

# University of Nigeria

# 152<sup>ND</sup> INAUGURAL

"NOT MY PORTION" SYNDROME: THE BANE OF CERVICAL CANCER PREVENTION AND WOMEN'S HEALTH PROMOTION IN NIGERIA

An Inaugural Lecture of the University of Nigeria, Delivered on Thursday June 20, 2019

# PROFESSOR CYRIL CHUKWUDI DIM

Professor of Obstetrics & Gynaecology University of Nigeria

# **UNIVERSITY OF NIGERIA**

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**Professor Cyril Chukwudi DIM** Professor of Obstetrics & Gynaecology University of Nigeria

## "Not My Portion" Syndrome: The Bane of Cervical Cancer Prevention and Women's Health Promotion in Nigeria

#### Protocols

The Vice Chancellor, Professor Charles Arizechukwu IGWE Other Principal Officers of the University Provost, College of Medicine, Professor Uchenna Ifeanyi NWAGHA Deans of Faculties, Postgraduate School, and Student Affairs Directors of Institutes and Centres Past Inaugural Lecturers Professors and other members of the University Senate Head of Departments and other Academic Colleagues Members of Administrative and Technical Staff Heads of Tertiary Educational / Health Institutions My Lords Spiritual and Temporal His Royal Highnesses, and Chiefs Members of my Family, Nuclear and Extended Members of the Press **Distinguished Guests** Great UNMSAites Lions and Lionesses Ladies and Gentlemen

I am delighted to stand before you today to deliver the 152<sup>nd</sup> Inaugural Lecture of this great University that moulded me. My major regret is that my parents Sir Cyril C. Dim and Lady Catherine E. Dim, are not alive today to witness this joyous event organized solely for their last born. I also regret the absence of my immediate elder brother, Mr Jude Ifeanyi Dim - my Backman, who died few years ago. I had also prayed and hoped that my "Nna Ochie" and wedding sponsor, Prof. Etisiobi Ndiokwelu, would be alive to motivate me as usual but, God called him early this year. May their souls rest in peace. Amen.

Despite these regrets, today remains a memorable day for my family and me. I am grateful to the former Vice Chancellor and my teacher, Prof Benjamin Ozumba, who permitted a seamless and faster appraisal process in the university, and the current Vice Chancellor, Prof Charles Igwe who despite his busy schedule as Deputy Vice Chancellor ensured that external assessors return their assessments on time. I welcome all of you present; and thank you for making out time, out of your busy schedule, to be here – if there is no audience, there will not be a lecture.

#### WHO IS PROF CYRIL CHUKWUDI DIM?

I am the 7th child of Late Sir Cyril and Late Lady Catherine Dim of Ebele Village Achina, Aguata LGA Anambra State. I had my primary education at the Primary School Eke Achina. Afterwards, I started my secondary education at Christ the Redeemer College (CRC), Amesi and completed it at the St. Charles Special Science School Onitsha, as one of the pioneer students of that great school, conceived and delivered by Mrs Grace Obayi - then Commissioner for Education, Anambra State. Sadly, the school was closed by Anambra State government and we are hopeful that she will revisit the ill-advised decision.

I gained admission by merit, into the medical school of University of Nigeria (UNN) in October 1990 for a six-year medical training, which eventually extended to 7 years and four months due to prolonged Academic Staff Union of Universities (ASUU) industrial actions. I learnt early in life, to be focussed on my goals so, it was not surprising that throughout my studentship, I was a top performer. For instance, I had distinctions in Medical Biochemistry and Physiology at the almighty 2nd MBBS examinations. Also, on graduation, I was on the Dean's list of top graduating students, and as was the practice, we were offered automatic housemanship posts at the University's teaching hospital (UNTH) Enugu.

Inspired by the charisma of one of my teachers, Late Dr (Sir) John Okaro as well as the expressed satisfaction of female patients in OBGYN, I chose to specialize in Obstetrics & Gynaecology. I gained admission on merit into a residency post in the Department of Obstetrics and Gynaecology of UNTH Enugu in August 2002, after 2 years of application. In residency, I applied myself to the training and completed in 2008, with Fellowships of both National Postgraduate Medical College of Nigeria (NPMCN) and West African College of Surgeons (WACS).

After my specialist training, I started work as a consultant OBGYN at the ESUT Teaching Hospital Parklane Enugu before moving over to the College of Medicine UNN and UNTH in July 2009 as a senior lecturer / Honorary consultant Obstetrician & Gynaecologist. The same year, God answered my longstanding prayer, which was to experience learning and teaching in Europe - the European Commission offered me the Erasmus Mundus scholarship for European M.Sc in International Health - my study track was Health Research Methods. The experience from this course, which involved learning in three top schools from three European countries and fieldwork in India, was the springboard to my current academic and professional status. I remain very grateful to God and the European Commission; it was very instrumental to my promotion to the rank of Professor in 2014, five years after employment in the University of Nigeria. I also have an M.Sc in Physiology from the UNN. In addition to the teaching of Obstetrics & Gynaecology, I taught Reproductive Physiology to 3rd-year medical students and other paramedical students till 2016. I also teach Research Methods and other courses at the Institute of Maternal & Child Health UNN. I have scores of academic publications (summary in Appendix 1) and have presented several papers in international conferences. I serve as a reviewer for many journals as well as a member of the editorial board of five international medical journals. I have continued developing my skills through certificate training, including Reproductive & Sexual Health Research, Health Economics, Leadership & Management, and Medical ethics, etc.

I have served (and still serving) in several capacities within and outside the University, including executive and committee services to the Nigerian Medical Association, and support services to the Federal Ministry of Health. My close associates know that it is "not my portion" not to deliver effectively and on time on any assigned task - the College of Medicine UNN realized this and presented a meritorious award to me in 2013. I have taught over 1000 medical doctors, and supervised the final Fellowship Dissertations of over ten resident doctors who are now Consultants, I am an examiner for Part I and II examinations in Obstetrics & Gynaecology for both NPMCN and WACS; a Faculty Board Member in NPMCN; I also serve in the accreditation teams of both Colleges. I am an external examiner to Niger Delta University and Ebonyi State University. I have served as an external assessor for professorial promotion to some Universities. I am the current Director of the IMCH UNN; I am happy that my team has structured and repositioned the young Institute for quality services - we shall be graduating our first set of Master's students in August 2019.

Outside the Nigerian Medical Association, I belong to few academic/professional Associations, including the Society for Gynaecology and Obstetrics of Nigeria (SOGON), International Gynecologic Cancer Society (IGCS), Erasmus Mundus Students and Alumni Association (EMA). I am a member of the Enugu Sports Club and ClubHouse Enugu. I enjoy swimming, workouts, reading motivational books, and music.

I am happily married to Dr Ngozi Regina Dim and we are blessed with three lovely children – Chidi, Chukwuma, and Amarachi.

#### CHOICE OF THE TITLE FOR TODAY'S LECTURE

I have about 14 years' specialist clinical experience in women and perinatal health in this part of the world, starting from my days as a senior registrar in Obstetrics and Gynaecology. Over time, I realized and started utilizing my capacity to develop research questions from my normal clinical activities. On the other hand, during my postgraduate study in International health in Europe, it became painfully clear to me that cervical cancer is essentially a disease of developing countries just like maternal deaths and perinatal deaths.

Out of all publications used for my promotion to Professorship, about 20% are in the area of gynaecological neoplasm and about 80% of these are related to cervical cancer prevention; which showcases my deep interest in preventive gynae-oncology especially cervical cancer. Ideally, I should be a Professor of Preventive Gynaecological Oncology, if our sub-specialization had advanced. While searching for a title for this lecture, I started interacting with women in clinics and reviewing my cervical cancer-related publications, looking for a trend or pattern of behaviour towards cervical cancer prevention; and it became clear to me that there is a common feeling of immunity or "o di-eshi" in Igbo language, by women towards screening for diseases they perceive as uncurable especially cervical cancer. A majority often exclaimed "it is not my portion", immediately the issue of susceptibility to cervical cancer is raised. It was then obvious that we might be dealing with a disease entity which I coined, "Not My Portion" syndrome. This realization raised my curiosity about the manifestations and burden of this syndrome in other areas of women's health, and I observed that it manifests in almost all components of women's reproductive health with devastating implications. With time, I noticed that I had developed a burning desire to discuss this newfound disease entity whenever the opportunity presented itself. During one of the Inaugural lectures in the University, I was motivated to reflect on my possible lecture topic and the first title that flashed through my mind was "Not My Portion" Syndrome and Cervical Cancer Prevention. When I reached home, I

developed over ten versions of the title - my wife, and I kept reviewing and editing them until we agreed on the current one. I later leaked the agreed final title to my immediate supervisor and trainer, Prof Hyginus Ezegwui. His spontaneous approval was the booster I needed to develop the lecture I am sharing with you today.

#### INTRODUCTION

The Igbos captured it well in the saying that "nwanyi bu ulo" which means, "the woman is the foundation of the home". For that foundation to function optimally in carrying the weight of the home, she should be healthy. Stretched further, a healthy woman brings a healthy home, healthy homes bring a healthy nation, and a healthy nation brings development; invariably therefore, there may not be any meaningful national development without commensurate women's health promotion.

Health, as defined by the World Health Organization (WHO), is a "state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" <sup>1</sup> however, for the purpose of this lecture, health is defined literally as a state of being free from illness or injury. It is known that several health issues of women are either preventable when screened for, or curable when identified early. Likewise, some perinatal issues end with good outcomes when appropriate and sometimes urgent interventions are instituted – these interventions often demand delivery by caesarean section for the sake of the baby and/or mother. Though health is a fundamental right of every individual, its delivery requires the cooperation of individuals.<sup>1</sup> This brings in the concept of informed consent which demands that the delivery of any treatment and or health intervention on a capable person can only be carried out with his/her permission after appropriate information. Therefore, it is obvious that delayed consent may lead to delayed intervention and possible poor outcome. On the other hand, the refusal to consent bars delivery of the necessary treatment or intervention with the usual attendant poor outcomes. Unfortunately, a common predictor of delayed or refusal to consent among women in our environment is the prevailing feeling of immunity from illness or need for certain health interventions which I refer to as "Not My Portion" (NMP) syndrome. Because of my experience in International health, which has deepened my interest in disease prevention, especially cervical cancer prevention – an area where I have done several works, the discussion on every aspect of this syndrome will be introduced with illustration(s) about cervical cancer.

This lecture shall be in three parts – the first part gives an overview of the cervical cancer burden and its prevention strategies, defines the scope/components of women's health, and highlights some of my contributions to knowledge for each component. The second and major part of the lecture uses my research findings and that of few other scholars to illustrate the contributions of the NMP syndrome to the perennial suboptimal women's health in Nigeria, and recommend some treatment modalities. The final part highlights few of my major research works related to the lecture topic since elevation to the rank of professor on the 1<sup>st</sup> of October 2014; then, it presents my current and future research interests/directions.

#### **OVERVIEW OF CERVICAL CANCER**

#### Physio-anatomy of the Cervix and Aetiology of Cervical Cancer<sup>2</sup>

The cervix is the lower one-third of the womb – the lowermost part that can be felt in the woman's vagina is called ectocervix while the upper part is the endocervix.





