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## A Comprehensive Report on the Risks of ART

Prepared by **Kallie Fell, MS, BSN, RN**  
**CBC, Executive Director**  
**Paul Ramsey Institute, Program Director**  
**Venus Rising, Host**  
**Kallie.Fell@cbc-network.org**  
**cbc-network.org**  
**Twitter @kal\_fell**

### Introduction

Infertility affecting both men and women<sup>1</sup>, is on the rise in the United States. Infertility in the man, woman, or in some cases both can prevent a couple from conceiving and carrying a child to term. Infertility is defined by the failure to achieve a pregnancy after 12 months or more of regular unprotected sexual intercourse<sup>2</sup> and has numerous causes, such as: endocrine and hormone disorders, uterine disorders like endometriosis, testicular dysfunction, abnormal sperm function and quality, and other disorders of the reproductive tract in men and women<sup>3</sup>, to name a few. Further, fertility decreases with age, especially in women. As men and woman delay having a family until later in life, it can be more challenging to conceive. According to one source, "in the US, approximately 12.7% of reproductive age women seek treatment for infertility each year"<sup>4</sup>, according to another, approximately 9% of males experience infertility and 11% of women. Eighty-five percent of heterosexual couples are able to identify the cause for their infertility<sup>5</sup>. However, these statistics might change as laws in the United States are seeking to expand the definition of infertility so that health plans will cover fertility treatment for policyholders regardless of their sexual orientation or how they identify. Under the current definition, the one used by health insurance companies, same-sex couples are excluded from infertility coverage.

Many people have been touched by infertility, either in their own life, or by association. Artificial reproductive technologies (ART) are often advertised and sold as the cure. Many reading this report may know someone who used either used ART or was born as a result of ART. What many don't realize, however, is how ART can negatively affect women and children. Therein lies the purpose of this report. It is documented that "ART singleton pregnancies are associated with higher risks of adverse obstetric outcomes" and that "obstetricians should manage these pregnancies as high risk."<sup>6</sup> It can be easy to assume that science, or leaders in reproductive medicine have our best interest in mind, or that research is safely guiding clinical practice. However, ART is one area where it seems clinical practice precedes informative and

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1 <https://www.nichd.nih.gov/health/topics/infertility/conditioninfo/common>

2 Chandra, A., Copen, C.E., & Stephen, E.H. (2013). Infertility and Impaired Fecundity in the United States, 1982-2010: Data From the National Survey of Family Growth. *National Health Statistics Reports*, 67, 1-19. Retrieved February 7, 2018, from <https://www.cdc.gov/nchs/data/nhsr/nhsr067.pdf> (PDF 328 KB)

3 <https://www.who.int/news-room/fact-sheets/detail/infertility>

4 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9302705/>

5 <https://www.nichd.nih.gov/health/topics/infertility/conditioninfo/common>

6 <https://www.sciencedirect.com/science/article/pii/S001502821501924X>

critical research as well as proper informed consent. In an overwhelming desire to have or provide a family, moral reflection and critical analysis of long-term research on the consequences of such technology is lacking. Even trusted physicians may be unable to guide us to critically think about the matter of using ART to create families. Fortunately, data is emerging and this report can be used to better understand the short- and long-term consequences of moving procreation into a reproduction endeavor.

To begin, it is important to understand what ART is and isn't. ART includes, but is not limited to third-party reproduction, like egg "donation", sperm "donation", and surrogacy. According to the Center for Disease Control and Prevention (CDC), ART "includes all fertility treatments in which either eggs or embryos are handled." Very simply put, ART procedures involve removing eggs from a woman's ovaries, removing sperm from a man's body, and then combining with the egg and the sperm in the laboratory, thereby creating embryos which can be implanted into a woman's body, put in frozen storage for later use, or donated for embryo adoption or [scientific research](#).<sup>7</sup> According to the CDC, ART does "not include treatments in which only sperm are handled (i.e., intrauterine—or artificial—insemination) or procedures in which a woman takes medicine only to stimulate egg production without the intention of having eggs retrieved." This definition will be used throughout this report.

Society and medicine have looked for, and found ways of "decoupling sexual activity from pregnancy, pregnancy from birth, and biological procreation from social and legal parenthood" with the goal "to make procreation a choice unbounded by biology."<sup>8</sup> Now, there is a dangerous shift towards manufacturing children and commodifying both men's and women's reproductive capabilities. Professor Gilbert Meilaender reflects on the moral problem with this shift, stating "A child who is thus begotten (in the marital union/bed), not made (manufactured), embodies the union of his father and mother. They have not simply reproduced themselves, nor are they merely a cause of which the child is an effect. . . their love-giving has been life-giving; it is truly procreation"<sup>9</sup> (words in parenthesis our own).

The right to procreate is now "conceptualized as a right to a child, or at least the means of obtaining a child"<sup>10</sup> and where there is a right, there are laws to accommodate it. Further, now that sex-selection and preimplantation genetic testing<sup>11</sup> are widely available, adults have expanded their 'right to a child' to a right to a particular kind of child. Parents have sued fertility clinics when they ordered a son, but received a daughter<sup>12</sup>. Unfortunately, states like California

7 Machado CS. The fate of surplus embryos: ethical and emotional impacts on assisted reproduction. *JBRA Assist Reprod*. 2020 Jul 14;24(3):310-315. doi: 10.5935/1518-0557.20200015. PMID: 32202746; PMCID: PMC7365528. <  
[8 Smolin, David. \*Cumberland Law Review\*, 2019, \*The One Hundred Thousand Dollar Baby: The Ideological Roots of a New American Export\*. <  
\[9 Meilaender, Gilbert. \\*Bioethics: A Primer for Christians\\*. W.B. Eerdmans Pub. Co., 2005.\]\(https://works.bepress.com/david\_smolin/20/></a></p>
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10 Smolin, David. *Cumberland Law Review*, 2019, *The One Hundred Thousand Dollar Baby: The Ideological Roots of a New American Export*. <  
[11 <https://cbc-network.org/2022/05/pgd-and-pes-what-you-should-know-about-these-ivf-add-ons/>](https://works.bepress.com/david_smolin/20/></a></p>
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12 <https://www.cbsnews.com/losangeles/news/same-sex-couple-sues-fertility-clinic-over-alleged-wrong-sex-embryo-implant/>

have legally protected the liberal use of ART as the perfect way for couples to create and build the family of their dreams and have successfully mainstreamed the commodification of children. ART has become a deceptively attractive way for men, women and infertile couples to have the child or children they believe they have a right to have. Meanwhile, the rights and well-being of the children made and the women used in the process are ignored. There are no protections for the babies created through ART, surrogate mothers, or egg “donors”. As technology advances and evolves, without proper research, full disclosure of risks involved, and comprehensive ethical examination, it will continue to be bleak for these parties. We believe no one has a right to a child or the right to use a woman’s body like a factory producing a product. Further, a child has a right to know about his or her conception. Women, and men, that are considering ART, as well as lawmakers and society as a whole need to fully understand the risks to women and the children they bear when we move to a world that blindly accepts the production of children as property<sup>13</sup> in the laboratory and commodifies a woman’s reproductive capacity, rather than the human persons they are, deserving of dignity and respect.

### **Health Risks and Physical, Emotional, & Psychological Harms**

*To the woman who “donates” eggs for someone else to use for IVF*

The infertility industry in the United States has grown to a multi-billion-dollar business. The main commodity of this industry is human eggs. Young women all over the nation are solicited by ads—via college campus bulletin boards, social media, online classifieds—offering up to \$100,000 for their “donated” eggs, to “help make someone’s dream come true.” But who is this egg donor? Is she treated justly? What are the short- and long-term risks to her health? The answers to these questions might disturb you.

Unlike, the relatively easy way to retrieve sperm from a man, it is onerous on a woman to remove her eggs from her body. The medical process required for egg retrieval is lengthy and there are known medical risks associated with each step. Risks include, but are not limited to: Ovarian Hyper Stimulation syndrome (OHSS) due to superovulation, loss of fertility, ovarian torsion, stroke, kidney disease, premature menopause, ovarian cysts, and in some rare cases, death.<sup>14</sup> Ovarian Hyperstimulation Syndrome (OHSS) is a life-threatening condition that can also cause stroke, ovarian torsion, organ failure, and psychological distress. Risks of OHSS are serious and grossly underreported. Current estimates of the occurrence of OHSS are at 10%, but again, that number is inaccurately low as OHSS is not always reported or documented.

Ovulation in a woman normally matures and releases on only one egg each month. In cases of egg donation or egg harvesting for IVF, multiple eggs are obtained by for In Vitro giving a woman a series of fertility medications are given to stimulate more eggs to mature. In fresh egg donation cycles, it is also important to synchronize the egg maturity with the maturing of the recipient's endometrial lining; this is often done via birth control pills. Egg donors are

<sup>13</sup> <https://www.christianpost.com/news/judge-rules-frozen-embryos-are-property-cites-slavery-law.html>

<sup>14</sup> Institute of Medicine and the National Research Council of the National Academies, “Assessing the Medical Risks of Human Oocyte Donation for Stem Cell Research: Workshop Report,” 2007.

given the same fertility medications as those undergoing ovarian stimulation for IVF. The fertility drugs must first ready the body for ovarian stimulation, and then prompt the ovaries to produce multiple eggs for donation. Finally, a final medication triggers ovulation so that eggs can be retrieved.

Lupron®, a drug commonly used in the first step of the egg donation process to stop ovarian function and thus medically induce menopause before hyperstimulation of the ovaries, is a synthetic hormone that is not approved by the FDA for use in fertility treatment. It has a Category X rating, which means if a woman gets pregnant while taking the drug there will be harm to the developing fetus. This is extremely concerning with respect to egg donors who are very fertile and may not be compliant with instructions not to be sexually active during ovarian stimulation. As a “antineoplastic agent” (cancer chemotherapy drug), Lupron®, has many risks and side-effects, including: hot flashes, tachycardia, hypotension, insomnia, depression, constant joint pain, osteopenia, fibromyalgia, autoimmune disease, cancer, memory loss, hematuria, dizziness, anxiety, vitamin D deficiency, osteoarthritis, osteoporosis, degenerative disc disease, blood disorders, and death.

In conjunction with Lupron®, egg donors begin taking Gonadotropins, which serve to stimulate the egg follicles to produce multiple eggs. These medications contain an active form of Follicle Stimulation Hormone (FSH), the main hormone responsible for producing mature eggs in the ovaries in a woman’s body. Like Lupron®, Gonadotropins are taken via injection. Gonadotropins can cause OHSS and due to the maturation of multiple eggs, women taking these medications are advised to be sexually abstinent.

