

UNIVERSITY OF ILORIN



THE ONE HUNDRED AND SEVENTY-EIGHTH INAUGURAL LECTURE

“HELP FOR THE HELPLESS AND HOPE FOR THE HOPELESS: THE MEDICINE OF REPRODUCTIVE POSSIBILITY”

By

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Bismillahir Rahmanir Rahim
In the name of Allah, the Beneficent, the Merciful

Courtesies

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Heads of Department,
Members of Academic and Non-Academic Staff,
My Dear Wife, Family members and Relations,
My Lords Spiritual and Temporal,
Gentlemen of the Press, Electronic and Print Media,
Esteemed Invited Guests and Friends,
Great Students of the University of Ilorin and the University of
Ilorin Teaching Hospital,
Ladies and Gentlemen,

Preamble

My Vice-Chancellor Sir, it is by the Grace of the Almighty God that I stand before this distinguished audience to present the 178th Inaugural Lecture of this great University and the 6th from the Department of Obstetrics and Gynaecology.

The field of Obstetrics and Gynaecology is a most intriguing one and a combination of two medical disciplines, each

of which is a gargantuan domain of medical knowledge on its own, but both which deals, mostly (though not entirely) with issues of women and women's health.

I was born in the historic city of Offa to the family of the late Alhaji Tiamiyu and Alhaja Saratu Olatinwo. Having been born into a family of highly successful merchants, a career in business would ordinarily have been a natural choice, but the Almighty God decreed otherwise. A passion for the sick and a desire to help the poor and the down-trodden members of the society, which were qualities I had learnt in part from my father, propelled me to choose a career in medicine.

By the operation of Divine Providence, over the past thirty years, my career as a clinician and teacher of medicine, both at undergraduate and postgraduate levels became intertwined with hospital administration. It has been an interesting journey and its profound impact on me is the acquisition of a deeper understanding of the immutable interconnectivity between effective health systems management and the successful practice of obstetrics and gynaecology and, indeed, the practice of Medicine as a whole.

It is my firm belief that a medical practitioner's first mandate is to help the sick to regain health. The sick present to us, in most cases helpless and in selected situations, the nature of their illnesses and the narrowness of the scope of available care, or at times non-availability of care, escalate their helplessness to hopelessness. One important group in this category are patients who are unable to bear children of their own and are medically labelled 'Infertile'. I have, however, seen in my years of practice that the seemingly unavailable sophisticated medical solutions are not completely impossible to establish. It only takes strategic planning, prudent management of resources, the will of an institution's management to restore the hope of many of our infertile, and indeed other patients. Hence, it is my experience of the two interconnected sub-fields of the science of reproductive medicine and the impact of effective resource management on

medical care that I share with you today in this lecture titled: **“HELP FOR THE HELPLESS AND HOPE FOR THE HOPELESS: THE MEDICINE OF REPRODUCTIVE POSSIBILITY”**.

Historical Background

Historically, available evidence points to the fact that the fields of Obstetrics and Gynaecology developed along different paths before coalescing into a single twin-specialty late in the 19th century. Documentations of the practice of Obstetrics and Gynaecology as organised medical vocations, date back to about 3000 BC and even probably earlier (Izharul 2011). Ancient documentation in the Edwin Smith papyrus and the Ebers papyrus reveal a wealth of information on gynaecology as well as other fields of medicine such as skin diseases, stomach ailments, dentistry, and diseases of the extremities (Estes, 1989). Specifically, the ancient Egyptians had extraordinary practices and even investigations or tests into various aspects of what we now define as Obstetrics and Gynaecology. They carried out tests to determine a woman's fertility, tests to ascertain pregnancy and tests to determine the sex of an unborn child.

It is interesting to note that they were also the first to describe in writing the ‘prolapse of genital organs’ (utero-vaginal prolapse as we know it today), and they used pessaries for treatment and had spermicidal creams as part of their methods of contraception. Interestingly, in modern times, Ghalioungui in Cairo, has demonstrated that the sex-determination test of the ancient Egyptians, (which was to wet barley and emmer in two different bags everyday with the urine of a pregnant woman), though not accurate for sex determination, is rather a fairly good pregnancy determination test with a high positive predictive value, though with a high negative predictive value as well (Ghalioungui, 1973).

Early documented interest in diseases of women in the western world is revealed in the huge Encyclopaedia of

Gynaecology issued in 1566 by Caspar Wolf in Zürich. By the early and mid-19th century, physicians became competent in successfully performing a limited variety of surgical operations on the ovaries and uterus. The American surgeon, James Marion Sims and other pioneers of operative gynaecology battled hard against the violent prejudice of the public against any exposure or examination of the female sexual organs. However, the use of anaesthesia and antiseptic methods eventually contributed to the overcoming of such opposition and made gynaecological surgery generally available.

Today, Obstetrics and Gynaecology is viewed as a medical and surgical specialty concerned with the care of women from *pregnancy* until after delivery and with the *diagnosis* and treatment of disorders of the female reproductive tract. It is the region of the female anatomy where we work that has caused Obstetrician/Gynaecologists to be jokingly referred to by other medical professionals as “people who work in the *location* where others play”.

For us practitioners of Obstetrics & Gynaecology, interacting with women of all ages on a day-to-day basis, seeing the peculiar and often gender-related challenges they face, and the grace with which many of them bear their burdens of illness, deprivation, despair and at times physical and psychological abuse, has turned us into passionate advocates of better health for women. It has also helped us to appreciate the symbolism of the words of Nancy Reagan (former first lady of the USA) and the strength of her conviction when she said that “*A woman is like a teabag; you cannot tell how strong she is until you put her in hot water.*”

Mr Vice Chancellor Sir, I have always been heart-broken by the deprivation of the joy of parenthood experienced by some couples either by circumstances or limitations which may occur through no fault of theirs. Even when there are contributions by the individuals leading to the deprivation, I believe that the response should not be that of a blame-game nor

out of regret, but exploring available solutions to redeem the lost opportunities.

Infertility: An Old Challenge to the Human Race

Research indicates that about 63% of couples will achieve spontaneous conception after 6 months, 75% after 9 months and 85% after twelve months of attempting to conceive. About 15% are unable to achieve conception without assistance constituting the infertile couples (Agu, Ibrahim & Muhammed 2011). The challenge of infertility is not a new phenomenon; it has been with humans for generations since time immemorial and will likely remain as long as humans remain on this planet.

In the Holy Qur’ān, the Prophet Zakariyā’ (Zechariah) cried unto the Almighty Allah ‘Oh my Lord, leave me not without offspring, though you are the Best of Inheritors’ (Al-Anbiyā’, 21:89).

Furthermore, in the same Qur’ān, believers are enjoined to pray for righteous spouses and children:

“Our Lord, grant us and our offspring who will be the comfort of our eyes and give us the Grace to lead righteous life” (Al-Furqan, 25:74).

The divine injunction to ‘be fruitful, multiply and replenish the earth’ is thus central to the sustenance of the human race. While many fulfil this injunction effortlessly, others are not so fortunate. These are the ones who, due to varying reasons, are unable to reproduce and are tagged infertile.

By definition, infertility is the inability to achieve conception within one year of **regular, ejaculatory vaginal**, sexual intercourse without contraception between a male and a female of reproductive age (Orhue, 2013). It has also been described as a disorder of the reproductive system characterised by the failure to achieve a clinical pregnancy after 12 months or more of unprotected sexual intercourse (provided there is no

other reason such as breastfeeding or postpartum amenorrhea). (WHO 1991).

Mr Vice-Chancellor Sir, the foregoing implies that before infertility can be confirmed, there must have been two individuals of opposite sex (a male and a female), of reproductive age, involved in regular unprotected (without use of contraception) sexual intercourse for at least 12 months. These clarifications are important in view of the current wave of same-sex relationships in developed countries as well as the perceived cultural belief in traditional African societies that a new bride must conceive on her wedding night or, at most, within the first month of the union.

Epidemiology of Infertility

Infertility is a global problem. Generally, the prevalence is about 10-15% but reports from sub-Saharan Africa ranges from 20-46% depending on the population while up to 20-30% has been reported in Nigeria (Imade, Sagay, Pam, Ujah, & Daru, 2000) About 180million couples are infertile globally and majority of these are from developing countries.