As illustrated in figure 1, the two parts of the cervix have different linings (epithelia); while the endocervix is lined by a columnar endothelium, the ectocervix is lined by squamous epithelium. The junction of the two linings is called the original squamo-columnar junction (SCJ). As shown in figure 1, the SCJ changes in position as the woman's reproductive status changes. At puberty, the woman begins to elaborate her reproductive hormones and the vagina becomes acidic because of the activity of the commensal called lactobacilli vaginalis. Because of the effect of the reproductive hormones, the SCJ will later migrate onto the ectocervix thus some part of the endocervix will be exposed to the acid environment. Persistent exposure of this portion of endocervix to acid milieu leads to metaplasia (transformation) to squamous epithelia thereby forming a new squamo-columnar junction (NSCJ) - the portion of the cervical epithelia between the original SCJ and the NSCJ is called the transformation zone (TZ). The TZ is an unstable epithelium and its persistent infection with sexually transmitted oncogenic (high risk) human papillomavirus (HPV) is currently held as the aetiology of cervical cancer. Thus, cervical cancer is both HPV-associated and HPVattributable cancer.<sup>3</sup> It is important to note that the screening for cervical cancer targets that zone. A concise description of physioanatomy of the cervix as it relates to the aetiology of cervical cancer and its screening is contained in my published literature review titled "Towards improving cervical cancer screening in Nigeria: a review of the basics of cervical neoplasm and cytology"<sup>2</sup>

#### **Cervical Cancer Burden**

Before proceeding to the burden of cervical cancer in Nigeria, it is important to highlight that cervical cancer can be categorized into the following stages, for ease of discussion:

- 1) Pre-malignant lesion cervical intraepithelial lesions (CIN): I call this the childhood years of cervical cancer
- 2) Early stage cervical cancer: stage 2a and below
- 3) Late stage cervical cancer stage 2b and above

I should stress that the pre-malignant stage of cervical cancer can be screened for with accessible effective methods and cured when identified! Likewise, the early stage cervical cancer can be treated surgically or by chemoradiation and cured. But the late stage cervical cancer can be managed effectively but, may not be cured! So, with respect to cervical cancer, the saying that cancer is not curable may not be very correct because:

- a) Appropriate and timely screening will identify it at its childhood years (pre-malignant lesions) which is curable
- b) Early stage of the cancer can be treated effectively by experts (gynae-oncologist and or radio-oncologist) when identified.

I need to stress here that the teaching hospital of the University of Nigeria in Ituku-Ozalla, has the capacity for both screening/treatment of CIN, treatment of early stage cervical cancer as well as management of late stage cervical cancer.

Currently, cervical cancer is essentially a disease of developing nations like Nigeria that lack a structured prevention programme including screening and vaccination. Globally, with respect to the number of new cases (incidence), the 2018 estimates by the International Agency for Research on Cancer (IARC) showed that cervical cancer is the 8<sup>th</sup> commonest cancer in both males and females, and 4<sup>th</sup> commonest cancer in females.<sup>4</sup>

In Nigeria, cervical cancer ranks second (to breast cancer) as regards the number of new cases in females and both sexes. When these Nigerian statistics are compared with that of a developed nation such as Norway, it is observed that cervical cancer is not listed among the top 5 most frequent cancers in females or both sexes.<sup>4</sup> This is a typical example which I use to showcase that cervical cancer is a disease of developing countries. Worrisomely, cervical cancer is currently the commonest cause of cancer deaths in Nigeria (Fig. 2).<sup>4</sup>



#### Fig. 2: Cancer Incidence and Mortality Estimates in Nigeria, 2018<sup>4</sup>

#### **Cervical Cancer Prevention Strategies**

I established above that the cause of cervical cancer is persistent infection with oncogenic HPVs, and I usually add as follows: in the presence of appropriate cofactors including immunosuppression such as human immunodeficiency virus (HIV) infection, cigarette smoking, and family history – meaning that infection with oncogenic HPVs does not necessarily translate to the development of cervical cancer; the enabling environment for cancer development is usually prepared by one or more of the cofactors/predispositions. Prevention strategies for cervical cancer can be primary, secondary or tertiary but, for the purpose of this lecture, only primary and secondary strategies would be highlighted.

<u>Primary prevention of cervical cancer</u>: the aim of strategies involved in primary prevention is to prevent high-risk HPV infections or avoid avoidable predispositions to cervical cancer. These strategies include HPV vaccination, abstinence, and health education against risky behaviours including tobacco use.

<u>Secondary Prevention of Cervical Cancer</u>: This aims at the following:

- 1) Early identification and treatment of pre-malignant lesions and the methods involved are:<sup>5</sup>
- a) Diagnose CIN 2+ and Treat: this is the standard traditional practice used for the screening of cervical cancer. It involves the following steps:
  - i. Screening of women using cytology (Pap test). If the cytology result is abnormal (i.e. LSIL, HSIL),<sup>2,6</sup> then
  - ii. Carry out colposcopy, biopsy, and histology of suspicious lesions to diagnosis CIN, & then
  - iii. Treatment of the woman only when CIN2+ has been confirmed histologically. CIN 2<sup>+</sup> means CIN 2 and CIN 3. Women with CIN 1 are followed up.

The drawback of this method is that it is costlier in terms of resources and equipment, and requires more than one visit to the hospital.

b) Screen-and Treat<sup>5</sup>: This is an alternative approach to the standard approach described above. It is recommended for low- and middle-income countries because of our weak health system and poor resource base. In this approach, treatment decision is based on the outcome of the screening test, and not on a histologically confirmed diagnosis of CIN2+. It involves the screening of an eligible woman with a screening test or sequence of tests, and linkage to appropriate treatments for CIN. Also, women with suspicious lesions suggestive of invasive cervical cancer are referred for appropriate management. The screening tests that are used include human papillomavirus (HPV) tests, cytology (Pap test), and unaided visual inspection with acetic acid (VIA). Currently, all the screening tests listed above are easily accessible in our environment except HPV tests and women are encouraged to use them.

Each of the screening tests listed above can be used as a single test or in a sequence, for instance, VIA can be used alone or in sequence with HPV test (figure 3). For the single test approach, if a single test gives a positive result, the affected woman needs treatment. However, when using a sequence of tests approach, a positive result with the first test calls for another test and if the second test is positive, the woman is treated. On the other hand, women with a positive first screening test followed by a negative second screening test are not treated but followed up. The single test approach is the usual method employed in our environment.

In this see and treat approach the recommended treatment options are cryotherapy and large loop excision of the transformation zone (LLETZ, or LEEP).



Note: each light-pink bubble refers to one strategy in Annex 3 (for women of negative or unknown HIV status) or Annex 4 (for women of HIV-positive status or unknown HIV status in areas with high endemic HIV infection).

Fig. 3: WHO Guidelines for Secondary Prevention of Cervical Cancer<sup>5</sup>

2) Identification and treatment of early stage cervical cancer that is curable. Frequent screening for premalignant lesions as suggested will drive this strategy. Likewise, speculum examination of the cervix during gynaecologic clinic consultations, especially for women that had not screened for the disease, is part of the strategy.

#### **OVERVIEW OF WOMEN'S HEALTH**

Women's health as used in this lecture implies women's reproductive health. Applying the simple definition of health stated above, it, therefore, means the state of a woman being free from illness or injury to the reproductive processes, functions and system at all stages of life. Obviously, women's health differs significantly from that of men and this has been attributed to the woman's unique biological, social and behavioural conditions. Specifically, these biological differences are cellular and phenotypic, and both are associated with peculiar risks for ill health in women. Furthermore, because, gender is a critical social determinant of health especially in our male-dominated setting, women's health including risk and experiences are more disadvantaged when compared to men. For instance, it is believed that maternal mortality and cervical cancer, which are largely preventable, would have been controlled in Nigeria, if they were men's problems.

#### **Components of Women's Health**

Women's reproductive health is discussed under several sub-headings which often vary from one resource to another. For the purpose of this lecture, components of women's reproductive health include: Female reproductive cancer prevention and treatment, Maternal health, Family planning, Infertility and it management, Sexually transmitted infections prevention and treatment, Menstrual health, Reproductive and sexual rights, Menopause and its management, and other illnesses/injuries of the female reproductive system such as vesico-vaginal fistula (VVF), and female genital mutilation.<sup>7,8</sup> Each of the components will be explained briefly followed by a concise presentation of some of my published contributions to knowledge in that area.

**Female Reproductive Cancer Prevention and Treatment**. This component includes cancers of the female reproductive system such as cancers of the breast, cervix, endometrium, ovaries, vagina, choriocarcinoma, etc. As highlighted above, cervical cancer is the commonest cause of cancer deaths in Nigeria<sup>4</sup> – this is painful because the cancer is preventable, and curable when identified early.

Realizing the importance of medical and health care workers in scaling up the prevention of cervical cancer by informing and screening women, I carried out an extensive literature review on the subject area as part of my contribution to medical and health workers continuous education on the basics of cervical neoplasm, cervical cytology details, and management of abnormal results.<sup>2</sup> This literature review has attracted so many readerships at the journal's website and I always encourage students and resident doctors training under me to study the review.

Furthermore, I have noted above that immunosuppression is a co-factor for cervical neoplasm so, as part of my dissertation for the Fellowship of National Postgraduates Medical College (NPMCN) of Nigeria, I set out to compare prevalence of cervical squamous intraepithelial lesions (SIL) between HIV sero-positive women that were not on anti-retroviral drugs (HAART-naive; n = 150) with HIV sero-negative women (n = 150) at the UNTH Enugu.<sup>9</sup> Cervical SIL was found in 19 (12.6%) HIV-ve women as against 7 (4.6%) HIV-ve women, and the observed difference was significant (aOR = 2.93; CI 95% 1.13, 7.58, p = 0.027). This result suggested an association between HIV infection and SIL among women in Enugu, South-eastern Nigeria, and supported the findings from other regions of the country. HIV/AIDS caregivers and policy-makers in Nigeria were therefore, encouraged to "ensure optimal reproductive health of HIV-ve women by including cervical cancer education, routine screening by Pap test or VIA, and appropriate referral channels for those with abnormal results" <sup>9</sup> I wish to emphasize here that I made a case for these recommendations to late Prof. Babatunde Osotimehin, then Director of National Agency for the Control of AIDS (NACA) after his keynote address at the 3<sup>rd</sup> Annual Professor Ransome-Kuti International Policy Dialogue Lecture, that held in Lagos in 2008. On his request, I wrote an email in this regard which he acknowledged, stating that my suggestion had been forwarded to the appropriate committee for consideration. It is my firm belief that my mail might have contributed to the subsequent revision of HIV treatment guidelines in Nigeria to include routine cervical cancer screening. I, therefore, encourage academics to communicate their policy-relevant research findings to relevant government and private agencies - we should not be publishing for academic promotions only or believe that the government and their agencies are not interested in our outputs.

**Maternal Health:** Simply put, this is the health of a woman during pregnancy, and around childbirth (i.e. delivery and puerperal periods). It can also be stretched to cover care of the unborn baby from time of viability (from 28 weeks of gestation in our setting) through 28 days after delivery (perinatal health), to childhood (child health), especially

under-five child health – this stretch of the scope of maternal health is to enhance an integrated mother and child care. It is unfortunate that the maternal mortality index of Nigeria has remained far below the global targets - it missed the year 2000 target of Safe Motherhood Initiative<sup>10</sup> as well as the year 2015 targets of Millennium development goal-5 (MDG-5) - Nigerian maternal mortality ratio (MMR) reduced from 1350 per 100,000 live births in 1990 to 814 per 100,000 in 2015, which represented a 39.7% reduction as against the MDG-5 target of 75% reduction.<sup>11</sup> These estimates might suggest some progress however, when the average annual percentage change in MMR within the period (1990 to 2015) was reviewed, the WHO found a rate of 2.0% [80% Uncertainty Interval (UI): -0.2 - 3.3] which suggested that no progress was made by Nigeria towards meeting the MDG-5 target.<sup>11</sup> Nevertheless, it is known that maternal mortality ratio varies across regions of the country - it is highest in the North-east and lowest in the South-western region.<sup>12</sup> As part of our effort to contribute towards the state level quality data on maternal deaths, we carried out a multicentre, hospital-based, three year (2003 - 2005) audit on maternal mortality in Ebonyi state, Nigeria.<sup>13</sup> Our aim was to identify maternal mortality ratio (MMR), causes, and key risk factors of maternal deaths in the state using institutions (two tertiary and two secondary healthcare centers) located in different socio-economic settings of the State. The study found an MMR of 903 per 100,000 live births. Worrisomely, the MMR increased from 757 in 2003 to 898 in 2004 then, 1053 per 100,100 live births in 2005. The commonest cause of maternal death was sepsis (25.8%), followed by obstetric hemorrhage (23.7%), then preeclampsia/eclampsia (12.4%). At the national level, I was part of the Technical Committee that developed and managed the National HIV/AIDS & Reproductive Health Survey (NARHS Plus II 2012) household and individual surveys of males and females of reproductive age selected by multi-stage sampling from 36 states of the country and Abuja.<sup>14</sup> The nationwide survey was aimed at measuring HIV prevalence and key reproductive health indicators in Nigeria. The 527-page survey report highlighted several worrisome reproductive health indices including, overall lifetime maternal death risk of 1 per 79 pregnancies (1 in 50 in Northern Nigeria versus 1 in 161 in Southern Nigeria) which was far better than 1 per 33 reported by NDHS 2013,<sup>15</sup> and 1 in 22 estimated by the WHO.<sup>11</sup> The marked disparity between the findings of the two nationwide surveys might be attributed majorly to sampling error without ruling out other factors. A more accurate data can only be derived from nationwide birth and death registers so, an upgrade of the existing registry is very essential. Whichever figure is near correct, the fact remains that Nigeria contributes over 10% of global maternal deaths and this should bother all of us, especially the policymakers.