Once the follicles have matured, often determined via ultrasound and blood tests, the procedure for egg removal is scheduled and one dose of Human Chorionic Gonadotropin (hCG) is given to trigger the release of the eggs (ovulation) for the procedure. The gold standard way to remove an egg from a woman’s body is the ultrasound-guided transvaginal (US-TV) route. It is less invasive than other methods and was described for the first time in literature in 1990.<sup>15</sup> Of course, there are risks to the retrieval procedure. A study from 2018 sought to assess these risks and complications encountered after transvaginal oocyte retrieval procedures. They write, “the risks associated with US-TV should not be underestimated because some complications, although rare, may be life-threatening.”<sup>16</sup> Authors go on to state:

“In general, the rates of complications associated with oocyte retrieval procedures are not easily available unless individual programs collect these data as indicators for their own quality performance. **Most ART registries focus on cycle outcomes in terms of pregnancy and live births, but neglect to collect information about the rate of complications during oocyte retrieval procedures.** In addition, as complications often

<sup>15</sup> Hurley VA, Osborn JC, Leoni MA, Leeton J. Ultrasound-guided embryo transfer: a controlled trial. *Fertil Steril.* 1991;55:559–562. doi: 10.1016/S0015-0282(16)54185-5

<sup>16</sup> Levi-Setti PE, Cirillo F, Scolaro V, Morengi E, Heilbron F, Girardello D, Zannoni E, Patrizio P. Appraisal of clinical complications after 23,827 oocyte retrievals in a large assisted reproductive technology program. *Fertil Steril.* 2018 Jun;109(6):1038-1043.e1. doi: 10.1016/j.fertnstert.2018.02.002. Epub 2018 Jun 2. PMID: 29871795. <[https://www.fertstert.org/article/S0015-0282\(18\)30073-6/fulltext](https://www.fertstert.org/article/S0015-0282(18)30073-6/fulltext)>.

occur days to weeks after the oocyte retrieval procedure, **the reporting of these complications to the registry may be suboptimal**” (emphasis added).<sup>17</sup>

It seems pertinent to bring up here the impossibility of informed consent. Despite the use of “donated” eggs in ART procedures, little to no peer-reviewed medical research on the effects of egg procurement on women’s health exists. This makes it difficult, if not impossible, for fertility clinics to provide adequate information for informed consent relative to the health risks involved. It also raises the ethical concern of who should be entrusted to provide the information to the women giving their consent, as conflicts of interest are present if those who want the eggs are informing those who supply the eggs. How can an egg donor, or any woman having their eggs removed (like those women freezing their eggs or using them for their own IVF cycles) give informed consent if fertility clinics fail to track the risks and report the complications and negative outcomes? How can a young donor know what she is risking if doctors and researchers don’t know either? In a study from 2008 authors write that “The proportion of the respondents who indicated awareness of any one of the various physical risks that could be associated with hormone treatment and/or egg harvesting before initiating treatment is surprisingly low.”<sup>18</sup>

In a study evaluating complications from egg retrieval, surprisingly, only 96 patients suffered complications directly related to oocyte retrieval procedures were encountered.<sup>19</sup> “Complication” was defined as one that required hospitalization or outpatient medical management and they included: peritoneal bleeding (bleeding into the abdominal cavity), infection (severe sepsis and septic shock, ovarian abscess, pelvic peritonitis), vaginal wall lacerations and bleeding, bladder trauma, pelvic pain, and anesthetic complications (circulatory shock, nausea, atrial fibrillation cardiorespiratory insufficiency). Of the 96 individuals experiencing complications, hospital admission was necessary for 71 of them. Twenty-four patients required surgical intervention, 19 of these cases were from peritoneal bleeding – the most common complication in this study.<sup>20</sup>

Although some data exist on procedure-associated and short-term risks for oocyte donors, such as OHSS, long-term follow-up studies of egg donors are lacking and their risks are unknown. Few studies have examined the long-term medical effects of egg donation, such as fertility, cancer, and other potential health risks, and each study has had methodological shortcomings and varying lengths of follow-up.<sup>21</sup> Authors of a 2014 paper wrote, “Although

17 Levi-Setti PE, Cirillo F, Scolaro V, Morengi E, Heilbron F, Girardello D, Zannoni E, Patrizio P. Appraisal of clinical complications after 23,827 oocyte retrievals in a large assisted reproductive technology program. *Fertil Steril*. 2018 Jun;109(6):1038-1043.e1. doi: 10.1016/j.fertnstert.2018.02.002. Epub 2018 Jun 2. PMID: 29871795. <  
[https://www.fertstert.org/article/S0015-0282\(18\)30073-6/fulltext](https://www.fertstert.org/article/S0015-0282(18)30073-6/fulltext)>.

18 [https://www.fertstert.org/article/S0015-0282\(08\)04125-3/fulltext](https://www.fertstert.org/article/S0015-0282(08)04125-3/fulltext)

19 Levi-Setti PE, Cirillo F, Scolaro V, Morengi E, Heilbron F, Girardello D, Zannoni E, Patrizio P. Appraisal of clinical complications after 23,827 oocyte retrievals in a large assisted reproductive technology program. *Fertil Steril*. 2018 Jun;109(6):1038-1043.e1. doi: 10.1016/j.fertnstert.2018.02.002. Epub 2018 Jun 2. PMID: 29871795. <  
[https://www.fertstert.org/article/S0015-0282\(18\)30073-6/fulltext](https://www.fertstert.org/article/S0015-0282(18)30073-6/fulltext)>.

20 [https://www.fertstert.org/article/S0015-0282\(18\)30073-6/fulltext](https://www.fertstert.org/article/S0015-0282(18)30073-6/fulltext)>.

21 Levi-Setti PE, Cirillo F, Scolaro V, Morengi E, Heilbron F, Girardello D, Zannoni E, Patrizio P. Appraisal of clinical complications after 23,827 oocyte retrievals in a large assisted reproductive technology program. *Fertil Steril*. 2018 Jun;109(6):1038-1043.e1. doi: 10.1016/j.fertnstert.2018.02.002. Epub 2018 Jun 2. PMID: 29871795. <  
[https://www.fertstert.org/article/S0015-0282\(18\)30073-6/fulltext](https://www.fertstert.org/article/S0015-0282(18)30073-6/fulltext)>.

21 Woodriff M, Sauer MV, Klitzman R. Advocating for longitudinal follow-up of the health and welfare of egg donors. *Fertil Steril*. 2014 Sep;102(3):662-6. doi: 10.1016/j.fertnstert.2014.05.037. Epub 2014 Jun 25. PMID: 24973037; PMCID: PMC4416474. <  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4416474/>>

cross-sectional and retrospective studies have been conducted, no longitudinal prospective studies published to date have addressed cancer risks, fertility, and other long-term medical and psychological issues among egg donors. One study reported on self-reported long-term physical effects of egg donation and found that 16.3% of participants were experiencing physical symptoms that they attributed to their donation; these included: infertility, ovarian cysts, fibroids, body weight gain, and abdominal pain.<sup>22</sup> To our knowledge, no meaningful long-term surveillance has been conducted related to medical or psychological issues felt by donors.<sup>23</sup> This makes it impossible for women to give true meaningful informed consent relative to the health and psychological risks involved. Possible long-term risks could include breast cancer, but what else? Egg donor registries are desperately needed, and have been repeatedly asked for by “donors” and donor conceived people alike,<sup>24</sup> to facilitate long-term studies on egg donors, something the fertility industry isn’t willing to provide. Why not?

Not only are there health risks to egg donors, but both egg and sperm donors often regret their decision later in life. Many studies have been done about egg and sperm donors searching for and finding their biological (genetic) children.<sup>25</sup> In a study of only 80 egg “donors”, 16 reported that the donation process resulted in lasting psychological effects. Seven women admitted experiencing ongoing curiosity about the outcome of the procedure and any child(ren) that may have resulted from their “donation” and two donors indicated that they had developed ongoing concerns that a child that they bear and raise might, by chance, meet and develop a relationship with her donor offspring. These numbers may seem small, but they are worth noting and should be taken seriously, especially as a demand for eggs only increases. There will be more on this in later sections, but donor conceived people are also searching for their biological parents’ half-siblings, and other relatives. With the help of new technologies that help people find their genetic heritage, egg “donors” and the children they helped bring into this world are able to find each other and connect. Donor sibling registry groups are also growing in number<sup>26</sup>.

Of course, studies have been published touting the successes of egg donation, but when you get past the headlines, what you find is that these successes refer to pregnancy outcomes, not to the health of the woman who “donates” her eggs. Let the words of these egg “donors” echo in your mind:

*Even though I suffered immediate life-threatening complications from the process [egg donation and retrieval], it wasn't until many more years of medical training that I was able to understand the full scope of how I had been taken advantage of, misled, and abandoned by the egg harvesting industry. – Sindy, M.D., Ph.D*

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22 [https://www.fertstert.org/article/S0015-0282\(08\)04125-3/fulltext](https://www.fertstert.org/article/S0015-0282(08)04125-3/fulltext)

23 Woodruff M, Sauer MV, Klitzman R. Advocating for longitudinal follow-up of the health and welfare of egg donors. *Fertil Steril*. 2014 Sep;102(3):662-6. doi: 10.1016/j.fertnstert.2014.05.037. Epub 2014 Jun 25. PMID: 24973037; PMCID: PMC4416474. < <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4416474/>>

24 <https://www.ourbodiesourselves.org/blog/egg-donation-seems-easy-but-questions-and-health-risks-remain/>

25 See for example, Jadva, V., Freeman, T., Kramer, W., and Golombok, S. (2010). Human Reproduction, "Sperm and oocyte donors' experiences of anonymous donation and subsequent contact with their donor offspring."

26 <https://www.wearedonorconceived.com>

*As a result of selling my eggs, I survived a torsioned ovary, intestinal failure, and a body cavity infection. I have also survived breast cancer, including having both of my breasts cut off, and eighteen months of harrowing chemotherapy and radiation treatments. I am grateful to be alive, but I believe that all of this could have been avoided if I had not sold my eggs – a procedure that I thought was safe. – Alexandra, Ph.D.*

*So, at some point while I was in the hospital, and they've never been really able to pinpoint when this happened, I had a fairly major stroke, and was paralyzed on my left side for about four and a half weeks. They went in and did an emergency surgery. And I'm talking to the woman who set up the whole egg- brokerage deal, and she said, "It sounds like we have to send you a 'drop cycle check'"—which means you didn't quite manage to produce what you were asked to produce. So we're just going to send you \$750 and we're just going to call it good. – Calla, suffered a stroke after taking Lupron® and lost her ability to ever have children of her own.*

*Egg donation is NOT harmless like I was led to believe. It has seriously affected every part of my life. I often cry about the loss of my friends, my family, the little person with half my DNA and my ability to have my own genetic children someday. If you're thinking about donating your eggs for ANY reason--DON'T. It's not worth it. – Cathy*

*To the woman who freezes her eggs*

Between 2010 and 2016, the number of American women freezing their eggs skyrocketed 880%, driven by the American Society for Reproductive Medicine removing the “experimental” label from egg freezing procedures in 2012<sup>27</sup>. According to the American Society for Reproductive Technology, 10,936 U.S. women froze their eggs in 2017 alone<sup>28</sup>. The short-term medical risks of this newly popular trend of egg freezing for future use mirrors those of egg donors, as the process of egg freezing is similar to the first part of the in vitro fertilization (IVF) process used to treat patients with infertility. Readers should read the prior section regarding the health risks involved in extracting eggs from the woman’s body. Again, it is onerous on a woman to remove her eggs from her body-for any reason. The medical process required for egg retrieval either for egg “donation” or egg freezing is lengthy and there are known medical risks associated with each step. Briefly, a woman would have 10-12 days of daily injections to cause a group of her eggs to mature and develop. During this time, blood levels and ultrasounds are done to track her response to the medicines and hormones. As stated previously, risks include, but are not limited to: Ovarian Hyper Stimulation syndrome (OHSS) due to superovulation, loss of fertility, ovarian torsion, stroke, kidney disease, premature menopause, ovarian cysts, and in some rare cases, death.<sup>29</sup> Lupron®, a drug commonly used in egg extraction, is a synthetic hormone that is not approved by the FDA for use in fertility treatment. It has a Category X rating, which means if a woman gets pregnant while taking the drug there will be harm to the developing fetus.

27 <https://pubmed.ncbi.nlm.nih.gov/33367704/>

28 <https://www.cnn.com/2019/05/09/millennials-are-driving-down-the-cost-of-egg-freezing.html>

29 Institute of Medicine and the National Research Council of the National Academies, “Assessing the Medical Risks of Human Oocyte Donation for Stem Cell Research: Workshop Report,” 2007.

