

EGG FREEZING

ISSUE:

The need for standardized informed consent practices for women considering egg freezing or donation and a mandatory Artificial Reproductive Technology (ART) National Registry to follow up health outcomes of women who use ART and their resulting offspring.

BACKGROUND:

News that Apple and Facebook are offering female employee's benefits that cover elective egg freezing has sparked a range of responses. Few, however, have focused on the medical concerns many doctors and women's health groups have about this relatively new reproductive medical procedure.

Egg freezing was first developed to enable women undergoing cancer therapies to harvest their eggs and freeze them before subjecting their bodies to treatment that might damage their fertility. The ovarian hyperstimulation and egg retrieval procedures used in egg freezing, that carry some risks, are also prescribed for young women known as egg "donors" who sell their eggs to infertile women and for women undergoing in vitro fertilization (IVF).

The new trend by egg freezing businesses and some commercial clinics is to market egg freezing as a "choice" for healthy young women who might want to delay childbearing. The American College of Obstetricians and Gynecologistsⁱ does not endorse this technology for the "sole purpose of circumventing reproductive aging in healthy women."

Egg freezing is still in its infancy and success rates are low. The newest technique, called vitrification, where eggs are flash frozen in liquid nitrogen and years later thawed, appears to have better rates of success but these rates are still low. The most comprehensive baseline data published in the journal *Fertility and Sterility* in 2013 found that among women age 30 who used this method and underwent three cycles, there was a 76 percent chance of failure that a frozen egg would fertilize and result in a live birth.ⁱⁱ The Society for Assisted Reproductive Technology (SART) states that for a woman age 38, the chance of one frozen egg leading to a live birth is only [2 to 12 percent](#).ⁱⁱⁱ

While the few studies available indicate that the 1000 to 2000^{iv} babies born worldwide from egg freezing appear to be healthy, it is still too early to know for sure. It is unclear, for example, how the eggs absorb chemicals used in the freezing process, and whether they are toxic to cell development.^v This alone is reason to proceed slowly and with caution until the long-term health of children born after egg freezing is documented.

Women who choose to freeze their eggs must first undergo multiple rounds of hormone therapies. In order to maximize the chances of pregnancy resulting from a thawed egg surviving the process of fertilization and later implantation as an embryo, egg freezing businesses and commercial clinics recommend that women purchase three egg-freezing cycles. Concern exists about the potential long-term harms for women that may result from both the egg stimulation and extraction procedures utilized in egg freezing and other reproductive technologies.

Some fertility drugs are thought to be associated with increased risk of certain cancers, most often breast and endometrial.^{vi} Although this association was indicated in some short-term studies, others report no such connection. Because there is not enough evidence to ensure safety, the Federal Drug Administration has not approved certain drugs currently used to hyperstimulate the ovaries for egg freezing, egg donation or IVF. Known egg retrieval risks, acknowledged by the SART, include various degrees of pelvic and abdominal pain, injury to bladder, bowels or blood vessels, pelvic infection, and injury to the ovaries that are punctured during retrieval.^{vii}

There have been cases where women, particularly young egg donors who are hyperstimulated to the point of producing 30 to 50 eggs or more in one cycle, have reported that they became infertile or experienced early menopause.^{viii} Others have suffered from Ovarian Hyper Stimulation Syndrome (OHSS), a condition that can manifest as “mild”, “moderate” or “severe” depending on the woman, the kind of drugs she is given, and their dose.

Women are often told that “severe” OHSS is rare, but due to the absence of standardized tracking and patient follow up in the U.S., it is unclear how often various forms of OHSS do occur. What is known is that the hormone treatments can trigger a chemical signal known as vascular endothelial growth factor. This growth factor can stimulate blood vessels to become more permeable, allowing fluid to seep into the body, which can thicken the blood and increase the chance of stroke or clotting.^{ix}

“Mild” OHSS symptoms may manifest as bloating and abdominal pain, but often tend to resolve on their own. More severe forms may require hospitalization for bleeding, severe fluid buildup and pain in the abdomen and lung area, decreased blood flow to the kidneys due to blood thickening, and in the most severe cases, even death.^x

The conclusions of small studies that have been conducted about risks of hyperstimulation of the ovaries vary. A retrospective study of 155 egg donors by the Donor Sibling Registry in the U.S. found that over 11 percent of respondents had to be hospitalized or treated due to OHSS.^{xi} The Society of Gynecologists and Obstetricians of Canada, and the Canadian Fertility and Andrology Society, estimate that up to one third of women who undergo ovarian stimulation will suffer “mild” OHSS.^{xii} A UK study of 339 women found that if fewer than twenty eggs were retrieved, the risks of OHSS were very small (0.1 percent), but if more than twenty eggs were generated, the women had a 14.5 percent chance of being hospitalized.^{xiii}