Nevertheless, as the Igbos say, *taa bu gboo*, meaning that today is early enough for Nigeria to decide to enforce the rights of our women to live. It is widely believed that with appropriate political will by our maledominated governance system, the prevailing poor maternal mortality and perinatal health indices in Nigeria can be improved through optimal safe motherhood practices that include family planning; skilled basic maternity care; and prevention, early detection and management of complications – these three critical approaches are integrated into the WHO four pillars of safe motherhood (figure 4).<sup>16</sup>



Figure 4: Four Pillars of Safe Motherhood

Furthermore, as regards the improvement of prenatal/labour management and women's perinatal experiences, I have made several published contributions to knowledge and practice, some of which are highlighted below.

Medical disorders especially, diabetes mellitus, present a big challenge to maternal and perinatal health. As a trainee (registrar), I observed that my knowledge and that of many medical practitioners on diabetes mellitus in pregnancy were suboptimal, essentially because the definitions and guidelines keep changing. I was therefore, delighted to have been given the task to present a literature review on the topic by one of my superiors, after which I was encouraged by Prof. Arthur Ikeme, to publish it as a way of contributing to medical education of students and medical doctors in the area of diabetes mellitus in pregnancy – a disorder associated with several pregnancy complications including, big baby, placenta praevia, unexplained fetal deaths, birth difficulties such as shoulder dystocia, neonatal hypoglycaemia, etc. The initial review<sup>17</sup> and its update<sup>18</sup> x-rayed the aetiology, classification, diagnoses, and management of diabetes in pregnancy – both reviews remain worthwhile resources for the training of medical students and resident doctors.

As part of ensuring quality antenatal care for our women, and stimulated by my master level experience in Human Physiology at the Department of Physiology College of Medicine, UNN; I wondered whether haematocrit from capillary blood (cPCV) differed from that of venous blood (vPCV) during pregnancy, as well as the effect of such difference on the diagnosis and prevalence of anaemia in pregnancy. These research questions were because I observed that caregivers essentially use blood from either source interchangeably for the determination of "blood level" i.e. packed cell volume (PCV) in pregnancy. To answer these questions, I compared the cPCV and vPCV of 200 pregnant women at the UNTH Ituku-Ozalla, - each woman served as her own control.<sup>19</sup> As expected, the study found that the participants' cPCV had strong positive correlation with their vPCV (r = 0.883, P <0.001); but the women's median cPCV (33.0%, IQR = 31.0-35.8) was significantly lower than the median vPCV (34.0%, IQR = 32.0-37.0) (Z = -6.85, P < 0.001). On the other hand, although the prevalence of anaemia did not vary between the two blood sources, the difference between each PCV pair (cPCV minus vPCV) ranged from -5 to +5% (mean  $= -0.83 \pm 1.54$ ) We observed that this magnitude of variability can impact on patients' management especially as regards the decision to transfuse blood or blood products so, we suggested that clinical units should define the blood source to be used for antenatal care management in order to ensure consistent and reproducible results; for the same reason, where moderate to severe anaemia is suspected clinically, we encouraged the policy of use of vPCV because it gave more accurate results. An extension of this study which centered on respect for pregnant women, determined whether women's arm preferences were sought for and respected by caregivers during the collection of blood for antenatal laboratory investigation.<sup>20</sup> Surprisingly, none (0.0%) of the participants reported being asked about her arm preference during blood collection for routine antenatal investigations. In all, 105 (52.5%) women preferred either left (34.5%, 69/200) or right arm (18.0%, 36/200) for blood sample collection for varying reasons, while the remaining 95 (47.5%, 95/200) did not express any arm preference. A majority (91.5%, 183/200) would prefer their opinion with respect to arm preference, to be sought for, and their choices respected during subsequent blood collection for any investigations; this valued opinion was recommended to phlebotomists and pregnant women's caregivers in our environment.

Magnesium sulphate (MgSO<sub>4</sub>) has been shown to be superior to other agents such as diazepam, for the prevention of seizures/convulsions (seizure prophylaxis) in the management of severe pre-eclampsia – a medical disorder in pregnancy characterized by hypertension and significant protein in the urine (proteinuria). When poorly managed, affected women usually convulse, at which point it is called eclampsia. The entity (pre-eclampsia/eclampsia) is a common cause of death in Nigeria.<sup>12-14</sup> The UNTH Enugu shifted from the use of diazepam to MgSO<sub>4</sub> in 2007. As part of the impact assessment of this evidence-based intervention, we compared relevant feto-maternal outcomes of preeclampsia before and after the introduction of MgSO<sub>4</sub> in the hospital using data from hospital records.<sup>21</sup> Despite the small sample size per group (n = 30 for MgSO<sub>4</sub> group versus n = 47 for diazepam group), we were able to support the superiority of MgSO<sub>4</sub> over diazepam in the management of severe preeclampsia because the study found a lower perinatal morbidity (i.e. better Apgar score) and maternal morbidity (i.e. reduced rate of eclampsia, and longer hospital stay) among severe preeclamptic women that received MgSO<sub>4</sub> when compared to those that received diazepam.

Finally, under this maternal health category of women's health, it is important to highlight a very important contribution to knowledge in the area of labour support - which implies the non-medical care of a woman in labour. It involves both physical comforting (touching, massaging, bathing, grooming, applying warmth or cold) and emotional

support such as continuous companion, reassurance, encouragement, and non-medical advice.<sup>22</sup> In our environment, social support is part of our culture - we demonstrate this in several spheres of life such as bereavement, illnesses, celebrations, etc. Unfortunately, I found out that this support is not extended to women in labour despite the proven benefits including increased likelihood of spontaneous vaginal delivery, reduced need for analgesia, shorter labour, and better labour satisfaction.<sup>22</sup> To determine the experiences and preferences of mothers as regards labour support in Enugu, we interviewed 395 consenting eligible mothers within 48 hours of normal vaginal delivery at the UNTH Enugu.<sup>23</sup> Internal validity of the study was enhanced by excluding spouses of medical personnel, women that had severe maternal illness/injuries (e.g. eclampsia) or perinatal death. It was found that none of the women (0.0%) was allowed to be supported by her husband, relations or friends while in labour. While 330 (83.5%) women wished to be supported by non-medical persons in addition to the hospital personnel, the remaining 65 (16.5%) mothers preferred labor support by medical/midwifery staff only. Out of the 330 women who wished for labor support by non-medical personnel, 300 (90.9%) or 75.9% of all respondents would have preferred labor support by their husbands for reasons that include: to keep him busy (3.3%), he should share in my pains because he impregnated me (15.3%), he would strengthen me and relieve my pains (81.4%). Interestingly, when they were asked to suggest a policy for the support of women in labor by non-medical staff, 38 (9.6%) women felt the existing restriction should continue, 237 (60.0%) felt labour support should be optional for women, while 120 (30.4%) felt that labor support should be compulsory for every woman. We recommended that hospital authorities and health care policymakers should respect the preferences of mothers by ensuring the availability of labour support which is an affordable, safe and beneficial practice that improves maternal health outcomes. I, therefore, encourage birthing mothers to demand labour support while managers of maternity homes and hospitals should ensure their centers are labour support friendly.

Family Planning: Family planning (FP) is one of the pillars of safe motherhood initiative (figure 4); and therefore, very crucial to women's health. It has been established that family planning is a reproductive right of the woman or couple to decide whether or when to conceive, and to be supported towards achieving that goal.<sup>24</sup> The later has two targets thus, either to space childbirths or limit family size. With the current socio-economic realities in the country, there may not be a better time to stress the need for this public health intervention. Unfortunately, our cross-sectional study of 420 ever-married women recruited from UNTH Enugu, Nigeria (antenatal and family planning clinic), and Mother of Christ Specialist Hospital Enugu (antenatal clinic), found modern contraceptives use rate of 18.1%,<sup>25</sup> which might be considered low. On the other hand, as regards family planning with modern contraceptives by women, the NARHS Plus II 2012 found as follows:<sup>14</sup> knowledge of contraceptive by all females (47.8%), contraceptive use by married females (10.0%), and sexually active unmarried females (29.0%). The proportion of all females using modern contraceptives increased with age from 3.8% for the 15-19 year age group, to a peak of 13.4% for the 25-29 year age group, and thereafter the use rate declined to 8.8% for the 40-49 year age group. The Southeast region of Nigeria ranked 4<sup>th</sup> among the six zones of the country with a modern contraceptive use rate among females of 10.2%. I am aware of the prevailing religious and cultural issues associated with FP discussions but, it is important to stress that just like a Christmas hamper that contains several good items, FP should be viewed as a basket of several effective methods for spacing or limiting the family size, that can suit each woman's/couple's religious, cultural, biological, or social orientations. It is also necessary to state at this point that FP does not include willful termination of pregnancies (abortion). Unintended pregnancy which could be unwanted or mistimed drives unsafe abortion and its associated complications which is a common cause of maternal death in Nigeria.<sup>12.13</sup> We should bear in mind that "if there is no pregnancy, there will not be any abortion"; likewise, "if there is no pregnancy, there will not be the death of women due to pregnancy (maternal mortality)" therefore, planned pregnancy cannot be overemphasized. In my experience, family planning is an area where "not my portion" syndrome prevails and shall be explored in a subsequent section of this lecture.

Infertility and its Management: Infertility is a common women's health problem in our environment, and this should not be surprising to anyone experienced in the African cultural expectations as regards children and inheritance. Because of the high value we attach to children and maintenance of family lineage, childlessness is a highranking stressor to affected couples, especially the woman, whom the society often erroneously believes, is the cause of the problem in most cases. I appreciated this important women's health issue early in my carrier so, as my contribution towards assisting affected couples and women in particular, I contributed a chapter on infertility in a 46 chapter, 582-page book that discussed women's issues in a changing world (published by Trafford publishers),<sup>26</sup> The chapter was aimed at educating women and couples in lay language about the epidemiology and management of infertility with the hope that the improved knowledge derived thereof will improve marital harmony. Based on this hope, it has been my practice, as much as possible, to give out copies of the book chapter to clients that consult me for infertility. The wellresearched book chapter highlighted that about 30% of infertility are caused by males, 30% by females, another 30% by combined male and female factors, while 10% are due to unexplained factor. The latter may explain why some women conceive without any treatment while being investigated for infertility. The book chapter went further to stress that "a man can achieve and maintain penile erection (i.e. potency) does not necessarily mean that he is fertile, and thus women should not just accept the blame of childlessness without confirmation as is obtainable in some cultures." <sup>26</sup> It is reassuring that the NARHS Plus II 2012<sup>14</sup> showed that a majority (62.9%) of all respondents felt that the cause of infertility was from either male or the female, while only 6.0% and 7.1% felt it was always caused by the female or male partner respectively. For the South-east zone, the pattern was essentially similar to the national picture thus: either male or female factor (67.7%), females only (6.2%), and males only (5.4%). It is hoped that this improved knowledge will translate into improved marital harmony in our environment.

Accepting the diagnosis of infertility and accepting options of management including child adoption is another area where women and couples express "not my portion" syndrome, and it will be discussed further in the subsequent section of the lecture.

Sexually Transmitted Infections Prevention and Treatment: The peculiarities of female genital anatomy such as short urethra, large surface area of the vagina when compared to the penis, etc, predispose them to sexually transmitted infections (STIs) when compared to men. I wish to clarify that all STIs are reproductive tract infections (RTIs) but, the converse is not correct; for instance, vaginal candidiasis is an RTI but evidence does not suggest that it is an STI. Because of the association of STIs with fertility and genital cancers, their primary prevention, as well as early diagnosis and treatment, are critical for the promotion of women's health. Whenever drug treatment (chemotherapy) is indicated for the treatment of STIs in a woman, it is usually necessary to treat the sexual partner(s) as well, so as to minimise the disease re-occurrence. Unarguably, HIV /AIDS ranks top as regards STIs in Nigeria. The NARHS Plus II 2012<sup>14</sup> found a national HIV screening acceptance rate of 76%, which is similar to the rate of 78.1% found in the South-east zone (female = 78.8%, males = 78.1%). The national HIV seroprevalence was 3.4% (95% CI: 3.2 - 3.6%); female = 3.4%, and male = 3.3%. The statelevel HIV prevalence ranged from 0.4% in Zamfara State to 15.0% in Rivers state. South-east region had the lowest prevalence (female: 1.8%, male: 1.0%). The chart below (Fig. 5) shows that generally, females had higher prevalence when compared to men except in the 30-39 age group; the cause and implications of this raise among men aged 30-39 years, calls for further evaluation.



