Freezing Eggs and Delaying Fertility: Ethical, Legal and Social Issues

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Abstract

With the development of new vitrification techniques, egg freezing has become a viable way for women to protect and extend their fertility. Yet, simply putting her eggs on ice is not a simple solution the complexities women face in deciding to have children. Being able to control when she has children affects a woman's educational and economic outcomes, and for many being able to put off childbearing can help her achieve her lifegoals. However, there are downsides, such as workplace pressure (with some employers even offering egg freezing costs as part of an employment package to keep women working longer) and normalisation of delayed childbearing. This lecture explains the science of fertility and egg freezing, the impact of childbearing and rearing on women's educational and employment prospects and outlines the law on freezing eggs. It will cover the complex issues around whether women should be permitted to freeze their eggs and how the law should regulate this practice.

Introduction

Today, I'm going to start this lecture on egg freezing by letting the women who seek it speak for themselves and let their words set the scene.

"Children are wonderful, but they can also stress you financially, physically and emotionally. I wanted to be in rock-solid marriage with a track record before I had kids. And I didn't want that process to be strained by some deadline that no one could really identify".

"I was starting to feel that my desire to have children was putting pressure on my current relationship… deciding to freeze my eggs helped me to separate the issues – yes, I want to have children, yes, I am in a relationship, but my desire to have children shouldn't cloud whether we should be having children together. I don't want to have children until I feel emotionally and financially prepared."

"The Biological Clock—a worn metaphor but spot-on accurate because sometimes it ticks so loudly it makes us stay up all night feverishly Googling "fertility options" ... I have seen this pressure push people into lacklustre marriages or fret their lovely, confident selves into frenzied, fearful heaps. "

A ticking clock, such a common metaphor for the pressure women feel.

So, we can immediately see why women might want to freeze their eggs, and that's what I'm going to talk to you about today.

Women have a range of reasons why they would freeze their eggs.

- Medical
- Fertility preservation for women transitioning to male
  - In some cases – depending on how they choose to transition
- 'elective' / social
  - It's this I want to talk about

- The law is not particularly problematic

- The ethical questions are the focus
- That said, I do want to raise some policy questions about regulation
    - Should we fund it more to facilitate choices?
    - Should we allow sales of eggs (like the US)?
- But mostly I want to talk to you about the complexities around it as a practice

In particular, in the course of this lecture, I want to try to redress the frequent tendency in discussions around women, infertility, ageing, and empowerment to unquestioningly accept stereotypes and assumptions about women's views and decision-making capacity. To interrogate these assumptions, this paper draws on the considerable amount of data about women's motivations to postpone childbearing, the effect this has on their careers, their understanding of fertility decline, and their attitudes towards their gametes now available. My aim is to offer a more nuanced and accurate picture of women's situation and to build a more evidence-based foundation from which to draw conclusions as we construct a response to the emergence of egg freezing as an increasingly accessible and popular means by which women can potentially turn back the biological clock, which – as they are so often reminded – keeps on ticking.

What is Egg Freezing and How Successful Is It?

Until the early 2000s, the slow freezing techniques used for cryopreservation of ova often led to damage[1] and consequently low conception rates. It was only by the late 1990s, and early 2000s, that the technique of vitrification, or 'flash freezing', became available and produced much better results.

Vitrification enables mature ova to be preserved once harvested without producing the damaging crystals that other, slower forms of freezing produced.[2] It was the emergence of this technique in the late 1990s that meant egg freezing became a much more viable option for women looking to preserve their fertility. It has the particular benefit of not requiring the woman to choose a partner or sperm donor to inseminate her ova prior to freezing (as is the case with stored embryos), leaving her the sole arbiter of what may be done with those frozen gametes.

The Human Fertilisation and Embryology Authority reports that:

In 2019, there were: 2,377 egg freeze cycles. A 10-fold increase on the number in 2010.

Of those, a 1/3 were women under 35, a 1/3 women aged 35-17 and then decreasingly to women aged 45-50, where there were 23 cycles.

In 2019, nearly 200 women used their thawed eggs in IVF, and nearly 600 used thawed donor eggs. Again, a near 10-fold increase since 2010.

Clearly, egg freezing is on the rise.

And this is very clear from the media interest – we hear about it all the time.

What do we hear?

We hear:

It might help, or it might disappoint

It might encourage women to make bad choices

It might give women 'false hope'

So how successful is it?

Success Rates

Success rates are increasing, but they also vary by clinic and practitioner. We will look at these in more detail

[1]Centre for Reproduction and Gynaecology Wales, *Egg Freezing (Fertility Preservation),* http://crgw.co.uk/information.php?t=Egg-freezing-(fertility-preservation)&s=Treatment-&-Services&id=61 (accessed July 27, 2016).

[2] Practice Committees, *supra* note **Error! Bookmark not defined.**, at 37.

shortly, but as a rough estimate, one fertility clinic suggests:

“Survival rates for eggs following freezing depend on the quality of the eggs before freezing, but on average around 70% of the eggs frozen will survive the freezing and thawing process. Of the surviving eggs about 65% of these in turn will fertilise in response to ICSI (intra cytoplasmic sperm injection).”

The RCOG has explained:

> “In a clinic proficient in vitrification, a frozen oocyte has the same developmental potential as a fresh oocyte, thus preventing subsequent age-related decline. The clinical pregnancy rates reported in randomised series using warmed eggs fertilised in vitro are equivalent to fresh IVF treatment, however, these are from egg donors who are selected for optimum fertility, and are usually much younger than the recipients, and reflect the expertise of centres with greater and longer-term experience of vitrification. This expertise may not be matched by all IVF units, but centre-specific data are not at present available.”[3]

The HFEA has produced data on success rates as best it can (noting that the ability to do so is limited:

Looking at data from 2010-2016, it reported that the average success rate was 18% -- 18% of IVF treatments using frozen thawed ova were successful

What does that mean?

Well, it means:

- More that 4 out of 5 times it failed

Also, there are things we can’t know from that data as it is not broken down by age.

But we do know that it is the age of the egg (up to a point) that determines IVF success.

The older the woman is at the point the egg is frozen, the lower the chance of success.

The HFEA confirms this:

> “When egg freezing takes place, it freezes the quality of the eggs at that point in time of a woman’s life. This means that the age at which a woman freezes her eggs is particularly important. Our data shows that there is a pattern in success rates for women who use their frozen eggs in treatment. The success rate decreases with the increasing age of the woman when the eggs were frozen. The highest success rates are for women aged below 35.”

And this is part of the reason for the warnings we see.

Some clinics will publish this data, for example the London Egg Bank publishes its data on success rates:

Women below 38 years at age of freezing had a 45% success rate, women who froze later than this dropped to a 22% success rate.

The other dimension we want to know about is how much does it cost?

Costs

Only women freezing or thawing eggs for medical reasons will be eligible for NHS funding.

“The average cost of having eggs collected and frozen is £3,350, with additional £500-£1,500 costs for medication. Storage costs are extra and tend to be £125-£350 per year.”[4]

‘Thawing eggs and transferring them to the womb costs an average of £2,500. So, the whole process for egg freezing and thawing costs an average of £7,000-£8,000.’[5]

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[3] https://obgyn.onlinelibrary.wiley.com/doi/pdf/10.1111/1471-0528.16025
[4] Nuffield Council on Bioethics, *Briefing Note: Egg freezing in the UK*
[5] Human Fertilisation and Embryology Authority, *Egg Freezing*, https://www.hfea.gov.uk/treatments/fertility-preservation/egg-freezing/

Women under the age of 35 can offset these costs via 'freeze and share' arrangements (examined below), and employers are also permitted to pay for egg freezing and offer it as a benefit in kind to employees.

So that's the lay of the land in terms of what it is.

Now, briefly, how is it regulated?

Then we'll move on to thinking about why women do it and the pressures they face.

How is it Regulated?

Policy Positions on 'Elective' Egg Freezing

When the new technology of 'vitrification' emerged, and egg freezing became much more viable, there was push back from some quarters, arguing that the practice should be restricted. One of the most prominent was a policy statement from the American Society for Reproductive Medicine.

In 2009, the American Society of Reproductive Medicine's (ASRM) called for fertility clinics to refrain from offering egg-freezing services to healthy women.[6]

Four years later, the ASRM released another statement in which it pronounced vitrification no longer experimental when used for medical reasons,[7] but this pronouncement did not extend to 'social' uses, despite the fact that the ASRM stated that

> There is good evidence that fertilization and pregnancy rates are similar to IVF/ICSI with fresh oocytes when vitrified/warmed oocytes are used as part of IVF/ICSI for young women. Although data are limited, no increase in chromosomal abnormalities, birth defects, and developmental deficits has been reported in the offspring born from cryopreserved oocytes when compared to pregnancies from conventional IVF/ICSI and the general population.[8]

American academic John Robertson commented on this statement, noting that

> initially the ASRM's hedge on freezing as social insurance smacked some women as less consumer protection than old-fashioned, male-dominated medical paternalism. Women were quick to argue that they should be informed of that option so that they could make their own choice.[9]

The ASRM's reticence about social reasons for freezing rested on its belief that the technology was not yet sufficiently safe or efficacious to be used for such purposes.

