

**UNIVERSITY OF PORT HARCOURT**

***Ensuring The Divine Right of Every Child to a  
Healthy Start: Are We Fulfilling this Mandate?***

An Inaugural Lecture by

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## Contents

Dedication .....	iii
Acknowledgements .....	iv
Preamble .....	1
Lecture Overview .....	2
Rights of Children and their vulnerability .....	2
The Newborn bill of rights .....	2
The basic needs of the Newborn .....	3
Our Service experiences .....	7
Why focus on Newborn .....	7
Why focus on Paediatrics HIV .....	11
Contributions to knowledge .....	12
Acute pain in Neonate .....	12
Congenital malformations .....	13
Neonatal malaria .....	19
Blood transfusion in the neonate .....	20
Neonatal Jaundice .....	23
Mortality in the Newborn period .....	28
Low Birth weight .....	31
Foreign body in a neonate .....	33
Human Immunodeficiency Virus Infection in children .....	34
Factors That Increase Vulnerability of Children to HIV Infection	39
Factors influencing adherence to paediatric antiretroviral therapy	42
HIV disclosure in children .....	43
Consequences of our inaction, delayed action or wrong actions as adults .....	49
THE CHALLENGES .....	54
THE WAY FORWARD .....	57
References .....	60
Citation .....	64

## **Dedication**

This lecture is dedicated to my children who have helped me to learn how to deal lovingly with children and to all children living with HIV and those living with disabilities as a result of complications of delivery.

## **Acknowledgements**

My special thanks first to God Almighty who has brought me this far without Whom I won't be standing here today to give this lecture. His grace, mercy and love has kept me. May His name be praised forever.

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Finally to my Pastor Mrs Nkechi Ene, words cannot express my appreciation for her making me discover who I am in Christ Jesus and brought out the potentials God deposited in me.

## PREAMBLE

### *Ensuring The Divine Right of Every Child to a Healthy Start: Are We Fulfilling this Mandate?"*

Vice Chancellor Sir, I consider it a great honor and privilege to stand here today to deliver the 128<sup>th</sup> Inaugural Lecture of this Unique University. I am grateful for this opportunity, which is a once in a life time event for a professor.

Children are gifts from God. "Behold; children are a heritage from the LORD, the fruit of the womb is His reward". Psalm 127:3.

They are a bundle of joy to the family. Every child is a valuable gift.

**"A healthy start is central to the human life's course, with birth holding the highest risk of death, disability and loss of developmental potentials, leading to major societal effects."**  
*(Lancet, Every Newborn, May 2014)*

With quiet pride and humility, I look back on the babies and families we have cared for, inspite of various challenges, and I feel satisfied. It has been very challenging, but God's GRACE was always available for us. My work principle as a Peadiatrician is: "Treat every child as if he/she is my child". Two scripture passages have guided me; ("And whatever you do, do it heartily as to The Lord and not to man. *Colossians 3 v 23 NKJ*. "Not that we are sufficient of ourselves to think anything as of ourselves; but our sufficiency is of God" *2 Corinthians 3; 5 NKJ*)

In our culture, children are highly valued and treasured. The way we desire children is not commensurate with the way we take care of them. When we don't have children, we do everything possible to get them. But when we get them, we do not pay much attention to their welfare and proper upbringing. Many people seek the fruit of the womb and many go to any length to get same. The main cause of many broken marriages is childlessness. The craving to have a child by any means is the sole reason why baby factories and child trafficking exist. Yet, there is so much child abuse and

maltreatment going on and many babies are being abandoned in gutters and refuse bins. Many do not value these wonderful gifts (the future generation) from God.

Children are vulnerable because they depend on adults for care. Babies and children cannot sit in parliament. They are not at the upper chambers (Senate and House of Representative) to pass bills/laws to protect their rights. They depend solely on adults to protect their rights. What are their rights?

### **Lecture Overview**

In this lecture, we shall;

- A. Provide some illumination into the rights of children and their vulnerability.
- B. Share some of our experiences in caring for the newborn children and children infected with HIV.
- C. Share some of our contributions to knowledge.
- D. Highlight some of the challenges in caring for the newborn children and children infected with HIV in our environment.
- E. Suggest how we can be a part of the journey to help babies/children to achieve their full potentials in life

### **A. RIGHTS OF CHILDREN AND THEIR VULNERABILITY.**

#### **The Newborn Bill Of Rights**

##### **The newborn has the right to:**

1. Be born in as natural, loving and family-centered setting as possible with a knowledgeable, caring, and conscientious birth attendant.
2. Be born vaginally in the absence of absolute health necessity.
3. Be born in the presence of his/her father and be held immediately after birth by the mother and father, in the absence of any absolute health contraindications.
4. Be kept warm after birth.
5. Be breastfed on demand.
6. Be spared any painful procedure that is not absolutely necessary for his/her health or well being.

7. Be afforded necessary and appropriate treatment in the event of abnormality or illness, with all decisions being made with only the welfare of the child in mind.
8. Be allowed to keep all normally occurring parts of his/her body.
9. Be spared any cosmetic procedure that involves alteration of normal structures, until the child is old enough to choose for him/herself whether or not he/she wishes it.
10. Be spared procedures done for demonstration and/or teaching purposes and routine procedures that exist only for the few who may need it.

**Permit me to ask;**

Do we know our roles in Child Survival?

Are we playing our roles or are we letting children down?

Given that all the adults in this audience should have a part to play; have you played your role?

The children under your care what have you done with them?

The young are often among the most vulnerable or disadvantaged in society, and thus their needs require special attention. From conception, a baby is dependent on the mother for survival, he/she is carried in the womb where he gets all the nourishment he/she needs for growth and development for 9 months. Upon delivery, he/she continues to be dependent on the mother for nourishment and daily care.

**The basic needs of a newborn include;**

Nutrition

Healthcare

Protection from harm and infection

Warmth

Love

Bonding

Attention

Environment for growth and sanitation

**A newborn thrives when she or he is:**

- Kept close to and frequently held and cuddled by the mother, father or other primary caregiver.
- Exclusively breastfed from birth through the first six months on demand and at least eight times in a 24-hour period, contributing to bonding between the infant and the mother and giving the baby immunity against infections.
- Loved and given affection, attention, encouragement and stimulation from family members, helping the baby to grow and learn rapidly.
- Kept warm, clean, comfortable and safe, and changed regularly and burped after feeding.
- Cared for in a clean environment that helps to prevent infections.
- Provided with quality health care, including regular check-ups with timely immunizations and weighing to monitor growth.

**There are three most important needs, for which we often fail our newborns;** bonding, nutrition and quality healthcare. Let's look at each.

a. **Bonding**

Modern society has tried to neutralize the “maternal protective instinct”. Mothers and newborns have been separated and the initiation of breastfeeding has been delayed. Imagine what will happen when one tries to pick up the newborn of a mother gorilla that has just given birth or the chick of the mother hen all in the name of cleaning up. Forming a strong attachment with the newborn has benefits that can last a lifetime. Cultural interference includes giving baby a bath and desire for a particular gender which can lead to maternal depression if this desire was unmet. Time will not permit me to describe all the beliefs and rituals across cultures which interfere with the first contact between a mother and the newborn baby.

The "social" part of the brain only starts to develop at around six months. Where a baby does not receive any attention, this part of the brain does not grow and may never grow. Secure early bonding in the first few days of life will lead to a secure, emotionally capable

adult and is the key to achieving secure good mental health for our nation.

**b. Nutrition** (The WHO concept of the 1000 days)

The 1000 days between a woman's pregnancy and her child's 2<sup>nd</sup> birthday offer a unique window of opportunity to shape healthier and more prosperous futures. The right nutrition during this 1,000 day window can have a profound impact on a child's ability to grow, learn, and rise out of poverty. It can also shape a society's long-term health, stability and prosperity. During this pre- and postnatal development phase, the fetus/baby is very malleable and able to adapt, but also fragile.

Breast milk is the GOLD STANDARD. Breast Milk is the best. Nothing that money can buy is as good for a baby as breastfeeding. "Breast feeding is an unequalled way of providing ideal food for the healthy growth of a baby" – WHO 2015

WHO and UNICEF recommendations for optimal infant and young child feeding are: Early initiation of breastfeeding within one hour of birth, exclusive breastfeeding for the first six months of life, timely introduction of nutritionally adequate and safe complementary foods at six months and continued breastfeeding up to two years and beyond. Despite these noble recommendations, there are a lot of cultural interference with early initiation of breastfeeding such as separation of mother and baby soon after birth, belief that colostrum is tainted or harmful and so should be discarded, as well as the erroneous belief that breast milk will not be enough, so prelacteal feeds are started.

Breast milk has so many health benefits both for the baby, mother, family and society. Preformed long chain polyunsaturated fatty acids (LC-PUFAs) are found naturally in breast milk and they are essential for growth and functional development of the brain and vision in infants. (Thomas Brenna et al 2007.)

Breast milk is free such that even the poorest mother has adequate milk for her baby. Despite overwhelming evidence in favour of exclusive breastfeeding, only 13 -17% of infants in Nigeria are exclusively breastfed to the age of six months. Only 38% of

infants were put to breast within one hour of delivery. Prelacteal feeding practice is common in Nigeria, with a national prevalence of 56%, and only a few mothers breast feed till 2years. (NDHS 2003, NDHS 2008) Are we as adults playing our roles effectively? Or are we failing children under our care?

### c. **Quality Healthcare**

The parents' decisions affect a child either positively or negatively – the choice of food, school and health seeking behavior. If they are ignorant that the child needs medical care, even when they know but they delay in taking the decision or delay in getting to health facilities, these will negatively affect the child. If the parents refuse medical care because of financial constraints, ignorance, religious belief or because of their own comfort and conveniences; if they indulge in harmful practices (like burning the child's feet or putting some harmful substances into the child's eyes during convulsion, snapping the tethered frenulum thus leading to profuse bleeding and infection or patronizing the quacks where penile shaft has been partially amputated or bleeding to death following male circumcision), all will adversely affect the life and well being of the child.

**Children's rights can be categorized into three:** Provision, Protection and Participation.

**Provision:** Children have the right to an adequate standard of living, health care, education and services, and of play and recreation. These include a balanced diet, a warm bed to sleep in, and access to schooling.

**Protection:** Children have the right to protection from abuse, neglect, exploitation and discrimination.

**Participation:** Children have the right to participate in communities and have programs and services for themselves. This includes involving children as decision-makers.

These rights, ladies and gentlemen, you will agree with me, are being infringed on regularly.

## **B. Our Service Experiences**

Mr. Vice Chancellor Sir, Paediatrics is a branch of medicine dealing with development, care and diseases of children. As a result of the peculiar, complex, diverse, and critical problems of the newborn, the sub specialty of Neonatology was created from Paediatrics to provide care of newborn babies from birth to 28 days of life.

While as a teacher, I have facilitated learning in the general field of Paediatrics, my Service and research work has focused mainly on;

- 1) Neonatology (care of the newborn )
- 2) Paediatric HIV (care of Human Immunodeficiency Virus infected children)

### **Why focus on newborn?**

The birth of a high-risk infant is still not a totally predictable event, and the management of high-risk newborn requires highly dedicated skilled personnel and sophisticated technology.

Three main reasons have guided my focus on newborn; the sheer number of newborn deaths, the potential for far reaching impact of effective newborn care and the Unheard and unsung efforts thereto. Let us ventilate further on reasons.

#### **a. The sheer number of newborn deaths**

The sheer number of foetal-neonatal deaths is a great source of concern. It is estimated that 66% of infants die in the first month of life. Among them, 66% die in the first week of life, and out of this number, 66% die in the first 24 hours of life. The intrapartum period and the first 24 hours are the most critical period for infant survival, as well as long term disability. (Perinatology) The first minute of life – THE GOLDEN MINUTE is the most critical period of a child's life. This golden minute will determine whether the baby will die or survive, survive with no disability or with disability.

