Roll Back Malaria. Both sub-awards total \$5,680,345 in direct funding and will be 100% managed by IHV-Nigeria.



Group Photograph of US Senators Johnny Isakson and Chris Coons on a visit to Asokoro Laboratory Training Center which is supported by IHV-Nigeria through funds from the Government and people of America

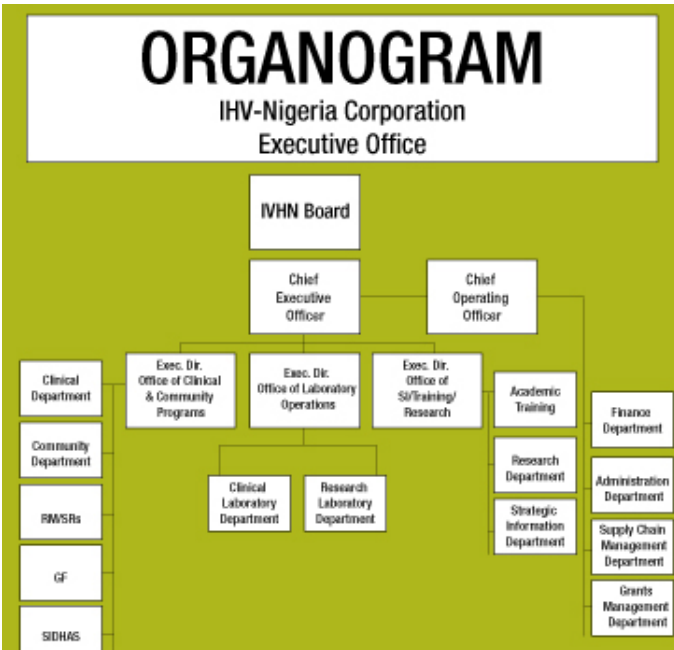


IHAVN Senior Program Officer (Clinical Laboratory Training), Ijeoma Bassey Eyo-Nsa, taking the Senators round the PEPFAR lab in Asokoro, Abuja

## **YOUNG PREGNANT WOMEN:**

Pregnant women living with HIV have been one of the beneficiaries of services rendered by IHVN. They have been given access to prevention of mother-to-child transmission of HIV (PMTCT) services. 16,934 pregnant women received prophylaxis. IHVN's AIDS Care and Treatment Project (ACTION) have trained 1906 health care providers on PMTCT and 137 supported sites provide PMTCT services.”

**● IHV-Nigeria Structure and Organizational Capacity**



IHV-Nigeria currently employs 303 full-time faculty and staff, 95% of whom are Nigerians and 43% female, comprising infectious disease physicians, community medicine physicians, public health practitioners, laboratory scientists, nurses, information technology experts, administrators, certified accountants and financial review experts certified in the US and Nigeria. IHV-Nigeria’s activities are coordinated through thematic Offices and Departments located at the corporate headquarters in Abuja.

**Regional Offices:** Program activities are conducted through five regional offices located in Kano, Jos, Benin, Lagos and Abuja (FCT Region). Each region is responsible for direct quality implementation of project activities at all sites in the region. To provide infrastructure support for medical and laboratory commodities, IHV-Nigeria has developed a commodities management system supported

by warehouses in all five regions. IHV-Nigeria’s headquarters and regional offices are all equipped with dedicated VSAT internet access, a local area computer network with state of the art security and automated back-up, and secure record storage with fire-wall protected servers and a range of active and passive security measures. High speed video conferencing, voice over internet and capacity for internet file transfer are in place at the site, to support real time collaborative interactions between site research staff based in Nigeria. IHV-Nigeria also employs this infrastructure to support distance learning training.

**● Office of Clinical and Community Programs**

The Office of Clinical and Community Programs is responsible for the integrated implementation of comprehensive prevention, care and treatment services for individuals living with or affected by HIV/AIDS tuberculosis and malaria and coordinates activities to meet targets of multiple projects including the PEPFAR funded ACTION Project, CDC and Global Fund supported initiatives. It conducts need assessments, program planning, capacity development and oversight for high quality comprehensive HIV/AIDS service provision at 139 partner facilities. Sustainable high quality clinical care outcomes and service improvement are achieved through Continuous Quality Improvement activities including site-level program and patient outcome evaluations supplemented by provision of site-based training and mentoring. This office also contributes significantly to local capacity building through: 1) development of national HIV/AIDS tuberculosis and malaria care and treatment guidelines, training curriculum and manuals in support of Nigerian government and Federal Ministry of Health initiatives; and 2) Cross-training and continuing medical education to all supported facilities across levels of care and staff cadres. Besides knowledge and skills-based acquisition, it also focuses on improving quality and utilization of quality indicator reports developed through assessment of patient level data and onsite observation to guide training and quality improvements.

## ● Clinical and Community Medicine Achievements

- Over 117,391 adults and children received antiretroviral therapy, 66% of whom were female
- Over 623,212 pregnant women were provided with HIV testing and 16,934 HIV-positive pregnant women were provided with antiretroviral therapy for the prevention of mother-to-child transmission of HIV
- Over 302,358 most-at-risk populations including commercial sex workers and men who have sex with men provided with prevention interventions
- Over 180,286 HIV-positive individuals provided with care and support services
- Over 29,130 HIV-positive individuals provided with TB treatment
- Over 28,327 orphans and vulnerable children provided with care and support services
- So far over 5,600 health care workers have been trained
- Over 767,180 individuals provided with HIV counselling and testing
- Development of a national clinical training center at the University of Abuja Teaching Hospital in Gwagwalada, Abuja to provide facilities for experiential hands-on training.
- Establishment of multidisciplinary Quality Improvement Committees at partner facilities
- Introduction, training and evaluation of task shifting programs to enable provision of cost-effective and efficient services at high-volume and primary care level sites.

IHV-Nigeria establishes strong partnerships between facilities, communities and individuals affected and living with HIV/AIDS tuberculosis and malaria. All IHV-Nigeria supported health care facilities are linked to networks of communities and volunteers in a given State or Local Government to provide outreach HIV education, prevention, screening and linkage services. IHV-Nigeria promotes the establishment of patient support groups whose members are trained to provide peer adherence support and prevention education. IHV-Nigeria also works directly with over 32 Community Based Organizations (CBO) for the provision of various services to at-risk populations, religious and educational organizations and in rural and hard to reach communities.

## ● Office of Laboratory Services

Laboratory capacity building requires a comprehensive strategy for provision of high service standards at all tiers of clinical care. The Office of Laboratory Diagnostics and Research has developed an integrated, tiered referral laboratory network comprising of over 100 laboratories spread across the six geo-political zones of the country. At the tertiary level, 34 comprehensive laboratories provide high throughput hemogram, clinical chemistry and CD4 assessment services using automated equipment platforms and 10 of these comprehensive laboratory sites provide virology services for Early Infant Diagnosis (EID) and performs viral load testing for adults and children based on an algorithm developed in collaboration with CDC and the Federal Ministry of Health, Nigeria. Additional laboratories at the secondary level provide patient monitoring and diagnostic capability including HIV rapid testing, hemogram, and CD4 count. At the primary level sites, laboratories are equipped to provide HIV rapid testing and hemogram and also collect/package samples for chemistry and CD4 assessment for transport to a more advanced laboratory in their network or the regional training centers. IHV-Nigeria pioneered a comprehensive laboratory quality control quality improvement program that is acknowledged as model for sustainable indigenous capacity building.