For example, one cited study showed that for women younger than 34, the implantation rate was 16.7% and the pregnancy rate per thaw cycle was 24.3%. By contrast, for women aged over 38, this dropped to an implantation rate of 10.8% and only 16.1% per thaw cycle would achieve pregnancy.[10]

The ASRM was concerned that marketing of egg freezing to women might give them 'false hope' and 'encourage women to delay childbearing'.[11] This was a particular concern in relation to older women, who were regarded as the most likely to want to take up the technology, given the very low rates of success for women who cryopreserve eggs after the age of 38.[12]

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[6] The Practice Committee of the Society for Assisted Reproductive Technology and the Practice Committee of the American Society for Reproductive Medicine, *Essential Elements of Informed Consent for Elective Oocyte Cryopreservation*, 88 Fertil. Steril. 1495 (2007).
[7] Practice Committees, *supra* note **Error! Bookmark not defined.**.
[8] *Id.*, at 37.
[9] Robertson, *supra* note 2, 122, citing S. E. Richards, *Why I Froze My Eggs (And You Should, Too)*, WALL STREET JOURNAL, 4 May 2013, at C1.
[10] V Bianchi et. al., *Oocyte slow freezing using a 0.2-0.3 M sucrose concentration protocol: is it really the time to trash the cryopreservation machine?* 97 Fertil. Steril. 1101 (Level II-3), (2012).
[11] *Id*.
[12] *Id*. There are also concerns to be raised about how well-founded the ASRM's position was in relation to older women postponing, as in two of the four major studies it cited, the average age of women was actually 35, and the cohorts considered were women <43 and <42 years (Practice Committees, *supra* note **Error! Bookmark not**

The ASRM did not suggest banning the use of the technique for social reasons but was not supportive of its use due to its concerns about potential harms to women who relied upon it to extend their fertility. Therefore, it took the stance of recommending that women seeking to use this technology should be 'carefully counselled'.[13] The clear message was, however, that the need for medical treatment would outweigh the risks of egg freezing, a women's desire to postpone conceiving probably would not, and so women should ideally be protected from taking on those risks.

By contrast, in the United Kingdom, the position legally and in terms of policy was a little different.

Since 2000, it has been legal in the United Kingdom to used stored frozen eggs for infertility treatment.[14] Prior to this, eggs could be frozen and stored but thawing and use in treatment was not permitted. The HFEA lifted the ban after commissioning an independent report on the technique, which concluded that the service should be made available. At the time the ban was lifted, IVF using frozen eggs had a success rate of 1–10% compared to 17% with IVF using fresh eggs. The HFEA considered that the technique had risks, most particularly the low rate of success, but that results at that point were encouraging.

So, the UK approach was more liberal in terms of policy from quite early on, which is in keeping with the UK's approach generally in some areas of reproductive medicine.

How, then, is it regulated?

Regulation of Egg Freezing

- The law is relatively simple and clear
    - It is permitted
- The key issue is storage limits
    - Recent changes
    - Current position

In the UK, fertility services are regulated by the Human Fertilisation and Embryology Authority, which licences clinics and lays down codes of practice (as well as ensuring clinics operate in line with the Human Fertilisation and Embryology Acts 1990 and 2008).

One thing that is regulated is the storage and use of eggs and sperm.

IVF using one's own frozen eggs is permitted. The key issue of late has been how long those frozen eggs could be stored.

The limits on the storage period for gametes have recently been extended via amendments to the law which previously limited storage to 10 years.

Until recently, the standard storage period for eggs (and sperm) was 10 years, after which the gametes had to be destroyed.

Those patients who are or are likely to become, prematurely infertile had the option to renew storage every 10 years up to to 55 years.

Only in late 2021, in response to campaigns such as Progress Educational Trust's 'Extend the Limit' campaign, has this now changed to include those who freeze for social (ie elective) reasons cannot --- they are bound by the 10 year limit. We will hear a little more about this later.

The other main regulatory element is that the HFEA is that it requires clinics to provide potential patients with information about the risks and success rates of services, and this includes egg freezing. So clinics must

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defined., Table 1) and the ASRM itself noted that the data on which the guideline was based 'derives from experience using oocytes obtained from healthy, young oocyte donors under the age of 30 years, which have been vitrified for a limited duration. Therefore, such data cannot be extrapolated to other clinics, different patient populations (particularly older women), and to programs that utilize different cryopreservation protocols' (Practice Committees, *supra* note **Error! Bookmark not defined.**, at 39). Further, the ASRM did not control for the age of the eggs used in the studies cited, casting more doubt on the relevance of the data cited.

[13] Practice Committees, *supra* note **Error! Bookmark not defined.**, at 41.

[14] Jacqui Wise, "UK lifts ban on frozen eggs" *British Medical Journal,* 5 February 2000, 334.

publish their data, and must have processes in place to make sure people are informed.

The HFEA supports and bolsters this by providing its own information on its website.

So, regulation is not really the issue, except to the extent that some researchers have suggested that the *way* clinics present their success rate information can be misleading as they publish *average*s rather than breakdowns by age.

So given all of this, now let's look at why women would want to use such services, given the low success rates…

Beyond Medical and Transition Reasons, Why Would a Woman Want to Freeze Her Eggs?

- Range of reasons but fundamentally because women's fertility declines over time

The Human Fertilisation and Embryology Authority (HFEA) reported that in 2019 in the UK, 37% of patients freezing their eggs were under the age of 35, 53% were 35 to 40, and 12% were over 40.

We'll unpack some of this in a moment. But first, we need to understand a bit about how age affects women's fertility.

Age-Related Fertility Decline in Women

The exact point at which a woman will no longer be able to conceive varies. Nonetheless, all women will be approaching infertility by the time they are in their mid-40s,[15] despite some exceptional cases of women conceiving in their late 40s and even 50s.[16]

It is widely but wrongly believed that this fertility decline happens quite suddenly during a woman's mid-30s. In fact, the decline is gradual as women proceed through their late 20s and 30s and, with the decline then accelerating from the mid-30s onwards.[17]

This happens largely because the store of ova, with which a woman is born, decreases as she ages, as does the quality of those eggs, reducing the likelihood of both successful fertilization and development.[18]

IVF can help some women to conceive despite this decline in the number of eggs. However, the age of the egg itself affects success rates. A woman in her early 30s using her own eggs has a 40-50% chance that IVF will produce a live baby, dropping to 27% at 38 and 20% by the time she is 40. By the time she is in her early to mid-40s, this chance has dropped to 5%.[19]

However, if she uses younger eggs supplied by a donor, her chance of a successful IVF pregnancy remains fairly stable, at around 50-60%, right up until her mid-40s.[20] From this point onwards the chances of her conceiving decrease markedly regardless of the age of the egg used; very few women in their late 40s and

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[15] *See*, e.g., J.W. McDonald et. al., *Age and Fertility: Can Women Wait until Their Early Thirties to Try for a First Birth?* 43 J. Biosocial Science 685 (2011); but compare Jean Twenge, *How Long Can You Wait to Have a Baby?*, THE ATLANTIC, 19 June 2013.

[16] *See* variously: Advanced Fertility Center of Chicago, *Fertility After Age 40 - IVF in the 40s*, http://www.advancedfertility.com/fertility-after-age-40-ivf.htm (accessed 28 March 2017); D. Dunson et. al., *Changes with Age in the Level and Duration of Fertility in the Menstrual Cycle*, 17 Hum. Reprod. 1399 (2002); Reproductive Endocrinology and Infertility Committee et. al., *Advanced Reproductive Age and Fertility*, 33 J Obstet. Gynaecol. Can. 1165 (2011); American Society for Reproductive Medicine, *Age and Fertlity: A Guide for Patients*, (2012), https://www.asrm.org/uploadedFiles/ASRM_Content/Resources/Patient_Resources/Fact_Sheets_and_Info_Booklets/agefertility.pdf (accessed 29 September 2016).

[17] McDonald et. al., *supra* note 15.

[18] Faddy et. al., *Accelerated Disappearance of Ovarian Follicles in Mid-Life: Implications for Forecasting Menopause*, 7 Hum. Reprod. 1342 (1992). Although note there is some research that challenges the idea that a woman's entire complement of ova are with her at birth.

[19] *Id.*

[20] *Id.*

onwards will conceive, even with donor eggs.[21]

A woman conceiving in her late 30s and 40s also faces a much higher risk of miscarriage, which appears to be related to the age of her eggs.

For a woman aged 30, about a quarter of her eggs will have chromosomal abnormalities. By age 38, around 50% of her eggs will have abnormalities, while the figure is as high as 90% for women aged 44 and over.[22]

So, it is true that women face the cliched 'ticking clock', although it doesn't tick exactly as women have been led to think. But it is absolutely the case that women who put off childbearing do so by risking the possibility that they may end up not being able to have children at all.

It seems obvious, then, that women should have their children when they are younger and more fertile to avoid this risk.

But as I'm sure you all know, it's far less obvious than that. I think you'll all understand at least some of the reasons why a woman might put off having children until later in life, so some of what I'm about to say will be familiar or self-evident.

However, in the course of explaining *why* women postpone childbearing, I want to give you a lot of insight into not only women's asserted reasons, giving their voices prominence, but also offer *evidence* that supports these reasons, to show the very real effects women suffer when they cannot control the timing of their childbearing.

Impact of Timing of Childbearing on Women's Outcomes

One of the things to really appreciate about women's choices about timing of reproduction is the impact that when they have children has on their outcomes. This is a large part of women's decision making about reproduction.

Equal participation in employment

Women are having children later today partly because many stay in education longer and pursue careers outside the home

And partly because the cost of living has increased so that they have to have careers in order to be able to afford, even with a man's salary, to be able to provide responsibly for children.

In the UK, the average age of a woman at first birth is nearly 30.

In 2005, nearly 8% of women had their first child after the age of 35 and that continues to rise.[23]

In the employment context, women must take at least some time out of work to bear children, and it is they who also, more often than men, take extended periods away from employment to care for children.[24]

Melinda Mills et al argue that childcare costs, lower rates of pay and (in many countries) the more generous leave offered to women than men lead to this decision, which then have the consequence of producing a

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[21] N Wyndham et. al., *A Persistent Misperception: Assisted Reproductive Technology Can Reverse the "Aged Biological Clock"* 92 Fertil. Steril. 1044 (2012).
[22] Advanced Fertility Center of Chicago, *Female Age and Chromosomal Abnormalities (Aneuploidy) in Eggs and Embryos*, http://www.advancedfertility.com/age-eggs-chromosomes.htm (accessed September 20, 2016).
[23] Office for National Statistics, *Birth statistics: Review of the Registrar General on births and patterns of family building in England and Wales, 2005*, Table 3.3 (Live births: within marriage, within marriage to remarried women, age of mother and birth order).
[24] For example, one British Social Attitudes survey found that women report doing 22 hours looking after family members per week, v. men who claim to only do 10 hours/week. 31% of British respondents thought that woman should stay home to look after the children and the man should be the sole income earner. 38 % believed the woman should work part-time so that they are able to look after children, while the man should work full time. Virtually none supported the idea of the woman working full-time while the man took on the role of carer part- or full-time: J Scott and E Clery, *How should parents divide their work and caring responsibilities when children are young?* British Survey of Attitudes Report No.30, available at http://www.bsa.natcen.ac.uk/latest-report/british-social-attitudes-30/gender-roles/division-of-work-and-caring-responsibilities.aspx (accessed 29 September 2016).

response to the birth of a new child that is

> often … a crystallization of gender roles, with women increasing time spent in housework and childcare in comparison with men only after the birth of the first child.[25]

This situation remains even when men receive more generous or even equal leave, which is explained partly by cultural expectations on both genders as well as their employers,[26] unequal financial impacts, but also by women being reluctant to share their leave in some cases.[27]

Charles Elvin, CEO of the Institute of Leadership and Management has suggested that inconsistency in leave entitlements, leave payments and culture had a serious impact on women and

> also reinforces a cultural expectation within organisations that women will be the ones taking extended periods away from the workplace, which may halt their career progression.[28]

The net result is that women, rather than men, take longer out of the workplace when a child is born.