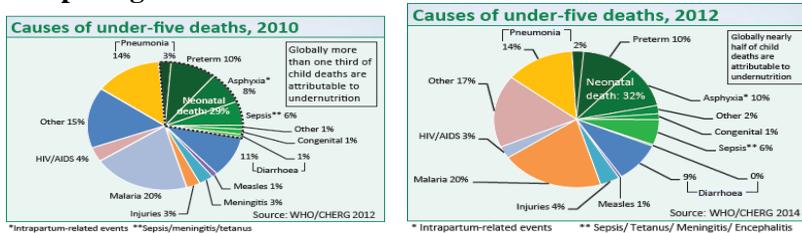
Newborn deaths in the tropics result from a combination of medical causes, socio-economic factors and failure of the health care

system to provide adequate care. Many occur at home, most during delivery or in the early post-partum/neonatal period, and usually without a skilled health care provider with midwifery skills around.

In Nigeria the neonatal mortality rate is 37- 40 deaths per 1,000 live births. Each year more than 260,000 babies die in their first month of life accounting for more than a third of all under-five deaths. This translates to over 700 deaths per day (the equivalent of 2 jumbo plane crashes every day). Should this not make the headlines?

The causes of U5M in Nigeria is shown in the pie chart below

### Comparing countdown 2012 with 2014:



**Fig 1. Causes of under-five mortality**

*(The Green portion (Neonatal causes) seem to be expanding. From 29% to 32%. This means Nigeria may not be able to further reduce under-five mortalities without significant reduction in Neonatal deaths)*

The 2005 Lancet neonatal survival series highlighted annual toll of 4 million neonatal deaths globally. Hitherto, the main focus of studies of childhood mortality has been the infant and under-five mortality rates. Neonatal mortality has received limited attention, although such deaths account for about 44% of all child deaths.

Owing to its large population and high rates of mortality, Nigeria ranks highest in Africa in terms of the number of neonatal deaths and second highest in terms of neonatal deaths worldwide. Nigeria contributes about 8% of the world’s annual neonatal deaths and 15% of Africa's neonatal deaths. Child survival programmes have focused on diseases affecting children aged over 1yr and

vaccine-preventable diseases. Safe motherhood programmes have focused on the mother and not her new-born.

More than half of all neonatal deaths globally occurred in five countries of the world (44% of global live births): India 27.8% (19.6% of global live births), Nigeria 7.2% (4.5%), Pakistan 6.9% (4.0%), China 6.4% (13.4%), and Democratic Republic of the Congo 4.6% (2.1%).

**The three main causes of neonatal mortality in Nigeria:** Asphyxia, prematurity, infection and tetanus are similar to 75% of the global causes. The developed countries apply existing evidence and cost effective interventions in the context of functional health systems and to the reach of everyone. Health Systems in the high income countries emphasize and focus on quality care at birth; delivered through facility and community actions with a focus on the time of birth when most deaths occur and when most lives can be saved, and long-term disabilities averted. These health systems are responsive and health workers deliver high-quality and timely skilled care.

In Nigeria, the ‘skilled attendance at delivery’ rate is low and more than 60% of births occur outside health facilities. Even in the health facilities, the quality of care at delivery is defective. This is the time when most deaths occur and when most lives can be saved, and long-term disabilities averted, through higher coverage of effective interventions.

The strategy to reduce newborn mortality requires responsive health systems that are equipped with lifesaving commodities and staffed with health workers who can deliver high-quality and timely skilled care, including emergency obstetric care and interventions for small and ill new-born babies. In most situations, midwives have not been trained in resuscitation of the new-born in the delivery room. When a baby dies at birth the mother runs a risk of shorter interval between births thereby runs a risk to her own health.

The majority of neonatal deaths could be prevented with existing interventions including some that can be delivered at

community level such as improved hygiene at birth, breastfeeding, and simple approaches to keeping babies warm as well as corticosteroids to the mother to mature the preterm lungs and chlorhexidine application to the cord to prevent infection.



**Fig 2. Kangaroo Mother Care**

Maternal and child health programs are beginning to place greater emphasis on new-born survival, but major missed opportunities remain even in existing programs, for example many midwives are not trained and equipped for simple new-born care and neonatal resuscitation.

**b. Far reaching impact**

Newborn health has impact for the health in later childhood and in adult life. Just as the impact of poor newborn health extends beyond the neonatal period, the benefits of a healthy newborn also extends beyond the neonatal period, and impacts positively not only on the individual and the family, but also to the society at large. A baby whose early life is compromised (for instance by birth asphyxia, sepsis, jaundice, or congenital abnormalities), may survive the neonatal period, only to die later in childhood. Even when they survive, they may have reduced intellectual development and chronic disability in adult life that will limit their social and economic potential.

**c. Unheard and unsung**

Newborn health has been grossly neglected in the tropics. There is still a woeful acceptance of new-born deaths as inevitable in some cultural settings in high-burden countries like Nigeria. In fact, in many cultures in Nigeria, newborns are not named until after the neonatal period, because many are expected to die. This apathy has led to so many people accepting newborn deaths as inevitable and do little or nothing to prevent it, leaving everything entirely to chance survival. Birth registration is basic to ensuring a child's legal status and, thus, basic rights and services. The 2008 National Demographic Health Survey (NDHS) reported that only 30% of under-five children had their births registered.

When births occur at home, they are much less likely to be registered. The majority of Nigeria's newborns who die also do so without any record, often totally uncounted. Stillbirths that occur at home are almost never registered.

**Why focus on paediatric HIV?**

This is difficult to answer because providing health care for this group of children would ordinarily emotionally drain one. However, the compassion I have for them has sustained me otherwise it is emotionally challenging. Apart from providing medical care we had to provide financial and emotional support, because in the early years of the epidemics a lot of the children and mothers were abandoned by husbands and relatives and some had lost their jobs and had no source of income even for transportation to hospital. I did my Part II dissertation on paediatric HIV titled "HIV Seropositivity and clinical correlates in childhood Tuberculosis and Protein Energy Malnutrition" from 1994 to 1996. They were only 4 positive cases seen in the department during this 2year period and there were no antiretroviral (ARV) drugs. (Today there are over 700 in care with over 300 of them on treatment). This research work kindled my interest in HIV. On my employment as a consultant I formed the Paediatric Infectious Disease Unit and innovated a proforma used for all Paediatrics HIV/AIDS patients in UPTH. It was very challenging because there were no Paediatric ARV drugs

then. The Federal Government made provision for only adult ARV so I discussed with the pharmacist and we reconstituted paediatric preparation from the adult drugs.

### **C. CONTRIBUTIONS TO KNOWLEDGE**

Mr. Vice chancellor Sir, distinguished ladies and gentlemen; I will like to start with my research work in Neonatology

#### **Acute pain in the newborn.**

In the first few days of life, sick infants encounter a number of painful stimuli. Premature or sick infants, during hospital stay, undergo a number of painful diagnostic and therapeutic procedures. Most male infants in Nigeria also undergo circumcision. Most of these procedures including circumcision are performed without anaesthesia or soothing interventions. This is due to some misconceptions regarding pain in the neonates such as misinterpreting weak reaction in neonates as reduced pain perception and assuming no sustained pain in neonate due to lack of memory (Bucher and Bucher 1996).

We carried out a study at UPTH to assess acute pain in neonates using physiological and behavioural variables. Sixty percent of them responded with an increase in respiratory and heart rate. There were also positive responses to body and facial codes. Preterm babies appeared less likely to exhibit a prolonged response to acute pain. We therefore advocated the use of some form of analgesia in obviously painful procedures in neonates (Eneh, Mayuku and Oruamabo 2001). This work was presented at conferences in Nigeria and outside the country, and won the best research prize at a perinatology conference in Spain and has thus provided a valuable reference material on the subject.

#### **Congenital malformations**

##### **a. Neural tube defects**

Neural tube defects (NTD) are a group of disorders resulting from failure of the neural tube (a hollow structure from which the brain and spinal cord form) to close spontaneously between the 3<sup>rd</sup> and 4<sup>th</sup>

week of in-utero development (a time before many women realize that they are pregnant) (Johnson and Kinsman 2003). They constitute the commonest congenital abnormality of the central nervous system (CNS). The commonest forms are myelomeningocele, anencephaly and encephalocele .



**Fig 3.**Types of Neural tube defects (NTD) (*a- meningocele with talipes; b-huge meningocele; c and d – occipital encephalocele; e- frontal encephalocele; f-anencephaly*)

In Africa the disease has immense psychological and cultural implications for both the child and family because of the unsightly deformity and also the poor outcome even with repair. The disorder is often associated with flaccid paralysis of the lower limbs, hydrocephalus, varying degrees of lower limb deformities and sphincter disturbances (Kolaski 2003, Johnson and Kinsman 2003).

The causes are multifactorial, ranging from genetic determinants to environmental factors, drugs malnutrition (especially folic acid deficiency), and maternal exposure to chemicals and irradiation (Steven and Allen 2000)

We carried out a retrospective study of the pattern and the outcome of babies with NTD who were admitted into the SCBU over a 3year period, 2002-2005 (Ugwu, Eneh and Oruamabo 2007). The overall admission rate of NTD in our study was 13/1000 admissions which was much higher than 4.4/1000 previously reported in Port Harcourt in 1991 (Oruamabo and John 1991). We also had an incidence of 0.95/1000 deliveries which was higher than 0.46/1000 and 0.5/1000 live births in Ibadan and Abuja respectively (Adeloye et al,1985 (Audu et al 2004 ). All the mothers received folic acid from the 2<sup>nd</sup> trimester of pregnancy but none received before pregnancy or in the 1<sup>st</sup> trimester.

NTD has been shown to be aetiologically linked to folic acid deficiency and supplementation with folic acid has led to a dramatic decline of NTD in the world. Folic acid not only reduces the risk but also reduces the recurrence. There is also mandatory folic acid food fortification in many countries. Prevention using folic acid in all women of child bearing age before pregnancy is still not a practice in Africa despite its proven efficacy. We recommended that there should be a policy of preconception folic acid therapy for all women of child bearing age.

In a bid to further explore the treatment outcome for this disabling disease, I collaborated with the neurosurgeons (Eghwudjakpor, Wokoma and Eneh 2002) to evaluate the outcome of treatment in children with myelomeningocele in UPTH. We found that the most important predictors of severity and perhaps the postoperative outcome were the level and size of the defect.

We also published a rare occurrence of Myelomeningocele in Dizygotic Twins (Ugwu, Eneh and Eghwrudjakpor 2009). NTD as with other congenital abnormalities occur with a greater frequency in twins however, NTD affecting both fetuses (i.e. concordance) in a fraternal twin gestation is very rare.



**Fig 4. Dizygotic twins with NTD**

Both babies were males delivered at term to a 21 year old woman who has had a spontaneous abortion at 7wks gestation and became pregnant again 2 months after with the index pregnancy. Short intervals between pregnancies lead to micronutrient deficiencies especially folic acid which can predispose to neural tube defect. Both babies had myelomeningocele. The first twin in addition had Congenital Heart Defect which is also associated with folic acid deficiency. Although the neurosurgeons prepared the 2<sup>nd</sup> twin for surgery, the father decided to take both babies home against medical advice due to financial constraint. The mother's low socio-economic status coupled with another pregnancy soon after miscarriage and the twin gestation could have drawn on the available reserve of folic acid stores, thus producing a deficiency state. Folic acid should have been started some months before another conception. These children were discharged against medical advice due to financial constraint.

