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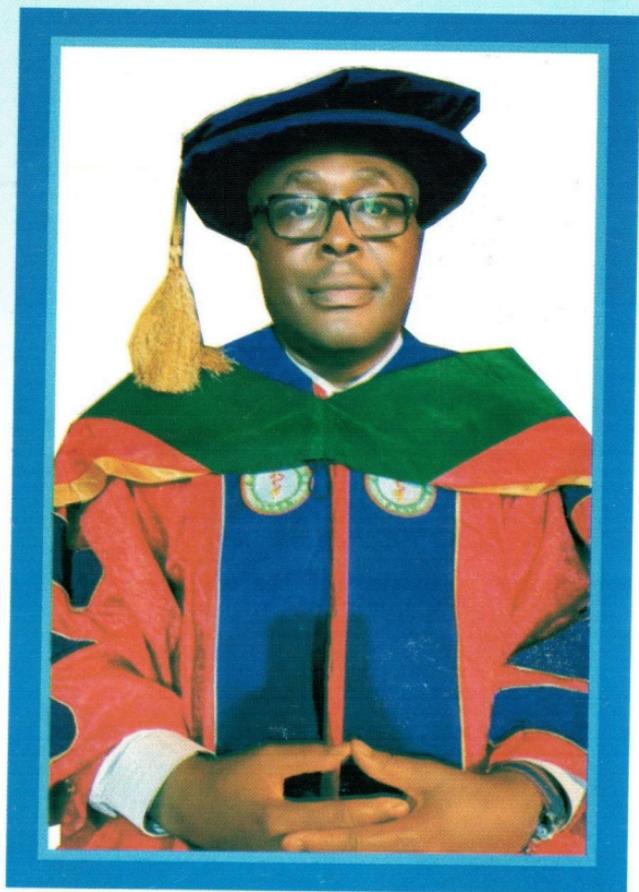
**INAUGURAL
LECTURE**

Delivered by

**PROFESSOR OLIVER
CHUKWUJEKWU
EZECHI**

■ **TITLE:**

**ADVANCING
WOMEN'S HEALTH
FOR AN HIV-FREE
GENERATION:
TRAVAILS AND
TRIUMPHS**



PROFESSOR OLIVER CHUKWUJEKWU EZECHI

MBBS (Benin), MPA (Ife), MPH (Lag), MSc (Lag), DSRHR (Lund),
Dip. Teaching Method (Lund), PhD (Lund), FWACS, FMCOG (Nig),
FRSPH (UK), MD (Nig), FAMeds (Nig).

**Advancing Women's Health for a HIV-Free
Generation:
Travails and Triumphs**

15th Inaugural Lecture, delivered at the
Adeline Hall
Lead City University, Ibadan

By

Oliver Chukwujekwu Ezechi MD, PhD

Professor of Maternal, Reproductive and Child Health
Department of Public Health,
Faculty of Basic Medical and Health Sciences
Lead City University
Ibadan, Nigeria

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The Chancellor,
The Pro-Chancellor & Chairman, Governing Board,
Mr Vice Chancellor,
Principal Officers,
Deans of Faculties,
Head of Departments,
Professors,
Staff and Students,
Distinguished guests, ladies and gentlemen

Preamble

Let me start this lecture by putting on record how pleased and honoured I am to have been given the opportunity soon after the appointment as Professor of Maternal, Reproductive and Child Health at the Department of Public Health, Lead City University, Ibadan, not only to deliver this inaugural lecture, but to be the first to do so under the cooperative agreement between Lead City University, Ibadan and the Nigerian Institute of Medical Research, Yaba, Lagos, where I am a Director of Research. I find this, deeply gratifying.

Mr. Vice Chancellor Sir, it was at Ile Ife, the cradle of Yoruba civilization, about three decades ago, that I started my career in maternal and reproductive health as a young resident doctor in Obstetrics and Gynaecology. At that time, our chief concern was the high infant and maternal morbidity and mortality, consequent upon

poor obstetric care, aversion of caesarean delivery, and unskilled attendance in labour. Obstructed labour, ruptured womb, puerperal sepsis, bleeding and complications of induced abortions were common in our emergency rooms and wards (Dare et al 1998; Ezechi et al., 1999; Ezechi et al., 2000; Ezechi et al., 2004a; Ezechi et al., 2004b; Fasubaa et al., 2003; Onwudiegwu & Ezechi 2001). Naturally, my focus was on the challenges of complications of induced abortions, late presentation, and poor obstetric care. Under the tutelage of my senior colleagues, Professors Uchenna Onwudiegwu, Benjamin Olusola Fasubaa, and the late Professor Francis Oriola Dare, we were able to show that poor educational attainment, low status of women, certain cultural practices, poor infrastructure, and delays within the health facilities were inimical to safe motherhood (Dare et al., 2000; Fasubaa et al., 1998; Onwudiegwu et al., 1999). In the process, we further showed that differences exist in the biosocial and medical causes of death among younger and older pregnant women (Fasubaa et al., 1998; Loto OB et al., 2004). We recommended that these differences should be exploited in designing effective programmes to make antenatal care and delivery a positive experience.

Mr Vice Chancellor Sir, Ladies and Gentlemen, my interest in HIV research and service provision, also began at *the SOURCE*. Our team produced evidence to refute the then popular belief that pregnant women were not willing to undergo HIV testing. In our studies, we found that 75 -90% of pregnant women in Ile Ife and Owo

were willing and accepted HIV testing. (Fasubaa et al., 2001; Loto et al., 2005). At that time HIV-related stigma and discrimination were rife, mothers were mandatorily screened only to be denied access to essential obstetric care if found to be HIV positive. It was therefore not surprising that mothers were declining HIV testing if they suspected that they would not be provided service if they turned out to be HIV positive (Kilewo et al., 2002; Larsson et al., 2009).

Mr. Vice Chancellor sir, fast forward to Surulere, Lagos, where, as a newly qualified consultant Obstetrician and Gynaecologist at the elite Havana Specialist Hospital, my focus shifted to gender-based violence, in-vitro fertilization, and events of labour because of the peculiarities of the practice environment. Accordingly, I have, through several publications, drawn attention to the high burden of spousal abuse during pregnancy, the safety and efficacy of misoprostol, an antiulcer drug in the induction of labour, the outcome of pregnancies conceived through in-vitro fertilization, and the determinants of successful vaginal delivery after caesarean section (Ezechi et al., 2004c, Ezechi et al., 2004c, Ezechi et al., 2004d, Ezechi et al., 2008a; Ezechi et al., 2008b).

Mr. Vice-Chancellor Sir, I could have chosen any of these areas for today's lecture, but it is on the topic of HIV infection, especially of the prevention of mother-to-child transmission (PMTCT) that I have opted to speak, not only because it is one of my areas of interests, but to it, I have devoted most of my research time, and resources since moving from Surulere to Yaba. It is not to Yaba

left I moved sir, but to the oldest and apex medical research centre in the country - the Nigerian Institute of Medical Research. Although my practice and research in other areas of maternal, reproductive and child health have been gratifying, none surpasses the joy and elation one feels when HIV-positive women happily share their baby's HIV-negative test result – *Triumphs*.

Vice Chancellor sir, it is important at this juncture to confess that on certain occasions, I have found myself unable to positively influence the outcome of pregnancy in a woman with HIV. First, was in the same Ile-Ife. It was an interesting case of abdominal pregnancy in a HIV positive woman. Diagnosis and management of abdominal pregnancy alone is a challenge to even an experienced obstetrician. Added to the challenge was the woman's HIV positive status. Then, early in the HIV epidemic, stigma and discrimination was huge. The woman had been tossed around from multiple hospitals before arriving the teaching hospital. We did the needful, the mother survived, but the baby did not, probably from poorly developed lungs. – *Travails*.

Mr. Chancellor Sir, for the avoidance of doubt, an abdominal pregnancy is a rare type of ectopic pregnancy where the embryo or fetus is growing and developing outside the womb in the abdomen. As against the typical ectopic pregnancy where the baby is growing in the fallopian tube. It poses a serious threat to the survival of the mother from massive bleeding from placental separation, and the fetus from congenital malformations. The fetal outcome tends to be poorer than the mother.

Secondly, in our environment I have found it very difficult to understand why simple actions like adherence to antiretroviral drugs, avoidance of mixed feeding, or attending urgently to pregnant



women in labour have become rocket science. Why is this so, I guess it is the consequence of the low investment in health, poor health systems, low status of women, retrogressive cultural and religious

practices, poor educational attainment, poor attitude, and incessant industrial actions by health workers. At such times one is so often helpless – *Travails*

The case of Mrs S.O is a common example. She diligently kept all her appointments, obeyed all instructions including taken her drugs at appropriate time. At 35 weeks of pregnancy, “her water broke”. She was promptly referred to a tertiary facility. She was left unattended to once the attending health workers learnt of her HIV status. It was only when a “Consultant” came, more than 24 hours later that she was taken to the theatre for an emergency cesarean section. The harm was already done, as the resulting baby later turned out to have contracted HIV from the mother. Yes, it may be argued that the baby may have been infected in-utero before presentation,

but the most likely cause of the baby's HIV infection was the phase three delay of 24 hours (delay within health facility). Evidence exists that after 4 hours of rupture of membrane the risk of mother - to - child transmission (MTCT) rises and the protective effect of a cesarean section is lost (Minkoff et al., 1995; Landesman et al., 1996). This was in 2005!

Mr. Vice Chancellor sir, we can all see that there were dark spots in the country's efforts to eliminate MTCT despite the progress that has been made over the years. I, therefore, propose in this lecture, to examine the successes and challenges encountered as our team strived to contribute to the elimination of mother-to-child transmission of HIV, hence the title of this 15th Inaugural lecture, the 2nd in the 2022/2023 academic session, and the 1st from the Faculty of Basic Medical and Health Sciences – **“Advancing Women's Health for an HIV-Free Generation: Travails and Triumph”**.

Today I ask you to join me in celebrating the achievement of the almost impossible through the miracle of science in one facility. So that the achievement in one facility spurs us all toward achieving the national and global target of eliminating MTCT of HIV infection by 2030. It is achievable, and it starts. Know your status today! Ask the person sitting next to you; do you know your status? If NO! Please get tested today!

Introduction

All that separates us, humans, from animals is our ability to wonder “why” things are as they are. In the realm of preventive medicine, the answer to “why” often begins with the full understanding of the disease process. So, I will begin this lecture by sharing with you briefly the science of MTCT of HIV, then progress to strategies we adopted to eliminate MTCT as researchers and practitioners, and the outcome, and finally conclude with recommendations for research and practice based on our practical on-the-field experience.

Mr Vice Chancellor sir, in 2004, NIMR became part of the Harvard School of Public health led consortium - AIDS Prevention Initiative, Nigeria (APIN) that received a huge HIV/AIDS grant to address the emergency posed by HIV/AIDS from the United State's President's Emergency Plan for AIDS Relief (PEPFAR). The project required an expert in women's health to anchor the PMTCT component of the programme at NIMR. So, by divine providence, and evidence of productivity while outside the mainstream research ecosystem, I became the coordinator of the PMTCT component, and later Co-Principal Investigator of the Project. Ensuring that HIV-positive pregnant women birth HIV-negative children became my main service and research objective.