Taking extended periods out of the workplace has a strongly negative impact on women's employment prospects and lifetime income. By contrast, women who delay childbearing experience significant economic benefits:

> A year of delayed motherhood is found to increase career earnings by 9%, work experience by 6%, and average wage rates by 3%. The effects are heterogeneous across women; those with college degrees and in professional and managerial occupations receive the greatest career returns to delay. Post-motherhood wages are also shown to vary with motherhood timing.[29]

Indeed, the point at which a woman exits the workforce to have children may account for as much as 12% of the gender wage gap because of the effect on women's work experience and the resulting depreciation in their skills.[30]

Women who want to pursue highly skilled jobs benefit most from delaying, and this relates to the time and training needed to build these skills to be successful in such careers.[31] On a review of evidence about the impact of reproduction timing, however, Amalia Miller suggests that:

> On the supply side, mothers may reduce their hours in the labor market and invest less in skill development. From the demand side, employers may offer mothers fewer training and advancement opportunities.[32]

Many high-earning careers also demand people put in very long hours, particularly in the early stages, and if women *are* taking on the greater proportion of childcare responsibilities, then it is not surprising that they

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[25] Mills et. al*., supra* note 86, at 855 citing S. Bianchi et. al., *Is Anyone Doing the Housework? Trends in the Gender Division of Household Labor'* 79 Soc. For. 191 (2000); J. Gershuny, CHANGING TIMES: WORK AND LEISURE IN POSTINDUSTRIAL SOCIETY (Oxford 2000); J. Hook, *Care in Context: Men's Unpaid Work in 20 countries, 1965–2003*, 71 Am. Soc. Rev. 639 (2006).

[26] For example, the Institute of Leadership and Management (UK) reported in 2014 that fewer than 10% of new fathers took more than two weeks paternity leave, with a mere 2% of managers doing so. 25% of new fathers took no leave at all: Institute of Leadership and Management, *Shared Opportunity: Parental Leave in UK Business* (2014), https://www.i-l-m.com/~/media/ILM%20Website/Documents/research-reports/shared-leave/ilm-shared-parental-leave-report%20pdf.ashx (accessed 29 September 2016).

[27] My Family Care, *Shared Parental Leave: Where are We Now, 3,* (April 2016). See also, Jorge Cabrita and Felix Wohlgemuth, *Promoting uptake of parental and paternity leave among fathers in the European Union*, EUROFOUND (2015); Institute of Leadership and Management, *supra* note 26.

[28] Institute of Leadership and Management, *supra* note 26.

[29] A.R. Miller, *The Effects of Motherhood Timing on Career Path,* 24 J. Pop. Econ. 1071 (2011), at 1073. Similar results are reported in E.T. Wilde et. al., *The Mommy Track Divides: The Impact of Childbearing on Wage of Women of Differing Skill Levels* 16582 National Bureau of Economic Research Working Paper Series (2010).

[30] Miller, *supra* note 29, at 1073–4.

[31] Miller, *supra* note 29. *See also,* Wilde et al*., supra* note 29.

[32] *Id.*, at 1097.

face barriers to success in such careers.

In addition, there is the problem of perception.

Many employers, evidence suggests, tend to believe women are less likely to work hard. In jobs where output is not easily tracked, this perception may mean that women who have children are regarded as less valuable in the workplace.[33]

Given this, many women may have sound reasons for delaying childbearing until they are in a stronger employment position or have built a sufficient skill base such that their careers can tolerate them taking time out.

Alternatively, they may need to reach a point of financial stability that will enable them to afford the childcare needed so that that they can work the hours their jobs demand of them.

Many surveys show that women are well aware of the impact of having children on their career prospects.

One study found, for example, that female medical residents intentionally postpone childbearing due to concerns that their careers will be affected if their training is extended due to childbearing.

Women are highly concerned about financial security when making decisions about childbearing, so concerns about timing of conception are naturally part of the calculus many will be performing when they make a decision about freezing.

As the BPAS survey found:

> The three most important factors women for starting a family were being in the right relationship (82%), having financial security (77%) and owning their own home (40%) …[34]

Equal participation in education

It is well established that women's educational outcomes may be adversely affected by a decision to have children, and in particular, the timing of this decision.[35]

Postponement is also correlated with greater participation in higher education, and higher rates of childlessness with the attainment of degree level qualifications.[36]

Why are men not affected in the same way?

In part, because childbearing affects a woman's capacity to undertake education. She must take time out to care for the child in the early months, and if she chooses to breastfeed, this demands a substantial and continuous time-commitment in the early months, as well as an environment later that permits on-going feeding or milk expression.

As women still carry the greater burden of childrearing responsibilities, for many the expectation (and perhaps the desire) will be that she, rather than the father, stays in the home to raise the child.[37]

Further, childcare costs will prevent many women from combining study with childrearing, particularly those whose partner is also still in education and hence unlikely to be earning. Not surprisingly, given the relationship between education level and employment prospects, childlessness and postponement are correlated with higher income levels.[38]

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[33] Wilde, *supra* note 29.
[34] BPAS, *supra* note 71.
[35] A. Berrington, *Perpetual Postponers? Women's, Men's and Couple's Fertility Intentions and Subsequent Fertility Behaviour*, 117 Population Trends 9 (2004). See also, A. Cooke et. al., *supra* note 81; Tough et. al., *supra* note 69 and as cited therein: J. Hansen, *Older Maternal Age and Pregnancy Outcome: A Review of the Literature*, 41 Obstet. Gynecol. Surv. 726 (1986); P. Mansfield and W. McCool, *Toward a Better Understanding of the 'Advanced Maternal Age' Factor*, 10 Health Care Women Int. 395 (1989). Women who delay childbearing are also more likely to participate in higher education: M. Mills et. al*., supra* note 86, at 852.
[36] Berrington, *supra* note 35. See also A. Cooke et. al., *supra* note 81.
[37] For example, until 2015, in the United Kingdom men received only two weeks paternity leave entitlement, while women could take up to one year while retaining job security.
[38] Tough et. al., *supra* note 69 and as cited therein, J. Hansen, *supra* note 35; P. Mansfield and W. McCool, *supra*

Time to find a partner

Some women feel pressure to find a partner and have children by their mid-thirties. Speaking about her reasons for freezing her eggs, one woman said:

> I was starting to feel that my desire to have children was putting pressure on my current relationship… deciding to freeze my eggs helped me to separate the issues – yes, I want to have children, yes, I am in a relationship, but my desire to have children shouldn't cloud whether we should be having children together. I don't want to have children until I feel emotionally and financially prepared.[39]

Time to be emotionally and psychologically ready for childrearing

> "I experienced four miscarriages after the birth of my first daughter, when I was 43. The loss was excruciating, especially as I did not have years ahead of me to try again. The upside, however, has been having a child when I was 'ready' psychologically and emotionally, and in the right relationship and time of life, to do so."[40]

The current situation forces them to attempt to juggle establishing a career and having a family. It may be better for the child born and the parents that the family is the result of mature and well considered choice and is financially secure so that the parents are able to spend time with their children.

Concerns About Permitting or Enabling Women to Freeze their Eggs

So, given all its seeming benefits, why would anyone object to permitting women to freeze their eggs for 'social' reasons?

Others have raised concerns about it being for children to be born to younger women –both for their own well-being and for the woman herself. Some assert that there are societal harms from permitting and normalising elective egg freezing, while others suggest that women are harmed if they are pressured into putting off childbearing. There are also health risks associated with freezing, but perhaps the most prominent concern that has been raised is that women may be misled into relying on egg freezing as an insurance policy that won't pay out.

We'll go through these in turn.

It is better for women to have children earlier

Related to the previous point it could be argued that social IVF is not in a woman's interests because it is better to have children earlier in life.

This, however, is a paternalistic approach. Women are the best judges of when it is best for them as individuals, in their particular circumstances, to have children, though they should be informed of any data about the effects on well-being of having children at different ages.

Women who have children later in life will often be earning more than they were earlier in their lives. While they face a higher opportunity cost in terms of lost earnings if they leave employment to have children later, this will often be offset by greater job security if they have sufficient experience to either retain a good job or be sought after by employers if they re-enter the job market.

There is also evidence also to suggest that women do not suffer from having children later. Setting aside the health risks considered above, studies show that older women often have more positive experiences of

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note 35.

[39] "Client Testimonials", *Extend Fertility*, www.extendfertility.com/experts/clients.php (8 November 2007)

[40] Corinne Sweet, "Conditions of Unconditional Love" *Sunday Tribune*, 26 June 2005, www.sundaytribune.co.za/index.php?fArticleId=2599599&fSectionId=237&fSetId=.

pregnancy than their younger counterparts, because they are more prepared and more committed to the "parenting experience".[41]

The real problems faced by women who have children later in life do not stem from the experiences of pregnancy or childrearing themselves, but rather anxiety about failing to conceive and, importantly, community attitudes.

Older women feel understandable concern about their ability to parent, their energy levels and the possibility that they will die while the child is still young, but these concerns are compounded by the "shock", "disgust" and criticism they report experiencing as a result of attitudes towards them.[42]

There is little evidence to suggest that older women actually *are* worse parents, in fact the data show the opposite---as discussed in the next section, age-related studies of parenting ability suggest that older women are often actually better parents.

