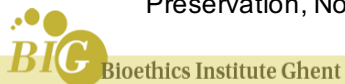


Ethics on age related fertility preservation

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“Social” versus “medical” freezing

The labels are very important in the ethical and political discussion.

Reason: when an intervention is ‘medical’, it refers to a need and is thus acceptable. When an intervention is ‘social’, it refers to a wish and is thus questionable.

“Medical” may indicate

- 1) the cause of the defect (a disease)
- 2) the goal of treatment (health, restoration of normal functioning)
- 3) the type of intervention (on the human body by a physician)

“Social” seems to indicate “the absence of a good medical reason”. But what is a good medical reason?



“Social” versus “medical” freezing: problematic cases

Example 1: premature ovarian failure (POF)

A woman of 28 without partner. Her mother went into menopause at 38. In her sister of 31, a risk of POF was diagnosed. The woman wants to freeze her eggs.

MEDICAL ?

SOCIAL?

In 10 years time, most social freezers will be transformed into medical freezers by using all kinds of ovarian reserve testing (AMH, antral follicle count ...).

“Social” versus “medical” freezing: problematic cases

Example 2: French law: oocyte donors are offered the possibility to cryopreserve a number of oocytes for themselves

MEDICAL ?

SOCIAL?

The reverse situation exist as ‘freeze and share’ in the UK: women who want to freeze their eggs but cannot pay, can freeze if they accept to donate part of their eggs.

Age-related fertility preservation

Proposal: AGE-RELATED infertility: prevention of the effects of the natural decline of fecundity with age.

Counter argument: age is not a disease.

- No but age causes diseases. Age causes oocytes to deteriorate just like it causes brain cells to deteriorate. So we should not take measures to prevent dementia in the future (if we could do so)?
- No but a high proportion of current IVF patients have age-related infertility. They want to reproduce now but they need treatment now because they postponed for the same reasons as the women who want to freeze now.
- Pregnancy is not a disease either but abortions and pregnancy care are medical interventions.

Social causes: reasons for postponement

Two positions:

- medical techniques should not be used to remedy health problems caused by social factors. One should focus on the social causes.
- medical techniques can be used to remedy health problems a) while one tries to change the social circumstances, and/or b) if the costs (broadly speaking) of social reforms are much higher.

Problems with the first position:

- inconsistency: we treat older women for infertility now
- medical techniques are used for diseases caused by social factors all the time. Prime example: OBESITY

Reimbursement: justice

Justice: equitable access to medical care without excessive burden

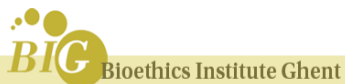
Justice only applies to BASIC/REASONABLE health care: the package of treatments that everyone should have access to (this differs from society to society).

However, you can't have your cake and eat it too: you cannot argue that social freezing is elective medicine (like cosmetic surgery) and then say that everyone should have access.

Social freezing = elective treatment = patients pay out-of-pocket

Freezing + storing + IVF treatment = (very) expensive

Cost is and will be an important barrier to access.



Justice and reimbursement

Beside equitable access, there is also a formal aspect of justice involved: *treat like cases alike and different cases differently*.

Countries with publicly funded IVF cycles hereby indicate that infertility treatment is part of basic healthcare.

Should countries with public reimbursement of IVF cycles also cover social freezing?

Specificity of elective oocyte freezing: 2 steps separated in time:

- 1) ovarian stimulation, egg retrieval, cryopreservation, and
- 2) thawing, fertilisation and transfer.



Should countries with publicly funded IVF extend coverage to social freezing?

Social freezers are not infertile in step 1
but they may be when they return for their stored oocytes.

Several options are now possible:

1. Full coverage of step 1 and 2.
 - guarantees fair access
 - if limited to women with high chance of use and with high chance of success, it may be cost-effective compared to late IVF

Mertes & Pennings (2012) Elective oocyte cryopreservation: who should pay? *Human Reproduction* 27 (1): 9-13.

