

**UNIVERSITY OF PORT HARCOURT**

***“INCREASE AND MULTIPLY”  
THE INJUNCTION, AND THE  
HUMAN RESPONSE***

**An Inaugural Lecture**

**By**

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## **DEDICATION**

I dedicate this Inaugural Lecture to women in the West African sub-Region who give birth in 2014, and the midwives who delivered them.

## **PREAMBLE**

I feel honored for this opportunity to deliver my inaugural lecture.

I became an obstetrician and gynaecologist because of a fascination for medical practice from childhood, and later a special liking for Obstetrics and Gynaecology as a medical student because of the selfless devotion to duty of my teachers in the subject.

In addition, the approval and support of my late parents Uguba and Mary T Okpani, and The Blessing of The Almighty God were final adjuncts

I started my residency training at the University of Port Harcourt Teaching Hospital (UPTH) in 1981 when the hospital was new because many senior Nigerian obstetrician /gynaecologists gave an excellent rating to the first head of department Dr N D Briggs , and added that he had two equally excellent staff (Professor Kelsy Harrison and Dr CT John) joining him.

I have never regretted my decision to study medicine, and later to specialize in Obstetrics and Gynaecology.

### **Justification of the Inaugural Topic. Human Priority on Reproduction**

Even though current global trends favor decreased birth rates, primitive man *homo sapiens* placed a premium on large families for purposes of protection, cheap labour, security in old age, and perpetuation of one's name.

The Holy Bible States that at The Creation, God in His Injunction, endorsed human reproduction (Holy Bible, Genesis 1: 28).

Before the Flood he instructed Noah to ensure that male and female individuals were present in The Ark, and after The Flood commissioned him to ensure replacement of the human numbers that had died. (Genesis 9:1 Genesis 9:7).

Beyond the basic human wants - air, water, food, clothing, and shelter, all accept that reproduction is a pre-requisite for human

survival. There are multiple examples in history of statements, interventions and even intrigues all conducted to ensure that women become pregnant, deliver and nurse their babies.

- A woman was supported by her family and friends during pregnancy and after birth.
- Contraception was not endorsed by the ancient Egyptians.
- Tamar's husband Onan practiced coitus interruptus (Or probably masturbation), thus preventing her from conceiving. He was punished by The Lord for this unwholesome practice of "Wasting Seed" (Holy Bible, Genesis; 38)
- Professional midwives assisted at deliveries (Genesis, 35: 17; Exodus ,1:15)
- Children are described as being born "on the knees of another person" signifying that delivery was so important that an assistant was necessary. ( Genesis, 30:3; 50:23;Job, 3;12)
- In multiple births, the birth sequence was noted (Genesis 25:25;38: 27)
- The newborn was given special care (Ezekiel 16: 4; Job, 38: 8-9 )
- Mothers nursed their babies to ensure they survived (Genesis, 21: 7).
- When indicated by maternal death or wealthy families, a wet (surrogate nurse) was hired (Genesis ,24:59; 35:8; Numbers, 11: 12)
- Breast feeding was given priority and the baby was breastfed up to age three years (II Macabees, 7: 27) and weaned at a feast (Genesis21:8)
- Women (Rachel, Rebecca, and Ruth) from Biblical accounts yearned for their own children.
- During wars and pestilences, priority for protection from injury and death was accorded women and babies.
- All native tribes, cultures, and religions favor childbearing.
- Maternity leave evolved and is given to pregnant women worldwide to allow women rest and prepare for childbirth, deliver, and nurse their babies after delivery (**Okpani, Fiebai, & John, 2001**).

- Because of the Biblical Injunctions and other supporting statements through time that man (*homo sapiens*) should engage in reproduction as a priority of existence, I have chosen for my inaugural lecture, a brief presentation of facts and contemporary issues related to childbirth and other aspects of human reproduction .

## **OUTLINE OF PRESENTATION**

- We will start by presenting the Biblical Injunction with a brief analysis of its intention.
  - We will present basic facts on human reproduction and the special attributes that distinguish it from those of other species.
  - We will next discuss the shortfalls and attrition in human reproduction, and the human response in obedience to the injunction,
  - During the process, we will point out what we consider essential basic interventions, and what constitutes modifications in the form of useful scientific advancements and enabling public administrative adjuncts.
  - We will also point out those interventions that border on excesses (which being dictated by scientific and philosophical vanity have introduced unresolved controversies and ethical concerns)
  - We will then entertain a futuristic projection of a world resulting from current , and future experimental reproduction interventions and comment on their projected impact on society.
  - The last section will detail the contributions of the UNIPORT /UPTH Community and this lecturer to the human response
  - After acknowledgements and a few moments of thought, we will make recommendations which we feel are practicable , and give a summary
- For purposes of this Inaugural lecture, we will limit our comments on The Human Response to those issues directly related to my specialty - Obstetrics and Gynaecology

## **THE INCREASE AND MULTIPLY INJUNCTION**

Then God Blessed them, and God said to them  
“Be fruitful (increase) and multiply; fill the earth and subdue it.  
Have dominion over the fish of the sea, over the birds of the air, and  
over every living thing that moves on the earth “  
(Holy Bible, Genesis 1: 28)

### **God’s Commission to Noah**

After the Flood which destroyed the earth as recorded in the Bible,  
Noah received a commission from God to "be fruitful and multiply  
and replenish the earth" (Genesis 9:1 Genesis 9: 7).

### **A Simple Secondary School Definition of Reproduction.**

Reproduction is the ability of organisms to produce their offspring  
with enough accuracy to maintain identity whilst maintaining  
enough variability and flexibility to allow for the changing of  
environment  
(Enger, et al, 1991).

### **What is the Implication of the injunction from the Perspective of the Simple Definition of Reproduction?**

From the perspective of this definition, the Injunction implies that  
men and women should cohabit to ensure that pregnancies occur.  
Furthermore, pregnancy and child birth should be free from  
complications, and ensure a healthy mother able to complete breast  
feeding and establish appropriate mother to infant relationships.

The Injunction also implies that the new born addition to our species  
will be a healthy infant of good birth weight; and one that is free  
from anatomical and biochemical defects. The newborn should also  
have the appropriate genetic constitution with which it advances to  
the next generation and should have the potential for physical and  
mental development. Mothers and Babies should not die during  
pregnancy, delivery and after delivery.

Priority should be accorded the mother before the baby since her role  
is more important in the process of reproduction. The process of  
reproduction should have an overall efficiency far surpassing those

of other species. Modifications should be introduced as necessary to maintain this efficiency

## **BASICS OF HUMAN REPRODUCTION**

Human reproduction, in its natural form depends on penis-vaginal sexual intercourse. One of the millions of spermatozoa (sperm) deposited in the upper vagina at ejaculation fertilizes a mature ovum (egg) in the fallopian tube resulting in a zygote which has a complete genetic apparatus with the diploid (double) number of chromosomes (46, xy for a male, and 46, xx for a female) .

The zygote moves along the fallopian tube to the womb (uterus ) where it implants and undergoes growth and differentiation (complexity in structure) to form a fetus (baby) , afterbirth ( placenta) and coverings (fetal membranes) which are delivered on average 280 days later in the process of labour.

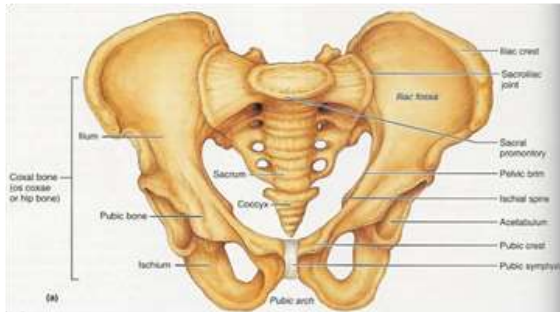
The growth and wellbeing of the baby during pregnancy is promoted by a normal maternal blood flow and pressure. These facilitate supply of oxygen and nutrients, and elimination of waste products. The hormone progesterone from the ovary is an additional promoting factor during the first four months. After the fourth month, promotion of fetal well being depends on the placenta which forms the feto- placental unit (an interaction between the placenta , the adrenal gland of the baby, and the maternal liver) which supplies nutrients to the baby. Waste products are excreted through the mother's kidneys (Ugboma, Ugboma, Nwankwo, & **Okpani**, 2012)

The chances of the baby surviving outside the uterus are increased by advancing age of the pregnancy. By the end of the 34<sup>th</sup> week of pregnancy the baby's organs and physiological systems are reasonably mature and it can breathe and survive with medical assistance. By the end of the 37<sup>th</sup> week it is fully mature in all aspects especially ability to breathe after delivery.

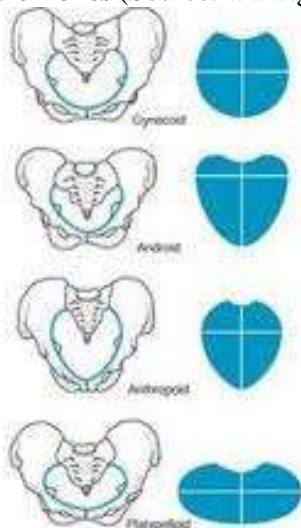
### **Labour**

The prime trigger in labour is commencement of uterine (womb) contractions. The reason why labour occurs is not known. At the commencement of most labours, the baby's head presents. The

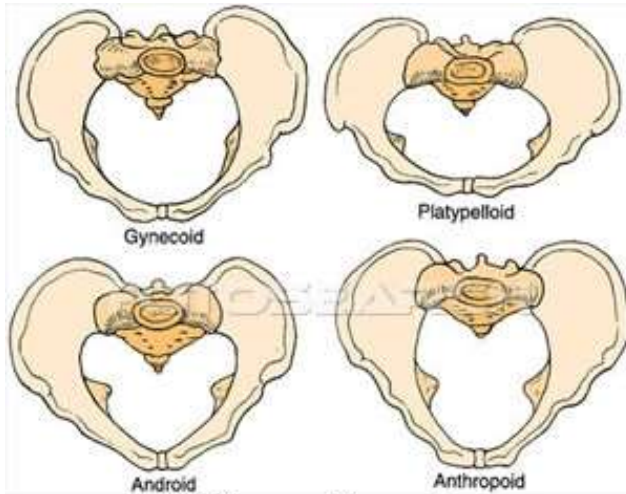
uterine contractions and the resulting increased pressure inside the womb causes descent of the fetus along the birth canal (pelvic cavity) until it is delivered when full opening of the cervix (neck of the womb) occurs . The baby has to negotiate its way through the mother’s pelvic cavity which is a tube twisted out of shape such that it resembles two funnels of unequal size fused at their narrow ends and bent to have a curved axis. To complicate matters, the pelvic cavity is also lined by flesh and limited by bones.



**The Human Pelvic Bones** (Source: [www.graphicshunt.com](http://www.graphicshunt.com))







cog02009 www.fotosearch.com

**Human Pelvic Types illustrating the rounded pelvic brim and other advantageous features of the classic female (gynaecoid) pelvis**



**The Female Pelvis on Saggital Section** (Source : [www.flickr.com](http://www.flickr.com))

The placenta is delivered shortly after the baby's delivery accompanied by mild bleeding that does not compromise the mother's health. The newborn baby is resuscitated to commence breathing, covered, and breastfeeding started.

Additions to this simple overview include the following:

Fertility in the female is limited by age in that women are fertile between the ages of twelve years when puberty occurs, and the mid to late forty years when the ovaries cease to mature eggs and menopause occurs. Progressive wastage of developing eggs (ova) starts in the ovary before the baby is born. This wastage leads to reduced natural female fertility by age thirty –five years, to termination of the ability to conceive by age forty- five to forty- six years, and finally to menopause with inability to produce ova and even menstruate around age fifty years, Men however, produce viable spermatozoa in the testis from puberty until death in the absence of disease.

### **Factors that promote easy delivery**

Factors that promote easy delivery include strong contractions of the womb, women with large broad pelvis, the baby lying longitudinally, and the fetal head presenting. Egyptian Hieroglyphic signs showing the birth process suggest that they noted the correct disposition of the baby's head during labor.

Other positive factors are absence of structural abnormalities of the pelvis, absence of abnormalities in the baby like tumours, and absence of Feto pelvic disproportion (a situation in which the baby is too large to pass through the maternal pelvic cavity). Feto pelvic disproportion occurs with increasing frequency when birth weights are greater than 3.5 Kilograms, or the woman's pelvis is small with contracted openings.

### **“Women with Large Broad Pelves”,**

The midwives of the Egyptian Pharaoh told him that “Hebrew women had easier labours than their Egyptian counterparts”. Tall women on average tend to have larger pelves. Women of height less than 5 Feet 1 Inch (1.53 Metres) tend to have small size pelves. The Gynaecoid pelvis found in a substantial proportion of women is broad with multiple attributes facilitating descent of the baby in longitudinal lie.