For fertility to occur, there are basic anatomic and physiologic requirements that must be fulfilled by both male and female partners. An impairment of any of these requirements could lead to infertility. These requirements are shown in the table below (Anate, Abdul, **Olatinwo**, 2001):

Table 1: ANATOMIC AND PHYSIOLOGIC REQUIREMENTS FOR FERTILITY AND THEIR IMPAIRMENT (Anate, Abdul.& Olatinwo. (2001)

FEMALE ORGANS	FUNCTION	IMPAIRMENT	MALE ORGANS	FUNCTION	IMPAIRMENT
Hypothalamus	Produces GnRH and thyrotropin	Inflammation, tumour	Hypothalamus	Produces GnRH for anterior pituitary	Infections, tumours
Pituitary gland	Produces FSH, LH, Prolactin and TSH	Adenoma, necrosis	Pituitary gland	Produces FSH, LH, Prolactin, TSH	Tumour, hypopituitarism
Thyroid gland	Produces T3, T4,	Hypothyroidism, thyrotoxicosis	Thyroid gland	Produces sex hormone binding globulin T3 &T4	Tumour, hyper/hypothyroidism
Adrenal gland	Produces androgens	Hyperplasia	Liver	Metabolism of hormones	Cirrhosis
Liver	Metabolism of sex hormones	Cirrhosis	Adrenal glands	Produces androgens &corticosteroids	Tumour, hyperplasia insufficiency
Ovaries	Produce ova, oestrogen, progesterone and some androgen	Congenital absence, PCOS, Infections	Testes	Spermatogenesis, produce androgens and a little oestrogen	Cryptorchidism, atrophy of seminiferous tubules.
Fallopian tubes	Site of fertilization, collect & convey oocytes & fertilized ova	Congenital absence, blockage (infection), ligation	Vas deferens	Convey sperm from testes	Congenital absence, Blockage, Ligation

Uterus	Sustain the foetus, expels bit at term	Congenital absence, Asherman's syndrome	Prostate	Produces fluid for liquefaction of seminal fluid	Infection
Cervix	Produces mucus, retains the content of uterus	Hostile mucus/sperm antibody, stenosis.	Seminal vesicles	Produces seminal fluid in which spermatozoa respire	Congenital absence, infection
Vagina	Site for sperm deposit	Congenital absence, imperforate membrane, vaginitis, gynaetresia	Penis	Deposit sperm in the vagina	Hypospadias, urethral stricture, erectile dysfunction

The Medicalisation of infertility

Generally, we view the challenge of infertility as a purely medical problem just like any other medical illness. Many times, we limit our perception of the magnitude of it to what we see of the patient within the health facility, forgetting that infertility is a hydra-headed monster with many tentacles- the medical aspects being just one of these many facets. The medicalisation of infertility has caused the disregard for the social psychological, emotional and financial dimensions of the problem.

Indeed, Mr Vice-Chancellor Sir, I wish to state at this juncture that infertility appears to be the leading health problem where the non-medical consequences are worse than the medical implications of the disease. In the Yoruba culture, it is often said that “*Omo ni ere igbeyawo*” meaning children are the reward of marriage. So the socio-cultural and emotional implications of infertility have led in many instances, to stigmatisation, marital disharmony, personal dissatisfaction and feeling of inadequacy and depression, and it has led to in-laws becoming ‘monsters in-law’ due to untold pressure. Many times, things fall apart and the once happy conjugal union ends in divorce due to childlessness. For others, the untold hardship leads to behavioural disorders including anxiety, depression, suicidal tendency, taking solace in the use of alcohol or psychoactive drugs to ‘wipe away the sorrow’ –all of which have been shown to increase the likelihood of developing additional sexual dysfunction thereby worsening the situation.

In short, Mr Vice-Chancellor, in Nigeria environment where a high premium is placed on childbirth and childbearing is perhaps the most important determinant of marital success and social acceptability, infertility is thus far from being a medical problem alone, it is also a social, emotional and cultural problem.

The Responses to Infertility

The response of individuals, couples and families to infertility varies. Some indulge in an endless watchful waiting,

hoping that somewhere along the line, the solution will just appear. Others seek help from herbalists and trado-medical practitioners and spiritualists frequently at the cost of an endless series of sacrifices which is not devoid of ascribing their misfortune of being infertile to certain individuals or spirits. A proportion also tries relationships with other partners within the context of matrimony (polygamy) or outside of wedlock.

A sizeable proportion of affected individuals seeks medical help from orthodox health facilities where they undergo a battery of tests before conventional treatment options are tried. Some may not be opportune to be evaluated due to various reasons but still indulge in self-medication or the use of prescribed drugs. A specific result of this particular trend is that in many cities today clomiphene (a drug used to induce ovulation), although a prescription medication, is commonly available over-the-counter (OTC) and is readily suggested to patients by relatives or friends who have used it before in the absence of any evaluation. When all these attempts fail, infertile couples become *helpless* and *hopelessness may* set in.

Mr Vice-Chancellor Sir, restoring hope for these hopeless individuals and ending their helplessness is not through a trial-by-error approach; rather, it involves intentional evidence-based scientific methods in restoring hope. At this juncture, I must emphasise that the administration of medications to those desiring children without appropriate clinical and investigative evaluation is a disservice to such affected individuals and to the medical profession.

When We Reach a Dead End

The summary of the response of affected individuals to the problem of infertility is that of trying their best to find a solution. However, despite their best effort, several of couples with infertility find no respite as the problem persists. Some give up and accept that perhaps they were not destined to have

children and some employ the blame-game. This point of ‘giving up’ is usually the dead end.

Beyond The Dead End: Assisted Reproductive Technology (ART) - The Medicine of Reproductive Possibility

Assisted Reproductive Technology (ART) refers to all treatments or procedures that include in-vitro handling of the human oocyte and spermatozoa or embryo for the purpose of establishing pregnancy. This includes but is not limited to In-Vitro Fertilisation (IVF) and trans-cervical embryo transfer, gamete intra-fallopian transfer, zygote intra-fallopian transfer, gamete and embryo cryo-preservation, oocyte and embryo donation and gestational surrogacy (Olugbenga, Adebimpe, Olanrewaju, Babatunde, & Oke.2014). ART offers opportunities for a biological offspring to individuals who otherwise would not have had the opportunity.

The first pregnancy following ART using the human egg was in 1976 while the first birth following ART was that of Louise Brown in 1978. The delivery of Louise Brown on July 25, 1978 marked the successful outcome of concerted scientific efforts in the field of assisted human reproduction (Stephoe. Edwards. (1978). Many couples have had and many will still have the benefit of fulfilling their desires for having their own children through this procedure. It is interesting to note that through improvements and refinements in the various techniques over the years, over five million babies have been delivered, worldwide, through ART (Adamson, Tabangin, Macalus, & DeMouzon, 2013).

Assisted Reproductive Technology in Nigeria and challenges of Survival

ART in Nigeria cannot be discussed without acknowledging the pioneer work of Prof Oladapo Ashiru and others in 1984 resulting in the delivery of the first IVF baby in Nigeria by 1989. However, establishing continuity was difficult

due to the many challenges of ART especially in the context of a publicly-funded establishment (Giwa-Osagie O, F., 2002). The public-funded initiatives were at the Lagos University Teaching Hospital and the University of Benin Teaching Hospital (Orhue et al, 2007), before the University of Ilorin Teaching Hospital joined the list in 2012. Currently, ART in Nigeria is largely private-funding-driven due to a number of challenges which the public institutions are unable to handle effectively. These challenges include:

i. Cost: The initial capital outlay required to set up an ART centre is huge. This includes the cost of specialised infrastructure, equipment as well as the exorbitant cost of providing uninterrupted power supply which is most often from stand-by generators. The high cost profile is also frequently exacerbated by economic mishaps such as unstable foreign exchange rate which increases the cost of consumables and drugs in our local currency. In our study of ART seekers in our centre, we found that a high awareness rate of the existence of ART services prior to coming to our centre is up to 87.3% and a similarly high rate of readiness to utilise ART. Cost was however the commonest reported factor militating against its use (Omokanye, **Olatinwo**, Durowade, Raji, Biliaminu, &Salaudeen.2017)

Table 2: Awareness, Utilization and Preferences of ART services in UITH, Ilorin

Parameter	%
Awareness about ART services	87.3
Sources of information	
Health personnel	48.8
Mass media	21.3
The internet	10.0
Friends and relations	7.2
Previous ART	15.6
Friends/ relatives had ART before	75.0
ART is financially accessible	63.3
Awareness of possibility of failure	56.7
Awareness ART could address male infertility	35.1
Willing to recommend ART to a friend	88.4
Reason for non-utilization of ART	
-High cost	44.3
-Non-availability of services	29.4
-Lack of access to ART services	26.3
Ways of improving ART utilization	
-Cost reduction	61.2
-Increased awareness	27.2
-Encourage spousal cooperation	7.5

- ii. **Limited Accessibility to patients:** Although the number of facilities offering ART is increasing nationwide, they are still concentrated in the state capitals and other major cities. Thus, individuals from the hinterland face considerable challenge in accessing such services.