A Feminised Epidemic

Mr. Vice Chancellor sir, it is quite disheartening that a disease first reported among gay men in the United States of America in 1981 has become feminised globally. Nigeria's HIV epidemic is not an exception; successive assessments of the burden of HIV indicated a

feminized epidemic (FMoH, 2007; FMoH 2012). The prevalence of HIV infection among females remained higher than that of males across all age groups except for the 10–14-year age group (NACA, 2018).

Secondary analysis of the HIV database at the Nigerian Institute of Medical Research Lagos, containing over 25,000 patients' information attest to the in-country feminisation of the HIV epidemic.

(Ezechi et al., 2016a). The proportion of females among the total HIV patient population averaged 65.3% yearly, and persistently increased from 60.2% in 2004 to 68.6% in 2015. (Table 1).

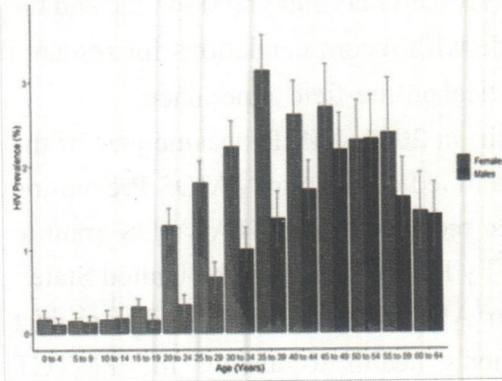


Figure 1: HIV Prevalence by Sex and Age, NACA 2018

Table 1: Distribution of patient in clinic by gender and year of enrolment

Year of enrolment	All patient	Male (%)	Female (%)
2004	625	249(39.8)	376(60.2)
2005	1910	720(37.7)	1190(62.3)
2006	2277	854(37.5)	1423(62.5)
2007	2868	987(34.4)	1881(65.6)
2008	2989	1040(34.8)	1949(65.2)
2009	2657	925(34.8)	1732(65.2)
2010	2318	749(32.3)	1569(67.7)
2011	2327	740(31.8)	1587(68.2)
2012	1644	520(31.6)	1124(68.4)
2013	2211	743(33.6)	1468(66.4)
2014	1178	369(31.3)	809(68.7)
2015	730	229(31.4)	501(68.6)

Mr Vice Chancellor Sir, ladies and gentlemen, the observed trend is due to the conspiracy of nature, economy, culture, and man against women. Reversing this trend requires bold and deliberate efforts to educate women on the dangers of early sexual debut, importance of safe sex practices, institution of laws that will delay the age at marriage, abhors and prevent violence against women and harmful traditional practices, empower women for self-sufficiency, and safe sex practices.

Mr. Vice Chancellor Sir, Nigeria occupies an unenviable position as a major contributor to the global female HIV burden, yet very few studies in the country examined the demographic characteristics of women living with HIV (WLHIV), a critical requirement to advance solutions. We designed and implemented a study “Epidemiologic and clinical characteristics of pregnant women living with HIV/AIDS in South-western Nigeria” (Ezechi et al., 2016b) to provide this important data. Our findings showed that HIV positive pregnant women constitute 36.9% of female patients seen at our facility, with about half of the pregnant women presenting for the first time in the third trimester of pregnancy. These findings have serious implications for the care of pregnant HIV positives, as the late presentation does not allow for sufficient time for viral suppression, which is an important determinant of PMTCT. The findings authenticated our team's adoption of an active PMTCT strategy that ensured that every pregnant HIV positive presenting in our facility is started on life saving antiretroviral therapy (ART) the same day

they presented at the facility (Ezechi et al., 2013a). The recent adoption of Dolutegravir based regimen (DTG) as first line ART regimen by the Federal Ministry of Health has addressed the challenge of late presentation (FMOH, 2020). The DTG-based regimen is sufficiently potent to achieve viral suppression within a short time.

HIV Transmission

Mr. Vice Chancellor Sir, HIV can be transmitted via the exchange of a variety of body fluids from HIV infected person, such as blood, breast milk, semen, and vaginal secretions. HIV can also be transmitted from a mother to her child during pregnancy and delivery, and through breast feeding. Individuals cannot become infected through ordinary day-to-day contact such as kissing, hugging, shaking hands, or sharing personal objects, food, or water. HIV positive persons taking antiretroviral drugs as prescribed, become virally suppressed and do not transmit HIV to their sexual partners. Early access to antiretroviral drugs and support to remain on treatment is therefore critical not only to improve the health of PLHIVs, but also to prevent HIV transmission.

In Nigeria, most HIV transmission occurs within the general population, with the bulk of the new HIV infections occurring in persons who are not engaging in high-risk sex, a sub-population that includes cohabiting or married couples (NACA 2014). Among our cohort almost eighty percent (79.4%) of transmission was within

heterosexual relationships (Ezechi et al., 2016a). Unfortunately, the practice of safe sex through the use of condoms in this group is particularly low because of supposed fidelity. Partners who acquired HIV either before or in the present relationship through high-risk sex easily transmit the infection to the unsuspecting partner (NACA, 2014).

Mother To Child Transmission of HIV Infection (MTCT)

Each day approximately 850 children get infected with HIV, and Nigeria has more HIV-infected babies than anywhere else in the world (Cohen et al 2018). Over 90% of HIV infection among children less than 15 years is due to MTCT. The country is responsible for one-third of the global gap in achieving the target of eradicating MTCT of HIV (Olakunde et al., 2022). Whatever we do in Nigeria impacts on the global MTCT burden.

Mr Vice Chancellor Sir, women account for about 60% of the total HIV burden in the country, the coexistence of HIV and pregnancy is thus a common finding. The 2018 Nigeria HIV/AIDS Indicator and Impact Survey, a national household-based survey that assessed the prevalence of HIV reported a prevalence of 1.7% among women aged 15 - 49 years (FMOH, 2018). An estimated 87,000 HIV positive pregnant women have the potential to transmit HIV infection to their unborn baby in Nigeria.

The infant of an HIV-infected mother can acquire HIV infection from the mother either during pregnancy, labour and delivery, or post-natally through breastfeeding. In the absence of intervention, the rate of transmission of HIV from a mother living

with HIV to her child during pregnancy, labour, delivery or breastfeeding ranges from 25 - 40% (Fernández-Luis et al., 2020).

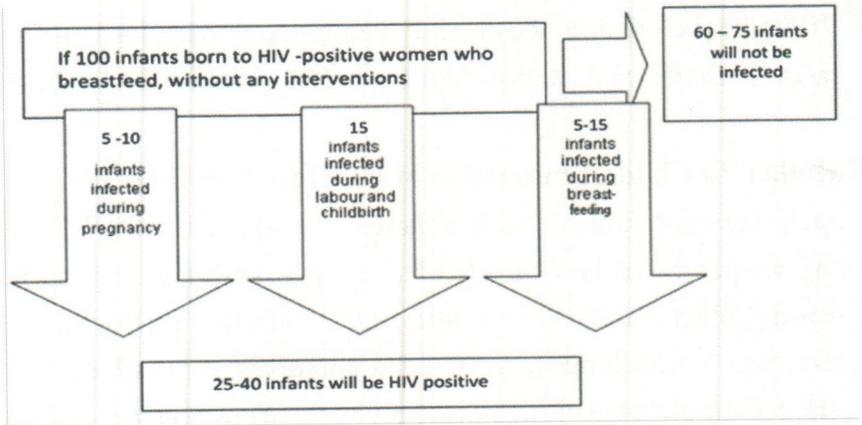


Figure 2: Flow chart showing the pattern of MTCT during pregnancy, delivery and breastfeeding in untreated women living with HIV.

Mr Vice Chancellor Sir, the reason for the high burden of MTCT in the country are multifaceted and includes (Ezechi 2016b).

1. Large population of HIV positive women in the country
2. Small proportion of pregnant women who know their HIV status
3. Low HIV risk perception among married women
4. Low HIV counselling and testing uptake
5. Low antenatal attendance
6. Low PMTCT coverage

7. Poor PMTCT implementation
8. Poor sub-national ownership and or involvement

Reducing MTCT burden globally and in Nigerian requires the prevention of the causes and factors associated with increased MTCT of HIV. As such, identification of HIV infection should be immediately followed by an offer of linkage to lifelong treatment and care, including support to remain in care and virally suppressed, and an offer of partner services (Ezechi et al., 2007).

Prevention of Mother to Child Transmission (PMTCT)

Mr Vice Chancellor Sir, Ladies and Gentlemen, MTCT of HIV is the most prevalent source of childhood HIV infection. Without any interventions, between 30 and 45 percent of infants born to HIV-infected mothers will become infected, with an estimated risk of 5 to 10 percent during pregnancy, 10 to 20 percent during labor and delivery, and 5 to 20 percent through breastfeeding. To stop the MTCT of HIV, WHO introduced a set of interrelated public health interventions designed to prevent transmission of the virus from an HIV positive mother to her child during pregnancy, delivery and breastfeeding. Prevention of MTCT is the package of care given to pregnant women, their families and communities, aimed at preventing transmission of HIV from infected mother to their babies. It operates on four pillars (Fernández-Luis et al., 2020).

The four pillars are:

1. Primary prevention of HIV among women of childbearing age and their partners
2. Prevention of unintended pregnancies among HIV positive women
3. Prevention of the transmission from HIV-positive pregnant mothers to their infants
4. Provision of appropriate treatment, care and support HIV positive mothers, their infants and families. (FMOH 2020)

At the national level, the trend of MTCT rate has remained almost stable at 21.0-28.6% between 2010 and 2019 (see Figure 3) (FMOH, 2020).



Figure 3: Trends in estimated pattern of MTCT in Nigeria

Mr. Vice Chancellor sir, as a responsible and responsive research team, we keyed into the WHO PMTCT pillars to reduce the MTCT rate to less than 5% in our facility using operations research and

implementation science mode. In the rest of the lecture, I will share our triumphs, and travails.

Our team while strategizing to address the first PMTCT pillar - Primary prevention of HIV among women of childbearing age and their partners realised early that, we can only succeed if the sexual and reproductive health challenges of WLHIV are promptly addressed through research and practice.

Sexual and Reproductive Health of WLHIV

The first of this SRHR challenges is the erroneous belief despite available evidence that men are the drivers of HIV infection in our environment, and that marriage conferred protection against HIV infection. Our team with evidence showed that the beliefs were not only wrong but deceitful. We took up the challenge of providing the evidence by studying the direction of HIV transmission. In our study titled, "HIV status discordance and associated factors among HIV positive pregnant women in Lagos, Southwest Nigeria", which enrolled a total of 4,435 HIV positive pregnant women, we showed that women, and not men were the drivers of the HIV epidemic in Lagos and parts of Ogun State (Ujah et al., 2015). Over two thirds of the male partners of the 4,435 HIV positive women were found to be HIV negative, and most pregnant women (> 80%) had not disclosed their HIV status to their partners. The reason(s) for that non-disclosure is a discussion for another day. Our study confirmed the findings of an earlier study which identified women as the drivers of the HIV epidemic in southern Nigeria (Sagay et al., 2006). The lesson

here is that both men and women should be tracked as index cases even within stable relationship in our quest to control the HIV infection.