Other prominent characteristics of human reproduction include a relatively long period of intra uterine development, the presence of placentation (Clewell, Stys, & Battaglia, 1980), the delivery of a baby of relatively large size compared to maternal weight, and mother-infant bonding after delivery.

In less than 2 % of pregnancies multiple pregnancies occur. High frequencies occur naturally in Negroid races, and in pregnancies induced artificially by drugs used for assisted reproduction. Twinning, and higher orders multiple pregnancy (triplets, etcetera) have increased associations with most complaints and complications of pregnancy, labour, and the post delivery period. But babies in multiple pregnancies tend to be smaller and born premature. Pre-term labour is a common complication of multiple pregnancies and is responsible for fetal and neonatal deaths, and long-term morbidity and mortality in survivors (Olivennes, 2000).

Congenital and acquired gynaecological conditions of both male and female reproductive systems and defects of the male partners' seminal fluid can prevent pregnancy from occurring. Pregnancy does not automatically follow every act of male/female union; there is a one in forty chance of conception following every sexual act in normal couples.

## **REPRODUCTIVE FAILURE**

Even when pregnancy occurs, human reproduction involves many stages with delicate processes, all of which are associated with the potential for attrition. A significant percentage of pregnancies are affected by this attrition resulting in the loss of the fetus/baby (or less commonly the mother), or in delivery of a baby with gross congenital malformations. The reasons for these failures are multiple, occasionally complex, and sometimes poorly understood.

They can be classified into genetic defects in both male and female individuals, anatomical causes and systemic diseases in the female, environmental influences, and inability to anticipate and manage obstetric and neonatal complications. But majority of the significant losses are preventable.

Reproductive failure refers to the occurrence of maternal death, or the failure to procreate a normal live baby, irrespective of causation or stage of occurrence.

Reproductive failure is the occurrence of one or more of the following: Infertility, miscarriage (spontaneous abortion), ectopic pregnancy, intrauterine fetal death, delivery of a still birth baby, neonatal death, maternal death, and delivery of a baby with major congenital malformation(s).

**Infertility**, the inability of a couple (male/female unit) to achieve a pregnancy after one year of regular unprotected sexual exposure, has multiple causation including disorders of ovulation, defects in the seminal fluid especially low sperm count, and anatomical abnormalities of the female genital tract . It affects 10 % to 15% of couples, and affects older couples (especially with an older female partner) more commonly.

**Spontaneous abortion (Miscarriage)** is the termination of pregnancy before the stage of fetal viability is attained due to natural causes provided the expelled fetus is dead.

**Ectopic pregnancy** is the implantation of an early pregnancy at abnormal sites (i.e. outside the upper part of the uterus).

**Intrauterine fetal death** refers to the death of a fetus after the stage of fetal viability is attained-usually 22 weeks

**A stillbirth** is a baby born already dead.

**A neonatal death** is the death of a baby within the first twenty-eight days of life.

**Major congenital malformations** are developmental defects which are incompatible with postnatal life, or result in a sub-standard quality of life either by marring the individual's appearance, or by causing severe long-term ill health.

**A maternal death** is the death of a woman resulting from complications of pregnancy, labour and the puerperium (First six weeks after delivery).

Reproductive failure is usually accompanied by varying degrees of emotional disturbance in the affected individuals, and disharmony in couples especially in developing countries where there is often a high premium placed on child bearing.

We reported experience with sixty-three Nigerian couples with no living child after a minimum of five years following marriage. Separation/divorce occurred in 15.6%; in another 7.3% the male partner took a second wife. 20% of the females and 50% of the males admitted involvement in extramarital relationships either to assure themselves that they were not responsible for the couple's infertility, or to ensure that they had a baby. These affairs were usually conducted without the knowledge of the other partner, and often resulted in exposure to sexually transmitted infections (STIs) especially HIV/AIDS (**Okpani, 2007**).

Other undesirable sequel noted in Nigeria include discord in the relationships of the relatives of both partners, societal ostracism, and the male partner inflicting physical violence on affected women

**Infertility** is a major reproductive health problem in many countries in Sub-Saharan Africa, Nigeria included. In Nigeria, infertility is the commonest reason for gynaecological consultation and most gynaecologists assess that a considerable proportion of their time is spent attending to individuals/couples who have primary or secondary infertility (Orazulike, Fiebai, & Okpani, 2006)

Studies in sub-Saharan Africa indicate that both primary and secondary infertility are commoner there than in Europe and the United States of America. Whereas high fertility rates are found in women in the Sub-Saharan African zone, higher infertility rates are also seen compared to Caucasian countries. Several studies,

including broad based World Health Organization studies indicate that most cases of female infertility in Africa are caused by infection acquired from miscarriages and induced abortions, labour and delivery, and sexually transmitted infections. Damage to the male reproductive tract following sexually transmitted infections adds to the score.

These infections initiate an unfortunate vicious cycle potentiated by multiple concurrent sexual partners, poor use of the condom, sub-optimal health facilities, and inadequate treatment of affected individuals. The end result is infertility caused by chronic damage to both male and female reproductive tracts. Even though high fertility rates are seen in the so-called infertility belt of Africa, poor child survival and the premium placed on large family sizes make infertility a serious socio-medical problem in these countries. Reports suggest that fear of infertility in both single and married couples may be the reason for low contraceptive prevalence in Nigeria. When an unwanted pregnancy occurs, affected women resort to induced abortion, a procedure that is illegal because of restrictive abortion laws. The clandestine and substandard operating facilities of the abortion often result in complications leading to maternal deaths and prolonged morbidity

**Ectopic pregnancy** is a complication caused principally by tubal damage from female reproductive tract infections, and the ensuing chronic pelvic inflammatory disease. High incidences of ectopic pregnancy are seen in countries with a high prevalence of reproductive tract infections and chronic pelvic inflammatory disease. The condition is a life threatening emergency caused by bleeding into the abdomen, and most cases can be managed only by a surgical operation (Umezurike, **Okpani**, & Whitkker, 2004.) The condition is also a cause of fetal wastage and the prospects for future fertility and intrauterine pregnancy in affected women are low.

**Peri-natal death** (still births and deaths of the newborn within the first 7 days of life); and late neonatal deaths (deaths occurring between the 7<sup>th</sup> and 28<sup>th</sup> days of life) occur worldwide. But whereas

prematurity, congenital malformations and peri-natal infections are causes seen in developed countries, birth injuries, birth asphyxia, and peri-natal infections are important causes in developing countries, the background being obstructed labour and other causes of maternal death that result from the substandard socio-economic infrastructure there. Higher levels of fetal loss are seen in these developing countries compared to developed countries in Europe and North America.

**Spontaneous abortions or miscarriages** occur principally during the first trimester and are usually due to genetic factors in the offspring that are incompatible with life. Many mid trimester abortions can be prevented or managed by prenatal care, standard antenatal care, and follow-up in the inter-pregnancy interval.

Reproductive failure worldwide is a serious problem. The wish to have children is driven not only by a divine injunction, but also by the other apparent advantages. Worldwide, couples have been known to spend a considerable part of their fortunes to seek infertility treatment. Adoption, one of the management options after failed infertility treatment, is often regarded as inferior to having one's own biological child.

### **Management of Infertility**

In managing infertile couples, clinicians go through the sequence of history, physical examination, laboratory and imaging investigations, critical appraisal of findings, and institution of treatment options. Treatment options are multiple (Empirical and result directed drugs treatment, surgical treatments, and assisted conception methods) and depend on the findings, the available medical technology, and the wishes of the couple. Occasionally couples are advised or may wish to adopt a baby. The situation is rendered more complex when single individuals present with infertility, or as is seen in sub-Saharan Africa, when the male partner refuses to be interviewed, investigated, or treated on the premise that he is fertile. (Orazulike, Fiebai, & **Okpani**, 2006)

## **REMINDING OURSELVES ABOUT THE INCREASE AND MULTIPLY INJUNCTION.**

The Biblical Injunction not only states that man should increase and multiply, but also adds that the human species should subdue the earth and rule over it. God also required that other living beings increase and multiply (Genesis 1), but only with respect to breeding to maintain the environment, and to serve Man *Homo Sapiens*.

The injunction imposed more stringent requirements for reproduction in humans by extending the mandate beyond breeding of offspring. In addition to breeding, Man is required to respond by institution of basic interventions to maintain identity and flexibility (necessary attributes to facilitate dominion over other living beings and the elements of nature). Both basic interventions and modifications instituted when necessary must ensure a degree of efficiency far surpassing that of any other species.

### **Efficiency of Human Reproduction Compared to Reproduction in Other Species**

All are agreed that automatic cohabitation (sexual intercourse) between male and female individuals cannot be guaranteed without a minimum level of social interaction. The scenario for this assumption was already laid down by The Almighty Himself who imposed The Woman on Man “as a helper” not an object solely to ensure reproduction. This proviso for a minimum level of social interaction imposes a certain level of inefficiency on human reproduction by reducing the number of opportunities for cohabitation.

In plants and lower animals, reproduction is automatic and does not require the high level of social interaction exhibited by Man.

Human reproduction compared to that of other species is also inefficient because a considerable percentage of spermatozoa and ova are lost before a pregnancy is achieved. In addition, the number of offspring produced is either one or few after a relatively long gestational period averaging 280 days (months and 7 days). But it compensates for these shortfalls by producing a fetus with good



body weight compared to maternal body weight, good brain size, and the phenomenon of mother to infant bonding (Thoman, 1980).

Whereas asexual reproduction being mono-parental is faster and allows for rapid environmental colonization, sexual reproduction in humans allows for combination and exchange of genetic material between mother and father thus ensuring genetic variability and flexibility.

### **MANKIND'S BASIC RESPONSE TO ENSURE THAT WE REMAIN THE DOMINANT SPECIES.**

The hallmarks of mankind's response include:

- Evolution of personnel in **The Organized Public Sector** to undertake care of pregnant, intra-partum and puerperal women  
The Midwife  
The General Medical Practitioner.  
The Obstetrician/Gynecologist  
The Paediatrician (Neonatologist)  
Other supporting medical and non-medical health service personnel. (Anaesthetists, Radiologists, Internist, Surgeons, and Laboratory Physicians, Laboratory Scientists, Radiographers, Pharmacists, etc) that have supportive roles at various levels of healthcare delivery  
Auxiliary Reproductive Health Personnel (Auxiliary Nurse Midwives, Community Health Officers, and Community Health Extension Workers)

Evolution of the management of childbearing from the simple art of basic midwifery to the reproducible specialty of Obstetrics with established protocols and organized multiple level services.

- Evolution of the specialty of Gynaecology dealing with prevention and treatment of diseases of the female reproductive tract; and fertility control issues
- Improvements in societal socio-economic status to ensure healthy women and enabling efficient health systems.
- Aggressive Efforts Directed at Infant Welfare programs to enable growth and maturity into adulthood

- Aggressive Efforts Directed at Prevention and Management of Diseases to Ensure Healthy Productive Individuals with good Quality of life and life Expectancy.
- Advances in treatment of disorders like infertility which delay, mar, or prevent the process of procreation
- Evolution of reproductive health which addresses the sexual and reproductive priorities and rights of individuals, and not merely the absence of reproductive tract disease.
- Formation of regional arrangements and globalization which enable communication and coordination of health service delivery issues.

### **Childbearing Practitioner Service Delivery, Training, and Research Issues**

In response to the Biblical Injunction, women from ancient times have taken care of their pregnant sisters, delivered them and tried to keep them healthy while the infant was nursed. Later, evolution of trained personnel occurred to ensure the woman and baby's health (antenatal, intra-partum and puerperal care). Whereas all are in agreement that nurse midwives and doctors constitute the minimum requirements for safe obstetrics, the scarcity of these qualified personnel in developing countries has constrained The World Health Organization (WHO) and its supporting agencies and governments to train less educated lower level auxiliary staff to work in suburban and rural areas.

Because of defects in their basic education and training, the performance of these auxiliary staff is suboptimal, a fact which is often glossed over when reporting data and conducting research.

### **The Unorganized Private Sector of Childbearing Practitioners**

This sector consists of

- Traditional Birth Attendants (TBAS.)
- Trado-Medical Practitioners.
- Naturopathic healers

- Church and Spiritual Home directed operations (There are unsubstantiated claims by this group that they engage the services of nurse/midwives and doctors)
- Self-styled unclassified operators including women who deliver themselves, their relatives, and their associates in their homes.

