Assisted reproductive technology and the modern family

Joseph J. Kotva Jr.

A modern story

Let's imagine the formation of a modern family. Michelle and Liz are lifelong friends who agree that they want to coparent a child. They are cisgendered, heterosexual women in their mid-forties without male life-partners. Besides a deep longing for children, Michelle and Liz want to honor the memory of their mutual friend Tatiana, who had died two years earlier from pancreatic cancer. Hoping to one day start a family and knowing that oncology treatments often leave women infertile, Tatiana had frozen a dozen of her eggs before beginning chemotherapy. Once it became obvious that she would not survive, Tatiana donated the eggs to her older friends, Michelle and Liz, asking them to care for the eggs as they felt led. Since nearly 90 percent of women are infertile by the age of forty-five, Michelle or Liz would likely have needed donated eggs if either hoped to get pregnant. However, an equally important consideration for them is their shared desire to celebrate Tatiana by utilizing her eggs in creating their own family.

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They quickly decide that Liz should be the gestational mother. Liz has always wanted to experience pregnancy; besides, her job as a work-from-home copy editor more readily accommodates pregnancy than does Michelle's job running an urban organic farm.

They still need sperm. Rather than use a sperm bank, they ask Steve, a gay man from their church, if he would be willing to donate. Steve is delighted, in part because he thinks that Michelle and Liz will be wonderful parents and in part because he always desired to have children. All three agree that he will be "Uncle Steve," playing an ongoing role of loving male role model for their child.

In getting ready for in vitro fertilization (IVF), where mature eggs are fertilized with sperm in a lab, Steve's sperm turns out to have motility limitations. Not to worry, though: thanks to Intracytoplasmic Sperm Injection (ICSI), a procedure where a single sperm is injected into an egg via a special pipette, nearly every sperm can reproduce. The combination of Tatiana's thawed eggs and Steve's ICSI-assisted sperm results in eleven embryos.

After a few days, Preimplantation Genetic Diagnosis (PGD) is used to screen the embryos. Since Michelle really wants a girl, a choice that suits Liz, they are going to only implant embryos with XX chromosomes. They also use PGD to screen for the PALB2 gene that might have contributed to Tatiana's pancreatic cancer and to screen for Down syndrome. Eight of the embryos appear to be developing normally and without the PALB2 gene or the third copy of chromosome 21 that leads to Down syndrome. Although four embryos have XX chromosomes, only two are transferred to Liz's uterus, since they have heard that multiple births are more dangerous for mother and child alike. They freeze the remaining healthy embryos.

As often happens, the first IVF cycle is unsuccessful. Disappointed but undeterred, Michelle and Liz agree to another round of IVF. Utilizing the two remaining XX eggs, Liz gets pregnant with twins. As frequently happens with multiple births, Liz struggles with hypertension and urinary tract infections during the pregnancy. The girls are born slightly premature and underweight but otherwise healthy.

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Exhausted from the ordeal and the demands of twins, Michelle and Liz are nevertheless deeply grateful and more in love with their daughters than they thought possible. "Uncle Steve" has found a place in the family, often dining together and providing parental respite on the weekends. As far as assisted reproductive technology (ART) goes, they got away cheap, spending only thirty thousand dollars. They both say it is the best money they ever spent. No one has yet discussed what will become of the remaining frozen embryos or the two-thousand-dollar annual bill to maintain them. Everyone is too happy and too tired to worry about frozen embryos.

A new reality

While the above story is fiction, each aspect of the story is now common practice. It is now common for women in their forties and fifties to give birth. It is now common for children to be genetically unrelated to the gestational mother. It is now common for friends without romantic attachments to coparent. Twins are now far more common than they were only a few decades ago, in large part due to ART. The long-term frozen storage of sperm, eggs, and embryos—sometimes in the face of cancer but more often for the sake of commerce—is common, as is sex selection. "Uncle" is now a common designation of a sperm donor, straight or gay, who participates as a weekend dad. Thanks to ICSI, millions of children have been born from weak and misshapen sperm that evolution had previously prevented from reproducing.