### Specialized Laboratory Services

IHV-Nigeria in partnership with the Federal Government of Nigeria's effort to curb the spread of HIV commissioned 11 PCR state-of-the-art laboratory facilities for early infant diagnosis of HIV/AIDS at The National Hospital Abuja, Asokoro Laboratory/Training Centre, Asokoro, Abuja District Hospital Abuja, Aminu Kano Teaching Hospital, Kano; University of Benin Teaching Hospital, Benin; Nnamdi Azikiwe University Teaching Hospital, Nnewi. Obafemi Awolowo University Teaching Hospital, Usman Danfodio Teaching Hospital.

### Early Infant Diagnosis

10 Regional laboratories for DNA PCR have been established and supported by IHV-Nigeria as part of the Nigerian National Early Infant Diagnosis Scale-Up Plan. IHV-Nigeria also supports the national scale up of dried blood spot specimen collection in 46 GON scale up sites, some of which are IHV-Nigeria supported sites. The PLASVIREC laboratory supported by IHV-Nigeria serves as one of the two national QA labs for the National Early Infant Diagnosis Pilot. IHV-Nigeria also provides training to 208 health care workers to counsel caregivers, and collect specimen at all sites within the IHV-Nigeria network listed in the national Early Infant Diagnosis Scale-Up Plan. Recently an additional two sites were upgraded by IHV-Nigeria at the request of the Nigerian government and one additional at the behest of the Clinton Foundation making the it a total of 11 EID laboratories.



### Laboratory Training Programs

IHV-Nigeria also supports 5 regional training laboratories (Jos, Benin, Abuja, Zaria and Kano) where IHV - Nigeria staff train lab scientists working at FMOH, public private partners and other GF and PEPFAR Implementing Partners in ARV lab monitoring, including good lab practices, HIV rapid testing, automated CD4, hemogram and chemistries.

### Office of Strategic Information, Research and Training

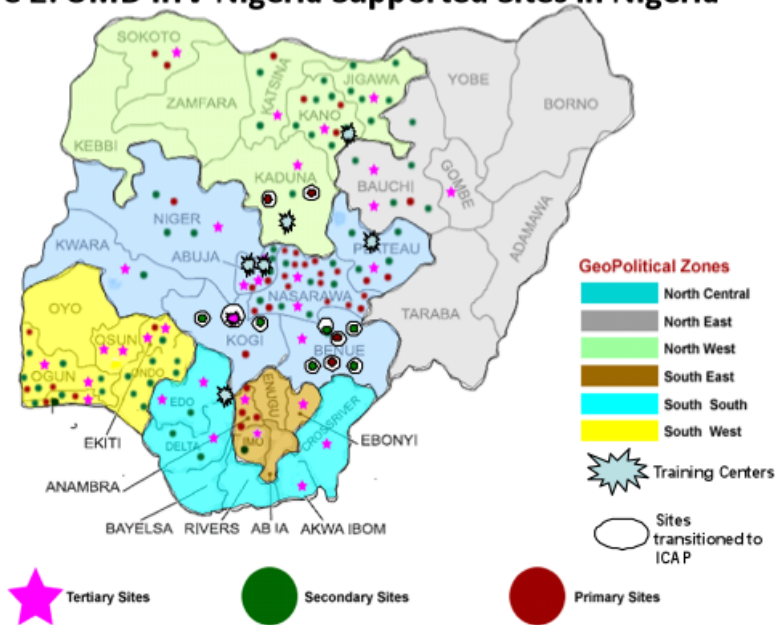
The IHV-Nigeria Office of Strategic Information, Research and Training was established in May 2008 to support, coordinate and provide an enabling environment for the conduct of ethical, scientifically sound research, conduct training programs and direct collection and analysis of strategic information for the organization. It consists of three departments: research, training and strategic information. The objective of the research department is to provide a flexible and expandable platform for the conduct of health research of the highest ethical and scientific quality in Nigeria. This is achieved through strong program management and administration, logistic support, staff training and re-training, highly motivated and committed staff who appreciate every aspect of the research enterprise. IHV-Nigeria's research program consists of the following elements: 1) ethical and Scientific Research; 2) training and Capacity Building; 3) mentoring; 4) data Management; 5) Regulatory and Compliance Unit. The Strategic Information (SI) Department of IHVN is responsible for managing the documentation, organization, storage, retrieval and dissemination of information to help in strategic decision making that will improve the inputs, processes, outputs and impact of IHV-Nigeria's programs with a strong emphasis on quality assurance.



The Monitoring & Evaluation unit routinely oversees the collection and collation of program level data from all IHVN’s AIDS Care and Treatment in Nigeria (ACTION) program supported health facilities. The data collected is used to generate program level indicator reports for the Government of Nigeria, the US Government and the Institute on a monthly, quarterly and yearly basis.



**Figure 2: UMD IHV-Nigeria Supported Sites in Nigeria**



**Overview of Programs**

IHV-Nigeria implements a broad range of public health programs supported by the United States President’s Emergency Plan for AIDS Relief, the Global Fund to fight HIV/AIDS, tuberculosis and malaria, and Center for Disease Control and Prevention (CDC). These activities are implemented in collaboration with the Nigerian Federal Ministry of Health and the National Agency for the Control of AIDS (NACA) and appropriate state and local government agencies through an interlocking, evidence-based program of care and support, treatment, and prevention activities to deliver substantial capacity for meeting Nigeria’s goals. IHV-

Nigeria’s programs integrate public health scale up with quality medical, laboratory, and prevention approaches employing University of Maryland faculty and consultants as technical advisors to work side by side IHV-Nigeria technical and support staff to build sustainable capacity. IHV-Nigeria links local community-based organizations with facility-based programs and employs a model of care that seeks to link institutional care to community care.



# Sa'adatu's Rise

Four years ago, Sa'adatu Mohammed would have been buried and gone forever – a grave was already prepared for her remains. That she passed out, momentarily, was not a surprise because she was critically sick and just waiting for a little time to give up the ghost.

Thankfully, that was not to be. At the nick of time when her family members were contemplating where to bury her, Sa'adatu's heart ticked and her mother, who held her sorrowfully as the arguments ensued unabated, shouted aloud: "she is alive, she is alive!" Many did not believe her because Sa'adatu was unconscious and near death; though her body was not doing well, her heart remained ticking. When they responded to the mother's alert, she was discovered to be breathing. "Quickly my father rushed me to the General Hospital here in Otukpo. I was put on drip for 14 days to gain strength and consciousness," says Sa'adatu. Sa'adatu recalls that at the hospital, she instantly became a 'tourist' attraction: "Many people were coming to the hospital to greet and see the woman who died and rose again." Although Sa'adatu gained consciousness, her condition was critical because tests conducted at the hospital in 2007 revealed that she had HIV and tuberculosis. "For some time I could not walk because I was sickly, frail, seriously weak and psychologically disappointed that I have HIV. For eight months, I took TB drugs before I commenced treatment for HIV in 2008."