Once ready, mature eggs are harvested, usually via outpatient procedure detailed in the previous section, and eggs are inspected by an embryologist and “usable” eggs, or eggs that are deemed “high-quality” can be frozen indefinitely. Freezing and storing eggs has several ethical implications that must be considered. First, the cost. If a woman doesn’t work for a company offering egg freezing as a new benefit, she can expect to pay upwards of \$10,000 of dollars per freezing cycle to do so. Some companies offer a “deal” if you sign up for more than one freezing cycle from the start. Of course, this cost usually doesn’t include the cost of medications to prepare the woman’s body for egg harvesting. Medications are typically around \$3,000 to \$6,000.<sup>30</sup> Once harvested, storage fees are an additional monthly expense; usually around \$1000 per year. Of course, a woman can store her eggs indefinitely, as long as she is able pay for it. Once a woman is ready to thaw and use those eggs there is an additional cost to do so, often with a \$5,000-\$7,000 price tag per cycle. Secondly, there are [reports](#) of malfunctioning storage facilities or equipment failures that have caused heartbreak and inconvenience for hundreds of women.<sup>31</sup>

Finally, clinics offering egg freezing aren’t exactly forthcoming about success rates. This is largely due to the fact there is no widespread published data on the live birth rates for elective egg freezing. Initial studies show that success, expressed as the birth of a live baby after thawing, fertilization, and implantation, vary widely and are largely dependent on the age of the woman at harvesting and implantation and how many eggs she freezes. The younger the woman is when she harvests or freezes her eggs matters. If you’re over 40 when you freeze your eggs, the chances of having a live birth from a frozen egg is slim. Further, the more eggs harvested, the more chances of having a successful live birth. One study of 543 women, found that women of all ages who had at least 20 mature eggs to thaw saw their chances of giving birth increase to more than 58%, compared to a 24% birth rate among those who froze fewer than 10<sup>32</sup>. In the same study, the overall live birth rate per patient was 39%. One in five of all the eggs that were thawed did not survive and of the eggs that survived the thawing, 65% were successfully fertilized. Dr. Marcelle Ceders, president of the American Society for Reproductive Medicine and professor and director of the division of reproductive endocrinology at the University of California San Francisco who was not involved in the aforementioned study, is quoted saying that the data presented in the study “should give women pause.” She added “The pregnancy rate is not as good as I think a lot of women think it will be”.<sup>33</sup>

### *To the woman who undergoes IVF for herself, using her own eggs*

The short-term medical risks of using your own egg(s) for IVF, or even the newly popular trend of egg-freezing, mirrors those of egg donors, as both egg donation and IVF have similar methodologies, including ovarian stimulation and oocyte retrieval. Readers should read the prior section regarding the health risks involved in extracting eggs from the woman’s body—either for IVF or storage.

30 <https://www.pfcla.com/blog/egg-freezing-costs>

31 <https://www.nbcnews.com/news/all/heartbreak-anxiety-lawsuits-egg-freezing-disaster-year-later-n978891>

32 [https://www.fertstert.org/article/S0015-0282\(22\)00254-0/fulltext#secsectitle0105](https://www.fertstert.org/article/S0015-0282(22)00254-0/fulltext#secsectitle0105)

33 <https://www.nytimes.com/2022/09/23/health/egg-freezing-age-pregnancy.html>



It is worthwhile, in this section, to comment on the success, or failure, rates of IVF. An analysis of world data for 2018 puts the average delivery rate from ART treatment at 19% per aspiration and a 30.7% cumulative delivery rate from a single started aspiration.<sup>34</sup> More specifically, in Europe in 2018, the mean pregnancy rate per embryo transfer after IVF was 34.1% - a failure rate of 65%. According to the Centers for Disease and Control and Prevention's latest report patients that used their own eggs for IVF had a success rate of in 51% of women under 35 years old, 37% in women 35-27, 24% in women 38-40, and 8% in women over 40.<sup>35</sup> Success rates are those with a live birth (of one or more child in the case of multiples) after egg retrieval. Users of IVF, like the well-known author, Mariam Zoll<sup>36</sup>, are rarely aware of their high chances of failure. As Zoll details in her memoir *Cracked Open*, many women and men succumb to years of treatments and procedures only to learn that their odds are lower than they had been led to believe. In an interview with [Stacy on Venus Rising](#), a mother of four (twin girls via successful IVF and two children conceived naturally after IVF) shares how she and her husband are able to see, in hindsight, just how much they were used, lied to, and profited off of during their struggle with infertility.<sup>37</sup> The procedure, although successful, has had lasting negative effects on her family, both physically and emotionally.

An important study by Luke et al., with a study population of over 1 million pregnancies, found that the risk of severe maternal and fetal morbidities is increased for women that utilize IVF.<sup>38</sup> More specifically, all IVF pregnancies had significantly increased risk of blood transfusion at delivery, a significantly increased risk of 3rd or 4th degree lacerations at delivery, and higher rates of gestational diabetes. Finally, there was a significant increased risk for uterine rupture for moms that used their own, fresh egg for IVF.

Another study explored in-hospital complications following pregnancies conceived using various forms of ART. Published in the Journal of the American Heart Association the study concluded, "pregnancies conceived by ART have higher risks of adverse obstetric outcomes and vascular complications compared with spontaneous conception."<sup>39</sup> Researchers analyzed hospital deliveries conceived with or without ART between 2008 and 2016, from the United States National Inpatient Sample database. In their study sample, they found that women who used ART to conceive were older, were more likely to have multiple fetuses, and had more comorbidities, like diabetes, hypertension, obesity, hyperlipidemia, to name a few. They found that "pregnancies conceived by ART have higher risks of adverse obstetric outcomes" such as c-

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34 European Society of Human Reproduction and Embryology. ART Fact Sheet. <https://www.eshre.eu/Europe/Factsheets-and-infographics>

35 [https://nccd.cdc.gov/drh\\_art/rdPage.aspx?rdReport=DRH\\_ART.ClinicInfo&rdRequestForward=True&ClinicId=9999&ShowNational=1](https://nccd.cdc.gov/drh_art/rdPage.aspx?rdReport=DRH_ART.ClinicInfo&rdRequestForward=True&ClinicId=9999&ShowNational=1)

36 <https://www.nytimes.com/2008/06/10/health/10pati.html>

37 <https://cbc-network.org/2023/04/venus-rising-with-stacy-what-i-learned-about-the-predatory-ivf-industry/>

38 Luke B, Brown MB, Wantman E, Baker VL, Doody KJ, Seifer DB, Spector LG. Risk of severe maternal morbidity by maternal fertility status: a US study in 8 states. *Am J Obstet Gynecol*. 2019 Feb;220(2):195.e1-195.e12. doi: 10.1016/j.ajog.2018.10.012. Epub 2018 Oct 12. PMID: 30321527; PMCID: PMC9758649. < [https://www.ajog.org/article/S0002-9378\(18\)30894-9/fulltext?fbclid=IwAROCdiERVQh3GJJvt4SGWoC2EZT\\_9UUrUbR66CAujxBNL10M3OWdKzhkZOI](https://www.ajog.org/article/S0002-9378(18)30894-9/fulltext?fbclid=IwAROCdiERVQh3GJJvt4SGWoC2EZT_9UUrUbR66CAujxBNL10M3OWdKzhkZOI)>.

39 Wu P, Sharma GV, Mehta LS, Chew-Graham CA, Lundberg GP, Nerenberg KA, Graham MM, Chappell LC, Kadam UT, Jordan KP, Mamas MA. In-Hospital Complications in Pregnancies Conceived by Assisted Reproductive Technology. *J Am Heart Assoc*. 2022 Mar;11(5):e022658. doi: 10.1161/JAHA.121.022658. Epub 2022 Feb 22. PMID: 35191320; PMCID: PMC9075081.< <https://www.ahajournals.org/doi/10.1161/JAHA.121.022658>>

section delivery, pre-term birth, and placental abruption, “and vascular complications compared with spontaneous conception.”<sup>40</sup> More specifically, they found that ART-conceived pregnancies were associated with preeclampsia, acute kidney injury, ischemic stroke, arrhythmia, and venous thromboembolism (even after adjusting for baseline risk profile – that is, after taking comorbidities into consideration- and controlling the data for those comorbidities and pregnancies where multiple babies were born).

Knowing that ART increases the likelihood of a woman carrying multiple fetuses, one study specifically explored the pregnancy outcomes for singleton pregnancies only. They found that ART singleton pregnancies had a significantly increased risk of pregnancy-induced hypertension, gestational diabetes mellitus, placenta previa, placental abruption, antepartum hemorrhage, postpartum hemorrhage, polyhydramnios, oligohydramnios, cesarean sections, preterm and very preterm birth, low and very low birth weight, small for gestational age, perinatal mortality, and congenital malformation when compared to singleton pregnancies conceived naturally.<sup>41</sup>

*To the woman who undergoes IVF for herself, using donor eggs*

As mentioned earlier, in Europe in 2018 the mean pregnancy rate per embryo transfer was 34.1% after IVF. It was relatively unchanged (34.3%) after frozen embryo transfer, but markedly elevated (49.6%) after IVF with egg donation. It is well known that oocyte quality diminishes with age, therefore, older women seeking pregnancy, might be counseled to use donor eggs rather than her own. As we can see with the data from Europe, this does boost success, but still has a failure rate of 50%.<sup>42</sup> Not only is the failure rate still high, there are increased risks involved.

The study referenced in the previous section by Luke et al., found that the risk of severe maternal and fetal morbidities is increased for women that utilize IVF, **especially in those resulting from donor eggs**.<sup>43</sup> More specifically, all IVF pregnancies had significantly increased risk of blood transfusion at delivery, significantly increased risk of 3rd or 4th degree lacerations at delivery, and had higher rates of gestational diabetes. For IVF pregnancies from both fresh and thawed donor eggs there was a significantly increased risk for unplanned hysterectomy (removal of the uterus) and high rates of pregestational and gestational hypertension (high blood pressure). Finally, IVF using donor eggs (either fresh or thawed) had the highest rates of intensive care (ICU) admissions for the mother.

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40 Wu P, Sharma GV, Mehta LS, Chew-Graham CA, Lundberg GP, Nerenberg KA, Graham MM, Chappell LC, Kadam UT, Jordan KP, Mamas MA. In-Hospital Complications in Pregnancies Conceived by Assisted Reproductive Technology. *J Am Heart Assoc.* 2022 Mar;11(5):e022658. doi: 10.1161/JAHA.121.022658. Epub 2022 Feb 22. PMID: 35191320; PMCID: PMC9075081. < <https://www.ahajournals.org/doi/10.1161/JAHA.121.022658> >

41 <https://doi.org/10.1016/j.fertnstert.2015.09.007>

42 European Society of Human Reproduction and Embryology. ART Fact Sheet. <https://www.eshre.eu/Europe/Factsheets-and-infographics>

43 Luke B, Brown MB, Wantman E, Baker VL, Doody KJ, Seifer DB, Spector LG. Risk of severe maternal morbidity by maternal fertility status: a US study in 8 states. *Am J Obstet Gynecol.* 2019 Feb;220(2):195.e1-195.e12. doi: 10.1016/j.ajog.2018.10.012. Epub 2018 Oct 12. PMID: 30321527; PMCID: PMC9758649. < [https://www.ajog.org/article/S0002-9378\(18\)30894-9/fulltext?fbclid=IwAR0CdiERVQh3GJIVt4SGWoc2EZT\\_9UUrUbr66CAujxBNL10M3OWdKZhkZOI](https://www.ajog.org/article/S0002-9378(18)30894-9/fulltext?fbclid=IwAR0CdiERVQh3GJIVt4SGWoc2EZT_9UUrUbr66CAujxBNL10M3OWdKZhkZOI) >.

Again, “pregnancies conceived by ART have higher risks of adverse obstetric outcomes and vascular complications compared with spontaneous conception.”<sup>44</sup> Women who use ART to conceive, including those using a donor egg, are more likely to be older, more likely to have multiple fetuses, have more comorbidities, and are more likely to have higher risks of adverse obstetric outcomes (c-section delivery, pre-term birth, preeclampsia, hemorrhage, and placental abruption). Specifically, use of donor eggs “has now been shown to be an independent risk factor for hypertensive disease in pregnancy, post-partum hemorrhage and increased risk of caesarean section”.<sup>45</sup> Neonatal outcomes are less clear-cut, although there is some evidence to suggest there is increased risk of small for gestational age babies and preterm delivery. It is becoming clearer that pregnancies resulting from donor eggs are “higher risk than IVF pregnancies with autologous ovum and they should be treated as such”.<sup>45</sup>

*For those considering IVF add-ons*

This report has mentioned the exorbitant cost of egg retrieval, egg storage, and IVF as a whole. The American Society for Reproductive Medicine estimates the average cost of IVF at \$12,400<sup>46</sup>, but it is unclear what exactly this estimate includes. What has been largely left out is the growing opportunity for the fertility industry to profit off of IVF add-ons. IVF add-ons are described as procedures or medications which are added to IVF treatment to try to improve the chance of success. “Examples include taking extra medications such as steroids or aspirin, dipping the embryo into an extra solution known as embryo glue just before it is transferred into the womb, or genetic testing of embryos for extra chromosomes when there is no known inherited disorder present.”<sup>47</sup>

What parent wouldn’t want to improve success while walking along the grueling path of fertility treatment? However, prospective parents should do their research before falling for extra expenses that might not be beneficial or even healthy options. According to Cochrane evidence, “although many different IVF add-ons are available, none have been evaluated in high-quality studies to show that they actually help people to get pregnant and have a baby, and are safe to use.”<sup>48</sup>

Authors of this report would like to draw further attention to two such add-ons; preimplantation genetic diagnosis (PGD) and polygenic embryo selection/screening (PES). These two add-ons, in particular, are expensive and riddled with controversy. While Louise Brown (born in 1978) was famous for being the first successful IVF baby, Aurea, a little girl, born in May 2020, was the first baby born from an embryo created via IVF and screened using PES to “optimize her health prospects.” She passed her very first test in life and she didn’t even know it. A test dictating her worthiness to be transferred to her mother’s womb and be born.