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ART presents us with a new reality, and the concept of family is now entirely open. To be sure, families have always been cobbled together. Infidelity, adoption, divorce and remarriage, tribal alliances, even baptism's imagery of joining a new people have pushed against solely genetic concepts of family. But our current reality goes further. As Liza Mundy points out, "Never before in history has it been possible for a woman to give birth to an infant who is genetically unrelated to her. Never before has it been possible for women to be the genetic parent of living children to whom she has not given birth."[1] So, too, never before has it been possible for genetic offspring to be born to deceased parents. Never before have we seen detailed planning in advance for families to have one parent or many parents, with complex or nonexistent genetic relationships. Never before did gay couples create families through donated eggs and the borrowed wombs of surrogates. Never before did lesbian and gay couples coparent children with genetic relationships to both sets of parents. Never before could we guarantee the sex of our children or eliminate from the start the possibility of various disabilities. Never before could prospective parents shop online for the height, weight, skin color, eye color, hair color, or athletic and academic achievements of the donors from whom will come the sperm and eggs that will merge to create their children.

1 Liza Mundy, *Everything Conceivable: How Assisted Reproduction Is Changing Our World* (New York: Anchor Books, 2008), xiv.

Involuntary childlessness

Although there are good reasons to have ethical reservations about many aspects of ART, we should tread lightly in our moral judgments. Involuntary childlessness is often experienced as a profound affliction. Christian ethicist Maura Ryan explains that it is often experienced as "an assault on important life plans and widely shared conceptions of the good life. It is an experience of physical powerlessness and loss of control . . . [confronting] patients with the need to redefine personal and relational goals and expectations in a way that shares at least some features of chronic and life-threatening illness."[2]

Many sense that their bodies have betrayed them or that natural and social forces have conspired against them. Frequent is the "feeling that one is a failure, essentially, sexually, and interpersonally."[3] Children, so often referred to in our culture as a *blessing*, are denied many who desperately want them. Those experiencing involuntary childlessness often describe themselves as feeling hollow or empty, with their identity in tatters. ART promises, and often delivers, a fix for this lost sense of purpose and identity.

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Infertility, the inability to conceive after one year of frequent unprotected sex, affects about 15 percent of the population. Many factors are behind this large and growing infertility rate: poverty, earlier sexually transmitted infections (STIs), endometriosis, fibroids, ovulatory problems, testicular issues, cancer treatments, environmental toxins, and so on. Delayed childbirth is a large and growing contributor. Fertility rates drop off dramatically after the age of thirty-five. Yet, there are many social and economic pressures to delay childbearing. Our society often makes career advancement incompatible with having children, especially for women. Even the success of ART is itself a contributing factor since it has convinced many that they can delay child-rearing almost indefinitely.

Involuntary childlessness is not limited to those wrestling with infertility. Lack of a willing life partner is common. Sometimes life partners

2 Maura A. Ryan, *Ethics and Economics of Assisted Reproduction: The Cost of Longing* (Washington, DC: Georgetown University Press, 2001), 71.

3 Ryan, *Ethics and Economics of Assisted Reproduction*, 71.

are the same sex. Trauma can make one unable to engage in sexual intercourse. People who are asexual might likewise find themselves unable or unwilling to travel the traditional road to having children. So too, trans women cannot get pregnant, although they are seldom counted among those struggling with infertility.

The morally fraught nature of ART

We can only gesture toward a few of the complex moral questions surrounding the use of ART. Such gestures can at most suggest lines of conversation for our mutual discernment about ART.

Denying genetic connections but affirming genetic essentialism

ART's proponents and utilizers simultaneously deny and affirm the role of genetics in constituting a family.[4] Much of ART is about bypassing genetic connections, using donor eggs or sperm or surrogates or all three. Yet, parents often desperately search for donors who share physical characteristics of the parent or parents that are not genetically tied to the child. Parents also endlessly worry that biology will trump parental love—that their children will come to view an often anonymous sperm or egg donor as the *real* parent. And, indeed, children often want to know their biological inheritance or genetic siblings raised in other households. Relatedly, sperm and egg banks often promote genetic essentialism by pushing the idea that donor characteristics and achievements are predictive of what the yet-unformed child will look like or accomplish.