Her health condition was made better with the antiretroviral drugs (ARVs) she received from the General Hospital in Otukpo, which is supported by the Institute of Human Virology, Nigeria (IHVN). On discharge from the hospital, Sa'adatu held a 'survival' party because according to her, "my survival was a great miracle and it was proper to gather some of my friends and family members to celebrate my recovery from death-bed." Shrugging away her HIV status, Sa'adatu, who was born and bred in Otukpo, fell in love with a man she met at the party. This relationship ended on a sour note though, "I had affair with him and became pregnant. He asked me to abort the pregnancy since he was not ready to marry me. I refused to abort the baby and for this reason, he ended the relationship saying that he has nothing to do with me and the baby. I have not seen him since that time, but I am happy that my baby is doing well. She is my comfort."





Her baby is not HIV positive because she yielded to the advice of Mrs. Christiana Oga, Founder and Coordinator of Otabo Care Givers, who counseled her to enroll for antenatal and Prevention of Mother-to-Child Transmission of HIV (PMTCT) services very early during her pregnancy. “She asked me to go for antenatal care till I deliver and after delivery she has not stopped supporting me. My baby gets ACTION meal free from Otabo which is supported by IHVN.”



The arrival of the baby came with challenges: “I thought of how to take care of the little angel God gave me and how to disregard the people who ridiculed me for being HIV positive, as well as having a baby girl to take care of.” Sa’adatu has her parents to thank for the support she receives at home. “My parents take care of the baby when I am out to work and are daily concerned about my health and well-being. They remind me to take my HIV drugs and my elder brother provided the bicycle that I use for my thrift business.”

To lighten the burden of the parents in caring for her and the baby girl, she serves as a volunteer for the General Hospital Otukpo, where she is a Mentor-Mother, who supports and counsels women of child-bearing age accessing PMTCT services at the hospital. “I find my work here interesting because having gone through PMTCT services; it is very easy for me to communicate the benefits of these services to other women. And they have always believed me.” Sa’adatu says that PMTCT services are real, “I have a baby who is HIV negative because I went through PMTCT. I am advising all pregnant women to accept PMTCT so that their babies do not get infected with HIV. Taking ARV is not easy for adults talk less babies.” She says that it is better to prevent children from HIV infection.

This is not all she does to keep body and soul together. She also runs a thrift business, which takes her to many places in Otukpo town on her bicycle, especially the market. “I have many customers in the market and my HIV status is known to them. The only thing is that the business is stressful, so I look forward to having a better job that is not stressful, or owning a lady motorcycle to be able to reach my customers without being tired. The return on commission that I get is manageable and encouraging to meet my immediate needs. So far Otabo Care Givers Support Group has been helpful. The soft loan of N5,000 with which I started this thrift business was provided by Otabo.”

# IHV NIGERIA PROGRAM



## IHV-Nigeria Programs

### ●..... ACTION Program Model of Implementation



Through the ACTION Project, IHV-Nigeria not only supports direct HIV/AIDS service delivery, it complements and builds on existing core competencies in the Nigerian public and academic health sectors by providing infrastructural upgrades, wraparound programs, technical organizational and leadership trainings, as well as continuing medical education. IHV-Nigeria strengthens the capacity of the health sector by expanding roles and responsibilities of health care workers through task shifting/sharing initiatives; supporting decentralization of integrated care and treatment services to primary health centers; incorporating quality assessment and improvement initiatives in all activities; encouraging local ownership and accountability of all activities.

To ensure alignment and create synergies with the Nigerian multi-sectoral response, IHV-Nigeria activities are also guided by the national guiding principle of the “three ones”<sup>1</sup>: one HIV/AIDS action framework, the Nigeria National Strategic Framework (NSF) that provides the basis for coordinating the work of all partners; one national AIDS coordinating authority, National Agency for the Control of AIDS (NACA) with a broad-based multi-sectoral mandate; and one country-level monitoring and evaluation system, the Nigerian National Response, Information and Monitoring System (NNRIMS).

With the exception of technical experts who support site capacity building and engage in quality improvement activities, the sites are fully staffed by employees of the local public health and academic facilities. IHV-Nigeria is promoting new paradigms for advancing development of sustainable programs at the sites with a particular emphasis on promoting continuity of care and care from facility to community. Manpower development is a major focus of IHV-Nigeria with a special emphasis on developing capacity for task shifting in a health care system that resists upgrading nurses and other non physician providers to assume larger responsibility.

**Success Story: Mother to Mother Support Groups:** Facilities providing PMTCT interventions have Mother-to-Mother (M2M) support groups that are established with membership from catchment communities. These “mentor-mothers” serve as peer educators, to ensure HIV positive pregnant women are retained within the PMTCT cascade, until all interventions are received, outcomes measured; mother and child pairs are linked for follow up care. Due to high rates of home deliveries in Nigeria, IHV- N also trains Traditional Birth Attendants (TBAs) to increase the uptake of PMTCT interventions.



### **Health system strengthening and Capacity Building**

IHV-Nigeria provides infrastructural upgrades for clinics, pharmacies, and laboratories in order to provide high quality services at sites that it supports in Nigeria. IHV-Nigeria built and supports 3 regional training centers at the University of Benin Teaching Hospital, Aminu Kano Teaching hospital Kano and University of Abuja Teaching Hospital Gwagwalada to support technical training activities and human resource development at support sites.

### **Quality Improvement and Management**

IHV - Nigeria contributes to health system strengthening through continuous clinical and laboratory training, mentorship and the establishment of quality assessments and improvement initiatives. IHV-Nigeria has expanded the National HIVQUAL pilot to include more comprehensive clinical QA/QI indicators and conducts comprehensive QA/QI assessments jointly with all sites providing ART services. Deficiencies identified are discussed with the local site QA/QI committee and an improvement plan implemented. Training needs identified are addressed by the IHV-Nigeria Training Department. IHV-Nigeria facilitates and actively supports onsite standardized HMIS using GON forms provides onsite assistance with data management to guide quality improvement measures. The IHV-Nigeria laboratory department also has an aggressive QA/QC program with specially trained laboratory staff dedicated to carrying out on-site quarterly monitoring, retraining, and overseeing a proficiency panel-testing program.

### **Success story: CQI Symposium**

Formal quality improvement activities in the Institute of Human Virology, Nigeria revolve around ACTIONQual, ACTION'S illustrious quality of care evaluation exercise designed to assess comprehensive range of quality of care indicators. Trainings on Continuous Quality Improvement (CQI) have been introduced to aid health care workers at ACTION-supported sites in designing, implementing and evaluating interventions geared towards addressing gaps identified by ACTIONQual or other Performance Measurement exercises.

### **🎯..... TB/HIV Integration through Clinical and Laboratory capacity building**

Multidrug resistance tuberculosis is an emerging threat to the outcomes of TB/HIV co-infected patients. IHV-Nigeria leveraged significant TB laboratory and clinical expertise built upon ongoing collaboration with the National TB and Leprosy Training Center (NTBLTC) in Zaria, to focus on strengthening the integration of high quality TB and HIV care delivery in support of the national TB control strategy.

