There is currently much debate about cryopreservation of ovarian tissue or oocytes as a possible means of fertility preservation for women urgently needing potentially sterilizing medical treatment. Although both techniques are still experimental, some centres have started offering them also to healthy women who want to postpone childbearing until after they may have lost their natural reproductive capacity, or fear that they may not before that time find a partner with whom to raise a family. This article explores and discusses the ethical issues raised by this practice. We argue that there are no convincing a priori moral reasons why cryopreservation of ovarian tissue or oocytes should not also be available for healthy women. However, this is on the assumption of established techniques, also in terms of the efficient and safe use of any frozen reserve. The fact that there is still uncertainty about these aspects is rightly seen as a reason for only offering cryopreservation of ovarian tissue or oocytes in an experimental setting. But does that also mean that these techniques should presently only be available for a medical reason, i.e. for women facing iatrogenic fertility loss? We argue against this conclusion.

Key words: fertility preservation / ovarian tissue cryopreservation / oocyte cryopreservation / non-medical reasons / ethics

Introduction

Although some fertility centres in the USA and Europe offer ovarian tissue and/or oocyte freezing to healthy women fearing the loss of natural fertility, there is international consensus within the main professional bodies that this is premature, given the experimental status of these techniques. It is felt that as long as their efficiency and safety are still the subject of research, ovarian tissue and oocyte freezing should only be offered to women facing possible fertility loss due to necessary medical treatment or disease (Shenfield et al., 2004; Practice Committee, 2008). However, many in the field do expect that the further development of these techniques will lead to their being routinely used for ‘non-medical reasons’ as well (Kim et al., 2001; Barritt et al., 2007; Homburg et al., 2009). These reasons may include the incompatibility of normal-age childbearing and the pursuit of other life or career plans, or simply not yet having found a suitable partner with whom to start a family (Nowak, 2007).

Commentators, both in Europe and the USA, have called for debate about the social and moral implications of this development (Hilhorst et al., 2000; Health Council, 2004; Bankowski et al., 2005; Savulescu and Goold, 2008). Until now, however, ethical analysis has focused on female fertility preservation for medical reasons, i.e. for women (and girls) facing the threat of iatrogenic fertility loss (Van den Broecke et al., 2001; Dudzinski, 2004; Patrizio et al., 2005; Robertson, 2005). In this article, we will discuss the ethical issues raised by cryopreserving ovarian tissue or oocytes for healthy women. What are the main arguments for and against this practice? How to account for the still experimental nature of fertility preservation techniques? What about the alternative of cryopreserving embryos rather than ovarian tissue or oocytes? Under what conditions would it presently be acceptable to offer fertility preservation to healthy women? This question should not be confused with the issue of reimbursement of fertility preservation for non-medical reasons as part of national insurance coverage schemes. We will briefly address that issue in the final section.

A preliminary remark is needed on terminology. For reasons of convenience we follow the use of the term ‘fertility preservation’ as has become established in the context of cryopreservation for medical reasons. However, it is important to note that this is more a handy catch phrase than a precise description. Strictly speaking, what is preserved is not fertility but the mere possibility of using any cryopreserved tissue or gametes in future attempts at (assisted) reproduction.

Moral acceptability of fertility preservation for non-medical reasons

In this section, we briefly discuss the main arguments for and against the idea of fertility preservation for healthy women. For the sake of
argument, we assume the availability of techniques allowing frozen tissue or oocytes to be efficiently and safely used after thawing. That this is not (yet) an established fact will be addressed later in this article.

**Gender-equality in reproduction**

In relation to the extended life expectancy of modern humans, women face a relatively early loss of fecundity. Gosden et al. (2000) have referred to this as a ‘biological inequity’, a situation from which oocyte or ovarian tissue freezing may now for the first time help them escape. If nature stands accused here, one might add that she has distributed quite unevenly, as men are able to reproduce until much later in life.

