CLINICAL PROFESSIONAL RESOURCE

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This publication is endorsed by

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Notes

It is recognised that care may be provided by registered nurses and midwives, health care support workers, assistant practitioners, nursing associates and student nurses and midwives, and trainee nursing associates. For ease of reading, the generic terms 'nurse', 'nursing' and 'nurses' are used throughout this document, unless specified.

The RCN recognises and embraces our gender diverse society and encourages this guideline to be used by and/or applied to people who identify as non-binary, transgender or gender fluid.

The RCN also recognises that not all those born female, or male will identify with the same gender nouns, but for ease of reading use the term woman/man/men and where appropriate acknowledge nonbinary terms.

1. Introduction

Fertility preservation involves freezing and storing sperm or eggs (gametes), ovarian reproductive material or embryos for use in a person's future fertility treatment. Techniques for storing gametes and embryos are now well established and progress has also been made with the preservation of ovarian and testicular reproductive material.

It is important that registered nurses and nursing associates understand the reality of what is possible now, what may be available in the future, and to support people to manage fertility should they become infertile due to illness/treatment or through choice for non-medical (social) reasons.

In the light of evidence from the National Institute for Health and Care Excellence

2. Background

Legal and regulation issues

Storage and the use of gametes and embryos falls under the regulatory remit of the Human Fertilisation and Embryology Authority (HFEA), which also provides information about HFEA licensed fertility centres across the UK. The main legislation around fertility preservation is:

- the Human Fertilisation and Embryology Act 1990 (amended) (HFE Act)
- the Human Tissue Act 2004, which includes reference to the use and storage of ovarian and testicular reproductive material.

Storage within NHS units is often time and funding limited. This may need to be clarified for those looking for long-term storage. The patient needs to have sufficient time to consider the implications and provide informed consent before storage and use; this is governed and detailed within the HFEA Code of Practice (HFEA, 2023). However, in emergency situations, where aggressive chemotherapy regimens need to be implemented immediately, patients can consent to storage only and reconsider use once treatment has ended.

It is important to be aware that the retrieval and storage of gametes without consent might be considered an assault, therefore, gametes should not be retrieved from a deceased person unless they have provided consent. There are very limited circumstances where storage may be lawful without consent. The updated HFEA Code of Practice (HFEA, 2023) provides further clarity about this issue. In complex circumstances, advice should be sought from the HFEA on a case-by-case basis.

Non-fertility and fertility settings

There are two distinct groups of nurses involved in supporting fertility preservation (see Appendix 1 for an outline of the recommended process).

Option 1 activity: those who require more general information to refer for specialist care. It is important that nurses who are not working in fertility services feel confident to raise the issue about fertility preservation with patients (or the parents of children) faced with potentially life-limiting diagnoses. Those engaged in such conversations need to understand local pathways and liaise with local specialist services. It is critically important to ensure prompt, appropriate referral to fertility services, preferably at initial diagnosis, to maximise future opportunities. Always check whether a woman may be pregnant already.

Nurses working in non-fertility settings should consider:

- information – what is available locally and nationally (see information on page 7)
- counselling – this must be provided by specialist fertility counsellors who have detailed knowledge and understanding of the contemporary issues in fertility preservation. However, nurses working in non-fertility specialist areas should be able to discuss the information outlined below
- consent – this must be fully informed and meet statutory requirements (HFE Act, 1990) and carried out by those who have been appropriately trained.

Information and action on local fertility services should include:

- locality
- unit or service co-ordinator
- hours of working/where to get support out of hours
- contact names/numbers/emails
- referral process (including emergency and out-of-hours situations)
- cost implications (for example, there may be NHS funding for storage but not for future use of gametes in fertility treatment)
- legal/regulatory requirements
-

Key issues to consider for those seeking fertility preservation for non-medical reasons

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a team to ensure a holistic approach to the decision making, and to ensure consent is achieved competently. This should not take place at the first meeting.

- For consent to be valid, it must be voluntary and informed, and the person consenting must have the capacity to make the decision. This means that the decision to either consent or not to consent to treatment must be made by the person themselves, and must not be influenced by nurses, friends or family. The person must be informed of what the treatment involves, including the benefits and risks, whether there are reasonable alternative treatments and what will happen if treatment is unsuccessful.
- For consent to be effective, the patient should have received counselling about the implications of the proposed steps. This should include being provided with relevant information on their particular personal and medical circumstances.
- Consent can only be provided by someone with capacity, which means they understand the information given to them and they can use it to make an informed decision. It is the responsibility of the health care professional gaining consent to establish whether or not the patient has capacity (GMC, 2024).
- They should always be informed of the right to vary and/or withdraw consent at any time.
- All such consent must be on a HFEA consent form.
- Nurses should be confident that they have given the information needed to make a considered decision and the essential elements of discussions should be documented in the medical record.