If this mother had waited for some months to recover fully from the effects of previous pregnancy, if she started preconceptual folic acid and had free or even subsidized medical care for the children perhaps this morbidity would have been averted. If these babies were not totally dependent on their parents perhaps they may

have survived with proper medical care. Have these parents and society played their roles effectively?

### **b. Sirenomelia.**

We reported a very rare congenital malformation, infact, the first reported in West Africa – “**Sirenomelia in a Nigerian triplet**” of Hausa ethnicity (the Hausa ethnic group has the lowest twinning rate in Nigeria). (Ugwu, Eneh and Wonodi 2011)

Sirenomelia, also known as mermaid syndrome, is a very rare fatal congenital abnormality in which the legs are fused together, giving them the appearance of a mermaid’s tail. It is commonly associated with kidney, genital and rectal abnormalities. It is found in approximately 1 in 100,000 live births and is usually fatal.

The cause of sirenomelia remains unclear, however it is multifactorial. Genetic predisposition, environmental factors and vascular steal phenomenon with the single vitelline umbilical artery diverting blood supply and nutrients from the lower body and limbs have been proposed as possible causative factors. (Kadian, Duhan & Rattan 2008). More than half the cases of sirenomelia result in still-birth and those born alive usually die within a day or two of birth because of complications associated with abnormal kidney and bladder development and function.

A 16-hour-old second of a set of triplet was brought to children’s out-patient clinic (CHOP) with fusion of the entire lower limbs from the hip to the ankle with bones present in the thighs (femur) and the legs (tibia and fibula). There was no anal opening and no discernable external genital organs. There was a spinal defect at the level of L2-L3. The umbilical stump revealed only one artery and one vein. The parents refused any investigation or intervention when the prognosis was explained to them and they took the baby away.



**Fig 5. Siromelia**

**c. Concordant congenital abnormalities in twins**

We reported concordant congenital abnormalities in twins (Ugwu and Eneh 2011). Evidence suggests that the process of twinning may be associated with higher risk of congenital abnormality. In the process of twinning, developmental disruptions occur which may cause susceptibility to environmental agents. Concordance however is rare. We reported cases of 5 sets of twins concordant for the same congenital defect. Zygosity was determined by the gender, blood group and placentation. The first set of twins were dizygous males with neural tube defect. The second set of twins were both females of unknown zygosity with bilateral cleft lip and palate. The third set of twins were monozygous males with features suggestive of trisomy 21 (Down syndrome). The fourth set of twins were dizygous males with hypospadias, while the fifth set of twins were conjoined twins with huge omphalocele (thoraco-omphalopagus), a single heart and liver. Because of the multifactorial inheritance pattern of many congenital abnormalities, twins are usually discordant. The rarity of concordance of congenital abnormalities makes their presence in these cases interesting. The likelihood of it being concordant is higher if they are monozygous or same sex dizygous twins.



**Fig 6a Twins with cleft lips and palates, 6b. Conjoined twins, 6c twins with hypospadias**

**d. Congenital MegaloUrethra.**

Megalourethra is defined as a diffuse dilatation of the anterior urethra due to absence of the development of erectile tissue of the penis. The first prenatally reported case was in 1989, and after that, a limited number of cases have been reported. We report a case of this rare congenital malformation. (Eneh, Opara and Okagua 2015)

Baby AB was delivered at term by a 28year old woman. The pregnancy was generally unremarkable except for an ultrasound scan at 32 weeks of gestation which showed an enlarged urethra and bilateral hydronephrosis.

Physical examination showed enlarged bladder, ballotable kidneys, a huge penile shaft measuring 10.5 cm in length and 7cm in diameter with excess redundant skin and congenital heart defect.

He had urgent cystostomy to relieve bladder outlet obstruction as well as medical management for renal failure and hypertension. The parents were counseled on the baby's condition and a multidisciplinary approach to management was set in motion

with involvement of the neonatologists, urologists, cardiologists, nephrologists and social workers. He was however discharged prematurely because of industrial action by health workers and he was subsequently lost to follow up.



**Fig 7. Congenital MegaloUrethra**

### **Neonatal malaria**

Malaria is a leading cause of morbidity and mortality among children in developing countries including Nigeria. Unfortunately the importance of malaria in perinatal morbidity and mortality has received little attention. Malaria is an important cause of fever in neonates in our environment and contributes to neonatal morbidity and mortality. Hitherto, it was believed that certain factors in the newborn and breast milk are protective against malaria in the newborn. Signs of neonatal malaria however are indistinguishable from those of neonates with bacterial infection and therefore there is need for a high index of suspicion of malaria in critically ill babies. (Ibhanesebhor and Okolo 1995, Nweneka & Eneh 2004).

The frequent blood transfusions neonates receive as part of their care also predispose them to transfusion malaria. Based on our finding that newborns can have malaria, we recommended routine blood film for malaria parasite in the screening protocol for suspected neonatal sepsis. Free insecticide treated nets (ITN) and intermittent malaria prophylactic therapy are usually given to pregnant women in order to prevent them from having malaria and

therefore transmit it to the baby via the placenta, but how many women are using it? Many consider their comfort – again, a failure in our roles.

### **Blood Transfusion in the Newborn**

Blood transfusion is a well-known modality of treatment in various disease conditions worldwide. It is an integral part of neonatal intensive care. In the neonatal period it is used frequently as a life saving measure in the management of both full term and pre-term babies, although more commonly used in pre-term Low Birth Weight (LBW) babies. Anaemia is a common problem in newborn infants. The cause of the anaemia is multifactorial. Haemolysis, shortened red blood cell life span, low circulating erythropoietin, repeated blood sampling and blood loss attributable to medical and surgical conditions all contribute to the anaemia in preterm neonates. (Letsky 1992, Silvers et al 1998). Blood transfusion though life saving is costly and potentially harmful, but many conditions and practices in neonates make blood transfusion an indispensable modality of management. Considering that a baby's total blood volume is 90mls/kg, for a 1kg baby, the total blood volume is 90mls. During admission blood sampling is done for a barrage of investigations. In our centre we keep a chart for each baby on the amount of blood collected for each investigations – this is the cumulative blood loss. Studies have shown that cumulative blood loss of at least 10% of the baby's blood volume will cause anaemia, and the baby will require transfusion. Ten percent cumulative blood volume for a 1kg baby will be 9mls.



**Fig 8. Preterm baby in the incubator being attended to.**

We carried out a prospective study in the Special Care Baby Unit (SCBU) of the University of Port Harcourt Teaching Hospital (UPTH) to evaluate blood transfusion practices in the neonates and make recommendations on how to minimize the frequency of blood transfusion among these babies. (Eneh, Oruamabo 2004). We found that 20% of babies admitted in SCBU received blood transfusion. This is quite high considering the detrimental effects and the cost of blood transfusion. Also 76% of the babies were out born. This was not surprising considering the attitude and delays in seeking medical treatment for newborn in our environment. The rate of blood transfusion was significantly higher in the preterm than term babies, ( $p = 0.00001$ ). Multiple blood transfusions were carried out more in preterm than term infants. Exchange blood transfusion (EBT) which is a procedure in which the baby's blood volume is slowly removed in small aliquots and replaced with equal amount of blood was utilized more commonly than top-up transfusion.



**Fig 9. Exchange Blood Transfusion**

The commonest indications for blood transfusion were severe unconjugated neonatal jaundice, severe anaemia, disseminated intravascular coagulopathy and severe neonatal sepsis. These common indications for blood transfusion in the newborn do not have alternative treatment. It then becomes very challenging while managing a child whose parent's religious or cultural inclination will make them refuse blood transfusion for the child.

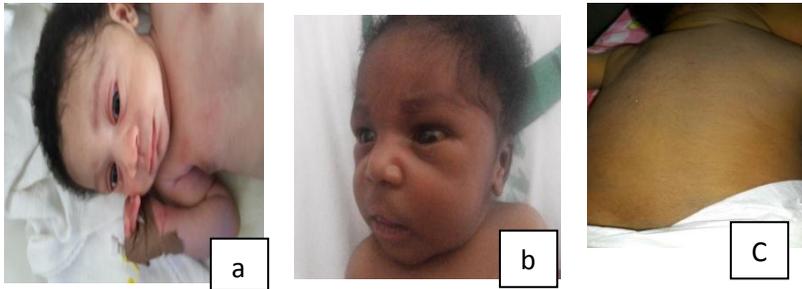
We therefore recommended the prevention and early diagnosis and proper treatment of conditions such as neonatal jaundice, severe anaemia and neonatal sepsis as this will often minimize the need for blood transfusion. Other measures include, prevention of preterm deliveries as well as other conditions that cause anaemia in the newborn, and judicious blood sampling particularly in extremely preterm and very low birth weight neonates.

Two years later we carried out another prospective study on blood transfusion therapy in neonates admitted into SCBU of UPTH (Ugwu, Eneh and Oruamabo. 2006). We determined the rate, indications and adverse effects of blood transfusion. We found out that not much has changed. The rate was still 20%. Preterm babies were more likely to be transfused and were also more likely to receive multiple blood transfusions. Severe neonatal jaundice and severe anaemia (from repeated blood sampling and acute blood loss from procedures—frenulum release, circumcision and poorly clamped umbilical cord) were still the commonest indications for blood transfusion in the neonates. As blood transfusion is not without risk, 38.8% of the babies had adverse events and the commonest was

development of malaria parasitaemia and fever usually within 72 hours after the blood transfusion. Among those that had EBT, 30% developed severe anaemia warranting another blood transfusion (Ugwu, Eneh and Oruamabo. 2006). We recommended that blood sampling should be limited to necessary investigations and provision of modern microanalyzers which utilizes minimal blood for investigations. Prevention of jaundice and infections through hygienic delivery, proper care of the cord and effective phototherapy will also go a long way in reducing the need for blood transfusion in the newborn. Traditional birth attendants and the general populace should be discouraged from performing minor surgical procedures, which in an untrained hand, will result in uncontrolled bleeding as was seen in some of these babies. As a result of these findings we carried out a study on Neonatal jaundice

### Neonatal Jaundice

Neonatal Jaundice (NNJ) is yellowish discoloration of the sclera and skin in the newborn period.



**Fig 10a. Normal newborn. Fig 10b and 10c. Jaundiced newborn**

Neonatal Jaundice is a common disorder worldwide affecting 30-70% of newborn infants. (Juretschke 2005) Because it is very common in newborn, people tend to trivialize or play down on the importance. It could be physiological or pathological. In Nigeria it is common and often associated with serious complications (Duggan & Ogala 1992). Even moderate neonatal hyperbilirubinaemia may lead

to some neurological damage. However, severe cases lead to brain damage (Kernicterus) (Ahmed, Yakubu & Hendrickse 1995) It is a leading cause of neonatal mortality among Nigerian children and a common cause of cerebral palsy and mental retardation seen in our neurology clinic. Various studies in Nigeria show that the main aetiological factors in Neonatal Jaundice include Glucose-6-Phosphatase Dehydrogenase ( G6PD) deficiency, infection, prematurity, ABO blood group incompatibility, exposure to icterogenic drugs eg cotrimoxazole, pyrimethoprine/sulphamethoxazole and chemicals eg insecticides, (Johnson, Bhutani & Brown 2002, Eneh & Oruamabo 2008).Significant exposure to naphthalene, insecticides, mentholated balms and powders and traditional herbs have been found to be important risk factors in G6PD deficient babies (Owa & Dawodu 1990). The main treatment of Neonatal Jaundice is phototherapy and Exchange Blood Transfusion (EBT). Delay and improper treatment is often associated with high morbidity and mortality. In order to prevent the onset of bilirubin encephalopathy, it is important that effective therapy is commenced early.