Fig. 5: HIV Prevalence by Age and Sex, NARHS Plus II 2012<sup>14</sup>

Menstrual Health: Women begin the process of reproductive maturity at puberty, and the first menses (menarche) is often used as a marker for this process. Menarche is a source of stress to parents when their daughters' menarche is delayed or occurs too early. Armed with this knowledge that the age at first menses is dropping globally (secular trend),<sup>27</sup> we set out to establish the characteristics of menarche in our environment so as to assist in the evidence-based counselling or reassurance of mothers that are worried about their daughters' menstrual pattern. We surveyed 2724 students of three tertiary institutions in Enugu state, aged 16-20 years.<sup>28</sup> The study found that the mean age at menarche for the 2676 respondents that could recall their menarche was 12.9 ± 1.1 years (range 9-19 years). The modal duration of bleeding at menarche was 2-4 days (63.9%) followed by 5-8 days (26.5%). It is noteworthy that the sources of menstrual information by respondents were mainly from their mothers (50.0%), and teachers (21.7%). House-helps provided information for 0.4% (12/2724) of respondents. In the study's discussion, we observed that the menarche of 12.9 years in the study was lower than the figures from related studies from Igbo speaking areas of Nigeria,<sup>29,30</sup> and non-Igbo tribes of Nigeria<sup>31,32,33</sup> which might support the existence of a decline in menarcheal age for both the Igbos and non-Igbo speaking tribes of Nigeria, in line with the reported secular trend towards younger menarcheal age. We further suggested a menarcheal age decline of 5 months per decade in our environment. This suggestion should attract the interest of researchers interested in this area of human physiology. Menstrual health may also include the promotion of female reproductive and sexual rights<sup>14</sup> which involves "the promotion of healthy sexual maturation from pre-adolescence, responsible and safe sex throughout life, and gender equality" <sup>14</sup>

Menopause and its Management: Menopause is the last menses in a woman's life and depicts the end of menstruation and natural fertility. I emphasize natural fertility because a postmenopausal woman can become pregnant with the assistance of reproductive technology. Clinically, it is diagnosed when the regular menstrual cycle ceases for at least one year. The average age at menopause is 50 years, and it is neither associated with any secular trend unlike the menarche nor has any consistent relationship with age at menarche. When it occurs before the age of 40 years, it is referred to as premature menopause and requires clinical evaluations to determine the cause. During menopause, there is loss of ovarian reproductive functions including the release of primary female ovarian hormones especially oestradiol as well as the exaggeration of the pulsatile gonadotropin-releasing hormones which leads to characteristics presentations including hot flushes and night sweats; irritability, forgetfulness, difficulty in concentration, bone resorption and risk of fractures of femoral neck, wrists, and spine bones; etc. Other symptoms include genital atrophy and adjustment in plasma lipids which may be associated with increased odds of ischaemic heart disease.

**Abortion Prevention and Management:** Abortion can be spontaneous (miscarriage) or wilful. The latter is illegal in Nigeria but we know it happens because it has been driven underground such that the majority are unsafe, i.e. carried out by unsafe personnel and/or in an unsafe place. Complications of unsafe abortion contribute enormously to maternal deaths in Nigeria - Nationally, it contributes about 11% of the

over 500,000 maternal deaths in Nigeria;<sup>12</sup> however, for our study in Ebonyi state, Nigeria it contributed 4.1% of maternal deaths and was ranked as the 8<sup>th</sup> commonest cause of maternal death in the state.<sup>13</sup> As I highlighted earlier, the best prevention for unsafe abortion is to avoid pregnancy until desired. The primary approach for pregnancy avoidance by the unmarried remains abstinence while for the married, and the unmarried that "cannot hold body", is modern family planning methods. The attitude where a woman knowingly expressed her right to sexual activity without protecting herself from pregnancy, falls into the "not my portion" syndrome, being discussed.

Other Illnesses of the Female Reproductive System: Other reproductive tract illnesses covered by gynaecology include vesicovaginal fistula, complications of female genital mutilation. Vesicovaginal fistula (VVF) occurs when there is an abnormal connection between the urinary bladder and the vagina and our concern here is the type associated with births (obstetrics fistula). It usually follows prolonged obstructed labour or its treatment thus, it is a marker of poor labour management which explains why it is an illness of developing countries, including Nigeria. The insistence of some women to deliver vaginally by all means, a typical example of "not my portion" syndrome, is a major predictor of VVF. It is worrisome that husbands, family members and some religious leaders are the actors "behind the seen push" for this attitude. Despite the apparent widespread campaign by the government and other agencies against VVF, it is surprising that the NARHS Plus II 2012<sup>14</sup> found a low awareness rate of 29% (4598/15639) among female respondents, and 1.6% of this aware group had VVF. Female genital mutilation (FGM) is one of the harmful practices against women - unfortunately, it appears that the women themselves are

women – unfortunately, it appears that the women themselves are perpetuating this harm. It is associated with several short- and longterm complications including those associated with childbirth which tend to worsen with the severity of the mutilation. FGM is associated with an increased risk of caesarean section, difficult labour, obstetric tears/lacerations and increased risk of episiotomy, post-partum haemorrhage, etc. In Nigeria, the burden of FGM appears to be higher in the southern part of the country.<sup>14</sup> The NARHS Plus II 2012<sup>14</sup> found a national prevalence of 22.9% - highest in the Southwest zone (42.7%) followed by Southeast region (34.6%). It is painful and condemnable that some hospitals offer FGM to their female new-borns (i.e. Medicalization of FGM). – In a report from Rivers state, Nigeria, medical doctors carried out a majority of FGM followed by traditional birth attendants for reasons that include prevention of excessive sexual desires in females, and promotion of culture.<sup>34</sup>

#### "NOT MY PORTION" SYNDROME: MY PERSPECTIVE

"It is not my portion" is a common verbal expression among residents of Nigeria and it appears to be commoner among Christians thus, one can say with some certainty that it is commoner in the southern part of Nigeria where Christianity predominates. It is observed that this verbal expression has become part of us to the extent that it affects our behaviour including the capacity to accept unpleasant situations despite knowing the facts. Therefore, it may not be inappropriate to view the behaviour as an illness that manifests in various ways (symptoms and signs) thus the genesis of this concept which I refer to as "Not My Portion" syndrome, hereinafter referred to as *NMP syndrome*.

With the above introduction in mind, may I define this syndrome as an attitude where someone believes that s/he is immune from certain (undesirable) illnesses/situations or the consequences thereof. For instance, in our environment, a diagnosis of malaria does not usually attract the "it is not my portion" expression from a patient but, often when a woman is informed during pregnancy that her baby would best be delivered by c-section, the "not my portion" expression is often the first response. In my experience, outside the verbal expression, as demonstrated, this attitude or behaviour is expressed by women and their families in several ways and I have developed a simple classification:

a) **Type 1 or Severe "Not My Portion" Syndrome:** in this type, the individual verbally expresses immunity or non-susceptibility to an

illness or unpleasant situation and refuses treatment or screening in any form. It includes individuals that keep mute and refuse to consent despite extensive and appropriate counselling for a beneficial intervention. Unfortunately, women in this group may be more difficult to treat and may require a combination of more than one NMP syndrome treatment modalities.

b) Type 2 or Mild "Not My Portion" Syndrome: this type includes any other verbal or non-verbal expression by a person that suggests a feeling of immunity to undesirable illnesses/situations or their possible consequences. These expressions include having "no reason" for not carrying out a beneficial screening/health intervention despite being aware of its proven benefits, etc. Individuals suffering from this type usually change their minds and consent to the proposed screening or intervention after the "treatments" discussed below.

In this major part of the lecture, I will use my published works (and some of my colleagues) to discuss the status and negative clinical effects /implications of this malignant syndrome then, propose treatment options.

#### "NOT MY PORTION" SYNDROME & WOMEN'S HEALTH: THE BURDEN

#### Female Reproductive Cancer Prevention and Treatment

**Cervical Cancer Prevention:** The knowledge about cervical cancer and its screening among women is generally low in Nigeria; the NARHS Plus II 2012<sup>14</sup> found that about 20.9% of female respondents were aware of cervical cancer as against 54.2% that knew about breast cancer. The cervical cancer knowledge was highest among respondents from Southeast (27.0%) and least in the Northeast (10.3%). The study also found very poor knowledge of Pap smear (9.1%) among respondents.

It is assumed that improved awareness of any disease's accessible screening method should improve its use; for instance, improved awareness for Pap test should improve its use by women for the prevention of cervical cancer. This assumption might explain the good

efforts by government and non-governmental organizations' towards scaling up information dissemination about cervical cancer screening. But, is this assumption correct? My team tested this assumption among female medical doctors in Enugu, Nigeria.<sup>35</sup> The target population was chosen for the study because, by virtue of their medical training, they should be aware of cervical cancer and its accessible screening methods. During the study, we interviewed 79 female medical doctors selected randomly from a frame developed from the register of the Medical Women Association of Nigeria (MWAN) Enugu zone. Seventeen (22%) respondents were consultants (Fellows), 16 (20%) were senior residents, 17 (22%) were junior residents, 14 (18%) were medical officers and 15 (19%) were house officers. As expected, the study found that all respondents had knowledge of Pap smear. But, only 14 (18.0%) respondents had used it. Out of this group, only 8 respondents screened as per routine; others were either due to illness (36.0%) or preemployment screening (7.0%). The "Not my portion" syndrome came into play when respondents were asked about their reasons for the nonuse of the Pap test. As shown in table 1, 9.2% of the respondent expressed out rightly that they were not susceptible to cervical cancer, which according to my classification above, falls into the severe form of "Not my portion" syndrome! Other reasons that may be categorized into mild NMP Syndrome are "no reason", "too busy to screen" and "just lazy about screening". Worrisomely, these NMP syndrome-associated reasons for non-screening were expressed by a majority (87.7%, 57/65) of the respondents! Based on our results, we therefore, concluded that increased awareness of Pap smear might not translate to its use in Enugu, and indeed Nigeria. We prayed for a strategy to improve cancer screening consciousness of female medical practitioners towards screening for cervical cancer including re-training training programmes.

REASON	<b>FREQUENCY</b> (n = 65)	PERCENTAGE (%)
Poor health consciousness	2	3.1
Do not feel susceptible to cervical cancer	6	9.2
Scared of the outcome	4	6.2
Too busy to screen	15	23.1
Just lazy about screening	15	23.1
Preservation of virginity	1	1.5
Awaiting menopause	1	1.5
No reason	21	32.3
Non-accessibility of Pap smear	0	0.0

Table 1: Reasons for the non-use of Pap smear by female medical practitioners in Enugu, Nigeria<sup>35</sup>

To further review the hypothesis that improved awareness of cervical cancer does not translate to its improved use, we carried out a crosssectional survey of 912 consenting women attending the outpatient (gynaecological outpatient, general outpatient, medical clinics outpatient, and surgical outpatient) of the University of Nigeria Teaching Hospital (UNTH), Enugu Nigeria, over a six months period.<sup>36</sup> A total of 550 (60.3%) respondents were aware of cervical cancer. Incidentally, 74 (13.5%) of this group knew nothing about the prevalence of the disease in Nigeria. Also, a total of 376 (41.2%) of all respondents or 68.4% of the aware group knew about Pap smear. Only 82 (9.0%) respondents or 21.8% of the 'aware group' had used Pap smear prior to the study; out of these, only two (2.4%) women were screened as per routine - others were either due to ill health (29.3%, 24/84), during medical, or as part of a pre-employment workup (4.9%, 4/82).

The "Not my portion" syndrome played out again in this study – a majority (61.9%) of the "aware" women had mild type of the syndrome because they had no reason for not screening despite knowledge of the
Pap smear; while, the remaining 112 (38.1%) had severe type of the syndrome because they stated clearly that they were not susceptible to cervical cancer!