Moreover, men already can freeze their sperm for future use. This is done for medical reasons, but sperm banking is also commercially available as a means of preserving reproductive capacity to men in jobs (e.g. working in toxic environments) or doing sports (e.g. hockey, football, cycling) that pose a possible threat to their fertility. If such life-style related risks are regarded as acceptable reasons for offering fertility preservation to men, what exactly is the difference with the situation of women facing the choice between having a career or children? Sperm banking is also available as a back-up for men undergoing vasectomy (Anger et al., 2003). The aim of this is to preserve reproductive potential for a possible new relationship in the future. If that is accepted, why not also accept requests from women who desperately want a child but fear they may not in time be able to find a partner with whom to raise a family?

Reproductive autonomy: the freedom to decide about whether, with whom and also when to have children, is seen as an important value in modern western societies. The right to establish a family is explicitly protected in the European Convention for Human Rights. However, the window of opportunity to exercise this right is much smaller for women than for men. As has been suggested, a feminist argument in favour of cryopreserving ovarian tissue or oocytes would be that this piece of gender inequality could thereby be overcome or at least mitigated (De Wert and De Beaufort, 2000; Homburg et al., 2009).

**Biological boundaries and the limits of medicine**

This may invite the reaction that nature’s boundaries are there to be respected, not transgressed. The charge of ‘playing God’ or ‘tinkering with nature’ is a familiar element in popular-press stories citing views for and against fertility preservation. As in the earlier debate about oocyte-donation for post-menopausal women, these appeals to nature seem to express a widely shared gut-feeling. However, that alone does not make a convincing moral argument (De Wert, 1998). From the fact that women lose their fertility relatively early in life nothing follows about the acceptability of attempts aimed at changing this.

Related to the argument from nature is an appeal to the limits of medicine. In this view, medicine, including assisted reproduction, should be limited to restoring or furthering health, not to cater to preferences of persons without health problems. An instance of this view is the position taken by the Canadian Royal Commission (RC) when arguing against post-menopausal IVF using donor-oocytes. The RC stated that ‘because it is normal for women to be infertile at this age, there is no medical justification for the practice’ (Royal Commission, 1993). The difficulty with this view is not so much that in reality the practice of medicine comprises many activities that would then also have to questioned, including cosmetic surgery, sterilization, abortion etc. The point is rather that ‘health’ is not as clear-cut and objective a concept as the appeal to the limits of medicine would suggest. This also explains the intractable nature of debates about whether and under what conditions infertility should be regarded as an instance of ill health (Dondorp, 2006). When is IVF medically necessary? Only when there is a clear disease or biological defect, like endometriosis, tubal occlusion or azoospermia? That would leave a large part of current assisted reproduction unaccounted for. Under the heading of idiopathic (unexplained) infertility, many couples are being treated whose inability to conceive may be directly linked with the female partner approaching the end of her reproductive years. Treating those couples is nevertheless seen as responding to a medical indication.

What this shows is that how we look at good and ill health in this domain (as in others) is not only informed by biological facts, but as much a matter of social conventions and justifications (Bateman Novaes, 1998). In this connection, we find Richman’s theory of health particularly interesting. According to his view (‘embedded instrumentalism’) the concept of health refers to a match between goals and abilities (Richman, 2004). This allows a distinction between the health of an individual ‘qua organism’ and ‘qua person’. Not being able to reproduce after the decline of natural fertility is not a state of ill health for a woman qua organism, but it may qualify as such in view of the overall life-goals she has as a person. Medicine, according to Richman, is about health in both senses. This is not to say that whatever goals a person may have entitle him or her to medical help. What it does suggest, however, is a justification of reproductive medicine as a moral practice not necessarily limited by natural boundaries of biological functioning.