**Fig 11. Jaundiced baby on phototherapy.**

We carried out a prospective study involving all neonates admitted with significant unconjugated jaundice (serum unconjugated bilirubin above  $170\mu$  mol/L or 10mg/dl) into the Special Care Baby Unit (SCBU) in UPTH to determine the incidence, related factors, management and outcome of neonatal jaundice among the inborn and outborn babies. The initial serum bilirubin concentration on

admission and the peak concentration while on admission were recorded. The incidence of neonatal jaundice among all neonatal admission in the study was 21.4%. (Eneh & Oruamabo 2008).

The incidence of severe jaundice among the outborn babies was very much higher than among their inborn counterparts. The reasons for this were inability of parents to notice the appearance of jaundice early, too early discharge of babies from place of birth as occurs in some hospitals with most of the babies not seen by medical personnel before discharge or being followed up at home after discharge; and late arrival of the babies to the hospital.

The difference in severity and prognosis of neonatal jaundice between the inborn and outborn babies had been attributed to numerous precipitating factors (like poor hygiene, poor cord care, exposure to icterogenic substances) co-existing in the home environment, as well as the delay in parents seeking medical attention.

Exchange blood transfusion was performed more frequently in the outborn than in the inborn babies. This confirms the difference in severity of jaundice in the two groups of babies. All the 18.2% and 4.5% babies that received 3 and 4 EBTs respectively were outborns. One of the outborn babies had 8 EBTs.

Kernicterus occurred in 13.6% of all the babies and all were outborn babies giving a rate of 23.1% among this category of babies.



**Fig 12. Jaundiced baby with Kernicterus**

The findings in this study suggest that measures aimed at ameliorating the severity of neonatal jaundice should be

concentrated more at the community level. Health education, with the emphasis on the potential dangers of jaundice in the newborn baby, a well-defined follow-up system if an infant is to be discharged at or before 24hours, and early recognition and prompt referral to hospital in simple language should form part of the Primary Health Care Package.

### **Have we as adults played our roles to help these babies start a healthy life ?????**

Following the findings in this study and our personal observation in University of Port Harcourt Teaching Hospital (UPTH) on Neonatal jaundice which suggests that there is a delay in seeking treatment as a result of ignorance and using ineffective remedies before coming to hospital (including health workers), we included Neonatal jaundice as a topic in the health talk at the antenatal clinic, immunization and children outpatient clinics.

We conducted another study to assess the knowledge of the women attending Children Out-patient Clinic (CHOP) and Immunization clinics on the causes, treatment and complications of neonatal jaundice. (Eneh and Ugwu 2009). Of the 255 mothers who participated in the study, 30 (11.8%) have never heard of neonatal jaundice while 225(88.2%) have heard and only those who have heard were further analyzed. Most of the women 122 (54.2%) had tertiary education.

One hundred and seventy four (77.3%) respondents correctly defined neonatal jaundice as yellowish discoloration of the eye and skin, 20 (8.9%) answered that it was “baby passing too much urine”, 12 (5.3%) replied that it was when the baby was “off colour”, 6 (2.7%) respectively answered that it was when baby was pale or has bluish discoloration while the remaining 7 (3. %) had various answers such as eye discharge, convulsions etc. (this underscores the importance of effective communication when taking a history from a patient). The sources of information for 114 (50.7%) respondents was from health talk in the clinic, 70 (31.1%) from neighbours, friends and relatives, 21(9.3%) read it from books

while mass media and other sources (eg pharmacist, church ) was in 10 (4.4%) respectively.

**Table 1. Causes/Risk Factors for jaundice as given by the respondents**

<b>Causes/Risk factors</b>	<b>No of respondents (%)</b>
Eating too much groundnut in pregnancy	75 (33.3)
When mother's blood does not match baby's blood	55(24.4)
Mosquito bite	50 (22.2)
Infection in the baby	45 (20)
Don't know	30 (13.3)
Eating too much oil	18 (8)
Use of dusting powder	18 (8)
Prematurity	16 (7.1)
Storing baby's cloth in camphor	10 (4.4)

**Table 2. Treatment options given by the respondents**

<b>Mode of treatment</b>	<b>No of respondent</b>
Exposure to sunlight	114 (50.7)
Glucose drinks	60 (26.7)
Use of oral antibiotics	51 (22.7)
Use of special light source in the hospital	42 (18.7)
Do nothing	22 (9.8)
Eye drops	11 (4.9)
Take to church	11 (4.9)
Native herbs	10 (4.4)
Give blood in the hospital	6 (2.7)

Only 6 (2.7%) respondents knew that blood transfusion is a form of treatment and the source of information for these 6 was health talk, while up to 22 (9.8%) said nothing should be done and source of information for all 22 was friends/ neighbours/relatives. On the question on whether they considered NNJ a serious problem that need prompt doctor's attention, 144 (64%) answered in the

affirmative. Only 50 (22.2%) of the respondents recognized brain damage as a possible danger while the majority 175 (77.8%) did not.

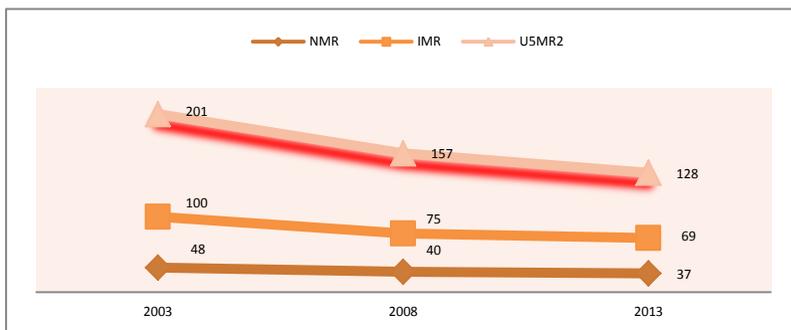
We concluded that there was still a lot of misconception on the causes, risk factors and treatment of neonatal jaundice among our women. Also only a few women were reached by mass media and the health talk in the clinics. There was therefore urgent need for massive health enlightenment campaign. I therefore went on the Television “call-in programme” on NTA, RSTV and AIT to enlighten the public on the causes, treatment and complications (eg brain damage) of neonatal jaundice. The findings of the studies in NNJ from Port Harcourt are among those being analyzed and synthesized towards preparing an information package being currently prepared by the Nigerian Society of Neonatal Medicine public enlightenment on the subject.

### **Mortality in the Newborn period**

The Millennium Development Goal 4 is reduction of under-5 mortality by two-thirds by the year 2015, however, we are at the end of 2015 and this goal has been difficult to achieve since survival of one of the groups in the under-5 (the newborn) continued to be ignored. The child survival programmes have led to substantial reductions in child mortality, however, this reduction has not affected the newborn. Newborn mortality now account for 40% of all deaths in children under five years of age globally, and about 50%-70% of deaths in infancy. Efforts to further reduce child mortality therefore, must focus on the pattern and causes of neonatal deaths for the Millennium Development Goal 4 (MDG-4) of reducing under-5 mortality by two-thirds by 2015 to be achieved although we are at the end of 2015.

MDG 5 – Improve maternal health. About 33,000 Nigerian women die each year giving birth, and for every maternal death at least seven newborns die and a further four babies are stillborn. Meeting MDG 5 for maternal survival required a 75% reduction in maternal mortality from an estimated 1,100 maternal deaths per 100,000 live births at baseline in 1990 to 275 per 100,000 live births by 2015. Although maternal mortality seems to be coming down,

according to recent estimates from the United Nations (UN), the Institute for Health Metrics and Evaluation and the NDHS, Nigeria is not yet on track to meet MDG 5.



**Fig 13. Status of U5MR, IMR and NMR in Nigeria.**  
*NMR seem to have plateaued with only marginal reduction*

In the past 15 years we have all been guided by the MDGs and our efforts have been directed to achieving the set targets. It is now 2015, we must pause and reorganize ourselves, to ensure that what was started 15 years ago has been achieved, if not achieved, find new ways to sustain the gains and deal with the challenges. Globally, we have seen a reduction in child mortality, scale up in immunization coverage –reaching every child, improvement in the mother’s health, reduction in HIV prevalence and a reduction in deaths among people due to Malaria. Nigeria’s target for U5 MR is 71 and MMR is 275 but so far we are at 128/1000 live births and 545/100,000 live births respectively.

The United Nations Member States decided to launch a process to develop a set of **Sustainable Development Goals (SDGs)**, which will build upon the Millennium Development Goals and converge with the post 2015 development agenda. There are 17 goals in the SDGs but our new challenge is goal 3 which is **“to ensure healthy lives and to promote well-being for all and at all ages”**. This supports what WHO and other partners have already begun, promoting health along the life course, aimed at every one at

every stage of life. Working together we shall ensure healthy lives for all, globally, nationally, regionally and locally.

### **How prepared are we for this SDGs in Nigeria?**

The fact that up to 70% of new born deaths can be prevented by cheap, simple interventions (FMOH IMCH 2007, SSA on MDG 2008) makes these deaths totally unnecessary and unacceptable. Knowledge of when these deaths occur and the causes of the mortality in our setting are therefore important in prioritizing interventions required to achieve a decline in neonatal mortality. We carried out a study to determine the major causes of deaths in the Special Care Baby Unit (SCBU) of University of Port Harcourt Teaching Hospital (UPTH), and to document the most vulnerable age at which these deaths occur. (Ugwu and Eneh 2008) Early neonatal deaths are deaths occurring within 7 days of life, whereas late neonatal deaths are those occurring between the 8th and 28th day of life and post neonatal deaths after 28<sup>th</sup> day of life.

The neonatal mortality was 23.8% and most (53.9%) of the deaths were in babies delivered outside the hospital. Birth asphyxia, severe infections, prematurity, and lethal congenital abnormalities were the commonest causes of death in the neonatal period. Most of the deaths occurred in the early neonatal period with over 50% of them occurring in the first 24 hours of life and in babies delivered outside the hospital.

**Table 3. Causes of death at various ages**

CAUSES	≤24hrs No.(%)	>24- ≤7days No.(%)	8-28days No.(%)	>28 days N.(%)	Total No.(%)
Birth asphyxia	306(23.4)	122(9.3)	37(2.8)	0(0)	465(35.5)
Prematurity	160(12.2)	76(5.8)	16(1.2)	2(0.2)	254(19.4)
Congenital abnormality	24(1.8)	34(2.6)	22(1.7)	3(0.2)	83(6.3)
Infections	2(0.2)	230(17.6)	174(13.3)	11(0.8)	417(31.9)
Severe anaemia	7(0.5)	12(0.9)	21(1.6)	2(0.2)	42(3.2)
Post-surgery	2(0.2)	13(1.0)	28(2.1)	5(0.4)	48(3.7)
<b>Total</b>	<b>501(38.3)</b>	<b>487(37.2)</b>	<b>298(22.7)</b>	<b>23(1.8)</b>	<b>1309(100)</b>

The major contributors were low birth weight and obstetric complications in the mother. Without specifically targeting these causes and contributors to neonatal mortality, MDG-4 has been difficult to attain.

We recommended improved obstetric management of high-risk pregnancies, skilled attendants at every delivery, adequate resuscitation of asphyxiated babies, hygienic delivery and cord care practices, early initiation of exclusive breastfeeding and kangaroo mother care (KMC) for the preterms as steps towards ensuring the survival and good health of the newborn infants. Every 2 weeks we organize hands on training on neonatal resuscitation for resident doctors, nurses and medical students to improve newborn care in our centre. Recently we collaborated with Nestle Nutrition Institute Africa to train health workers in UPTH and some other General Hospitals in Port Harcourt.