Mr. Vice Chancellor sir, to fully understand the impact of sexual and reproductive functions and challenges on HIV in our environment, our team conducted several studies on gender-based violence, menstrual dysfunction, and sexual dysfunction among HIV infected Nigerians (Ezechi et al., 2009; Ezechi et al., 2010, Ezechi et al., 2015). Gender-based violence (GBV), defined as violence perpetrated against an individual based on their gender/gender identity, is an important global health and human rights concern. GBV includes physical, sexual and psychological/emotional violence and can be perpetrated by a variety of actors, including intimate partners (referred to as intimate partner violence (IPV)), family members, community members, and representatives of the state. GBV is a common experience for women globally, with estimates suggesting that 1 in 3 women experience some form of GBV in their lifetime, primarily from an intimate partner (Muluneh et al., 2020). GBV is associated with several acute and long-lasting health consequences, including HIV (Li et al., 2014)

Based on the above, we conducted a study on gender-based violence (GBV) among 667 HIV positive pregnant women (Ezechi et al 2009). Two-thirds (65.8%) of the women reported GBV, but mostly verbal (51.7%) or threat of violence (22.9%). Only 8.1% reported physical abuse. In majority (74.0%) of the abused women, the abuse started after HIV diagnosis. The only factor found to be

associated with increased violence after HIV diagnosis was being in a sero-discordant relationship (OR 3.1; CI 2.4–5.3). In view of our findings, we call on the federal and state governments of Nigeria to enforce the 2014 HIV/AIDS Anti-Discrimination Act that makes it illegal to discriminate against people based on their HIV status.

Another SRH challenge that impacts on the life of WLHIV is menstrual irregularity. It is frequently reported among women living with HIV (Valiaveetil et al., 2019), and Health workers spent resources investigating and treating these women. In 2010, due to the paucity of evidence on the relationship between HIV infection and menstrual dysfunction, we conducted a multicentre study, to determine the prevalence, pattern, and determinants of menstrual abnormalities in WLHIV (Ezechi et al 2010). The prevalence of menstrual irregularities of 29.1% among the HIV positive women was statistically significantly higher than the prevalence of 18.9% among HIV-negative women ($P < 0.001$). The pattern of presentation of menstrual dysfunction among the cohort is shown in table 2.

Table 2: Menstrual symptomatology among the 3,473 women in the study

Menstrual symptoms	HIV status of the women studied		P-value
	HIV-positive	HIV-negative	
	(n = 2549)	(n = 924)	
All menstrual dysfunction	742 (29.1%)	175 (18.9%)	0.0000
• Irregular periods	201 (7.9)	40 (4.4)	0.000
• Oligomenorrhoea	163 (6.4)	36 (3.9)	0.02
• Amenorrhoea	97 (3.8%)	17 (1.8%)	0.03
• Post-coital bleeding	75 (2.9%)	12 (1.3%)	0.01
• Intermenstrual bleeding	103 (4.0%)	33 (3.6%)	0.59
• Menorrhagia	37 (1.5)	19 (2.1)	0.27
• Dysmenorrhoea	66 (2.6)	18 (1.9)	0.034

Severe disease (CD4 less than 200 cells/mm³), BMI less than 20 kg/m² and antiretroviral drugs naivety were found to be associated with menstrual dysfunction. (Ezechi et al., 2010).

Based on our findings, we recommended that in managing WLHIV having menstrual dysfunction, HIV associated opportunistic illness and immuno-deficiency should be addressed first as the accompanying menstrual dysfunction resolves spontaneously following the resolution of immuno-deficiency and treatment of opportunistic infections.

Contraception and Unintended Pregnancy

Mr Vice Chancellor sir, ladies, and gentlemen, addressing the second PMTCT pillar requires the prevention of unintended pregnancies

among WLHIV. An unintended pregnancy is a pregnancy that is either unwanted or mistimed. The concept of unintended pregnancy helps in understanding the unmet need for family planning. Most unintended pregnancies result from not using contraception or from not using it consistently or correctly.

Unplanned pregnancy and its complications are common among HIV positive women (Adeniyi et al., 2018; Sutton et al 2014). The situation among WLHIV in Nigeria is similar, as our study showed that only 43.3% of the over seventy percent (70.3%) sexually active PLHIVs were using one form of contraception (Ezechi et al., 2013b). In a later study, after the integration of contraceptive services into our HIV programme, contraceptive awareness was found to be high at 94.6%, yet contraceptive use continued to remain moderate at 50.6%. It shows that awareness of contraception, often does not translate to use. Condoms (52.9%) and injectable contraceptives (31.4%) were the contraceptives of choice among this cohort. PLHIVs with less than secondary education (OR 0.2) and an HIV positive partner (OR: 0.4) were less likely to use contraception (Ezechi et al., 2013c). The identification of the reason(s) for the disconnect between contraceptive awareness and uptake will help to address the missed opportunities and contribute to the reduction of HIV transmission in adult and paediatric populations through reduction of both horizontal and vertical transmission of HIV in the population.

Infertility

Mr Vice Chancellor Sir, as they say in Nigeria, “life no balance”. While some are struggling to achieve pregnancy, others are preventing babies from coming. So, planning pregnancy has two parts – prevention of pregnancy (already addressed), and achieving pregnancy (Ezechi et al., 2006a). To assist PLHIVs achieve pregnancy, it is important to understand their desires for and preference for childbearing. Our team conducted a cross-sectional study among 3,743 HIV-infected men and women over a 24-month period. The findings were disseminated at the 2008 AIDS Conference in Mexico City (Ezechi et al., 2008) in a presentation titled “Fertility desire and intentions of Nigerians living with HIV/AIDS”. Sixty percent of PLHIV in the study desires to have children either now or in the future. The study and others that followed) showed the disconnect between PLHIVs fertility desires and health workers prejudices (Amaike et al., 2022; Iliyasu et al 2009, Ezechi 2016b). The very act of trying to conceive without support of health workers increases the risk of HIV transmission. What is expected of health workers in other to prevent HIV transmission among PLHIVs desiring to have children is to support this God-given right.

We conducted further studies to determine the epidemiology of infertility among PLHIVs (Tables 1 and 2 below). The prevalence of infertility was 15.7%, with equal contribution by males (29.6%) and females (30.6%) (Ezechi et al., 2016c). The proportion of individuals with abnormal spermatozoa parameters was significantly

higher ($P < 0.039$) among the HIV positive male partners (38.4%) compared to HIV negative partners (25.8%). Severe HIV disease impacts negatively on sperm parameters (Ezechi et al., 2016c).

Table 3: The pattern of semen density of the male partners of infertile HIV positive couples in the study (adapted from Ezechi et al., 2016c).

Sperm density	All n = 419(%)	HIV positives n = 198(%)	HIV negatives n = 221(%)	Remarks
Normospermia	286(68.3)	122(61.6)	164(74.2)	OR: 1.5 95% CI: 1.0-2.3 P = 0.039
Oligozospermia	126(30.1)	70(35.4)	56(25.3)	
Azoospermia	17(1.7)	6(3.0)	11(0.5)	

Table 4: Relationship between CD4 cell count and semen parameters among PLHIVs (adapted from Ezechi et al 2016c).

Semen Parameters	CD4 < 350 cells/mm ³	Cd4 • • • • • cells/mm ³	P value
Mean volume (ml)	2.6±1.3	3.1±1.5	0.003
Sperm concentration (10 ⁶)	69.3±10.7	84.7±6.7	0.0002
Total sperm count (10 ⁶ /ml)	136.5±31.7	237.1±47.9	<0.001
Mean % normal Morphology	64.9±15.3	71.3±10.7	0.34
Mean % Mobility	61.3±17.9	64.7±12.4	0.75

From the above, it can safely be concluded that HIV impacts negatively on fertility, and that the more severe the HIV disease, the more significant the fertility challenge.

Quality of Life

Mr. Vice Chancellor sir, planning pregnancy among PLHIVs also

requires keeping them healthy, and disease free. Firstly, we evaluated the quality of life (QOL) of WLHIV and determined the clinical and laboratory profile of HIV positive pregnant women attending our facility with the aim of using the information to plan for service provision at the PMTCT clinic. We also believed that the findings would assist the country to determine the appropriateness of the current national guidelines. In the quality-of-life study, it was found that WLHIV had significantly lower ($P<0.002$) QOL scores than HIV uninfected women in the overall QOL and all the domains of life. Women living with HIV had a significantly higher ($P<0.03$) QOL scores for overall QOL and overall perception of health than the males. The use of ART by PLHIV was found to improve QOL scores, even after adjustments were made for the severity of the disease and co infections ($P<0.01$). These findings highlight the need to start all HIV positive women and men on antiretroviral drugs as it is associated with improved QOL (Santoso et al., 2020).

To have a robust data on clinical and laboratory profile of WLHIV that is generalisable, we reviewed 9-year programmatic data, containing the data of 5,644 pregnant HIV positive women. Majority of these women had one previous delivery (66.7%) and booked in the third trimester. Only 27.1 % of mothers were on ART at enrolment. HIV plasma viral load at enrolment was above 1,000 copies/ml in 82.5% (Ezechi et al., 2014) . Based on the above finding of late booking and over 80% having viral load above the magic 1,000

copies/ml at which risk of MTCT is possible, we can authoritatively say that the current guidelines recommendation based on DTG based regimen is not only appropriate but safe for both mother and baby.

HIV co-infection with Tuberculosis, Hepatitis B and C

Mr Vice Chancellor Sir, opportunistic infections like Tuberculosis and Hepatitis B and C, and co-morbidities like hypertension and cervical cancer are common among PLHIVs. In countries including Nigeria where HIV/AIDS is a leading cause of maternal mortality, infectious diseases like tuberculosis and malaria have largely surpassed obstetric causes as the leading causes of maternal mortality (Ujah et al 2005). Co-infection with tuberculosis is one of the most common causes of maternal death for WLHIV. When tuberculosis and HIV occur simultaneously, mortality is Comorbidities pose one of the greatest health threats to pregnant women with HIV and are one of the strongest pathways by which HIV/AIDS increases maternal morbidity and mortality (Ledsema et al., 2022). Offering low-quality or inappropriate care, exacerbates the poor maternal health outcomes of WLHIV. In Nigeria, poor quality of care is one factor driving the nation's worrisome maternal mortality ratio. Improving quality of care and strengthening health systems are crucial steps for managing the intersecting HIV/AIDS and maternal mortality epidemics.

