

Towards making assisted reproductive technology affordable and accessible: Public-private interaction

T Matsaseng, FCOG (SA), Cert Reprod Med (SA);

T F Kruger, MB ChB, MPharmMed (Clin Pharmacol), MMed (O&G), FCOG (SA), FRCOG (Lond), MD, DSc

Reproductive Medicine Unit, Department of Obstetrics and Gynaecology, Faculty of Health Sciences, Stellenbosch University, Tygerberg, Cape Town, South Africa

Corresponding author: T F Kruger (tfk@sun.ac.za)

Objective. To report the importance of public-private interaction (PPI) as a strategy to make assisted reproductive technology (ART) affordable.

Methods. *Design:* Commentary. *Setting:* Reproductive Medicine Unit, Tygerberg Academic Hospital.

Discussion. PPI together with simplified methods of IVF such as scaling down on personnel, mild ovarian stimulation protocols, oocyte retrieval without anaesthesia and simple embryo culture systems are strategies to make ART affordable and accessible.

Conclusion. This article illustrates that PPI can be one of the strategies to make ART treatment a reality in settings with very limited resources.

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In our endeavour to provide an equal and improved quality of health for all, reproductive health issues, particularly the management of infertility, remain a huge challenge. Assisted reproductive technology (ART) services are not widely available^[1] and are often not affordable.^[2] A recent report from South Africa and sub-Saharan Africa on national monitoring of ART^[3] has shown great disparity and an unmet need for these services, with approximately

6% of optimal ART coverage and only 2 of the 12 participating units offering subsidised public sector-based ART services. Huyser *et al.*^[4] reported cost estimations for ART procedures in South Africa in the public and private sectors of R7 000 - R14 000 and R25 000 - R50 000, respectively. The breakdown of cost drivers per *in vitro* fertilisation (IVF) cycle in a large private clinic was 8% clinic fees, 28% medication, 29% clinician's fees and consultations, and 35% laboratory fees.^[4]

Cost-saving strategies

Efforts to make ART services available and accessible in developing countries by simplifying treatment methods are continuing.^[1] We propose a further model aiming to achieve this goal. It is a public-private interaction (PPI) model with a signed service level of agreement between Tygerberg Academic Hospital (public) and the Aevitas Clinic at Vincent Pallotti Hospital (private). The strategies are as follows.

Personnel

The Tygerberg Academic Hospital unit functions only with the fertility specialist in charge of the programme and the embryologist, who are full-time employees of Stellenbosch University and the state hospital, respectively. The cycle bookings and arrangements are handled by the doctor in charge of the treatment, thereby eliminating clinic and administrative fees.

Ovulation induction

The mild ovarian stimulation protocol, using lower doses than with conventional ovarian stimulation for IVF, further reduces the total cost of treatment. The protocol includes the use of clomiphene citrate 100 mg from cycle day (CD) 3 to CD 7 together with 75 IU human menopausal gonadotrophin on alternate days (CDs 4, 6 and 8). We do not use more than 8 ampoules in total. Urinary luteinising hormone (LH) testing is done on alternate days from day 9 until the day of human chorionic gonadotrophin (HCG) administration. An ultrasound scan is done on any day between CDs 1 and 3 for an antral follicle count. Follicular growth assessment begins from day 8, and there is no routine blood testing. When follicles reach ≥ 18 mm, HCG is administered and followed up by oocyte retrieval 34 - 36 hours later.

Laboratory – oocyte retrieval

Oocyte retrieval is done under conscious sedation without the need for anaesthesia, an anaesthetist or a theatre set-up, which is also a huge saving. Patients receive pethidine 100 mg intramuscularly and a cervical block with 1% lignocaine without adrenaline 15 - 30 minutes before the procedure. They recover in a room near the laboratory for approximately 30 minutes after the procedure and are discharged once they are fully awake in the company of a family member. Embryo transfer is routinely done on day 2 or 3 after the day of oocyte retrieval. Luteal support is

provided with progesterone (400 mg per vagina) until a pregnancy test is done 10 days after embryo transfer. Consumables such as needles and embryo transfer catheters are provided by the private clinic. The patients only pay for the media used for fertilisation of gametes and culture of embryos, and this is included in the R5 000 - R7 000 fee for treatment.

New developments

Other strategies aiming to make treatment more accessible, such as a simplified culture system of embryos as reported by Van Blerkom *et al.*^[5] on the first births with tWE lab, a crucial step in making IVF universally available, and the INVO cell embryo culture system, a device placed in the vagina as an incubator for culturing embryos without the need for the lab incubator,^[6] still need to be evaluated in large randomised controlled clinical trials.

The need for ART in developing countries currently demands our attention if we are not to leave many childless couples helpless and marginalised, and if we are to deliver a comprehensive service. This service should include the fight against new HIV infections (safe treatment modalities for serodiscordant couples^[7]). The model we propose will assist in cutting costs at the level of medication, clinicians' fees and laboratory fees, which are the biggest cost drivers in IVF treatment.^[4] The provision of safe and affordable options for the treatment of infertility should form part of our core business and serve as a key instrument to ensure adequate women's health. Initiatives such as PPIs and simplified ART methods must be encouraged and strengthened in order to make ART accessible and affordable in settings with limited resources, including South Africa and sub-Saharan Africa.

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