Both sides of this equation are unwise. Many ART practices essentially deny that a biological relationship with a child carries an obligation to care for that child. It is ethically foolish and experientially fallacious to undercut genetic relationships in this way. But genes are not destiny. Hospitality toward children is more essential than genetic-dependent obligations. And the genetic essentialism of donor selection implies a perfection it cannot deliver and a corrupt notion of what it means to be successful.

ART as big business

Fertility treatment is a high-paying medical specialty. Many of the clinics are for-profit entities, often chains. A single round of non-donor IVF

4 For a theologically rich discussion of ART, including the dual dangers of denying genes any ethical relevance and promoting genes as determinative, see "Genetics," in *On Moral Medicine: Theological Perspectives in Medical Ethics*, 3rd ed., edited by M. Therese Lysaught and Joseph J. Kotva Jr. (Grand Rapids: Eerdmans, 2012), 965–1023.

costs around twelve thousand dollars, not including various exams and injectable medications. Patients often need multiple rounds of IVF. Donor sperm is comparatively cheap, but donor eggs start at fourteen thousand dollars and can cost upward of fifty thousand dollars. Egg and embryo storage costs thousands per year. Depending on the employer and state, most, some, or none of this cost will be covered by insurance. People commonly spend forty to fifty thousand dollars on fertility treatments, frequently without a resulting baby to take home. The poor are out of luck in this game.

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Things are not much better when it comes to surrogacy. Some women certainly see surrogacy as a form of self-giving. But in most cases, it is a situation where the surrogate takes on all the physical and emotional risks of pregnancy in exchange for thirty to forty thousand dollars. The agencies make good money for facilitating this exchange. The cost to those seeking a surrogate runs anywhere from sixty to two-hundred thousand dollars.

By contrast, adoption is run primarily by non-profits, is heavily regulated, and, in principle, gives center stage to the welfare of the child. The world of ART is relentlessly profit making. Families are given little or no counseling and no support following the interventions, regardless of the success or failure thereof. While there are many fine physicians working within the fertility establishment, the fundamental principles of fertility treatment are profit and the rights of the paying consumer to obtain children through reproductive freedom.

Technological values

Like all technological innovations, ART reflects and shapes the society in which it develops. ART would not have gained such a quick foothold if we were not already formed to expect complicated technology to be an everyday part of our lives. Only in a world where airplanes, cell phones, Apple watches, the internet, and heart valve and knee replacements are so common as to be pedestrian would we readily adopt the scope of reproductive

technologies. Because we swim in a sea of technology, we fail to notice how the next technological thing, such as inserting misshapen sperm into donated eggs, is changing society. Instead, it merely feels like part of the technological escalator that we all ride. It seems as if ART simply gives us more choice, more freedom—the illusion that goes with much technology.

Like so much of technology, ART is partially about shaping our desires and then training us to fulfill those desires. In the case of ART, reproductive technology teaches us to refrain from having children when it is inconvenient and then to get the children we want no matter how long we have waited to try. Choice, freedom, and speed are among the technological values and norms of our society. ART fits and promotes that paradigm in the context of forestalling and having children.

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A common refrain among those using ART is that they never thought that they would go as far as they did in seeking children. Couples who thought they would never agree to IVF find themselves readily doing so when the fertility drugs do not work. Then, against earlier beliefs, they agree to making excess embryos to freeze and to transferring two or more embryos in an attempt to assure success. When that does not work, they agree—against all their previous convictions—to use donated sperm or eggs. And if that fails or is unworkable, they sometimes find themselves willing to hire a surrogate. The journey of ART is morally shaping. Each technological stage, along with its financial and emotional sunk costs, prepares people to accept the next stage.

Frozen embryos

There are at least one million frozen embryos in the United States. Their moral status is hotly debated, as is what should be done with all these excess embryos. Several hundred thousand have been abandoned by the people who created them. Legally, they are property, but they are property with an elevated value such that the storage companies cannot simply destroy the abandoned embryos without the consent of their creators.