### **Traditional Birth Attendants (TBAs)**

Traditional Birth Attendants popularly called TBAs are illiterate rural and sub-urban based practitioners (mostly women) who offer some form of care to pregnant, intra-partum, and post-delivery women. The basis for their interventions are not scientific and are associated with unskilled interference, multiple complications, and high maternal and peri-natal mortality and morbidity (Harrison, 1996; Okpani, 2008; Harrison, 2010,). After more than 70 years of training and re-training programs, WHO consensus is that their practice is scientifically non-productive, and associated with poor reproductive outcomes. However, they are popular since they are available in the community, and offer affordable services devoid of protocols (Adekun, 2008)

### **Public Endorsement of The Unorganized Private Sector**

It is very unfortunate that because of low levels of education, ignorance, poverty, and superstition, consumers in developing countries patronize TBAs and other uninformed practitioners. Often the main reasons for TBA patronage are the subsidized fees, easy access to some form of healthcare, and absence of protocols that the unorganized private sector offers.

### **Addressing Human Reproduction to Satisfy the Requirements of the Biblical Injunction.**

Treatment of infertility, obstetric care to reduce adverse intra-partum maternal and fetal complications, and neonatal care have evolved over the years, and their protocols are currently now standard with increasing efficiency and reproducibility. Reproductive health has also evolved, its aim being to address the totality of individual and public sexual and reproductive needs.

It can be stated that human management of reproduction in developed countries is efficient because there are currently very few maternal deaths caused by obstetric accidents, and unavoidable neonatal deaths caused by prematurity and congenital malformations. This statement cannot be extended to developing countries especially those of Sub-Saharan Africa.

## **THE ANNOYING OCCURRENCE OF HIGH MATERNAL AND PERINATAL MORTALITY RATES IN DEVELOPING COUNTRIES**

Maternal Mortality Ratios in Four Developing Countries, and Four Developed Countries

Country	Maternal Mortality Ratio Per 1000 Deliveries
Nigeria	6.08
Ghana	4.09
Bangladesh	3.38
India	2.54
USA	0.17
Britain	0.08
Italy	0.04
Sweden	0.05

The Peri-natal Mortality ratio in UPTH is 123 per 1000 deliveries. Ratios in developed countries are below 20 per thousand deliveries.

The regular occurrence of maternal and perinatal deaths in developing countries give cause for concern. The background scenario for occurrence of these high reproductive mortalities rests on underdevelopment, ignorance, poverty, superstition, sub-standard healthcare service delivery, and avoidable delays during labour, and when complications/emergencies arise. The delays in patient treatment occur at different levels - patient, environment; and health facility (Uzoigwe & **Okpani**, 2004).

### **SOCIO-DEMOGRAPHIC CHARACTERISTICS OF DEVELOPING COUNTRIES**

The WHO focus on developing countries singles out sub-Saharan Africa for special attention

In these countries exemplified by Nigeria prevailing characteristics include.

- Poor per capita Income = poor Gross National Product = Poor Human Development Index
- Underdevelopment. Subsistence less than US \$1 -2 per day = Poverty.
- Large population and increased fertility rates in the presence of reduced resources

- Unstable Governments
- Subsistence Agriculture is the main occupation of over 50% of populace.
- No thrust towards industrialization.
- High rural to urban drift
- Sub optimal socioeconomic infrastructure
- High fertility rates. Poor contraceptive use
- Deficient Primary Health Care systems
- Dependence on Structural Adjustment Programs (SAP)
- Reduced life expectancy
- Unacceptably high maternal and peri-natal mortality rates/ratios.

### **Obstetrics and Gynaecology in the West African Sub – Region.**

Lawson and Stewart’s Book “O and G in the Tropics and Developing Countries” published in 1967 describes harsh socioeconomic circumstances, high prevalence of so called Tropical Diseases, and difficulties in treating obstetric patients at The University College Hospital, Ibadan and elsewhere needing health care innovations. Despite all the aggressive efforts of those workers and innovations, high levels of mortality and morbidity occurred especially in obstetrics and peri-natal care.

Kelsey Harrison, et al (1985)’s Health and Social Priorities monogram in which they described 22,774 consecutive deliveries in Zaria, North Central Nigeria, has similar depressing clinical experiences and maternal and peri-natal mortality statistics

Now 50 years later after Lawson and Stewart’s book, and 30 years after Harrison, et al’s description, it is evident that conditions have not changed in Nigeria. Why?

### **MAJOR CAUSES OF MATERNAL MORTALITY MATERNAL DEATHS IN SUB-SAHARAN AFRICA**

The causes of maternal death in Sub- Saharan Africa are

- Obstetric Haemorrhage
- Hypertensive Disorders in Pregnancy
- Obstructed Labour and Complications

- Anaemia in Pregnancy
- Infections in Pregnancy, labour and post delivery period..
- Induced Abortion.

With universal use of hospital obstetric facilities in developed countries, these causes are uncommon But they persist in developing countries especially Sub Saharan Africa. The factors promoting maternal mortality include defects in socio economic infrastructure and healthcare service delivery, low levels of formal education, teenage pregnancy, and lack of ante natal care. In Nigeria there are wide disparities between the ratios of maternal mortality in the North and South, between women who have access to formal obstetric care and those who do not have, and between women delivered in hospital and those who have unsupervised delivery. (Uzoigwe & **Okpani**, 2004; Harrison, 2010)

### **Obstructed Labour and its Sequel**

Obstructed Labour is an unfortunate situation in which arrest in the progress of labour occurs because of mechanical disproportion between the baby's size and that of the mother's pelvis. The condition can also occur if abnormal presentations of the baby are either neglected, or not properly managed (**Okpani**, 1989; **Okpani & Feyi Waboso**, 2003). The most serious sequel are rupture of the maternal uterus (**Okpani**, 1989), death of the baby and mother, and formation of Vesico vaginal fistulae - an abnormal communication between the mother's bladder and the vagina through which there is uncontrolled flow of urine (**Okpani & Inimgba**, 1998; **Inimgba & Okpani**, 1999; **Okpani** and Feyi- Waboso, 2003).

### **Obstetric Hemorrhage**

Obstetric Hemorrhage is excessive bleeding in pregnancy, before or after delivery; and during miscarriage or induced abortion such as to compromise the mother's circulatory system. Severe uncorrected blood loss can cause shock with multiple organ failure and death (**Onohwakpor & Okpani**, 2004). Obstetric hemorrhage is the commonest cause of maternal death worldwide.

## **Infections**

The physiological systems of pregnancy are destabilized by bacterial infections. In the healthy pregnant woman, the body's defenses try to limit spread of these infections. But during labor and delivery, after delivery, and at induced abortion, the female genital tract is laid wide open to allow entrance of infective bacteria which cause short and long term damage to the womb and other pelvic structures. Infertility, miscarriages, chronic pelvic pain, and ectopic pregnancy are complications.

Induced abortions, miscarriages, difficult and prolonged labor (**Okpani & Feyi- Waboso, 2003**), and anemia promote infections and their sequel in obstetric practice. Life threatening complications occur when the infection spreads to the bloodstream. Infections have recently acquired a notorious boost from the HIV/AIDS virus which lowers infected pregnant women's body resistance.

## **Hypertensive Disorders in Pregnancy**

Hypertensive disorders in pregnancy are of diverse causation but the most common syndrome is that caused by pregnancy induced hypertension (PIH), a disorder of unknown causation which commences in the second half of pregnancy and commonly affects women in their first pregnancies. The condition is of major concern because despite aggressive treatment, it can progress to multiple terminal complications like convulsions (eclampsia), stroke, failure of the kidneys, and death of both baby and mother during pregnancy, delivery, and the immediate post delivery period.

**Eclampsia** causes unacceptable reproductive mortality worldwide especially in sub-Saharan Africa. Fortunately the course of all hypertensive disorders in pregnancy is ameliorated by delivery. The cornerstone of management of pregnancy induced hypertension consists of empirical measures - admission of affected women, observation of maternal and fetal welfare, prevention of serious complications (**Okpani & Tebepah, 1996; Okpani, et al, 2013**), and



delivery of the baby once it is deemed mature or before serious maternal or fetal complications supervene. Eclampsia is managed by controlling the convulsions and delivering the fetus by the most expeditious method.

Analysis of data on the condition from recent Nigerian publications by **Okpani**, et al ( 2013) revealed high maternal and peri-natal mortality rates due to the condition caused by deficient socio-economic circumstances, causing delays of patient arrival in hospital, unskilled interference in labor, and deficient capacity of peripheral maternity units to prevent and manage the condition.

The range of still birth rates and low birth weight babies associated with eclampsia were 21.3 to 83.9 per thousand deliveries and 22.1 to 33.6 per thousand deliveries respectively.

Referred unbooked emergencies accounted for 50.2% - 90.8 % of the admissions.

At the UPTH, the maternal and peri- natal mortality ratios were 17.9 and 100 deaths per thousand deliveries respectively.

Eclampsia contributed to 33% and 8 % of the respective maternal and peri-natal deaths.

97.2 % of the eclamptics were unbooked patients and 85 % of the peripheral referring units had a sub-optimal capacity for prevention and management of severe PIH including use of magnesium sulphate – the drug of choice for prevention and treatment of eclampsia.

Less than 5 % of these units used the partogram for monitoring progress in labor.

87.5 % of Nigerian nurse midwives employed for the Federal Primary Health Care Midwives Service Scheme were aware of magnesium sulphate but only 6.3% had ever used it.

Sixty to eighty severe PIH (Eclamptic) patients are managed yearly at the UPTH.

Patients who register for antenatal care in specialist hospitals and subsequently develop PIH have a better prognosis (maternal and fetal outcomes) than those admitted as emergencies from lower level peripheral health units.

Majority of the maternal deaths occur in the pregnant women admitted as emergencies from these lower level peripheral health units indicating that more severe fatalities occur there and pointing to an unmet need to train the healthcare delivery personnel there and improve on existing treatment protocols.

The present levels of clinical experience, high reproductive mortalities, and scarcity of research knowledge available on PIH call for aggressive efforts to conduct research projects aimed at addressing the disease especially in relation to the Nigerian locality.

### **Anaemia in Pregnancy**

Anaemia in Pregnancy has many causes including malarial infections and nutritional disorders. When severe and untreated, anemia can cause heart failure and maternal /peri-natal death. Early registration for antenatal care and compliance to the cheap preventive protocols can prevent these complications. Treatment options depend on the severity and range from cheap oral tablets to blood transfusion. However the cause of the anaemia must be treated especially if it is infective.

### **Induced Abortions**

Induced Abortions (the deliberate termination of pregnancy before the stage of fetal viability) are no longer a cause of maternal deaths in developed countries because of liberal abortion laws. In most West African countries, Nigeria included, the unfortunate combination of poor contraceptive use leading to many unwanted pregnancies and restrictive abortion laws exists. To compound matters, most patients are teenage secondary school girls with poor

knowledge and use of contraception (**Okpani & Okpani, 2000**). The abortion is conducted in an atmosphere of secrecy often by quacks and sponsored by the girls' equally ignorant peers. Severe bleeding, damage to internal organs, disseminated infection, and Kidney failure are the causes of death (**Okpani, et al, 1995**). Efforts to ensure liberal abortion laws (induced abortion performed on demand) in Nigeria have been unsuccessful because of culturally and religious based resistance from most public groups.

### **Adolescent Sexual Activity**

The background of induced Abortions is adolescent sexual activity. Body growth, maturity of the reproductive tract, curiosity, a tendency to, peer group pressure, rebellion, and experimentation are features of the adolescent (teenage) years. These changes result in adolescent sexual activity, often with low levels of contraceptive use, and multiple concurrent sexual partners. Girls bear the brunt of complications in terms of teenage pregnancies with complications related to delivery especially obstructed labour, and induced abortions. Sexually transmitted infections occur in both sexes because of indulgence in multiple concurrent sexual partners and poor use of the condom. Chronic pelvic infections with infertility are late sequel. (**Okpani, 2000**)

Establishment of youth care centers and collaboration with nongovernmental organizations like IPAS reduces the need for induced abortion

Under sponsorship by The Briggs /John administration, I was certified as an international master trainer, and trained up to two thousand, five hundred medical students, house officers, nurse midwives and doctors in the South East and South South Zones in Post Abortion Care (**Okpani, Inimgba & John, 2004 a; Okpani, Inimgba & John, 2004 b, Okpani, 2004; Okpani, Inimgba & John 2004 c**)

### **Further Notes on Maternal Deaths**

A substantial proportion of maternal deaths occur in developing countries especially Sub-Saharan Africa where recorded rates are high compared to trends in developed countries. The deaths are

generally avoidable. They occur in association with unskilled Interference by non-medical workers and delays in arrival in hospital.

Public ignorance, superstition, poor empowerment of women, deficiencies in the healthcare delivery system, strikes, and lack of medical audit are positive associations in Nigeria

### **Negative Impact of Maternal Deaths**

These deaths occur with regularity especially in women of low socio-economic status, and when the patient has no antenatal care (Uzoigwe & **Okpani**, 2004) In most case the deaths are avoidable and occur in young women (mean age of maternal death is 25 years) implying a loss of 75 years of man power and productivity if we assume that the child would have had a life expectancy of 50 years

Maternal deaths cause psychological loss to her nuclear and extended family. There is also economic loss to her family and community considering that women constitute 60% of the labor force. Often the dead woman provided up to 40% of the nuclear family's finances, was sometimes the sole provider in a role reversal situation, and was often responsible for ensuring financial assistance to her siblings and parents.