Mr Vice Chancellor Sir, ladies, and gentlemen, we conducted a series of studies to establish baseline data for which to measure the success of any intervention we introduce to improve the quality of

services provided to the PLHIVs. In these studies the co-morbidity rate ranged from 6.0 – 33.4% (Table 5), with TB having the highest rate. (Ezechi et al., 2016a).

Table 5: Co-morbidities and diseases among HIV positives (Ezechi et al. 2016a).

Co-morbidities and diseases	Prevalence (%)
1. Tuberculosis	33.4
2. Hepatitis B	4.8
3. Hepatitis C	1.9
4. HIV associated nephropathy	0.2
5. Hypertension	6.0

Tuberculosis, a disease as old as mankind has continued to present a major public health challenge worldwide. Yet its actual burden is not known because of unavailability of accurate data from the high tuberculosis burden countries like Nigeria (Aseffa et al 2016; Sayoki et al., 2014). Pregnant women remain the most vulnerable high-risk population to the devastating impact of the on-going human immuno deficiency virus (HIV) generalized epidemic and co-infection with Tuberculosis in Nigeria. Those co-infected with TB are at a very high risk of anaemia and infection of the placenta; hence a considerable proportion of children born to women with HIV have low birth weight, are at increased risk of MTCT, and are more likely to die during infancy (Ezechi et al 2012a). We assessed the burden of TB

among HIV positive pregnant women over a 12 year period. A total of 5,581 HIV positive pregnant women were screened for TB during the period, 191 (3.4%) were found to have active TB. The prevalence of active TB cases among women who presented during pregnancy and those already in care before pregnancy were 0.8% and 11 % respectively. All the cases were pulmonary TB, with sputum positive cases constituting the majority (76.5%). One TB related maternal death occurred during the period; a maternal mortality ratio of 199 per 100,000 live births. From these findings we can conclude that TB burden in pregnant women when first seen at the PMTCT clinic is significantly lower than the rate in non-pregnant adults. However, the TB burden among the pregnant women approximates that of the other adults with time in the programme. This suggests that the HIV clinics are settings for TB transmission (Ezechi et al., 2011). It is our recommendation that infection control practices, including triaging to be implemented at all congregate settings in order to reduce the risk of transmission of tuberculosis among HIV infected persons. In another study, we assessed the use of three modalities of clinical, microbiological, and radiological parameters to increase the yield during evaluation of TB among PLHIVs. The case detection rate on further analysis decreased with increasing severity of TB ($p < 0.01$). We recommended that all HIV positive patients should be screened for TB; first using clinical symptoms, thereafter, using either sputum smear or chest x-ray since none has a significantly higher pick-up rate than the other (Onwujekwe et al., 2017). Interestingly, some of these our recommendations have become national policy today.

Mr. Vice Chancellor Sir, HIV infection, and chronic viral hepatitis (Hepatitis B and C virus infection) are global health challenges that are of concern particularly in sub-Saharan Africa. Since both HIV and hepatitis B virus share similar transmission routes, it is not surprising that there is a high frequency of co-infection. Children born to co-infected pregnant women are at high risk of chronic Hepatitis B (and C) virus infection, unless co-infected pregnant women are identified, and appropriate treatment provided.

Nigeria contributes significantly to the global burden of HIV, Hepatitis B and C infections, either singly or in combinations. While some limited data on mono infection of HIV, Hepatitis B and C virus infections do exist, data on dual and triplex infections, including seroconversion and mother-to-child transmission (MTCT) rates necessary for planning are not available. We first conducted a cross-sectional study to determine the prevalence, and the factors associated with Hepatitis B and C Virus infection among pregnant HIV positive women in Lagos (Ezechi et al., 2014b). Hepatitis B Virus co-infection was found to be common (4.2%) among the cohort, and was also found to be associated with a history of induced abortion, blood transfusion and elevated baseline transaminase. Hepatitis C Virus infection (1.5%) was less common and associated with only a history of induced abortion. Based on this high prevalence we recommended the conduct of a nationwide study to determine the true burden of co-infection.

Mr. Vice Chancellor Sir, ladies and gentlemen, we followed up the above recommendation by partnering with our colleagues in seven universities across the six zones of the country to set up a consortium to conduct research on the co-infection of HIV, Hepatitis B and C infection in Nigeria (Triplex Group). The consortium first conducted a systematic review and meta-analysis to ensure we were not reinventing the wheel. The review retrieved a pooled rate of MTCT of HIV of 2.7% and hepatitis B virus of 55.5% among mother-infant pairs with mono-infection of HIV and hepatitis B virus, respectively. No data existed on rates of MTCT of hepatitis C virus on mono-infection or MTCT of HIV, hepatitis B virus, and hepatitis C virus among mother–infant pairs with dual or triplex infection of HIV, hepatitis B virus and HCV in Nigeria (Eleje et al 2022). Based on the outcome of the systematic review, we submitted a grant proposal to TETFUND and got funded. The study whose objective is to determine the seroprevalence, rates of new infections, MTCT of dual and triple infections of HIV, Hepatitis B and C viruses and associated factors, among pregnant women in Nigeria, is ongoing, and results are expected in the first quarter of 2023 (Eleje et al., 2020). We are hopeful that the outcome of the study will guide the nation in developing evidence-based guidelines and policy.

HPV, precancerous lesion, and cervical cancer

Mr Vice Chancellor sir, cervical cancer is one of the most preventable and treatable malignant diseases, yet it is the second most detected cancer in women in Nigeria, with 12,075 cases and 7,968 deaths each year (John -Akinola et al., 2022). Human papillomavirus (HPV) is the cause of cervical cancer. HIV enhances HPV-induced carcinogenesis. However, the contribution of HIV to cervical cancer burden at a population level in Nigeria has not been clearly quantified. We investigated the burden of HPV infection among HIV positive and negative women in southwestern Nigeria. In the population-based study, we found that the distribution of HPV strain subtypes in Nigeria is different from the pattern observed in other countries (Ezechi et al., 2014c). Out of the 515 women studied, 101 (19.6%) were found to be infected with at least one high risk (HR) HPV type, with 28 women (5.4%) having multiple HPV infections. HPV 16 (3.9%), HPV 35 (3.5%) and HPV 58 (3.5%) were the most commonly identified HPV types. Vaccine preventable HR HPV genotypes HPV 16 and 18 infections were detected in only 31.7% of women infected with HR HPV. The prevalence of HR HPV among HIV positive women (24.5%) was significantly higher than the prevalence of 15.9% in HIV negatives (OR = 1.7; 95% CI: 1.1-2.7). HPV 35 (5.9%) was the most common among HIV positives as against HPV 16 (3.9%) in the study population.

Table 6: The distribution of high-risk HPV genotypes among the women by HIV status

High Risk HPV status	All women n = 515(%)	HIV positive n = 220(%)	HIV negative n = 295(%)	OR (95%CI)
HR HPV Negative	414(80.4)	166(75.4)	248(84.1)	1(ref)
HR HPV Positive	101(19.6)	54(24.6)	47(15.9)	1.9(1.2-2.9)
HPV 16	20(3.9)	14(5.4)	6(2.6)	3.3(1.1-9.7)
HPV 18	12(2.3)	3(1.4)	9(3.10)	0.4(0.1-1.8)
HPV 31	17(3.3)	12(5.5)	5(1.7)	3.1(1.1-11.1)
HPV 33	2(0.4)	1(0.5)	1(0.3)	1.3(0.0-49.3)
HPV 35	18(3.5)	13(5.9)	5(1.7)	3.4(1.2-11.9)
HPV 39	3(0.6)	1(0.5)	2(0.7)	0.7(0.1-9.4)
HPV 45	7(1.4)	3(1.4)	4(1.4)	1.0(0.2-5.4)
HPV 51	10(1.9)	5(2.3)	5(1.7)	1.4(0.3-5.4)
HPV 52	12(2.3)	6(2.7)	6(2.0)	1.4(0.4-4.8)
HPV 56	6(1.2)	2(0.9)	4(1.4)	0.7(0.1-4.3)
HPV 58	18(3.5)	9(4.1)	9(3.5)	1.4(0.5-3.9)
HPV 59	3(0.6)	1(0.5)	2(0.7)	0.7(0.02-9.4)
HPV 68	4(0.8)	1(0.5)	3(1.0)	0.4(0.02-4.8)
Multiple infection	28(5.4)	18(8.2)	10(3.9)	2.5(1.1-6.1)

Adapted from Ezechi et al., 2014.

We recommended a study with a nationally representative sample to determine the burden of HR HPV in both normal and diseased cervix. Our team is currently working with colleagues across the nation to generate this important nationally representative data (Feng et al., 2022).

In another study we evaluated how HIV infection impacts on HPV and premalignant lesions of the cervix (Ezechi et al., 2014d).

We found that HIV not only impacts on HPV burden, but also on premalignant lesions of cervix. Prevalence of premalignant lesions of the cervix among the HIV positives of 14.3% was found to be significantly higher than 3.3% found in HIV negative women.

In a separate study, we found that HIV impacts on cervical cancer diagnostics. Visual inspection with Lugol's iodine (VILI), an alternative, accessible and affordable test used to detect precancerous lesions of the cervix mostly in low-income countries, was found not only to be inferior to visual inspection with acetic acid but inadequate as a cervical cancer screening tool in severely immune deficient HIV positive women (Table 7). We recommended that in HIV positive women and those of unknown HIV status residing in HIV endemic settings, VILI should not be used as a screening tool as it is associated with false negative and positive results (Ezechi 2016b).

Table 7: Test performance of Visual Inspection with acetic acid and with Lugol's Iodine in detecting cervical squamous intraepithelial lesions diagnosed by cytology (adapted Ezechi 2016h).