**A child of one’s own**

The argument from ‘biological equity’ presupposes the importance not just of being able to start a family and have children, but of becoming the biological mother of a child of one’s own. This is a recurrent theme in many debates about assisted reproduction. To what extent can adoption or the use of donor gametes be presented as alternatives to reproductive technologies aimed at realizing ‘biological parenthood’? Apart from the fact that these ‘alternative’ options may not be easily available or subject to restrictions (also concerning age), the simple answer is that most people would not regard these as real alternatives. The importance attached to genetic relatedness has deeper roots, both culturally and biologically, than is acknowledged by those dismissing this as irrational prejudice (Bayles, 1984). This is also reflected in the practice of reproductive medicine. For instance, the fact that couples affected by severe male subfertility can have a child through donor insemination has not stood in the way of accepting the more invasive and costly alternative of intracytoplasmic sperm injection (ICSI). It would indeed be inconsistent with this practice to argue that the notion of fertility preservation attaches too much importance to biological parenthood.
Late pregnancy: risks for mother and child

In the earlier debate about post-menopausal IVF, concerns were raised about still uncharted maternal risks of pregnancy at a higher age and about potential negative psychosocial consequences for the child (Health Council, 1997). In the Netherlands, this has led to a cautious age-limit of 45 for IVF using donor oocytes. The authors of a review of the relevant literature have recently called for changing this to 50 (Kortman et al., 2006), which is also the limit used by most fertility centres in the USA (Sauer and Kavic, 2006). With regard to pregnancy-risks in women over 50, data are still scarce and contradictory (Paulson et al., 2002; Antinori et al., 2003; Chibber, 2005; Simchen et al., 2006). There is even less to go by with regard to the consequences of late parenthood for the psychosocial development of the child. For both these reasons it would indeed seem wise to take the age of 50 as a provisional limit (both for IVF using donor oocytes and for those with a frozen reserve) and to make further steps only in the context of research aimed at collecting further data.

But pregnancy after 50 is not the main issue here. It would seem that most of those opting for fertility preservation do not envisage motherhood as late as 55 or 60. As several commentators have stressed, one should rather think of women trying to buy some extra years, allowing them to have children somewhere between 40 and 50 (De Wert and De Beaufort, 2000). Gosden et al. (2000) refer to this as ‘extra time for late starters’: women who, in their early thirties, foresee that, for whatever reason, they may not be able to have their children in time. If that is the issue here, arguments against ‘geriatric IVF’ are misplaced. If women have access to IVF using donor oocytes until around a decade after natural fertility loss, it is difficult to see why they should be too old to use their own fertility reserve within that same time-frame. This conclusion refers both to pregnancy-risks, which under precautionary conditions are not yet dramatically higher at this age (Kortman et al., 2006), and to the welfare of the child. In our view, assisting women to have children up to around 50 does not violate the widely accepted standard that, where consequences for the future child are concerned, one should avoid a ‘high risk of serious harm’ (De Wert, 1998; Pennings, 1999; Pennings et al., 2007).

Primum non nocere

Obtaining ovarian tissue or oocytes usually involves procedures that, for the woman in question, are burdensome and not without risk. This raises the question whether fertility preservation for healthy women can be reconciled with the principle of ‘first do no harm’. On a strict reading, doctors ought to refrain from exposing anyone (even on this person’s own request) to more than negligible risk without a clear medical necessity. However, it can be argued that this reading of the principle is too strict, not only because it would be at odds with certain accepted practices, such as cosmetic surgery and abortion for social reasons, but also in view of the broader conception of health and medicine hinted at above. The issue then becomes under what conditions the intervention would be acceptable. That requires balancing benefits and risks for (and by) the woman in question, in the context of individual counselling.

The spectre of medicalization

But is this not a clear instance of ‘medicalization’: finding a medical solution to what is in fact a societal problem (Verweij, 1999)? The problem being that most modern societies are organized in ways that make it difficult for women to have children at what would biologically be the best age for reproduction. According to critics such as the UK-based group Comment on Reproductive Ethics, offering fertility preservation to healthy women treats the symptoms of this problem, thereby only undermining efforts to stimulate women to have their children in time (BBC News, 2006).