At all points of service directly supported by IHV-Nigeria, all newly presenting HIV+ patients or existing Care and Support patients are screened for TB and linked to on-site DOTS centers for treatment if necessary. Patient record forms have been modified to prompt for TB screening indicators and site level training of health care workers have focused on utilization of symptom history including chronic cough, fever, weight loss, or night sweats to prompt referral for TB evaluation. Chest x-ray is supported for sputum negative patients and for candidates for INH prophylaxis. Because most government hospitals, save for major hub sites, lack functional x-ray equipment IHV-Nigeria is piloting a mobile TB x-ray outreach strategy for primary and secondary sites where x-ray equipment do not exist. IHV-Nigeria also supports HCT for clients being evaluated for TB at all TB DOTS points of service. These trainings have been supported by the Global Fund (GF) and the funding stream has been important in capacity development as part of the national TB response in Nigeria.

### TB and MDR TB Diagnosis

IHV-Nigeria has taken the lead in establishing a TB culture and molecular line probe capability in Nigeria. At the National TB & Leprosy Training Center (NTBLTC) in Zaria, IHV-Nigeria designed and built a containerized negatively pressured BSL-3 with TB liquid culture capability using the BACTEC MGIT 960 automated system. This will ensure that resistant TB can be cultured and drug tested safely making the center a true referral center for TB in Nigeria. In addition IHV-Nigeria has also established capability for diagnosis and resistance testing of TB isolates at the NTBLTC using the HAIN PCR assay. Four master trainers and 82 laboratory scientists have received training in LED smear microscopy at the NTBLTC Microscopy training lab. As part of ongoing efforts to improve TB diagnosis, LED microscopes for improved AFB detection was piloted by IHV-Nigeria and found to be superior to the standard technique of ZN staining in detecting *Mycobacterium* bacilli.

#### **Success Story: UATH Clinical Training Center**

The clinical training center at the University of Abuja Teaching Hospital provides a model clinic that integrates physician, nurse, treatment support, pharmacy and community outreach teams to provide experiential training in a holistic clinic setting to demonstrate feasible and functional strategies bridging community to care. UATH training center were built through funding partnerships between the Nigerian Ministry of Health and UTAP-CDC. This model houses a multidisciplinary family clinic with 12 dedicated consulting rooms equipped with point of service electronic patient management record, dedicated cubicles for multidisciplinary care teams, a pharmacy dispensary and a training classroom equipped with videoconferencing. Additionally it provides a training facility where in-service and pre-service students and health care workers can supplement didactic training with experiential learning and are able to “model” best practices.

The centers’ comprehensive care teams comprises of physicians, nurses, adherence counselors, pharmacists, community health extension workers, documentation clerks and PLWHA. The treatment support specialists see the same group of patients to strengthen continuity of care and the provider-patient therapeutic relationship. Trained nurses provide clinical assessments and care activities through structured task-sharing initiative to ensure rational and efficient delivery of service. The clinic also supports a continuum of care model by providing community and home-based care and support programs including palliative care, adherence support, family HCT, prevention for positives and nutritional supplements for OVC. Family centered approach is enhanced by co-location of pediatric and adult clinics and integration of wrap-around support services. Continuing education is embedded in daily clinic activities through clinical team meetings, case conferences, “ART selection and switch” meetings,

symposia and quality improvement activities. Distance learning is provided through videoconferencing. The center is a lynchpin for creating sustainable capacity building that is Nigerian owned and operated. This training center will support the Government of Nigeria's plan to train and certify staff for HIV care using curricula that combine didactic with clinical experience. Physicians, nurses, and outreach workers from implementation sites come to the training center for training continuing education classes.



### **Success Stories: Increasing access for at risk populations: Muslim women**

An improved understanding of the social, cultural, and religious factors that impact women's health care decision-making and behavior have broad public health significance. Among Muslim women in northern Nigeria, cultural factors such as stigma and lack of family support negatively impact treatment access. Similarly former IHV-Nigeria Medical Director, Dr. Abdul Razaq Habib, showed that during Ramadan, the religious observance of fasting negatively impacted adherence. An IHV-Nigeria adherence intervention study in Northern Nigeria, a predominantly Muslim region found that women are often

expected to obtain their husband's consent to seek health care, make decisions about treatment or continuation of care. As a result, ACTION supports health and community services providers to implement creative and robust community outreach services to help women overcome these barriers including:

- Support group enrollment for positive living and prevention education and peer support
- Liaison and education of religious leaders and co-opting Imams and influential men & women leaders within the communities.
- Use of male volunteers to access and educate male only social groups
- Enlisting as many female Muslim volunteers as possible to reach out to female clients during "Purdah" during which their religion forbids them to come out of their homes. These women are assisted by health workers and volunteers to refill and deliver their ART to their homes and provide them adherence support and other services until they return to care
- Weekly radio Q&A broadcast with general and specific topics like PMTCT, HCT, ART adherence, etc with contact phone numbers (this has been very useful in reaching out and involving men)
- Coaching and support for disclosure when client is ready
- Assisting with crisis management and family reconciliations after disclosure
- Referral for other services like income generating activities and skills acquisition from other programs especially empower the women to financially support themselves and their families.

### **🎯..... Identifying at risk populations: the REACH Study and Commercial Sex Workers**

The REACH Study, a research project funded by CDC, was conducted to develop a non-subtype B acute HIV infection cohort by screening most-at-risk populations (MARPs) through mobile HIV counseling and testing (MHCT) as well as evaluate the performance of the Nigerian Rapid Test Algorithm. This project informed IHV-Nigeria HCT program that MHCT is a valuable tool for effectively reaching high risk populations and identified challenges for promoting access to care and treatment. 9,371 individuals were reached by MHCT between May 2005 and July 2008, 89.1% had never been tested previously.

Prevalence in populations accessed ranged from 8.1% among motorcycle/taxi drivers to 52.9% in brothel-based sex workers. Increased sero-prevalence was associated with younger females. Current symptoms for STIs at testing were reported by 11.1% of the population, higher for general population women (OR=1.9, 1.8-2.1), and were associated with HIV infection (OR=2.2, 1.9-2.4). Awareness of HIV services and the benefits of antiretroviral on prolonging survival were lower for MARPs (59.6% and 55.1%, respectively), especially among females (57.8% and 52.7%) compared to clients tested in health facilities (68.5% and 85.1%). A particularly disturbing finding in this study is the rising rate of HIV infection in contrast to a declining national prevalence supporting our concerns. The use of MHCT informed by linkage with community information and prevalence data can effectively identify areas of high HIV prevalence density where services such as diagnosis, prevention, antiretroviral treatment, and care efforts can be focused. IHV-Nigeria is expanding coverage for prevention among MARPs by supporting special HIV intervention programs such as peer education, early treatment for sexually-transmitted infections, partner notifications, and condom distribution with local non-governmental organizations.