**Fig14. Neonatal resuscitation training**

### **Low birth weight**

Low birth weight (LBW), defined as a birth weight <2500 g, remains a significant public health problem in both developing and developed countries. (Stoll & Kliegman 2003, WHO/UNICEF 2004). These infants experience greater neonatal morbidity and mortality and significantly higher rates of physical, neurological and mental handicaps later in life (Uthman 2008, Bhutta et al 2002 ). Low birth weight babies basically constitute 2 groups of babies - those born before 37 completed weeks (preterms) and those born after 37 completed weeks (small for gestational age [SGA]). Babies

who are born prematurely and who are also small for their gestational age have the worst prognosis (Stoll & Kliegman 2003). The causes or mechanisms involved in LBW are different for premature infants and SGA infants, requiring different intervention for prevention. It is therefore important for this reason to understand the proportion of preterm LBW to term LBW babies in any LBW population. In developed countries, most of the LBW babies are attributable to prematurity, whereas in developing countries because of prevailing poverty and undernutrition, LBW is due to intrauterine growth retardation.



**Fig 15. Preterm LBW and normal weight baby**

We therefore carried out a retrospective analysis of babies admitted into the Special Care Baby Unit (SCBU) between January 2002 and December 2009 (7 years) to find out the proportion of LBW due to prematurity and SGA and also to find out if there is a changing trend in the proportion of LBW due to prematurity and SGA in south-south Nigeria, a developing country. (Ugwu & Eneh 2011).

The incidence of LBW was 10.1% made up of 64.2% preterm LBW and 30.8% term LBW. Identified predisposing factors in preterms were hypertensive disorders in the mothers, multiple births, antepartum haemorrhage and preterm pre-labour rupture of membranes while for SGA, factors identified were malaria in pregnancy, congenital abnormality, multiple gestation, and hypertensive disorders.

There seems to be a changing trend in the cause of LBW in our region with prematurity accounting for the greater proportion as found in developed countries. Nationally, it is estimated that 14% of Nigerian babies are born with low birth weight. (UNICEF 2008). Interventions to prevent the causes of preterm delivery will go a long way in reducing the incidence of LBW in the South - South region. We recommended training of community health extension workers (CHEW) and Village Health Workers and home visits after delivery.

### **Foreign body in a neonate**

Inhalation or ingestion of foreign body is a potentially life threatening event in the paediatric age group. Curiosity and the tendencies to use their mouths to explore their surroundings are two characteristic factors that have maintained the incidence of foreign body in paediatric age group. It is unusual to have a neonate accidentally ingesting a foreign body since self introduction of a foreign body is impossible at this age group. Foreign body ingestion is rare in neonates by virtue of their incapability of ingesting objects on their own and their exclusive fluid diet. We reported a 22day old neonate with thumb tack ingestion. (Ugwu, Eneh & da Lilly-Tariah; 2008)

BU was a 22day old female brought to SCBU with history of excessive crying of 8days, fever, fast, noisy and difficult breathing of 7days and excessive salivation of 5days. She was initially treated in a chemist shop with intramuscular injection for 2days and in a private hospital with IV antibiotics for 4days. With no improvement in the clinical condition, she was referred to UPTH. At UPTH, the mother on further questioning recollected that shortly before onset of symptoms she had left the baby in the room with a 2year old sibling for a short while and on coming back she noticed that the baby was crying excessively with blood streaks around the mouth while the elder sibling had his right fingers smeared with saliva. A diagnosis of foreign body aspiration was made. Urgent chest radiograph showed a thumb tack in the upper oesophagus with the head of the nail located posteriorly in the oesophagus and the pointed end in the larynx. The otorhinolaryngologist reviewed and

did an emergency tracheotomy to relieve the respiratory distress. Pharyngoscopy was done 2 days later and the thumb tack was removed. The baby did well and was discharged after 8 days of admission. We concluded that foreign body in the neonate although very uncommon is possible.



**Fig 16. Radiograph of tack nail in a newborn**

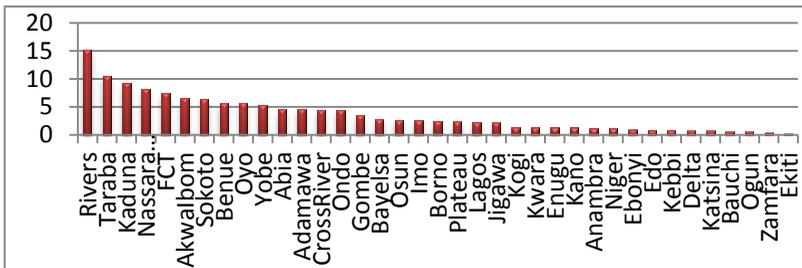
We recommended that Paediatricians should remember that oesophageal foreign body may be a cause of respiratory distress and any history pointing to that should never be neglected. Caregivers should also be vigilant and ensure that dangerous objects are not kept within the reach of the children.

### **Human Immunodeficiency Virus (HIV) infection in children**

Human immunodeficiency virus (HIV) infection is a major contributing factor to childhood morbidity and mortality. Worldwide more than 1,200 children become infected with HIV everyday with the vast majority (more than 90%) acquiring the infection from their mothers, before birth, during birth or through breastfeeding (UNAIDS, WHO. Epi Update 2009). In the developing countries, it has reduced the gains made from programmes on infant and child survival. Sub-Saharan Africa has the highest Paediatric HIV burden in the world. An estimated 2.5 million children live with HIV worldwide and 2.3 million reside in sub-Saharan Africa (UNAIDS global AIDS epidemic report 2010). The rising pandemic may make it difficult to attain MDG 6- Combating HIV/AIDS, malaria and other diseases.

## Epidemiology of HIV in Nigeria

The first case of AIDS in Nigeria was reported in 1986 in a 13-year-old female hawkler. Since then, HIV prevalence increased exponentially until it peaked at 5.8% in 2001 before progressively declining over the years down to 4.1% in 2010 (ANC Survey Report) and 3.4% in 2012 (NARHS 2012). Nigeria has the second highest burden of HIV globally with 3.4 million PLHIV as at 2012. Over 440,000 Nigerian children under the age of 15 are living with HIV (UNICEF 2015) and 3 out of every 100 deaths in children are due to HIV/AIDS directly or indirectly. (National guideline FMOH 2010 UNGASS 2012). In Nigeria only 15% of the eligible 92,000 HIV infected children have access to antiretroviral therapy (ART) which is a life-saving treatment modality (UNGASS 2013). There are wide variations in HIV prevalence across states ranging from 1% to 15.7% see figure below.



**Fig 17. HIV Prevalence by State (source: NARHS, 2012)**

## HIV Transmission

Heterosexual transmission accounts for the majority of HIV transmissions in Nigeria. The 2010 Mode of Transmission Study reported that 34.6% of new HIV infections occur among couples considered as engaging in 'low-risk' sex, while 23% occur among most 'at risk' populations (MARPs). More than a third of all new infections were linked to female sex workers, their clients and partners. Children acquire HIV through vertical transmission,

transfusion of infected blood and blood products, use of infected sharp objects and sexual transmission.

Most children (90%) less than 15 years living with HIV acquired the infection through mother-to-child transmission (MTCT). This can occur during pregnancy, labour and delivery or during breast-feeding. In the absence of interventions, the risk of such transmission is 15-45%. (Eneh 2007)

According to the 2012 UNAIDS World AIDS Day report, 25% of the global burden of MTCT of HIV and 10% of paediatric AIDS is attributable to Nigeria.

We carried out a study to determine the mode of transmission, clinical presentation, co-morbidity and the outcome among children with HIV/AIDS at University of Port Harcourt Teaching Hospital (UPTH), Port Harcourt Nigeria. ( Eneh and Ugwu 2007)

Three hundred and eighty four children were diagnosed to have HIV infection. Majority of the children, 263 (68.5 percent) were less than 18 months of age at presentation. Three hundred and forty six (90.1 percent) children acquired the infection vertically. The common symptoms at presentation were fever 73.3%, cough 64.9%, weight loss 41.1% and diarrhoea 40.8%. The common signs were generalized lymph node swelling 44.1%, pallor 39.3% and hepatomegaly 38.1%. Common co-morbidities were tuberculosis 24% and pneumonia 15.4%. These symptoms and signs are also quite common and indistinguishable from other childhood diseases. Majority, 66.9% presented in WHO stage 3 and 4 diseases.

The majority 172 (44.8%) were the couple's first baby in the 1<sup>st</sup> birth order. Of the 231 fathers who agreed to be screened, 74(32%) of them were sero-discordant in which the fathers were negative while the mothers were positive for HIV. It is an established fact that vertical transmission is the major mode of transmission of HIV in children. This means that in order to reduce HIV infection in children emphasis should be on effective and readily available prevention of mother to child transmission (PMTCT) of HIV programme. Seventy-four sero-discordant couples identified in this study has enormous implication for the continuity of marriages, the continued care and support of the children as the men may abandon

their families as has occurred among some of our patients. The birth order showed that majority were the couple's first or second child. The implication of this in our society where so many families desire many children is that these parents are likely to deliver more children thereby increasing the number of children exposed to HIV. This still highlights the need for effective and readily available PMTCT.

Most of the children in the present series had advanced disease, which indicated delayed diagnosis. This was despite numerous previous contacts with the health-care system. Therefore, a high index of suspicion is necessary for early diagnosis. Antiretroviral drugs initiated at an appropriate time, has been shown in children, to substantially reduce the risk of mortality and improve the survival and quality of life.

Following these findings of delay in coming to hospital and high lost to follow up we collaborated with Clinton Health Access Initiative (CHAI), (then known as Clinton Foundation) to carry out HIV ARV Scale up programme in Rivers State mentoring 3 hospitals viz - Pope John Paul hospital Eeken, - General hospital Omoku and -Primary Health Center Aluu. We also collaborated with CHAI to form an HIV Expert Client group and I coordinated the training of HIV Expert Clients group on home base care for the following sites; Pope John Paul hospital Eeken, General hospital Omoku, Primary Health Center Aluu, BMSH and UPTH.(2007 – 2011)

We got CHAI to sign an MoU with UPTH on Paediatric HIV care and with this CHAI started supplying all our ARV drugs, Rapid test kits and Dry blood Spot DNA PCR kit for early infant diagnosis (EID) of HIV. In collaboration with CHAI and Centre for Health Development (CHD) UPTH we trained health care workers on DBS DNA PCR and Rapid test. With this, we commenced provider initiated testing and counseling (PITC), a form of opt- out testing of HIV (PITC) for all children that came to paediatric department for whatever ailment. We also commenced EID with DBS of which I am the focal person for UPTH. We formed Paediatric HIV support group in which mothers of HIV positive

children interact and discuss issues and their challenges. This was before IHVN and thereafter FHI360 became international partners for UPTH.

The Prevention of Mother-to-Child Transmission (PMTCT) coverage still remains low, in 2012 it was 25.9% and 30.1% in 2014. HIV counseling and testing of pregnant women is central to the prevention of mother-to-child transmission, yet this remains extremely low with only 1 in 7 pregnant women in Nigeria reported to receive it in 2010. Eradication of mother-to-child transmission of paediatric HIV can only be achieved by ensuring wider PMTCT coverage. Challenges being experienced with the PMTCT program in Nigeria include: inadequate uptake of PMTCT services by pregnant women; minimal male involvement and poor community participation in PMTCT as well as inadequate number of early infant diagnosis (EID) of HIV facilities in the country. In most parts of the country, PMTCT programmes mainly exist in tertiary and few secondary health facilities, whilst a good percentage of deliveries take place in the periphery at the primary health care centres, at home with traditional birth attendants, in churches and private health facilities. Access to PMTCT at the primary health care level is still very low in many parts of the country. Therefore many pregnant women do not have the opportunity of being tested while those who are positive may not access care both for their own disease and for prevention of mother to child transmission.