Further details can be found in the HFEA Code of Practice (2023).

Specific information to be declared within the consent includes:

- how long the reproductive material is stored for
- the person's wishes should they become unable to make decisions for themselves or die. This includes whether a partner can use the reproductive material later to create a family and whether the patient wishes to be recorded as the parent of any child born as a result of fertility treatment after death
- if the reproductive material is no longer required, could the tissue be used in research or donated for use in someone else's treatment (if posthumous consent is in place); this excludes those with a diagnosis of a cancer-related illness
- any other conditions the patient may have for the use of their reproductive material.

If no consent to future use is in place and cannot be sought (because the individual is deceased or has permanent mental incapacity), gametes should be allowed to perish. Invasive procedures for retrieving gametes are not covered by the HFE Act, but fall under common law.

regain capacity and need medical treatment that is expected to affect their fertility, or are suffering from premature infertility (premature menopause). These provisions will apply to those children deemed not to be Gillick competent (for example, if parents object to storage for a young child), and those 16 years old and above who do not have capacity to consent (GMC, 2020; HFEA, 2023).

If a patient decides to go ahead with fertility preservation and create embryos with their partner, informed consent will be required from both parties. It is important that both partners independently understand the implicars inh nderstaho (i9 (e)2 e)2 e14ida (c)12.8 (i)19.2 (t)-9-a3m1 4e5.6 (13 (4 o(.7 13 ge)28.3 ()4 -3.5))2815yt.e5.6 (13 (4 ()5.2 (h l)22.1e 8 (i)e)2 (l)26 (y)-0.59.2s exHn-GB6

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The most effective method of preserving a man’s fertility is though sperm freezing (cryopreservation). This process involves the man providing samples of his semen, which

5. Female preservation of fertility

The process of retrieving oocytes or eggs from a woman is more complex than sperm retrieval and involves a surgical procedure to remove eggs from the woman's ovaries.

Fertility preserving options for women

- Egg freezing or cryopreservation is when unfertilised eggs are 'vitrified' and stored. There have been successful cases of oocyte vitrification in adolescent females.
- Embryo freezing, also known as embryo cryopreservation – the most common and successful option for preserving a woman's fertility. Conventional slow freezing or vitrification can be applied.
- Ovarian transposition – a minor surgery to move the ovaries from the area that will receive radiation.
- Ovarian reproductive material freezing – an effective method of enabling a successful pregnancy in women who have had oncology treatment. It is also the only option for younger girls who have not commenced ovulating. However, this carries a risk of xenotransplantation (re-introduction of cancer cells).

Controlled ovarian stimulation and egg retrieval

In a natural menstrual cycle, only a single egg is generally produced, therefore the woman administers daily injections of follicle stimulating hormone over a period of 10-14 days (controlled ovarian stimulation) to stimulate the production of several eggs prior to removal/retrieval under ultrasound guidance.

The ovarian response to medication is monitored by ultrasound and, on occasion, serum êRZKÃå , ÃRRÃ}Râ ° ê% Ã %`$ÞêK ,ÿ ÿ, ß êR Ãvê KêÃß êå Ã% Ã diameter), a final injection of Gonadotropin Releasing Hormone Agonist (GnRHa) is given to prevent ovarian hyperstimulation and to facilitate egg maturity. This helps the release of the egg from the capsular binding of the follicle 36-40 hours prior to timing of the egg retrieval. GnRH antagonist cycles with agonist triggers are now preferred to reduce the risk of Ovarian Hyper Stimulation Syndrome (OHSS) which is extremely important in fertility preservation.

Egg retrieval is usually carried out under conscious sedation or general anaesthetic. A needle guide is attached to a vaginal ultrasound probe and inserted into the vagina. Using the ultrasound, the ovaries are located, the needle advanced through the guide and the vaginal wall into ovarian reproductive material and each follicle. Gentle suction is applied to remove the follicular fluid and the egg within the follicle (The ESHRE Working Group on Ultrasound in ART, 2019).

After retrieval, the woman may experience some vaginal bleeding and abdominal cramping. As with any invasive procedure there are associated risks (less than 1:1000) such as bleeding, bowel or bladder perforation and risk of infection). The eggs will either be frozen later the same day or mixed with either her partner's sperm or sperm from a donor to achieve fertilisation. Any good quality embryos will be frozen for future use.