Test performance	Sensitivity (95% CI)	Specificity (95% CI)	Positive Predictive Value (%)	Negative Predictive Value (%)
SIL cut-off point				
• ALL				
○ VIA	82.7 (80.9 – 89.3)	99.2 (93.1 – 100.0)	91.5 (86 – 97.2)	98.1 (93.2 – 100.0)
○ VILI	87.5 (70.3 – 89.9)	99.2 (89.1 – 99.4)	77.7 (72.1 – 85.8)	99.6 (93.5 – 100.0)
• HIV Positive s only				
○ VIA	81.9 (79.3 – 96.1)	93.1 (90.3 – 100.0)	86.4 (79.5 – 91.3)	97.1 (91.9 – 100.0)
○ VILI	77.2 (64.9 – 84.2)	71.2 (63.9 – 87.4)	52.4 (48.9 – 58.3)	88.4 (81.2 – 95.5)
• HIV negatives only				
○ VIA	90.0 (86.7 – 98.9)	97.2 (86.7 – 100)	89.3 (82.3 – 96.3)	99.6 (95.3 – 100.0)
○ VILI	86.7 (84.3 – 94.1)	94.0 (81.4 – 98.6)	63.4 (55.9 – 76.1)	98.3 (95.1 – 100.0)
HSIL cut-off point				
• ALL				
○ VIA	93.3 (89.2 – 98.9)	99.2 (89.8 – 100.0)	87.8 (73.4 – 93.7)	97.8 (90.9 – 100.0)
○ VILI	92.9 (83.4 – 98.3)	89.6 (81.49 – 1.9)	22.0 (20.9 – 23.4)	99.7 (96.3 – 100.0)
• HIV Positives only				
○ VIA	90.3 (83.2 – 99.3)	93.1 (87.1 – 100)	85.3 (73.6 – 87.3)	94.5 (91.6 – 97.6)
○ VILI	82.4 (71.9 – 93.2)	71.3 (65.3 – 79.9)	19.9 (17.7 – 22.1)	97.8 (93.5 – 99.8)
• HIV negatives only				
○ VIA	96.0 (95.8 – 100.0)	99.7 (87.5 – 100.0)	85.7 (81.7 – 90.7)	98.9 (95.2 – 100.0)
○ VILI	80.0 (72.5 – 92.3)	80.0 (67.8 – 94.9)	61.5 (55.3 – 67.8)	99.1 (95.6 – 100.0)
• CD4 cell count < 200*				
○ VIA	71.3 (61.2 – 85.1)	88.2 (76.3 – 93.1)	83.3 (79.3 – 90.1)	88.2 (82.4 – 95.1)
○ VILI	70.0 (68.8 – 88.3)	66.9 (57.8 – 74.9)	46.7 (41.9 – 50.3)	50.0 (44.8 – 54.6)
• CD4 cells count ≥ 200*				
○ VIA	93.8 (84.5 – 99.1)	98.5 (86.9 – 100.0)	93.4 (89.5 – 98.7)	99.5 (96.3 – 100.0)
○ VILI	87.5 (75.9 – 94.5)	73.4 (65.1 – 83.9)	57.5 (53.4 – 61.9)	98.9 (94.9 – 100.0)

SIL: Squamous Intraepithelial Lesion; HSIL: High Grade Squamous Intraepithelial Lesion *Data only for HIV positive participants

Mr Vice Chancellor, Ladies and gentlemen, every Tom, Dick, and Harry now conducts outreach cervical cancer screening with the erroneous impression that screening alone will reduce cervical cancer morbidity and mortality in the country. Most of these outreaches are conducted by persons with questionable cervical cancer screening training. The Cochrane Database for Systematic Reviews concluded that although interventions based on lay health workers represent a promising approach to disease prevention, further research is required to determine the effectiveness of approaches using lay health workers (Lewin et al., 2006, Ezechi 2016b). We conducted a prospective study to evaluate the effectiveness of outreach cervical cancer screening programmes conducted in two southwestern states of Lagos and Ogun (Ezechi et al., 2014e). The study enrolled a total of 673 women over a fifteen-month period; of which 108 (16.1%) that screened positive to direct visual inspection were followed up. About half (47.2%) of the women that screened positive for precancerous lesion of the cervix did not report for further management. One third of the defaulters were completely lost to follow up as both their phone numbers and home addresses were incorrect and therefore could not be located. The reasons for failure to report among defaulters who could be traced were cost of transportation (48.6%), no time (25.7%), 'Nothing is wrong with me' (11.4%), 'the clinic is too far' (8.6%) and 'sick' (5.7%). Our findings confirm that the current strategy of opportunistic testing through outreaches in the country is associated with high rates of default. Additionally, the multiple visits and costs

associated with this strategy is unsustainable. From our various studies on cervical cancer and HPV, we made the following recommendations for the prevention of cervical cancer among HIV positive women; (1) single visit strategy of “see and treat” to ensure that those who test positive receive the lifesaving treatment immediately, and (2) integration of cervical cancer prevention services into HIV programmes.

The next PMCT pillar is the prevention of the transmission of HIV infection from HIV-positive pregnant women to their children. To achieve the 3rd strategy entails the provision of HIV testing during pregnancy and, for those found to be HIV-infected, access to antiretroviral drugs, safe delivery methods, anti-retroviral prophylaxis for infants, safe infant feeding option and provision of contraceptives to WLHIV for family planning.

HIV testing services

Mr Vice Chancellor Sir, ladies and gentlemen, HIV testing services is the entry point to PMTCT services. Unfortunately, early in the epidemic in Nigeria, HIV testing services (HTS) points, then called Voluntary Counselling and Testing (VCT) centres were very few, and testing kits not readily available. The Institute quickly set up HTS to provide quality assured testing results. It is almost two decades since the testing services started, and our team has provided HTS to 286,138 Nigerians; of which 26,588 (9.3%) were pregnant. This high number of people tested was achieved through innovative strategies then of combined community outreaches, partnership with non-

governmental organisations, private and public health and non-health institutions, and traditional birth attendants. Over thirty percent (31.6%) of those tested were confirmed HIV infected. The high positivity rate seems alarming and does not reflect the current prevalence in the country. It must however, be noted that the Nigerian Institute of Medical Research Yaba Lagos, because of its track record in the management of HIV/AIDS, is now considered the ‘supreme court’ of HIV diagnosis and management. Once individuals are diagnosed HIV positive elsewhere in Lagos and parts of Ogun State, their next destination is the HTS centre at the Institute for confirmation of result. The centre is equally used by men of God, and HIV cure claimants when they want a “confirmation cure.” It can actually be said that the centre performs HIV confirmatory test rather than screening services. In the course of performing this confirmatory function, a number of individuals previously diagnosed to be HIV positive were found to be negative (Audu et al., 2015). The implications of being erroneously labelled HIV positive for an individual and their family are far reaching and range from simple anxiety, family disintegration, self-harm, homicide and suicide (Ezechi 206b). Some members of our team had been dragged to court to explain why they should not be remained in court custody for performing their duty. The situation is better now as several government approved HTS centres exist, and the available kits are now more sensitive.

PMTCT Service Outcome

Mr Vice Chancellor sir, access to antiretroviral drugs is key to the elimination of MTCT. In 2004, the PMTCT clinic at the Institute started operations as an outpatient PMTCT clinic, the first of its kind in the country. Since inception in July 2004, our team has provided either partial or complete PMTCT services to 7,269 pregnant HIV positive mothers. Of 7,269 mother that initially enrolled for PMTCT in our clinic, 6,477 (89.1%), resulting in 6,548 babies, consisting of 6,404 (97.8%) singletons and 144 (2.2%) twin babies were accounted for. In the remaining 792 (14.5%) pregnancies, the pregnancies were not carried to term, resulted in perinatal deaths, or completely lost to follow up. Fifty-six babies tested HIV positive, an MTCT rate of 0.86%, which compares favourably with the best in world. Our MTCT rate has been consistently less than one percent (Ezechi et al 2013a; Ezechi et al., 2016b). The low MTCT rate in our outpatient PMTCT services shows that while other antenatal and delivery services may be important for safe motherhood, the key strategy to elimination of MTCT is highly active antiretroviral drugs (Ezechi et al., 2006b). We advocated for the use of combination antiretroviral therapy early in the epidemic. Our team was maligned and was even threatened to use mono or dual therapy which from common sense was of lower quality and associated with development of drug resistance (Boyce et al., 2022, Ezechi 2016b). Our vision then has become reality as HAART for all is now the gold standard for HIV treatment.

Mr Vice Chancellor Sir, ladies and gentlemen, it is on record that the first hundred pregnant HIV positive patients that were enrolled in NIMR PMTCT programme were all on HAART. We nearly recorded a zero MTCT, if not for mismanagement of one mother at referral hospital. She had rupture of fetal membranes at term and was referred promptly to a public facility where she was not attended to for over 18 hours, when we know that in an HIV positive woman the risk of mother to child transmission of HIV increases when the duration of rupture of fetal membranes is more than 4 hours. The child tested positive! The good news however that is despite that disappointment the child is 16 years this year, in Senior Secondary (SS3) and doing very well.

In the course of our providing services for HIV positive pregnant women, we also answered some challenging questions of; (1) what is the outcome of pregnancy among WLHIV, (2) what is the pattern and determinants of antiretroviral drug adherence among pregnant women, (3) is HIV infection associated with bacteriuria in pregnant women, and (4) what is the prevalence and risk for spontaneous preterm birth among HIV positive women?

Adverse Obstetric Outcome

Mr Vice Chancellor Sir, Ladies, and gentlemen, while the effect of HIV infection on some maternal outcomes are well established, for some others there is conflicting information on possible association with HIV. In this particular study our team investigated the pregnancy

and neonatal outcomes among HIV positive women over a period of 7 years. Adverse obstetric and neonatal outcomes were recorded in almost half of the HIV positive pregnant women studied (48.3%), which is significantly higher than the less than one third (30.3%) in HIV negative pregnant women (OR: 2.08; CI: 1.84-2.34). Low birth weight (OR:3.0), preterm delivery (OR:2.1), perinatal death (OR:1.9), and spontaneous abortion (OR:1.37) were the adverse outcomes found to be independently associated with HIV infection. The adverse outcomes were found to be commoner in women with severe HIV diseases (OR: 2.5) and those with opportunistic infections (OR: 2.1). This study confirms the findings of other studies elsewhere that adverse pregnancy and neonatal outcome is associated with HIV infection and is worse among those with severe diseases (Ezechi et al 2013a).

Antiretroviral drugs adherence in pregnancy

The introduction of combination antiretroviral therapy (cART) has not only improved longevity in individuals infected with HIV, but also has had a significant impact on the rate of MTCT. Mother-to-child transmission is one of the modes of HIV transmission. Following introduction of cART, the rates of MTCT has practically crashed to less than 2% (Homsy et al 2006). However, the success of cART is highly dependent on the individual's ability to take the medication as prescribed. This is particularly true in the PMTCT, where the consequence of failing to achieve viral suppression is the

transmission of the virus to the baby (Hayman 2009). Adequate adherence to the prescribed antiretroviral medications is essential to achieving maximal viral suppression necessary to PMTCT (Homsy et al 2006). Among our pregnant cohort, over eighty percent (80.6%) achieved adherence level of at least 95% using 3 day recall. The desire to protect the unborn child was their greatest motivation (51.8%) for good adherence (Ekama et al 2012). The high drug adherence recorded among the cohort may account for the great success we recorded in our PMTCT programme. This again underscores the importance of universal cART for all pregnant women (Ekama et al., 2022).

Spontaneous preterm delivery

Each year, an estimated 13 million infants are born prematurely. Complications from these premature births are the leading cause of neonatal mortality (Ezechi & David 2012a). Recent studies have identified HIV as a leading contributor to preterm birth, and its associated morbidity and mortality. However, there is paucity of information on the subject in our sub region. Identifying the factors associated with preterm birth among pregnant HIV positives will not only prevent MTCT, but will also reduce the morbidity and mortality associated with prematurity and low birth weight. Our team conducted another study to determine the prevalence, and risk factors for preterm delivery among our HIV positive women. Spontaneous preterm delivery rate was 11.1% among 1,626 HIV positive women

included in the study. Spontaneous preterm delivery was found to be commoner among women with multiple pregnancy (OR: 8.6), presence of opportunistic infection at delivery (OR: 1.9), and 1st trimester exposure to PI based regimen. (OR: 5.4) (Ezechi et al 2012b). The present national guidelines that is evidence based has already addressed almost all the key issues flagged by this study.