- iii. **Affordability:** ART is an expensive service. Although the cost depends on the specific procedure, it may be beyond the reach of the average Nigerian.
- iv. **Non-inclusion of ART in the coverage of the National Health Insurance Scheme (NHIS):** Payment for ART services is usually done out-of-pocket as it is not among the health services covered by the NHIS. This constitutes another burden and increases the waiting time before ART services as couple source for funds.
- v. **Limited facilities:** Many of the ART centres in Nigeria are limited in terms of the scope of services that they offer. This is related to the limited funds available for private entrepreneurs in ART.

The UITH contribution to restoring Hope for the Hopeless through the ART

The UITH ART/IVF centre is an initiative of this Lecturer's Administration as the Chief Medical Director of the University of Ilorin Teaching Hospital, Ilorin. It was conceived out of the passion to provide 'hope for the hopeless' and 'help for the helpless' through the medicine of Assisted Reproductive Technology (ART). The centre is at the permanent site of the UITH Ilorin and is purely public-funded.

After the conception of the idea, we set out to train various cadres of staff- doctors, nurses and laboratory staff -both within and outside the country. Thereafter, we embarked on an infrastructural development of the centre till we brought it to its current state where it can compete favourably with other public and private IVF centres in Nigeria and beyond.



Fig 1: The New ART/IVF Building



Fig 2: The Inaugural Lecturer (centre) in the operating theatre about to take delivery of an IVF baby



Fig 3: The Inaugural lecturer (3rd from left) and other surgeons after delivery of a set of IVF babies

Facilities available at the Centre

The Centre has facilities for many of the various ART procedures and ancillary laboratory tests. These include conventional In-Vitro Fertilisation (IVF), Intra-Uterine Insemination (IUI), Intra-Cytoplasmic Sperm Injection (ICSI), laparoscopy and laparoscopic ovarian drilling. All the laboratory tests required for ART services are offered at the centre. There are also counselling services pre- and post-procedures for the couples. The delivery of clients who achieved pregnancies is conducted at the clinical area of the UITH, Ilorin.

Ovarian stimulation is done by either the long agonist (from day 21 of the preceding cycle) or antagonist protocol (starting from day 3 of the IVF cycle) with serial ultrasound scan from day 5 of the cycle to evaluate ovarian response vis-à-vis follicular growth and number as well as endometrial thickness.

Following fertilisation, embryo transfer is through the cervical os with the aid of catheters and the number of

embryo transferred is individualised depending on the age and previous failed ART cycles. Generally two to three embryos are transferred compared to the single embryo transfer protocol practised in Europe due to our inability to perform advanced screening of the embryo. Luteal phase support is provided with progestogen while serum pregnancy test is conducted two weeks after embryo transfer to evaluate for chemical pregnancy. Thereafter, a trans-vaginal ultrasound scan is performed by the sixth week for location of the gestational sac and foetal viability.

My Contributions

Mr Vice-Chancellor Sir, permit me to detail below my specific contributions to knowledge in the management of infertility, both through the use of and outside of the instrumentation of Assisted Reproductive Technology.

In-Vitro Fertilisation

Our experience at the UITH ART/IVF Centre has been a rewarding one by all standards. Our data show that 20.4% of our clients who had consultations for infertility eventually had ART procedures. The female partners were aged 27-46 years, 58.7% of whom had primary infertility while the duration of infertility ranged from 1 to 20 years. The treatments offered were conventional IVF to 81.7% of them and Intra-Cyto-plasmic Sperm Injection to 18.3% with a cycle cancellation rate of 12.5%. The clinical pregnancy rate per cycle was 39.4% with live birth rate of 30.8%. The clinical pregnancy rate in our centre was higher than 30% reported from Benin City and 27% from Nnewi while the birth rate of 30.8% was higher than 16.2% and 18.3% reported from Benin City and Nnewi respectively (Orhue, Aziken, Osemwenkha, Ibadin, & Odoma, 2012); Ikechebelu, Eleje, Ibadin, & Joe-Ikechebelu.2016). A total of 33 babies have been born so far through IVF procedures in UITH This shows that, encouraging results from ART could be produced in low resource settings such as ours if there is a

corresponding willingness for success. In addition, this also brings to the fore the urgent need to reduce the out-of-pocket cost for ART which may be through deliberate and specific government policies and funding by corporate and non-governmental organisations (NGOs).

Complications were not common as 1.7% experienced Ovarian Hyper-Stimulation Syndrome (OHSS) which ranged generally from mild to moderate and were managed conservatively without any need for cycle cancellation. OHSS refers to an excessive ovarian response with ≥ 15 follicles, 11-44mm in diameter by day 10 to 12 of the controlled ovarian stimulation (COS).

The OHSS rate among our patients was comparable to 15% reported from Benin City (Orhue et al, 2012).

Intra-Uterine Insemination

Sometimes, as we seek to restore hope to our patients battling with the despondency of infertility, one of the procedures of ART that we offer is Intra-Uterine insemination (IUI). IUI is an acceptable and commonly used method globally, especially because it is cheaper and less invasive than other techniques. Another benefit is that of mimicking the natural process with fertilisation occurring in the uterus. It is preferred for couples with patent fallopian tubes, mild or moderate male factor, cervical mucus hostility, mild endometriosis or unexplained infertility. IUI involves deposition of the spermatozoa into the uterine cavity through a catheter via the cervical os. It is timed to coincide with the expected time for ovulation in an either natural or stimulated cycle. Success rate ranges from 2.7% to 66% with challenges in evaluation and comparison of studies due to variability in biosocial characteristics of the couples, timing and frequency of insemination, ovarian stimulation protocols and number of motile spermatozoa inseminated.

In our series on IUI, all the women had Hystero-Salpingo-Graphy (HSG) or laparoscopy to rule out tubal disease, hormone profile was done and ovarian stimulation was with clomiphene citrate or Human Menopausal Gonadotrophins (HMG). Of the couples evaluated, 81% were nulliparous, 57.1% had secondary infertility, 7.1% had unexplained infertility, 33.3% had female infertility and 9.1% male factor infertility. This effort at restoring hope for the hopeless and help for the helpless produced an overall pregnancy rate of 42.9% which is comparable to that achieved elsewhere in the world (Omokanye ,**Olatinwo**, Biliaminu, Durowade, &Abdul,2013). A total of eight (8) babies have been born so far through IUI procedures in UITH.

Ovarian Reserve and its Evaluation in Assisted Reproductive Technology

Mr Vice-Chancellor Sir, permit me at this juncture to emphasise that the ovary plays a central role for a woman to achieve fertility. The ovaries (usually two in each female) are central to human reproduction. The ovary is an egg bank from which the female makes a monthly withdrawal during her reproductive life. This starts in the intra-uterine period such that at 18-22 weeks, the range is 3,000 to 2.5million (American Society for Reproductive Medicine, 2012) However, the level of the initial ovarian reserve is dependent on genetic factors. An elevated androgen level in prenatal period has been reported to be detrimental to the early establishment of the ovarian reserve (American College of Obstetrics & Gynaecology, 2014). However, with advancing maternal age, the number of follicles that can be successfully recruited for a possible pregnancy declines, constituting a major factor in the inverse relationship between age and female fertility.

Ovarian reserve is a term used to describe the capacity of the ovary to produce oocytes that are capable of fertilisation resulting in a healthy and successful pregnancy. It defines a

woman's reproductive potential as a function of the number and quality of her remaining oocytes (Schmidt, Christensen, & Holstein. 2005).

The goal of ovarian reserve assessment is to identify individuals at risk of diminished ovarian reserve (DOR). Although ovarian reserve testing cannot predict the end of the reproductive year of the woman, results outside the expected range for age can prompt the couple to pursue more aggressive options to achieve pregnancy.