It is better for children to be born to younger parents?

One objection to older women becoming pregnant, such as through implantation of thawed-frozen eggs, is that they are more likely to die the child is still quite young, and as Arthur Caplan has argued, producing orphans is not 'good public policy'.[43]

This objection rests on concerns about the welfare of the future child's, which may be affected by the lack of parental support and the emotional anguish of the early death of its mother.

Concerns about the welfare of children born to parents who may die relatively early in their lives are legitimate, but as a general objection to allowing to postpone pregnancy through egg freezing they are misconceived and discriminatory.

It is in fact more likely than not that a woman who becomes pregnant late in life will be alive to care for her child for many years.

In the UK, average life expectancy for women is over 80 years, so even a woman who postpones childbearing until she is 50 can still reasonably expect to live until her child reaches adulthood.

Further, while we can say that older women may have fewer years of life left, based on average life expectancy, it is not certain that *all* younger women will outlive *any* older woman.

Given these two factors, there is little weight to predictions that a child born to a much older mother will actually suffer the alleged harms of losing a parent early in life.

Children of older parents also face the burden of caring for their parents at an earlier stage in their lives. Where this burden is financial, such as supporting a parent who has retired or payment for care, the child is less likely to have acquired the financial resources to do so.

Children may also have to leave education or employment to provide physical care, which will likely reduce their later employment prospects. This burden will fall particularly on those who lack the financial resources to pay for care, hitting them with two burdens that compound one another.

This may be true in some cases, but say the child is born to a woman of 50, who has a life expectancy of over 80. This is only the *average* life expectancy, so this woman could in fact live to 90. Recent demographic information supports this view, particularly for women in high status jobs. Life expectancy for such women—the group most likely to postpone childrearing by freezing their eggs—is now 85, higher than that for women generally.[44]

Say she does, and only becomes ill five years before she dies. The child will be 35, the time when he or she is likely to be relatively financially stable and so able to bear the cost of care. More importantly, the child will

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[41] Rachel L Shaw and David C Giles, "Motherhood on ice? A media-framing analysis of older mothers in the UK news", *Psychology and Health*, 2007, 1–18, (citing Carolan, Shelton & Johnson, Ragozin).
[42] Rachel L Shaw and David C Giles, "Motherhood on ice? A media-framing analysis of older mothers in the UK news", *Psychology and Health*, 2007, 1–18, (citing various studies).
[43] Arthur Caplan, '*The Future of Human Reproduction: Ethics, Choice, and Regulation* edited by John Harris and Soren Hølm (Review)' (1999) 319 *British Medical Journal* 948, 948.
[44] Jill Sheerman, "Wealthy, healthy and aged 85: the women living even longer", *The Times*, 25 October 2007.

not himself be old. Due to the significant age gap between parent and child, he will himself be fitter and healthier and hence better able to provide care physically. He is less likely to have his own health concerns, and so may well be more emotionally able to care for an infirm parent.

Contrasted with situation in which many people find themselves—themselves old with their parents still alive—the child suffers less. It seems far better to be a 35-year-old caring for an ill 85 year old, than a 60 year old caring for an ill 85 year old, who had her children when she was 25. On this account, there may be good reasons for encouraging a greater age gap between parents and children, particularly given the fact that the population is itself aging and the care burden increasing. Creating larger generational gaps could reduce this problem.

Women who have children later in life may be less physically able to be parents. For example, a woman who becomes pregnant at 55, will be nearly 70 when that child reaches puberty—arguably at this age, the woman is not capable to deal emotionally or physically with the demands of a teenage child.[45] For example, when 59 year old Jennifer F was denied access to assisted reproductive treatment in Britain, the British Health Secretary supported this decision on the grounds that she was too old to cope with the stress of motherhood, and that this would affect the child's welfare. According to the Secretary, 'a child has a right to a suitable home', and a home provided by an older woman was not suitable.[46]

However, studies of parenting capacity contradict this assumption. A 2007 study compared parenting stress and physical function across 150 women grouped according to age at which they had conceived and delivered—after ages 30, 40 and 50. No significant differences were found between the groups, and indeed older women appeared *less* likely to suffer severe parental stress than women in their 40s. The study concluded that increased age does not appear to reduce parenting capacity due to physical or mental functioning or parenting stress.[47]

Other studies show that women who decide to postpone childbearing display significant concern about the difficulties, commitment and responsibilities of parenthood and as a result delay having children until the circumstances are most favourable.[48] As a result, children born to such women have a better chance of being wanted and being born to a person willing and able to care and provide for them.

Arguments based on the likelihood of early parental death as objections to women postponing pregnancy through egg freezing are discriminatory and unjust, unless we are prepared to restrain older men from procreating, as their actions are open to the same criticism.

If we really thought that having one older parent was problematic, ageing men conceiving children with younger women would have received greater censure. Instead, it appears that arguments about the early death of the mother are more concerned with the loss of the *mother* rather than the loss of a parent.

This concern might be traced to beliefs that having a mother is particularly important to a child's development, and perhaps biases against single fathers as incapable of fulfilling the parental role alone. Such biases are reflected in attitudes towards single fathers, and the judicial preference for awarding custody of children to mothers and are probably inherent to concerns about older mothers. Further, as a society we do not censure single mothers and fathers; instead, we provide financial support rather than punishing them for adversely affecting their child's welfare by not ensuring he or she has two living parents.[49]

However, as Onora O'Neill points out, there is a difference between the misfortune of the early death of a

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[45] See editorial from the *Lancet* cited in Jennifer A Parks, 'On the Use of IVF by Post-menopausal Women (In Vitro Fertilization)' (1999) 14 *Hypathia* 77. This objection has been raised by the American Society for Reproductive Medicine: American Society for Reproductive Medicine Ethics Committee, 'Oocyte Donation to Postmenopausal Women' *Position Statement*, 15 March 1996, <www.asrm.org/Media/Ethics/postmemo.html>.

[46] Margaret Carlson, 'Older Enough to Be Your Mother', *Time*, 10 January 1994, 41, 41. Similar concerns were raised in relation to another postmenopausal mother by Dr John Marks, former chair of the British Medical Association Council: Angela Wall, 'Monstrous Mothers: Media Representations of Post-Menopausal Pregnancy' (1997) 25 *Afterimage* 14, 15. The Ethics Committee of the American Society for Reproductive Medicine has also stated that 'older women and their partners' may be 'unable to meet the needs of a growing child and maintain a long parental relationship' 'Oocyte donation to postmenopausal women' *Fertility and Sterility* 2004 No. 82 Supp. 1: S251–5.

[47] A. Steiner and R. Paulson, 'Motherhood after age 50: an evaluation of parenting stress and physical functioning' *Fertility and Sterility* 2007: vol. 82 no. 6, 1327–1332.

[48] D M B Hall, "Children in an ageing society", *British Medical Journal*, 20 November 2000, vol. 319, p1356–1358.

[49] Kristen Walker, 'Equal Access to Assisted Reproductive Services: The Effect of McBain v Victoria' (2000) 25 *Alternative Law Journal* 288, 290.

young parent, and actively setting up a situation in which the likelihood of death while the child is young is increased.

She suggests this is 'hardly something for which even minimally responsible aspiring parents would plan'.[50] If we consider that a child born to a very old parent will suffer significant harms with reasonable certainty, concerns about discrimination should yield to preventing harm to this child.

This need not mean banning women from freezing eggs to postpone pregnancy, but real welfare concerns may mean we need not assist them to do so. In such cases, reproductive autonomy and justice concerns should yield to other considerations.[51]

Risks

Maternal mortality increases with age. There is roughly a 4-fold increase in maternal mortality over the age of 40 (5.5 to 20.6 deaths per 100 000).[52] Increased maternal age is also associated with higher rates of complications during pregnancy, including ectopic pregnancy,[53] preeclampsia, chronic hypertension, cardiac disease and perinatal diabetes.[54]

Maternal complications can be reduced by careful selection and management.[55] More importantly, the excess risk is sufficiently small for it to be the case that the woman herself should weigh this risk against the benefits of having children.

However, it should also be noted that post-menopausal women receiving egg donations experience similar pregnancy rates, multiple gestation rates, and spontaneous abortion rates as younger ART recipients, leading one study to conclude that 'there does not appear to be any definitive medical reason for excluding these women from attempting pregnancy on the basis of age alone'.[56]

There are significant risks with egg collection. Superovulatory drugs used to increase the supply of eggs may cause ovarian hyperstimulation: roughly 1/300 require hospital admission. This rarely causes death. These risks can be avoided by not using superovulatory drugs or by employing ovarian biopsy, though both these would reduce the chance of the live pregnancy.

These are serious potential risks. However, these risks are judged acceptable in IVF for infertility, and in the case of freezing embryos, would be no greater than those which are currently acceptable. In the case of freezing eggs, there may be slightly greater risks to the woman and to the offspring.

At present, these risks are not thought to prohibit the use of IVF in the treatment of infertility – it is hard to see how social IVF can be judged "too dangerous." However, we need long term follow-up of these new technologies to make more informed decisions about their use.

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[50] Onora O'Neill, *Autonomy and Trust in Bioethics* (Cambridge: Cambridge University Press, 2000), 67.

[51] We have argued that that many of the arguments that allowing the freezing of eggs will psychologically harm children are flawed. But even if these arguments have some energy, they are of only limited policy relevance. Because of the non-identity problem (Parfit, D. Reasons and Persons, Clarendon Press, Oxford, 1984, Part IV) any child born by this procedure could only be said to be harmed if his or her life were so bad that it was not worth living. The reason is that the child owes his or her existence to the procedure and would not have existed were it not for the process of freezing the egg which uniquely formed him or her. So even if there were some adverse psychological or other consequences, this would imply that freezing eggs should not be actively promoted or subsidised. However, women should still be at liberty to access the technology (Savulescu J.(2002) 'Deaf lesbians, "designer disability," and the future of medicine'. BMJ. 2002 Oct 5; 325(7367):771-3.).

[52] *Report on Confidential Enquiries into Maternal Deaths in the United Kingdom 1991–1993*. 1996; HSMO Publications: London.