Anaemia in pregnancy

Mr. Vice Chancellor Sir, Ladies and Gentle, Anaemia is another very common complication of pregnancy among HIV positive women. It is also a predictor of poor maternal and foetal outcomes. HIV infection is a major contributor to anaemia in pregnancy (Ezechi et al 2012c). Again, based on the above our team determined the burden, and risk factors for anaemia among pregnant HIV positives with the aim of using obtained information to plan an effective prevention. Anaemia prevalence was found to be high (42.5%), with majority of mild to moderate severity (97.9 %). Short inter-birth interval, presence of opportunistic infections and severe disease, and use of zidovudine containing HAART regimen were the independent risk factors for anaemia in HIV positive pregnant women (Ezechu et al 2012d). Therefore, early diagnosis and treatment of anaemia are essential in these patients to prevent poor maternal, obstetric and neonatal outcome.

Asymptomatic bacteriuria

Asymptomatic bacteriuria (ASB) is a condition in which urine culture shows a significant growth of pathogenic bacteria, without the presence of symptoms related to urinary tract infection (UTI). Pregnant women are more commonly affected than non-pregnant women due to various morphological and physiological changes, and urinary stasis that occur during pregnancy. The prevalence of ASB in pregnant women varies from 4% to 23.9% globally and the higher prevalence is attributed to lack of personal and environmental hygiene, socio-economic status, parity and race. The progression of ASB to symptomatic bacteriuria may lead to pyelonephritis, intrauterine growth restriction (IUGR), low birth weight (LBW), prematurity and preterm delivery. When left untreated it may result in symptomatic cystitis and pyelonephritis in almost half of the patients. Treatment of ASB results in decrease in the incidence of preterm labour and low birth weight infants (Prabhavathi et al 2018).

Among HIV positives, there are conflicting reports on the association of HIV infection and ASB. However, most of these studies were from low-income countries with low HIV burden. Another of our study determined the prevalence and risk factors of ASB among a cohort of HIV positive pregnant women. Over eighteen percent (18.1%) of the women studied were found positive for ASB, showing that it is common among HIV positive pregnant women in our environment. *Escherichia coli* (44.3%) and *Proteus mirabilis* (21.6%) were the most common bacterial isolates. Previous

urinary tract infection (OR: 4.3), severe HIV diseases (OR: 1.4) and maternal anaemia (OR: 1.4) were found to be associated with ASB (Ezechi et al 2013d). All the sequelae of ASB could be reduced by early detection and appropriate antimicrobial treatment. We recommend regular and repeated trimester-wise screening to be incorporated into PMTCT services to reduce consequences of ASB and ultimately MTCT of HIV infection.

Mr Vice chancellor Sir, ladies, and gentlemen, the last of the four PMTCT pillar is the provision of appropriate care, treatment and support for women living with HIV, as well as their infants and families. This prong focuses on supporting and delivering evidence-based health interventions to women, children, and families. Ensuring safe infant feeding, contraceptive services for the woman and her partner, and provision of HIV testing services for the woman's family is an efficient and effective way to reduce HIV transmission within the family (FMoH 2020). Promoting the integration of HIV/AIDS prevention, treatment and care services with maternal, neonatal, child health and nutrition services, including family planning services is another strategy for reducing maternal and child mortality and to control the HIV/AIDS epidemic.

Infant feeding option

Mr Vice Chancellor Sir, ladies and gentlemen, breastfeeding promotion is a key component of infant health policy globally because of its known health benefits. These benefits include provision of optimal nutrition, prevention of common childhood

illnesses and improvement of child spacing. Breastfeeding is practised widely in sub-Saharan Africa including Nigeria. It is both socially and culturally acceptable (Abiona et al., 2006). However, in the context of the HIV epidemic, breastfeeding became a public health dilemma as HIV could be transmitted to the baby via breast milk (Oladokun, et al., 2010). The transmission of HIV via breast milk mainly occurs in the first four months of life, a time when replacement feeding carries the greatest risk of increasing infectious disease morbidity and the benefits of breastfeeding are maximal (Sadoh et al., 2008). Mothers living with HIV infection are faced with the dilemma of which infant feeding method to adopt (Sadoh et al., 2008).

Despite various guidance documents on safe infant feeding in the context of HIV, evidence shows that the infant feeding choices made by these women are dependent on a variety of issues and factors such as operational infant feeding guidelines, non-affordability of alternative feeding, non-availability of potable water, the quality of counselling, bias of the health workers, culture, HIV associated stigma and peer pressure on the mother (Ezechi et al., 2008; Sadoh et al., 2008). In 2016, we reviewed the infant feeding practices of almost 6,000 HIV positive mothers who had received PMTCT services at the HIV treatment centre NIMR Lagos (Table 8). Exclusive formula feeding was the most practiced infant feeding method among the cohort (86.4%). Change in infant feeding policy and guidelines was found to influence the infant feeding choice of HIV positive mothers, with an increase in mixed breastfeeding rate (David et al 2017a).

Table 8: Infant feeding practices of mothers of HIV positive mothers (2004-2015)

<i>Infant feeding practice</i>	<i>All mothers N= 5034(%)</i>	<i>Period of No free formula (July 2004 - July 2007 and March 2009 - Dec 2015) n= 4250(%)</i>	<i>Period of Free formula (Aug.2007 - Feb. 2009) n= 784(%)</i>	<i>P value</i>
Exclusive Breastfeeding	453 (9.0)	384 (9.0)	69 (8.8)	0.71
Exclusive Formula Feeding	4349 (86.4)	3658 (86.1)	691 (88.1)	Ref
Replacement Feeding	91 (1.8)	80 (1.9)	11 (1.4)	0.33
Mixed Breastfeeding	141 (2.8)	128 (3.0)	13 (1.7)	0.03

Our findings were in tandem with studies from Ibadan and Benin (Oladokun et al., 2010; Sadoh et al., 2008) but differed from a study from Ile-Ife that reported a 60 - 80% exclusive breast-feeding rate (Adejuigbe et al., 2008). We further studied the difference in infant feeding pattern (table 9). We found that mothers with low educational attainment, and of low socio-economic status, unemployed, not on care before PMTCT enrolment, yet to disclose their HIV status, and delivered outside orthodox health facility were more likely to practice inappropriate infant feeding (David et al., 2017b).

Table 9: Factors associated with inappropriate infant feeding in the context of HIV

Variables	Inappropriate infant feeding practice n = 4893 (%)	Appropriate infant feeding practice n = 4893 (%)	p-value (Bivariate analysis)	Crude OR (95% CI)	Adjust OR (95% CI)
HIV care status before pregnancy					
On care	66(47.1)	3156(64.5)	Ref	1.0	1.0
Not on care	75(52.9)	1737(35.5)	0.000	2.0(1.4-2.9)	1.9(1.5-2.7)
Duration of HIV disease					
0-12 months	45(32.1)	1145(23.4)	0.03	1.6(1.03-2.3)	1.3(0.9-2.1)
>12 months	96(67.9)	3748(76.6)	Ref	1.0	1.0
Partner's HIV status					
Positive	51(36.2)	1380(28.2)	Ref	1.0	1.0
Negative	71(50.4)	2735(55.9)	0.03	1.5(1.03-2.3)	1.2(0.8-2.0)
Unknown	19(13.4)	778(15.9)	0.07	1.0(0.6-1.7)	0.9(0.7-1.4)
HIV status disclosure					
Disclosed	64(45.4)	4159(85.0)	Ref	1.0	1.0
Not disclosed	77(54.6)	734(15.0)	0.000	6.8(4.7-9.9)	6.3(4.9-8.3)
Gestational age at booking					
0-13 weeks	17(11.8)	935(19.1)	Ref	1.0	1.0
> 13 weeks	124(88.2)	3958(80.9)	0.02	1.8(1.01-3.1)	1.5(0.9-2.9)
Place of delivery					
Orthodox health facility	86(61.3)	4595(93.9)	Ref	1.0	1.0
Non - orthodox facility	55(38.7)	298(6.1)	0.000	9.7(6.6-14.3)	8.1(7.4-11.7)
Mode of delivery					
Vaginal delivery	85(60.5)	2647(54.1)	Ref	1.0	1.0
Cesarean Section	56(39.5)	2246(45.9)	0.10	0.8(0.5-1.1)	0.9(0.6-1.6)
Sex of baby					
Male	77(54.6)	2466(50.4)	Ref	1.0	1.0
Female	64(45.4)	2427(49.6)	0.20	1.2(0.8-1.7)	1.1(0.9-1.8)
Multiple pregnancy					
Singleton	135(95.8)	4810(98.3)	Ref	1.0	1.0
Multiple	6(4.2)	83(1.7)	0.06	2.5(1.0-6.3)	1.9(0.8-5.9)

Adapted from David et al 2017

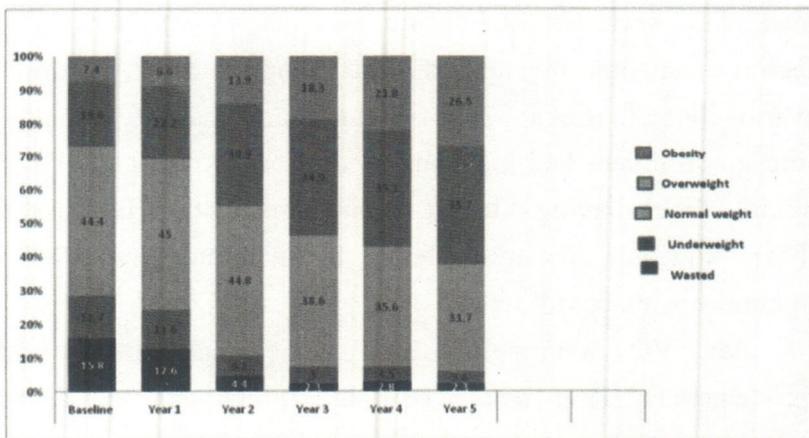
The differences observed in the infant feeding methods practiced by the mothers in the various settings may be related to their differing socio-demographic characteristics. Health workers implementing PMTCT programs in our setting should be made aware of the risk of inappropriate breastfeeding if they do not consider the mothers preferences and insist on implementing the guideline in isolation. Specifically, they should target poor women and those not on care.

Maternal Nutrition

Mr Vice Chancellor Sir, Ladies and Gentlemen, several studies globally have identified malnutrition as a major contributor to HIV infection transmission and disease progression (Anabwani & Navario, 2005; Taye et al., 2010). Sadly, a large majority of mothers in our environment had inadequate nutritional knowledge despite majority of them having at least a secondary education (Ezechi et al., 2016a). Nutrition education should be integrated into PMTCT programme in our environment.