Some of the maternal deaths occur after prolonged illnesses caused by the complications of labour.

### **Perinatal Death**

Peri-natal deaths occur against the background of maternal deaths and serious complications of labour.

In Sub-Saharan Africa, the common causes are

- Inability to establish breathing at birth,
- Birth Injuries
- Infections

This contrasts with the situation in developed countries where prematurity and congenital malformations are common causes of

death. Peri -natal deaths in Sub-Saharan Africa affect well formed babies of good birth weight implying a loss of good human potential since babies of good birth weight have excellent potentials for psychomotor development. (Harrison, et al, 1985)

### **Maternal and Peri-natal Morbidity (ill health) in Survivors**

Prolonged chronic ill- health in survivors takes the form of crippling complications like vesico-vaginal fistula (Inimgba & **Okpani**, 1999; **Okpani** & Feyi-Waboso , 2003), prolapse - downward displacement of the genital organs (Ugboma , & Anya, 2004), and sequel of pelvic infections in the mother especially infertility (Nwankwo & **Okpani**, 2006; Orazulike, Fiebai, & **Okpani**, 2006) and ectopic pregnancy. (Umezurike , **Okpani**, & Whittaker, 2004)

Variable degrees of chronic brain damage can occur in the baby from minimal brain damage with delay of developmental milestones and cognitive dysfunction to severe degrees (cerebral palsy) in which gross disorders of posture and movement occur. Up till now there are no composite programs to rehabilitate children with cerebral palsy in Nigeria.

### **Congenital Malformations**

“So God created man in His own image: in the image of God He created him: male and female he created them. (Holy Bible; Genesis, 1:27)”

Efficient reproduction should ensure human anatomical and functional identity. Congenital malformations are birth defects of varying degrees of severity that can affect any organ system. They affect about 5% to 7% of newborn babies (UPTH Figure is 5.3 %), and are caused by genetic disorders, infections during pregnancy; and exposure to drugs, X Rays, and environmental toxins.

Mild types like extra digits allow a good quality of life, but severe types cause death before delivery, death in the first year of life; and severe and prolonged ill health. About 20% of all major congenital malformations are caused by genetically transmitted by a monogenic

abnormality, 5-10% is due to chromosomal anomalies, and 2-10% is due to viral infections. In about 60%, the cause is unknown and presumed to be due to a combination of several factors. Malformations that mar the individual's appearance and reduce their quality of life are classified as major

### **Prematurity**

Babies born before thirty seven completed weeks of pregnancy are premature or preterm. Worldwide prematurity is the commonest peri-natal problem and accounts for considerable mortality and morbidity. Over 60% occurs in Africa and South Asia. In the developing countries, on average, 12% of babies are born preterm compared with 9% in developed countries. Within each country, the condition correlates positively with poverty. In the UPTH prematurity is present in 36.84% of deliveries among unbooked emergencies compared to 6.08 % in patients who have antenatal care.

The birth weights of preterm babies are low, and functionally they possess multiple defects including inability to achieve spontaneous breathing at birth, immaturity of their body systems, proneness to infection, and proneness to jaundice with complicating damage to the brain.

Preterm labour has multiple causation but a substantial percentage of cases have no known cause. Interventions are occasionally undertaken to achieve preterm delivery in the interests of mother and baby (Blencowe, et al, 2012). The World Health Organization after its 2012 report on the condition is committed to reducing the health problems and lives lost as a result of preterm birth

### **Contraception**

Contraception consists of all organized interventions instituted to prevent unwanted pregnancies and has additional health benefits including prevention of sexually transmitted infections. Its terminal objective is prevention of teenage pregnancies, those occurring after sexual assault, in the mentally ill; and for birth spacing. Another

indication is for prevention of pregnancy in some medical conditions like severe cardiac, liver, renal and neurological diseases where the physiological changes of pregnancy would endanger life.

Contraceptive methods ensure temporary or permanent contraception and are instituted only after client informed consent. The various contraceptive methods used all have side effects, have varying degrees of efficacy, and are principally female partner based.

Permanent contraception can be achieved by operations that sterilize the client. Male sterilization –Vasectomy is unpopular worldwide especially in developing countries. In sub-Saharan Africa, knowledge and use of contraception is low and women there often use induced abortion as a form of family limitation. (**Okpani, Ogu, & Okonofua, 2014**)

Contraception service points are called family planning clinics, and worldwide up to 85% of contraceptive service delivery is provided by nurse midwives.

Total, and periodic abstinence from sexual intercourse as a practical means of contraception should be discouraged.

There are occasional expressed concerns about contraception on religious, ethical, and naturalist grounds.

Contraception on face value would appear to constitute human disobedience to The Injunction. But it has been shown to promote reproductive efficiency at the individual level, and improvements in individual and public socio-economic status and quality of life. It should therefore be viewed as an essential modification in the human response aiming at overall efficiency of the process of human reproduction and Mankind's efforts to "subdue the earth".

### **Contraceptive Services in the UNIPORT/UPTH Community**

The UPTH has a functional tertiary level family planning clinic where nurse midwives are the primary service providers.

The UPTH Primary Health Centre, Aluu, The UNIPORT Youth Care Centre, and The UNIPORT Lulu Briggs Health Centre all offer modern contraception. Free services are provided at all these clinics. The target clientele include adolescents and youth who benefit from the dual attributes (pregnancy prevention, and prevention of sexually transmitted infections) of effective barrier contraception (**Okpani & Okpani, 2000; Okpani, Ogu, & Okonofua, 2014**).

### **POPULATION ISSUES PROMOTING PUBLIC MODIFICATIONS IN RESPONSE TO THE INCREASE AND MULTIPLY INJUNCTION**

Contraception has been consistently shown to be critical in family planning for individuals and couples, and for population control in all countries.

In Nigeria, the population growth rate is 2.47 % (2013 USA Central Intelligence Agency figures), and the Fertility Rate is currently 5.6 pregnancies per married women of reproductive age. Unconfirmed observations suggest that with improved levels of general and female education and female empowerment, this figure is likely to reduce substantially in the near future.

Overpopulation in relation to high fertility rates and reduced resources is present in many developing countries including the whole of Africa, China, and The Indian subcontinent. This situation has made contraception a government priority. Special mention must be made of China and India whose present populations and unacceptable increases in population growth have caused their governments to adopt stringent unpopular population control policies in attempts to improve the per capita income and quality of life of their indigenes. Outpatient male based sterilization (vasectomy) has been used successfully in India but at the cost of reduced government popularity.



### **Countries with Near Zero or? Negative Population Growth**

The opposite situation is currently present in Japan and some countries of Europe (Estonia, Latvia, and Bulgaria) where both fertility rates and population growth are so low that their governments have been constrained to enact attractive employment and maternity/paternity leave laws to promote increased fertility rate and population growth.

### **SAFE MOTHERHOOD STRATEGIES**

The Safe Motherhood Initiative was launched in 1987 as a global effort to halve maternal mortality and morbidity by the year 2000. The program uses a combination of health and non-health strategies to emphasize the need for maternal health services, extend family planning services, and improve the status of women.

Current initiatives are based on the premise that maternal deaths can be prevented by trying to manage maternal complications appropriately. The most essential intervention therefore, is to ensure that all women are managed by professional health workers (nurse midwives or doctors) with midwifery skills during the most dangerous period- during and after childbirth.

Skilled birth attendants, when supported by a functioning referral system, can ensure hygienically conducted deliveries. The strategies aim at identifying complications promptly, and manage /refer the patient to a higher level of care. The objective is also to provide high- quality, culturally appropriate, and considerate care, ensuring necessary follow- up and linkages with other health services, including family planning, post-miscarriage/abortion care, and treatment of sexually transmitted infections.

### **Basic Interventions in Modern Maternal and Child Care.**

All stakeholders agree that simple affordable interventions during the antenatal period, during delivery, and during the immediate post delivery period will lead to marked reductions in maternal and perinatal mortality if they are conducted by well trained and motivated healthcare givers.

These interventions include:

Ensuring that midwives and other appropriate health personnel are present (A minimum of one midwife should be present at each delivery)

Providing functional ambulances for use in all peripheral units,

Use of the Partogram. A Partogram is a graph of cervical dilatation (centimeters) in labour as a function of time in hours. It depicts events in labor as a function of time trends, with indications for intervention.

Posting of doctors enabled to carry out Caesarean operative delivery under balanced anesthesia in hospitals with blood banks.

Public consensus is that these minimum requirements are affordable for all well planned healthcare delivery programs.

### **Enabling Administrative Edicts in Modern Maternal and (Neonatal) Child Care.**

#### **The Millennium Development Goals (MDGs)**

1. To eradicate extreme poverty and hunger.
2. To achieve universal primary education.
3. To promote gender equality and empower women.
4. To reduce child mortality.
5. To improve maternal health.
6. To combat HIV/AIDS, malaria, and other diseases.
7. To ensure environmental sustainability
8. To develop a global partnership for development

### **Enabling Administrative Edicts in Modern Maternal and Child Care - The MGDs 4 & 5**

Goal 4: Reduction of child mortality rates

Target 4A: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate

Indicators:

- Under-five mortality rate
- Infant (under 1) mortality rate
- Proportion of 1-year-old children immunized against measles

### **Goal 5: Improve maternal health**

#### **Target 5A: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio**

Indicators:

- Maternal mortality ratio
- Proportion of births attended by skilled health personnel

#### **Target 5B: Achieve, by 2015, universal access to reproductive health**

Indicators:

- Contraceptive prevalence rate
- Adolescent birth rate
- Antenatal care coverage
- Unmet need for family planning

### **Impact of Progress in MDG Achievements on Maternal and Peri-natal Outcomes**

Whereas MDGs 4 & 5 specifically addresses Maternal and Child Health, achievement of all the MDGs will reduce Maternal and Peri-natal mortalities by improving socioeconomic status.

MDGs 1, 2, 3, 7 & 8 target global socio-economic advancement which enables public administration and facilitation of Maternal and Child Health.

MDG 3 targets female education, women's rights, and empowerment; and MDG 6 targets contraception (especially Condom use), Malaria, HIV/AIDS, Tuberculosis and other infectious diseases all of which have been shown to affect reproductive outcomes negatively.

### **Sustainable Development Goals (SDGs)**

Proposed 17 goals?

- Goal 1) End poverty in all its forms everywhere

- Goal 2) End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
- Goal 3) Ensure healthy lives and promote wellbeing for all at all ages
- Goal 4) Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- Goal 5) Achieve gender equality and empower all women and girls
- Goal 6) Ensure availability and sustainable management of water and sanitation for all

These first 6 SDGs directly or indirectly address Maternal and Neonatal Child Health.

### **Why do we continually stress the Need for Development Goals.**

Development, with improved socioeconomic differentials and other hallmarks of positive public advancement promotes women's health. Normal pregnancy and delivery of healthy babies correlate positively with healthy educated and enlightened women. Maternal and Peri-natal mortalities are very low in many Caucasian countries which are endowed with these enviable attributes.

### **Basic Interventions in Modern Maternal and Neonatal Child Care the Role of the Midwife**

Midwives constitute the basic unit of skilled birth attendant in healthcare delivery's attempt to ensure supervised childbirth.

To undergo training as a midwife, credits in English, Mathematics, physics, chemistry, and biology at Ordinary levels are basic requirements. In addition, the candidate has to undergo training in general nursing. The current recommendation of The International Council of Nursing and Midwifery is that the University undergraduate program should be the minimum training programme for all nurse midwives.

All obstetric units are encouraged to have a minimum of one nurse midwife present at each delivery. Midwives only Units exist

worldwide and these have exhibited proven efficiency in reducing poor reproductive outcomes. However, the ultimate is a unit composed of nurse midwives, General medical practitioners, or Obstetrics and Gynecology (O&G) residents, and attending O & G consultant physicians. Such units have the capacity to perform caesarean section and manage all obstetric complications.

Our Federal Government instituted a Voluntary Midwives Services Scheme which cover the rural areas. The contributions of this scheme has not been critically appraised.

The University of Port Harcourt has a Department of Nursing and has graduated four sets of bachelors degree nurse midwives.

### **Basic Interventions in Current Health Service Delivery - Attempting to have a Comprehensive MNCH Welfare Package.**

Mandatory adjuncts to obstetric care include

- Immunization
- Growth monitoring and management of children's diseases
- Contraceptive services
- Management of ectopic pregnancy
- Management of abortion and miscarriage complications
- Establishing linkages with other health services
- Data collection
- Ensuring service provider / community partnership
- Addressing public/ private partnership issues.