[53] Anne-Marie Nybo Anderson, et al., "Maternal Age and Fetal Loss: Older Women Have Increased Risk of Unexplained Fetal Deaths" (2000) 320 *British Medical Journal* 1708, 1710.

[54] Hamisu M Salihu, et al., "Childbearing Beyond Maternal Age 50 and Fetal Outcomes in the United States" (2003) 102 *Obstetrics & Gynecology* 1006, particularly Table 2.

[55] Spellacy WN, Stephen J, Miller MS et al. Pregnancy after 40 years of age. *J Obstet Gynaecol* 1986;**68**:452–4.

[56] Richard J Paulson, et al., 'Pregnancy in the Sixth Decade of Life: Obstetric Outcomes in Women of Advanced Reproductive Age' (2002) 288 *Journal of the American Medical Association* 2320, 2320.

Societal harms

Josephine Quintavalle, of the campaign group Comment on Reproductive Ethics, has argued that if delaying motherhood became routine, the structure of family support and society would change: "To imagine that IVF can be an alternative to natural reproduction for healthy women is an absurdity," she said. "The chances of children having grandparents becomes ever more remote. This will undermine the whole structure of society."[57]

Perhaps it is true that women postponing childbirth will cause changes in social structures, but this is an argument that applies to men and women. It is also an issue about the age at which people should have children, not whether women should have the same opportunities as men to choose when to conceive. As such, it is not a convincing objection to egg freezing itself.

Social equality and justice

IVF for non-medical reasons will seem to many a "luxury" rather than a "necessity". There are clearly more pressing needs, but there are also equally fewer pressing needs which are currently fulfilled by our health service. I am not sure that this is any more of a luxury than many other services provided under our national health system (such as knee reconstructions for footballers).

Moreover, early this century, women's desires to control how many children they had were not thought to be important. Now we believe everyone should have access to birth control. That is not a "medical need." In the future, we may as a community be prepared to pay for the liberty to have greater control of when and how many children we have.

If only the wealthier do have access to this option, it may well function to increase inequities already present in society. But inequality per se may not a valid objection to differential access to new technology. Just because we cannot make everyone happy, why should we make no one happy?

If social inequality were the major objection, we could fund access to this technology to the most social disadvantaged to correct social inequality. Or we could tax access in the private system to provide some public access.

Egg freezing will lead to an increase in the 'alienation' of female gametes

This is concern that was raised by Robertson. In his view, the consequence of freezing their eggs for women is that they will also be able to donate or sell their eggs more easily, and essentially able to deal with them like private property, leading to 'alienation'.

What he means by this is that eggs will be 'alienated', that is, it will lead to 'the donation or sale of unused eggs to infertile women, egg bankers, and researchers'.[58] Consequently, the opportunity to store frozen eggs

> may … distance [women] from the meaning of producing the female germ cells so necessary for reproduction by breaking the bond that exists between women as producers and consumers of their body's reproductive inputs, thus raising the commodification issues that weave though the ethics of assisted reproduction.[59]

Egg freezing might offer women a false sense of security

As I noted earlier, this is probably one of the biggest and most regularly raised concerns.

We can break it down into two elements, that are distinct but so inter-related that it is worth bundling them

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[57] Sarah-Kate Templeton and Holly Watt, "Putting motherhood on ice", *The Sunday Times*, 2 September 2007, www.timesonline.co.uk/tol/news/uk/science/article2368681.ece (26 November 2007).
[58] *Id*., *supra* note **Error! Bookmark not defined.**, 113.
[59] *Id*., at 116.

together, particularly as the responses to them are themselves very related.

- Encourages women to be complacent about declining fertility
- Encourages women to pay for an expensive but ineffective service

The concern that ties them together is that social egg freezing may operate as an insurance policy that does not pay out, giving women a false sense of security. They put off childbearing, believing their frozen eggs will preserve their fertility, only to discover that they are mistaken when it comes time to cash in the policy.

The concern is that allowing egg freezing risks contributing to the promotion of the technology as an option to extend fertility which may encourage women use and rely upon what, for some, may ultimately prove to be an expensive and 'ineffective service, particularly if they are in their mid-thirties or older, when their eggs will have already aged considerably'.[60]

Heidi Mertes argues that this false sense of security is a real issue in relation to egg freezing for social reasons:

> egg freezing is often misleadingly portrayed as an insurance policy instead of a last resort. Each frozen egg cell represents a small chance of a healthy live birth, and those chances decline fast after a woman's 35th birthday. Rather than an insurance policy, women are instead buying lottery tickets. If they buy a lot of tickets (that is, if they are able to bank a large number of good quality egg cells), they have a reasonable chance of success, but uncertainty is a fundamental feature of the system.[61]

RCOG has raised similar concerns:

> We conclude that elective egg freezing provides women with an opportunity to take action about the drop in their fertility, but at present most women who are doing this are already in their later 30s when the success rates are limited.[62]

We need to unpack this a bit, and in doing so, think about *how* it might be false.

I will look at some of the assumptions that underpin this view, and also some of the available evidence that might guide us in thinking about this accurately.

The idea that women's sense of security will be false rests of the assertion that they will not *get what they expect*; they believe they are gaining a security that is in fact illusory. This effectively implies that they are mistaken or misunderstand the (limited) capacity of the technology to extend their fertility.

When this concern is raised, it is sometimes suggested that even though the best time for women to freeze their eggs would be in their early or late 20s, at which point many would have completed their education and started on a career, but their eggs will still be relatively viable.

However, even though this would be the best time to freeze to extend their fertility, it is suggested by some that the reality is that women won't worry about it until they are in their 30s, when their eggs are becoming less viable.[63]

Added to this, some such as Robertson, suggest that younger women (those in their 20s) are affected 'optimism bias'. As a result, they:

> may make the risk of future infertility seem quite distant. Surely, they say to themselves, they will find a man and settle down in the next few years, so why undergo the intrusion and cost of egg freezing? Only the most risk averse or those with a yen for the latest technological fix, may be willing to take the hormones and pay out cash for 'egg insurance' that they may never need to cash in.[64]

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[60] Robertson, *supra* note **Error! Bookmark not defined.**, at 116.
[61] H Mertes, *Company-Sponsored Egg Freezing: Perk or Coercion?* BIONEWS 27 October 2014.
[62] https://www.rcog.org.uk/guidance/browse-all-guidance/scientific-impact-papers/elective-egg-freezing-for-non-medical-reasons-scientific-impact-paper-no-63/
[63] Robertson, *supra* note **Error! Bookmark not defined.** at fn. 27.
[64] *Id*., at 121.

But as they reach their late 30s, their perspective may start to shift, he says, leading them to take 'a cold look at the facts' which may 'lead them to stock the egg freezer'.

Such women 'may become acutely aware of the loss they will experience if they postpone conception too long', and as they age, their anxiety will grow. Once in their late 30s, they will feel 'internal pressure' to freeze their eggs and doing so 'may still their anxiety and allow them to get their workplace, relational, or psychological states in order'.

However, as he emphasizes, the eggs they freeze 'may not give them the fertility they hope for' due to the state their eggs may now be in. Instead, he suggests, the main benefit to the anxious woman in her late 30s who freezes her eggs seems to be mostly that she can regain sufficient calm to get her life in order.[65]

Two implicit assumptions of women's approach to egg freezing emerge here. First, that the vast majority of women who freeze will do so at a sub-optimal time. They will leave it too late, and so waste their money or have their ill-founded hopes dashed. They will, essentially, make a poor decision about when to freeze because given the timing, they are unlikely to achieve much by freezing their eggs, and therefore their choice will almost always have been unwise.[66]

It is crucial to challenge the implicit premise in the picture offered (and Robertson is not the only one to offer it) that women will not manage to effectively navigate the risk/benefit analysis they must confront. The message is that women will choose poorly.

The second assumption that emerges is that these women will have a *false* sense of security. They will miscalculate the risks and benefits and will *mistakenly* rely on their frozen eggs (or the possibility of freezing them in the future) because do not appreciate how low their chance of being helped by the technology actually are. Therefore, any feeling of security they gain from freezing their eggs is ill-founded. Again, the deeper message here is that women either lack understanding of the technology or lack the ability to weigh its risks and benefits.

These two assumptions are inter-twined, of course, because the decision to rely on egg freezing will sometimes be tied to understanding of, and decisions about, *when* to freeze. And within this, is the wider implicit assumption that women don't fully appreciate the risks they are taking – that they are gambling with their chances to have children and do not realise just to what extent their ability to do so declines.

There are substantial problems with these assumptions, and I will demonstrate that are likely to be inaccurate in relation to many women by drawing on the considerable information available about what women do in fact understand about their fertility, fertility treatment and their attitudes towards it.

Age-related fertility decline is regularly in the news, while popular magazines cover the topic with considerable zeal.[67] Women's understanding of the specifics is imperfect, but the general message appears to have found its target.

While some surveys indicate that women under-estimate the impact of age on fertility,[68] many others suggest that women are very well aware that their fertility will decline in their 30s.[69] One survey by Tough et al found that 70% of women surveyed were aware that their fertility would decline with age, and half knew that age increased the likelihood of miscarriage and stillbirth.[70] A survey of 1000 women aged between 20 and 40 conducted by the British Pregnancy Advisory Service found that

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[65] *Id*.

[66] It is worth noting that the woman here cannot get it right, as those who freeze at the optimal time will, he considers, probably not need the insurance policy on which they have spent their money. But of course, this is the case with most insurance, and indeed what most people hope when they take it out --- that they will never need it.

[67] See, eg, Twenge, *supra* note 15; Y. Khalaf, *Cassandra's Prophecy and the Trend of Delaying Childbearing: Is There a Simple Answer to this Complex Problem?*' 27 Reprod. Biomed. Online 17 (2013).

[68] Wyndham et. al., *supra* note 21.

[69] *See, e.g*., Twenge, *supra* note 15; Khalaf, *supra* note 67; Suzanne Tough et. al., *Factors Influencing Childbearing Decisions and Knowledge of Perinatal Risks among Canadian Men and Women*, 11 J. Matern. Child Health 189 (2007). The investigators interviewed 1006 women and 500 men. For a more in-depth exploration of the data on women's knowledge of fertility decline, see Imogen Goold, *Postponing Motherhood: Ethico-Legal Perspectives on Access to Artificial Reproductive Technologies*, in *OXFORD HANDBOOK OF REPRODUCTIVE ETHICS* (Leslie P. Francis ed., 2017).