Mr. Vice chancellor Sir, the enthusiasm over the improvement in HIV-associated mortality following the introduction of combination antiretroviral therapy (cART) has, however, been partly diluted with concerns of cART-associated metabolic complications, including obesity, hyperlipidaemia, and insulin resistance, which accelerate the onset of type 2 diabetes mellitus and atherothrombotic cardiovascular disease (Carr et al., 1998, Nansseu

et al 2018, Friis-Moller 2003. Our teams also found a progressive increase in the prevalence of overweight and obesity after commencement of antiretroviral therapy (Ezechi et al., 2016d). In a 5-year cohort review of 8,819 PLHIVs of which 64.2% were females, prevalence of obesity increased from 7.4% at baseline to 26.5% in five years. The female gender, low baseline body mass index and severe HIV disease at presentation were found to be associated with the development of obesity during antiretroviral therapy (figure 3). Programmes targeting prevention of obesity and its complications should be integrated into routine HIV care with special focus on women and those with advanced disease.



Trend in nutritional status of the participants over 5-year period.

In another of our several studies on maternal and infant nutrition, it was evident that despite the efforts of the government to sustain good nutrition, the practice of good maternal nutrition has remained poor in the general population (Ezechi et al 2021) .We recommend that action to improve maternal nutrition should not focus on knowledge alone but on attitude, as many studies have found a direct link between a positive attitude and good nutritional practice. In addition, health education of mothers, future mothers, and the public should be intensified, as it may improve the attitude to nutrition.

Hypertension among PLHIVs

In Nigeria, approximately one third of PLHIVs has hypertension (Idongesit et al., 2022; Ekrikpo et al 2018; Ilesanmi and Akpa 2020), a leading modifiable risk factor for cardiovascular disease and death. This is similar to findings from other sub-Saharan African countries (Xu et al 2017). Persons living with HIV have an increased risk of cardiovascular disease including myocardial infarction, stroke, and sudden cardiac death compared to the general population (Frank et al 2019). The burden of hypertension and its associated cardiovascular related morbidity and mortality will continue to rise as PLHIVs age. This foretells an impending public health crisis if not urgently addressed.

Mr. Vice chancellor Sir, ladies, and gentlemen, despite this growing epidemic, most hypertensive PLHIVs in our environment

are unaware of their hypertension diagnosis and are not receiving hypertension treatment (Idongesit et al 2022; Ekrikpo et al 2018; Ilesanmi and Akpa 2020). The Nigeria clinical guidelines for hypertension management advise that antihypertensive treatment, including patient education, lifestyle modification, and pharmacologic therapy, should be initiated for all individuals with an elevated blood pressure (Kadiri et al 2020). However, a recent study among hypertensive patients enrolled in HIV care showed that more than half of all participants had never had a previous blood pressure measurement, two-thirds were unaware of their diagnosis, 90% were not on antihypertensive treatment, and none had controlled blood pressure suggesting a discordance between treatment guidelines and real-world practice (Manavalan et al 2020).

In order to improve clinical outcomes among PLHIVs, it is crucial to have a clear understanding of the challenges faced across the hypertension care continuum. To understand better the obstacles to hypertension care faced by PLHIVs, we conducted studies to understand the environment in which hypertension care is provided. We also explored the perspectives and experiences of health care workers caring for patients with both HIV and hypertension. We observed that optimizing healthcare workers' implementation of evidence-based task-strengthening strategies for hypertension control within HIV clinics requires attention to both the implementation climate and contextual factors likely to affect uptake and sustainability of practice. These findings have implications for

the development of effective practice facilitation strategies to further improve the delivery and integration of evidence-based task-strengthening strategies for hypertension control within HIV clinics in Nigeria (Iwelunmor et al 2022). We also found that except for motivation, the relative capabilities whether physical or psychological and the relative opportunities for integrating evidence-based hypertension intervention within HIV clinics in Nigeria were minimal (Iwelunmor et al 2019). There is therefore, need to strengthen the HIV clinics for the implementation of evidence-based hypertension interventions to improve patient outcomes and service delivery.

In another of our studies that extended our previous work on the capabilities, opportunities, and motivations of HIV clinics in Lagos State to integrate hypertension management into HIV care, we specifically focused on the perspectives of the HIV clinic nurses on the barriers and facilitators of implementing a task-shifting/sharing intervention. We found factors related to hypertension training for HIV clinic nurses and on-going supervision to be potential enablers for integrating hypertension management within HIV clinics (Aifah et al 2020). These findings underscore the importance of developing nurse-based strategies to integrate hypertension management into HIV care given the limited availability of evidence supporting context-specific strategies.

Mr. Vice Chancellor sir, based on the above findings, we applied for and obtained a five-year funding from the National

Institute of Health USA, to implement a cluster randomized controlled trial to evaluate the effectiveness of an implementation strategy, practice facilitation (PF), on the integration, adoption, and sustainability of a task-strengthening strategy for hypertension control intervention within primary healthcare centers in Lagos State, Nigeria (Aifah et al. 2021). This study is currently ongoing and being conducted in three phases (i.e., pre-implementation, implementation, and post-implementation) using a mixed-methods hybrid type II effectiveness-implementation design. Two implementation frameworks: the Consolidated Framework for Implementation Research (CFIR) and the Reach Effectiveness Adoption Implementation and Maintenance (RE-AIM) guide this study.

Figure 4 below provides an overview of the study design.

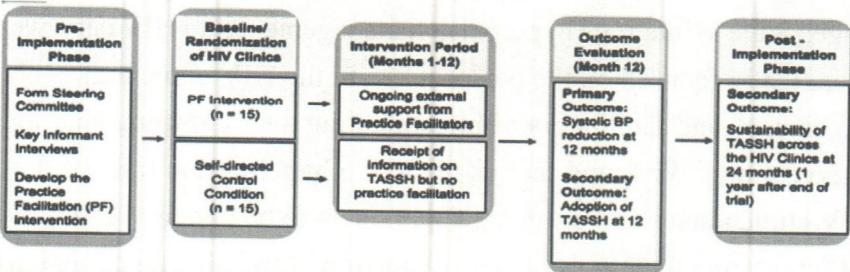


Figure 4: Study design

The method for delivering evidence-based task-strengthening strategies for hypertension control within primary health care clinics for PLHIVs is based on a four-step approach for identifying PLHIVs with uncontrolled hypertension, lifestyle counseling for PLHIVs

with uncontrolled hypertension on adopting healthy behaviors, treating PLHIVs with uncontrolled hypertension by prescribing medication using Nigeria's hypertension treatment protocol, and referring PLHIVs with complicated hypertension for additional care. Figure 5 shows an overview of the intervention using the 5A's counseling strategy (Ask, Assess, Advise, Assist, and Arrange).

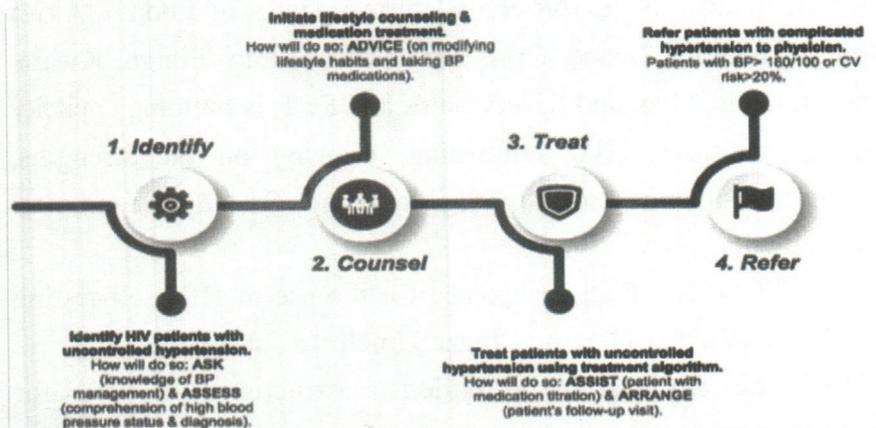


Figure 5: Overview of the study intervention (Aifah et al 2021)

Uptake HIV among adolescent and young person

Mr Vice Chancellor Sir, Ladies and gentlemen, Nigerian youth are at the epicentre of an expanding HIV crisis, with the second largest number of new youth HIV infections of any country. However, fewer than one in five Nigerian youth have ever been HIV tested. Young people are often framed as the fraught victims of new HIV infections, instead of recognizing their resilience and power in advancing

effective response to the epidemic. Conventional expert-driven, top-down interventions have largely failed. Innovative solutions that leverage the resourcefulness and resilience of youth are sorely needed. Again, currently our team, with funding from the NIH, USA is implementing innovative youth-friendly HIV self-testing services based on open challenges and apprenticeships that are informed by a youth participatory action research framework. The project, being implemented in 30 LGAs across thirteen states of Ebonyi, Akwa Ibom, Anambra, Benue, Cross River, Delta, Edo, Enugu, Kwara, Lagos, Ondo, Oyo, and Rivers states and FCT, is building capacity for decentralized HIV self-testing, drawing on the strengths, creativity, and engagement of Nigerian youth. So far, we can report the following:

- There is a high acceptance for the use of HIV self-testing (HIVST) in Nigeria (Obiezu-Umeh et al 2021).
- The designathon provided a structured method for incorporating youth ideas into HIV service delivery (Tahlil et al 2021).
- Designathons may be useful for developing tailored youth-friendly health services (Nwaozuru et al 2021).
- Crowdsourcing requires the active participation of key stakeholders; in this case the active participation of youth in creating solutions to increase the uptake of HIV testing among their peers (Iwelunmor et al 2020).

The above affirms that with effective strategies in place for linkage to

post-test services following HIVST, there is a strong possibility that HIVST will be an appropriate approach to reach youth who may not otherwise test and maybe pivotal to achieve the first of the UNAIDS 95-95-95 targets —knowing one's HIV status (Obiezu-Umeh et al 2021).

Mr Vice Chancellor Sir, as I draw the curtain on this presentation, one may ask what I have done at LCUI since appointed a professor outside routine duties of a university lecturer, and what are my plans for the future.

Development of MPH and PhD in public health programme

In partnership with the energetic and hardworking immediate past Head of Department of Public Health, Dr Fola Akinsolu, and other academic staff, we developed an MPH programme that will allow students to develop the essential skills required to promote the well-being of people across Nigeria and internationally. We equally developed a PhD in Public Health programme that prepares students for teaching, research, and service delivery. In addition, the MPH and PhD programmes are with specialisation in Biostatistics, Epidemiology, Nutrition, Environmental and Occupational health, and Maternal and Child health. If the senate of the school approves, we are looking at developing certificate and diploma public health courses for middle level manpower.

Training and mentoring of PhD faculty.

It is well known that effective relevant training plays an essential role in overall career development of faculty. In very specialized areas such as Public Health, obtaining the right knowledge and building the right attitude is of immense importance. As you may be aware, two of LCUI faculty are currently enrolled in an National Institute of D43 Forgarty Research Training Programme – Emory Nigerian Research Training Programme (EN-TRP) , of which I am not only a Director, but the country lead. The overarching goal of the EN-RTP is to enhance the capacity of researchers focused on HIV/women's health research in Nigeria, with the aim of promoting health and wellbeing of women living with HIV. The EN-RTP program develops trainees' knowledge and skills in epidemiology, data management, and analysis to increase their individual research capacity.