### **Operative Deliveries- The Power of the Caesarean Operation as a Critical Enabling Procedure**

Caesarean section, the operative delivery of a fetus by incisions into the mother's womb through the anterior abdominal wall, has origins in Roman times and is pivotal to comprehensive care in childbirth. With its essential adjuncts (some form of balanced anaesthesia for relief of pain, and blood transfusion) the operation when performed in a timely fashion reduces both maternal and peri-natal mortality and post delivery ill health. (Harrison, et al. 1985)

Currently only doctors are trained and licensed to perform the operation. There are administrative, training, and research implications of this operation. Medical and nursing students, and house officers must observe and assist in the operation, and be trained in its logistics. Youth corpsers should be posted to units where they can continue/ complete this training. Resident doctors must be trained to perform the operation and manage complications arising from intra-operative difficulties. Health administrators must ensure that in the posting of doctors, each local government must have at least one doctor who can perform the operation, and his unit should be enabled in the logistics of the operation.

Multiple life threatening complications can arise if a timely caesarean section is not performed. This unfortunate situation occurs frequently in sub-Saharan Africa because of late patient arrivals in hospital and in-house logistic delays. More difficult obstetric operations then have to be performed. The results of delays in performing a caesarean section are peri-natal and maternal deaths, and long term ill health in survivors (Harrison, et al, 1985; **Okpani & Feyi-Waboso, 2003** )

### **Selected UPTH Caesarean Operation Statistics**

- The Caesarean Section Rate in UPTH is 52.12 %
- The rate for mothers who had antenatal care is 50.6 %
- The rate for mothers who had no antenatal care is 58.95 %
- A UPTH resident doctor at completion of the residency program must have performed a minimum of 100 Caesarean sections.

### **The Labour Ward**

A typical labour ward is an intensive care unit. Caring for patients in labour, delivering them, and certifying that they and their babies are fit for transfer to the post-delivery ward is a stressful posting. Unforeseen complications can arise suddenly, and demand immediate interventions. The number of staff on duty during the call duty period is often sub-optimal for efficient function.

Tempers occasionally rise, and staff often exhibit varying degrees of fatigue. Verbal and written queries on patient management are common, and audits carried out when adverse events especially mortalities occur. However, the successful delivery of a newborn baby always reduces the tension and the fatigue.

### **Critical Appraisal of The Maternal and Neonatal Child Health Services in Nigeria – The Abuja/ Federal Capital Territory Model**

Over the years, both Federal and State governments in Nigeria built health service units without serious thought to proper geographical distribution. With the construction of Abuja the current federal capital, The Federal Government planned and executed the ideal model and thus Abuja is the only region/state in the country where there are health centres and hospitals situated in such a manner that comprehensive and affordable health services are near to all members of the community.

This ideal model implies that women with complications of labour are more likely to have a timely affordable caesarean section in Abuja than in any other locality in Nigeria if they present in government health units.

### **The Pre-Registration Housemanship (Internship) and NYSC Medical Postings Years.**

A tertiary hospital with all laboratory and clinical service departments is necessary for training of house officers.

With the stated objective of ensuring medical coverage of the sub-urban and rural areas, the NYSC posting of doctors by The enabling Fed Military Government Decree of 1971 should ideally be to small general hospitals where they have maximum exposure to patients, perfect their basic clinical skills, especially with regard to maternal and neonatal child care, and conduct mobile clinic based interventions in conjunction with nurse midwives.

## **SCIENTIFIC ADVANCES IN THE HUMAN RESPONSES WITH ACCEPTABLE LEVELS OF ETHICAL CONTROVERSIES**

- Induced Abortion
- Contraceptive Methods
- In- Vitro Fertilization and Related Procedures
- Stem Cell Research
- Uterine Transplant
- Ovarian Transplant
- Construction of a synthetic uterus

### **In-Vitro Fertilization (IVF) Procedures**

In-vitro fertilization procedures aim at short-circuiting the process of reproduction in couples with advanced female partner age, failed primary treatment, intractable disease, and infertility of unknown cause. The protocol involves accessing sperm and egg, uniting them outside the body, and re-implanting the conception to grow inside the uterus. Modifications to improve the pregnancy rate include Intra-cytoplasmic Sperm Injection (injecting the sperm into the egg), Third and Quadruple Party Procedures. (Egg and Sperm Donation to the couple, and Surrogate Pregnancy- another woman carrying the pregnancy). These procedures generate multiple low level controversies bordering on rights, paternity, consent, payments to the third party participants, and the fate of surplus gametes. They require quality assurance and ethical /government regulation. Currently there are quality control and assurance standards, and government regulation laws in developed countries.

Following Briggs' (2001) appraisal of these methods and their relevance to The MNCH needs of the West African Sub-Region, I summarized the technical details and controversies surrounding these procedures in a monograph and predicted a proliferation of IVF Centres in Nigeria with the worrying prospect of ethical breaches, poor quality assurance, and lack of government control (**Okpani**, 2007). This prediction has come true considering that there are now (2015) at least twenty centres offering IVF services in The South –East and South South South Regions of Nigeria and no operative quality control edicts exist.



## **Stem Cell Research**

Stem cells are living tissue cells with an inherent ability to grow into a variety of tissues when cultured or stimulated artificially. They are found in the human fetus in the early weeks of pregnancy (embryonic stem cells), and in many infant and adult tissues (adult stem cells). They can also be obtained during cloning procedures by harvesting cells at the early stages of the experiment instead of allowing the tissue grow into an individual (termed reproductive cloning). Theoretically, the best stem cells are embryonic stem cells.

Excitement about stem cell research is related to the potential medical benefits of their use in areas of regenerative medicine and cloning solely for replacing cells affected by disease. Currently stem cell research offers hope of providing treatments and cures for many diseases including diabetes, spinal cord injuries, cancers, and chronic debilitating diseases of the nervous system. Stem cell research will also afford scientists multiple opportunities to study the human cell, and human growth and development.

Ethical controversies surround destruction of early stage blastocysts (the tissue formed from in-vitro fertilization and experimental laboratory-fertilized human eggs), cloning to obtain embryonic stem cells, and use of the latter.

Stem cell research in The USA and Canada was formerly restricted to use of stem cells from existing (already discarded/destroyed) embryos, but in 2009 President Obama introduced liberal modifications allowing USA Federal funding for embryonic stem cell research such that the situation there is similar to those in The UK and other countries where embryonic stem cell cloning is allowed.

Because of the ethical controversies surrounding embryonic stem cell research, scientists are prospecting the derivation of stem cells from alternative non-embryonic sources, use of adult stem cells, and related techniques that can obtain viable stem cell lines without damaging human embryos

Stem cell research interventions can be viewed as advanced modifications of the human response with an acceptable level of ethical controversies.

### **SCIENTIFIC ADVANCES WITH UNACCEPTABLE LEVELS OF CONTROVERSIES**

These are Experimental Reproduction Methods with origins in human Philosophical Vanity. They are fueled/propagated by scientific advancement and include:

- Human Reproductive Cloning
- Parthenogenesis
- Development of The Artificial Placenta
- Exogenesis
- Actualization of The Eugenic Dream ( Combined Extracorporeal fertilization followed by incubation of the baby in an artificial apparatus)

These methods constituting excesses in the human response. The accompanying controversies operate at very high levels and there is currently mutual antagonism between the public who have ethical /moral /religious concerns , and proponents of scientific progress who are desperate to achieve the ultimate Scientific (? Babel Like) experimental reproduction advancement

### **Reproductive Cloning.**

Reproductive cloning is a procedure in which the nucleus of a cell is removed and replaced with the nucleus of another cell. Stimulated replication of the resultant cell will result in organisms (clones) resembling the parent organism of the donor nucleus and the process can be continued ad infinitum. Several animals have been cloned with increased agricultural livestock yields.

The potential benefits of human cloning include Increase in genetics and cancer research, increased yield of ova and zygotes for in vitro fertilization, and Improvements in storage of embryos with stem cells for bone marrow transplant. Other benefits are facilitation of production of identical twins, triplets, and even higher orders

multiple pregnancies. Reproductive cloning can allow replication of individuals with good attributes/talents. The procedure will theoretically facilitate treatment of male infertility in heterosexual couples.

Multiple concerns have been expressed on ethical, moral, legal, and religious grounds that human reproductive cloning will lead to destabilization of the current balance in human reproduction. Individuals can clone loved ones and even themselves. The possibility of killing embryos or causing them harm during cloning would be unacceptable since they are human beings. Cloning would treat embryos that are human as a commodity. Individuals/Groups/countries may finance Nazi-like programs whereby humans are bred to maximize certain traits for specific purposes like clones of the perfect human and clones of the elite. Clones of the genetic underclass for exploitation, labour, and for population war can also be produced. Cloning will have the effect of altering the relationships between individuals. For example an individual cloned from a man using his cell's DNA and his wife's ovum would technically be the man and at the same time his son. There are religious objections to the procedure which attempts to "play God".

### **Parthenogenesis- Development without Fertilization**

Parthenogenesis is a form of non-sexual reproduction in which the female reproduces its own kind without fertilization by the male. The phenomenon occurs naturally in plants and lower animals, and has been used to increase agricultural yields. Since the late 1930s, it has been possible to induce parthenogenesis in cells of susceptible plant and animal species (example lizards and birds) using chemicals and physical agents (temperature change, ultraviolet light, radium radiation, electrical stimulation, and a variety of mechanical methods)

The phenomenon does not occur naturally in mammals especially humans. Observations on naturally occurring parthenogenesis in plants and lower animals, and experimentally induced

parthenogenesis in higher animals suggest that research advances may eventually make the production of parthenote human embryos and stem cells a possibility. Currently, experimentally induced parthenogenesis in susceptible mammalian species leads to structurally defective parthenote cells and tissues, which die at very early stages of development. The prospects for future advances in experimentally induced mammalian parthenogenesis with eventual clinical application are guarded because of the logistic enormity and cost of research work needed; and more especially, the antagonism by current ethical regulations/restrictions, and bans on further research that are already operative.

### **Development of the Artificial Placenta.**

In human reproduction, the placenta separates within one hour after the baby's birth and becomes non-viable. This phenomenon poses a problem for sustenance of the premature born infant who is incapable of spontaneous breathing and other activities.

In response to the problem of sustaining the growth of these premature babies, attempts have been made to develop an extra-uterine fetal incubator which could sustain whole embryos outside the mammalian body. Successes in this field recorded by workers in Japan, Korea and other countries have been shown to be capable of promoting sustained development of goat foetuses up to an advanced stage of development (Pak, et al, 2002).

Even though preliminary work suggesting that the concept of an artificial placenta is feasible, multiple impediments to translating this concept into clinical reality exist. The prohibitive cost implications exclude continued experimentation. It is logistically difficult to translate principles of physical sciences (as related to placental physiology) into a practicable clinical life sustaining process by advancing into the stage of using human embryos.

The most important impediments are the limitations of research on human embryos because of ethical and religious concerns, and the future restrictions/ bans on such research programs that are

inevitable. In any case, sophisticated resuscitation equipment and incubators are now available for use by neonatologists.

### **Ectogenesis**

Ectogenesis (Synonym Exgenesis) means fertilization outside the body followed by development in an artificial placenta.

Exogenesis is another vanity promoted excess of the human response. It compliments extra-corporeal fertilization, but both are at variance with the universal belief in natural conception and labour as stated in The Old Testament Biblical injunctions. Aldous Huxley, a pioneer of ectogenesis, in his futuristic conception of the artificial placenta, considered it advancement over man's viviparous method of reproduction. More recently, proponents of the futuristic artificial placenta and eventual ectogenesis state that these concepts merely entail the development of modifications of methods of natural delivery already exemplified by caesarean section. Proponents of ectogenesis envisage the provision of an apparatus that simulates an extra-corporeal uterus which allows artificial implantation and fetal sustenance to viability or even term (Religious Tolerance.org, 2006).

A United States group at the Cornell University Centre for Reproductive Medicine and Infertility have reportedly been able to encourage human embryonic growth on an artificial womb but terminated the experiment at the stage beyond which it would have constituted a breach on United States Government ethical regulations (Religious Tolerance.org, 2006). The Cornell University experiments, like those of the artificial placenta need further advances requiring enormous cost and logistics to reach the stage of reproducible clinical application assuming that the impediments of antagonistic groups and public restrictions/ bans on such research activities are reduced to a minimum. The replication of the physiology of pregnancy in an extra-corporeal setting in combination with an artificial placenta would be no mean feat.

The ectogenic dream if it becomes a reality, could lead to profound social, cultural, and medical changes Ectogenesis implies fetal

growth and development in an environment uninfluenced by the presence of disease, environmental pollutants; and maternally ingested tobacco, alcohol and drugs.