[70] Tough et. al., *supra* note 69.

> Nine out of 10 women (89%) were aware that the risks of pregnancy increased with age, both for mother and foetus, and for the majority (65%) this was a factor in their decision making around when to try for a baby.[71]

It reported further that

> Many women were concerned they were "running out of time" to have children, including a third (32%) of women aged 25-29, and more than one in 10 (12.4%) of the youngest women (20-24) polled. That women who are at their most fertile are concerned speaks to the prevalence and power of current messages around fertility and infertility.[72]

As BPAS themselves commented on their study

> far from sleepwalking into infertility, women are aware of their reproductive window and more than 60% feel there is now pressure on women to have a baby before they are ready to do so.[73]

Based on this, we should not assume women do not appreciate that their fertility will decline, and it is inaccurate to imply an 'optimism bias' to women in their 20s.

Most are aware, and most appreciate the need to do something about it.

Whether, however, most women fully understand the need to *freeze their eggs* earlier is another matter. Data on this is difficult to find, and I have been unable to locate any studies that focus on this specific question.

There are recent surveys that show that it is *younger* women who are possibly more interested in egg freezing. Camille Lallement et al found in one survey of nearly 1000 women that 83% were aware of egg freezing, and 46% were interested or potentially interested in technology.

They reported that 'characteristics significantly associated with intention to freeze…were being single, age under 35, childlessness, and a history of infertility', commenting on the counter-intuitive nature of this finding:

> As fertility declines with age, interest in the procedure might be expected to similarly increase. It was therefore surprising to observe that younger women appeared to be more supportive of it, because they are not yet confronted with age-related fertility decline and have time to plan.[74]

The Liminal Space (via ICM) surveyed 1110 women as part of their educational installation event, *Timeless*, which explored the issues around egg freezing. Of these, 11% of women of all ages would consider (or were considering) having their eggs frozen. Among 18–24-year-olds, 20% would or were considering it.[75]

Findings of this kind suggest thaqt at least women are considering freezing their eggs relatively early on, and at least some may realise the benefits of freezing sooner rather than later, but we cannot draw firm conclusions on this point. In the absence of evidence either way, we should not make assumptions at all about what women understand about egg freezing. But we should make sure that the benefits of freezing earlier are publicised and women are informed of this when they consult clinics about treatment.

One related question on which we have considerable data is women's understanding of, and beliefs about,

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[71] British Pregnancy Advisory Service (BPAS), *Becoming a Mother: Understanding Women's Choices Today* (November 2 2015) https://www.bpas.org/media/1698/becoming-a-mother-understanding-womens-choices-today.pdf (accessed 29 September 2016).

[72] BPAS, *supra* note 71.

[73] BPAS, *supra* note 71.

[74] C Lallement et. al., '*Medical and Social Egg Freezing: Internet-based Survey of Knowledge and Attitudes among Women in Denmark and the UK*' 95 Acta. Obstet. Gynecol. Scand. 1402 (2016). They noted that their findings agreed with those of other similar surveys, such as that by D Stoop et. al., *A Survey on the Intentions and Attitudes towards Oocyte Cryopreservation for Non-Medical Reasons among Women of Reproductive Age*, *26* Hum. Reprod. *655 (*2011*).*

[75] London School of Economics, *Launch of Pop-Up Shop to Stimulate Public Debate on Egg Freezing as Survey Reveals Shift in Attitudes*, http://www.lse.ac.uk/website-archive/newsAndMedia/newsArchives/2016/02/Launch-of-pop-up-shop-to-stimulate-public-debate-on-egg-freezing-as-survey-reveals-shift-in-attitudes.aspx (accessed 24 March 2017).

the efficacy of artificial reproduction technologies (ARTs) generally. These data are relevant to whether we should assume women have a *false* sense of security from freezing. The BPAS survey found that most women do not regard IVF itself as a cure-all for declining fertility,[76] and it is at the very least likely that they will apply the same capacity to evaluate risks and benefits to the promise of egg freezing. Of the 1000 women surveyed, only 9% felt that the availability of IVF made them less worried about running out of time 'despite recent suggestions that access to reproductive technologies made women less worried about later life infertility'.[77] Other studies report similar findings,[78] and as Yacoub Khalaf has commented, 'there is an article on 'my IVF heartbreak' in almost every women's magazine in the newsagents'.[79]

This perspective is reflected in Richards' findings, where she comments that

> Another concern is that women will push the age of motherhood to an extreme, endure more difficult pregnancies, risk premature labor and deny their children the chance of spending much, if any, time with their grandparents. But women understand that, even with frozen eggs, they don't have forever.[80]

That said, there are other studies that suggest many women do *not* appreciate that ARTs will not save their fertility if they delay too long. In a survey of over 3,000 women, Daniluk et al found that 91% were 'unrealistically confident about the ability of [ARTs] to assist most women to have a child using their own eggs until they reach menopause',[81] while Benzies et al reported from their study:

> Women were confident that, if they needed it, reproductive technology would be available to assist with conception whenever they decided to bear a child. Sheila who was older than 30 years without children stated: "Women are having babies later because of technology, fertility technology that allows us to kind of extend our fertility period, where before we couldn't, you know?" [82]

Based on such findings, we ought not them to readily assume that women will consider egg freezing a magic bullet that will address their future fertility decline, that is they will not be insensible to the risk/benefit calculus they must make.

Some will over-estimate its potential, others will not. But it is at least likely that many will see it as a back-up plan (as many report), rather than a perfect postponement strategy.[83]

Richards: The women she surveyed also seemed not to consider egg freezing as sometime to rely on heavily:

> the women I've talked to didn't use their frozen fertility as an excuse to date their DVRs. In fact, they said that egg freezing motivated them to take charge of their lives. They relaxed. They dated, married and thawed. They became ready to be mothers.[84]

Indeed, she found that taking the step to freeze actually galvanized the women she interviewed to face up to the decline they face head on:

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[76] BPAS *supra* note 71.
[77] *Id.* at 10.
[78] A. Cooke et. al., *Advanced Maternal Age: Delayed Childbearing is Rarely a Conscious Choice: A Qualitative Study of Women's Views and Experiences*, 49 Int. J. Nurs. Stud. 30 (2012).
[79] Khalaf, *supra* note 67.
[80] Richards, *supra* note **Error! Bookmark not defined.**.
[81] J.C. Daniluk et. al., *Childless Women's Knowledge of Fertility and Assisted Human Reproduction: Identifying the Gaps*, 97 Fertil. Steril. 420 (2012), at 424. See also A. Cooke et. al., '*Informed and Uninformed Decision Making'—Women's Reasoning, Experiences and Perceptions with Regard to Advanced Maternal Age and Delayed Childbearing: A Meta-Synthesis*, 47 Int. J. Nurs. Stud. 1317 (2010), at 1325.
[82] K. Benzies et. al., *Factors Influencing Women's Decisions About Timing of Motherhood*, 35 J. Obstet. Gynecol. Neonatal Nurs. 625 (2006), at 628.
[83] C. Stanton et. al., *I-2 A Survey on Awareness and Interest Towards Proactive Egg Freezing among Women 25-35 Years Old*, 101(2) Fertil. Steril. (Suppl., Feb 2014).
[84] *Id.*

> When a woman freezes her eggs, two things happen: She comes to terms with the fact that her fertility is fading, and she invests significant time, energy and money in protecting that asset by seeking medical help. The combination puts the issue front and center and makes you commit to your goals.[85]

Whatever she has chosen, however she has relied, she almost certainly has reasons to do so that *she personally* considers sufficient. She may have misunderstood some facts or statistics, or she may come to regret it, but we should at the least assume she has *made* a choice.

The law is rarely concerned with whether a person makes a *rational* choice, only that their choice is autonomous in the sense of being free from coercion.

In some contexts, and jurisdictions, it must also be informed, but even this only requires that the chooser understands and can weigh relevant information. It does not require their choice to be rational or even supported by reasons at all.

So, we might simply say that as long a woman has been given appropriate information and can understand and weigh it, what she then chooses to do is no one else's business and she should be left to bear the consequences.

On this view, unless the woman lacks capacity, it is in a sense irrelevant if she unduly relies on egg freezing to her detriment. That is her right as an autonomous citizen.

But the suggestion that her reliance is false is open to substantive challenge in the sense that her reasons are very likely to be *good* reasons.

This should not be a surprising conclusion given that we have seen that most women understand that their fertility will decline, and yet are increasingly choosing to delay regardless.

Over the past 30 years there has been a clear trend for women (and men) in developed countries to have their children later in life.[86]

Why would a woman do this? There are many very good reasons, and they suggest that far from being egg freezing providing a false sense of security, the better understanding of a woman's decision to rely on freezing might be that reliance is simply the best option open to her. It is not difficult to see why this might be so; there is a substantial body of evidence to both explain and indeed justify such a woman's decision.

As we saw above, timing of reproduction has severe implications for women's education and employment outcomes.

Given all this, if a woman is choosing to freeze, the assumption that she has done so with good reasons need not rest just on her capacity to choose what she considers best for herself; we can conclude that her risk/benefit analysis is very likely to be highly rational precisely because there are demonstrable benefits to be gained from holding off until the right time for a woman to procreate.

Further, the view that a woman's reliance might be false in the sense of being misplaced rests on the implicit assumption that she had a free choice about when to procreate and would face no penalties based on when they choose to do so.

It assumes she could have chosen better if she had simply chosen to freeze earlier, or to have had her children earlier. For many women, this is simply not the reality of their situation. We should respect women's choices regardless as long as they have capacity. But if we must make assumptions about the falsity or otherwise of their sense of security, the foregoing suggests that the better assumption, is that a woman's postponement decision is based on good reasons, even if we disagree with the risk/benefit evaluation she has made.

So, can it be said that egg freezing offers women a false sense of security? I don't believe it can.

If they are given accurate information, then this cannot really be the case.