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44 Wu P, Sharma GV, Mehta LS, Chew-Graham CA, Lundberg GP, Nerenberg KA, Graham MM, Chappell LC, Kadam UT, Jordan KP, Mamas MA. In-Hospital Complications in Pregnancies Conceived by Assisted Reproductive Technology. *J Am Heart Assoc.* 2022 Mar;11(5):e022658. doi: 10.1161/JAHA.121.022658. Epub 2022 Feb 22. PMID: 35191320; PMCID: PMC9075081. < <https://www.ahajournals.org/doi/10.1161/JAHA.121.022658> >

45 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6765033/>

46 <https://www.reproductivefacts.org/faqs/frequently-asked-questions-about-infertility/q06-is-in-vitro-fertilization-expensive/>

47 <https://www.evidentlycochrane.net/ivf-add-ons-the-latest-cochrane-evidence/>

48 <https://www.evidentlycochrane.net/ivf-add-ons-the-latest-cochrane-evidence/>

PGD has been around for quite some time and there are various types of PGD that are available for consumers (parents) to purchase when growing their baby. As [Joyce Harper, BSc. PhD tells listeners on Venus Rising](#), “PGD was originally developed to help couples who were at risk for transmitting a specific genetic disease to their child.” She admits that even at the beginning of this technology “people still felt we were playing God” and that “we were narrowing the genetic pool.”<sup>49</sup>

In the 90’s this technology started being used and marketed to every person utilizing IVF in the US for aneuploidy screening, a test that ensures the embryo has a “normal” number of chromosomes. PGD has morphed quite a bit since its early years. An article written by Duke Center for Global Reproductive Health eloquently defines the differences in PGD technologies, “There are three types of PGD/T that have been available to consumers historically. The first is PGT-A, PGT-A refers to testing embryos by counting the 46 chromosomes to look for extra or missing chromosomes (“aneuploidy”). PGT-M, which is for detecting monogenetic illness such as sickle cell anemia, cystic fibrosis, Huntington’s disease. The last of the three kinds is called PGT-SR. PGT-SR is when the chromosome abnormalities are hereditary due to one or both parents having a balanced chromosome “Structural Rearrangement” (such as translocations or inversions), can lead to the fetus having structural abnormalities that lead to fetal or infant death. These three types of PGD/T have been around and have been used to specifically prevent death, disability, illness, or injury to the fetus, and also can help parents with genetic abnormalities conceive children without having to worry.”<sup>50</sup>

Now, a new form, called PGD/T-P involves creating an embryonic “report card” where embryos get graded for the probability they will have certain traits, also referred to as PES. An article from 2020 further explains that these report cards “are generated for each embryo to estimate the likelihood of common diseases (e.g., diabetes, depression, various cancers) or quantitative traits (e.g., height). An embryo is then selected for implantation on the basis of these polygenic scores.”<sup>51</sup> That is, parents are able to choose their future children based on the likelihood of them having certain traits or characteristics rather than leaving it up to random chance. Not only are infertile couples offered this add-on, but wealthy fertile couples are starting to seek out and utilize this technology to select a “perfect” child – one with a preferred sex or eye color and a lower likelihood of unfavorable genetic predispositions or characteristics, like height. Dr. Harper expresses her concern, “What worries us for the future is that we’re going to see more people who are not infertile or who are not carrying a specific serious genetic disease come forward for these treatments because they’ve got the money and they want to be sure that their child is going to be as healthy as possible.” No doubt, we will see more and more people in the fertility clinic, not because they are infertile, but because they desire to create a perfect child even though the Ethics Committee of the American Society for Reproductive Medicine discourages the use of assisted reproductive technologies for sex selection unrelated to any medical reason.

49 <https://cbc-network.org/2021/11/venus-rising-with-dr-joyce-harper-fertility-genetics-and-reproductive-science/>

50 <https://dukecenterforglobalreproductivehealth.org/2021/04/04/pre-implantation-genetic-diagnosis-and-testing/>

51 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7936952/>

It turns out, PGD doesn't improve birth rates. In fact, some studies actually show that this technology makes things worse. Fertility clinics in the United States are still marketing PDG to parents without concrete evidence that they are actually safe and effective, receiving a big paycheck for false promises. PES is new, and is grossly unregulated, but is already being offered despite ethical concerns and lack of data on accuracy. Finally, if it is not already clear, it must be explicitly brought to the attention of readers that the selection of embryos for medical reasons based on a preimplantation genetic diagnosis is considered a eugenic practice by some, based on both its goals and its results.

*To the gestational\* surrogate mother*

\*Due to the shift away from traditional surrogacy where the surrogate mother uses her own egg, the focus of this report is on commercial gestational surrogacy, where the surrogate mother is not genetically related to the child she is carrying. Although comments in this report regarding contracts and the psychological or emotional risks and harms might also apply to a traditional surrogate mother as well.

Surrogacy is not without risks. Surrogate pregnancies are considered “high-risk” pregnancies. In fact, there have been confirmed **deaths of surrogate mothers**<sup>52</sup> in both the United States and abroad. Lupron use in preparing a gestational surrogate to receive transferred embryos has been documented to put a woman at risk for increased intracranial pressure.<sup>53</sup> Scientists wrote recently, in the journal *Fertility and Sterility*, that surrogate mothers had an increased risk of: maternal gestational diabetes, hypertension, antibiotic use during labor, and placenta previa when compared to spontaneous pregnancies.<sup>54</sup> Surrogate pregnancies are also more likely to end in cesarean section rather than vaginal birth<sup>55</sup> (which equates to more risks to both surrogate and baby). Due to the high costs involved in surrogacy and the strong desire to boost success rates, multiple embryos are often transferred in the surrogate mother. In addition to the increased risk of caesarian sections and longer hospital stays, the *British Journal of Medicine* warns “Multiple pregnancies are associated with maternal and perinatal complications such as gestational diabetes, fetal growth restriction, and pre-eclampsia as well as premature birth.”<sup>56</sup> When compared to a natural pregnancy, surrogate pregnancies of a singleton or twin resulted in hospital charges 26 times higher and 173 times higher when triplets or more were born.<sup>57</sup> A 2014 qualitative study on the experiences of eight surrogate mothers published in the *Iranian Journal of Reproductive Medicine*, revealed surrogate moms experience significant emotional attachment

52 <https://cbc-network.org/2020/01/breaking-another-us-surrogate-mother-has-died-2/>

see also: <https://cbc-network.org/2022/06/birth-of-a-baby-death-of-a-mother-a-secondhand-victim-of-surrogacy-speaks-out/>

53 Alexander, J., and Levi, L. (2013). *Journal of Neuro-Ophthalmology*. “Intracranial Hypertension in a Patient Preparing for Gestational Surrogacy With Leuprolide Acetate and Estrogen,” 33:307-318.

54 [https://www.fertstert.org/article/S0015-0282\(17\)31941-6/pdf](https://www.fertstert.org/article/S0015-0282(17)31941-6/pdf)

55 [https://www.fertstert.org/article/S0015-0282\(17\)31941-6/pdf](https://www.fertstert.org/article/S0015-0282(17)31941-6/pdf)

56 Kamphuis, E., Bhattacharya, S., van der Veen, F., and Mol, B.W.J., (2014). *British Journal of Medicine*. “Are We Overusing IVF?”

<<http://www.bmj.com/content/348/bmj.g252>>.

57 <https://www.wjgnet.com/2218-6220/full/v4/i4/102.htm>

to the children they carry as well. Researchers concluded, “surrogacy pregnancy should be considered as a high-risk emotional experience because many surrogate mothers may face negative experiences.”<sup>58</sup> No one has studied or published robust data on the long-term medical, social, financial, or psychological effects on women who are surrogate mothers. This makes it impossible for women to give true, meaningfully informed consent relative to the health and psychological risks involved.

Our own published research found that surrogate mothers were more likely to have a high-risk pregnancy and unfavorable outcomes during her surrogate pregnancy, including c-section delivery, high blood pressure, hemorrhage, pre-term labor and birth, placenta previa, postpartum depression, and postpartum high blood pressure when compared to her other, non-surrogate, pregnancies.<sup>59</sup> These outcomes were consistent independent of her age or gravidity and confirmed that health disparities exist for women with surrogate pregnancies compared to non-surrogate pregnancies,

It is well understood that pregnancy is a full body experience, affecting the physical, social, mental and emotional being of a woman. The fertility industry is littered with phrases like “renting a womb” and “my bun her oven” to try and minimize the whole-body experience of pregnancy. Any adverse physical outcomes, like those aforementioned, are not isolated to the womb and to the pregnancy, but can have lasting effects on the surrogate mother. For example, those who have preeclampsia in pregnancy have an increased risk for heart disease as well as stroke and high blood pressure later in life. Of course, this is not the only instance where pregnancy-related complications have long-term risks.

Further, surrogate mothers, those that hire surrogate mothers, and the public at large are constantly told, by the fertility industry, that the surrogate mother has no genetic link to the surrogate child. New emerging scientific evidence is showing that maternal-fetal cell exchange, called microchimerism, may affect the future health of both surrogate and fetus/child.<sup>60</sup> Studies have shown that maternal cells can migrate from the pregnant woman across the placenta into the fetus where they can embed and transform; for example, maternal cells can transform to tumor cells in the child<sup>61,62</sup>. Not only do maternal cells migrate to the fetus, but many different types of cells, including stem cells, from the fetus also cross the placenta into the pregnant woman and will remain in various tissues in her body for the rest of her life, having both a helpful and

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58 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4126251/#:~:text=Conclusion%3A%20Surrogacy%20pregnancy%20should%20be,to%2C%20during%20and%20following%20pregnancy.>

59 Lahl, Jennifer; Fell, Kallie; Bassett, Kate; Broghammer, Frances H.; and Briggs, William M. (2022) "A Comparison of American Women's Experiences with Both Gestational Surrogate Pregnancies and Spontaneous Pregnancies," *Dignity: A Journal of Analysis of Exploitation and Violence*: Vol. 7: Iss. 3, Article 1. <https://doi.org/10.23860/dignity.2022.07.03.01>

60 <https://www.longdom.org/open-access/new-ethical-horizons-in-gestational-surrogacy-jfiv.1000109.pdf>

61 Alexander A, Samlowski WE, Grossman D, Bruggers CS, Harris RM, et al. (2003) Metastatic melanoma in pregnancy: risk of transplacental metastases in the infant. *J Clin Oncol* 21: 2179-2186.