Miscarriages would become historical and instead of performing induced abortions, the unwanted fetus could be removed from the uterus and allowed to survive outside it without any burden to the woman.

The poor outcomes (neonatal death, severe morbidity, and lifelong disability) associated with prematurity would be reduced to a minimum.

Surrogacy would be transferred to the extra-corporeal apparatus thereby eliminating most of the inter-personal problems of the third party procedure. Exogenesis would also save women the discomforts, morbidity, and occasional mortality associated with pregnancy and eliminates the dislocation of their careers. Both women and administrators will be spared the problems of the maternity leave syndrome (**Okpani**, Fiebai, & John, 2001). On the other hand, exogenesis will not allow the fetus benefit from maternal trans-placental transfer of antibodies.

The procedure will certainly cause multiple ethical controversies like other experimental reproduction techniques (Brignell, 2010).

### **The Eugenic Dream**

Eugenics refers to the concept of attempting to improve the human gene plasma by artificial means.

Low level eugenics has been practiced and promoted since ancient times in the form of sex selection, promoting marriages between physically and mentally endowed individuals, promoting induced abortions in mentally disturbed and criminally minded individuals, and selective feticide of congenitally malformed babies. Recently, scientists are proposing gene treatments to alter or manipulate

individuals' genes. There may be a place for introducing gene manipulations as part of futuristic IVF procedures.

Theoretically, these futuristic experimental reproduction techniques hold the promise for improvements in the gene pool resulting in improved physical and mental performance, promotion of health by inducing resistance to infectious and non-infectious diseases, and ultimately manipulation of life expectancy. Achieving these attributes on face value is a worthy goal. Everyone would like to father children with all these attributes, and society in theory will aim at having perfect individuals.

I perpetually hope I will live as long as my late father who at age 89 years read through my book on assisted and experimental reproduction and discussed the concepts with me. Or my late mother who had Parkinson's disease for 32 years without suffering any memory loss, a known complication of the disease. She was never diabetic despite a strong family history of the disease.

But achievement of these futuristic scientific goals would be no mean feat, entailing years of experimental undertakings with implications of the accompanying enormous costs. Of greater concern are the ethical considerations especially in relation to use of cloning and other ethically controversial experimental techniques, treating human beings as a commodity, playing God, and creating a world in which there is no room for genetically, and physically sub-standard individuals.

A recent interesting ethical controversy centers on the proposed gene treatments and gene manipulations by proponents of the eugenic dream. Classical teaching on cell biology propounds human nuclear dominance over the body (cytoplasm) of the cell, with unidirectional transfer (translation) of chemical instructions from the former to the latter. Gene treatments if established will imply artificially induced attempts to manipulate changes in the cell nucleus by reversing nuclear dominance over the cytoplasm and effecting transmission of chemical instruction from the cytoplasm to the nucleus, a breach of

the conceptual Weissman (nuclear ) Barrier ( ) . The notorious HIV/AIDS retrovirus is capable of this manipulation using its Reverse Transcriptase enzyme.

### **The Futuristic Eugenic Dream World**

Achievement of the Eugenic dream will impose multiple changes in society apart from artificially conceiving the perfect human being. Society would then have perfect offspring of experimental reproduction belonging to no family. Then there will be no sons, no daughters, and no family affiliations. Everyone will be identified by a laboratory number, type of procedure by which they were created, and genetic/ physical performance rating. Ultimately, an atheistic dispensation will take over religious worship.

Is it wise to play God in a world where poverty is still endemic and high maternal and peri-natal deaths are prevalent in developing countries?

### **THE UNIPORT/UPTH RESPONSE TO THE INJUNCTION Service Delivery**

The University of Port Harcourt Teaching Hospital commenced maternity and neonatal health service delivery at its inception in 1980 with twenty three obstetric beds at the General Hospital, Emohua and expanded its scope in 1983 through occupation of the General hospital, Port Harcourt. The hospital later transferred to its permanent site at Alakahia, Rivers State in 2006.

The UPTH Department of Obstetrics and Gynaecology now has twenty- four consultant obstetric/gynaecological Lecturer/Consultant staff, 66 obstetric beds, conducts antenatal care for an average of 4,500 women yearly, and delivers about 2,500 of them.

Organized antenatal, delivery, and post-delivery care is also available at The UPTH Primary Health Center, Aluu; and antenatal, post-delivery, and nursing mothers with complaints are also treated at the University Health Centre.



User, health insurance, and subsidized fees operate at the Teaching Hospital and Aluu Health Centre, while health insurance elective and emergency service free treatment is operative at the University Health Center.

### **Lecturer/Consultants in Obstetrics and Gynaecology**

Emeritus Prof K A Harrison

Emeritus Prof N D Briggs

Prof A O U Okpani

Prof C I Akani

Prof J I Ikimalo

Prof S A Uzoigwe

Dr C E Enyidah

Dr N M Inimgba

Dr H A A Ugboma

Dr P O Fiebai

Dr N C Orazulike

Dr V K Oriji

Dr K Nyengidiki

Dr R N Ogu

Dr J D Ojule

Dr K Green

Dr G O Bassey

Dr D S Abam

Dr C O John

Dr E O Oranu

Dr S Nyeche

Dr T Kasso

Dr J Alegbeleye

Dr M Abbe

All the above staff have different sub-specialties but must conduct basic obstetric service delivery.

Supporting the obstetric services is a sophisticated tertiary level 24 hour service neonatal unit with 4 lecturer/consultant neonatologists, 28 neonatal cots, 4 sophisticated neonatal resuscitation machines, and phototherapy machines to treat newborn jaundice.

Immunization of the newborn babies is commenced within twelve hours of birth.

Pregnancy induced hypertension is the commonest (20%) indication for admission of pregnant women, and is responsible for 30 % of maternal deaths. Its severe form Eclampsia has a case fatality ratio of 1 death in 3 affected patients. Virtually all these deaths affect patients who had no antenatal care and are admitted as unbooked emergencies (Uzoigwe & **Okpani** , 2004; **Okpani**, et al, 2014)

In 2014 the Maternal and Peri - natal mortality ratios were 1.2 per 1000 Deliveries and 123.27 per 1000 Deliveries respectively.  
The Spontaneous Vaginal Delivery Rate was 47.12 %

The Peri-natal mortality ratio for unbooked emergencies was 390 per 1000 Deliveries.

The Neonatal (Within the first 28 Days of Life) Mortality ratio is 40 per 1000 Deliveries.

The disproportionate losses of mothers and babies seen with unbooked patients who are admitted with multiple complications of pregnancy, labor and the immediate post delivery period constitute a cause for concern.

The UNIPORT/UPTH Academic Community has the capacity to provide quality obstetrics and neonatal service delivery.

Aggressive treatment is also available for unbooked obstetric and neonatal emergencies.

The bane of The UNIPORT/UPTH service delivery is unbooked emergencies from the South South Locality who are admitted with multiple complications of pregnancy, labour, and the puerperium. They task the personnel, logistic, and other resources of the hospital and result in unacceptable reproductive lossess and ill health in survivors.

Another cause for concern is the repeated occurrence of industrial strike action which prevents achievement of continuous services.

In 2014, hospital services were available at the UPTH during only 56 % of the year.

### **The UNIPORT/UPTH Response to The Injunction: 2- Training**

The MB,BS (Undergraduate Medicine) and The BSc Nursing Programs are conducted by The UNIPORT while The Residency

Programs in Obstetrics and Gynaecology and Paediatrics are conducted by The UPTH under the auspices of The West African and Nigerian National Postgraduate Medical Colleges.

The undergraduate medical and nursing students have maximum exposure to obstetrics, gynaecology, and neonatal services such that at graduation all candidates can take a normal delivery, resuscitate a newborn baby, and make complete arrangements for a caesarean section.

The programs are very strenuous and their examinations based on close marking systems with marks subtracted for wrong answers, and a pass level of 50%.

Because many patients are available, all students have maximum clinical exposure and UNIPORT medical graduates have performed creditably in maternal and neonatal service delivery and examinations even in developed countries.

Current recommendations from the local postgraduate medical colleges require all resident doctors to complete a three month posting in approved rural hospitals before taking the first clinical examination.

The only deficiency in training is the absence of computer based simulation mannequin learning systems and 24 hour molecular medicine laboratory support.

The local disease pattern and contemporary health issues in Nigeria are very important especially preventive health. Therefore a lot of undergraduate and residency examination emphasis will remain centered on local obstetrics/gynaecology and neonatal healthcare delivery issues especially life saving skills and preventive measures.

The College of Health Sciences, The Department of Nursing, and The UPTH all stress the need for students and residents to increase their involvement in clinical work in all departments, especially the

local disease patterns and preventive measures. Undergraduate medical students are required to achieve 75 % attendance in lectures and all aspects of the clinical posting as eligibility criteria to take the Part III examinations.

**The UNIPORT/UPTH Response to The Injunction: 3 - Research**  
Lecturer/Consultants' research activities in maternal and neonatal child health are ongoing. Their scope ranges from narrative case reports to clinical trials – the gold standard of clinical research. The Part II Final dissertations of the residents in O&G and Paediatrics afford the residents opportunities for focused and audited research. However only a small proportions of the research activities are at the international collaborative level, because of the scarcity of research grants.

Applications for The Tertiary Education Fund (TETFUND), Petroleum Development Trust Fund (PTDF) from resident doctors do not receive any response because they do not belong to the University System. Only a few State governments give research allowances to their resident doctors. This unfortunate situation implies that virtually all residents have missed opportunities for exposure to funded research and use of research grants in their dissertations. Conspicuously absent too is the one year abroad exposure of the residency training which was stopped in 1984.

Fortunately the recent World Bank sponsored Nigerian STEP B research grant to UNICAL /UNIPORT emphasized purchase of equipment. UNIPORT now has many high level collaborative research enabling equipments including an Amino Acid Analyzer, Polymerase Chain Reaction Machines, and Sixty- One modern microscopes. These equipments will allow individuals and groups benefit from tertiary level maternal and neonatal child research.

### **Results of the UNIPORT /UPTH Response - Training**

The UNIPORT currently has 29 Sets of medical graduates all enabled by their training to conduct the basics of maternal and neonatal care. Sixty-five doctors have completed the obstetrics and

gynaecology residency training including 5 professors, 1 Reader, and 9 Senior Lecturers among whom 2 are currently undergoing professorial appraisal.

Thirty (30) doctors have completed the paediatrics residency program including 4 professors, 3 readers, and 5 senior lecturers. As in the case of Obstetrics and Gynaecology, these products are practicing in Port Harcourt, and elsewhere in Nigeria and The UK/USA

The South East and South South localities, and the whole country has benefitted from the service delivery, training, and research activities of these ladies and gentlemen.

## **KEY CONTRIBUTIONS BY THE LECTURER**

### **Health Service Delivery**

During the thirty –four years of my association with the UNIPORT/UPTH Academic Community, I have been consistent in my service to both institutions even during periods of personal challenge.

From the designation of Senior House Officer in 1981 through appointment as Lecturer 1 / Honorary Consultant in January, 1990, to my present position as a professor, my administrative, academic, and research designations in both institutions keep on changing, but the most essential undertaking is my clinical duty (attending to both outpatient and admitted patients). I give this function priority because it ensures that I have clinical cases to gain experience from, for use in teaching both medical students and resident doctors; and for research purposes.

### **Key Contributions by the Lecturer - Training**

- I have been involved in transfer of basic and applied basic medical knowledge, and clinical instruction to all sets of UNIPORT MB, BS students;

- I have also participated in teaching resident doctors and diploma student nurse midwives since attaining the rank of senior registrar in 1985.
- I introduced the use of coded multiple choice responses in The Part III MB, BS examinations in O& G in 1997.
- Other training activities include teaching courses outside The O & G Department, supervising the dissertations of University Master's degree students in The Departments of Immunology and Blood Transfusion and Public Health, and supervising the dissertations of UPTH resident doctors.
- As IPAS Master trainer in Reproductive Health, I initiated training in Post Abortion Care and other Reproductive Health Issues and Trained a total of 2500 consultant and non consultant doctors, nurse midwives, medical and nursing/midwifery students, paramedical graduate health workers and auxiliary health staff in The South East and South South Zones.

### **Key Contributions by the Lecturer - Research**

In obstetrics I conducted research and published reports on difficult labour and the major causes of maternal mortality and morbidity in Nigeria (**Okpani, Ikimalo, John, & Briggs, Okpani, 1995; Okpani & Tebepah, 1998; Ugoigwe & Okpani, 2004; Okpani & Feyi-Waboso, 2003; Okpani & Feyi Waboso, 2004; Onohwakpor & Okpani, 2004, Enyindah, Fiebai, Anya, & Okpani A.O.U).**

- My contribution (John & **Okpani** , 2002) in an international multi author textbook for postgraduate residents has been recently updated. My research activities are in line with worldwide focus on Millennium Development Goals 4 and 5.
- I have one of the few published professorial debates (Womens' Health and Action Research Centre, 2008 ) on Activities of Traditional Birth Attendants and the arguments for and against allowing their practice to continue.