### 🎯 Prevention of Mother to Child Transmission

With an infant mortality rate of 93 per 1000 births, Nigeria ranks 13th in the world with poor pre- and post-natal service access, malnutrition, unsanitary water, and malaria amongst other diseases contributes to an alarming public health threat. Each year 63,000 - 125,000 infants acquired HIV among the 315,000 to 625,000 children born annually to HIV infected mothers reflecting the low uptake, retention and coverage of PMTCT services. Infant mortality challenges are amplified in the context of HIV. Targeted evaluations reveal that 70-90% of women in the Nigerian PMTCT program opt for replacement feeding rather than disease protective and lifesaving breast milk. A significant proportion convert to mixed feeding which is shown to be associated with increased maternal to child transmission as well as heightened mortality. In a study evaluating feeding patterns in the Government of Nigeria PMTCT program funded by the Bill and Melinda Gates Foundation, high rates of infant infection were associated with mixed feeding and a heightened risk for diarrheal deaths in infants exposed to unclean water. Based on these findings the care and support team for the PEPFAR program are targeting HIV infected mothers for safe water supplies. An additional factor is malnutrition and HIV's impact on the nutritional status of infants born to HIV infected mothers including those infected children on ART. Recent programmatic findings point also to a high incidence of acute HIV infection during pregnancy that could contribute disproportionately to MTCT.



### 🎯 Supporting PLWHAs: IHVN patients take to farming

Most people living with HIV/AIDS (PLWHA) in Otukpo Benue State, Nigeria are poor and hungry. But this is not so for members of Otabo Support Group of People Living with HIV/AIDS, who are running a four-hectare farmland in Akpegede village in Otukpo, donated to by Chief Ondoko Ocheibi “to show our appreciation to the Government of United States and the Institute of Human Virology - Nigeria which located a treatment support program close to us.” The support group not only provides nutritional support but also encourages members to take their medications and adhere to their clinic visits including covering for each other for farm work when there is a clinic day to attend.



Aaron Alechenu Ali-Abubakar, 43, is the President of the 200-member support group. “From this farm, we have garri and cassava to eat; fresh leafs from the cassava stems to make soup because we learnt it contains a lot of iron and vitamins.” Mrs. Christiana Oga who founded and coordinates the Otabo Care Givers – a non-governmental organization that is supported by IHV-Nigeria/PEPAR to provide home-based care services to clients in Otukpo – says her NGO is expanding opportunities in the farm to include the growing of vegetables, groundnuts, maize, beans and tomatoes. “In fact we are intending to have a piggery in the farm”.



### 🎯 Partnering with CBOs: Service provision to OVCs

IHV-Nigeria through funding from Centers for Disease Control (CDC) also provides services to orphans and vulnerable children (OVC). IHV-Nigeria provides support for 31 non-governmental organizations, who service the OVC community within its catchment area. Notable among them is Good news Humanitarian Services (Gospel Village) Abak where over 1000 children have benefited from IHV-Nigeria support in the areas of health, education, nutrition, psychosocial services and shelter. Others include ANAWIM (Poorest of the Poor) in Gwagawlada and Help International in Jos.

### 🎯 Task-Shifting

The availability of adequate numbers of health personnel who are competent to provide antiretroviral treatment is essential to scaling up ART and task shifting is a critical strategy that can ensure the success of the rapid scale up of ART at all levels of care. The capacity of nurses and community health extension workers can be developed to provide ART services with supportive supervision from trained doctors, to ensure services of highest quality are provided based on National and International Standards.

The task shifting approach represents an emphasis of the core principles of health services: accessibility, equity and quality. Task shifting provide a framework in which access to health services can be extended to all people in a way that is effective and sustainable. It also provides an efficient and cost effective way to provide multiple services, achieve client satisfaction, reduce congestion, and give clinicians more time to manage higher acuity patients. For healthcare workers, it has the potential to reduce burnout, increase knowledge, skill base and capacity of all providers, as well as expand the pool of workers.

### 🎯 ACTION Meal

The ACTION Meal, developed and distributed by IHV-Nigeria is a Ready-to-Use Therapeutic food (RUTF) made from readily available food items in Nigeria: maize, soybeans and groundnut in the proportion of 60g, 30g and 10g respectively in each 100g of ACTION Meal. The total energy content is 483 Kcal/100g derived from carbohydrates, proteins and fats. It also contains various vitamins in adequate concentrations including vitamins B1, B2, B6, C and E.

Nutrition intervention such as ACTION Meal is critical to reverse the malnutrition often seen in people living with HIV/AIDS (PLHWA) due to increased nutrient requirements, insufficient dietary intake, malabsorption/diarrhea, altered metabolism and nutrient storage. The action meal is prescribed and distributed at no cost at IHV-Nigeria supported sites in order to maintain food security and improve quality of life and survival of PLHWA.

## The Global Fund to fight HIV/AIDS, Tuberculosis and Malaria

### Health System Strengthening

The Global Fund Round 8 Health System Strengthening grant is a cross-cutting intervention for Aids, Tuberculosis and Malaria, which commenced implementation in January 2009 to address major weaknesses identified in the Nigerian health care delivery system that affect the delivery of AIDS, tuberculosis and malaria services. The Institute of Human Virology Nigeria (IHV-N), as one of the Sub Recipients (SRs) for the grant under the National Agency for the Control Aids, focuses on strengthening basic health care systems, and scaling up ATM interventions through accelerated national roll-out of the Ward Minimum Health Care Package. IHVN implementation activities have included infrastructural upgrades of health facilities, integrated training of health staff on integrated service delivery, using an integrated training curriculum to upgrade both technical and managerial competencies of PHC workers. As well as providing equipments to primary health care facilities, instituting preventative maintenance systems at LGA level, and instituting integrated supportive supervision by LGA PHC managers. IHV-Nigeria Global Fund HSS activities are focused on the following States (and LGAs) for the first year of phase 1: Cross River (Yala, Ikom), Bauchi (Tafawa Balewa, Ganjuwa), Benue (Gwer East), Enugu (Udenu) and Kano (Tarauni).

### Malaria

The Global Fund to fight AIDS, Tuberculosis and Malaria (GFATM) commenced implementation for sustained scale up of malaria control and intervention for impact in Nigeria in November 2009. The Institute of Human Virology Nigeria (IHV-N) is one of the Sub Recipients (SRs) for the grant under the National Malaria Control Program, Federal Ministry of Health (NMCP, FMOH) with the following objectives:

- To contribute to the rapid scale up to universal coverage of the population at risk of malaria in 2010, through 100% coverage and 80% use of LLINs and sustaining this through 2013
- To contribute to increasing prompt and effective treatment of malaria using ACTs to 80% of the population at risk by 2011 and sustain through 2013.
- To scale up parasitological diagnosis of malaria in patients above five at health facilities to 80% by 2013
- To reach at least 80% of the population at risk (communities, families, care providers, and health workers) by 2010 through BCC for awareness and appropriate action on malaria prevention and treatment and sustaining this through 2013.
- To contribute to health systems strengthening (including community-system strengthening) through malaria control activities.