62 Isoda T, Ford AM, Tomizawa D, van Delft FW, De Castro DG, et al. (2009) Immunologically silent cancer clone transmission from mother to offspring. *Proc Natl Acad Sci U S A* 106: 17882-17885.

harmful effect.<sup>63,64</sup> For example, studies show these cells might help decrease breast cancer risk, but place the woman at an increased risk for colon cancer or autoimmune disease.<sup>65,66</sup> Much of the research in microchimerism has been done on mothers and fetuses that are genetically related, but new research shows this same phenomenon happens in surrogate pregnancies with no genetic link.<sup>67</sup> Authors have written, “this cellular exchange across the placenta is not unusual. In a typical pregnancy, bi-directional maternal-fetal cell exchange is a normal process.”<sup>68</sup> Authors who have published on microchimerism in the setting of surrogacy have called for a more detailed examination of gestational surrogacy in light of the findings on microchimerism. Specifically, a better understanding of “the medical health and psychological outcomes of maternal-fetal cell exchange in surrogacy”, a review of surrogacy laws, a requirement to provide a more “comprehensive genetic family history and genetic screening from all parties involved”, and, of course, “the ethical and social complexities of surrogacy.”<sup>69</sup> This new data on microchimerism suggests that the woman is not simply “renting” her womb as this “maternal-fetal exchange creates a lifelong intimate biological connection between the pregnant woman and the fetus she is carrying.”<sup>70</sup>

Not only are their physical risks, there are emotional, psychological, and relational risks and changes as well. Like any mother, surrogate mothers do bond with the child they carry and can experience emotional pain when detached from their child after birth. A 2014 qualitative study on the experiences of eight surrogate mothers revealed that surrogate mothers experience significant emotional attachment to the children they carry.<sup>71</sup> Researchers concluded, “surrogacy pregnancy should be considered as a high-risk emotional experience because many surrogate mothers may face negative experiences.” As mentioned already, the research by the Center for Bioethics and Culture has shown that surrogate mothers have an increased risk for postpartum depression. Further research to evaluate this difference is warranted, but we hypothesize that the absence of a child after birth is largely responsible.

Finally, the practice of surrogacy often treats women as second-class citizens. Surrogacy often depends on the exploitation of poorer women, both in the United States and abroad. Money acts as a strong incentive to encourage women to put themselves at risk. Our own study found that women’s economic disadvantage was a major contributor to the decision to proceed with surrogacy and overwhelmingly, women admitted to using the money they received to pay bills or get out of debt.<sup>72</sup> Current household income was also collected for all participants in our study.

63 Klönisch T, Drouin R (2009) Fetal-maternal exchange of multipotent stem/progenitor cells: microchimerism in diagnosis and disease. *Trends Mol Med* 15: 510-518.

64 Williams Z, Zepf D, Longtine J, Anchan R, Broadman B, et al. (2009) Foreign fetal cells persist in the maternal circulation. *Fertil Steril* 91: 2593-2595.

65 Kamper-Jørgensen M, Biggar RJ, Tjønneland A, Hjalgrim H, Kroman N, et al. (2012) Opposite effects of microchimerism on breast and colon cancer. *Eur J Cancer* 48: 2227-2235.

66 Lepez T, Vandewoestyne M, Deforce D (2012) Fetal microchimeric cells in blood and thyroid glands of women with an autoimmune thyroid disease. *Chimerism* 3: 21-23.

67 Williams Z, Zepf D, Longtine J, Anchan R, Broadman B, et al. (2009) Foreign fetal cells persist in the maternal circulation. *Fertil Steril* 91: 2593-2595.

68 <https://www.longdom.org/open-access/new-ethical-horizons-in-gestational-surrogacy-jfiv.1000109.pdf>

69 <https://www.longdom.org/open-access/new-ethical-horizons-in-gestational-surrogacy-jfiv.1000109.pdf>

70 Nelson JL (2012) The otherness of self: microchimerism in health and disease. *Trends Immunol* 33: 421-427.

71 Ahmari Tehran H, Tashi S, Mehran N, Eskandari N, Dadkhah Tehrani T. Emotional experiences in surrogate mothers: A qualitative study. *Iran J Reprod Med*. 2014 Jul;12(7):471-80. PMID: 25114669; PMCID: PMC4126251.

72 <https://digitalcommons.uri.edu/cgi/viewcontent.cgi?article=1311&context=dignity>

Using the six 2020 federal tax brackets the household income levels were organized. Tier 1 corresponds to the lowest taxable income and tier 7 corresponds to the highest taxable income. Eighty-eight women in our study reported a taxable income that falls within tier 2 and tier 3. Our data showed that no women were in the top three tax tiers.<sup>72</sup> It is clear that the decision to act as a gestational surrogate is ethically complicated by women's financial circumstances, which can function as coercion in cases of poverty or financial need. The European parliament stated in a resolution, surrogacy and egg sale constitute an "extreme form of exploitation of women."<sup>73</sup>

Once women agree to a surrogate pregnancy, they must adhere to a contract or risk losing payment. Contracts are full of legalizing outlining the medical and financial arrangement and parentage. However, "The most troubling aspect of such contracts is usually not the nuts and bolts, but the addition of all the whims and wishes of the intended parents. The intended parents get to direct nearly every detail of the surrogate's life up to the moment of birth and surrendering the child. This makes the commercial use of the woman's entire body for the duration of the pregnancy very clear."<sup>74</sup> Among other things, contracts specially detail the surrogate mother's diet, living arrangement, travel and other activities, like dying her hair. Further, these contracts often include clauses on abortion, fetal reduction, and end-of-life decision making, giving intended parents control over if and when a surrogate must terminate the pregnancy, "reduce" a pregnancy, or even her own life to achieve a successful birth. Finally, the surrogate mother must relinquish control of her confidential health information, normally protected under law. The doctor-patient relationship does not exist for surrogate mothers. Dr. Anthony Diehl in *#BigFertility: It's All About the Money* talks about the challenges of providing care to a surrogate mother carrying a baby for another person, especially when the IP does not agree with the care a surrogate mother wants, "It's pretty hard because I've got a mom and I've got a baby or two babies and they're in front of me and they are my patients... It's complicated. Who has ultimate say here? You really straddle that line... There were all sorts of times I didn't know who to listen to."<sup>75</sup>

We have become a nation where we are "willing to allow practices that risk the life and health of surrogate mothers, and even the resulting children, if it serves the interests of the customer, the intending parents, and the intermediaries who profit from surrogacy" and are "willing to place women's bodies under the dominion of intending parents and the industry."<sup>76</sup>

### *To the child or children born from IVF*

Data on risks to children born of IVF is now slowly starting to come out. Since we have larger sample sizes of children born via IVF, scientists and physicians are researching these children and have meaningful and concerning data to report. One study states "The risks of heart defects, musculoskeletal and central nervous system malformations, preterm birth, and low birth

73 European Parliament Resolution on the Planned Trading of Human Egg Cells by Great Britain and Romania, B6-0205/2005.

74 <https://www.thepublicdiscourse.com/2017/11/20390/>

75 <https://www.youtube.com/watch?v=QvQP7JSydMw>

76 Smolin, David. *Cumberland Law Review*, 2019, *The One Hundred Thousand Dollar Baby: The Ideological Roots of a New American Export*. <  
[https://works.bepress.com/david\\_smolin/20/](https://works.bepress.com/david_smolin/20/)>



weight are increased in children conceived by vitro fertilization (IVF). The risks seem to be based on maternal and paternal factors, but also on IVF itself."<sup>77</sup> Data show that children conceived via IVF have an increased risk for insulin- resistance and high blood pressure<sup>78</sup> and suffer from significant increases in preterm or very pre-term births, stillbirths and perinatal mortality, low and very low birth weights, small for gestational age, fetal anomalies (including congenital malformation), higher blood pressure, and Beckwith-Wiedemann and Angelman syndrome, according to studies published in the *American Journal of Obstetrics & Gynecology*, the *Journal of Perinatology*, the *American Journal of Human Genetics*, and *Fertility and Sterility*.<sup>79, 80, 81, 82, 83, 84, 85, 86</sup> Another study found "that children born via ART conception have a higher risk of any type of childhood cancer, as well as leukemia and hepatic tumors, compared with children born via either natural conception or parental subfertility."<sup>87</sup>

Perinatologist Allan Merritt and his team found risks to both mother and children from IVF. His team concluded, "Among ART/AI pregnancies, there was a 4-5-fold increase in stillbirths, compared with a 2-3-fold increase among women with infertility compared with other naturally conceiving women. ART/AI pregnancies underwent more cesarean sections (four-fold), and a near fourfold increase in the rate of preterm deliveries. Multiple gestations were increased 24-27-fold compared with naturally conceived pregnancies. Maternal hospital stay and hospital charges were increased among those undergoing ART/AI. Infant charges were increased multi-fold for singletons, twins and triplets delivered after ART/AI compared with naturally conceived infants."<sup>88</sup> A 2021 study found that "children conceived by assisted reproductive technology (ART) had statistically significantly worse outcomes in left ventricular function and structure." The article further stated that "children conceived by ART had increased blood

77 von Wolff M, Haaf T. In Vitro Fertilization Technology and Child Health. *Dtsch Arztebl Int.* 2020 Jan 17;117(3):23-30. doi: 10.3238/arztebl.2020.0023. PMID: 32031509; PMCID: PMC7026576. <<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7026576/#:~:text=The%20risks%20of%20heart%20defects,but%20also%20on%20IVF%20itself.>>

78 <https://www.healthline.com/health-news/children-born-via-ivf-face-higher-health-risks>

79 *American Journal of Obstetrics and Gynecology*, "Are Children Born After Assisted Reproductive Technology at Increased Risk for Adverse Health Outcomes?" 2004. <[http://journals.lww.com/greenjournal/Abstract/2004/06000/Are\\_Children\\_Born\\_After\\_Assisted\\_Reproductive.5.aspx](http://journals.lww.com/greenjournal/Abstract/2004/06000/Are_Children_Born_After_Assisted_Reproductive.5.aspx)>.

80 Merritt, T.A., Goldstein, M., Philips, R., Peverini, R., Iwokoshi, J., Rodriguez, A., and Oshiro, B. (2014). *Journal of Perinatology*. "Impact of ART on pregnancies in California: an analysis of maternity outcomes and insights into the added burden of neonatal intensive care." <<http://www.ncbi.nlm.nih.gov/pubmed/24556981>>.

81 Gicquel, C., Gaston, V., and LeBouc, Y. (2003). *American Journal of Human Genetics*. "In Vitro Fertilization May Increase the Risk of Beckwith- Wiedemann Syndrome Related to the Abnormal Imprinting of the KCNQ1OT Gene." <<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1180288/>>.

82 Wen, J., Jiang, J., Ding, C., Dai, J., Liu, Y., Xia, Y., Liu, J., and Hu, Z. (2012). *Fertility and Sterility*. "Birth defects in children conceived by in vitro fertilization and intracytoplasmic sperm injection: a meta-analysis."

83 Soejima, H., and Higashimoto, K. (2013). *Journal of Human Genetics*. "Epigenetic and genetic alterations of the imprinting disorder Beckwith- Wiedemann syndrome and related disorders. 58: 402-409

84 Schieve, L., Meikle, S., Ferre, C., Petersen, H., Jeng, G., and Wilcox, L. (2002). *New England Journal of Medicine*. "Low and Very Low Birth Weight in Infants Conceived with Use of Assisted Reproductive Technology," 346:731-737. <<http://www.nejm.org/doi/full/10.1056/NEJMoa010806>>.

85 Cavoretto, P., Candiani, M., Giorgione, V., Inversetti, A., Abu-Saba, M.M., Tiberio, F., Sigismondi, C. and Farina, A. (2018), Risk of spontaneous preterm birth in singleton pregnancies conceived after IVF/ICSI treatment: meta-analysis of cohort studies. *Ultrasound Obstet Gynecol*, 51: 43-53. <https://doi.org/10.1002/uog.18930>

86 <https://doi.org/10.1016/j.fertnstert.2015.09.007>

87 Hargreave M. *Fertility Treatment and Childhood Cancer Risk.* *JAMA Netw Open.* 2022;5(8):e2230162. doi:10.1001/jamanetworkopen.2022.30162

<<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2795805#:~:text=They%20found%20that%20children%20born,natural%20conception%20or%20parental%20subfertility.>>

88 Merritt, T.A., Goldstein, M., Philips, R., Peverini, R., Iwokoshi, J., Rodriguez, A., and Oshiro, B. (2014). *Journal of Perinatology*. "Impact of ART on pregnancies in California: an analysis of maternity outcomes and insights into the added burden of neonatal intensive care." <<http://www.ncbi.nlm.nih.gov/pubmed/24556981>>.

pressure and unfavorable changes in left ventricular structure and function compared with children who were naturally conceived.”<sup>89</sup>

Because of the high cost and high failure rate the process of IVF intentionally creates many embryos. In fact, it is estimated that about one million frozen embryos are currently stored in the US alone. Storing embryos indefinitely is costly, both financially and emotionally, and many have been abandoned. Of the frozen embryos that are used for IVF, one study found that these babies conceived from frozen embryo transfer were more than twice as likely to develop childhood cancer, particularly leukemia and neuroblastoma, a type of brain cancer.<sup>90</sup> At best, research cannot *exclude* the possibility that irreparable damage to the child-to-be will not result from being frozen for some time, therefore it is ethically problematic to proceed with creating children by these means.