This charge fails to take account of the actual situation in which modern women find themselves. Many would perfectly recognize themselves in the stories put as appetizers on websites advertising oocyte freezing, stories about women caught between the many demands calling for simultaneous realization in a short period of their lives. These women are not helped with saying that ‘we should stop finding these absurd solutions for society’s problems’ (BBC News, 2006). They cannot afford to wait until society has been changed in a way that would allow them to have it all at the right time. Moreover, it is doubtful whether societal engineering can do much to reverse the ever higher mean age at which women have their first child. In a recent report of the Dutch Council for Public Health and Health Care it is concluded that postponement of childbearing is only marginally connected to expected problems with combining work and childcare (Council for Public Health, 2007). Cultural developments seem to be more influential here than (the lack of) infrastructural and socio-economic measures such as day care centres and parental leave.

The Dutch report also observes that young women are often unaware of the early decline of their fertility (Council for Public Health, 2007). While postponing childbearing in their most fertile years, they expect to be able to successfully conceive as soon as they try. And if not, they trust that technology will help them out. More information and education is certainly needed to convey a more realistic picture, both in the interest of the women or couples concerned (avoiding disillusionment) and of society (avoiding preventable medical consumption). Against this background, it would be quite undesirable if the availability of cryopreservation services gives the idea that childbearing can safely be postponed until even after 40. However, that requires a balanced presentation rather than a prohibition.

Obtaining ovarian tissue or oocytes usually involves procedures that, for the woman in question, are burdensome and not without risk. This raises the question whether fertility preservation for healthy women can be reconciled with the principle of ‘first do no harm’. On a strict reading, doctors ought to refrain from exposing anyone (even on this person’s own request) to more than negligible risk without a clear medical necessity. However, it can be argued that this reading of the principle is too strict, not only because it would be at odds with certain accepted practices, such as cosmetic surgery and abortion for social reasons, but also in view of the broader conception of health and medicine hinted at above. The issue then becomes under what conditions the intervention would be acceptable. That requires balancing benefits and risks for (and by) the woman in question, in the context of individual counselling.

Reflecting on this balance, the American ethicist Robertson has argued that the risks of more than minimally invasive surgery would be difficult to justify in view of the uncertain benefit of fertility preservation for healthy women (Robertson, 2000). After all, many women who for lack of a partner or because of conflicting life-plans might consider fertility preservation may still be able to reproduce in their fertile years. In the next year, they may be in a serious relationship or be otherwise better prepared to start a family. As Robertson remarks, performing an oophorectomy (surgical excision of a complete ovary) in this situation might well amount to a violation of primum non nocere, whereas harvesting smaller amounts of ovarian tissue through a less invasive biopsy would not a priori be disproportional. A further reason for caution is that harvesting ovarian tissue may entail a reduction of the follicular reserve still present in vivo. Depending on the quantity of harvested tissue, a consequence may be that natural loss of fertility sets in earlier than would otherwise have
been the case (Aubard et al., 2001). The risk to be avoided here is that the woman ends up having less rather than more chances of childbearing.

Cryopreservation of mature oocytes avoids this risk. Although the harvesting procedure (through needle aspiration after hormone stimulation) is burdensome and not entirely without health risks for the woman, these burdens and risks are not so large as to stand in the way of a possible justification of this approach. However, as only a limited number of oocytes can be harvested per stimulation cycle, several cycles may be needed to obtain a sufficiently large fertility reserve. A special danger to be avoided is the use of stimulation protocols that put women at risk of serious complications in order to maximize oocyte yield.

Harvesting immature oocytes from secondary follicles would have the double advantage of avoiding hormone stimulation while allowing the preservation of a larger number of oocytes in a single harvesting intervention. In terms of the balance of benefits and burdens/risks, this would theoretically be the optimal approach (Robertson, 2000).

**The still experimental nature of ovarian tissue and oocyte cryopreservation**

There seem to be no convincing a priori reasons why cryopreservation of ovarian tissue or oocytes should not be available for women wanting to extend their natural reproductive life-span. However, this is on the assumption of established techniques, also in terms of the efficient and safe use of any frozen reserve. On both these counts there is still uncertainty (Lornage and Salle, 2007; Tao and Del Valle, 2008).