## Community in ACTION

Despite the scale up of PMTCT interventions in the country, the current coverage of services is 11% and according to UNAIDS reports, Nigeria contributes about 30% of global MTCT of HIV. The Community in ACTION project enables IHV-Nigeria to implement a state saturation strategy to increase coverage and uptake of PMTCT services in order to address this public health threat. Community in ACTION is a 5-year public-private-partnership project with the National Primary Health Care Development Agency and Solina Health Limited. This partnership will provide integrated comprehensive PMTCT and strengthen health services at PHCs and surrounding communities toward meeting the nation's benchmark of 80% PMTCT coverage by 2015. Target states for this project are Nasarawa, Benue, Niger and FCT, in North Central Nigeria, each with HIV prevalence rates higher than the national average of 4.6%. The goals of this project are to achieve the highest identification and retention in care of HIV-positive women and their infants through integration of HIV/AIDS activities in comprehensive primary care delivery systems and strengthening of health facilities and referrals systems at community levels to ensuring access to ARV prophylaxis, HIV treatment, family planning and pediatric diagnosis and treatment.

The mission is to conduct research of direct relevance to addressing Nigeria's HIV epidemic with funding from NIH, CDC, Doris Duke Foundation, and the Bill and Melinda Gates Foundation. Research results inform strategies for prevention outreach to most at risk populations, improving uptake in the PMTCT cascade, addressing emerging drug resistance and understanding stigma, depression and neurocognitive impairment in relationship to treatment adherence. IHV-Nigeria is an important partner with the Federal Ministry of Health in developing policies based on best practices and evidence.

### IHAVN ACTION RESULTS

As of January 31st, 2012,  
162,122 patients received care and  
support for HIV/AIDS and 118,795  
received ARV drugs and treatment  
on the Emergency Plan for  
AIDS Relief

# IHV NIGERIA RESEARCH



## Public Health Evaluations

Critical insights that shaped IHV-Nigeria's program implementations were derived from public health evaluations and research projects conducted in collaboration with faculty from the Institute of Human Virology, Baltimore. The Fogarty sponsored AIDS International Training and Research Program (AITRP) grant has provided a mechanism to support IHV Nigeria faculty and staff as well as partners from its network of academic and research partners.

### **An Evaluation of Enhanced Tuberculosis Diagnosis and Case-management to Reduce Mortality and Morbidity among Persons with Advanced HIV in sub-Saharan African Countries (EMRG).**

IHV-Nigeria has been successful in acquiring the newly developed Public Health Evaluation (PHE) program by the USG. Dr. Alash'le Abimiku is the Nigerian PI of the TB multi-country CDC/PEPFAR sponsored study to determine whether an enhanced approach to TB diagnosis will reduce early mortality and morbidity among HIV-infected patients living in resource-limited countries in sub-Saharan Africa. It is known that despite significant declines in mortality following scale up of ART, patients continue to have a high mortality presumably as a result of the advanced immuno-suppression and the high background burden of opportunistic infections (OI) especially tuberculosis (TB). This TB PHE is a prospective, randomized, controlled clinical trial involving 4 countries (Nigeria, Cote d'Ivoire, Uganda, and Zambia) and 6,300 patients comparing morbidity and mortality between patients receiving national standard of care and those in intervention clinics, where they will receive enhanced TB case finding with improved laboratory diagnostic methods including fluorescence microscopy, liquid media mycobacterial culture, and molecular line-probe assays. This study like the Nigeria pilot MDRTB survey capitalizes on IHV-Nigeria's specialized and highly contained TB laboratory facilities and expert technical staff at the National TB Reference center in Zaria supported by IHV-N.

### **Using data to inform program implementation**

The University of Maryland (UMD) in partnership with Institute of Human Virology-Nigeria (IHV-Nigeria) perform operations research and evaluation (with NIH, CDC, Doris Duke Foundation support) to guide the AIDS Care and Treatment in Nigeria (ACTION) program.

### **Antiretroviral treatment toxicity and durability**

Different first-line ARV regimens based on their potency and durability may contribute to varying responses to treatment and emergence of drug resistance. A project funded through a Fogarty training grant project evaluated emergence of treatment resistance. In this study among patients started on ART, 96% were initiated on one of the 6 defined first-line regimens approved by the Nigerian national guidelines [35% on d4T, 49% on ZDV, and 16% on TDF; 85% on NVP and 15% on EFV]. The mean increase in CD4 T cell count at 6, 12 and 18 months for each of the six regimens was equivalent across different first-line regimens with overall mean increase at 6 months of 134 cells/ul.

However, the frequency of substitution between first-line agents was three times higher for d4T-based regimens compared with AZT- and TDF-based regimens. Substitutions of AZT- and TDF-based regimens tended to occur early after ARV initiation whereas d4T substitutions occurred later reflecting the impact of toxicity. Treatment failure is emerging as a major challenge. Poor adherence is associated with the emergence of extensive drug resistance, where for example, among a cohort of patients suspected to have treatment failure based on clinical observation, 30% were found to have more than four drug resistant mutations that would eliminate most of the WHO-recommended second-line treatment. The finding that duration on therapy correlated with the number of NRTI drug resistant mutations reinforces emerging evidence that WHO immunological criteria have poor sensitivity for predicting treatment failure before extensive drug resistance emerges. As part of this analysis it was also found that Tenofovir based regimens are associated with fewer NRTI resistance mutations.

### **Neuro-psychological threats to program sustainability**

A major challenge in the scale up of HIV therapy is to maintain 95% treatment adherence in order avoid emergence of drug resistance. The contributors to non-adherence are complex and include individual and societal factors. Although some published reports point to good adherence and treatment outcome in sub-Saharan Africa compared to developed countries, most of the published data is from supervised cohorts in urban centers. Such evidence from treatment program integrated into routine secondary and primary centers in rural areas is still scarce. In Nigeria, analysis of pharmacy refill for non-adherence to ARVs at 6 urban centers in Nigeria found that risk of non-adherence to ARV is associated with younger age, higher CD4 at ART initiation, d4T-based first-line regimen, and longer travel time to the clinic while disclosure of HIV status to spouse or a family member reduced the risk of non-adherence.

As a neurotrophic virus, HIV has direct effects on neurocognitive function that affects daily function including treatment adherence. A study supported by the UM-IHV AITRP conducted by IHV-Nigeria staff found that up to 20% of treatment-naive patients have objective evidence of neurocognitive impairment based on assessment with the International HIV Dementia Scale and presence of dementia is inversely correlated with CD4 count as shown in the Figure. In addition to the direct effects of HIV on neurocognitive function, high rates of depression and high rates of alcohol abuse, particularly among men have been found in a study supported through the UM-IHV AITRP. Of particular note is the finding among patients receiving ART that a low pharmacy refill rate (< 95% based on pharmacy refill rate is significantly associated with an elevated Center for Epidemiological Studies Depression Scale [CES-D) (ES-D 16 ( $p=0.004$ ) and a CES-D 21 ( $p0.001$ )). These data emphasize the importance of integrating mental health services into the care and support structure of patients engaged in treatment scale up.

# IHV NIGERIA TRAINING



## IHV-Nigeria Training

### ●..... **The Fogarty AIDS International Training Research Program (AITRP)** at the University of Maryland

Baltimore Institute of Human Virology provides long- and short-term training to health care professionals from Brazil, the nations of the Caribbean basin, Mali, and Nigeria. The program focuses on implementing interdisciplinary training with a special emphasis on training that builds capacity for prevention, vaccine development, treatment and the performance of clinical trials. The primary goal is to provide funding for participation in degree granting programs (MPH, MS, MSci and PhD) of the University of Maryland Graduate and Professional Schools. Postdoctoral fellowships are also awarded to provide advanced research training. The UMB/IHV/AITRP has also taken a leadership role in facilitating the development and implementation of short-term training programs to support local research capacity.