In ART, the benefits of ovarian reserve assessment include determination of the suitability for the procedure, the choice of drugs to use for ovarian stimulation, the choice of the stimulation protocol and the need or otherwise for donor oocyte.

Indications for ovarian reserve assessment and risk factors for diminished ovarian reserve include according to Schmidt et al, (2005) and American College of Obstetrics & Gynaecology, (2014):

- i. Advanced age (>35 years);
- ii. Family history of early menopause;
- iii. Genetics (45 X Mosaicism);
- iv. FMR1 (Fragile X) permutation carrier;
- v. Conditions related to ovarian injury (endometriosis, pelvic infections);
- vi. Previous ovarian surgery including oophorectomy;
- vii. Pelvic irradiation or gonadotoxic drugs to treat cancer; and
- viii. Smoking

The various methods of assessing ovarian reserve include biochemical, ultrasonographic, histo-pathological or a combination of these methods.

Interventions before ART in UITH

Our infertile patients required some interventions before the institution of ART. In our series, 24.4% require abdominal myomectomy, 5.4% laparoscopic ovarian drilling, 5.4% had laparoscopic tubal disconnection, 5.4% had intrauterine Adhesiolysis, while 2.7% had ovarian cystectomy. (Omokanye, **Olatinwo**, Durowade, Biliaminu, Salaudeen, & Panti.2015)

Infertility from Polycystic Ovary Syndrome (PCOS)

Polycystic Ovary Syndrome (PCOS) is the commonest endocrine disorder in reproductive age women. It has a significant negative impact on ovulation and conception . PCOS is characterised by oligomenorrhea, obesity, hirsutism and infertility while its long-term health sequelae includes diabetes mellitus, endometrial cancer and cardiovascular diseases (Ugwu, Iyoke, Onah, & Mba.2013).

The prevalence varies with race and ethnicity but generally it is 5-10%; there are reports of 12.2% (Ogueh, Zini, Williams, & Ighere. 2014) and 18.1% (Ugwu et al, 2013) from Nigeria and 32% from Tanzania (Pembe & Abeid 2009). The highest prevalence was 52% reported among south Asian immigrants in Britain with almost half of them having menstrual irregularity, 50% had hirsutism, while 30-75% were obese. PCOS has been implicated in 75% of anovulatory infertility in child bearing women (Seli & Duleha. 2002) Its onset may be perimenarchial and may be unmasked following weight gain in lean women with genetic predisposition. The exact aetiology is not fully established, but the familial recurrence supports a genetic component and has been shown to be X-linked with reports of occurrence in 50% of first degree relatives. The Rotterdam criteria remain the international diagnosis criteria of PCOS and they include oligo- or amenorrhea, hyperandrogenism or polycystic ovaries (volume >10cm³, 12 follicles measuring 2-9mm in diameter) on trans-vaginal scan (TVS).

The management of PCOS is patient-based on the symptoms and the desire of the woman with the aims to restore regular menstruation, ensure ovulation, restore fertility and prevent endometrial dysphasia. Attention is paid to relieving other symptoms like acne and hirsutism.

In Ilorin, the prevalence of PCOS was 12.2% with modal age 25-29 years and mean of 31.5 years, 64.5% were nulliparous and 44.8% were obese ($>30\text{kg/m}^2$) (Omokanye, Ibiwoye-Jaiyeola, **Olatinwo**, Abdul, Durowade, & Biliaminu. 2015). The management employed and the pregnancy rates were weight reduction (5%; 25%), clomiphene citrate (21%; 75%), clomiphene citrate plus metformin (9%; 5%), gonadotrophins (16%; 50%), and laparoscopic ovarian drilling (49%; 55.6%) (Omokanye et al, 2015). A total of 75 babies have been born so far in UITH ART/IVF centre after medical management of PCOS.

Laparoscopic ovarian drilling is one of the treatment options for PCOS. Our experience with 23 women who had clomiphene resistant PCOS shows a mean age of 31.7 ± 5.2 years, 87% were nulliparous, 47.8% had primary infertility and the mean duration of infertility was 4.5 ± 2.9 years. The number of drills per ovary employed was 4 to 15 (mean right = 8.6 ± 3.24 , left = 9.3 ± 3.4); resumption of menstruation after treatment was 100%, pregnancy rate 30.4% and live birth rate of 14.3% (Omokanye, **Olatinwo**, Durowade, Panti, Salaudeen, & Adewara. 2014). A total of 74 babies have been born so far in UITH ART/IVF centre after laparoscopic ovarian drilling for treating PCOS.

Male Factor Infertility

All efforts aimed at restoring hope to a couple considered hopeless in their search for a remedy for infertility must involve both partners. It is not the sole responsibility of the woman as it is viewed in many cultures. In this environment, sexual potency in a man is equated with normal male fertility and as such men

who may be sexually potent (yet possibly infertile) usually refuse to come to the infertility clinic, leaving the woman to seek for help alone. Causes of infertility in men include erectile dysfunction, retrograde ejaculation, varicocele, testicular trauma and infections (Akande, Olatinwo, & Nwabuisi, 2004). There is abundant scientific evidence that shows a significant male partner contribution to infertility. Indeed, the male partner contribution to infertility has assumed greater importance in the last couple of decades (Otubu 1998). In our evaluation of male partners of infertile couples about 43.9 % of them had abnormal sperm parameters, ranging from oligospermia, astenozoospermia, and frank azoospermia while 50.3% had pus cells in the seminal fluid. Advancing age of the male partner was also found to be significantly associated with the occurrence of infertility (Omokanye, **Olatinwo**, Durowade, Abdul, & Biliaminu. 2016). Public health education needs to be strengthened to encourage husbands of women seeking to conceive to support them by presenting themselves readily for evaluation.

We also, observed that majority of men who had pus cells in their sperm were in couples with secondary infertility. This strengthens the established fact that infection plays a significant role in the causation of secondary infertility.

Hormonal Assessment of the Infertile Male in Ilorin.

We observed that oligospermic/azoospermic male partners of infertile couples have hormonal abnormalities. We evaluated the serum levels of Follicle Stimulating Hormone (FSH), Luteinizing Hormone (LH), testosterone and prolactin in male partners of infertile couples. In all, 58.8% had abnormal hormonal results. This suggests that hormonal profile should be an important integral work-up for male infertility due to severe oligospermia or azoospermia (**Olatinwo**, Akande, Kuranga, Jimoh, Ijaiya., & Dolapo.2002).

Our other evaluation of male spouses of infertile women revealed that almost half of them were overweight or obese (Jimoh, Oghagbon, Adebisi, Akande, **Olatinwo**, Oparinde, Akinyinka, & Akinwumi. 2005). Obesity may contribute to plasma lipid peroxidation and depletion of erythrocyte cytoprotective enzymes. Considering that lipoperoxidation has been shown to cause sperm abnormalities (Aitken, Harkiss, Buckingham, 1993), it is suggested that the benefits of maintaining a healthy weight in men transcends cardiovascular benefit; it is also important for reproductive health.

Anovulatory infertility

Anovulatory infertility was thought to be less common in Sub-Saharan Africa compared to the western world thus, it is not commonly reported. In our case series, we reported cases of anovulatory infertility due to galactorrohea from hyperprolactinaemia, PCOS with hyperprolactinaemia and hypothyroidism. However, none of the patients had pituitary adenoma and menstruation was restored in all the patients with ovulating drugs. (Anate, **Olatinwo**. 2001).

Managing A Public –Funded IVF Centre

Our experience at the UITH-IVF centre represents the great height that public health facility participation in ART can attain in Nigeria. Important issues to consider in managing and sustaining this include:

- i. **Commitment and the will to succeed:** There is no doubt that the level of commitment displayed at our facility is unlike the typical nonchalant disposition to public-funded facilities. I believe that with commitment, public-funded establishments-health, education, utility providers, infrastructure and any other can succeed if there are individuals who are committed to the success.
- ii. **Adequate funding:** Funding has been and remains a major obstacle to the success of public-funded facilities. Meagre funds

are customarily allocated and only a fraction is eventually released; many times the release is late when success is no longer possible. Government should not deny public institutions the necessary funds, if we expect them to succeed.

iii. **Accountability:** If we improve on our accountability, there will be a significant reduction in under-performance and non-performance of public institutions. Public-funded establishments can make profit while rendering quality service that is comparable to that of the private sector. If public employees are aware that they will be held accountable for the materials and financial resources entrusted to their care, their attitude to service delivery will improve.

iv. **Enabling environment:** Service delivery will improve at less cost if there is an enabling environment. This includes regular power supply, security and some degree of stability in the polity. Cost of generating power is a major burden to most establishments and an important contributor to the cost of production.