Field Visits

In Public Health, well organised and supervised field visits are critical for training of students at all levels. Field trips allow students direct access to tools and environments that they otherwise wouldn't have within the four walls of their school. In collaboration with the HODs, field visits to facilities at the Nigerian Institute of Medical Research was added to the student's portfolio. This has exposed the students to state-of-the-art facilities in both the laboratories and the clinic at the Institute. This I will continue to facilitate.

Faculty Lecture

The purpose of the Faculty Lecture is to share the vast and interesting knowledge of faculty members, while providing a sense of community, allowing the opportunity for faculty to learn about other disciplines. Yours sincerely, delivered the first faculty lecture of the Department of Public Health. In the lecture titled, "Public Health: Everyone's Responsibility", we discussed the science of public health, analysed the public health aspects of the COVID-19 pandemic, how public health is the key to achieving the SDGs, public health aspects of the Russian-Ukraine war, and finally highlighted how the top ten priority diseases in Nigeria can be prevented through public health approach.

Conclusions and Recommendations

From the time when I had my first contact with WLHIV up till now, I can confirm that it is possible to prevent the transmission of HIV from mother to her baby. Our team have provided a model for not only preventing mother to child transmission of HIV (vertical transmission), but to also prevention of horizontal transmission of HIV. We have produced evidence that have informed policy, shaped practice, and in the process showed that it is possible to reduce MTCT rate to less than 1%. We also observed that research is not fully accorded its pride of place, and the evidence generated with the little funding available are poorly utilised.

We therefore make the following recommendations:

1. Government, organised private sector, and institutions should prioritize research as it is the vehicle that drives development.
2. Researchers should abandon pedestrian research and focus on those that addresses important national and developmental questions.
3. Research products are meant to solve community problems; therefore, stakeholders should be engaged early in the process if output is to be utilised.
4. Government, the public and academic institutions should as a matter of urgency put in place strategies to utilise research product, otherwise the resources invested on research becomes a waste.
5. Academic institutions should put in place capacity strengthening programme for their faculty to make them globally competitive to attract research funding.
6. Research funding attracted to academic institutions should be a component of advancement criteria.

Acknowledgment

In bringing down the curtain on this inaugural lecture, Mr Vice Chancellor, ladies and gentlemen, let me acknowledge those that have contributed immensely to what I am today:

Unquantifiable appreciation and thanks to my parents, Sir Vitus Olemuefulu Ezechi *KSJI, JP* and Elizabeth Onyekwere

Ezechiwho, for some reason to be discussed another day, are not here to witness this august event. Through their hard work, numerous sacrifices, prayers, and God's grace I am what I am today. Ray and James, my siblings, I thank you for your support and encouragement over the years. Dr Linus Obiefuna Nwankwo, my senior cousin, I appreciate you for your support and belief in us.

I have the very rare privilege of having outstanding teachers and mentors who guided me to what I am today. Late Mr. V. N. Agazie (secondary school Principal) and late Mr. J. J. Osakwe (A level Biology teacher), you both taught me that a teacher can be humane and friendly, without losing his authority. At the Medical School, University of Benin, Benin City, I met outstanding teachers (Late Fr. Robert W. Dundon, SJ - Chemistry 101), Dr. Nnodim (Anatomy), Professors Angela Okolo (Paediatrics), Kubeyinje (Dermatology), Ojogwu (Nephrology), Akumabor (Urology), Unigbe (Obstetrics and Gynaecology), Evbuomwan (Paediatric Surgery), and Dr. Njokanma (Paediatric Resident). I appreciate you all.

Since I joined the Nigerian Institute of Medical Research, I have received tremendous support from colleagues, friends, and Mentors. I have had the very rare privilege of working closely with the last three Directors General. Professor Oni Idigbe supported my quest for and acquisition of scholarship to study Public Health at the Lund University, Sweden. He also exposed me to proposal writing and directed me to the very first grant. Professor Innocent A. O. Ujah mni, immediate past Director General entrusted me with several

administrative responsibilities. The current DG, Professor Babatunde Lawal Salako, continued in that vein and capped it with appointing me his special adviser on scientific matters. My relationship with DGs has been that of mentor and mentee. I have learned so much. Thank you all for coming my way. May your children find the kind of favour you have shown me.

My team, ITEST, RBL, IeDEA, TASS, SARMAAN and SIFCoVAN for the hard work and support of my programmes and project. You're the best. The technical crew, I salute. My "headmistress", you're not forgotten!

I am immensely grateful to the Vice Chancellor, management and staff of LCUI. I sincerely appreciate the Chairman, Governing Council, Prof Jide Owoye, for the opportunity to serve the University. This opportunity enables not only me but other staff of NIMR to attain the peak of academic pursuit. It is for this opportunity that am called today, Professor. May the good Lord bless and continue to prosper you and LCUI. Professor Olusola Ladokun, my friend, my sister, and Dean for life, and Dr. Fola Akinsolu, my aburo and HOD for life, you took me under your wings and made me comfortable at LCUI. I appreciate you as you continue to make my engagement at LCUI stressless.

I also have had immense international collaboration and mentorship over the years. In particular, I have had the singular honour and privilege to have friends and mentors in Europe, America, and Africa in the course of my academic pursuit and research

practice. These are Dr. Philip Onyebujoh (WHO, Geneva and WHO Afro, Zimbabwe), Professors P. O. Ostergren and late Karen Odberg Petterson (Lund University, Sweden), Professors Juliet Iwelunmor (St Louis University, USA), Igho Ofotokun (Emory University, USA) and Gbenga Ogedegbe (New York University, USA).

My immediate family ably lead by my friend and wife of 20 years - Lilian Ogochukwu Ezechi, devoted, ever supportive and prayer warrior. The Boys- Uche, Ebuka and Chijoke, you and your mother have provided a safe haven for me, a home of peace and tranquility. I am here today, may you all surpass me, amen.

Finally, I remain grateful to God, my Creator and Maker, for making this day possible. I am just a willing tool in His hands as I continue to partner with women to find solutions to HIV through research, training and service. All glory and honour be unto HIM forever.

Conclusion

I have come to the end of my lecture. It must be obvious to all present that the country has made progress in the HIV response. Elimination of paediatric HIV infection remains a major public health challenge. Our team has showed that it is possible to eliminate paediatric HIV, as the last 3 consecutive years, did not record a single mother to child transmission of HIV to unborn baby. Let the achievement at one centre spur us all to action. Know your HIV status today!

Mr Vice Chancellor Sir, Distinguished Guests, colleagues,

students, friends, relations, well-wishers, ladies, and gentlemen, thank you all for your presence, patience, and attention. I wish you journey mercies as you depart to your various destinations and homes. God bless you.

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BIODATA OF PROFESSOR OLIVER CHUKWUJEKWU

Professor Oliver Chukwujekwu Ezechi was born on 21st October 1968 to the family of Sir Vitus Olemuefuna Ezechi and Mrs. Elizabeth Onyekwere Ezechi. He attended primary school at the Central School Umunze, and secondary school at All Saints Secondary School Umunze Anambra state where he passed out in 1983. Between 1983 and 1985, he enrolled for Higher School Certificate in the school of Basic Studies, Institute of Management and Technology Enugu.

In September 1985 he gained admission to the University of Benin, Benin City and graduated in November 1991. At the University of Benin, he was able to combine his academic activities with extracurricular activities as he participated in several sociocultural activities and rose to become the President of Federation of Old Aguata Students. He also represented the College of Medicine in interfaculty games specifically in 400metres and high jump.

Dr. Ezechi was House officer at the Nnamdi Azikiwe University Teaching Hospital (NAUTH) between 1992 and 1993 where he served as the the house officer representative. From 1993 to 1994, he did his National Youth Service (NYSC) as medical officer at the Brigade Medical Centre, Military cantonment, Minna Niger State, where he won the Niger state award for an outstanding Youth Corp Member.

In 1995, he enrolled in the residency training programme in Obstetrics and Gynecology at the Obafemi Awolowo University Teaching Hospital Ile Ife after a brief stint at the Eko Hospital Lagos (1994-1995), obtaining both the Fellowship of the West African College of Surgeons in 1999, and the Fellowship of the National Postgraduate Medical College of Nigeria in 2000 becoming the first member of his graduating class to become a specialist Obstetrician and Gynaecologist.

In subsequent years, Prof. Ezechi underwent numerous postgraduate training courses at several universities including University of Lagos, Obafemi Awolowo University, University of Zambia; University of Umea in Sweden; Tharmasat University, in Thailand ; and the Lund University in Stockholm, Sweden. As part of professional training, he was trained as a clinical trialist and monitor at the WHO/TDR Office, Geneva Switzerland,

Prof. Ezechi's academic, research and service delivery span 30 years. In 2004, he was appointed Chief Research Fellow and Consultant Obstetrician and Gynaecologist after 4 years as a consultant Obstetrician and Gynaecologist at the Havana Specialist Hospital Lagos. He rose through the ranks and was appointed Director of Research in 2017. He was appointed professor of maternal, Reproductive and Child health by Lead City University in 2018, and adjunct Professor of Obstetrics and Gynaecology by University of Calabar in 2021.

Dr. Ezechi has held a number of administrative positions cumulating in his appointment as the Head of Department Clinical

Sciences Department, NIMR in 2013, Editor in Chief, Nigerian Journal of Clinical and biomedical Research and Chairman, Institutional Review Board, and Director, The Centre for Reproductive and Population Health Studies.

He is a retired Unionist and Activist as he occupied executive position between 1998 and 2000. He was elected the president of the Association of Resident Doctors, OAU Ile in 1998, Financial Secretary, Nigerian medical Association, Osun State in 1998 and National Auditor, National Association of Resident doctors in 1999 and a Life Member, Association of Resident Doctors of Nigeria in 2008.

In his field of obstetrics and gynaecology, Dr Ezechi has provided profound academic Leadership. He has been examiner of the Faculty of Obstetrics and Gynecology of the National Postgraduate College of Nigeria, and Financial Secretary of the Society of Gynecology and Obstetrics of Nigeria (SOGON), Lagos sector. He has been an external examiner at a number of universities in Nigeria, Southern and East African countries, a reviewer for several international journals, a technical consultant to many international agencies, including the World Health Organization and a visiting faculty at the Lund University Sweden.

Prof. Ezechi is a recipient of several honours including the 2nd Director General Scientist Award, Niger State award for outstanding Corps member, travel fellowships, a number of grants from the National Institute of Health, EDTCP, BMGF and Open philanthropy, and shields for community service.

Prof. Ezechi is widely travelled and has attended many local and international conferences, presented quality papers and served as a speaker at conferences. He has over 180 academic publications to his credit including three books and chapters in books.

He is a devout catholic, a committed member of St Anthony Catholic Church Gbaja, Surulere Lagos. He loves reading and watching movies, and is married to beautiful Lilian and three amazing boys – Uche, Ebuka and Chijoke.