The U.S., unlike other countries, does not have a mandatory national registry that tracks the health of women undergoing infertility treatment or the babies born from them. One voluntary data collection effort is the Infertility Family Research Registry, housed at Dartmouth-Hitchcock Medical Center. Unfortunately, fewer than 100 of the 500 infertility clinics in the country actively encourage patients or consumers to join this registry.^{xiv} Doctors who adhere to the “Charter on Medical Professionalism” believe that professionalism “demands placing the interests of patients above those of the physician, setting and maintaining standards of competence and integrity, and providing expert advise to society on matters of health.”^{xv}

CONCLUSION:

In accordance with these principles, The National Perinatal Association, as an organization that represents a wide spectrum of maternal-infant health specialists, advocates, and parents, recommends the following actions:

We advocate for the creation of a mandatory **Artificial Reproductive Technology National Registry** for all clinics using ART, including those providing hormonal therapy for ovarian hyperstimulation for egg freezing, egg donation or IVF. Such a registry would provide much needed knowledge about health outcomes of women and their offspring exposed to hormone therapies, procedures, and techniques used through ART.

We advocate for the **enforcement of standardized informed consent practices** by companies or clinics offering ovarian hyperstimulation, egg freezing, and/or egg donation to ensure that women are fully aware of the potential physical, emotional and financial risks to themselves and resulting offspring.

Informed consent should include the opportunity for consultation with a multidisciplinary team of medical and psychology professionals who have no conflicts of interest, including representatives from maternal fetal medicine, neonatology, genetics, bioethics, psychology and women's health.

We call upon any company that offers egg freezing as an employee benefit to provide comparable benefits for women who choose not to delay childbearing.

Benefits might include sufficient paid family leave, provision and support for breastfeeding or breast pumping at the site of employment, and day care for infants and children.

These measures would help to meet the ongoing needs of employees who chose to conceive their babies during optimal childbearing years.

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ⁱ <http://www.ncbi.nlm.nih.gov/pubmed/24463693>

ⁱⁱ “Age-specific Probability of Live Birth with Oocyte Cryopreservation: An Individual Patient Data Meta-Analysis,” Aylin Pelin Cil, M.D., Heejung Bang, Ph.D., and Kutluk Oktay, M.D., F.A.C.O.G., May 2013, http://www.asrm.org/uploadedFiles/ASRM_Content/News_and_Publications/News_and_Research/Press_Releases/2013-05/Live%20birth%20probability%20with%20egg%20freezing.pdf

ⁱⁱⁱ http://www.sart.org/uploadedFiles/ASRM_Content/Resources/Patient_Resources/Fact_Sheets_and_Info_Books/Can_I_freeze_my_eggs_to_use_later_if_Im_not_sick-FINAL_8-13-14.pdf

^{iv} http://articles.baltimoresun.com/2012-12-08/health/bs-hs-frozen-eggs-fertility-20121208_1_freeze-eggs-marcy-darnovsky-fertility-clinics; <http://uscfertility.org/fertility-preservation/egg-freezing-faqs/>

^v <http://www.nature.com/news/2011/110823/full/476382a.html>

^{vi} <http://www.ncbi.nlm.nih.gov/pubmed/18790330>

^{vii} http://www.sart.org/FACTSHEET_Risks_of_In_Vitro_Fertilization/

^{viii} <http://weareeggdonors.com/category/egg-donor-stories/>

^{ix} [http://www.sart.org/uploadedFiles/ASRM_Content/News_and_Publications/Practice_Guidelines/Educational_Bulletins/Ovarian_hyperstimulation_syndrome\(1\).pdf](http://www.sart.org/uploadedFiles/ASRM_Content/News_and_Publications/Practice_Guidelines/Educational_Bulletins/Ovarian_hyperstimulation_syndrome(1).pdf)

^x Is Egg Donation Dangerous? <http://maisonneuve.org/article/2013/01/21/egg-donation-dangerous/>

^{xi} <http://humrep.oxfordjournals.org/content/early/2009/09/03/humrep.dep309.short>

^{xii} Joint Society of Obstetricians and Gynecologists of Canada – Canadian Fertility and Andrology Society Clinical Practice Guide, NOVEMBER **JOGC**, NOVEMBRE 2011, <http://sogc.org/guidelines/the-diagnosis-and-management-of-ovarian-hyperstimulation-syndrome/>

^{xiii} <http://www.ncbi.nlm.nih.gov/pubmed/17786651>

^{xiv} <https://www.ifrr-registry.org/>

^{xv} (Charter on Medical Professionalism. *Ann Intern Med.* 2002; 136:243-246.)