In another study, we sought to assess whether post-HIV testing counselling as provided at the HIV treatment sites in Nigeria included cervical cancer screening information. We compared the awareness of Pap smears by 150 HIV-positive women with equal number of HIVnegative women matched for age and marital status, at the then Voluntary Counselling and Testing (VCT) clinic of UNTH Enugu, Nigeria.<sup>37</sup> This study had an intervention where every respondent was educated appropriately (with aid of pictures) on the structure (gross anatomy) of the womb, cancer of the cervix, and the possibility of its cure when identified early; before administering the last question on the questionnaire that assessed respondent's willingness to undergo routine Pap test regardless of the cost in the hospital. The study found that the awareness rate for cervical cancer was similar for HIV-positive women (22.0%, 33/150) and HIV-negative women (38.0%, 57/150) when adjusted for the effect of educational status (p > 0.05). Six (4.0%) HIV+ve women and 32 (21.3%) HIV-ve women were aware of Pap smear; this apparent difference, became insignificant when controlled for educational status (P > 0.05). None of the women were informed about cervical cancer and its screening during the course of their post-HIV test counselling. After the intervention stated above, severe type of NMP syndrome, i.e. outright refusal of routine Pap smear was manifested by 6 (4.0%) HIV+ve women because they felt HIV infection was already a big burden and would not wish to add to it. On the other hand, 2 (1.3%) HIV-ve women refused routine Pap smear after the above intervention because they felt that they were not susceptible to cervical cancer (type 1 NMP syndrome)!

In another HIV treatment programme-relevant study to determine the willingness of HIV-positive women for out-of-pocket payment for the cancer screening, if necessary<sup>38</sup> – recall that free HIV management in Nigeria was essentially donor-driven so, we wondered whether the

women could pay for Pap smear when donors withdraw their funds. We interviewed 400 HIV-positive women at the Adult HIV clinic, UNTH, Enugu. The study found that 11 (2.8%) respondents were aware of Pap smear, but only 1 (9.1%) women used it. After a picture-based cervical cancer screening counselling, 378 (94.5%) respondents were willing to pay for Pap smear, irrespective of the cost. This willingness showed no trend across age, marital or educational groups. Seventeen (77.3%) respondents who were not eager to pay for Pap smear gave the cost of the screening as their reason while 1 (4.5%) woman felt the government should take care of her health – so they didn't have NMP syndrome. But, mild NMP syndrome reared its head again in 4 (18.2%) women that had no reason for refusing routine cervical cancer screening.

# **Maternal Health**

Preconception Care: Preconception care is a specialised form of care given to women of reproductive age before pregnancy to detect, treat or counsel them about pre-existing medical and social conditions that may complicate pregnancy.<sup>39</sup> In a cross-sectional study at the UNTH Enugu, we distributed questionnaires to 1331 antenatal women to assess their knowledge, feeling and practice of this very important form of care.<sup>40</sup> We found that out of the 1331 respondents, 404 (30.4%) respondents had knowledge of preconception care and almost all of them (97.0%, 392/404) planned their ongoing pregnancies. Incidentally, only 187 (47.7%,) of those who planned their pregnancies had some form of preconception care - their caregivers were Obstetricians (48.1%, 90/187), General medical practitioners (23.0%, 43/187), and midwives/staff nurses (8.9%, 54/187). Reasons for preconception care by respondents are shown in figure 6.



Fig. 6: Reasons for Preconception care<sup>40</sup>

The question is, why did women who knew about preconception care and planned their pregnancies, not access this very important care? The answer is simple – NMP syndrome! We concluded that preconception knowledge was sub-optimal at the study area, and recommended that "all stakeholders in maternal and child health should be involved in vigorous, targeted, sustained women-centered education to improve knowledge and utilisation of preconception care by women in the reproductive age group" .<sup>40</sup> However, recall that we had used female medical doctors in Enugu to prove that improved awareness does not translate to improved use of any screening method for apparently healthy women so, the above recommendation alone may not improve use of preconception without an additional "push". The subsequent section on NMP syndrome treatment will highlight some effective "push".

**Perinatal Care:** <u>Antenatal period:</u> During pregnancy, a woman nurtures the unborn baby or babies in her womb through the umbilical cord through which the transfer of oxygen or carbon dioxide and other materials occur between the mother and unborn baby. It is obvious therefore, that some substances taken by the mother can be injurious

to the unborn baby; one of such substances is tobacco. Notably, the predominant form of tobacco use is cigarette smoking which can be active or passive smoking – both are harmful. It has been observed that tobacco use by both men and women is decreasing in developed countries and increasing in low- and middle-income countries (LMICs).<sup>41</sup> Several factors contribute to the increasing smoking by women in LMICs such as the high rate of smoking by men, increased targeting of women by tobacco companies, improvement in the status of women, as well as the erosion of cultural constraints on women smoking that is associated with globalization.<sup>41</sup> Tobacco use is very harmful to women's health especially, it is associated with cervical cancer, early menopause, etc. In pregnancy, maternal smoking is very harmful to the unborn baby and the effect continues after birth; these effects include miscarriages, impaired fetal growth, preterm labor, respiratory diseases in childhood, sudden infant death syndrome, long-term cognitive and behavioral deficits, etc.<sup>42,43</sup>. With these adverse fetal/child effects of smoking in mind, we wondered the magnitude of active cigarette smoking among our pregnant women in our environment. To achieve this, we interviewed 200 antenatal women selected from three busy hospitals in Enugu metropolis.<sup>44</sup> Over 90% of the respondents knew that cigarette smoking was harmful to the baby but, affectation with severe NMP syndrome may explain the finding that 4.5% of this group were smoking during pregnancy.

<u>Caesarean section</u>: this is the surgical delivery of a baby through incisions made on the abdomen and the womb. It can be planned (elective) or emergency procedure for the sake of mother and/or unborn child, depending on the situation thus, its importance in the prevention of maternal and perinatal deaths or illnesses can never be overemphasized. It was believed that no setting should have a caesarean rate of more than  $10 - 15\%^{45}$  but, the current focus is to provide caesarean section (CS) to all women that medically need it rather than struggling to achieve a fixed rate.<sup>45</sup> May I stress that CS is associated with complications including death which explains why it must be carried out by a trained medical doctor in an appropriate level

of health care center equipped with facilities for comprehensive emergency obstetric care. Nevertheless, inadequate access to timely CS may lead to lots of maternal or child complications including death in the womb (stillbirth), uterine rupture, VVF, etc,

Caesarean section is a common procedure in our environment – a population-based survey in Enugu State, Nigeria showed a low CS rate of 7.2%<sup>46</sup>. However, a study from the major referral tertiary hospital in the State, UNTH Enugu,<sup>47</sup> showed a CS rate of 27.6% and it is noteworthy that a majority (93.7%) of the procedure were emergency CS.<sup>47</sup> Operative delivery by CS is notorious for evoking the features of NMP syndrome and I believe most of us might have witnessed this sometime in the past. A table from a recent study in Enugu, aimed at determining the beliefs and perceptions of pregnant women in Enugu, about CS,<sup>48</sup> succinctly captured the NMP syndrome associated with CS (table 2). In all, 33.0% of respondents expressed varying degrees of NMP syndrome – while response numbers iii and iv (13.0%) are typical features of type 1 or severe NMP syndrome, response number ii (20.0%) can be categorized as mild NMP syndrome. The clinical implications of these "illness" will be discussed in a subsequent section.

	Response to caesarean section	No. of respondents (%)
i	Readily accept it	134 (67.0)
ii	Accept it reluctantly	40 (20.0)
iii	Reject it no matter the circumstance	24 (12.0)
iv	Reject it and change my doctor	2 (1.0)

Table 2: Response to Cesarean Section by All Respondents<sup>48</sup>

# Infertility Management

**Child adoption:** One of the options available to infertile couples is the legal adoption of babies. A prevalence of 5.5 adoptions per year was reported in Enugu.<sup>49</sup> In our environment, it is a subject that is associated with NMP syndrome. A study in Enugu among infertile women from

three tertiary health hospitals in Southeastern Nigeria,<sup>50</sup> found that about two-thirds of respondents were unwilling to adopt a baby for various reasons – a majority of the respondents (87%) gave two reasons that are related to NMP syndrome thus: adoption is not a solution to my infertility, adoption is not acceptable psychologically.

## **"NOT MY PORTION" SYNDROME: CLINICAL IMPLICATIONS**

Obviously, refusal to consent to any screening method or proposed treatment to any ailment will likely lead to delays in disease diagnoses or treatment. In women's health, such consequences may be catastrophic and can result in deaths. Some of these consequences are described below under different categories of women's health.

## Female Reproductive Cancer Prevention and Treatment

**Cervical Cancer:** I have demonstrated the association between NMP syndrome and non-use of cervical cancer screening in our setting. Thus, it may not be incorrect to state that the rising incidence of cervical cancer in Nigeria is associated with NMP syndrome. On the other hand, late presentation of cervical cancer cases in our environment shifts treatment outcome of the disease from curative to palliative which may not be unconnected to the current worrisome fact that cervical cancer is the commonest cause of cancer deaths in Nigeria.<sup>4</sup>

**Choriocarcinoma:** This is a malignant form of gestational trophoblastic disease (GTD). Though malignant, it is curable if managed properly; and the management includes life-long clinic follow-up. In an audit of choriocarcinoma at the UNTH Enugu,<sup>51</sup> we painfully observed that this curable cancer was not curable in our environment within the period reviewed, and the reason was largely related to NMP syndrome. The study found a choriocarcinoma prevalence of 4.3 cases per 1,000 deliveries. All the patients presented late to the hospital – duration from onset of vaginal bleeding to hospital presentation was 1 - 18 months which was supported by the finding that all affected women had a shortage of blood (i.e. anaemic, median PVC = 21). Eight (53.3%) patients died on admission while the remaining (46.7%) were lost to follow-up either in-between courses of chemotherapy (3 patients) or

after the chemotherapy (4 patients); and the likely scenario was that the three patients lost in-between chemotherapy courses died which gave a worrisome case fatality of 73.3% (11/15) as against an expected cure rate of 75 - 100%. The question is, why would a woman having unusual vaginal bleeding take up to one to eighteen months to present to a specialist hospital? There may be many reasons but a mild form of NMP syndrome cannot be ruled out! On the other hand, why would a woman that completed her chemotherapy refuse to present for follow-up despite being counselled for a life-long follow-up? The most likely reason for this behaviour is severe NMP syndrome!!

# **Consequences of Refusal of Uterine Fibroid Surgeries**

Fibroid in the womb is common in blacks, and women that have not been pregnant (nullipara); it also runs in the family (i.e. genetical). Very large uterine fibroids are usual in our gynaecology clinics often because women live in denial (NMP syndrome) and refuse surgical treatment usually myomectomy (i.e. surgical removal of the fibroid) and the fibroid uterus continues to grow bigger as shown in figures 7 and 8.



Figure 7: Abdomen Distended By Huge Uterine Fibroid

Usually, by the time these NMP syndrome affected women eventually accept surgery, the fibroid might have grown so large, distorted the endometrium and fallopian tubes, and causing infertility. It is thus not uncommon to see such women having infertility when they get married thus making the uninformed to attribute such infertility to fibroid operation. This widespread misconception may be one of the predictors of late clinical presentation/ surgical intervention in women with fibroid. Other consequences are described below including severe anaemia, and acquired gynatresia.



Figure 8: Fibroid Uterus During Surgery

**Severe Anaemia:** Excessive volume or duration menstrual bleeding is usually associated with uterine fibroid. When this continues for a long, the woman often becomes anaemic and sometimes needs hospital admissions and transfusion of several pints of blood before any other treatment can be offered. I therefore, encourage women with a similar problem to stop postponing treatment and present to any gynaecologist for expert care.

Acquired Gynatresia: Several unorthodox health care providers claim to treat uterine fibroids without surgery but, for most of them, there is no evidence to support such claims. In fact, cries of woes follow such health excursions especially waste of huge amounts of money. Painfully, I have encountered two very educated women with infertility and uterine fibroids. Each of them presented to a woman claiming to cure uterine fibroids by inserting some material into the vagina. In each case, the woman felt some materials fallen off her vagina after the insertion and was hopeful that the fibroid was dissolving and fallen off as counselled. With time she realized that her vagina had sealed up such that she could neither menstruate nor have sex with the husband. Both were very pathetic cases. A multi-specialist corrective surgery was attempted for each of them but, whatever the outcome, it was not like the original. So, please, everyone should review every unorthodox claim of fibroid treatment critically to avoid such experience.