Autotransplantation of frozen/thawed ovarian tissue has led to a few reports of healthy children being born, both after spontaneous and IVF-pregnancies (Donnez et al., 2004; Meirow et al., 2005; Demeestere et al., 2007; Andersen et al., 2008). In some other cases embryos or pregnancies, but no births were obtained. Even though there is now proof of principle, it is still unclear what the real chances are that those who now freeze some tissue will indeed be able to use it for future reproduction (Donnez et al., 2006; Varghese et al., 2008).

Until recently, oocyte freezing did not seem much of an alternative. Apart from safety concerns, this was because of low efficiency (pregnancy rate after IVF with frozen-thawed oocytes) in addition to a limited yield per cycle. Improved efficiency rates with new cryopreservation protocols (especially ‘vitrification’) now appear to have changed this (Oktay et al., 2006; Cobo et al., 2008). However, since mature oocytes are known to be especially vulnerable to cryopreservation damage, reproductive safety remains an important concern.

Whereas vitrification avoids the detrimental effects of chilling injury and ice formation in traditional freezing methods, it requires the use of high cryoprotectant concentrations that may be toxic to the oocyte (Lornage and Salle, 2007). Although clinical results seem reassuring, it has been stressed that much more data are needed to confirm the safety of oocyte cryopreservation for the child-to-be (Lornage and Salle, 2007).

Immature oocytes are not only more easily available (avoiding the burdens, risks and time-constraints of hormone stimulation) but are also in a developmental stage that makes them less vulnerable to damage caused by freezing and thawing (Picton et al., 2000). However, immature oocytes require in vitro maturation (IVM) before they can be used in IVF. Although hundreds of healthy children are reported to have been born after IVF using in vitro matured oocytes, IVM is still in need of further evaluation, both in terms of its efficiency and reproductive safety (Tao and Del Valle, 2008; Varghese et al., 2008).

In its recently updated statement on ‘Ovarian tissue and oocyte cryopreservation’ the Practice Committee of the American Society for Reproductive Medicine (ASRM) concludes that both ovarian tissue and oocyte cryopreservation are still to be regarded as experimental techniques that should be offered only in a proper research setting aimed at clarifying present uncertainties concerning efficiency and safety (Practice Committee, 2008). That is also the view taken in recent Dutch guidelines (CBO, 2007; Heineman et al., 2008) and by other commentators (Robertson, 2005; Lornage and Salle, 2007). We agree with this cautious position. But what should this mean for the availability of the meant procedures for healthy women? Should they be allowed to participate in the relevant research?

With regard to ovarian tissue, the ASRM Practice Committee statement seems to rule this out: in view of the ‘present potential risk-to-benefit ratio’, ovarian tissue cryopreservation should not be offered ‘as a means to defer reproductive aging’ (Practice Committee, 2008). A similar statement was made by the Task Force on Ethics and Law of the European Society of Human Reproduction and Embryology (ESHRE), saying that ovarian tissue cryopreservation may presently only be offered if there is an ‘immediate threat to fertility’ (Shenfield et al., 2004). With regard to oocytes, the view of both committees is that as long as cryopreservation is to be regarded as research, it would be too early to ‘recommend’ (Practice Committee) or ‘encourage’ (Task Force) the procedure to those without a medical indication. Although this leaves room for cryopreserving oocytes from healthy women who present themselves as voluntary research subjects, the Practice Committee stresses that this would be in spite of their not being ‘appropriate candidates’, unlike women requiring medical treatment. Whereas the latter ‘may have no viable options’, things would be different for healthy women (Practice Committee, 2007).

