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# Establishing a Successful IVF Program: Experience from a Tertiary Public Health Institution in North- Central, Nigeria

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## Abstract

**Background:** The World Health Organization (WHO) has considered infertility a major problem in reproductive health. For millions of couples around the world, the ability to have children is a personal tragedy. For a significant proportion of them, the private agony is compounded by a social stigma, which can have serious and far-reaching consequences. It is not surprising therefore that the demand for Assisted Reproduction Technologies (ART) is growing in all regions most especially in the infertility belt of Africa with highest prevalence rates of infertility. The provision of such a highly esoteric technology in a resource limited countries like ours with poorly developed health services, falling gross domestic product (GDP) coupled with unresolved ethical issues and limited awareness of ART is a great challenge. Hence the need for provision of effective, safe and affordable ART services through collaboration between government and non-governmental agencies via Public Private partnership for the benefit of the teeming population of infertile couples in Nigeria.

**Keywords:** Establishing, Assisted Conception, Infertility, Collaboration.

## Introduction

Infertility is a serious problem with devastating social, cultural, emotional, economic, and medical consequences for affected couples [1]. Worldwide it is generally estimated as occurring in 8-12% of all couples [2]. However, the incidence varies from one region of the world to the other, being highest in the 'infertility belt' of Africa that includes Nigeria [3]. In contrast to an average prevalence rate of 10-15% in the developed countries, the prevalence of infertility has been notably highly variable in sub-Saharan Africa ranging from 20-46% [3]. This has been attributed to high rate of sexually transmitted diseases, complications of unsafe abortions, and puerperal pelvic infections [3]. About 30% of infertility is due to female problems, 30% to male problems, and 30% to combined male/female problems, while in 10%, there is no recognizable cause [3]. Globally, there is evidence of worsening semen parameters in all regions [1].

Infecundity from irreparable tubal disease and suboptimal semen parameters can potentially be effectively treated by Assisted Reproduction Technology being the highest breakthrough in the medical treatment of infertility in the world over[4]. Therefore, the need for setting up an efficient fertility services cannot be overemphasized.

Establishing such a highly specialized service in our country with huge infrastructural deficit coupled with low levels of income are a daunting task; [1] particularly the unresolved ethical issues arising from the new innovation could limit its utilization in Nigeria where it is most needed. We seek to highlight some of these challenges in running a successful in vitro fertilization (IVF) program in Nigeria and indeed other low-resource settings and proffers probable solutions as applied to our unit.

### **Challenges**

Establishing an IVF centre is capital intensive worldwide, this is even more in the third world countries due to infrastructural deficit and poor access to capital. Access to bank loans is highly restrictive as the interest rate of 25-30% is far beyond the reach of most investors. Also, currency exchange rate of almost 500 naira to a dollar could be frustrating as most equipment, drugs, consumables and sometimes personnel are foreign-sourced. Therefore, the few subsisting centers have to rely on foreign collaborations for survival. This informed our partnership with Apollo Hospital; Chennai: India, Chennai Fertility Centre; India, World laparoscopic Hospital; Delhi: India, Morula IVF Jakarta; Indonesia and many others abroad in the area of procurement of IVF equipment, training and re-training of our personnel aiming at domestication of IVF program.

Worthy of note is the lack / poor awareness of infertility/ IVF program in Nigeria [5] and other African countries as beliefs in supernatural causes of infertility such as witchcraft or

the belief that the infertile woman has taken a vow in her earlier life not to bear children are widespread [6]. In the situation of protracted infertility, western religious beliefs may give way to traditional beliefs [6]. This will however limit access to modern fertility treatment as it stands as a source of inertia on the part of the couple

A major challenge to setting up and running a sustainable IVF program in Nigeria is lack of regulation to guide practices of assisted conception as most regulatory bodies are at infancy as against age-longed regulatory bodies in the developed countries [7]. Lack of regulation puts the couple at risk of several exploitative practices [8]. A bill for the establishment of the "Nigerian Assisted Reproduction Authority" [9] has been presented by the Association for Fertility and Reproductive (AFRH) to the Nigerian parliament for consideration and if passed will be a good starting point for regulation of ART practice in Nigeria [4].

Another major issue 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, obstetrician and gynaecologist resorts to short training courses in India and elsewhere to acquire expertise in this field. The story is similar for clinical embryologist and IVF nurses and the expertise acquired may not be enough to ensure complete mastery of the field before setting up an IVF centre[1]. Hence the justification for national and international collaboration as obtained in our centre.

Supply of drugs and consumables is another concern. Drugs and IVF consumables are imported and delay in supplies sometimes affect 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 as a result of erratic power supply in Nigeria.

Stable power supply is a necessary requirement to maintaining optimal conditions in vitro fertilization laboratory for embryo culture and development [1]. This is, however, extremely difficult to achieve in Nigeria due to incessant power failure with resultant reversion to a comprehensive power back-up system thereby increasing overhead cost with attendant effect on cost of care. In our centre, we made provision for 4 standby generators, 10 kVA UPS system, solar panels and fifteen (15) 200 amp wet cell batteries for power storage for at least 6 to 8 hours in case of power outage from the national grid. This serves as an intermediary between power source from the national grid and generators without compromising laboratory conditions. As stated earlier, acquisition and maintenance of these power back-up systems is another cost-burden borne toward establishing a functional IVF program that will eventually impact on the cost of service delivery.

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 constraints as the engineers are usually foreign-sourced and the few indigenous engineers have not achieved proficiency on the job. Thus, we are left with no other option than to seek for foreign-based expertise at higher cost. Nigerian government must therefore rise to the challenge of providing effective, safe, and affordable IVF services to its population. Innovative ways should be found to make ART services affordable in low-resource settings [10, 11, 12].

Nigerian governments should make efforts in improving infrastructures particularly in the area of stable power supply. 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. Government can support the private sector firms who 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. There is also the need for strong regulatory bodies to regulate every aspect of ART practice to make the service efficient and safe.

To address the personnel and training needs, IVF centers should seek accreditation and begin training programs for the various categories of personnel needed in this highly specialized field of medicine. Nigerian universities offering postgraduate programs in obstetrics and gynecology should consider starting subspecialty training in infertility. Collaboration with local IVF centers and foreign universities should be sought so that trainees can spend valuable time in such centers to improve their knowledge and skills in ART services.

### **Conclusion**

There is a great demand for ART services in Nigeria where tubal blockage resulting from STIs is still very high. Tubal factor infertility can be effectively treated by in vitro fertilization with embryo transfer. Unfortunately, ART services are inaccessible to large sections of the population mainly due to high treatment costs. 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 need of the hour in these low-resource settings.

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