### **Maternal Health**

Non-use of Preconception Care and Anaemia at Booking: I have highlighted the importance of special care before pregnancy called preconception care. None use of preconception care in our environment removes the opportunity to identify "shortage of blood" i.e. PCV of < 33%, and other possible adverse feto-maternal disorders before pregnancy. It is therefore not surprising that our study on the prevalence of anaemia at antenatal booking in UNTH Enugu involving a review of antenatal records of 530 women, found anaemia rate of 40.4%.<sup>52</sup> Fortunately, a majority (90.7%) of the affected women had mild anemia and there was no case of severe anaemia (i.e. PCV < 21%). Consequences of Late Antenatal Booking: When a woman conceives, she is encouraged to register for antenatal care under a skilled health personnel, as early as possible after her second missed period. In this case, a skilled provider is a "competent maternal and newborn health professionals educated, trained and regulated to national and international standards" <sup>53</sup> Traditionally, they include the Obstetricians, medical officers, and midwives with specified competencies that include the ability to identify and manage or refer women and/or newborn infants with health complications.<sup>53</sup> We have observed that pregnant women in our environment do not register early for antenatal care - a multicentre study in Enugu, found an average age at booking of  $26 \pm 7.6$  weeks.<sup>54</sup> This late booking which may be attributed majorly to the mild form of NMP syndrome, predispose them to the following complications:

**Anaemia in Pregnancy**: In the anaemia study presented above,<sup>52</sup> we found that the prevalence of anemia at booking was significantly higher in women that registered for antenatal care in the third trimester when compared to those that registered in the second trimester of pregnancy. We, therefore, encourage pregnant women to register with a health facility of their choice after their second missed period (around 10 weeks gestation).

**Difficulty in the diagnosis of Obesity in Pregnancy**: Obesity in pregnancy is associated with many adverse feto-maternal complications including gestational diabetes mellitus, gestational hypertension, increased risk of caesarean section, fetal macrosomia, childhood obesity metabolic syndrome, etc. It is assessed using the body mass index (BMI) derived from the woman's weight and height.<sup>55</sup> Height in an adult woman is not expected to change significantly but her weight changes with the age of the pregnancy. For this reason, the pre-pregnancy weight or that measured at the booking visit at about 10 weeks of pregnancy is used for the diagnosis of obesity in pregnancy, and this poses a challenge in our environment! In my experience, most pregnant women neither book for antenatal care within 11 weeks of pregnancy nor have knowledge of their pre-pregnancy weight.

**Maternal Malaria Parasitaemia and Anaemia:** Both conditions are endemic in Nigeria and impact negatively on pregnancy outcomes so, strategies were developed to prevent them during pregnancy - these strategies include routine iron and folic acid supplementation for anaemia prevention, and roll back malaria initiative for malaria prevention including use of insecticide-treated nets (ITNs) and intermittent preventive treatment (IPT) with sulfadoxine-

pyrimethamine (SP).<sup>56</sup> We however, wondered whether pregnant women were using these strategies and their impact on the prevalence of malaria and anaemia in pregnancy in our environment. To answer this question, we studied 300 antenatal women ( $\geq$  36 weeks gestation) selected from 10 primary healthcare centres in the Nkanu West local government area, Enugu state, Nigeria.<sup>57</sup> We found that non-use of ITNs or SP was very high in the study population – consistent bed net (ITNs) use rate was 9.3% (28/300) and IPT (2 doses of SP) use rate was 30.7% (92/300). Out of the 28 women that used ITN consistently, 27 women received two doses of SP. Out of these 27 ITP and SP users, 7 (26%) and 5 (19%) women had malaria parasitaemia and anaemia respectively. In contrast, for the ITN and/or SP non-users (n = 273), malaria parasitaemia and anaemia rates were 98.5% (269/273) and 52.4% (143/273) respectively. The malaria parasitaemia and anaemia rates differences between the two groups were significant (p < 0.05). Simply put, the study found that women who were both ITP and SP users during pregnancy had lower odds of having either malaria parasitaemia or anaemia when compare with the ITN and/or SP non-users.

## **Family Planning**

**Short Inter-Birth Interval:** Interval between births is a major predictor of fertility level for any society.<sup>58</sup> Though family planning (FP) programmes advocate for at least 2 years (24 months) interval between births,<sup>59</sup> longer intervals of 3 to 5 years might be better for the optimal health and survival of both mother and infant.<sup>60</sup> According to the 2013 National demographic survey of Nigeria, awareness and use rates for the modern FP method by married women in Enugu, Nigeria are 99% and 14.3% respectively.<sup>15</sup> Reasons for non-use of FP in our environment include severe NMP syndrome and one of the possible effects of non-use of FP is unintended pregnancy which is often associated with short inter-birth interval (IBI); it should be stressed that unintended pregnancy is a major predictor of unsafe abortions and maternal deaths in our environment. Our study on IBI in Enugu,<sup>25</sup> found an average interbirth interval of 22.4±8.2 months in Enugu state with more than half of

the respondents (58.6%) having IBI of less than 24 months (short IBI). It also identified that the odds of short IBI among women that did not use modern FP methods were about seven times more than that of women that practiced family planning.<sup>25</sup>

Likewise, unprotected sex can lead to pregnancy and/or STIs depending on the partner. In adolescents and unmarried young adults, we encourage abstinence as much as possible otherwise, they should use condom or condom and any other appropriate method (guided by established Medical eligibility criteria),<sup>61</sup> to ensure dual protection from pregnancy and STIs. It is not unusual for female students who are aware of the consequence of unprotected sex to indulge in consensual sexual activities! The reasons may include the feeling of "immunity" to pregnancy, etc which is part of NMP syndrome. The possible and encouraged consequence of this apparent invincibility is the use of emergency contraception though, a lot more of the "invincible" students may do nothing apparently due to severe NMP syndrome thus exposing themselves to the obvious risks of unwanted pregnancies and unsafe abortion. Our study on emergency contraception (EC) among 700 students of University of Nigeria Enugu Campus (UNEC),<sup>62</sup> found that 85.1% of respondents knew about EC but, less than half of this group (41.9%) did not approve of its use, mainly due to religious reasons (50.4%, 126/250), among other reasons. Of the 346 students that approved of EC use, 39.9% had used it and the major reason for its use was unprotected sexual intercourse (61.6%), which I consider a milder effect of NMP syndrome. The worst scenarios as discussed above could have been the refusal to use EC followed by unwanted pregnancies, unsafe abortion and its consequences.

## **Other Clinical Effects NMP Syndrome**

**Rupture of the womb following refusal of elective caesarean delivery**: We reported a related case a few years ago.<sup>63</sup> A young woman that had elective laparotomy and adenomyomectomy of a fundally located adenomyoma later became pregnant and insisted on vaginal delivery. Adenomyosis occurs when endometrial tissue is embedded within the

walls of the womb – features are similar to the fibroid and it is often identified during the operation for fibroid. For the case presented above, everything went well in labour and she delivered a 3.4kg baby boy at term. However, few hours after delivery, we made a diagnosis of postpartum hypovolemic shock due to haemoperitoneum of unclear cause based on her complaints and physical findings including abdominal distension (fig. 9) and absence of vaginal bleeding.



Figure 9: Distended abdomen of the patient prior to surgery<sup>63</sup>

During emergency laparotomy, we found a haemoperitoneum of about 2.5 L and a complete fundal uterine rupture (fig. 10) which was repaired.

It is possible that if she delivered outside a non-tertiary health centre, she would have bled to death. The message is, if this woman had accepted elective CS, she would not have gone through labour which led to the rupture of the womb and the massive bleeding that almost killed her. A related case is a situation where a woman insists on vaginal delivery after two previous CS - I have seen a few of them, and each usually present as an emergency with rupture of the womb and dead baby. At that point, the goal of care is to save the life of the

woman and in some cases, the womb is sacrificed thereby ending the woman's reproductive carrier.



Figure 10: Uterine rupture site excision and repair<sup>63</sup>

Acute Uterine Inversion: this is an obstetric emergency when the womb turns inside out. In a majority of cases, it is due to mismanagement of the third stage of labour i.e. the period from delivery of baby to delivery of the placenta. It is unlikely to occur in the hands of a skilled birth attendant! But, when a woman decides to be managed by an unskilled hand probably due to severe NMP syndrome, this rare condition may result. As a young senior registrar, I encountered such a case in rural practice in Southern Nigeria.<sup>64</sup> A young woman was rushed to the hospital at night, about 2 hours after her seventh delivery, with a complaint of a mass protruding through the vagina after birth (fig. 11).



Fig. 11: Inversion of the womb after improper delivery of placenta<sup>64</sup>

She did not receive antenatal care. Her delivery was managed at home by the second wife of her husband, who had no experience in birth attendance. She fainted at the hospital gate while disembarking from a motorcycle. She was resuscitated and the uterus reduced surgically as appropriate. Whenever I review this case, I usually ask myself, what would have happened to the women with this severe form of NMP syndrome, if I were not available in that rural setting at that time? This case highlights the need for us to encourage every pregnant woman to seek care by a skilled birth attendant as defined above, during birth.

**Vesico-vaginal Fistula:** When labour becomes obstructed, the head of the unborn child fixes tightly then, squeezes the urinary bladder and the vagina against the pelvic bone of the mother. If such squeezing becomes prolonged (i.e. prolonged obstructed labour), the bladder and vaginal tissues held between the bones (fetal skull and the pelvis bone) will be denied of blood supply for a long time leading to tissue death (ischaemic

necrosis). After the birth of such babies (usually dead), the necrosed (dead) tissues will slough off leaving a connection between the urinary bladder and vagina referred to as vesico-vaginal fistula (VVF). The consequence is the uncontrolled leakage of urine with the attendant numerous associations. May I stress here that the underlining problem in this situation is prolonged obstructed labour which can be prevented when labour is monitored with a partograph by a skilled birth attendant. Unfortunately, women often refuse to be managed by skilled birth attendants - some women receive antenatal care in a hospital or registered maternity center but, present to unskilled personnel during labour - a typical case of severe NMP syndrome! There are several examples and I present one of them here - Mrs AN was receiving her antenatal care for her third pregnancy at a specialist hospital. She has had two previous caesarean section - the first was an emergency CS for prolonged labour, and the second surgery was planned (elective) because of a big baby (macrosomia). Based on this history, she was booked for elective CS but, she absconded to her village where a patent medicine dealer (called Sister) induced labour and augmented same with oxytocin infusion (hot drip). As expected, the womb ruptured and the "Sister" referred her in an unconscious state to a private hospital where she was resuscitated, emergency abdominal surgery was done by the doctor, aimed at "stopping bleeding to save her life", according to her referral note. Five days after the surgery, she started leaking urine with the catheter in situ. What a heavy price to pay just because one wants "to deliver like a Hebrew woman". Please, mothers and their husbands, seek for quality maternity/obstetric care from skilled birth attendants. When in any appropriate birthing place, request to know whether the staff monitor labour with partograph and insist it is used for you. A partograph is a simple, cheap, and easy to use tool used to monitor the progress of labour and identify feto-maternal complications early enough.

## NOT MY PORTION SYNDROME: TREATMENT

As discussed earlier, NMP syndrome refers to the variably expressed attitude of invincibility to a disease state; and my experience is that treatment is often difficult especially in the severe type. Nevertheless, a few of my research works, highlighted under various women's health categories below, have suggested effective and simple strategies for minimizing the burden and effects of this syndrome.