Even many progressive, pro-choice IVF patients seem unable to view their excess three-day-old embryos as mere tissue that should be left to expire or donated to research. Most of the leftover embryos belong to people who know from experience that those embryos, given the right sup-

port, could turn into beloved children. These patients often see the frozen embryos as "virtual children having interests that must be considered and protected, siblings of their living children, genetic or psychological insurance policies."[5] There are specialized agencies that facilitate "embryo adoption." The cost is often lower than other approaches to IVF with donor sperm or eggs (although still expensive). The best known, Snowflakes Embryo Adoption Program, is a conservative Christian organization that refers to the embryos as "frozen babies"[6]—nomenclature that is as hard to justify as is referring to frozen embryos as "tissue." Embryo Solution, another embryo adoption agency, appears less likely than Snowflakes to discriminate against single parents or members of the LGBTQ+ community.[7] The wisdom of embryo adoption depends much on how we evaluate the moral status of the embryos and what weight we give to genetic ties. There are many would-be parents for whom embryo adoption might make sense.

Risks and informed consent

Historically, 43 percent of infants conceived with ART are twins, with 3 percent being triplets or higher. Twins occur naturally at a rate of 2 percent. Multiple births are dangerous: 50 percent of twins and 90 percent of triplets are born premature. Premature babies are more likely to have learning disabilities, neurological and physical damage, and developmental delays. Twins are six times more likely to have cerebral palsy. Women having multiples are at increased risk of preeclampsia, thromboembolisms, gestational diabetes, anemia, urinary tract infections, and postpartum hemorrhage and are at a four times greater risk of death. Even when everyone is healthy, the birth of twins correlates with higher subsequent rates of depression in the parents.

Thankfully, many clinics now focus on single embryo transfers, as recommended by the Center for Disease Control (CDC) and the American Society for Reproductive Medicine and as practiced in most of Europe.

5 Mundy, *Everything Conceivable*, 292.

6 "Open Hearts Program," in *Nightlight Christian Adoptions*, https://nightlight.org/snowflakes-embryo-adoption-donation/open-hearts-program/.

7 "Your Future Is Here—Adopt an Embryo and See the Miracle," in *Embryo Adoption*, https://www.embryosolution.com. Private communication dated July 2, 2023, confirms that Embryo Solutions works "with married couples, same-sex couples, single parents, couples in committed relationship, and parents who plan to use a surrogate" and has "no age limits on the intended parents."

But historically, patients were not usually apprised of the increased risks associated with multiple transfers. It remains unclear how many fertility clinics still do multiple embryo transfers or how "informed" patient consent is. It is clear that patients often want multiple transfers to increase the likelihood of first-round success and to get instant families.

The society-wide increase of twins is not only due to multiple transfers during IVF. The older a women is when she conceives, the more unpredictable becomes ovulation, increasing the odds of twins. This dynamic increases still further when fertility drugs are given to women to boost egg production. In other words, even with improvements to IVF practices, current social pressures, fertility medicine, and parental preferences make twins more likely.

ART increases risks to infants even for singletons. Singleton IVF babies are at increased risk of lower birth weight, premature birth, and various defects and neurological challenges. We are in an era when women typically try to protect the fetus's health by taking prenatal vitamins and avoiding tobacco, alcohol, and caffeine. Yet, we rarely talk about the fact that ART introduces additional risk. Moreover, many risk factors remain unknown and understudied. The culture mediums used for IVF are proprietary and therefore understudied. We do not know if the mediums (which are not all the same) in which sperm and egg are brought together introduce increased risk. Relatedly, we do not know how much additional risk to children is being introduced by ICSI, although it is likely that we are often inserting new genetic aberrations. We should be having a more robust conversation about the unknown and known risks to children introduced by the use of ART. A more robust form of consent to ART is also long overdue.

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Where is the church?

A feature of the opening story is the absence of the church. We know that Michelle, Liz, and Steve are churchgoers; they know each other from there. Yet the story contains no other hint that their church played a role in their journey with ART and family creation. There is no wrestling with church teaching, no mutual discernment with a small group or pastor, and no obvious support for the couple navigating life with twins.