Without care and treatment, more than half of the infected children die before reaching their second birthday, and most are dead before they are five years old. Early identification of HIV-infected children will enable early access to treatment and care while identification of uninfected children, will lead to provision of preventive measures to ensure they stay uninfected. Paediatric HIV and AIDS remains prevalent in sub-Saharan Africa partly due to the inability of health systems to track HIV exposed children and perform timely, definitive diagnosis to identify those who are infected and require treatment. Many children still present to public health facilities with advanced HIV infection.

### **Factors that Increase Vulnerability of Children to HIV Infection**

Children are profoundly dependent on adults for their physical and emotional needs. The AIDS epidemic disproportionately affects the young. They are exposed to the virus in the uterus of the mother, during childbirth or in the early postnatal period. Children with medical conditions that require constant blood transfusions are at increased risk of infection with HIV. Peer pressure leading to sexual exploits/adventure and other high risk sexual behaviour among adolescents exposes them to HIV infection. Poverty increases the vulnerability of young girls engaging in informal/forced sex. (Eneh, Harry & Oruamabo 2010). Sexual abuse of young girls by older men, indulgence in high-risk sexual behavior by street children, sexual exploitation of children and childhood prostitution, all contribute to paediatric HIV infection.

### **Why females are more vulnerable than males**

Women and girls are commonly discriminated against in terms of access to education, employment, health care, land and inheritance. The combination of dependence and subordination can make it very difficult for girls and women to demand safer sex (even from their husbands) or to end relationships that carry the risk of HIV infection.

### **Factors associated with the spread of HIV infection**

Trado-cultural practices such as the situation in which a man inherits the late brother's wife, or if a woman fails to have children with her husband she is allowed to try and get pregnant by other men, and polygamy in which a husband with HIV could spread it to more than one wife, or an infected wife could transmit the virus to the other wives via their husband; all facilitate the spread of HIV infection. Children are also taken to herbalists for scarification marks as a way of treating many ailments.



**Fig 18. Scarification marks in an HIV-infected child**

At birth, most infants with maternally transmitted Human Immunodeficiency virus (HIV) infection appear perfectly normal; however, there is rapid progression of the disease in children thereby resulting in severe immunodeficiency and clinical disease soon after birth. WHO recommends that a presumptive diagnosis of HIV can be made in infants <18months if the infant is confirmed to be antibody positive and is symptomatic with 2 or more of the following: severe oral thrush, severe pneumonia, severe wasting /malnutrition and severe sepsis. We reported six cases of neonates who fulfilled the WHO criteria of presumptive diagnosis of severe HIV disease based on the presence of some clinical and immunological criteria. (Ugwu and Eneh 2009).

Cases 1& 6 had severe wasting and severe sepsis, case 2 had severe wasting, oral thrush and severe sepsis, case 3 had severe pneumonia, oral thrush and severe sepsis, case 4 had severe pneumonia and severe wasting while the 5<sup>th</sup> case had severe wasting and oropharyngeal candidiasis.

At the time of this study PCR was not readily available in this region. When DNA PCR became available in 2007, cases 5 and 6 were tested and confirmed positive. Cases 3, 4 and 6 died at four and half months, 25days and 42 days respectively. This further buttresses the urgent importance of universal HIV screening for all pregnant women in pregnancy and ARV in pregnancy to reduce their viral load and thus prevent transmission to these innocent babies.

The Human Immunodeficiency Virus (HIV) infection has continued to spread at an alarming rate among children, matching

the increase in infection rate in women of childbearing age. This means that blocking transmission by this route will drastically reduce the scourge of this disease in our children.

In recognition of the magnitude of the HIV and AIDS problem in Nigeria, the Federal Government in partnership with UNICEF has adopted the WHO strategies to prevent and control the epidemic. These interventions for prevention of mother-to-child transmission (PMTCT) include HIV counselling and testing, antiretroviral (ARV) prophylaxis to the mother during pregnancy/labour and to the infants during the first few weeks of life, elective caesarean delivery and complete avoidance of breastfeeding as at then. Although the PMTCT program in UPTH was introduced in 2002, its effectiveness in preventing HIV infection could not be assessed because of lack of DNA polymerase chain reaction (PCR) for early infant diagnosis until November 2007. We therefore evaluated the effectiveness of the prevention of mother-to-child transmission (PMTCT) interventions in HIV-exposed infants presenting at the University of Port Harcourt Teaching Hospital, and compared the level of interventions and outcomes at the UPTH-based program with those in non-UPTH-based programs. (Eneh & Ugwu 2011).

A total number of 294 HIV-exposed infants were seen within the study period, out of which 72 were positive giving an overall infection rate of 24.5%. Fifty-three (73.6%) of the 72 infected children were in mother-baby pair that had no PMTCT intervention at all, whereas only 1(1.4%) of the babies who had full PMTCT intervention became infected. We therefore concluded that PMTCT interventions were highly effective in preventing HIV infection in exposed infants. (Eneh & Ugwu 2011)

Implementing programmes to prevent mother to child transmission has been difficult and slow in poor countries including Nigeria because of the quality of operating health systems. Most of the time, these programmes are limited to tertiary hospitals. In this study, a significant number of women delivered in private hospitals, at home and in traditional birth attendants that don't offer any PMTCT interventions routinely. As expected, majority of the babies

that had no interventions and who were infected were also from these facilities.

We recommended urgent decentralization of services and rapid scale-up of PMTCT interventions in these places where a lot of women may go for delivery services if MTCT of HIV will be prevented. With this finding I gave another enlightenment talk on RSTV. This was a call- in programme to enlighten the public on PMTCT programme.

### **Factors influencing adherence to paediatric antiretroviral therapy**

As there is no cure yet for HIV, the ultimate goal of antiretroviral therapy is to achieve maximal and durable suppression of virus replication. The efficiency of antiretroviral therapy (ART) depends on a near-perfect level of patient's adherence. Antiretroviral adherence in young children and adolescents pose unique and formidable challenges. Many of them are still largely dependent on a caregiver to take their medications. Young children and adolescents may refuse to take medication especially as the reason for such medication may not have been disclosed to them. Understanding the factors that influence adherence is therefore very crucial in order for the health care provider to develop measures to support and sustain patient's adherence in the clinical care of HIV infected children. We therefore carried out a study to determine the adherence level and factors influencing adherence among HIV-infected children and adolescents in University of Port Harcourt Teaching Hospital, Nigeria. (Ugwu and Eneh 2013)

In that cross-sectional survey a total of 213 caregivers and their children were interviewed. A hundred and sixty-two (76.1%) had adherence rates  $\geq 95\%$ . Only 126 (59.2%) were completely (100%) adherent. The commonest caregiver-related factors for missing doses were forgetfulness 48(55.2%), travelled 22(25.3%) and drugs finished 16(18.4%), while the child-related factors were refused drugs 10(11.5%), slept 8(9.2%), and vomited 8(9.2%). Predictors of poor adherence include mother as the primary caregiver (OR 3.32; 95%CI, 1.33-8.67), younger than 5years (OR

2.62; 95%CI, 1.30-5.31) and presence of a co-morbidity (OR 3.97; 95%CI, 1.92-8.33). Having a medication reminder strategy (OR 6.34; 95%CI, 3.04-13.31), regular clinic visits (OR 8.55; 95%CI 4.01-18.45) and status disclosure (p=0.008) predicted a better adherence. From this study, it showed that adherence is still suboptimal and that barriers to Paediatric ART adherence are largely caregiver-dependent, thus identifying and addressing these barriers in each caregiver-child pair will improve adherence and patient outcome (Ugwu & Eneh 2013). This typifies the role of adults. Are we playing our God given roles effectively???

Non-Disclosure of HIV status was a big barrier to adherence. With this finding we further studied the various aspects of disclosure of HIV status in children.

### **HIV disclosure in children**

Many children with HIV/AIDS are surviving to adolescent and some to adulthood. Consequently the disclosure of a diagnosis of HIV infection /AIDS to a child is becoming an increasingly common issue. Disclosing the diagnosis of HIV or AIDS to a child is a controversial and emotionally charged issue among both the health care communities and parents and caregivers of these children. (Wiener L, Mellins C, Marhefka S, et al 2007)

Some parents are reluctant to inform children about their HIV infection status because the majority of HIV-infected children acquired the virus from their mothers and the ensuing parental guilt about transmission distinguishes this disease from other life-threatening pediatric illnesses. (Eneh & Ugwu 2011, Havens J, Mellins, C, Ryan S 2005) .

Between 25% and 90% of school-age children with HIV infection/ AIDS have not been told they are infected. There is a controversy about the age of disclosure, with some people advocating for disclosure as early as the age of five to seven years, assuming that the older adolescents may not be able to deal with it. The American Academy of Pediatrics (AAP) strongly encourages disclosure of HIV infection status to school-age children. (AAP 1999)

The public health risks of non-disclosure, including non-adherence to medications that may result in drug resistant strains of HIV combined with risky sexual behavior that may result in transmission of the virus (including such drug-resistant strains), add a sense of urgency to the issue of disclosing the HIV diagnosis to youths. There is an urgent need to encourage parents to disclose the child's HIV status early and to other siblings who are likely to empathize with him and help him in coping. Understanding the mother's barriers and perceptions regarding disclosure are important to improve pediatric HIV disclosure. To date little attention has been focused on the issue of disclosure in children as a critical first step to successful family treatment. HIV disclosure is more than revealing HIV status. It also entails an ongoing discussion of health and health related issues.

We explored mother's opinion on disclosing the child's HIV status to him/her. (Eneh, Ugwu, Tabansi, 2011). Of the 233 mothers interviewed, 189 (84.7%) would disclose the HIV status to their children and 96 (50.3%) would disclose at age 15 – 18 years. Reasons for not disclosing before this age were belief that the child will not understand 97(51.3%) and not be able to keep his status a secret 42 (22.2%). The male gender of the child, maternal HIV seronegativity status, and primary level of education significantly affected willingness to disclose  $p=0.0004$ ,  $0.0000$  and  $0.005$  respectively. Most of these mothers 101 (45.2%) will not like to disclose to other family members including the siblings of the infected child. Mothers with HIV infected children are unwilling to disclose the diagnosis to their children for fear of stigmatization, as well as the feeling that the child may not be able to cope with the diagnosis or to keep it secret, and also fears about the child's anger towards the parent. Among those mothers that are willing to disclose the diagnosis to their children, they would do it rather late, during the late adolescent period. (Eneh, Ugwu and Tabansi 2011, Vreeman R, Nyandiko W, Ayaya S, *et al* 2008). By this age, many adolescents would have been involved in risky behaviours and may unwittingly transmit infections to others. The female child negatively affected willingness to disclose. This may be seen as

protective so that she can marry without discrimination. Parents are encouraged to disclose HIV status to both the affected child and his siblings early.

Following these findings we gave health talks on disclosure to the support group.

This work was presented at several conferences in Nigeria and outside the country, for example at the International Paediatric Association conference in Johannesburg, South Africa in 2010 and has also provided a valuable reference material on the subject.