Moral and Ethical Issues on Assisted Reproductive Technology

Assisted Reproductive Technology (ART), including in-vitro fertilisation has given hope to millions of couples suffering from infertility, but has raised countless ethical, legal, and social issues (Paul and Zhao, 2012). ART has resulted in a tectonic shift in the way clinicians and the general population perceive infertility and ethics. ART is directly challenging society to evaluate the way in which human life, social justice, equality and claims to genetic offspring are viewed. Furthermore, these issues will force legal systems to modify existing laws to accommodate the unique challenges created by ART. Society has a responsibility to ensure that the advances achieved through ART are implemented in a socially responsible manner (Paul et al 2012).

Emerging Issues in Assisted Reproduction Technology:

(a) Financial Support for IVF Treatment: One of the most obvious ethical challenges surrounding ART is the inequitable distribution of access to care. The preferential availability of IVF technologies to couples with financial strength is as a result of significant economic barriers to the technology in many countries (Paul et al 2012). The cost of performing ART per live birth varies among countries. The average cost per IVF cycle in the United States is USD 9,266 (Omurtag, Styer, Session, and Toth, 2009), whereas it ranges between 2800 and 6000 USD in Nigeria in public and private sectors respectively (Omokanye, **Olatinwo**, Durowade, Biliaminu, Salaudeen, & Panti. 2015) a country where the national monthly minimum wage is less than 100 USD. In some European countries a specific number of cycles of IVF treatment are reimbursed by their governments (Paul et al 2012).

(b) Non-coital Parenthood: Human response to new developments regarding birth, death, marriage and divorce is largely shaped by religious beliefs (Sallam & Sallam 2016). When assisted reproduction was introduced into medical practice in the last quarter of the twentieth century, it was fiercely attacked by some religious groups and highly welcomed by others (Sallam & Sallam 2016). Today, Judaism, Hinduism and Buddhism, have accepted nearly all forms of assisted reproduction, although most Orthodox Jews refuse third party involvement (Sallam & Sallam 2016).

On the contrary, assisted reproduction is totally unacceptable to Roman Catholicism, while Protestants, Anglicans, Coptic Christians and Sunni Muslims accept most of its forms, which do not involve gamete or embryo donation (Fadare & Adeniyi, 2015; Sallam & Sallam 2016; Inhorn 2006) Interestingly, in contrast to

Sunnis, Shi'a Muslims accepts gamete donation and has made provisions to institutionalize it (Inhorn 2006).The debate will certainly continue as long as new developments arise in the ever-evolving field of assisted reproduction.

- (c) **Multiple Versus Single Embryo Transfer:** The transfer of multiple embryos in a single cycle increases the rates of multiple births (Paul et al 2012).Because of the increased social costs and health risks associated with multiple births, legislation or guidelines from professional societies have been introduced in many countries to reduce the number of embryos that may be transferred per IVF cycle in an effort to limit the incidence of multiple gestations (Paul et al 2012). Additionally, the health risks, both to the mother and the infant, increase dramatically with increasing number of infants (Ledger, Anumba, Marlow, Thomas &Wilson, 2006).
- (d) **Fate of Left-over Embryos:** The fate of surplus embryos in resource- limited settings like ours is another topical issue; for how long do the fertility clinics store them and at what conditions, bearing in mind that power supply is still a problem in Nigeria? Do they get donated to someone else or are they destroyed? The earlier stated views of the Catholic Church regarding the embryo and personhood present a strong argument against their destruction (Fadare & Adeniyi 2015; Sallam & Sallam 2016). The acceptability of third-party gamete is controversial, especially in the African setting .In a study conducted in Ibadan, Nigeria, found only 35.2% and 24.7% of women open to accepting donated eggs and sperm, respectively (Bello, Akinajo, & Olayemi.2014). Furthermore, the issue about parenthood (in the case of a sperm donor/egg donor) comes to bear; what right does the donor have regarding the child? From the point of

view of the child, is there a right to know about the means of his/her conception and biological parenthood? More studies will need to be done to answer these hypothetical questions.

- (e) **Surrogacy and Gestational Carriers:** In African cultures, every woman wants to be a "mother," by delivering her baby through the natural means (per vaginam). This feeling has led to non-acceptance of caesarean section by some women as it makes them "less than a mother (Fadare & Adeniyi 2015). From this perspective, the practice of surrogacy may not be widely acceptable to many in developing countries such as Nigeria (Omokanye, **Olatinwo**, Durowade, Raji, Biliaminu, & Salaudeen. 2017). At the present time, concerns about issues of individual rights, commodification, exploitation, citizenship of the offspring of international gestational carriers, and even fair trade, are largely unresolved internationally (Paul et al 2012; Humbyrd, 2009).
- (f) **Pre-implantation Genetic Testing and Fertility Preservation:** Pre-implantation Genetic Screening (PGS) and Diagnosis (PGD) offer the unique ability to characterize the genetic composition of embryos prior to embryo transfer. With the recent successes of these technologies, there is the likelihood of broader implementation of this technology in the future. However, sex selection PGD purely for the preference of the parents could conceivably, if practised on a large scale, skew the gender proportions in certain nations where one gender is culturally preferred (Paul et al 2012).
- (g) **The need for Regulation Guidelines:** The need for strict regulation of the practice of ART has led to the setting up of bodies such as the Human Fertilization and Embryology Authority (HFEA), which oversees and makes policy regarding ART in the UK. Presently, there

is no law governing the practice of ART in Nigeria, despite the relatively long duration of practice, Lack of regulation puts the couple at risk of several exploitative practices and unethical practise by some practitioners (Bingel 2013).

- (h) **ART in People Living with HIV:** The relatively high prevalence of HIV infection among people in the reproductive age group in Africa has brought a new dimension to this discussion on ethics of ART. The availability of better procedures such as sperm washing during ICSI and the prevention of mother-to-child transmission using HAART have made the risk of transmission of infection insignificant (Nicopoullos, Almeida, Vourliotis, Gilling-Smith 2010, du Plessis, Shaw, Gichuhi, Gelmon, Estambale, Lester et al., 2014).

Challenges of Setting up and Running a Successful IVF Programme

A major challenge is personnel recruitment and training. There are no training centres for the various IVF personnel in Nigeria. Also, there are few properly trained fertility specialists, embryologists and specialist IVF nurses. Therefore, obstetricians and gynaecologists resort to short-term training courses in India and elsewhere to acquire expertise in this field. The story is similar for clinical embryologists and IVF nurses and the expertise acquired may not be enough to ensure complete mastery of the field before setting up an IVF centre (Adageba, Maya, Annan, Damalie 2015).

Drugs and IVF consumables are imported and delay in supplies sometimes affects planning of cycles. The pharmaceutical companies in the country do not produce IVF drugs due to the cost, limited demand and fear of sustenance of cold chain due to erratic power supply in Nigeria.

Stable power supply is a necessary requirement for maintaining optimal conditions in in-vitro fertilisation laboratory for embryo culture and development (Adegeba et al, 2015). This is however extremely difficult to achieve in Nigeria due to incessant power failure with resultant reversion to a comprehensive power back-up system.

Undoubtedly, the need for servicing and maintenance of IVF equipment on routine basis is of utmost importance towards achieving sustainable results. This poses a great challenge as the engineers are foreign experts and the few indigenous engineers have not acquired the required expertise on the job.

Other Contributions to Knowledge

Mr Vice-Chancellor Sir, the field of Obstetrics and Gynaecology is a very interesting one. As I mentioned earlier our primary concern is with womanhood and its associated issues. Many times women present themselves in a *helpless* state to the hospital. This helplessness can best be situated within Allah's injunction on filial love and compassion in the Glorious Qur'an: "We have enjoined on man kindness to his parents, in pains did, the mother bear him and in pain, did she give birth to him. The carrying of the child (to the point of weaning) is 30 months, And then, when he reaches the age of strength and he attains the age of forty years, he prays: "O my Lord, grant me (wisdom) that I may be grateful for thy favour which Thou has bestowed on me and upon my both parents and that I may work righteously such as Thou would approve and be gracious to me and my offspring. Truly I have turned to Thee and truly do I bow to Thee (In Islam). (Qur'an, 46:15)

There is no doubt that a major milestone in the life of any woman is the attainment of pregnancy and the safe conclusion of the pregnancy process in the fruitful delivery of live infant/infants. However, many women still die in the process of achieving this all-important life goal, and this remains a source of public health concern worldwide. Indeed, 99% of all maternal

deaths globally occur in developing countries, Nigeria inclusive. As Obstetricians, our primary concern is that women, who are brought to us in a helpless state, do not die.