# **Cervical Cancer Screening**

In my experience, the predominant type of NPM syndrome associated with cervical cancer screening is the mild type often expressed as "no reason" for the non-use of available screening methods.<sup>36</sup> Outlined below are research-based strategies that can improve the use of accessible cervical cancer screening in our environment while we await the development of a functional structured national guideline:

Picture Based Counselling for Cervical Cancer (PBCC): In this strategy, we apply the popular English saying that "a picture is worth a thousand words"; and I am happy to state that it works for cervical cancer screening. Pictures used are those that show labelled structures of the normal womb including the cervix as well as pictures of the cervix with cancer - these can be downloaded freely from the internet. Also, the counsellor may choose to add a chart that compares incidence and mortality of cervical cancer in Nigeria with those of countries that have organized cervical cancer screening programmes - I usually compare Nigeria with Norway, and in my experience, this comparison improves women's understanding of the burden of the disease. As demonstrated by our studies highlighted above,<sup>36-38</sup> picture aided counselling of women, especially those that have no knowledge of cervical cancer and its screening, improves acceptability of cervical cancer screening including payment for the service irrespective of the cost. For instance, in the study among out-patient clinic attendee presented above,<sup>36</sup> after applying this intervention on the respondents, 99.8% (910/912) of respondents expressed eagerness to commence routine Pap screening but, the remaining two (0.2%) respondents insisted that they were not susceptible to the disease and therefore, had no need for Pap screening. Likewise, when we applied the strategy in our study that compared awareness and use of Pap smear between HIV +ve and HIV-ve women,<sup>37</sup> 96.0% of the HIV+ve and 98.7% of the HIV-ve women expressed willingness to undergo routine Pap screening, while 6 (4.0%) and 2 (1.3%) of HIV+ve and HIV-ve women felt they were not susceptible. Furthermore, when the strategy was applied in our study to assess the willingness to pay for cervical cancer screening when donor funds dry up,<sup>38</sup> 378 (94.5%) respondents were willing to pay for Pap smear, irrespective of the cost of screening; 4 (18.2%) out of seventeen women that were not eager to pay were related to NMP syndrome. A critical review of the above research findings shows that the major problem lies with the group of women that refuse screening after the PBCC. The next strategy might help us manage this group that obviously has a severe type of NMP syndrome.

Provider-Initiated Cervical Cancer Counselling And Testing (PICCT):<sup>36</sup> have established earlier that the knowledge of disease screening might not be enough to improve its use.<sup>35</sup> Based on this background, I had proposed that an additional "push" or motivation is required to break the inertia to screening for cervical cancer in our women. In the search of that motivator, I reviewed the HIV screening options and found out that the opt-out approach is superior to opt-in, and voluntary testing.<sup>65</sup> Similarly, I also noted that the shift from voluntary counselling and testing (VCT) to routine HIV testing (i.e. HCT with opt-out approach) in the antenatal clinics in Nigeria, seemed to have increased antenatal HIV screening uptake substantially. This opt-out approach involves HIV information followed by HIV testing unless the patient explicitly declines to be tested. Based on the positive impact of this approach and the absence of a standard National guideline for cervical cancer screening, I proposed that the "introduction of a similar strategy in the fight against cervical cancer at the outpatient clinics of hospitals in Nigeria may serve as the 'push' required to improve the use of any available cervical cancer screening service by women"<sup>36</sup> The PICCT, therefore, includes PBCC described above, followed by the routine screening with any accessible effective method, <u>except if the women expressly declines</u>. This strategy applies a principle in the Igbo language referred to as "o gbara nkiti kwere ekwe", meaning that non-response to a request implies consent. When I applied this strategy during fieldwork for my Part 2 Fellowship Dissertation where I compared cervical cancer screening results of HIV+ve women to matched HIV-ve controls, all eligible women selected for each group (n = 150) consented to the study.<sup>9</sup> On the other hand, in my Dissertation for the Master of Science in International Health at the University of Bergen Norway, I also recommended a similar opt-out strategy for HIV screening among Tuberculosis (TB) patients in the Enugu State TB program where a progressively declining uptake of HIV testing among tuberculosis patients was observed for years 2008 and 2009.<sup>66</sup> It is recommended that TB cases be screened for HIV because treatment guidelines for patients with TB only, differs from that for patients with TB and HIV co-infection.

# **Maternal Health**

**Case-Based Women Education**: This strategy was adapted from the picture-based counselling described above. It involves using cases (including patient's privacy protected pictures) of complicated pregnancies wherever possible during awareness creation meetings. I have used this strategy severally, to demonstrate the need for preconception care especially for women that had complications in their previous pregnancies; encourage early booking for antenatal care by a skilled attendant; and acceptance of elective and emergency caesarean sections whenever medically indicated, etc. I encourage every women's health provider and advocate to use this strategy whenever necessary. Unfortunately, for these situations, especially surgical interventions, provider-initiated counselling and opt-out option CANNOT be used because written informed consent is required from the woman or a relative when a woman's condition makes her incapable of given consent, for example, if she is unconscious.

Alternative Measures For Diagnosis Of Obesity In Pregnancy: The diagnosis of obesity in pregnancy is made with BMI calculated with pre-

pregnancy weight or that measured at the booking visit at about 10 weeks of pregnancy. I have discussed the challenges posed by late antenatal registration common in our environment, to this nutritional assessment. While we hope that late antenatal booking will be addressed in the near future by massive case-based women education through women's meetings such as August meetings; there is a current need for an effective alternative(s) to BMI for women that register late for antenatal as well those with severe NMP syndrome that will persist with late antenatal registration despite the education. My team's target was to search for alternative measures of nutrition devoid of the use of mathematical calculations as in BMI, sophisticated equipment, and regular equipment standardization. We carried out a cross-sectional multicenter study of 578 antenatal women in Enugu metropolis to assess the use of Mid Upper Arm circumference (MUAC), Hip circumference (HC), Waist circumference (WC), and Calf circumferences (CC) as low-cost measures of obesity in pregnancy.<sup>67</sup> In summary, we found that MUAC and CC values of 33cm and 39cm respectively might be reliable cut off points for diagnosis of obesity throughout pregnancy in our environment – so it does not matter when the women booked for antenatal care. We concluded that the study's finding was "remarkable because the study area is characterized by undeveloped preconception care<sup>40</sup> and late antenatal booking<sup>54</sup> which makes the awareness of prepregnancy or maternal weight at 10 weeks of gestation almost impossible to women". Nevertheless, we recommended a populationbased study to validate our results.

Membrane Stripping For Reducing Need for Induction Of Labour For Post-Date Pregnancy: The average duration of pregnancy from the last normal menstrual period is 40 weeks, 280 days or 10 lunar months. Pregnancy is post-date when it has lasted beyond 40 weeks (i.e. beyond 40 weeks plus zero-day), or post-term when it gets to 42 weeks and beyond. It is the practice in our environment, not to allow a pregnancy to reach 42 weeks so, in the absence of a contraindication to vaginal birth, labour is induced for such pregnancies. Nevertheless, many women frown at labour induction and I know that they only accept it because the other option is caesarean section so, they can be said to be "between the devil and the deep blue sea". We used a randomized controlled trial of 134 postdate pregnant women at the UNTH Enugu, to join the international community in establishing the evidence that membrane stripping (sweeping) of post-date pregnancy prevents postterm pregnancy and the need for formal induction of labour.<sup>68</sup> We found that the incidence of post-term pregnancy in the intervention group was 59% less than that of the non-membrane sweeping group (RR = 0.41; 95 % CI 0.22–0.78; P = 0.004; NNT = 4). Membrane stripping not only initiated labor within 72 hours of the intervention but also significantly guaranteed delivery within the same period. It also reduced the need for labour augmentation with oxytocin (hot drip). So, we encourage women with post-date pregnancy who have no contraindication to vaginal birth, to request for membrane stripping from their caregiver, if not offered.

On the other hand, the few women that may need induction of labour when membrane stripping fails, should not worry because there are many effective methods. However, we went further to compare the efficacy of the use of Foley catheter plus low dose misoprostol (25µg) with Foleys catheter alone or low dose misoprostol (25µg) alone to know which of the methods fits our population better.<sup>69</sup> The randomized study found that all the three methods were effective with comparable safety profiles however, Foley catheter plus misoprostol was more effective than the other two in achieving a favourable cervix within 12 hours. Women should know that induction of labour is a hospital procedure that should be carried out in a center equipped for comprehensive emergency obstetric care which includes skilled personnel and facility for caesarean section and blood transfusion; not a drug store (chemist shop) like the case presented above.

# **Family Planning**

**Covert (Secrete) Family Planning By Women:** Our study of women accessing FP at the UNTH Enugu,<sup>70</sup> found that the average family size of women using contraceptives to limit their family (median = 5, IQR = 4 - 1)

6), was significantly higher than their intended family size (median = 4, IQR = 4 – 5), p = 0.001). Also, in 56% of cases, the decision for family planning was made jointly with their husbands, which is encouraged. Interestingly, in another 4%, the FP choices were made by their husbands. Nevertheless, opposition by husband against the use of family planning is a known impediment to family planning use by women.<sup>15</sup> Fortunately, this is not common in our environment as our study showed that only one woman was using FP despite strong opposition by the husband.<sup>70</sup> But, we know that such "strong head" by a woman against the husband's wish is not usual in our environment and may cause marital disharmony so, the treatment for that NMP syndrome by men as regards FP is covert (secrete) family planning by women - the same study observed that about 5% of the women studied were adopting this strategy.<sup>70</sup>

## Advocacy To Men Of God

I assume that this prevailing attitude of invincibility originated from our strong believe in the powers of God to solve any problem, which is not arguable but, it is important to note that it is currently being abused thus the need for men of God (formal and informal ones) to understand the role of health care providers in ensuring optimal health of the public and encourage it – we treat, God heals; so, in several health conditions treatment by a medical doctor is required to give God the foundation on which to stand and heal. Therefore, men of God have a strong role to play in treating and preventing NMP syndrome. I thank Fr Bartholomew Agu for his good work; he has consistently referred women especially those with pregnancy complications, from his parish at Attakwu, to our service at the UNTH Enugu. – that is the way to go!

For optimum women's health, we advocate that genuine prayers go hand in hand with appropriate medical care by competent personnel in safe centers which are hospitals, and certified maternity homes for uncomplicated pregnancies.

**Universal Health Coverage:** At the base of the above suggestions for NMP syndrome treatment, lies the ability for a willing individual to

access quality health care without suffering financial hardship. This is because several women who are eager for quality health care cannot afford it and they often express severe frustration. Thus, it is important at this point to remind the government at all levels that "health is a foundational investment in human capital and in economic growth without good health, children are unable to go to school and adults are unable to go to work".<sup>71</sup> It is therefore not surprising that achieving universal health coverage by the year 2030, is one of the targets of SDG-3. Our governments and associated agencies should audit their current commitments towards this target as a matter of priority.

## **RESEARCH WORKS AFTER PROFESSORIAL POST**

I have continued to demonstrate the benefits of *Picture based counselling for cervical cancer* (PBCC) and *Provider-initiated cervical cancer counselling and testing* (PICCT) in cervical cancer screenings – three of the articles have been published,<sup>72,73,74</sup> and few others are under review or being processed for publication. I am delighted that one of the co-authored articles with the title, "Impact of community health educators on the uptake of cervical and breast cancer prevention services in Nigeria"<sup>74</sup> won the 2017 John J. Sciara International Journal of Gynecology & Obstetrics (IJGO) Paper Award Winner as the Best Clinical research article from a Low/Middle-Income Country.

I have also continued to work on how to improve antenatal care and birthing experiences of our women. For instance, we have identified NMP syndrome as regards alcohol drinking during pregnancy despite the knowledge that alcohol may harm the unborn baby<sup>75</sup> – the study found an alcohol use prevalence of 22.6% (86/380) among respondents, and it was worrisome that out of this group, 17.4% (15/86) women took alcohol on regular basis. Interestingly, the commonest brand of alcohol used by the women was the stout beer – we had thought women prefer sweeter drinks!

As regards birthing experiences for mothers, my team carried out a randomized study to determine the effect of early amniotomy (breaking of the bag of water early in labour) on labour outcomes.<sup>76</sup> We found that early amniotomy when compared to fetal membrane conservation (non-breakage of the bag of water till late in labour), reduced the duration of labour and the need for oxytocin augmentation (hot drip) among women in labour at the UNTH Enugu, Nigeria. This study has positively influenced our practice locally for the benefit of our women. Likewise, another randomised study found that there was no need to starve women after caesarean section. Provided there was no complication, graded oral feeding, starting with plain water, can commence eight hours after the surgery.<sup>77</sup> This study has also improved our practice locally to the satisfaction of women.

Furthermore, I have continued to contributed to learning of medical students, and training of house officers/residents through published guidelines, and book chapters including a Federal ministry of health (FMoH) Nigeria *Training Guide for House Officers on Selected Interventions in Maternal and Reproductive Health Care*,<sup>78</sup> and a book chapter on Gonadal dysgenesis,<sup>79</sup> a difficult subject of gynaecology that has to do, in part, with abnormal appearance of female external genital. I have contributed three chapters to a multi-chapter book on Essays in Obstetrics and Gynaecology,<sup>80</sup> with contributions from Medical Postgraduate examiners in OBGYN all over Nigeria. The book, which is currently with the publisher, is aimed at guiding our resident doctors on how to develop essay type questions.