In Gynaecology some of my research publications (**Okpani, Ikimalo, John, & Briggs 1995, Okpani, 1996; Okpani & Briggs, 1996; Okpani & Kua, 2002; Ikpeazu, Ojule, & Okpani, 2002; Eke & Okpani, 2003; Okpani & Enyindah, 2003; Okpani, & Okpani,**

2000; **Okpani**, 2000) focused principally on contraception and adolescent sexuality.

- These papers have provided the academic community with data on sexual activity and contraceptive use in the Rivers State of Nigeria, an area with high endemic levels of adolescent/youth sexuality and unrest, and HIV/AIDS prevalence.
- A recently published international book chapter on Contraception, Family Planning, and Fertility related issues (**Okpani**, Ogu, & Okonofua, 2014) has received wide acclaim.
- Two other book chapters on general gynaecology (**Okpani** & Akani, 2004; **Okpani** & Seleye - Fubara, 2004) have been used extensively by resident doctors worldwide.
- My article on sexual activity and contraceptive use (**Okpani** & **Okpani**, 2000) was internationally cited in different languages, and included for publication in an international book “Sexual Behavior of Adolescents in Contemporary Sub-Saharan Africa”. The Editor is Djamba Yanyi K, and the Publishers Edwin Mellen Press – a leading international academic publishing group.
- There are several other indexed publications on various aspects of reproductive health ( especially **Okpani**, Inimgba, & John, 1998, Inimgba, **Okpani**, & John, 1999, Omo-Ahoja, **Okpani**, et al, 2012 ; Umezurike, **Okpani**, & Whittaker, 2004; Nwankwo & **Okpani**, 2006 ; Orazulike, Fiebai, & **Okpani**, 2006)
- My IPAS operations research activities, and technical reports on Post Abortion Care (PAC) and Manual Vacuum Aspiration – MVA (**Okpani** , Inimgba, & John, 2004a; **Okpani**, Inimgba, & John, 2004b; **Okpani** , 2004; and **Okpani**, Inimgba & John, 2004c, provide essential preliminary data on adolescent sexuality, contraceptive use, and post abortion care for the South-East and South-South States of Nigeria.
- I have one book and one monograph credited to my sole authorship.
- “Cloning: Facts Contemporary Issues and a Futuristic Projection” (**Okpani**, 2002) reviews the technical details and controversies surrounding cloning; and offers speculation on a futuristic post-cloning world.

- “Assisted Reproduction: Facts, Contemporary Issues, and a Futuristic Projection” (Okpani, 2004) is a ten chapter sequel to the monograph on cloning. It has literature reviews on all the present clinical and experimental reproductive methods and their accompanying controversies; and provides speculation on their future impact on human reproduction and society.
- Reviews on the above topics are apparently sparse worldwide.
- I conceptualized the research project in two thirds of my publications. I am first author in 21 publications and collaborated with many (32) co – researchers attesting to a high level of academic leadership, and quality credible research.

### **Key Research Contributions by the Lecturer - World Bank Step B Experience**

- Sponsored by The Center for Research Management, Office of Research and Development UNIPORT, I was appointed Associate Coordinator of The World Bank Sponsored Science and Technology Collaboration between The University of Calabar and The University of Port Harcourt.
- Our group competitively secured a Six Hundred Million Naira (N600, 000,000 =K) research grant in 2010.
- The UNIPORT benefitted from this grant by acquisition of sophisticated tertiary level science equipment for cutting edge research worth approximately Two Hundred Million Naira (N200, 000,000 =K) between 2011 and 2014.
- The equipment is currently domiciled in The College of Natural and Applied Sciences and is available for collaborative research in The Niger Delta locality.

### **Key Contributions by the Lecturer: Additional Research Duties-Research Ethics Experience**

- In response to my appointment as Chairman, UPTH Research Ethics Committee, I registered for the new MSc program in Clinical Research of The University of Liverpool and obtained the masters degree.



- During the program, I was exposed to recent concepts in postgraduate education including use of the Anti- Plagiarism Database Turnitin.
- In line with my recent focus on establishing Research Validity, for my dissertation, I investigated the use of core outcome sets in comparing anti-hypertensive treatments in pregnancy induced hypertension, one of the major causes of maternal mortality worldwide (**Okpani**, 2014).
- It is my belief that one needs formal training to carry out specific assignments in the academic setting. Because of my formal training and certification, my leadership of The UPTH Research Ethics Committee has transformed it into a credible ethical review organization auditing not only the protection of human subjects in research but also the whole conceptualized framework of the research proposals
- My service as Member, University Wide Research Ethics Committee, University of Port Harcourt has also been greatly facilitated by my formal training.

### **Comments on Personal Plans to advance oneself to improve Service, training, and Research**

Considering that there should be continued efforts in addressing human reproduction issues, a major constraint to the lecturer's progress in our locality is the perennial lack of funds to focus on one's academic goals. If the necessary funds are available, it would be desirable to pursue advanced studies in research administration especially in relation to clinical trials in obstetrics. There are multiple unresolved research issues concerning pregnancy induced hypertension which need to be addressed.

This ambition will imply my continued stay within the walls of a University and clinical service in obstetrics and gynaecology in a teaching hospital setting. This focus will also enable me train residents in new service delivery skills and research techniques.

## **ACKNOWLEDGEMENTS**

### **Acknowledgements to Pioneer and Other Staff.**

As I give this lecture, I remember the pioneers of our local effort to promote efficient maternal and neonatal child services.

- I keep on remembering Kelsey Harrison, ND Briggs, CT John, Ralph Oruamabo, and Felicia Eke as they toiled endlessly in the labor and lying – in wards , neonatal unit, and operating theatre after giving lectures to medical students during the early UNIPORT/UPTH days.
- ND Briggs as pioneer head of department set up the residency program in obstetrics and gynaecology.
- C T John later introduced finite time limits for completion of the program
- ND Briggs and CT John assisted by Dr M T B Member and Late Dr D Lolomari worked tirelessly on a twenty –four hour basis and were very stringent with liberties for both residents and themselves. Duty always called first.
- Kelsey Harrison was also tireless in his efforts and never once did his age, rank, and worldwide acclaim come between him and his devotion to his clinical duties / undergraduate and postgraduate teaching rounds.
- Ralph Oruamabo, and Felicia Eke as consultants in Paediatrics set similar standards in the Department of Paediatrics. They never faltered once in their clinical duties and in teaching students and residents.
- These pioneer O & G and Paediatric lecturer/consultants by their devotion to duty and collaboration with other pioneer senior staff fostered the spirit of unity and dedication to duty in the Departments of Obstetrics and Gynaecology and Paediatrics that has endured to this day. There are no factions in my department. We occasionally have differences of opinion but are focused with the single purpose of ensuring that are patients are well managed.

- Because of their legacy, our unity and goodwill extends to our students, resident doctors, nurses, and our peers and juniors who are serving in various capacities elsewhere.
- I must acknowledge their contributions, and I am sure history will not forget their efforts to establish obstetric and neonatal services and credible training and research programs in this academic community.
- Posterity will bless their multiple contributions to safe motherhood and neonatal child health in the South East and South South Zones of Nigeria.
- The pioneer Provost of The College of Health Sciences, Late Prof T I Francis, The Director of Clinical Service and Training, Dr E D Mangete, Dr B E Mengot, Dr P Dakaraju, and Dr L Mbuagwuh, (Lecturer Consultants in Anaesthesiology and Paediatrics) were part of that wonderful team.
- Dr E D Mangete, Late Dr E Uche, and Dr Ndu Eke taught residents general surgery, abdominal surgery, and urology skills.
- It is easy to open the patient's abdominal cavity, but when surgical complications arise during obstetric and gynaecological surgery, only a well trained resident doctor will be able address them appropriately.
- These pioneer workers were assisted in their efforts by nurse midwives and staff from other clinical departments.
- The UPTH, and UNIPORT then and now have provided the enabling background for service delivery, training of medical students and residents, and research activities.
- Late Professor A Obuoforibo, Professors Kelsey Harrison, C Anah and N D Briggs as Provosts / Deans, and Mrs Regina Ogali and Franebi Okoko as College Secretaries skillfully administered the College of Health Sciences during periods of stress and uncertainties surrounding accreditation.
- The efforts of these pioneers have been complimented over the years by the intermediate and current generation of workers.
- The Vice Chancellors of The UNIPORT, The CMDs of The UPTH, and staff of both institutions have provided an enabling working atmosphere without which local contribution to the Human Response would have been impossible.

- The current board of Obstetrics and Gynaecology – 22 lecturer consultants, and 2 emeritus professors of The Department of Obstetrics and Gynaecology, UNIPORT/UPTH have cooperated and collaborated with me over the years, enduring my human inconsistencies, and focusing principally in ensuring that our department remains on track in pursuit of excellence as we respond positively to The Injunction.
- The staff of our sister Department- Paediatrics-deserve mention for their efforts in collaborating with my department to conduct The Part III MB, BS (Year 5) program, in assisting us train resident doctors, and in service delivery through management of normal and complicated neonatal cases.
- Professors Ralph Oruamabo and Felicia Eke's neonatal care efforts are now undertaken by Prof Augusta Eneh and her efficient all female Team - Drs Rosemary Ugwu, Peace Opara, and Joyce Okagua .
- The resident doctors in O&G are consistent as a formidable team, providing excellent service delivery and assistance in teaching medical students while training, and contributing to research through their dissertations.
- The UNIPORT STEP B research administrators - VC Prof Ajienska, Prof B Willie- Abbey, and Prof Akaranta, provided the administrative and academic background that enabled The UNICAL/ UNIPORT Collaboration success in winning the World Bank research grant.
- My special thanks go to my children and siblings, close friends, and associates who have stood by me over the years especially during challenging periods.
- Finally I thank The Almighty God for His Grace and Mercy, and for keeping me alive to continue my humble contributions to His Increase and Multiply Injunction.

## **UNRESOLVED REPRODUCTIVE HEALTH ISSUES PERSIST**

Despite the multiple high ceiling assisted and experimental reproduction achievements, there are unresolved reproductive health issues.

These include

- Reducing the incidence of Unwanted Pregnancies and establishing acceptable Induced abortion laws in Sub-Saharan Africa
- Prevention of teenage pregnancies and Child marriages
- Addressing Pregnancy following sexual assault.
- Addressing Sexually Transmitted Infections especially H I V/ AIDs
- Addressing Infertility
- Reducing the High Fertility rates seen in Developing Countries.
- Addressing controversies on issues of Contraception, and Assisted Conception.

But the most pressing challenge is achievement of safe motherhood in developing countries such that maternal and peri-natal mortalities and morbidities are reduced to an acceptable minimum

It is disheartening that despite all current efforts, achieving affordable and safe Maternal and neonatal child health is still beyond the reach of most sub-Saharan African countries. The immediate and remote causes of the high reproductive mortalities in developing countries; as well as the underling socio-economic deficiencies are well known. Gains have been made in the efforts to reduce these mortalities and morbidities, and there are noticeable reductions in some countries.

But the critical trigger which will signal complete reversal of the present unacceptable trends in maternal and peri-natal mortality in developing countries by coordinating all available resources remains elusive.

**Where in lies the answer?**

**FOOD FOR THOUGHT: THE WISDOM OF SOLOMON**

If The Wise Man had lived in our times, maybe he would have proffered the solution.

Solomon was not only wise and an achiever; he did all that was humanly possible to obey/ promote the Biblical Injunction on human reproduction by marrying? 700 wives.

His excesses in obedience to the Biblical Injunction by promoting multiple heterosexual unions may probably have been a way of directing his people and future generations away from Unusual Sexual Behavior (Gay Orientation, Lesbianism, bestiality and Other Fetishisms) which do not contribute positively towards our multiplication and survival as a species, and which impact negatively towards health by promoting the spread of sexually transmitted diseases especially HIV/AIDS.

Unfortunately these practices enjoy increasing support from the public and governments in several developing countries. Unfortunately also, they have positive endorsement in the WHO reproductive health statement.

We are fortunate in Sub-Saharan Africa that these practices are not only uncommon, but do not enjoy any endorsement from the public and government authorities.

Solomon would have been an adjunct/ visiting /emeritus professor to several universities which would have all been clamoring to appoint him in research and development chairs. He would also have earned billions of dollars from lectures on The Injunction; and consultancies on complicated deliveries, reproductive health, assisted conception, and experimental reproduction.