Finally, in the previous section about IVF add-ons, authors wrote about the eugenic implications when using IVF. “Although there is nothing inherently eugenic about IVF, being able to manipulate human conception outside of the womb is an essential platform technology for any modern eugenic goal.”<sup>91</sup> Robert Edwards, the co-pioneer of IVF, implicitly acknowledged the eugenic implications of his technology when he stated, “Soon it will be a sin of parents to have a child that carries the heavy burden of genetic disease. We are entering a world where we have to consider the quality of our children.” That is physicians won’t simply use new technologies to treat disease, but to prevent the births or reconfigure the traits of individuals thought to be less than ideal.

Interestingly, studies show that children conceived via IVF utilizing Intracytoplasmic Sperm Injection (ICSI) and preimplantation genetic diagnosis have worse outcomes than those conceived naturally. In one study, from 2002, 8.8% of people conceived by means of ICSI suffered from major congenital birth defects, while only 4.4% of those conceived naturally suffered from such defects, a statistically significant finding.<sup>92</sup> Another later study, from 2010 did not show increased risk for major congenital birth defects, but did show increased risk for perinatal death, particularly in multiple pregnancies.<sup>93</sup> Although PGD claims to diminish the risk of having a child affected by a genetic disease, studies show that babies born as a result of assisted reproductive technology have a higher probability of being born with major birth defects than those conceived naturally.

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89 Cui L, Zhao M, Zhang Z, Zhou W, Lv J, Hu J, Ma J, Fang M, Yang L, Magnussen CG, Xi B, Chen ZJ. Assessment of Cardiovascular Health of Children Ages 6 to 10 Years Conceived by Assisted Reproductive Technology. *JAMA Netw Open*. 2021 Nov 1;4(11):e2132602. doi: 10.1001/jamanetworkopen.2021.32602. PMID: 34735014; PMCID: PMC8569486.

90 Hargreave M, Jensen A, Hansen MK, et al. Association Between Fertility Treatment and Cancer Risk in Children. *JAMA*. 2019;322(22):2203–2210. doi:10.1001/jama.2019.18037

91 <https://www.scientificamerican.com/article/eugenic-legacy-nobel>

ivf/#:~:text=Although%20there%20is%20nothing%20inherently,for%20any%20modern%20eugenic%20goal.

92 Hansen M, Kurinczuk J, Bower C, Webb S. The risk of major birth defects after intracy-toplasmic sperm injection and in vitro fertilization. *N Engl J Med*. 2002;346(10):725-30.

93 Liebaers I, Desmyttere S, Verpoest W, De Rycke M, Staessen C, Sermon K, et al. Report on a consecutive series of 581 children born after blastomere biopsy for preimplantation genetic diagnosis. *Hum Reprod*. 2010;25(1):275-82.

From where we sit, the data speaks for itself, but even if you aren't convinced children conceived via ART might have worse outcomes, shouldn't we still view ART as experimental? Specifically, experimentation on children that cannot consent. Though the medical community failed to heed his warning, bioethicist [Paul Ramsey's words](#) are still true:

My only point as an ethicist is that none of these researchers can exclude the possibility that they will do irreparable damage to the child-to-be. And my conclusion is that they cannot morally proceed to their first ostensibly successful achievement of the results they seek, since they cannot assuredly preclude all damage.

*To the child or children born from donor sperm or egg*

The same risks to children born from IVF, discussed above, apply here as well. To use a donor egg, requires IVF. However, there is one reported difference at birth, children born from IVF using donor eggs (either fresh or thawed) had the highest rates of NICU admissions at birth.<sup>94</sup>

Young adult children born via anonymous gamete donation suffer serious genealogical bewilderment according to both empirical studies and actual testimonies.<sup>95</sup> A study in the journal *Human Reproduction* concluded, "Disclosure to children conceived with donor gametes should not be optional."<sup>96</sup> The biological link between parent and child is undeniably intimate, and when severed has lasting repercussions felt by both parties. A 2013 study in *Reproductive BioMedicine* surveyed 108 parents of children conceived via oocyte donation and found that fifty percent regretted using anonymous donation for these very reasons.<sup>97</sup> Donor-conceived people have a longing to know who they belong to, where they came from, and who they look like? What is it like to grow up not knowing your biological links or if you have siblings? What is it like to realize you were created from an egg donated by a poor college student; that your biological mother doesn't know who you are or that you exist? How does it impact your self-perception, the choices you make, and your view of life and the world? What would it be like to realize you have over 200 half-siblings? With the advent of at-home DNA ancestry tests some are finding out for the first time that their family tree isn't what they thought. Donor conceived individuals are starting to speak out about their experiences and those individual stories are having an impact on legislation. Erin Jackson, founder of We Are Donor Conceived and advisor for the U.S. Donor Conceived Council found out she was donor conceived when she was 35 years old. Due to her personal experience and advocacy work, Colorado successfully became the first state to abolish

94 Luke B, Brown MB, Wantman E, Baker VL, Doody KJ, Seifer DB, Spector LG. Risk of severe maternal morbidity by maternal fertility status: a US study in 8 states. *Am J Obstet Gynecol*. 2019 Feb;220(2):195.e1-195.e12. doi: 10.1016/j.ajog.2018.10.012. Epub 2018 Oct 12. PMID: 30321527; PMCID: PMC9758649. <[https://www.ajog.org/article/S0002-9378\(18\)30894-9/fulltext?fbclid=IwAR0CdiERVQh3GJJvt4SGWoC2EZT\\_9UUrUbR66CAujxNl10M3OWdKzhkZOI](https://www.ajog.org/article/S0002-9378(18)30894-9/fulltext?fbclid=IwAR0CdiERVQh3GJJvt4SGWoC2EZT_9UUrUbR66CAujxNl10M3OWdKzhkZOI)>.

95 See AnonymousUs.org, an online story collective for real life testimonials for voluntary and involuntary participants of assisted reproduction, as well as the 2012 documentary *Anonymous Father's Day*. <<http://www.anonymousfathersday.com>>

96 McGee, G., Brakman, S.V., and Gurmankin, A.D. (2001). *Human Reproduction*. "Gamete donation and anonymity: disclosure to children conceived with donor gametes should not be optional." <<http://www.ncbi.nlm.nih.gov/pubmed/11574486>>.

97 Frith, L., Sawyer, N., and Kramer, W. (2012). *Reproductive BioMedicine*. "Forming a family with sperm donation: a survey of 244 non-biological parents." <[https://www.donorsiblingregistry.com/sites/default/files/images/docs/Non-Bio\\_Parent\\_Paper\\_DSR.pdf](https://www.donorsiblingregistry.com/sites/default/files/images/docs/Non-Bio_Parent_Paper_DSR.pdf)>.

anonymous sperm and egg donation.<sup>98</sup> Other states in nation would be wise to follow suit because, as the Donor Sibling Registry states, “genetic matter, matters!” Currently, the United States “does not require cryobanks to keep accurate records on sperm donor families, nor are they forced to limit the numbers of children born to any single donor. If a donor reports a serious illness, there is no way for the sperm banks to notify all involved families.”<sup>99</sup> How are donor conceived children supposed to accurately fill-out the familial medical history at the doctor’s office? A study in the journal *Human Reproduction* concluded, “Disclosure to children conceived with donor gametes should not be optional.” There needs to be a central registry tracking all donors and all donor conceived children, but one still doesn’t exist despite the work of advocates like Wendy Kramer.

Even with a win in Colorado, banning anonymous egg and sperm donation, donor conceived people and people born from surrogacy still might not have access to complete and accurate birth certificates, or the information that is usually found on them. For those around the globe born from third-party conception the birth certificate is a topic of interest and is ever-evolving. The Donor Sibling Registry clearly explains the issue in the United States:

No federal birth certificate revision has been issued to address donor conception scenarios. Therefore, married couples in all states who use donor sperm are automatically granted the right to list the husband as the father and women who use donor eggs to become pregnant are listed as mothers on birth certificates. No official asks them if they used any donated gametes to conceive, or for any information about the donor who is genetically related to the child.<sup>100</sup>

Children born from surrogacy might have an additional layer of deception to sort out. In states like California, pre-birth orders can be granted to intended parents before the child is even born. A pre-birth order, akin to a deed of ownership, establishes the intended parent(s) as the legal parent(s) prior to birth to ensure that the birth mother’s name is never recorded on the birth certificate. Of course, the same can be accomplished after the birth, but this requires erasing the birth mother and replacing her name with another. It could be that a child is created via donor sperm and egg and born from a surrogate mother and never have any of those important people listed on his or her birth certificate. Shouldn’t every person have a right to an accurate record of his or her birth?

### *To the child or children born from IVF and surrogacy*

If you skipped the section “*to the child or children born from IVF*” to get to this section, go back and read it. All of the risks there could be copied and pasted here because IVF is required in all cases of commercial gestational surrogacy. Further, if a donor egg or sperm is used for the surrogacy arrangement, the same harms from “*To the child or children born from*

<sup>98</sup> <https://19thnews.org/2022/06/colorado-abolish-anonymous-sperm-egg-donors-activist/#:~:text=Jared%20Polis%20signed%20the%20first,biological%20parents%20after%20turning%2018>

<sup>99</sup> <https://donorsiblingregistry.com/blog/biology-and-birth-certificates-our-right-to-accuracy>

<sup>100</sup> <https://donorsiblingregistry.com/blog/biology-and-birth-certificates-our-right-to-accuracy>

*donor sperm or egg*” are also applicable here. Research exploring the impacts of being born from a surrogate mother are limited. However, there is one really important study that looks at fetal outcomes of surrogate pregnancies. Authors in a 2017 [study](#) found that neonates born from commissioned embryos (embryos made from IVF) and carried by gestational surrogates (women who have no genetic relationship to the embryo) have increased incidences of preterm birth, low birth weight babies, maternal gestational diabetes, hypertension, and placenta previa, compared with the live births conceived spontaneously and carried by the *same* woman. These pregnancies are also more likely to end in cesarean section rather than vaginal birth (which equates to more risks to both surrogate mother and baby or babies she carries). Remember, any adverse outcome to the mother has a potential to affect the health and well-being of the unborn child. Another group of researchers performed an analysis of sixty-nine infants delivered from both gestational and traditional surrogate mothers and found an increase in multiple births, an increase rate of NICU admission for the baby or babies, longer hospital stays, and increased hospital charges “several multiples beyond that of a term infant conceived naturally.”<sup>101</sup> Even with limited data, we can see unfavorable outcomes and increased health risks for both the surrogate mother and child or children. It is our hope that as the children born from surrogate mothers age, researchers will uncover the long-term health risks, if there are any, in this population. Until then, we wait.

Further, as discussed in the section to surrogate mothers, developing scientific evidence is showing that maternal-fetal cell exchange, called microchimerism, may affect the future health of both surrogate and fetus/child.<sup>102</sup> Studies have shown that maternal cells can migrate from the pregnant woman across the placenta into the fetus where they can embed and transform. Recent studies have shown that maternally-derived cancer cells migrated to the fetus *in utero* and can later transform to tumor cells in the child.<sup>103,104</sup> As scientists, physicians, and the public have learned more about genetics and maternal-fetal cellular exchange, it is increasingly evident how important the family medical history becomes, not only of the egg or sperm “donor” if used, but also that of the surrogate mother to the child born from surrogacy. Unfortunately, new laws around the globe are removing the birth mother from the birth certificate, making knowledge of the surrogate mother and her medical history a challenge for the child to obtain if not disclosed by the intended parents. The current language downplaying the role of biological link of the surrogate mother and surrogate baby doesn’t help.