By definition, **maternal death** is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. Globally, maternal mortality rate stands at 216 deaths per 100,000 live births and trends observed since 1990 show a gradual reduction from 385/100,000 live births to the current figure (UNICEF, 2015). Nigeria's position on the global log is not an enviable one because, with 814 maternal deaths /100,000 live births, we are 4th from the bottom of the log ahead of Sierra Leone, Chad and Central Africa Republic. Nigeria contributes only 2.4 percent to the global population, but it contributes 14 percent of global maternal mortalities.

The reasons why maternal deaths occur have been simplified in to a triad called the "The three delays". (Thaddeus & Maine, 1994) These are:

- i. Delay in the house (while taking a decision whether or not to seek care);
- ii. Delay in accessing the health facility; and
- iii. Delay in receiving care at the health facility

The effectiveness with which these three elements are tackled by a society or government determines how much such society/government will be able to reduce maternal mortality. (Saidu, Olatinwo & Kuranga, 2006)

Why do expectant or recently delivered mothers die? The main identified causes of maternal deaths are

- i. Ante-partum and post-partum Haemorrhage;
- ii. Infections;
- iii. Pre-Eclampsia;
- iv. Unsafe abortion;

- v. Obstructed labour;
- vi. Malaria; and
- vii. Anaemia

My research team has studied the impact of several of these causes of maternal deaths.

Anaemia in Pregnancy

In our study among pregnant women from a sub-urban population in North Central Nigeria, 67% of them were anaemic at the point of Ante-Natal Clinic (ANC) booking. (Adewara, Omokanye, **Olatinwo**, & Salaudeen. 2014) This was greater than the WHO estimate 52% for developing countries and 23% for developed countries at that time. We identified illiteracy, high parity and late booking of pregnancy as associated factors. To mitigate the prevalence of anaemia in pregnancy and unnecessary maternal deaths, we advocate early ANC booking, increased women education and empowerment and increased availability of family planning services.

Ante Natal Care for pregnant women

My advocacy for early ANC booking is also strengthened by findings from my study on the pregnancy performance in booked and unbooked pregnant women at the UITH, Ilorin. We found out that peri-natal mortality was 6 times higher among the unbooked pregnant women than among booked pregnant women (**Olatinwo**, Anate & Offiong, 2000). Likewise, Nigeria's high fertility rate of 5.6 births per woman also explains some of the increased risk for mortality among mothers. In our study of obstetric outcomes of grand-multipara women in Ilorin we found a relatively high rate of pregnancy complications of 39.9% among them with anaemia topping the list. Our findings also revealed a correlation between poverty and illiteracy and grand-multiparity with its complications. About 62.7% of grand-multipara women seen in our centre were of low socio-economic status. This implies that they were poorly equipped to cater either

for the high number of children they had or worse still the pregnancy complications they were at high risk of developing (Omokanye, **Olatinwo**, Salaudeen, Adewara, Saidu, Balogun & Abdul 2012),. This underscores the fact that efforts geared at reducing maternal mortality in our environment must necessarily include socio-economic empowerment of women.

Contraception and Family Planning

Reasons for my advocacy for increased availability of contraceptive/family planning services among women is thus hinged, in part, on the value of that strategy to reduce maternal mortality not only by reducing risk of grand-multiparity (Omokanye, **Olatinwo**, Salaudeen, Adewara, Saidu, Balogun & Abdul 2012), but by also reducing the occurrence of unwanted pregnancies which are a major contributor to unsafe abortions. My study of the acceptance of the Intra-Uterine Contraceptive Device (IUCD) in UITH revealed that it was the most commonly chosen method of contraception in the Family planning clinic. (**Olatinwo**, Anate, Balogun, & Alao. 2001). After 6 months of use, 77.1% of acceptors continued to use the method, signifying a high rate of acceptance. Effective communication with our women about contraception will surely help them make better and healthier choices concerning their health and well-being.

Infectious Diseases in Women

Among infections that contribute to maternal mortality, malaria is pre-eminent and its impact is felt significantly in environments with stable malaria transmission. However, simple and easily affordable remedies such as the insecticide-treated nets/Long-lasting Insecticide Treated Nets (LLIN) use have been shown to reduce the prevalence of malaria among pregnant women and hence significantly reduce incidence of maternal anaemia and premature delivery. We found that though a large proportion of pregnant women had heard about this basic tool of preventing malaria in pregnancy, only 33.7% of them had ever

used them. Interestingly, this is not the case in several other African countries where LLIN utilisation rates are as high as 81.6% (Omokanye, Saidu, **Olatinwo**, Jimoh, Salaudeen, Balogun, Ijaiya, Panti, 2012). Increased awareness about the benefits and availability of LLIN will go a long way to reduce malaria related mortality of our mothers.

Mr Vice- Chancellor Sir, over the past three decades, infections such as HIV/AIDS and hepatitis B has been added to the infection burden of mothers and determinants of maternal well-being during and around the pregnancy period. Our economic models which explored the impact of HIV/AIDS on well-being in Sub-Saharan Africa and in South Asia have described the impact of the disease in the two regions reporting a greater negative impact on well-being in Africa. (Ijaiya, Raheem & Olatinwo, 2007). Specifically, the HIV and its treatment have been associated with abortion, infertility and sub-fertility. The best way to mitigate the scourge of HIV infection on pregnancy is through early detection of cases through pre-pregnancy screening or through early screening in pregnancy. The ante- natal clinic offers such an opportunity. Our study of the knowledge and attitude of pregnant women to early detection of HIV reveals that a lot still needs to be done in terms of awareness about the infection. (**Olatinwo, AbdulRaheem, Oyeyemi, Jimoh, Akande, & Saidu.** 2011). We found a very low level of awareness about the possibility of peripartum transmission of HIV and only about 51.4% agreed to voluntary testing after counselling.

However, distinguished ladies and gentlemen, it must be emphasised that effective control of HIV transmission among women will require the use of multiple intervention points in the life of women. Apart from the value of the ANC as an opportunity for screening for HIV, we also found the need to use social entry points such as premarital counselling to offer HIV screening to women and equally importantly, their partners.

Our study, among tertiary institution students in Ilorin, revealed that though a very high proportion (85%) agreed that pre-marital HIV screening was necessary before marriage, and a similarly high proportion (89.4%) believed that it had advantages, less than a quarter of them were willing to undergo the test before marriage. (Musa, Akande & **Olatinwo**, 2003) .Reported reasons for this unwillingness were the fear of a positive result and attendant stigmatisation and social discrimination that follows disclosure of a positive status to an individual's social contacts.. A lot of public health education still needs to be done to make young women comfortable with HIV screening and to hopefully stem the tide of the infection among them.

In the same vein, our study of hepatitis B infection in pregnant women also revealed disconcerting statistics. The hepatitis B infection rate was 8.2% among the cohort of pregnant women studied in Ilorin.. Considering the fact that high endemicity is defined as >7% infection rate in an adult population, our finding suggested that hepatitis B infection was endemic among pregnant women in Nigeria (Olokoba, Salawu, **Olatinwo** 2011). It is therefore important to strengthen routine screening for these infections at ANC so as to prevent potentially devastating vertical transmission to the unborn child.

Pre-eclampsia

Pre-eclampsia is a complex multi-systemic syndrome characterised by the presence of hypertension with proteinuria and/or oedema. Our study of serum calcium, magnesium and uric acid in mild and severe pre-eclampsia and normal pregnancy revealed that serum calcium and magnesium were reduced in pre-eclampsia patients compared to non-pre-eclampsia pregnant women, while serum uric acid was significantly elevated in pre-eclampsia women (Omokanye, Abdul, Kareem, **Olatinwo**, Durowade, & Biliaminu.2015)). This attest to the interplay of these electrolytes in the aetiopathogenesis of the condition and

raises further question as to the likely benefit of monitoring these electrolytes in pregnancy.