Two years later we carried out another study on disclosure of HIV status (Eneh and Ugwu 2014)

This study explored factors associated with disclosure or non-disclosure and whether disclosure was beneficial or not. The mothers of HIV positive children who brought their children to the Infectious Disease Clinic at the University of Port Harcourt Teaching Hospital from January to December 2013 were interviewed using a structured investigator administered questionnaire. One hundred caregivers were interviewed. Of these, 26% have disclosed the HIV status to the children while 74% have not. It was however observed that the majority have disclosed to other persons especially the pastors and uncles/aunties without disclosing to the children, reasons being for spiritual and financial help. This is worrisome as the main reason for nondisclosure was fear of disclosure to other persons and too young to understand. Factors that influenced disclosure were older age of the child and higher education of child, as well as having more than one positive child, longer duration of diagnosis and if the child is refusing to take the drugs. (Eneh and Ugwu 2014)

The most difficult question asked by the children during disclosure as perceived by the caregivers was how they got HIV. This was considered most difficult because over 85% were vertical transmission hence it was difficult to let the child know that he/she got it from the mum/parent. Disclosure was found to be beneficial to both the caregiver and the children in that the children were more determined to survive, had better self esteem and were more relaxed and willing to discuss the illness, while the majority of the caregivers who have disclosed felt relieved. On the other hand, a

large number of those who have not disclosed were depressed and afraid. Disclosure positively affected disclosure to their siblings and this will prevent transmission and encourage help for the affected child from other siblings

We carried out another study to find out the children's perspective on disclosure (Eneh and Ugwu 2015). This was in order to determine the impact of HIV status disclosure and what the children feel about disclosing their HIV status to them and the process of the disclosure.

Mr. Vice chancellor Sir; this was very revealing.

We interviewed 26 HIV positive children whose HIV status has been disclosed to them. Their ages ranged from 8 – 17yrs. Sixteen (66.6%) were in secondary schools, 6(23%) were in tertiary institutions while 4(15.4%) were in primary schools.. Mode of transmission was vertical in 21(80.1%), blood transfusion 4(15.3%) and sexual 1(3.8%). The mother alone did the disclosure in 12 (46.2%), 8(30.8%) by the father, 4(15.4%) by the doctors in the presence of the caregiver and 2(7.6%) mum and dad. Eight (30.8%) of them had already heard it inadvertently before the formal disclosure. Disclosure was done at 13-14yrs in 12(46.2%) and 15-17yrs in 9 (34.6%). Disclosure was a one-off event without discussions in 16 (62%). We explored how they found out before disclosure.

**Table 4. How they found out their status as given by the respondents**

<b>How did you find out</b>	<b>N=8 (%)</b>
Overheard the doctor discussing the test result with my mum in my presence and acting funny	3 (37.5)
Overheard the nurse in the clinic telling another patient that the clinic is HIV clinic	2(25)
I found out the name of the drugs and searched for what they are used for	2(25)
Overheard my mum while quarrelling with my dad mention that we all have HIV	1(12.5)
Overheard my aunt discussing it with someone over the phone and mentioned that I have HIV	1(12.5)
While on admission I overheard the hospital maid telling another patient that I have HIV	1(12.5)
My cousins whom I stay with told me that their mum (my aunt) told them I have HIV & also told them to stop using same soap, sponge, plate and cutlery & sleeping on same bed with me	1(12.5)
My maternal aunt living with us told me that I have HIV the day I quarreled with her and that she was just pitying me because I will soon die	1(12.5)

Eighteen (69.2%) said they were not given the opportunity to ask questions while 4(50%) of 8 that were given the opportunity were not satisfied with the answers they were given. Some of the questions they would have loved to ask are:

**Table 5. The questions the children would love to ask.**

<b>Questions you'll love to ask</b>	<b>No. (%)</b>
How did I get it	20 (77)
Will the drug cure me	17( 65.4)
How long will I take the drugs	15 ( 57.7)
Will I die from it	14 ( 53.8 )
Is it possible not to pass it on to my children	10 ( 38.5)
Will it be ever eradicated	5 (19.2 )
Am I the only one in the family that has it	2 ( 7.7 )

Although 22 (84.6%) agreed that a child should be told of his HIV status, 12 (46.2%) said the appropriate age for disclosure should be 12-13yrs.

**Table 6. What they did not like about the way they were told**

I was told I will die if I don't take my drugs	20(77%)
Mum just called me and told me I have HIV just like that	8 (30.8%)
Instead of discussing with me, the doctor was discussing with mum & ignored me	4(15.4%)
Dad just called me and told me I have HIV just like that	4(15.4%)
I was told lies why I was taking the drugs for a long period	4(15.4%)
I was not told how I got it	3(11.5%)
Overhearing it when my parents were quarrelling	1(3.8%)
Dad told me I will die like my mum if I don't take my drugs	1(3.8%)
I was told publicly by my cousins	1(3.8%)
My aunt said she was pitying me because I will soon die	1(3.8%)

**Table7. Suggested better ways of telling the children**

Don't tell them they will die if they don't take their drugs	20 (77%)
Explain to the child how he got it and don't hide it	20 (77%)
Always answer their questions truthfully and calmly and not evading the questions	17 (65.4%)
Should first discuss HIV with child, prepare his mind and tell him another day	14 (53.8%)
Draw child closer, make him feel comfortable and happy before disclosing to child	14 (53.8%)
Tell them the truth about why they are taking their drugs	13(50%)
Encourage them while discussing it with them, give opportunity for questions	12 (46.2%)
Parents should buy them snacks make them relaxed before telling them	10 (38.5%)
Pray with them before telling them	9 (34.6%)
Tell the child alone , not in presence of others	9 (34.6%)

On how they have coped since disclosure, the majority 16(61.5%) said they have become more prayerful, 10(38.5%) closer to parents and 6(23.1%) made friends with HIV positive children. All agreed that disclosure has positively impacted on their taking their ARV drugs and clinic attendance.

Another aspect which is worrisome is that although 18 (69.2%) said they intend to inform their life partners but 4 out of 6 that are already in a relationship do not know the status of their partners and have not disclosed their status to their partners, the reason being that they may be abandoned.

With this, have we as adults played our roles effectively? As a result of our culture of not communicating with children, taboo in discussing sexuality issues and feeling that children should only be seen and not heard we seem to be burying our heads in the sand just like the ostrich forgetting that the times are changing fast and in fact has changed. With the social media the world is now a global village.

It is time for us to rise up to the challenge and discuss issues with the children that God has given us.

### **Consequences of our Inaction, Delayed Action or Wrong Actions as Adults**

**Please permit me, as illustrations,** to discuss a few patients of whom either the inactions, delayed or wrong actions by their parents/guardians have led to either death or some disabilities or abandonment.

- 1) I F is a 5month old male who was abandoned since birth in SCBU. He was delivered in UPTH isolation labour ward at 32 weeks gestational age to an unbooked, HIV positive teenage unmarried mother with birth weight of 1.2kg. He was admitted into SCBU and managed for prematurity, very Low Birth Weight and HIV exposed. After 24hrs of admission we noticed that he has been abandoned by his teenage mother. He is now 5months old and still in the hospital receiving care.



**Fig 19. Abandoned 5month old baby**

- 2) AS, a 10day old baby had severe bilirubin encephalopathy. Neonatal jaundice was noticed by parents and they were told by neighbours to give glucose water and put to early morning sunlight. Baby was brought to UPTH when parents noticed deepening jaundice and convulsion. The baby had developed brain damage before intervention was sought.



**Fig 20. Jaundiced baby with severe bilirubin encephalopathy**

- 3) BU, an 8 day old male had severe NNJ. Parents went to health centre and they were advised by the health workers to give glucose water, oral ampiclox drops and in addition,

expose the baby to early morning sunlight. Baby was verbally referred to UPTH when he could no longer suck and the jaundice had worsened. This baby developed kernicterus and died.



**Fig 21. Baby with brain damage from severe neonatal jaundice**

- 4) U.L was a 20hrs old term baby, birth weight 4.4Kg with severe Birth Asphyxia and hypoxic ischaemic encephalopathy (HIE) stage 3. Mum was offered elective C/S for transverse lie & big baby in a primip, at 41weeks gestation which she refused because she said she wanted to deliver like “the Hebrew women”. She came back at postdate and induction was commenced. She was latter offered emergency C/S for failed induction with meconium stained liquor and fetal distress but she declined until much later when she realized that there was no other option. An emergency C/S was done but baby came out flat APGAR score 1,3 and 5 and died after 20hrs of life.



**Fig 22. Asphyxiated baby**

- 5) U.M was a 48 hours old male with Severe Birth Asphyxia. Mum was told by a prophet that a curse was placed on her and that if she delivered vaginally she would die. So while in labour in a maternity she refused to push and she was verbally referred to UPTH. On presentation at UPTH, the husband was called into the scene to allay her fears since a vertex delivery was imminent, but he however maintained her position, insisting he didn't want to lose the wife. Despite all attempts by the managing team to convince them to the contrary and pointing out that the life of her precious baby was at stake, she remained adamant and vehemently refused to bear down, rather folding her legs tightly. She subsequently had an emergency C/S for fetal distress. He was born non-vigorous through meconium stained liquor, A/S was 3 in 1min, 4 in 5mins and 5 in 10mins, birth weight 3.2kg. He subsequently developed seizures and became unconscious. He was managed for severe birth asphyxia with HIE 3, intraventricular haemorrhage and meconium aspiration syndrome. He however died after 48hrs on admission.



**Fig 23. Aspyxiated baby**

- 6) SB was a 5day old male with Severe Birth Asphyxia delivered at term in a church by the pastor's wife. Pregnancy was "supervised" in the church by the pastor's wife. She labored for over 28 hours in the church with poor progress despite the prayers offered. The baby came out flat and was verbally referred to UPTH. This mother has had 2 previous deliveries in the same church and both died – fresh still birth and death at 24hrs of life. Following these two early neonatal deaths, mother visited a native doctor who revealed she was cursed by someone in her husband's family and performed several incantations/rites to lift the curse. Upon counseling the mother, she felt the native doctor was "successful" and that was the reason that this baby "cried" after birth. She was obviously unaware that her child was in a poor clinical state and his present condition along with the previous sibling deaths were due to problems in delivery. Mother was adequately counseled and all harmful traditional myths cleared. She and her husband promised to register for antenatal care in all subsequent pregnancies.



**Fig 24. Asphyxiated baby**

- 7) DT is now 8years old and in Primary 1 in University Demonstration Primary School. He was abandoned at 5 days of age by parents because he had imperforate anus. He has had a total of seven surgeries both in Nigeria and India (all funded by Rivers State government and NGOs) to correct the defect and the complications that developed. He is still living in the hospital.

#### **D. THE CHALLENGES**

While worthwhile challenges may spice up life, some challenges may be demotivating. Some of the challenges we have encountered include; poverty, inadequately equipped newborn care facilities, the 4 delays, ignorance, superstition, religion, insufficient government investment in health care and government policies, as well as other factors, such as Low maternal education, adverse cultural practices, women not being empower to take decisions even when her health or that of her baby is at risk. Poor involvement of men in antenatal care

- 1) **Poverty:** Despite Nigeria's oil wealth, poverty is widespread with more than 70% of the people living on less than a US\$ 1 per day (World Development Indicator 2007). Five out of every ten Nigerians still live in poverty (MDG Nigeria countdown 2015)

Most of the patients pay out of pocket for health care. Medical care is expensive and intensive care is even more expensive. A lot of the patients come to hospital without money.

## 2) **Inadequate well equipped newborn care facilities in Nigeria**

Competent newborn care is almost exclusively available in tertiary institutions and a few private hospitals. There is inadequate staff and admission space to meet the teeming demand such that for every neonate admitted at least one other is turned away. Currently few public health institutions have facilities for automated ventilation or total parenteral nutrition. Monitoring care is hampered by lack of equipments such as infant monitors, pulse oximeters, arterial blood gas analysers, epileptic power supply and unstable oxygen supplies.

Inadequate staffing/ remuneration : Doctors, nurses, maids etc are poorly remunerated and poorly motivated.

## 3) **The 4 Delays:**

**Phase 1 Delay:** Delay in problem recognition due to traditional beliefs, low perceived risk or knowledge of danger signs, ignorance, illiteracy, and lack of understanding of the urgency attached to newborn illness and obstetric emergency.

**Phase 2 Delay:** Delay in decision taking - time wasted consulting traditional healers first, time lost waiting for husband or any other male member of the family to make key family decisions, low women's status/participation in decision making, poor quality (perceived/actual) health care facility, distrust of the formal health care system, previous poor experiences with the health system.