Beyond the immediate, or even long-term, health risks to the surrogate child, it is imperative that people understand that surrogate pregnancies intentionally sever the natural maternal bonding that takes place during pregnancy. Scientists know that early in gestation, babies are aware of and respond to the environment around them. They hear the birth mothers voice and can pick up on sounds, smells, visuals, and emotions. No doubt this creates a bond between a mother and a child much more than what is described by surrogacy agencies as

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101 [https://www.lcc.mn.gov/lcs/meetings/07192016/Merritt\\_Study\\_on\\_Surrogate\\_Pregnancy.pdf](https://www.lcc.mn.gov/lcs/meetings/07192016/Merritt_Study_on_Surrogate_Pregnancy.pdf)

102 <https://www.longdom.org/open-access/new-ethical-horizons-in-gestational-surrogacy-jfiv.1000109.pdf>

103 Alexander A, Samlowski WE, Grossman D, Bruggers CS, Harris RM, et al. (2003) Metastatic melanoma in pregnancy: risk of transplacental metastases in the infant. *J Clin Oncol* 21: 2179-2186.

104 Isoda T, Ford AM, Tomizawa D, van Delft FW, De Castro DG, et al. (2009) Immunologically silent cancer clone transmission from mother to offspring. *Proc Natl Acad Sci U S A* 106: 17882-17885.

someone else's bun in another woman's oven. The fourth trimester, the 12 weeks immediately after delivery is a time where the baby adjusts to time outside of the womb, recognizing that a mother and newborn are critically connected, even if they are no longer physically linked. Further, globally, there has been substantial effort to increase rates of breastfeeding to improve maternal and fetal health. The benefits of breastfeeding, to both an infant and the birth mother, are substantial and well-documented. Of course, the surrogate mother can pump and provide the breastmilk (this is often a commercial transaction as well) to the child she birthed, but it is well known that separating an infant from the birth mother has a negative effect on lactation and milk supply. Authors of this report find it troubling and counterintuitive that hospitals nationwide receive incentives (money) for becoming "baby friendly" and improving in-patient breastfeeding success, all the while commercial surrogacy prevents such success and fails to give infants the life-long benefits of exclusively breast feeding. Or, at the very least, monetizes off of another reproductive function of women willing to provide her breast milk.

Looking past the fourth trimester, a June 2013 study released in the *Journal of Child Psychology and Psychiatry* found that "surrogacy children showed higher levels of adjustment difficulties at age 7..." and that "the absence of a gestational connection to the mother may be more problematic..." The study also reported that the child's difficulties "may have been under-reported by reproductive donation mothers who may have wished to present their children in a positive light..."<sup>105</sup> Again, since surrogacy is still relatively new, there is not a lot of long-term data on the health and well-being of children born from surrogacy contracts. Future studies are warranted to explore the long-term developmental, psychological and psychosocial outcomes of children born from surrogate mothers.

Jessica Kern, a woman who found out at 16 that she was a product of gestational surrogacy, writes "I think commercial surrogacy is wrong. It really is the buying and selling of babies, and the commodification of women's bodies."<sup>106</sup> The New York State Task Force on Life and the Law stated that commercial surrogacy "could not be distinguished from the sale of children and that it placed children at significant risk of harm."<sup>107</sup> Do children conceived from surrogacy contracts feel like Jessica Kern? We don't know because, to date, there is no research on how offspring of surrogacy feel about their origins. Jessica continues in her story, "I think that there is a very important voice missing from the ongoing cultural debate over surrogacy: the voices of the children themselves."<sup>108</sup> Until we hear from the children, surrogacy will continue to be "unashamedly, an adult or parent-centered view, with the basic human rights of newborn babies ignored."<sup>109</sup>

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105 Golombok, S., Blake, L., Casey, P., Roman, G., and Jadva, V. (2013). *The Journal of Psychology and Psychiatry* "Children born through reproductive donation: A longitudinal study of psychological studies, 54:6, pp 653-660.

106 <https://www.legalizesurrogacywhynot.com/jessica-kern-story>

107 New York State Task Force on Life and the Law. *Surrogate Parenting: Analysis and Recommendations for Public Policy*, 1988.

<[https://www.health.ny.gov/regulations/task\\_force/reports\\_publications/#surrogate\\_parent](https://www.health.ny.gov/regulations/task_force/reports_publications/#surrogate_parent)>.

108 <https://www.legalizesurrogacywhynot.com/jessica-kern-story>

109 Klein, R. (2017). *Surrogacy: A human rights violation*. s.n.

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*To the “transgender” youth being sold fertility preservation*

With the growth in “transgender affirmation” treatment, we now see an expansion of fertility medicine as the new standard of care is to offer fertility preservation to children. Like pediatric cancer patients, who may have their fertility damaged by chemotherapeutics or radiation therapies are offered fertility preservation, children who believe they are transgender are also offered fertility preservation as cross-sex hormones and surgeries damage their fertility. Fertility preservation will look different for those who have yet to go through puberty and to those who have gone through puberty. For the child who has not yet gone through puberty, ovarian and testicular tissue is harvested and frozen since there are no mature ova or sperm. In the case of the minor child or young adult, who has gone through puberty, they will have mature ova and sperm which can be collected and frozen. There are many scenarios that will need to be thought through depending on surgeries these children may have. Will young girls have hysterectomies and double-mastectomies, and phalloplasty surgery? Will young boys have their testes and penis removed? When asked about fertility preservation can young people suffering gender dysphoria even imagine and comprehend a future with or without children that have some biological connection?

As with the pediatric cancer patient, this is a new practice within fertility medicine that is highly speculative and experimental, putting the future hopes of having biological children in jeopardy. In fact, there are only three documented live births in female pediatric cancer patients who underwent fertility preservation via ovarian cryopreservation.<sup>110,111,112</sup> For those who are treated with “transgender affirmation” their fertile bodies have been damaged by surgeries and long-term cross-sex hormones, if they are going to attempt to conceive, some combination of third parties will be needed.

## **Impact**

### *On the stakeholders*

Rudy Rupak, founder of Planet Hospital, a global IVF industry provider of services stated in the *New York Times*, “Here’s a little secret for all of you. There is a lot of treachery and deception in I.V.F./fertility/surrogacy because there is gobs of money to be made.”<sup>113</sup> The fertility industry is estimated to be a multi-billion dollar per year industry in the United States alone, with no signs of slowing.

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110 Isabelle Demeestere and others, Live birth after autograft of ovarian tissue cryopreserved during childhood, *Human Reproduction*, Volume 30, Issue 9, September 2015, Pages 2107–2109, <https://doi.org/10.1093/humrep/dev128>

111 Matthews SJ, Picton H, Ernst E, Andersen CY. Successful pregnancy in a woman previously suffering from  $\beta$ -thalassaemia following transplantation of ovarian tissue cryopreserved before puberty. *Minerva Ginecol* 2018;70:432-5. DOI: 10.23736/S0026-4784.18.04240-5

112 Kenny A. Rodriguez-Wallberg, Milan Milenkovic, Kiriaki Papaikononou, Victoria Keros, Britt Gustafsson, Fotios Sergouniotis, Ida Wikander, Ronak Perot, Birgit Borgström, Per Ljungman, Gisela Barbany Vol. 106 No. 10 (2021): October, 2021 <https://doi.org/10.3324/haematol.2021.278828>

113 Lewin, T. (2014, July, 27). A Surrogacy Agency that Delivered Heartache. *The New York Times*. <<http://www.nytimes.com/2014/07/28/us/surrogacy-agency-planet-hospital-delivered-heartache.html>>.

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*To the infertile couple*

It is not lost on us how devastating and life shattering infertility can be. Like many hardships, the pain, confusion, and grief can only be understood completely by those who have walked through it. It is a hard pill to swallow when our wishes, desires, and dreams are shattered by the reality that children may not come naturally. In the space of infertility, there is an industry willing and waiting to profit off of those who are desperate to fulfill those shattered dreams. It behooves us all to take a closer look at the fertility industry, to realize that it is a high-cost, low reward system capitalizing on pain and heartbreak. We have heard couples describe their experience with the fertility industry as a “vortex” or roller coaster. A ride with unexpected loops, unforeseen turns, and steep dives with no way of exiting. It was only after that they realized how manipulated they were. Lured in with success stories from others and waiting rooms full of seemingly perfect families and smiling babies, not being able to exit the ride when their arms remained empty despite intervention. Borrowing money from friends, family or the bank, leaning further into vortex, determined not to give up despite the cost (estimated at \$12,000-\$30,000 or more per cycle).<sup>114</sup> Each unsuccessful attempt or intervention driving a couple to continue regardless of empty pockets and exhausted bodies.

*To the individual in third-party conception*

Egg and sperm donors are recruited through ads in online classifieds, social media, and college newspapers. The ads are looking for a particular profile; smart, attractive, athletic, and healthy. Egg donors can be offered anywhere from \$5,000 to \$100,000 while sperm donors typically make a few hundred dollars. These egg donor ads rarely, if ever, make any mention of the potential health risks involved, nor do they reveal that no long-term studies have ever been conducted. The Tech from MIT wrote, “many ads found in college newspapers do not explain the medical process of egg donation, nor the associated risks in any of their iterations.”<sup>115</sup> Sperm donation is without the health risks of egg donation, but both practices involve making children who will be intentionally severed from their biological parent. Marketing and advertisement speak about “giving the gift” of life, without serious consideration for the “gift” which is the child. Such information is essential for decision-making and consent to be truly and fully informed.

To become a surrogate mother, the fertility industry also looks for a particular profile. A woman wanting to become a surrogate mother is usually required to be within a certain age range, be in good overall health, pass screening exams such as psychological tests, and she must have birthed at least one biological child. These requirements aren’t always mandatory and of course there are other attributes that make a woman stand out as a “good” surrogate mother. These other attractive attributes include: access to health insurance, transportation, time to gestate a baby for nine months, and family support. Considering the population of the United

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114 [https://www.investopedia.com/how-much-does-ivf-cost-6503275#:~:text=Average%20Cost%20of%20IVF,-](https://www.investopedia.com/how-much-does-ivf-cost-6503275#:~:text=Average%20Cost%20of%20IVF,-The%20American%20Society&text=A%20single%20IVF%20cycle—defined,Fertility%20in%20Newport%20Beach%2C%20Calif)

The%20American%20Society&text=A%20single%20IVF%20cycle—defined,Fertility%20in%20Newport%20Beach%2C%20Calif

115 <https://thetech.com/2021/02/18/egg-donation-ad-editorial>



States, there is one group of women likely to possess all of these desirable attributes: military wives. According to sociology Professor Elizabeth Ziff, military wives are the “all-American surrogate”.<sup>116</sup> Military wives, and other women, often low-income or economically disadvantaged<sup>117</sup>, with these attributes are targeted by the fertility industry. Currently, the marketing and advertising of surrogacy (similar to egg “donation”) only state the “benefits” of selling your eggs or renting your womb, with no mention of the myriad of risks. Brokers and clinics, who stand to profit most, resist calls to do the necessary studies and warn women of potential risks,<sup>118</sup> putting the mental and physical health of women in the United States at risk. All the while, failing to provide proper informed consent. In a nation where informed consent is both an ethical and legal obligation of medical providers, when it comes to the fertility industry, our women are being misled and the medical establishment is failing miserably.