Ante Partum Haemorrhage

Other causes of mortality among women that we have studied include the prevalence and pattern of placenta praevia among pregnant women who delivered at our centre. Placenta praevia is a major cause of obstetric bleeding which is associated with high perinatal mortality. Our study revealed that in a five-year period, placenta praevia occurred in about 1.6% of total deliveries. (Omokanye, **Olatinwo**, Salaudeen & Ajiboye. 2017) Once again, the twin factors, of grand-multiparity and low socio-economic status take the fore among the predisposing factors. Other predisposing condition identified was advanced maternal age which occurred more frequently in unbooked pregnant women (women who have not registered for antenatal care) are more likely to be older and grand-multipara. For mothers not to die, early recognition of this and other forms of ante-partum haemorrhage, appropriate referral of the patients, widespread availability of ultrasound machines as well as prompt availability of blood transfusion services are strategies that must be prioritised.

Obstructed Labour

Obstructed labour is frequently considered as an indication of poor obstetric practice. One of the principal causes of obstructed labour is mal-presentation of the foetus of which breech presentation is the most common pattern. Our study of breech presentation reported a 3.3% incidence of singleton breech presentation and it accounted for 22.4% of the hospital's overall perinatal mortality rate and was associated with a high caesarean section rate. This is one condition where the best prognosis is offered by caesarean section compared to other traditional methods of delivery. (**Olatinwo** 2000)

Giving Hope for the Hopeless- Strides in Hospital Management

Mr Vice-Chancellor Sir, the life and practise of a medical doctor is a daily adventure because today's healthcare practice environment is a constantly evolving and dynamic one. The success of any Obstetrician/Gynaecologist- and indeed any medical doctor or specialist irrespective of the goodness of his intentions and however skilled he may be is largely dependant on the physical work environment, physical resources at his disposal and even the compensation plan and other motivations for his efforts. Hence, the provision of necessary resources for him/her to work with and appropriate deployment of scarce resources in an institutional (and multi-disciplinary) setting such as a Teaching Hospital for the patient to receive quality healthcare are functions of an effective management system. The functions of Management as enumerated by Batty (1979) are: **(i). Forecasting (ii). Planning (iii). Organizing (iv). Motivating (v). Controlling (vi). Communication (vii). Leadership and (viii). Decision making.** If these elements are not optimised, medical practice can hardly take place optimally.

In the process of serving through leadership in the health sector, I have come to realise the tremendous impact the effective management of the health system can have on health delivery. For the purpose of clarity, let me state that, according to the WHO definition, a health system consists of all organisations, people and actions whose *primary intent* is to promote, restore or maintain health. This includes efforts to influence determinants of health as well as more direct health-improving activities. A health system is, therefore, more than the pyramid of public owned facilities that deliver personal health services. It includes, for example, patient's care-givers, private providers, behaviour change programmes, vector-control or disease control campaigns; health insurance organisations; occupational health and safety legislation, etc. It also includes inter-sectoral action by health staff, for example promoting female education by encouraging

the ministry of education, a well-known determinant of better health. (WHO, 2007).

Building Blocks of the Health System

The WHO “Framework for Action” on Health Systems identifies six building blocks of health systems. These include:

- Service Delivery;
- The generation and strategic use of information, evidence and research to strengthen management, leadership and governance;
- Medical Products and Technologies;
- Health workforce Management;
- Health Financing; and
- Leadership and Governance which entails ensuring that strategic policy frameworks exist and are combined with effective oversight, coalition-building, regulation, attention to health system design issues and promotion of accountability in order to protect public interest in health. (WHO, 2007)

In the course of my stewardship at the UITH, I have worked assiduously to ensure the development of all these components in the Hospital for re-invigoration of the health system and ensuring the survival of the hospital as a potent force for effective health care delivery in the country. The call to leadership first beckoned to me when I served as Acting Head, Department of Obstetrics and Gynaecology of this University between August 2002 – July 2004. Thereafter, and continuously over the past 12 years as I served first as Chairman, Medical Advisory Committee (between 2006 and 2010) and later as Chief Medical Director of the University of Ilorin Teaching Hospital from 2010 till date .I have used the instrumentality of health administration and institutional governance, to contribute my modest quota to scholarship and service to humanity.

Expanding Frontiers of Clinical Healthcare Delivery

One of my concerns on assumption of office as CMD pertained to certain disease conditions which had monumental impact on peoples' lives, but for which treatment was not available in this country, but only outside the country at exorbitant rate, which many of the patients cannot afford. By every definition of the word, their cases were classified as *hopeless* because they were desperately ill and help was unavailable to them. My administration decided to give *hope* to such seeming *helpless* individuals by expanding the frontiers of clinical service delivery, academic and research pursuits in UITH to cover these ailments and domesticate their hitherto unavailable treatment modalities.

Chronic Kidney Disease

Chronic kidney disease is the presence of markers of kidney damage for ≥ 3 months, as defined by structural or functional abnormalities of the kidney with or without decreased Glomerular Filtration Rate (GFR) that can lead to decreased GFR, manifested by either pathological abnormalities or other markers of kidney damage, including abnormalities in the composition of blood or urine, or abnormalities in imaging tests (National Kidney Foundation, 2002) or the presence of GFR < 60 mL/min/1.73 m² for ≥ 3 months, with or without other signs of kidney damage as described above. (Levey, Eckardt, & Tsukamoto. 2005).

Kidney transplant is the definitive and most cost-effective treatment of CKD, a disease which has assumed epidemic proportions worldwide riding on the back of the wide prevalence of systemic hypertension and diabetes mellitus. CKD is associated with very high morbidity and mortality often with devastating economic consequences for the patient and family members. End-stage kidney disease (ESKD) is the most advanced form of CKD in which the patient must be on dialysis or receive a kidney transplant within a short time or die. In Nigeria, CKD

constitutes up to 10% of total hospital admissions and 90% of the patients die within 3 months. Hitherto, haemodialysis was the best treatment offered in UITH, but this is expensive on the long run costing about N70, 000 per week for life. Hence, my Administration re-activated UITH plans to commence kidney transplant and became the fourth public health institution in Nigeria to successfully carry out a renal transplant in Nigeria in September 2012. By this courageous feat, hope was restored to a previously *'helpless'* 29-year-old young man and, by so doing UITH broadened its scope of clinical service delivery and academic excellence.



UITH NEWS BULLETIN

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... Total Quality Health Care that Guarantees Patients' Satisfaction

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UITH PERFORMS FIRST AND SUCCESSFUL KIDNEY TRANSPLANT

Another great land mark was made at the University of Ilorin Teaching Hospital on September 10, 2012 when the first and successful kidney transplant was carried out. With this development, UITH not only becomes the only Teaching Hospital in the North Central Nigeria to achieve this feat, but also brings her standard of renal care closer to the top-notch status obtained in other parts of the world.

Other Teaching Hospitals that have performed similar feat include:



Mr. Solomon Momah during his interview with pressmen

Prof. Chijioko who identified the main causes of chronic kidney disease as hypertension and diabetes also warned that indiscriminate use of local herbs could damage the kidney among other factors. He advised that government should look inward and thinks of ways of providing prompt and effective care for the people with kidney problem as about eighty per cent (80%) of

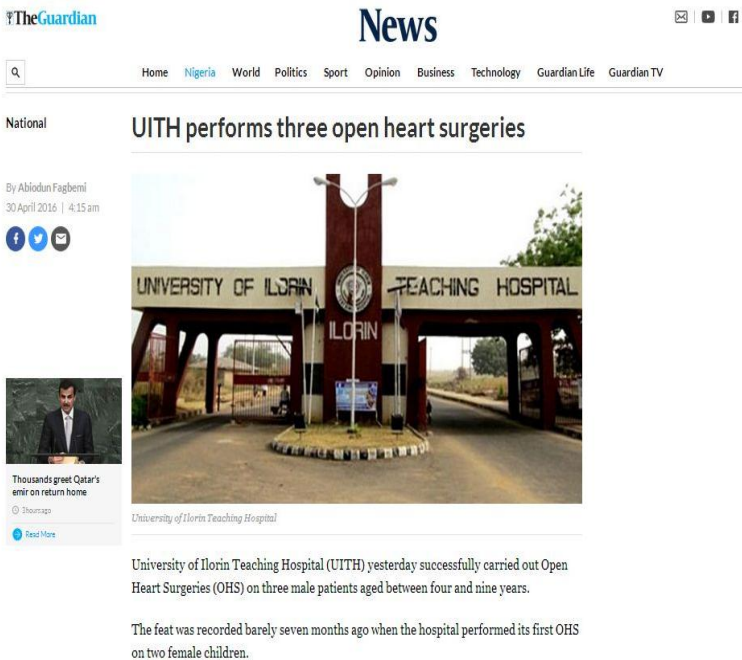
Fig 4 : Reportage of UITH's first kidney transplant