## FUTURE RESEARCH WORKS

Having gotten the professorial post relatively earlier than usual in the University of Nigeria; God willing, I have many years ahead to impact on women's health through policy-relevant research and other methods, as much as administrative duties permit.

Currently, my goal is implementation research to scale up PICCT Training for medical practitioners in Nigeria. This will ensure that every eligible woman that visits the hospital for any reason is informed about cervical cancer screening and routinely screened or referred for screening. It is my view that this effort will be better than the current unstructured community screenings conducted during health out-reaches.

Another goal that I am very eager to achieve is implementation research to scale up quality antenatal care and labor monitoring in primary health care facilities in Nigeria – I led a team that developed this proposal few years ago and it was selected by the WHO implementation group. Unfortunately, the WHO couldn't fund it and had to shift it to the Federal Ministry of Health (FMOH). Unfortunately, also, the FMOH made several attempts to secure funding for the project with no success. It is my hope that we shall make a headway sometime in the future.

### CONCLUSION

The expression, "it is not my portion", has become part of us such that it has developed into an attitude characterized by the feeling of immunity towards unpleasant disease conditions or health intervention. The magnitude of this attitude has developed so much that it now constitutes a sickness that I refer to as "Not My Portion" Syndrome. The syndrome which has been classified into severe (type 1) or mild (type 2), is a major impediment to cervical cancer prevention and women's health promotion in our environment. The first part of this 152<sup>nd</sup> inaugural lecture of the University of Nigeria presented a concise overview of cervical cancer epidemiology/prevention strategies and women's health; then, I used a few of my published work to describe the components of women's reproductive health. The second and major part of the lecture used some of my published research works and few of other colleagues' works to establish the magnitude of the NMP syndrome, its harmful clinical effects, and evidence-based treatment strategies. Finally, the lecture presented a concise description of my research output since my appointment as a professor in October 2014 and ended with my proposed future research goals.

## APPRECIATION

I thank God almighty for his grace and blessings on my family and my person, despite my unworthiness. Just as my name "Chukwudi" suggests, God is always with me. My life has been a testimony starting from my birth through my education, marriage, family, appointments, and promotions. I thank Him especially for always shining His light on my pathway.

**My family:** To my friend, queen, wife, and special mother - Dr Ngozi Regina Dim - when I met you, I began to believe the biblical account of Adam/Eve and the missing rib (Gen. 2: 22-4). God really blessed the day I found you. Thank you for accepting, tolerating, and managing me.

<u>To our lovely children</u> – Chidi, Chukwuma, and Amarachi: you are God's gifts to us; we love and appreciate you. May God continue to bless and direct you. To our nieces that have lived with us – Ijeoma, and Ukamaka; and the ones currently with us Nnamaka and Esther, you are our family and we appreciate you. To my other nephews and nieces, I appreciate all of you.

<u>My Parents:</u> My late father, Sir Cyril C. Dim, a renowned headmaster of schools and a household name in my town - Achina. Though a disciplinarian to the core, I can only remember him as a friend who knew when to play or work; and I think I learnt that! My late mother Lady Catherine E. Dim was a very intelligent woman and an epitome of a mother. She had a special capacity at analysing issues and proffering solutions. I still feel so much pain today because all my medical interventions could not make her live as long as I had wished. My parents taught me that good character is worth more than gold - I feel pain because my family and I did not enjoy my parents long enough like my older siblings. May you continue to rest with the Lord.

<u>My Siblings:</u> I wish to start with the youngest of my sisters, Mrs Rita Nwosu, who I can call my "surrogate" mother. She is a graduate and currently the headmistress of a primary school. My mother told me that my sister loves nursing children so much such that when her peers started denying her access to their younger siblings, she persistently appealed to her (our mother) for a baby. That passionate plea made my parents to "come out of retirement" and the result was my birth, five years after my late brother, of course with God's blessing. She dropped out of school for one year after I was born just to nurse me, despite my parents' entreaties – what a lovely sacrifice. May God continue to bless her, her husband, Stephen, and her family.

Our eldest sister, Mrs Rose Agazie, a retired principal of secondary schools. She is the mother we see today and has been encouraging and guiding the entire family. My eldest brother, Engr. Joe Dim, a retired pipeline engineer with Shell Petroleum International. When he took over my sponsorship in schools after my father's retirement, hardship stopped being my portion. He is a sincere, calm and focussed man. I pray for God's unceasing blessing and guidance on him and his family.

Rev Fr (Dr). Emmanuel Dim: my elder brother and a Ph.D. holder in Sacred scriptures. He is the Rector of Fr Tansi Major Seminary, Onitsha. A very brilliant man whom I have always looked up to. I remember vividly when he insisted that I should sit for the entrance exams into the then newly established Special Science Schools. I recognized his brilliant and superior argument in support of the proposal and my Dad could not say no. He saw what others were nor seeing in me, and I remain very grateful to him for that insistence. Today, he is both a father and senior brother to me and I pray that God continues to keep him in good health. My sister, Mrs Jane Okpalanwaka is a retired Principal of secondary schools. She nurtured me when I was at St Charles Special Science School Onitsha – her house remains a loved transit home for me. I still mourn my immediate elder brother, Jude Dim who died on 7th January 2016 when we thought he had defeated his illness. He was a close ally and sincerely, I think I was the only person in the family that understood him. His death transferred a lot of family responsibilities to me. Also, may God rest my brothers-in-law Dr Raph Agazie and Mr Timothy Okpalanwaka, my aunt – Aunty Bene, and other relatives.

My-in-laws: My mother-in-law, Prof Apollonia Nwosu, the 100<sup>th</sup> Inaugural Lecturer of the University of Nigeria and former Dean of General Studies. She introduced computer-based tests (CBT) in the School of General Studies and won the Vice Chancellor's meritorious award. She is the geese that laid the golden egg and of course, she is made of gold - a complete mother and a very generous widow. I never knew my father-in-law, Late Dr Adiele Nwosu; a Senior lecturer in Mathematics at the UNN until his untimely death – may he continue to rest in peace. I cannot thank them enough for raising their first child, Ngozi - my wife, who is a gift to me and my entire family. I appreciate my brothers-in-law Emeka, lyke, Iheanyi, and Chukwudinma, as well as my only sister-in-law, Amarachi (and the husband, Ahamdi) who happens to share the same name and birthday with my daughter, her goddaughter. Special gratitude goes to my super-in-laws - my wife's uncles (Sir Ejike, Mr Emma and late Mr Livy Onwukamuche), and aunts (aunty Regina Amankulor, Lady Elizabeth Ukaegbu, aunty Esther Uchegbu, and Mrs Rebecca Ngwakwe); and their families.

**My Teachers:** I appreciate all my teachers from primary school through secondary school and the medical school. My principal at St Charles Science School, late Mr Bartholomew Ifionu, deserves a special mention – immediately he took over office during our SS1, he procured and distributed school certificate examination's syllabus to all of us and encouraged us to use it to direct our studies – that intervention remains priceless to me because it enshrined the skill of focussed studying in me.

I am indebted to my teachers in both pre-clinical and clinical classes of medical school. Here too, Dr A. C. Nwabueze and Prof C. K. Ijoma deserve special mention – they really had passion for teaching my group within and outside the clinics, during our internal medicine postings; unfortunately, they could not attract me to specialise in internal medicine.

<u>My Mentors and trainers in Obstetrics & Gynaecology:</u> I appreciate all consultants in Obstetrics and Gynaecology UNTH Enugu during my residency years – their collective efforts produced the specialist in me.

However, I especially appreciate Late Dr (Sir) John Okaro who stimulated my interest in OBGYN; Prof Arthur Ikeme who was like a father to me during my Senior Residency training and afterwards - he encouraged me clinically and academically and I owe him a lot; Prof Hyginus Ezegwui is a very protective senior brother and he remains a mentor, supervisor, and trainer till today. As a newly appointed consultant in Firm 2 when I became a senior registrar, he insisted I should retake Part 1 Fellowship exams of the National Postgraduate College, after an initial unsuccessful outing; Prof Uchenna Nwagha: the current Provost, College of Medicine UNN - when he was newly appointed a consultant in the department, he gave life and direction to my training as a registrar which was becoming frustrating because our unit had no consultant for several months. He continues to be a mentor and big brother to date. When my appointment as a lecturer in Obstetrics & Gynaecology was not forthcoming, Prof Nwagha encouraged and fought for my initial lectureship appointment in Physiology. Prof Hyacinth Onah was a dedicated trainer and Head of Department that believed in user involvement in decision making; he made me study research proposal writing as a registrar and also encouraged me to learn the use of SPSS. He supervised my first exambased original article on Anaemia in pregnancy which is widely cited.

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I can't forget the great 1996 medical class of the University of Nigeria (UNMSA '96 class) – we are a special breed and I appreciate all of you. I thank you for your trust in me and my team that organized our 20th-year reunion in 2018. I also thank you for your huge moral and financial support for today's event. Those of us in the College of Medicine UNN and UNTH – Drs Enoch Uche, Nneka Iloanusi, Oluchi Ekenze, Chidi Ndukuba, Ekene Young, Chris Eke, Agozie Ubesie, Adaobi Amuucheazi, Daberechi Adiele, Esther Ekwe, Emeka Nnakenyi, Frank Ukekwe, Innocent Ani, Bosa Umerah, Paul Ufoegbunam - you have continued to shine the light in your different specialties, please keep it up. I have opened this academic door and I know many of you shall pass through it very soon.

I appreciate the St Charles Special Science School Old Boys Association (SCSSSOBA) especially the Pioneer (1989) class ably led by our President, Charles Agudosi and represented here by many of us including Prof Paul Ejikeme who read my citation, Drs Chiemelu Emegoakor, Mike Onwukamuche, Rev Fr Anthony Ezeogamba, Rev Fr Anthony Udemba, Mr Chiedu Udoye, Mr Sunday Ozodiniru, etc. We have remained a family after 30 years of graduating from that great school. I thank you immensely for your huge moral and financial support for this event. One day, our St Charles Special Science School shall resurrect!

I appreciate my friends and former neighbours – Engrs Mike Egbo and Osita Obi; Drs Paul Odinka, Aderigbibge Olalekan, Joe Obiesie, and Sunday Mba; as well as my current neighbours, Prof F. Ochor, and Hon. Emma Onoh - Honourable Chairman of Enugu North L.G.A.

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Finally, to the audience, thank you for listening to me and celebrating this day with me. May God continue to bless you and lead you safely to your homes. Amen

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## APPENDIX 1: ACADEMIC PUBLICATIONS BY PROF CYRIL C. DIM

As shown in table 1, I have 58 journal publications (one in press) - 46 (79.3%) are original articles while 33 (56.9%) are published in Thomson Reuters impact factor (IF) journals.

Journal Article Types (n = 58)	Impact Factor			
	Thomson Reuters	Scimago	Nil	Sub-total
	Freq (%)	Freq (%)	Freq (%)	Freq (%)
Original Article	28 (60.9)	11 (23.9)	7 (15.2)	46 (79.3)
Literature Review	1 (20.0)	2 (40.0%	2 (40.0)	5 (8.6)
Case Report	5 (57.1)	1 (14.3)	2 (28.6)	7 (12.1)
Sub-Total	33 (56.9)	14 (24.1)	11 (19.0)	58 (100)
Books and Book Chapters (n = 8)				
Book Types		Freq (%)		
Books		1 (12.5)		
Book Chapters		5 (62.5)		
Training Guidelines		1 (12.5)		
Laboratory Manual		1 (12.5)		
Sub-total		8 (100)		

Table 1: Distribution of Academic Publications by Types & Impact Factor

For a detailed list of my academic publications, please, visit the following sites:

- 1) https://sites.google.com/site/cyrildimsite/academic-papers
- 2) https://scholar.google.com/citations?hl=en&user=\_kWab7wAAAAJ
- 3) https://orcid.org/0000-0003-3469-3549
- 4) https://www.researchgate.net/profile/Cyril\_Dim2/research
- 5) https://www.scopus.com/authid/detail.uri?authorId=17134791900