Coverage for social freezing?

2. Partial coverage : only step 2 reimbursed.
 - at the time of use, there will be medical indications (higher chance, lower risks ...)
3. Refund of step 1 when women return for their oocytes.
 - avoid waste of public resources
 - these women will likely be at an age when they get IVF reimbursed
4. Refund in kind: offer more transfer cycles.
 - costs are generally for the stimulation, not the transfer
 - not useful when a number of IVF cycles are covered.
5. Full / partial refund when eggs are donated to others

One could also have a combination of different strategies.

Coverage for social freezing?

The most just system would be full coverage of both steps for all.

Counterargument: this will become prohibitively expensive for the social security system.

However:

- Only 3,1% of the women in the global population are interested (Stoop et al., 2013)
- Several models have been proposed to calculate the costs (van Loenderschoot et al., 2011; Hirshfeld-Cytron et al., 2012). Depending on the parameters used, there may even be a cost reduction compared to IVF at 40.

Abolish the distinction

All freezing is freezing to remedy possible future infertility due to ovarian dysfunction caused by genetic disorder, cancer treatment or age.

To determine reimbursement of a medical intervention, a cost-benefit analysis is made. This analysis should include the following parameters:

- risks of future infertility,
- urgency,
- chance of pregnancy after cryopreservation,
- utilisation rate of the stored oocytes,
- medical risks,
- financial cost

Abolish the distinction

The normative use of the term 'medical' is demonstrated in the fact that no one seems to question the acceptability and reimbursement of freezing for so-called medical reasons.

Why?

Example: a woman with a cancer with a 30% chance of becoming infertile.

Recommendation now: offer IVF (with full reimbursement) to all cancer patients

But most likely less than 20% of the women will return for their oocytes
And less than 20% will become pregnant.

JUSTIFIED EXPENSES?



Abolish the distinction

Age-related fertility preservation should be evaluated by the same criteria: utilization rate, alternative uses of the oocytes, costs, chances of getting pregnant with the stored oocytes etc.

A possible finding could be that

- freezing before the age of 30 should not be reimbursed because too few women return for their eggs,
- freezing for women over 38 should not be reimbursed because the chances of success are too low.

Similar reasoning is now applied in many countries for IVF.

IMPORTANT: freezing outside those criteria should not be forbidden but should not be reimbursed by public money.



Freezing in practice

Relatively new technique and new application: very little is known about willingness to freeze, use, success rate, type of woman interested etc. Empirical studies are needed beside theoretical analysis.

Prepare for unforeseen consequences.

For instance, if reimbursement is provided, women will look at freezing as a right and even those who do not fulfill the criteria will demand freezing.

For instance, if women are younger when freezing, more eggs may become available for donation.

Follow-up of the freezers

Have you tried to get pregnant since intake (%)	23 (35.4)
Pregnant of delivered a child since intake (%)	9/23 (39.1)
Trying for more than 1 year without success (%)	4/23 (17.4)
Use of ART (%)	10/23 (43.5)
Use of Donor sperm (%)	7/23 (30.4)
If pregnant since intake, was it spontaneous? (%)	5/9 (55.6)

Table VII Expectations of women who cryopreserved oocytes about their future use

	Yes	No	I don't know
Do you think that you will ever use the cryopreserved oocytes?	33 (50.8)	19 (29.2)	13 (20.0)

Stoop et al., 2015, Hum Reprod
Women interviewed > 1 year and < 4 years after intake

Conclusions

We need more research on the long term effects to find out

- in which circumstances freezing eggs for later is ethically acceptable,
- what the effects of offering freezing are on women's reproductive decisions,
- what the effects of freezing are on women's decisions, and
- what the effects are on health care expenditures.

The short- and long-term future is unpredictable as many developments (stem cell derived gametes, ...) may change the landscape completely. But at least for the coming decade, age-related fertility preservation is a real possibility for those who want genetically related children.