Cardiovascular Diseases

Cardiovascular diseases are the highest causes of death worldwide (WHO, 2008). They affect all age-groups and in children, and are principally congenital (that is caused by abnormalities the patient is born with) or due to early childhood infections. Some forms of heart disease are not treatable with medicines, but must be surgically corrected. Such operations are however, not routinely done in the country because of manpower

deficit and lack of equipment. The cost of treatment abroad at its cheapest is about N4.5million. For most children affected by such diseases, it is a *hopeless* situation. We have held three (3) open-heart surgery sessions so far and seven (7) children have had corrective surgeries which radically transformed their **lives and restored their health**. To enjoy this service, the patients paid between ten and twenty percent (10-20%) of what it would bear the cost in India or the developed world. Our aim is to make open-heart surgery a routine exercise in UITH and thereby restore hope to numerous citizens of our country who currently have no hope.

Fig 5: Press reportage of the first Open Heart Surgery in UITH



The image is a screenshot of a news article from The Guardian. The article is titled "UITH performs three open heart surgeries" and is categorized under "National". The author is Abiodun Fagbemi, and the article was published on 30 April 2016 at 4:15 am. The article features a large photograph of the entrance to the University of Ilorin Teaching Hospital, which has a sign that reads "UNIVERSITY OF ILORIN TEACHING HOSPITAL" and "ILORIN". Below the photograph, the text states: "University of Ilorin Teaching Hospital (UITH) yesterday successfully carried out Open Heart Surgeries (OHS) on three male patients aged between four and nine years. The feat was recorded barely seven months ago when the hospital performed its first OHS on two female children."



Fig 6 : The Inaugural lecturer , with other members of UITH Top Management Committee and members of the UITH Care Team with the 3 children (standing in front) beneficiaries of the Open Heart Surgery programme after they were discharged from the hospital

Minimal Access / Laparoscopic Surgery

Laparoscopic surgery, also referred to as keyhole surgery , is a modern surgical technique in which operations in the abdomen are performed through small incisions (usually 0.5-1.5cm) as opposed to the larger incisions needed in laparotomy. It is about a century old, but the advent of technology has created an explosion in the utilisation of laparoscopic techniques over the past two decades. The advantages of laparoscopy are myriad, and include reduced surgical trauma, reduced haemorrhage, less pain and fewer post-operative complications. We have established laparoscopy now as a routine surgical practice in UITH, especially in the fields of Obstetrics and Gynaecology and Paediatric Surgery. Two hundred and sixty-four (264) successful

laparoscopic surgeries have been carried out in the UITH ART/IVF Centre.

In order to expand the practice of these procedures in our locality, training and re-orientation of postgraduate medical doctors and surgeons in laparoscopic techniques become imperative. However, sophisticated, conventional virtual reality trainer-systems are prohibitively expensive and unaffordable in a low-resource setting like ours. In our centre, we therefore designed our own endo-trainer using locally available and affordable materials and this has helped to sustain the culture of this sophisticated surgical method in our hospital. The cost of production our own innovation is about \$750(N270, 000), while virtual reality system costs \$8,500(N3 million) each. The results of training on both have been shown to be similar and comparable. The endo-trainer as shown underneath has been presented with very warm reception at local and international conferences. (Omokanye, Saidu, **Olatinwo**, Salaudeen, &, Balogun. 2013)



Fig 7: The Endo-Trainer Laboratory

Professional service at the National level

Mr Vice-Chancellor Sir, on the National platform, I have been privileged to serve on national committees that have made great impact in the management of gynaecological and non-gynaecological conditions. In 2006, I was appointed as a Consultant to the Federal Ministry of Health on the development of the National Guidelines on Syndromic Management of Sexually Transmitted Infections (STIs) and other Reproductive Tract Infections (RTIs). The document we produced continues to be a principal national statement on those subjects till date.

I was also Consultant to the National Programme on Immunization (NPI)/World Health Organization (WHO) on Cerebrospinal meningitis campaign in Gombe state in 2001.

I have also been involved in polio eradication efforts as a Consultant to Kogi, Kano, Zamfara and Ekiti states on Kick Polio out of Nigeria project of the NPI in collaboration with WHO, UNICEF, USAID and Rotary International. In addition, I have served as a member of the Technical Expert Group on Pain Management Guidelines for Nigeria. I also made a scholarly contribution to the discussions preceding the introduction of the National Health Insurance Scheme (NHIS) (Olatinwo, 2000).

I have served variously as external examiner to various Universities Medical Schools and at the West African Postgraduate College of Surgery. I have both solely and jointly supervised more than thirteen MSc/ Fellowship dissertations. All the resident doctors are now consultants Obstetrician/ Gynaecologists in various parts of the country and a few of them are already aspiring to the Professorial cadre.

Conclusion

Assisted Reproductive Technology (ART) has emerged as one of the most widely adopted and successful medical technologies in the last century. While giving hope to millions of couples suffering from infertility, unfortunately, ART services are inaccessible to large sections of the population, mainly, due to

very high cost of treatment. While preventive strategies will play an important role in the overall prevention of infertility, more innovative, effective, safe, and low-cost ART strategies are the current need in these low-resource settings.

ART also has presented new ethical, legal, and social questions that society must address. Many countries have taken steps to regulate certain aspects of ART. However, such are still in very rudimentary stages in Nigeria. There is an urgent need for stakeholders (fertility specialists, clients, professional organizations, religious bodies, bio-ethicists, and government), in developing countries, to formulate cultural and context-specific guidelines in order to address some of these ethical dilemmas.

Recommendations

Infertility should be made a public health issue because it is socially constricted, existing at the crossroads of medical and social realms. Its management should therefore be given special consideration under the National Health Insurance Scheme (NHIS) in order to ease the burden of the affected individuals

1. The Nigerian government should make efforts to improve infrastructures particularly in the area of stable power supply.
2. Public financing of IVF must be considered as infertility is a disability of the reproductive system, just as diseases of other body systems. This can be done by integrating the investigation and treatment of infertility into the existing reproductive health services.
3. Government can support the private sector firms, which are currently the main providers of IVF services, by way of reducing or even waiving taxes on equipment for IVF, drugs, and consumables. This could significantly reduce the cost of treatment, thereby making IVF services more affordable.

4. There is also the need for strong regulatory bodies to regulate every aspect of ART practice to make the service efficient and safe.
5. To address the personnel and training needs of the region, IVF centres should seek accreditation and begin training programmes for the various categories of personnel needed in this highly specialised field of medicine.
6. Nigerian universities offering postgraduate medical programmes should consider starting subspecialty training in infertility. Collaboration with local IVF centres and foreign universities should be sought so that trainees can spend valuable time in such centres to improve their knowledge and skills in ART services.
7. Speedy passage of the Bill on the establishment of the "Nigerian Assisted Reproduction Authority" presented by the Association of Fertility and Reproductive Health (AFRH-Nigeria) to the National Assembly will be a good starting point for regulation of ART practice in Nigeria.
8. Awareness drive through increased educational and socio-economic empowerment of women are necessary for the reduction of maternal morbidity and mortality.
9. Increasing facilities and personnel for maternal care in pregnancy and delivery with a call on Government to recognize midwifery services as a distinct carrier structure in the Civil service for those who are practising midwives only, as against what obtains presently.
10. Government should provide free maternal and child health care services for pregnant women and their children under the age of 5 years as a way of curbing avoidable deaths in women and children
11. The government should expedite action on achieving universal health coverage for the citizens as a vehicle for achieving qualitative healthcare for all.
12. We must consistently hold in our hearts the love and passion for the sick and the less privileged, and regard the

well-being and happiness of the populace as our highest professional, academic, and administrative accomplishment. We must help the helpless and give hope to the hopeless.

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I appreciate my parents for giving me the best upbringing, and education they could.

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I dedicate this lecture to the memory of my late brother, Akeem Oluwafunminiyi Olatinwo, May God continue to bless his soul. Amin.

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