### *On a society*

Next, our nation is allowing the fertility industry to pioneer and promote eugenic commodification. A 1993 March of Dimes poll found that 11% of parents said they would abort a fetus whose genome was predisposed to obesity. Four out of five would abort a fetus if it would grow up with a disability. Forty-three percent said they would use genetic engineering if available simply to enhance their child’s appearance.<sup>119</sup> With ART, selection of our offspring has never been easier and embryonic death has never been more acceptable in our culture. Embryos created using *in vitro* fertilization techniques are genetically screened. “Acceptable” embryos are implanted and “undesirable” embryos are destroyed or may be used in research. Embryo grading is very subjective. One fertility clinic truthfully admits that, “While we can make educated guesses about an embryo’s potential based on the experience of many embryologists grading millions of embryos, there are many cases of embryos with poor grades that make pregnancies and perfect embryos that do not. Also, no matter the grading system, the embryo grades do not tell us what is going on inside the embryo genetically.”<sup>120</sup>

Unfortunately, our culture’s emphasis on the genetically “fit” and our difficulty in embracing those who are “less fit” fuels this eugenics mindset and the fertility industry is happy to oblige anyone willing to pay for it. But who decides what is a disease gene and what is merely a different genetic condition? Who decides who is a “desirable” or “undesirable” embryo? Rutgers University sociologist Marque-Louisa Miringoff has observed, “In the pursuit of good health, we have begun to tread a fine line in “human selection.” We often choose to rule out certain diseases or, more accurately, certain human beings with those diseases.”<sup>121</sup> With the horrors of past eugenic practices still in the review mirror of American history, a new form of eugenics has emerged.

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116 Ziff, E. (2017), “The Mommy Deployment”: Military Spouses and Surrogacy in the United States. *Social Forum*, 32: 406-425. <https://doi.org/10.1111/sof.12336>

117 <https://digitalcommons.uri.edu/dignity/vol7/iss3/1/>

118 Alberta, H., Berry, R., and Levine, A. (2014). *Journal of Law, Medicine and Ethics* “Risk Disclosure and the Recruitment of Oocyte Donors: Are Advertisers Telling the Full Story?”

119 <https://cbc-network.org/2006/11/hurting-toward-eugenics-again/>

120 <https://www.arcfertility.com/understanding-embryo-grading/#:::text=All%20embryo%20grading%20systems%20are,perfect%20embryos%20that%20do%20not.>

121 <https://cbc-network.org/2006/11/hurting-toward-eugenics-again/>

As detailed earlier, IVF add-ons rest on inadequate science with poor results and push the idea of creating a “perfect” child all while (inaccurately and misleadingly) touting improved success. Ads for egg “donation” commonly target specific racial, physical, and intellectual characteristics—giving parents the opportunity (or at least the illusion that they may be able) to create a custom-made, designer child. In the summer of 2000, the *Minnesota Daily*, the student newspaper of the University of Minnesota, ran an ad for egg donors. Preferred donors were women 5 foot six inches or taller, Caucasian, with high ACT or SAT scores, with no genetic illnesses, and extra compensation was offered to those with mathematical, musical, or athletic abilities. The ad stated that acceptable donors would be offered as much as \$80,000 for their eggs. Similar ads, targeting the Asian population, were removed from MIT for the racial discrimination implied, stating “The strategic placement of these advertisements in newspapers with an audience of barely-20-something students at ‘elite’ institutions is almost as troubling as the rhetoric found in the advertisements. Some are stereotypical and racist, primarily those that associate Asian women with blanket descriptions like ‘intelligent’ or ‘high-achieving.’ These ads reduce Asian women to commodities.”<sup>122</sup> Does United States really want to engage in or be an active participant in the progression of eugenic practices? We must resist the new eugenicists embedded within the fertility industry if we are to preserve a truly human future.

Globally, financially speaking, the United States is on the high-end of the surrogacy market, but still *seems* to be an attractive option for intended parents due to the deceptive perception that the United States has regulated surrogacy in such a way that it is safe for all those involved. Under this charade, the American surrogacy industry advocates for global markets in children, even though experts and councils from other nations view surrogacy markets as explicit baby selling and child trafficking. The United States, has no federal policy governing commercial surrogacy as countries like Canada. A patchwork of state laws governs the practice in each state individually. Even still, the United States at large remains a hotspot for reproductive tourism, in states like California and New York, where surrogacy laws have been written which protect the purchasing parents. Intended parents from places like China or France, where surrogacy is illegal, come to states like California to fulfill their dream of becoming parents. There is quite a bit that can be said about the ethical dilemmas and harms to all parties, including the children, of international egg and sperm “donation” and surrogacy contracts, but those concerns will not be addressed in this paper.

For those that live in the United States, the laws around ART are governed primarily at a state level. However, a new federal bill titled, “The Right to Build a Family Act of 2022”<sup>123</sup> has been introduced “to prohibit the limitation of access to assisted reproductive technology, and all medically necessary care surrounding such technology.”<sup>113</sup> This new bill sets the stage for those in the United States to legally claim not only a right to a child, but a right to a child through any technological means and without any government interference. This legislation would expand access to ART to create a baby of your design and individual states would be compelled to allow

<sup>122</sup> <https://thetech.com/2021/02/18/egg-donation-ad-editorial>

<sup>123</sup> <https://cbc-network.org/2023/04/the-right-to-build-a-family-act-of-2022/>

this, offering absolutely no protection for the babies created through ART, surrogate mothers, or egg “donors” as technology advances and evolves. In fact, while granting others “the right to build a family”, the rights of children and women will be ignored. Proponents of this bill and others like it popping up around the United States, would like to emphasize the financial burden often placed on those struggling with infertility. We can empathize that high-tech baby making comes with a hefty price tag, but these bills do not erase the cost of these (often unsuccessful) technologies, but rather shift them to taxpayers. The high price for ART varies based on the procedure and increases with any extra add-on. However, the final cost often goes well beyond the initial quote. It was published in the *World Journal of Obstetrics and Gynecology* that “maternity costs for surrogates exceed those of women who conceive naturally, and these costs are especially magnified in women with triplets and multiple births.”<sup>124</sup> More specifically, the study found that surrogate pregnancies led to an increase in multiple births, increase in NICU admission for the baby, and longer hospital stays with hospital charges several multiples beyond that of a term infant conceived naturally.<sup>125</sup> Another study found that women who conceived using ART had higher hospital charges at delivery when compared to women that conceived without this technology. These high costs are a direct result of the nature of ART pregnancies sometimes requiring women to be admitted to high-risk pregnancy centers weeks or months before delivery.<sup>126</sup> Should hospitals and taxpayers bear this burden? Further, comparing singletons to multiples, data showed that hospital charges for surrogate twins increased 26 times and for surrogate triplets’ charges were increased 173 times (per infant)!<sup>127</sup> The costs don’t stop at delivery. Any adverse event or complication can affect a woman and child long-term. Children born from surrogacy are more likely to be born per-term. It is well established that children born pre-term have long-lasting health concerns and considerations that might require ongoing medical care. Who will pay for and take care of the egg “donors” that develop cancer later in life from the high levels of hormones they were exposed to? Who should pay for the mental health care of women struggling with postpartum depression after they give the child or children they gestated to intended parents? Wouldn’t it behoove policymakers and providers to, instead of promoting ART, provide education, support, and care to help keep people from relying on expensive, invasive, unreliable, harmful, and exploitive technologies like ART?

Of course, the impacts of infertility are devastating and can only be understood completely by those walking through the pain, confusion, and grief it causes. However, the solution is not found within the framework of the fertility industry or in laws that provide unrestricted access to the fertility industry. While stories of infertility highlight the pain and the attempt at fulfilling a dream of family, it does not make right the fact that that practices like surrogacy and egg “donation” fail to protect women and children, often leading to even greater confusion and grief in the process. In 2011 Dr. Joyce Harper, featured on [Venus Rising](#), co-authored a [paper](#) outlining the need for fertility education and the need for improved infertility awareness. In it she states:

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124 [https://www.lcc.mn.gov/lcs/meetings/07192016/Merritt\\_Study\\_on\\_Surrogate\\_Pregnancy.pdf](https://www.lcc.mn.gov/lcs/meetings/07192016/Merritt_Study_on_Surrogate_Pregnancy.pdf)

125 [https://www.lcc.mn.gov/lcs/meetings/07192016/Merritt\\_Study\\_on\\_Surrogate\\_Pregnancy.pdf](https://www.lcc.mn.gov/lcs/meetings/07192016/Merritt_Study_on_Surrogate_Pregnancy.pdf)

126 <https://www.ahajournals.org/doi/10.1161/JAHA.121.022658>

127 [https://www.lcc.mn.gov/lcs/meetings/07192016/Merritt\\_Study\\_on\\_Surrogate\\_Pregnancy.pdf](https://www.lcc.mn.gov/lcs/meetings/07192016/Merritt_Study_on_Surrogate_Pregnancy.pdf)

The provision of accurate fertility information must now become a mandatory part of the education curriculum to increase fertility awareness. As with all areas of health, to stay healthy one needs to be empowered with knowledge. It is time to ensure that the tools are available now to those who will be facing the reality of childbearing in the twenty-first century.

It's true, we need more education, specifically in women's health including egg "donation" and surrogacy. We need more data on the outcomes of ART, both on women and the children they birth. What we don't need is publicly funded fertility treatments and mounting healthcare costs of women used and thrown aside by the fertility industry. The bottom line is that publicly funded ART "treatments" are high-risk, low-reward and unfortunately, they are used, maybe inadvertently, as a bait and switch to hook desperate people into the vortex of the fertility industry. Further, treatment of "infertility" is not medically necessary. Studies show that men and women are delaying family building for various reasons. The prospect of using tax-payer dollars to offer ART to men or women who simply waited too long to family-plan should not be a priority. Like Dr. Harper, I believe that education, and a good understanding of opportunity-cost, is an answer.

Finally, it behooves us to consider the long-term health costs on a nation if we continue to rely on technology to build families. As we have already outlined in this paper, there are health risks to all parties involved concerning ART. In the United States, we are struggling to properly and safely care for mothers and newborns. Our maternal morbidity and mortality is abysmal when compared to other first-world countries. In the United States cardiovascular disease (CVD) is the leading cause of maternal mortality. Not only that, but the maternal-morbidity and -mortality rates in the U.S. have been increasing for years. Per the [Centers for Disease Control](#) website, reports shows that severe maternal morbidity has increased from 49.5 percent in 1993 to 144 percent in 2014. Preeclampsia, a risk of ART (including but not limited to surrogacy), is one of the leading causes of maternal morbidity and mortality. Preeclampsia, experienced by Kelly in our film [#BigFertility](#), is a complication of pregnancy characterized by high blood pressure, and/or high levels of protein in urine that indicate kidney damage (proteinuria), and/or other signs of organ damage. Left untreated, preeclampsia can lead to serious, even fatal, complications for both the mother and baby. Studies have shown that adverse pregnancy outcomes such as preeclampsia, have been established as risk factors for future CVD. It is clear that ART put a mother at risk for adverse pregnancy outcomes, including preeclampsia. Preeclampsia is a leading cause of maternal morbidity and mortality, which happens to be on the rise in the US. Preeclampsia in pregnancy and childbirth is a risk factor for future CVD. CVD, including heart disease, is a leading killer in women. Knowing this and putting the pieces together, it appears that there is a dangerously unhealthy cycle for women who utilize or are used by ART and their health. Finally, as the authors of a recent [Harvard Business Review](#) report note: "Over 700 women die of complications related to pregnancy each year in the USA, and two-thirds of those deaths are preventable..." I ask, why does medicine continue to refer patients to the fertility industry? Why are we okay with this vicious cycle of poor care that can lead to lifelong, dangerous health outcomes? Why are couples with infertility rushed along on a fertility superhighway? Why aren't we educating young men and women about their fertile

bodies and how fragile fertility is? Why aren't we spending more money on research to better understand the causes of infertility and treatments instead of rushing people into ART? Why aren't we holding the fertility industry accountable to provide better, holistic, restorative care? Why are laws like the Right to Build a Family Act of 2022 even a consideration?

## **Conclusion**

Within this report we have demonstrated how practices like surrogacy and egg "donation" fail to protect women and children and how ART has challenges, limitations, and consequences that must be carefully considered. Many people have been touched by infertility, either in their own life, or by association. People around the globe long for children to love and care for. However, no matter how devastating and heartbreaking the inability to conceive might be, the answer or cure cannot be found in the harm or exploitation of another. The solution to infertility or an inability to have genetic offspring is not found within the framework of the fertility industry or in laws that provide unrestricted access to the fertility industry. It is imperative to our shared human future and to the dignity of all mankind that the fertility industry be scrutinized under an ethical microscope and that people be educated on the harms it can cause.