Their sense of security will not be false as the extent to which they regard it as sufficiently secure is their own

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[85] *Id.*

[86] Tough et. al., *supra* note 69; M. Mills et. al., *Why Do People Postpone Parenthood? Reasons and Social Policy Incentives* 17 Hum. Reprod. Update 848 (2011).

decision to make.

They might make a choice that does not best help them achieve their goals, but that then is a question about how far one person's decision-making power should be over-ridden for their benefit.

The simple conclusion here is that the option of more effective egg freezing technology does not fundamentally alter the challenges women face. Women have always had to choose between risks --- to their education, to their career, to their relationships, or to their fertility. The emergence of vitrification techniques has merely changed the risks and benefits to be weighed; it has not created an entirely new type of analysis that they must undertake. Previously, their realistic choices were limited to risking their future reproduction for the sake of other goals or creating embryos using donor sperm (or that of a current partner, which may lead to problems if he later refuses consent to implantation).[87] Egg freezing simply introduces an added option to weigh.

For the most part, too, the addition of this option will not actually be harming and so there is even less reason to be concerned for women making the choice to freeze.

Some may make a financial loss if they do not end up needing their insurance policy.

Others will postpone for the same time as they would have done anyway but be saved from infertility by that insurance.

Others will postpone *longer* in reliance on their frozen eggs' potential, with some being disappointed and others rejoicing that their proactive freezing has made all the difference.

It is only this latter group where the option of egg freezing can actually be harming, because in this case she behaves *differently* and runs a risk (or extra risk) *solely* because of the promise offered by freezing. But in all cases, given what has been said about a woman's right to make her own choices, the only real issues are informational ones --- does she appreciate that she is running a risk and understand the nature of the risk (and egg freezing's potential to ameliorate it)? The only relevant concern is whether the information she has received is accurate and sufficient.

This leads us to the real issue in relation to egg freezing, which is not whether women will gain a false sense of security, but whether those providing services can be effectively required to offer good, unbiased information.

In a commercialized context, this might (as Robertson recognizes) legitimately be a problem. Companies offering freezing services may not accurately present data about general success rates, or about their own company-specific success rates.

The concern can thus be largely met by mandating what information must be provided to women when freezing their eggs.[88] When we give that information, we should also make sure that when women seek egg freezing, they are given information tailored to their situation, particularly their age and reproductive health.

Such mandating should be supported by public education campaigns to help women understand that if they intend to freezer, sooner is better than later. Such programmes should also try to address the incorrect understanding some women have about fertility decline and the promise of ARTs,[89] because we should see this as a public health issue that requires women to be educated about their reproductive health. Robertson is rightly supportive of ensuring good information provision, which is in fact one of the main aims of his paper.

None of this removes the need to continue to work towards removing the barriers to conceiving naturally earlier in life for those women who would prefer to do so, a point on which Robertson concurs. But until those

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[87] Natalie Evans faced exactly this problem when her ex-partner, with whom she had created embryos prior to having her ovaries removes as part of treatment for ovarian cancer, later refused to consent to her using them to become pregnant. Both the English Court of Appeal ([2004] EWCA (Civ) 727) and the European Court of Human Rights (Evans v. United Kingdom, no. 6339/05, judgment of Apr. 10, 2007) affirmed that his refusal to give consent under the Human Fertilisation and Embryology Act 1990 meant she could not use the embryos, even though they were her only means of having a genetically related child.

[88] Which, in fact, the 2008 ASRM guidelines on egg freezing did, listing thirteen points of information that must be provided to women: see Practice Committees, *supra* note 6.

[89] Such as the belief that individual health is indicative of fertility (the two are not correlated to any meaningful degree, although unhealthy behaviours such as smoking, and also being obese can adversely affect fertility): G.F. Homan, M. Davies, and R. Norman, *The impact of lifestyle factors on reproductive performance in the general population and those undergoing infertility treatment: a review,* 13(3) Hum. Reprod. 209 (2007).

barriers are removed, the key thing is to ensure women have the right information and are able to make free choices. That women's choices may be swayed by advertising, clinics and the market are simply a reason to offset so far as possible those impacts via compulsory information provision and counseling.

- The converse question this leads us to is: does egg freezing empower women?

Does Egg Freezing Empower Women?

To the flip side of many of the concerns raised in this lecture is the idea that egg freezing *empowers* women.

Egg freezing offers women more choices and greater capacity to achieve their educational and career goals by extending the reproductive life of their ova. We might think this does sound empowering… but perhaps it isn't as simple as that.

Arguably, what would *most* empower women would be to change how the workplace operates so that they do not face such barriers. We would offer more support in educational settings for women with children. And more fundamentally, we would shift the gendered norms that see women crystallise in primary carers and so as necessarily the bearers of the greater load and impact.

Julian Savulescu and I made similar arguments well over a decade,[90] but little has changed in that time. For example, despite legal steps towards allowing sharing of leave between male and female partners after the birth of a child, the rate of take-up by men has been extremely low.[91] This suggests that at least in the short term, cultural change is coming slowly (which is supported by the survey data on women's caring role and employment cited earlier); as a result, egg freezing remains a useful option for women wishing to avoid the disadvantages they might otherwise face if they have children earlier. Freezing is therefore empowering in that it at least gives women more options in relation to how they deal with the conditions in which they find themselves.

There are, however, ways in which despite the positive impact it may have, that egg freezing may be disempowering which we need to address. One is the 'false sense of security' argument already addressed --- it is not disempowering to afford a woman the opportunity to make her own calculation about risk as it pertains to her own life. Indeed, if we are to empower women and respect their choices, we should presume that whatever choice they make in relation to egg freezing is – in so far as it is based on accurate information – for them in their current situation and relative to the other choices before them, the best option.

To prevent her from choosing freely is unacceptably paternalistic, particularly when that the harm she may suffer—the inability to conceive—is a sad, possibly damaging outcome, but a far cry from a choice that may endanger her life. In fact, under English law, she is at liberty to make choices that will end her life.[92] Where only self-harm results, the law rightly places only minimal limits on individual freedom, thereby respecting individual autonomy, including reproductive autonomy.[93] It would of course be far better if women did not need to risk their fertility, but paternalistically reducing women's options for addressing the challenges they face does not empower them (and generally will not harm them). Far from it.

The other argument that *might* undermine the idea that egg freezing empowers women is that the 'opportunity' to freeze may transform into an 'expectation' to freeze, particularly in the workplace. Given the

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[90] I. Goold and J. Savulescu, *In Favour of Freezing Eggs for Non-Medical Reasons* 23 Bioeth. 47 (2009).

[91] Much of this lack of change has been attributed to the resistance by employers to 'topping up' additional paternity leave pay and also the absence of a cultural shift towards men taking on equal responsibility for care. According to research carried out in 2013 by the Institute of Leadership & Management, there is still a cultural expectation (in the United Kingdom, at least) that women, rather than men, will be the carer who takes extended periods away from the workplace to raise children within a couple: BBC News, *Barriers' Stop Fathers Taking Paternity Leave*, News report 24 March 2014, available at http://www.bbc.co.uk/news/business-26710507 (accessed 28 March 2017). However, there are signs that improvements in sharing arrangements that will come into force in 2015 may encourage more men to take advantage of the opportunity to share care: John Bingham, Bosses 'seriously underestimating' demand for shared parental leave, THE TELEGRAPH (UK) 29 November 2014.

[92] See *St George's Healthcare NHS Trust v S* [1998] 3 WLR 936 (CA); *Re Ms B v a NHS Hospital Trust* [2002] EWHC 429 (Fam).

[93] Although, increased maternal age is also correlated with higher risks of stillbirth and preterm delivery, which carry risks to the foetus, so it cannot be said that the choice to conceive later in life is entirely self-harming, although note the impact of the non-identity problem.

recent moves by Apple and Facebook to fund the freezing of female employees' eggs,[94] it is possible that women in the workforce may find themselves under pressure to take up such offers. Rather than empowering them in the sense of offering greater choices, the possibility of freezing might disempower women by pushing them into having to freeze and postpone in an effort to retain their competitiveness in the employment market. They might also face very real pressure from employers to freeze and remain in work or face a failure to progress after taking time out if doing so is regarded negatively. This is a very fair point. Egg freezing is not empowering if women are pressured to do it, whether overtly or by wider normalization of it.

However, it is still not as simple as this. We need to think through whether it is convincing to say that *having more choices* is *disempowering.*

Simon Rippon has argued that it can in the context of organ sales, as the existence of the choice can itself create pressure to take it up.[95] This is probably true of egg freezing, especially when offered by an employer. Once the choice is there, women must now resist it and may have to justify this resistance. If the choice is one that may be harmful, namely it pressures women to postpone reproduction and risk infertility, women may be pressed to act in ways they otherwise would not and suffer harms they would otherwise have avoided. In this sense, it may well be disempowering.

The obvious riposte to this argument is that if we assume people are rational or at least capacitous choosers (as we should), then if they choose to freeze their eggs (or sell their organs) it must be because all the alternative choices open to them are less preferable (assuming such a choice is a harmful one). If this is so, removing this choice is itself harmful, because they are left only with less optimal choices.[96] This is the case that has generally been made against Rippon's view, and it holds in the context of egg freezing as well, but to a lesser extent because egg freezing is not the same kind of harmful choice as an organ sale. Egg freezing, unless relied upon due to false information or where a woman lacks capacity, could be said to merely add to a woman's options in the ways explained earlier. It may not be an inherently harmful choice in the way organ selling probably is.

Their choice is not driven by the option of freezing *per se*, but rather that given the pressures they already face, the introduction of egg freezing simply provides an additional way for them to approach these pressures.

If they work in a competitive employment environment in which postponing childbearing is already something they are likely to consider, many will postpone regardless of whether they have the option of egg freezing. Of these women, some will face infertility when they try to conceive in their late 30s and early 40s. If they would have postponed anyway, the opportunity to egg freeze will allow at least some of them to avoid the consequences of a choice they would have made in any case. Those who end up infertile because they delayed and who do not conceive with their frozen eggs are no worse off, but those who do succeed will be better off than they would otherwise have been. The option to freeze only carries negative consequences where it (a) induces a woman to postpone when she would not otherwise have done so, (b) that postponement results in infertility (which is not always the case --- many women conceive naturally in their early 40s), and (c) her frozen eggs do not enable her to conceive.