On the other hand, women who at 35 are still without a suitable partner may say that their plight is not really so much different from that of those facing possible iatrogenic fertility loss. Whereas the threat to their fertility may be less immediate than in the case of urgently scheduled cancer treatment, it is imminent and real. They may point out that time is running out for them and that, in order not to minimize any chances they still have, they cannot afford waiting much longer. It is true that they can still meet a suitable partner in their remaining reproductive years, but since that is beyond their control it can hardly be called a ‘viable option’. And whereas fertility loss after cancer treatment need not always be complete (CBO, 2007; Maltaris et al., 2007), it is absolutely certain that they will lose their fertility within the next 5–10 years.

In our view, it is indeed difficult to maintain that the uncertainties still surrounding ovarian tissue or oocyte cryopreservation would make it inappropriate to include healthy women as research subjects, if those same considerations do not stand in the way of experimentally offering the procedure to those facing the threat of iatrogenic fertility...
loss. This is not to deny that proportionality (the balance of burdens and risks versus possible benefits) should be considered in individual cases, but we maintain that this cannot be decided on the basis of a categorical distinction between medical and non-medical reasons. Moreover, the intended research is aimed at clarifying the issues relevant for better determining the proportionality of the procedures under consideration. In view of this, (more) data are not only needed about effectiveness and safety, but also about the extent to which those for whom ovarian tissue or oocytes are frozen (differentiating between different reasons for doing so) eventually request thawing for reproductive use.

Unlike cancer patients needing urgent treatment, healthy women would in theory have the choice to cryopreserve either ovarian tissue or oocytes. Should including them in experimental fertility preservation be limited to oocyte freezing as the least invasive and burdensome and also currently most promising approach? Is not that what the principle of subsidiarity would require? In our view, this is too strict. First of all, there is the limited yield of oocytes per cycle. Clearly, more than one cycle would in many cases be needed for a reasonable chance of future reproduction, thereby reducing part of the apparent advantage over ovarian tissue preservation. Secondly, since both approaches are still experimental, it is not yet possible to make a final judgement about their comparative merits in the long run. Moreover, as the uncertainties concerning each of the approaches are of a different nature, we can imagine women making different choices here, or perhaps wanting to opt for both ovarian tissue and oocyte cryopreservation (Azem et al., 2004). We do not think there are convincing reasons for categorically denying them the opportunity to participate in either of these lines of research.

### Proactive IVF as an alternative?

At present, the efficiency and safety of cryopreservation and subsequent reproductive use of embryos is better established than is the case for cryopreserving ovarian tissue or oocytes. One may therefore ask whether embryo cryopreservation should perhaps be recommended as a less uncertain alternative, at least for the time being. As a means of fertility preservation, this approach requires what can be referred to as a ‘proactive’ form of IVF, aimed at the creation of embryos while pregnancy is not (yet) envisaged. Proactive IVF is accepted as a means of fertility preservation for women at risk of losing their fertility as a result of necessary cancer treatment or other medical procedures with a less acute urgency (Hart, 2008; Jenninga et al., 2008). In some centres, proactive IVF is also offered to single women facing such treatments, which then requires the use of donor sperm (Azem et al., 2004; Oehninger, 2005).

Proactive IVF, both for medical or non-medical reasons, involves the creation of embryos without a present intention of at least transferring a single one of them to the womb. Given the moral sensitivity of creating and using human embryos, this would indeed be a reason for preferring the preservation of gametes should other things (efficiency, safety) be equal. But since they are not, the question arises whether embryos may be created as a means of fertility preservation in the first place. Whatever the answer, it will have to relate to what (at least in most countries) is accepted in present IVF-practice, where many more embryos are created than will ever be given the chance to grow into a child. Clearly, the moral worth of the human embryo is not generally seen as rendering this practice morally unacceptable. Rather, the worth of the embryo is seen as being outweighed by the importance of helping subfertile women or couples to have a child of their own. Here however, it remains to be seen if embryos created as a means of fertility preservation will eventually be used for reproduction. What does that mean for the possible justification of proactive IVF? In our view, this is again a matter of proportionality.