**Phase 3 Delay:** Delay in reaching the facility – geographic distance/difficult terrain, bad roads, traffic hold up, lack of transportation money, inadequate communication, and inadequate knowledge of where to seek care and how to get to the facility.

**Phase 4 Delay:** Delay in receiving quality treatment at the health facility – lack of drugs, supplies, lack of funds, cumbersome administrative processes, lack of competent motivated personnel, lack of supervision, delays in treatment of

complicated pregnancies. To make matters worse, the majority of births occur in unorthodox facilities and babies only get to hospital after irreparable damage may have occurred.

4) **Ignorance, Superstition and Religion:**

There are still a lot of superstitious beliefs and misconceptions about some diseases. Some harmful trado-cultural practices and belief that some ailments are better treated traditionally rather than by orthodox means have encouraged the spread of HIV.

5) **Insufficient government investment in health care:** This leads to poorly equipped and outdated equipments, out of pocket pay for hospital bills, over dependency on Donor Agents e.g. Test kits for HIV, ARV drugs etc.

6) **Government Policies.**

Nigeria has never lacked for well- designed policies and strategic plans. Our problem has always been with implementation. Several polices on Newborn care and HIV exist such as Integrated Maternal Newborn Child Health (IMNCH), Essential Newborn Care (ENC), National Health Bill, PMTCT

7) **Other Factors:** Low maternal education, adverse cultural practices, women not being empowered to take decisions even when her health or that of her baby is at risk and poor involvement of men in antenatal care.

In spite of the enormous challenges and constraints some progress has been recorded in the tertiary centre and some private facilities. Many very low birth weight (VLBW) and a good number of extreme low birth weight (ELBW) infants are making it home by the commitment of the doctors and nurses in the units and use of available and improvised equipments and also use of some appropriate technology e.g Oxygen concentrators, indigenous phototherapy units and overhead warmers and simple interventions that have proven to be effective.

A good number of HIV positive children we cared for from birth are doing very well and are now in the secondary schools and some are in the Universities.

We may not begin to see changes until implementation of these laudable programmes /policies become routine and the standard operating procedures all the time.

#### **E. The Way Forward**

How can we all be a part of the journey to help babies/children to achieve their full potentials in life?

Vice chancellor Sir, I like to look at it under our various roles.

#### **Individual roles**

- a) Parents/ guardians should take decisions to seek medical care early for their children.
- b) Women should be empowered to take some important decisions especially those concerning their health and that of their children in the absence of their husbands.
- c) Parents should decide during pregnancy on appropriate breastfeeding practice for the babies and timely complementary feeds.
- d) Increased uptake of PMTCT services in order to eradicate mother-to-child transmission of HIV.
- e) Age- appropriate disclosure of HIV status.
- f) Husbands who are HIV-discordant should not abandon their spouses/children. This is the period they need their support and love most.

#### **Community roles**

- a) There should be home visit of all babies by community health extension workers (CHEWs) or village Health Workers who have been trained on identification of common illnesses in the newborn.
- b) The culture of not discussing/communicating with our children should be discouraged.
- c) Community chiefs and elders should encourage pregnant women to go to health facilities for ANC and delivery.

- d) There should be no stigmatization of PLWHIV. Empathize with them.
- e) Our traditional extended family system where children especially orphans are taken care of by their extended family should be revived.
- f) All trado-cultural practices that harm the child and increase the spread of HIV should be eradicated.
- g) Intense and persistent health education at the community level so that the society can unlearn some of the harmful cultural practices and misconceptions.

### **Health facility and health care personnel roles**

- a) Training and retraining of health professionals on neonatal resuscitation especially those that take deliveries and care for the newborns.
- b) Mothers and their babies should not be discharged before 72 hours after delivery.
- c) Healthcare personnel should learn how to communicate with children. They should also not divulge patient's diagnosis indiscriminately.
- d) Massive health campaign on the prevention of birth asphyxia, treatment of neonatal jaundice and other common childhood diseases.
- e) Improved obstetric management of high-risk pregnancies, skilled attendants at every delivery, adequate resuscitation of asphyxiated babies, hygienic delivery and cord care practices, early initiation of exclusive breastfeeding and kangaroo mother care (KMC) for the preterms.
- f) Encourage pregnant women to attend ANC and to deliver in health facilities by giving them incentives such as one balanced diet for every ANC.
- g) Encourage male involvement in ANC by attending first to pregnant women that are accompanied by their husbands for ANC. Also there should be 1-2weeks paternity leave so that they can help the mothers during this period.

## **Government and NGO roles**

- a) Government should develop appropriate health policies. There should be free health care services for basic health needs with subsidization of high technology healthcare for women and children below 5 years. There should be policy on pre-conceptual folic acid for all women in the reproductive age.
- b) The National Health Bill should be implemented. This will strengthen primary health care and fund most of the policies and strategies.
- c) Well equipped and functional newborn units should be provided at both level 2 and level 3 health facilities to cater for newborns that will require specialized care.
- d) Wider PMTCT coverage in both private and public health sectors in order to eradicate mother-to-child transmission of HIV and adequate number of early infant diagnosis (EID) of HIV facilities in the country.
- e) Less donor-dependent. Pharmaceutical companies should rise up to their challenge and produce ARVs and test kits

Most of these challenges are preventable, harmful cultural practices and misconceptions can be handled by intense and persistence health education. The society has to unlearn some of these harmful practices. We all here have a role to play in this unlearning process.

**This is the time to scale-up all evidence based child health interventions. “Do what you can, with what you have, where you are”.**

According to Albert Einstein, *“It is insanity to expect to do what we’ve always done, in the same way we’ve always done it, and expect to achieve dramatically improved results”*

Let us all adults here make a decision to take care of these precious gifts under our care with all of the passion and purpose it deserves and requires to be done well

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## CITATION OF



### **PROFESSOR AUGUSTA UNOMA ENEH**

*MBBS (Benin), FWACP (West African College of Physicians)*

The Vice Chancellor, Sir;  
Ladies and gentlemen,

It is my pleasure and honour to tell the story of this special and wonderful woman, Prof. Augusta Unoma Eneh, Professor of Paediatrics (Neonatology).

Her life started in Oji River, Enugu State on 14<sup>th</sup> August 1957 in the Christian household of Elder Eleazer Nwigwe and his amiable wife, Ezinne Alice Nwigwe (nee Aneke) both of blessed memory. Augusta was the fourth of six children, and had a modest Christian upbringing. Uncharacteristic of the time, Pa Nwigwe never discriminated against education of the girl child. Pa Nwigwe looked forward to this day, but passed on in 2009, the year before her professorship.

The educational journey of this distinguished academician started at Abadina Primary School, Ibadan and Central School Umuabi, Udi LGA, Enugu State with the First School Leaving Certificate in 1967.

She attended Anglican Girl's Secondary School, Ngwo and Federal Government Girls College, Benin City, she obtained the West African School Certificate and Higher School Certificate of Education (Advanced Level) in 1973 and 1976 respectively. She obtained the Bachelor of medicine, Bachelor of Surgery degree from the University of Benin in 1982.

In August 1982, she was offered a place for internship in the University of Benin Teaching Hospital, Benin City. The National Youth Service Corps brought her to Port Harcourt in August 1983 until July 1984. She joined the residency programme in the Department of Paediatrics, University of Port Harcourt Teaching Hospital in January 1986. In October 1997, following her successful completion of the residency program in October 1996, she was appointed to the position of Lecturer 1 in the Department of Paediatrics and Child Health of the University of Port Harcourt and Consultant Paediatrician, University of Port Harcourt Teaching Hospital. Prof. Augusta Unoma Eneh was promoted to Senior Lecturer in October, 2003 and Professor of Paediatrics in May 2010.

As a Senior Registrar and a young Consultant Paediatrician, Augusta worked under the tutelage and mentorship of the distinguished paediatrician and neonatologist, Professor Ralph Oruamabo. She had a Clinical Fellowship in Neonatology/ Neonatal Intensive Care at the Nelson R Mandela School of Medicine, Durban. South Africa. She has headed the Special Care Baby Unit (SCBU) from 1997-1999 and 2004 till date. Also, for 13 years from inception in 2000, she headed the Paediatrics HIV/ AIDS Unit in UPTH.

She teaches, and has mentored teachers in, neonatology and Infectious Diseases including HIV/AIDS. She has been External Examiner to three Nigerian Universities. She is also an Examiner of the West African Postgraduate Medical College for Postgraduate Doctors since 2009. She has also supervised many dissertations for Part II Final Fellowship examinations in paediatrics and MSc Immunology.

The main research interests of Prof Augusta Eneh are Perinatology/Neonatology and Paediatric HIV. In these areas and

also in general paediatrics, she has published over 40 original papers in national and international indexed peer-reviewed journals; made contributions in six chapters in reputable books; delivered over 25 papers in professional conferences 12 of which are in international conferences.

Similarly, she has taken part in over 30 national and international workshops and seminars mostly as a coordinator, facilitator/resource person. Many of these are in the area of Paediatric HIV/AIDS and Neonatology.

Working with other colleagues, and in collaboration with Clinton Health Access Initiative, she has mentored at least three hospitals viz (Pope John Paul Hospital, Eeken, General Hospital Omoku and Primary Health Centre Aluu) on Paediatric ARV Scale-Up programme in Rivers State ; formed and inaugurated a support group for Paediatric HIV in UPTH and formed a Home base care (Expert Clients) group, in which the HIV positive care givers are thought first aid care, basic hygiene, home management of minor ailments.

On national level, she has been appointed by the Federal Ministry of Health in various committees such as a member National Task Team on Prevention of Mother-To-Child Transmission of HIV (PMTCT) from 2002 till date, member National Task Team on Antiretroviral therapy from April 2010 to March 2013. Member of the National ART Drug Resistant Monitoring Team from April 2011 to date. For over 14 years, she has been the Focal Person and member of many national programs on Paediatric HIV/AIDS. Currently she is the national Vice Chairman. National Task Team on Antiretroviral therapy since 2013.

On the international scene, as a Consultant on HIV for AFRICARE International, she developed an HIV patient Clinical Care plan for Africare's Injongo Yethu Comprehensive HIV/AIDS Project in South Africa and also developed HIV/AIDS Clinical Care Guide for the Treatment of Common HIV-Related Opportunistic Infections in Sub Saharan Africa.

Professor Eneh has served the University of Port Harcourt as a member of many Committees; she was Head of Department of

Paediatrics and Child Health 2010-2012. She is a member of many learned societies including International Paediatric association, Nigerian Society of Paediatrics Infectious Diseases and a Foundation member of Nigerian Society of Neonatal Medicine, a former Vice President of Student Union Government of the University of Benin, She is a reviewer for many reputable learned journals. She is currently the Associate Dean of the Faculty of Clinical Sciences.

She is happily married to Architect, Michael Eneh and the union is blessed with six children, four females and two males. Two of these children are engineers, three are practicing medical doctors, while the last child is in training as a medical student. They also have two granddaughters. She is a devout Christian and a leader in The Carpenter's Church. Port Harcourt. She is also a public spirited person, every Dec 28 and 29 she carries out free medical outreach in her home town Umuabi in Udi LGA of Enugu State since 1999.

Mr. Vice Chancellor, Sir. Ladies and Gentlemen, it is my honour and privilege to present to you the Inaugural Lecturer for today, an academician per excellence, the doctor of newborns, a distinguished medical educationist, a dutiful and loving wife, a mother of doctors and engineers, a doting grandmother and a Professor of Paediatrics, Professor Augusta Unoma Eneh. She will now deliver her inaugural lecture.

Thank You

**Professor Edward A. D. Alikor**  
Orator