But his activities would have been marred /distracted by multiple issues attendant his vigorous pursuit of obedience to the Biblical Increase and Multiply Injunction - maintenance of his harems, multiple marital squabbles with his many wives, coordinating payments of children's school fees, treatment of HIV/AIDS

acquired from his wives' inevitable infidelity, paternity lawsuits and divorce, and alimony payments.

These social complications are currently part of everyday life as fallouts from male /female heterosexual unions which represent man's basic response to The Injunction in both developed and developing countries.

In The Biblical Chapter of Ecclesiastes, Solomon says that often the results of all human endeavor and achievements especially those facilitated by vanity are meaningless. In trying to obey the biblical injunction we are often faced with one challenge or the other, or we engage in interventions that are not ethically acceptable.

### **Our Advantage over the Wise Man**

We are not at Solomon's level of innate wisdom but have an advantage over him in availability of science, and formal medical and nursing/ midwifery education. We also have unlimited access to the elements of modern public advancement including global collaboration and unlimited access to data collection and management systems.

We also have excellent communication systems especially the internet.

### **RECOMMENDATIONS AND A ROLE FOR UNIPORT/UPTH Service Delivery**

The following recommendations would seem practicable.

The UNIPORT/UPTH Academic Community should prioritize its involvement in sustainable maternal and neonatal child health programs and interventions already commenced/endorsed by The United Nations agencies, World Health Organization, and the Nigerian Federal and State governments.

This will imply involvement in efforts aiming at achieving Millennium Development Goals 4 and 5 in our South South/South

East Locality with translation into the Sustainable Development Goals.

Addressing practicable interventions that will facilitate safe maternal and neonatal child health can only be achieved in partnership with The Society of Obstetricians and Gynaecologists of Nigeria, The Paediatric Association of Nigeria, Federal and State Governments, Nongovernmental Agencies, and the oil companies

Of top priority will be entrenching strategies for Increasing women's uptake of antenatal and delivery services provided by skilled birth attendants, and increasing the number of facilities with capacity for basic and comprehensive obstetric care in all states in our catchment area

### **Recommendations and a Role for UNIPORT/UPTH - Training**

- UNIPORT should prioritize obtaining computer based simulation mannequin learning systems and 24 hour molecular medicine laboratory equipment and their consumables using The TETFUND and PTDF.
- There should be improved synergy between the two institutions in planning the rural postings in obstetrics and gynaecology and paediatrics to enable medical students and student nurses accompany the resident doctors and maximize their learning opportunities.
- The training of residents for the various fellowship examinations is presently not the direct responsibility of UNIPORT. However UNIPORT is indirectly involved in that all the supervising consultants in the residency program are UNIPORT lecturers.
- A forum should be created to facilitate specialty and sub-specialty training grants for the residents who become lecturers on completion of the fellowship.
- Research grants given to UNIPORT lecturers will also assist their residents in their dissertations.
- Meanwhile the UNIPORT should pioneer efforts aiming at establishing TETFUND and PTDF sponsorship of residents' dissertation and short term fellowships/courses in specialist centers abroad.



- The UNIPORT should also prioritize sponsorship of the doctoral dissertations of the lecturers in Nursing, and facilitate collaborations/ fellowships for them in universities abroad with established postgraduate training facilities in peri-natal medicine, and maternal and neonatal child health.

### **Recommendations and a Role for UNIPORT/UPTH - Research.**

The UNIPORT should emphasize multi-author research and those that address current contemporary issues in the West African Sub – Region.

During appraisals, emphasis should not only be on number of publications, but on their relevance to service delivery and training, number of citations, and trends with respect to presence or absence of follow –up studies.

Appraisals in Obstetrics and Gynaecology and indeed other departments in the Faculty of Clinical Sciences should include indices of service delivery, experience in training postgraduate residents, and clinical competence.

While narrative reports continue, a minimum percentage of the research output should be on clinical trials and other types of focused collaborative research.

Ethical appraisals of research proposals and the completed work should be submitted to the anti-plagiarism database (TURNITIN) to ensure absence of academic fraud.

Postgraduate degrees (MSc, and PhD) in Reproductive Health should be commenced to complement the residency doctors' fellowship experience. This will improve their access to The TETFUND, PTDF, and other university based research grants.

The National Universities Commission should commence sponsorship of resident doctors to centres in developed countries to enable their exposure to the high levels of research activities there.

## SUMMARY

The Biblical Injunction expressed the need for man *homo sapiens* to ensure survival of the human race by safe pregnancy and delivery with mother and baby alive and healthy.

- Specific characteristics of human reproduction and progressive refinement of the human response place man at advantage over other species and thus with our small number, we have been able to subdue the earth.
- The human response to the injunction is composed of basic healthcare delivery interventions with its adjuncts – improvements in obstetric protocols combined with socio-economic and scientific advancements.
- Recent developments in society have brought about the need for addition of contraception, induced abortion, family planning, and assisted reproduction to the human response.
- Improvements in reproductive outcomes in developed countries are very noticeable, and maternal and peri- natal deaths remain at an acceptable minimum

However, socio economic and health care service delivery defects in developing countries especially sub- Saharan Africa have resulted in unacceptable reproductive mortalities and ill health requiring continued public efforts to reduce them.

Even though there are multiple interventions in mankind's response to the Increase and Multiply Injunction, the organized conduct of antenatal care, the skills of midwifery, and the role of a timely performed caesarean operation are cardinal interventions on which the reduction of maternal and peri-natal mortalities and morbidity are based.

While these worldwide efforts aiming at reducing these unacceptable losses and ill health continue, there are ethically controversial excesses of assisted and experimental reproduction born of human vanity and promoted by scientific advancement that aim at eventual

artificial production of the so called perfect human and a futuristic perfect society.

At the moment, the international community does not endorse these philosophical and scientific excesses but is rather committed to improvement of the lot of maternal and neonatal child health especially in developed countries.

From available evidence, the University of Port Harcourt and its Teaching Hospital have performed creditably in contributing their quota to the human response, but need to refine/improve their efforts with respect to the logistics of service delivery, training and research.

Aggressive attention to all details of the human response, continued collaboration between all stakeholders, and ensuring a proper balance between basic interventions and those that appear to be modifications or excesses are the keys to eventual success especially with respect to reducing reproductive losses in developing countries.

“Change does not roll in on the wheels of inevitability, but comes through continuous struggle.”

Dr Martin Luther King Jnr (1929 – 1968)

### **Return to Basics. The Ultimate intervention is The Midwife achieving Delivery of a healthy term infant**

- Alice in wonderland asked “Where do I start?” The answer was obvious: “Start at the Beginning
- In The Beginning, there was a Midwife.
- Now, Midwives are very relevant.
- In the Future, Midwives will still be relevant.

### **All Skilled Birth Attendants Practice Midwifery.**

All skilled birth attendants practice midwifery be they nurse midwives, general medical practitioners, resident doctors, or consultant obstetrician /gynaecologists

- Proper conduct of midwifery skills reduces the need for caesarean section, ensures that the operation is carried out when necessary and in a timely fashion, and ensures that the mother and baby are observed as appropriate after the operation.

Sir Winston Churchill, describing the efforts of The Royal Air Force during The Second World War said

“Never in the history of human endeavor was so much owed by so many to so few”

This statement also holds for the efforts of Midwifery in caring for pregnant women, delivering them, and resuscitating their newborn babies all through the ages.

**Final Words in Return to Basics. The Ultimate intervention is The Midwife achieving Delivery of a healthy term infant**

- Scientific advances and assisted reproduction attainments will never negate the importance and impact of the skills of the art of the profession (call it midwifery, childbearing, or obstetrics).
- The period of labour is one of unrivalled expectation and tension for all stakeholders. At that critical moment when a healthy baby emerges from the mother’s birth canal into the world with a lusty cry, everyone has feelings of pure joy, and human not mechanical or scientific power.
- It is as if the birth attendant holding up the baby to facilitate it’s achievement of spontaneous breathing is showing the world the coveted trophy won after a highly contested battle.
- Computer directed or mechanically assisted devices being devoid of emotion can never produce that moment of human elation.



A Newborn Negro Baby  
(Source: atlantablackstar.com)

- The birth attendant/midwife who took the delivery will remain the winner for all seasons, and the lusty cry of the healthy newborn baby will ring through all the galaxies announcing not only its entry into the world, but also the achievement of another successful human response to The Increase and Multiply Injunction.

**Thank You all for listening.**

Anthony O U OKPANI

28<sup>TH</sup> May, 2015

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**CITATION ON**  
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Anthony Okpani was born to late Uguba Okpani Ibiam and Mary Theresa Okpani (Nee Nkama) of Unwana, Afikpo, Ebonyi State on 10 January, 1955. He attended primary schools in Kaduna and Igbo - Itigidi, Cross River State, and Government Secondary School Afikpo; and proceeded to study medicine at the University of Ibadan, graduating in June, 1979.

He underwent the twelve month pre-registration internship at the University of Benin Teaching Hospital, followed by his National Youth Service Corps posting in Ogoja, Cross River State. After a short period of temporary employment in the Department of Medicine, UNTH, Enugu, he was admitted to The University of Port Harcourt Teaching Hospital (UPTH) as a pioneer resident doctor in Obstetrics and Gynaecology in August, 1981. He was the first resident doctor to complete the fellowship examination in Obstetrics and Gynaecology at the UPTH, with enabling courses at the Postgraduate Institute for Medical Research and Training, University of Ibadan; and The Fertility Research Units of The Universities of Ibadan, Calabar, and Jos.

He was appointed Lecturer 1 by The University of Port Harcourt (UNIPORT) in January, 1990. Other institutions that contributed to his post fellowship training and updates as an obstetrician/gynaecologist included The Johns Hopkins Institute for International Education in Gynaecology and Obstetrics; and The Departments of Radiology in The Universities of Legon, Accra and Ibadan. He also benefitted from clinical and fertility research, and educational foundations training programs organized by The Pathfinder International, The Margaret Sanger Organization, The Family Planning International Assistance, The Engender Health, IPAS International, The Alan Guttmacher Institute, The World Bank Institute, and The University of Liverpool.

He was promoted to Senior Lecturer in October, 1997, and Professor of Obstetrics and Gynaecology in March, 2006.

He has contributed extensively to health service delivery, undergraduate and postgraduate training, and research in The University of Port Harcourt and its Teaching Hospital. He has served in various capacities including Acting Head of Department of Obstetrics and Gynaecology between 2004 and 2006, and Director, Centre for Medical Research and Training between 2007 and 2013. He is currently an Associate Coordinator for The World Bank Sponsored University of Calabar/ University of Port Harcourt Science and Technology at Post Basic Level (STEP B) Project on Infectious Diseases and Zoonotics. This collaboration brought in tertiary level science and technology equipment worth about Two Hundred Million Naira to The University of Port Harcourt between 2011 and 2014 from a World Bank grant.

Other designations in the UNIPORT include Member, University Wide Research Ethics Committee, and Adjunct Lecturer in the MSc Immunology Course. He is also the Coordinator, Reproductive and Family Medicine Course, Masters in Public Health (MPH) Program, Department of Preventive and Social Medicine, and Deputy Editor of The College of Health Sciences (Port Harcourt Medical) Journal.

In the Teaching Hospital (UPTH) he is an honorary consultant Obstetrician and Gynaecologist, Chairman of the Research Ethics Committee, and a Clinical Coordinator of the Family Planning Clinic.

He has served in many academic and non –academic positions outside the UNIPORT/UPTH including undergraduate external examiner to seven Nigerian Universities, Postgraduate examiner in Obstetrics & Gynaecology in The West African Postgraduate Medical College since 2000, Consultant, World Health Organization Sponsored Nigeria Federal Ministry of Health Maternal and Child Health Implementation Project, February, 2012 – Date, Corresponding Editor to several local and foreign indexed journals, and Master Trainer in Reproductive Health for IPAS International. He has conducted many professorial appraisals for The UNIPORT, and other universities.

He has forty- five indexed research publications including one book and one monogram appraising assisted and experimental reproduction, a professorial debate, and a master’s degree dissertation in the new sub-specialty of clinical research administration, his current professional/research focus.

In the Council of The Society of Gynaecologists and Obstetricians of Nigeria, he represents the Eastern Sector. He is an international Associate member of the American College of Obstetricians and Gynecologists, and a member of The Reis Society of the College. He is also a member of The American Society for Reproductive Medicine, and a fellow of both The West African College of Surgeons and The International College of Surgeons.

He has been a member of The Rivers State Field Hockey Governing Board and The Ebonyi State Council, For Prerogative of Mercy for the past six years.

He resides in Port Harcourt with his family. He is actively involved in youth and sports development.

I present Professor Anthony O U Okpani, MB, BS (Ibadan), MSc (Liverpool), Fellow of The West African College of Surgeons, Fellow of The International College of Surgeons, and International Associate Member, American College of Obstetricians and Gynecologists, to give his inaugural lecture.

Thank you.

**Professor S A Uzoigwe.**