If there is a reasonable chance of proactive IVF leading to the realization of a parental project, we think the creation of embryos for this purpose can be justified in very much the same way as in regular IVF. However, to the extent that this reproductive use becomes more questionable, proactive IVF is also more problematic from a moral point of view. Taking this perspective, there is a clear difference between creating and freezing embryos on behalf of a couple wanting to postpone the realization of a shared and serious child wish, and proactive IVF for single women who definitely do not want to raise a child on their own. What makes proactive IVF morally more problematic in the latter case is that the chances of using any frozen embryos also depend on the woman’s future partner’s willingness to father a donor-child.

Indeed, since already creating some embryos is at odds with the very ideal of finding a partner with whom to have children, prospective IVF does not seem to be a very attractive option for most healthy single women in the first place. If we are right to suspect that a substantial part of those potentially wanting to make use of fertility preservation for non-medical reasons are women still looking for a partner, this significantly limits the relevance of proactive IVF as a possible alternative for cryopreserving ovarian tissue or oocytes.

### Conditions for offering cryopreservation of ovarian tissue or oocytes to healthy women

If, as we suggest, cryopreservation of ovarian tissue or oocytes for healthy women may be acceptable in principle, the further question regards the conditions for making this available. General conditions are the same as those that apply to fertility preservation for medical reasons. These involve offering those procedures in a research-setting aimed at obtaining more data, and at determining the best approach for helping women at risk of losing their fertility (Patrizio et al., 2005; Heineman et al., 2008).

Women considering fertility preservation using these experimental techniques must be properly informed, not just about the nature and risks of harvesting procedures and the conditions under which ovarian tissue or oocytes are being stored (including maximum storage time), but also about present uncertainties concerning efficiency and safety of future reproductive use. They should know that this future use will in most cases require IVF or ICSI. They should know that this may involve their being asked to participate in clinical research, including long-term follow-up of any children born as a result of the procedure. Moreover, because of the still experimental nature of fertility preservation techniques, having oocytes or ovarian tissue frozen does not automatically entitle them to any subsequent procedures aimed at using this reserve for reproduction.
Women living in a stable relationship must be informed about the possible alternative of creating and cryopreserving embryos in the context of proactive IVF. All applicants must be informed about the possible alternative of IVF using donor oocytes. Also to avoid raising false hopes, cryopreserving ovarian tissue or oocytes should be presented as an emergency measure rather than as a guarantee of life-long fertility (Health Council, 2004). It is important that women considering fertility preservation for non-medical reasons are aware that their best chances of having children are through timely and natural conception. Counsellors must present fertility preservation freezing as something on which it would be better not to rely.

**Fertility preservation and the public face of infertility**

Fertility preservation for non-medical reasons seems only conceivable as a commercially marketed service, outside the health care system, for which coverage should not be expected. But what about future requests for IVF or ICSI from those who would now choose to cryopreserve ovarian tissue or oocytes for non-medical reasons? Should they be eligible for coverage or for help within the public system, where (part of) treatments are collectively paid for? On the one hand, their future inability to conceive without medical help would fit the common operational definition of infertility (the absence of conception after 1 year of regular, unprotected intercourse) (Evers, 2002). On the other hand, a better illustration of how infertility can also be a social construct is hard to find. We can therefore expect fertility preservation for non-medical reasons to lead to a new round in the IVF-coverage debate, challenging the role of the concept of ‘medical necessity’ as a criterion for access, coverage or both.

This may have implications beyond helping those who, for non-medical reasons, decided to cryopreserve some tissue or oocytes. One question that will certainly come up is the difference with current IVF-practice, which also includes helping women who would have been able to conceive naturally had they begun trying earlier. In order to avoid ‘throwing the baby out with the water’, Hughes and Giacomini (2001) have wisely recommended those involved in these debates not to regard IVF technology ‘as a monolith’, but rather as ‘an array of decisions and purposes’, some of which, but not necessarily all, would qualify for coverage. In order to inform the necessary debate about this, relevant public views and values urgently need further exploration. It is time for this to also include charting public acceptance of fertility preservation for non-medical reasons.

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**References**


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