The story reflects the vacuum experienced by most churchgoers struggling with infertility, navigating ART, or grieving involuntary childlessness.[8] Infertility and ART are relegated to the personal arena, while family, parenting, and children are communally celebrated during the liturgical year. If infertility or childlessness is mentioned in church, it is in the reading of Scripture texts that depict "barrenness" as a form of divine judgment or as an occasion for a miraculous intervention. When people experiencing unwanted childlessness muster the courage to reveal their struggles, they often meet careless recommendations to "just adopt" or to throw themselves into church work.

We can and should do better. There can be prayers and liturgical elements that acknowledge the pain of longing for parenthood. We can encourage adoption as a viable option for all families, not just those unable to conceive in traditional ways. We can challenge the countless ways that North Americans turn family and children into idols, replacing love of God and love of neighbor. We can likewise challenge in our worship, our Sunday schools, and our small groups the idolatry of a medicine that assumes that every form of suffering is a technical problem in need of a technical solution.

As church, we must walk with people as they go through loss, gain self-acceptance, and embrace new tellings of their stories. So, too, we must develop better mechanisms of mutual discernment. Every facet of involuntary childlessness and ART is fraught with pain and moral ambiguity. None of us should be navigating this territory alone.

What are children for?

To address what we as Christians should make of ART or the new family configurations it engenders, we need richer theological accounts of notions we often take for granted, such as what children are for. What is the role or place of children in the family or in the church? Are current cultural assumptions about children at odds with how Christians should view them? Where do we place the good of having children among other goods, including the good of Christian fidelity? We cannot confidently think about involuntary childlessness, or the solutions offered by ART, if we do not know what to make of children in the first place.[9]

8 Maura Ryan, "Faith and Infertility," in *On Moral Medicine*, 865–69.

9 Lysaught and Kotva, *On Moral Medicine*, 758.

A place to start is by joining theologian Joel Shuman and pediatrician Brian Volck in rejecting competing notions of children as commodities whose value depends on adult intention and desires, hedges who provide future security or personal legacy, or the glue that cements our relationships.[10] Shuman and Volck invite us to instead consider children within several biblical images—hospitality to strangers, the church as body, and the church as family.

Shuman and Volck contend that children are strangers briefly entrusted to our care. As strangers, they are entitled to hospitality, love, and patience. They are also strangers hosted within a broader family and a complex body. Biblical imagery does not allow us to view the raising of children as a solitary or isolated activity or one over which we can claim complete control. Instead, raising children should be a self-consciously communal activity of hospitality by the church. When childrearing is taken seriously by the church, parents are never alone in their efforts, and people without children are never childless.

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Shuman and Volck go still further. They contend that notions of hospitality to strangers, an inclusive body, and an expansive family call us to see "our children" in the places were we might not have been looking, such as those funneling through foster care or suffering treatable maladies such diarrhea and malaria in the "developing world."[11]

Continuing beyond Shuman and Volck's argument, the triple notes of hospitality, body, and family apply to more than children. Those struggling with childlessness might well be silent, suffering members of our family, wounded appendages of our body, or strangers in need of hospi-

10 Joel James Shuman and Brian Volck, "What Are Children For?" in *On Moral Medicine*, 761–70.

11 More complex theological reflections on what we should make of children can be found in the work of Marcia Bunge. For example, Bunge suggests that "the Christian tradition represents children in complex, almost paradoxical ways, as *gifts of God and signs of God's blessing*, though they are *sinful and selfish*; as *developing creatures in need of instruction and guidance*, yet as *fully human and made in the image of God*; and as *models of faith, sources of revelation, and representatives of Jesus*, though they be *orphans, neighbors, and strangers* who need to be treated with justice and integrity." Marcia J Bunge, "A More Vibrant Theology of Children," *Christian Reflection: A Series in Faith and Ethics* (2003): 13.

tality. They might simultaneously be the wise elders, the powerful legs or keen eyes, or the strangers who turn out to be more host than guest. We cannot lose sight that both messy children and those who wish they had them are a part of us. Such a framework does not provide easy answers, but it might help us think more carefully, creatively, faithfully, and lovingly about ART and the modern family.

About the author

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