### ●..... **CADRE:** The Capacity Development for Research into HIV-Associated Malignancies in Nigeria

(CADRE) training program is an NIH funded grant that targets development of clinical trials and cancer research expertise at the Institute of Human Virology, Nigeria (IHVN) and its academic research partners. The ultimate goal of this training program is the establishment of a Nigerian HIV-malignancy center of excellence at the AIDS Malignancy Clinical Trials Consortium-Nigeria (AMC-Nigeria) site in Abuja that implements NCI funded AMC clinical trials, HIV-malignancy research and serves as a national training center for south-to-south HIV-associated malignancy capacity development at other sites in Nigeria. The program implements four aims:

- **Clinical Trials Capacity:** 6 short term Nigeria-based clinical trials trainings; 18 intermediate U.S.-based experiential clinical trials training; 21 Intermediate Nigeria-based south-to-south experiential clinical trials training
- **Cancer Registration:** 1 Nigeria-based; 1 international cancer registration training
- **Cancer Epidemiology:** 2 intermediate-term international trainings; 3 Nigeria-based long-term trainings with U.S.-based sandwich training.
- **General Research Capacity Building:** 6 general research capacity building short term Nigeria-based courses including training in research ethics, scientific writing, practical data management, computer-based statistical software

**Human Resource Capacity building: Nurses HIV/AIDS curriculum:** IHV-Nigeria is developing sustainable preservice programs as part of a larger strategy to promote task shifting and competence for HIV services at all levels of the health care system. By collaborating with Nursing and Midwifery Council of Nigeria (NMCN), Division of Nursing at FMOH, ACTION worked with nurse-educators/clinicians across Nigeria to develop the National Curriculum for Nursing Care of PLHA & PABA. This document was piloted through the PEPFAR Nurse Fellowship program and implemented using Train the Trainer approach to build cohorts of nurse/community



health practitioner trainers at pre & post service levels. At the same time, the Education Committee of NMCN received TA to revise and expand the HIV component of the current pre service curriculums. ACTION collaborated with NMCN on the best ways to expand graduating nurses' and midwives' knowledge and skills to integrate HIV care with MCH, TB and Malaria especially at primary health settings in addition to task shifting skills in light of ART decentralization. NMCN recommended an additional 1-2 week joint (NMCN & IHVN ACTION) certificate training for graduating students, most especially the midwives who will be posted to PHCs for a mandatory 1-year service as part of the national midwives scheme. To reach as many students as possible, schools with co-located nursing and midwifery programs were selected for these trainings. Pre service participants are targeted after their final exams as they await midwifery/nursing results but before graduation and subsequent posting to rural health centers. ACTION currently works with NMCN to track and evaluate both the educators and midwifery graduates on application of the knowledge & skills gained. As part of its long-term strategy ACTION is:

- Working with the School of Nursing at University of Maryland and with the NMCN to develop a core of nursing educators to develop a certified nurse practitioner program for nurses who will engage in task shifting to manage stable patients and free up physicians to focus on more complex medical cases.
- Partnering with NMCN, NPHCDA and Community Health Practitioners Registration Board to develop and pilot a post graduate diploma (6month didactic & 6 month mentored practicum) certificate program to strengthen the capacity of nurses and community health officers (CHO) in primary health settings to integrate prevention and management of HIV, Malaria, TB, MCH & other chronic diseases e.g. DM, HTN). This proposed “Primary Health Care Specialist certification” is intended to expand the long term strategy to eligible pool beyond ARV nurses to attract more nurses and midwives to PHCs pending policy changes to improve their retention.
- Currently using the model Clinical Training Center at UATH for the experiential portions of this and many other training curriculums for which there is progressive planning and advocacy to replicate this successful model with other cadres of Health Care Workers (HCW) including laboratory scientists, and physicians e.g. Post Graduate Diploma in Infectious Diseases or HIV Medicine



### 🎯 Training course on Epidemiology

IHV-N has offered 2 week training courses on Epidemiology to cohorts of 35 participants and aimed to target site investigators and faculty with research potential for advanced trainings and/or sandwich trainings. Students with highest scores and aptitude will be selected for advanced long-term training through the Fogarty AITRP. The course consists of 23 didactic modules, 8 exercises, and a hands-on analysis laboratory using STATA. Trainees are lead physicians from the 9 sites that make up the Adult ACTION Cohort (AACT) study, the Pediatric ACTION Cohort (PACT) study, and the Nigerian HIV-malignancy consortium. The course introduces epidemiology, emphasizing its methodology and statistical approaches and applications in research and public health. Areas covered in the course included: Measures of Disease Outcomes, Study Designs (such as Cohort Studies, Case-Control Studies, Randomized Clinical Trials, Cross-section Studies), Measures of Associations, Biases, Confounding and Interaction, Descriptive Statistics, Statistical Inferences, Bivariate Analyses, and Multivariate Analyses. These knowledge and skills are geared towards application to studies aimed at characterizing HIV treatment outcomes and risk factors associated with HIV-related malignancies. As part of the course, examples of published case series and population-based studies from Africa, the US and Europe are discussed and analyzed. At the conclusion of the course, students are expected to be able to distinguish between different types of study designs, and their strengths and weaknesses, and select appropriate study designs to address specific research questions.

### 🎯 Training course on Bioethics

This training was organized by the Institute of Human Virology Nigeria (IHVN) in collaboration with the West African Bioethics Training Program (WAB) and funded by Fogarty AIDS International Training and Research Program (AITRP). Training objectives included increasing capacity of local investigators for safe implementation of research, increasing awareness, knowledge and understanding of the Principles of Research Ethics, and Guidance in completion of an on-line training on basic human subjects research.


### 🎯 Training course on cancer

To improve and increase cancer detection and diagnosis in the country, the Institute of Human Virology, Nigeria (IHVN) and Sub-Saharan Africa Lymphoma Consortium (SSAIC) have collaborated to train doctors on the detection and treatment of AIDS and Non-AIDS associated Lymphomas. Facilitators in the training included IHVN Director Strategic Information and Research, Prof. Clement Adebamowo and Head of Sub-Saharan Africa Lymphoma Consortium (SSAIC), Prof. Leona Ayers. Participants went home with biopsy needles and publications on cancer. At a two-day training, was held at IHVN training room, topics such as clinical ethics, research management and administration, and cancer detection were addressed. The participants were drawn from 11 federal health institutions, across the healthcare delivery sector.