There is no 'upper limit' for freezing in the UK (this is at the discretion of the clinic). NHS centres usually have a cut off age of 45 years and requests are considered on a case-by-case basis.

ESHRE (2020) in their recent guidelines outlines four groups of women for possible fertility preservation:

- post-pubertal women diagnosed with cancer undergoing gonadotoxic treatments
- post-pubertal women with benign diseases undergoing gonadotoxic treatments (including surgery) or with conditions from which they will lose their fertility prematurely, eg, Turner syndrome
- transgender patients (assigned females at birth)
- women requesting oocyte cryopreservation for age-related fertility loss.

Anderson et al., (2017) reported on the value for some women of freezing part of an ovary before cancer treatment and other illnesses which might cause a reduction in fertility, reporting that 100 live births have occurred after replacing this ovarian tissue.

The recently published Nuffied report (2020) on egg freezing is clear that accurate data collection is critical so that women are given more accurate information about the chances of having a baby after egg freezing.

6. Considerations in the preservation of fertility in children and young people

Whilst certain medical treatments will affect fertility in the short term, others may have a longer-term effects or may prohibit the possibility of fertility permanently for both

7. Key points

With the diagnosis of a life-limiting disease, (especially those that impact on fertility) lifesaving treatment will always take precedence. However, nurses should discuss the possibility of future infertility with patients of reproductive age or with parents/guardians of children as part of the education and informed consent process before treatments are initiated. This discussion should take place at the time of diagnosis to maximise future reproductive potential and be documented within the patient's records. Nurses should also be up-to-date with all fertility preservation options (local and national) and be familiar with local referral processes to reproductive specialists.

- Nurses have a responsibility to understand fertility preservation and its potential value to those whose fertility may be impaired.
- All services involved in treatment that may adversely affect a patient's future fertility, should have clear processes in place to discuss and enable fertility preservation.
- Nurses and all health care professionals need to understand the legal and regulatory requirements, as well as the ethical, cultural and religious considerations, associated with fertility preservation and treatment.
- Nurses involved in treatment that may adversely affect future fertility should be prepared to have the initial discussion, be familiar with the potential for fertility preservation and understand the importance of early referral to fertility specialists.
- Services should recognise there are two options of activity when advising patients about fertility preservation, that of generalist and specialist.
- All health care professionals involved in areas of care where fertility may be compromised, should have care pathways that include fertility preservation.
- All health care professionals involved in these services should be aware of the process
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Glossary

Artificial insemination with husband sperm (AIH) – prepared sperm are placed at the entrance of the cervix at the time of ovulation.

Artificial insemination with donor sperm (AID) – similar to AIH but using donated sperm.

Cryopreservation – a process where cells, tissues are preserved by cooling to very low temperatures.

Gamete – a mature male (sperm) or female germ cell (egg).

Gamete intra fallopian transfer (GIFT) – similar to IVF but harvested eggs are placed in the tube with prepared sperm where fertilisation should occur.

Intrauterine insemination (IUI) – drug stimulation is used to promote follicular growth of one to two follicles. Prepared sperm are then transferred into the uterus following the induction of ovulation.

In vitro fertilisation (IVF) – where hormone therapy is used to stimulate the ovaries to produce several eggs. The eggs are then collected and mixed with sperm in a laboratory. If fertilisation is successful, the embryos are allowed to develop for between 2 and 6 days. Then best quality embryo(s) is then transferred back to the woman's womb.

Intracytoplasmic sperm injection (ICSI) – this involves injecting a single sperm into the harvested egg. This is a treatment for male infertility that is frequently used by cancer patients. Where female oocytes (eggs) are vitrified, IVF with ICSI will be required.

Ovulation induction (OI) – drug treatment to establish ovulation in women who do not ovulate regularly.

Surgical sperm retrieval (SSR) – sperm are retrieved from testicular reproductive material and then used to fertilise an egg with ICSI.

Vitrification – a process of converting reproductive material into a glass-like amorphous solid which is free of any crystalline structure (thereby preventing damage to cells from ice formation), either by the quick removal or addition of heat or by mixing with an additive.

Appendix: Fertility preservation

Diagnosis with life-limiting disease which may affect fertility for men women or children/young person

Initial discussion about the potential effects of medical treatment/s on future fertility

Nurse (non-fertility specialist)

Early referral

Specialist treatment

Specialist counselling

Nurse (fertility specialist)

Key points that should be understood by all

What is fertility preservation and what are the options?

Documentation of discussion.

Who are the local contacts?

What is available locala2pan f (r)-12.Hitret6. ly pre r mTJ EM3.3 (o 1)be

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