However, the situation is actually a little more complex than this suggests. If the choice to freeze is taken up by substantial numbers of women, it will in fact *change the conditions* in which women are making their own choice about freezing. This is particularly so when that choice is being made in a competitive employment environment, where the failure to freeze may place women at a disadvantage relative to their female colleagues. They may miss opportunities for career progression or promotion, with consequent economic impacts. So, it might be true that having the choice may encourage *more* women to run the risk than would otherwise have done so, and some of these women will then fail to reproduce when their frozen eggs do not avert the effects of their delaying reproduction. Nevertheless, it is worth questioning to what extent such pressures can be meaningfully distinguished from the pressure felt by women today as a substantial number of women already postpone childbearing for fear of falling behind in an environment.

Arguably, egg freezing – however fraught with risks – does not increase the pressure on women to postpone childbearing; at most, it may increase the pressure to deal with such a decision in a certain way: egg freezing.

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[94] Mark Tran, *Apple and Facebook Offer to Freeze Eggs for Female Employees*, THE GUARDIAN (UK), 15 October 2014.

[95] S. Rippon, *Imposing Options on People in Poverty: The Harm of a Live Donor Organ Market* 40 J. Med. Ethics 145 (2012).

[96] See further J.R. Richards, *Commentary by Janet Radcliffe-Richards on Simon Rippon's 'Imposing Options on People in Poverty: The Harm of a Live Donor Organ Market*, 40(3) J. Med. Ethics 152.

Since this only increases the chances of these women to procreate, this may well be empowering as opposed to disempowering.

So, on balance, this limited analysis leads to the tentative conclusion that the best solution remains leaving the decision to individual women but committing ourselves to continue to address those societal barriers that we can address.

So, it *will* be empowering if we can find ways to reduce this impact.

Should the Law Do Anything About Egg Freezing?

As a general position, I think it would be wrong to place restrictions on access to egg freezing if it is to be used for 'social' purposes.

Women who are presented with full, accurate information are not only fundamentally capable of, but also entitled to make their own choices about their bodies. To do otherwise and so effectively fail to trust them to make their own decisions about the reproductive risks they run, leads us down a paternalistic path we would do better to avoid.

So, given all of this, should the law do anything about egg freezing? There are few things we could consider

- Extend the time can store gametes – recent and welcome change
- Should make sure there is good regulation of information provision
- One question that we consider live is whether the current prohibition on the sale of eggs should be lifted?

We will come to each in turn.

Information provision

Quite clearly, if the autonomy arguments I've made hold, the key issue is really about the way services are marketed to women, and the information they are given.

To achieve this, legally, we have a few options.

All clinics offering IVF and gamete storage services require a licence under the HFEA, and via this, can be required to provide sufficient information. Similarly, counselling and appropriate consent processes (many of which are already in place) can be mandated.

Professional organisations involved in fertility are rightly supportive of such measures. For example, the Royal College of Obstetrics and Gynaecology has stated:

> 'It is essential that women are very clearly informed about the likely success rates of egg freezing, particularly as it is entirely provided by the private sector, with the associated concerns of financial costs and inappropriate or inaccurate marketing.'[97]

Extending the Storage Limits

There are of course incoherencies to the policy that limits the storage period for eggs frozen for social reasons to 10 years. As we have seen, the earlier a woman freezes her eggs, the more viable they will be, yet if she freezes them in her early 20s, they will have been destroyed by the time she is most likely to need them – in her mid-to-late 30s or early 40s.

The Government recognised this in its recent consultation on storage periods, which commenced in February 2020 and concluded 12 weeks later:

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> "The current storage limits often restrict women to 2 choices. To freeze their most viable eggs in their 20s and use them to have a family in their 30s even if they are not ready; or to freeze their far less viable eggs in their 30s to start a family in later life, which is when treatments have a lower chance of success. Some choose to continue storage abroad which is expensive and depending on the country, may lack regulatory controls."[98]

The obvious and sensible solution to this is to expand the new storage extension limit (up to 55 years) to include eggs frozen for social, as well as medical reasons.

The Nuffield Council on Bioethics has pointed out the clear benefits of such a shift, which include:

- Enabling women to freeze at an earlier age, leading to a greater chance of live birth if they decide to use their eggs;
- Providing women with more time to make their own decisions about when and whether to use their frozen eggs;
- Addressing fairness between 'medical' EF and SEF; and in terms of gender (men's fertility does not reduce with age to the same extent as that[99]

They rightly conclude that there are few arguments against this, and that instead the key concerns are around the marketing of services to women.

RCOG had also previously pointed out the problems with the old limits:

'Current legislation only allows women to store eggs for 10 years, which conflicts with the better success rates when women do so at a younger age.'[100]

This, too, was the upshot of the public response to the Government's consultation:

"Broadly, the responses to the consultation indicated:

- support to increase the statutory storage limits for gametes and embryos
- no consensus about how long any extension should be
- support for storage limits for eggs, sperm, and embryos to be the same for all, irrespective of medical need"[101]

Happily, as of September 2021, the Government has agreed with this perspective:

> "In summary, the government intends to change the law to increase the statutory storage limits for gametes and embryos for everyone regardless of medical need to 10-year renewable periods, with a maximum limit of 55 years. As part of this new settlement, there will be new requirements for statutory 10-year review periods and explicit written consent from the patient will be required to continue storage. This will ensure that people have a proper opportunity to consider their reproductive needs going forward and can take professional advice and counselling, if they wish to."[102]

This move was warmly welcomed by RCOG. Dr Edward Morris, President at the Royal College of Obstetricians and Gynaecologists, said:

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[98] https://www.gov.uk/government/consultations/egg-sperm-and-embryo-storage-limits/outcome/gamete-egg-sperm-and-embryo-storage-limits-response-to-consultation.
[99] Nuffield Council on Bioethics, *Briefing Note: Egg freezing in the UK*
[100] https://www.rcog.org.uk/guidance/browse-all-guidance/scientific-impact-papers/elective-egg-freezing-for-non-medical-reasons-scientific-impact-paper-no-63/
[101] https://www.gov.uk/government/consultations/egg-sperm-and-embryo-storage-limits/outcome/gamete-egg-sperm-and-embryo-storage-limits-response-to-consultation.
[102] https://www.gov.uk/government/consultations/egg-sperm-and-embryo-storage-limits/outcome/gamete-egg-sperm-and-embryo-storage-limits-response-to-consultation.

> ""Egg freezing allows women to have the chance to have children at a time that's right for them. It is also for women going through therapies, such as chemotherapy, that may decrease their fertility but who still wish to have children. We know that women have better success rates when freezing their eggs at a younger age and this new legislation will enable them to freeze their eggs until the time is right for them."[103]

And further, Dr Raj Mathur, Chair of the British Fertility Society:

> "Technological advances mean that storage of reproductive material is a safe and effective way of protecting fertility for many individuals. This change will ensure that UK regulation is compliant with the scientific evidence about the safety of storage and protects the ability of all our patients to make reproductive choices for themselves as individuals and couples.

So that leaves us with one question, and I like to leave you with the tricky question:

Should Egg Sales Be Permitted?

One question that might trouble us is whether the sale of eggs should be permitted.

In some jurisdictions, it is. For example, in the United States, women can sell (sometimes called 'donation' but it is for money) their eggs for 10s of thousands of dollars.

In the United Kingdom, egg 'sales' as such are not permitted, but women can 'give' their eggs and receive 'compensation' up to £750. So, there is quite a degree of linguistic sophistry there.

Other clinics offer 'freeze and share' arrangements. For example, the London Egg Bank:

"Our innovative Freeze and Share programme gives you an opportunity to freeze your eggs for free and at the same time give another family the chance to have the baby they are longing for.

By taking part in our Freeze and Share programme, you'll receive an egg freezing cycle plus two years' storage free of charge. In exchange, you'll donate half the eggs collected from your treatment to London Egg Bank."

- You can buy them
    - https://londoneggbank.com/using-donor-eggs/costs/
- Limits on sales here
    - https://www.uhcw.nhs.uk/ivf/egg-donation/
    - Framed as a 'gift'
    - Offset costs arrangements?
        - https://londoneggbank.com/freeze-and-share/
- Gamete Transfers and Gendered Attitudes

Conclusion

The time of childbearing has an identifiable impact on educational and employment outcomes for women, constraining their capacity to make the most beneficial choices about their careers. Due to this constraint on their choices, women face reductions in earning capacity and potentially serious financial implications that men do not. Where technological advances can remove some of these constraints, and hence reduce the gender inequalities they produce, they should be available to women so that they can make the best choices for themselves about how pursue a career that will fulfil them intellectually and enable them to support themselves financially.

Certainly, we should protect women from harms that may result from donating or selling their eggs where we

[103] https://www.rcog.org.uk/news/rcog-welcomes-increase-on-storage-limits-for-eggs-sperm-and-embryos/

can do so without undermining their autonomy. We should also take care that the option to freeze eggs is not sold to women as a panacea for the challenges they face in balancing their various goals. But such an approach must nevertheless respect women's capacity to make autonomous, personal choices when provided with accurate information. Assumptions portraying women as overly optimistic about their future fertility or as lacking understanding of the limitations of egg freezing later in life should be avoided. Instead, we should take account of the empirical research that suggests that most women are aware of the risks of postponing reproduction. However, as these data also identify some misconceptions and gaps in some women's knowledge of the extent to which egg freezing (and ARTs generally) can assist them. We should do so via good information provision, counseling requirements and public education campaigns, rather than restrictions on their choices. Our goal should be the promotion of women's education on reproductive matters and legislating to ensure women receive appropriate information from service providers, for example, by regulating advertisements of egg freezing so as to ensure accuracy. By doing so, we give women the best chance to make choices that are most likely to be right for them. When we provide this information, we should avoid making assumptions, but when we need to, they should be based on the best evidence available, and we should avoid as far as possible presuming to know how a woman thinks or feels. Finally, none of this should detract from efforts to alter the underlying societal conditions that drive women to postpone reproduction towards the end of their natural reproductive life, which if successful will improve the options open to women. But whatever we achieve in that sense, above all we should trust women to make the choices they believe are best for them and facilitate these choices insofar as we can.