

Fertility: progress and uncertainty

Reproductive medicine can boast many fertility milestones in its relatively short history: the arrival of in-vitro fertilisation (IVF) in the late 1970s; the development of intracytoplasmic sperm injection in the early 1990s; the first ovarian transplant a decade ago; and next week we will hear details of the first livebirth after uterine transplantation. No-one can be in doubt that reproductive medicine is characterised by remarkable scientific progress on a very fundamental question—the very matter of life itself.

A three-part Series about fertility preservation in this issue highlights the options available in developed countries to men and women whose fertility is compromised for medical reasons, notably in the case of cancer therapy. For boys and men, it is well known that exposure to alkylating agents and whole-body radiation can lead to infertility. Herman Tournaye and colleagues outline how sperm cryopreservation is an effective, but underused, method to safeguard spermatozoa, and comment how advances have been made in prepubertal germ cell storage aimed at later transplantation of testicular tissue and associated stem cells, although these approaches remain experimental.

Michel De Vos and colleagues discuss how recent advances in reproductive medicine and cryobiology are of particular relevance for girls and young women with cancer. Oocyte storage is a tried and tested method of fertility preservation, but is often thwarted with a fundamental practical problem—the need to avoid delaying the onset of cancer therapy being rightly prioritised over the logistics to stimulate oocyte production and retrieval. Cryopreservation of ovarian tissue, still in its infancy as a therapeutic option, could offer a more accessible solution. De Vos and colleagues also emphasise the importance—and relative paucity—of fertility preservation counselling, with around only half of women receiving it at present.

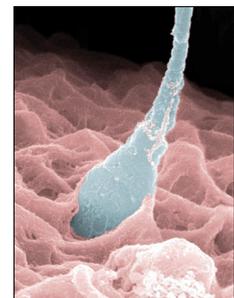
Fertility preservation for women in the wider population is a logical and intriguing consequence of these developments, discussed by Dominic Stoop and colleagues in the final Series paper. Why not, they propose, offer fertility preservation to women who want to delay pregnancy until later in life? A fair question, given the social and financial pressures often encountered in many societies today in the developed

world, such as relative decreases in earnings (a result of economic austerity), combined with spiralling costs in housing, food, energy, and child care. For many women, delaying motherhood and not having to worry about “the biological clock” is an attractive proposition.

Of course, the scientific opportunities afforded by reproductive medicine need to be balanced against the social and ethical questions that such progress raises. Is it right that society is seemingly putting pressure on the naturally fertile period of a woman’s life by presenting an opportunity to delay motherhood? The average age of first childbirth in the UK, for example, has just passed 30 years for the first time. Some may view this with concern, with the statistics for safe pregnancy and delivery being more favourable for younger mothers. Others may see this as an inevitable result of inexorable change in the lifecycle; given that we are living longer, perhaps it is reasonable that we are starting families later.

However, if assisted reproductive techniques are sought, a look at the success rates of IVF on the UK’s Human Fertilisation and Embryo Authority’s website should go some way to managing the expectations of older women or couples struggling with fertility. The low success rate of 13.6% for women in their early 40s drops to a meagre 1.9% after the age of 45 years. IVF remains a fraught and expensive venture that often results in failure.

Next month, England will launch a national sperm bank, a collaboration between the NHS-funded National Gamete Donation Trust and Birmingham Women’s Hospital. Its aim will be to increase donor recruitment, screening, and banking of sperm to the benefit of fertility programmes across the UK. For the first time, people from particular ethnic backgrounds will be able to choose sperm from culturally matched donors. This modernising and rebranding of sperm donor services is to be welcomed, along with secondary aims to demystify the often covert and taboo nature of sperm donation. A good mark of a society is how well it serves its citizens who need help. When it comes to fertility, science and society have a key part to play, to help shape the right conditions for the creation of life; however, nothing in, or about, life is ever certain, or can be taken for granted. ■ *The Lancet*



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For more on the **Human Fertility and Embryo Authority’s IVF data** see <http://www.hfea.gov.uk/ivf-figures-2006.html>

For more on the **National Gamete Donation Trust** see <http://www.ngdt.co.uk/media-centre/launch-national-sperm-bank>