**Research Grant Funding**

<b>Grant</b>	<b>Funding agency</b>	<b>Funds</b>
R25 TW007091 West African Bioethics Training Program	FIC/NIH	\$237,500
ARRA Ethics Grant UMB-IRB and Nigeria NHREC Collaborative Capacity Building Initiative	NIH	\$50,000
CADRE– development of capacity for research in AIDS Associated Malignancies	NCI	\$1.7 million
R13–Conference grant for multi-year support of Biennial AIDS Associated Malignancies Conference in Nigeria	NCI	\$270,000
UM-IHV AITRP in Nigeria	FIC/NIH	\$596,825
Neuroaids	NIH	\$2.5M
Public Health Evaluation of Tuberculosis	CDC	\$881K
Global Canadian HIV Vaccine Initiative		\$ 520,000 Annual
Acute HIV Infection and Pregnancy	NIAID, NIH	\$723,079
International Epidemiologic Database to Evaluate AIDS (West Africa)	NIAID/NIH	\$261,876

 List of Publications

ACTION Selected Publications			
Title	Authors <b>Bold</b> = IHV-Nigeria or UMD Staff <i>Italic</i> = Local Partner Site Staff	Source	Key Finding/Program Impact
Prevention of Mother to Child Transmission			
Timing and determinants of mother-to-child transmission of HIV in Nigeria	<b>Charurat M</b> , <i>Datong P, Matawal B</i> , Ajene A, <b>Blattner WA, Abimiku A</b>	Int J Gynaecol Obstet 2009 Jul; 106(1):8-13	There are distinct risk factors for in-utero, intrapartum, and postnatal transmission of mother-to-child transmission.
Social determinants of mixed feeding behavior among HIV-infected mothers in Jos, Nigeria.	<b>Maru S</b> , <i>Datong P, Selleng D, Mang E, Inyang B</i> , Ajene A, Guyit R, <b>Charurat M, Abimiku A</b>	AIDS Care. 2009; 21(9):1114-23.	Disclosure of HIV status was significantly correlated with partner support. HIV prevention interventions aimed at reducing mixed feeding should encourage supportive partner relationships that facilitate disclosure of HIV status. Attention should also be made to the differing pressures faced by women attempting to exclusively breast feed and exclusively formula feed
TESTING AND COUNSELING			
Human immunodeficiency virus (HIV) infection patterns, risk behaviors, and awareness of HIV care services in different subpopulations in Nigeria	<b>Charurat M</b> , Delaney K, <i>Ahmed SP, Villalba-Diebold P, Aliyu G, Constantine N, Onoja A, Vertefeuille J, Blattner W, Nasidi A</i>		There is poor knowledge among MARPS concerning HIV prevention and treatment/Prevention messages adapted to stress importance of accessing care and treatment if positive.
CARE AND SUPPORT			
Adherence to Anti Retroviral Therapy (ART) during Muslim Ramadan fasting	<i>Habib AG, Shepherd JC, Eng MK, Babashani M, Jumare J, Yakubu U, Gebi UI, Saad M, Ibrahim H, Blattner WA</i> . Adherence to Anti Retroviral Therapy (ART) During Muslim Ramadan Fasting.	AIDS Behav. 2009 Feb; 13(1):42-5	Adherence to ART among fasting (96%) and non fasting patients (98%) is similar. Dosing intervals, and eating habits are different but fasting does not negatively impact treatment adherence to ARV.
Patient retention and adherence to antiretrovirals in a large antiretroviral therapy program in Nigeria: A longitudinal analysis for risk factors	<b>Charurat M, Oyegunle M, Benjamin R, Habib A, Eze E, Ele P, Ibang A, Ajayi S, Eng M, Mondal P, Gebi U, Iwu E, Etiebet M, Abimiku A, Dakum P, Farley J, Blattner W</b>	PLOS (Provisional Acceptance)	These findings formed the basis for implementing multiple pre-treatment visit preparation that promote disclosure and active community outreaching to support retention and adherence. Expansion of

			treatment access points of care to communities to diminish travel time may have a positive impact on adherence.
Risk factors associated with low CD4+ lymphocyte count among HIV-positive pregnant women in Nigeria	<b>Abimiku A, Villalba-Diebold P, Dadik J, Okolo F, Mang E, Charurat M</b>	Int J Gynaecol Obstet 2009;May 20 (Epub)	Over 35% of the HIV-positive pregnant women had low CD4+ counts, indicating the need for treatment. The findings underscore the need to integrate prevention of mother-to-child transmission with HIV treatment and care, particularly services for sexually transmitted infections
Treatment			
Immunological profile in persons under antiretroviral therapy in a rural Nigerian hospital	Maiyaki Musa B, Gebi U, Etiebet M, Omuh H, Ekedegwa P, Dakum P, Blattner W	Journal of Public Health in Africa 2010; volume 1:e3	Publication
OTHER PREVENTION			
Linking Community Information with Prevalence Data to Identify Underserved Most-at-risk Populations in Need of Access to Services	<b>Villalba-Diebold P, Saidu A, Charurat M, Martins E, Gurumdi S, Aliyu G, Nasidi A, Farley J, Blattner W</b>	AIDS 2008	Using GPS to identify areas of high prevalence facilitates access to MARPS to target prevention service/ACTION employs community patterns of high prevalence to target communities for prevention intervention.
HEALTH SYSTEM STRENGTHING			
LABORATORY QUALITY IMPROVEMENT			
HUMAN RESOURCES FOR HEALTH			

# IHV NIGERIA FUTURE PLANS



## IHV-Nigeria Future Plans

The Institute of Human Virology Nigeria has expanded its board of directors to include notable Nigerians and internationally renowned persons/individuals/personality/ in academic medicine. On the one hand the board management is charged with ensuring that IHV- Nigeria programs provide sustainable support for the people and government of Nigeria. IHV-Nigeria will develop training and expertise for the sustainability of HIV/AIDS, TB and Malaria programs. IHV-Nigeria will work with the Federal Ministry of Health to identify challenges / gaps/issues in the health sector and to develop a strategic plan geared towards operationalization and graduated implementation of its intervention strategy. The Federal Government of Nigeria currently lacks sufficient expertise for the implementation of these health intervention strategies and programs at site levels in the country. To that end IHV-Nigeria will work with the FMOH to develop tools and capacity for personnel for the provision of technical support for programs at local and state levels of healthcare delivery.

IHV-Nigeria will provide technical support, improvement and co-ordination of all major funding support government receives. Additionally, activities of implementing partners within the HIV/AIDS, TB and Malaria interventions will be co-ordinated by IHV-Nigeria. The institute will provide support for proper collation, analysis and management of data relating to HIV/AIDS, TB and Malaria. To that end IHV-Nigeria will ensure that the federal Ministry of Health, the respective State agencies for the control of AIDS have the capacity not only to collect and collate data but to also analyze and use data to guide their programs.



This picture gallery includes photos from IHV Nigeria events: the visit of Dr. Tom Frieden, Director, Centers for Disease Control and Prevention (CDC); and Ambassador Eric Goosby, Office of Global AIDS Coordination to other laboratory, PLWHA, outreach and training activities.







# SUPPORT IHV-N

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*IHV-Nigeria provides infrastructural upgrades for clinics, pharmacies and laboratories in order to provide high quality services at sites that it supports in Nigeria. IHV-Nigeria has also built 5 regional training centers at the University of Benin Teaching Hospital - Benin, Aminu Kano Teaching Hospital - Kano and University of Abuja Teaching Hospital Gwagwalada, National TB/Leprosy Training Center - Zaria and Plateau State Virology Research Center, Jos to support technical training activities and human resource development at supported sites.*

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