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Meredith Traina

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Resolving the Multiple Birth Epidemic

I. Introduction

Assisted reproductive technologies (ART) have given thousands of parents the opportunity to raise a child where they otherwise would not have been able to conceive. Every dream, however, has its price. Particularly, ART has spawned a surge of multiple births, leaving parents to bear the burden of raising multiples and society to shoulder a large portion of associated healthcare costs.

Three main factors have contributed to the increase in multiples. First, there has been a trend toward older maternal age, which is naturally associated with an increased incidence of multiples, resulting mostly in twins.¹ Second, ovarian stimulation; a fertility treatment in which physicians give a woman drugs to stimulate egg production, tends to produce multiple eggs.² These eggs then become fertilized and may result in a multifetal pregnancy. Finally, ART procedures, in which conception is attempted through the use of external means; for example, when eggs are fertilized outside of the womb and then placed into the woman's uterus through vitro fertilization (IVF),³ also contribute to this upward trend.

Unlike maternal age and ovarian stimulation, however, IVF is unique in that it offers patients and physicians some control over conception in determining the number of embryos to be transferred. IVF is expensive and patients often pay the costs out of pocket. Patients and physicians, therefore, prefer to transfer multiple embryos during each IVF cycle to increase the chances of pregnancy. While transferring multiple embryos does increase pregnancy rates, each

¹ Carson Strong, *Too Many Twins, Triplets, Quadruplets, and So On: A Call for New Priorities*, 31 J.L. MED. & ETHICS 272, 272 (2003).

² *Id.*

³ *Id.*; See also NAT'L CONFERENCE OF STATE LEGISLATORS, STATE LAWS RELATED TO INSURANCE COVERAGE FOR INFERTILITY TREATMENT (2011), <http://www.ncsl.org/default.aspx?tabid=14391> (last visited Oct. 28, 2011) [hereinafter *State Insurance Laws*].

additional transfer also increases one's chances of conceiving multiples.

Currently, no comprehensive regulation governing IVF exists, which allows physicians tremendous discretion over the process. Professional organizations have established voluntary guidelines, recommending more or less embryos be transferred depending on the patient's age and pregnancy prognosis. Data, however, suggests that physicians largely fail to abide by these guidelines and instead surrender to various pressures to implant a greater number of embryos.⁴ Resultantly, the multiple-birth rate has skyrocketed, adding to parenting stress and of course, medical costs. A 1999 study found the cost of a singleton delivery was \$9,845, as compared to \$37,947 for twins (\$18,974 per baby) and \$109,765 for triplets (\$36,588 per baby) -- figures that, due to inflation, are even higher today.⁵ As for the babies themselves, multiples, including twins, have a significantly higher chance of being born premature and low-birth-weight.⁶ ART babies are especially more likely to be born with certain birth defects, and spend more days in the hospital than infants conceived naturally.⁷ These special needs add to an already staggering hospital bill. Though parents bear some of these costs, the majority of expenses are likely to be covered by health insurance and shared by all other participants through higher premiums.

IVF has been crucial in building families once frustrated by infertility. For all its praise, however, IVF also poses a number of problems, one being a higher incidence of multiples. Though there is an obvious desire to avoid regulation in an area of rapid economic change, imposing non-regulatory controls on the IVF process can help contain the multiple birth

⁴ *Most Fertility Clinics Break Rules*, ASSOCIATED PRESS, Feb. 21, 2009, available at http://www.usatoday.com/news/health/2009-02-21-fertility-clinics_N.htm.

⁵ Tamara L. Callahan, et al., *The Economic Impact of Multiple-Gestation Pregnancies and the Contribution of Assisted-Reproduction Techniques to Their Incidence*, 331 N ENGL J MED 244-249 (1994). See also Urska Velikonja, *The Cost of Multiple Gestation Pregnancies in Assisted Reproduction*, 32 HARV. J. L. & GENDER 463, 482 (2009).

⁶ David Adamson & Valerie Baker, *Multiple Births from Assisted Reproductive Technologies: A Challenge That Must be Met*, 81 FERTILITY & STERILITY 517, 517 (2004).

⁷ *Id.*

epidemic. This can be done by making changes to patients' decision-making context, educating patients on the dangers of multiple gestations, and providing greater access to IVF. In an effort to preserve patient autonomy and personalization in this highly delicate field, U.S. policy makers should focus on varying the existing system of voluntary guidelines rather than on potential legislation.⁸

This paper examines the pressures facing IVF patients to implant multiple embryos, the consequences of multiple births and proposed solutions for reducing their incidence. Specifically, Part II examines the potential consequences of multiples and how often we see them arise as a result of IVF. Part III examines the causes of multiples births, particularly the pressures facing patients and physicians to implant multiple embryos. Part IV touches on the gaps in current legislation and Part V offers proposed solutions.

II. Multiple Births and ART

Society is flooded with positive images of high-order births. Popular television shows like TLC's "Jon and Kate Plus 8," "Quints by Surprise" and "Table for 12" illustrate the excitement of parenting happy, healthy multiples resulting from ART.⁹ However, "most parents never get a free pack of diapers, let alone a reality show," says Maureen Doolan Boyle, executive director of a support and advocacy organization for parents of multiples.¹⁰ Images of "best prognosis" multiples gives patients a skewed perception that stresses minority results, leading patients to over-predict favorable outcomes.¹¹ Likewise, patients are likely to under-predict

⁸ Stephanie N. Sivinski, *Putting Too Many (Fertilized) Eggs in One Basket: Methods of Reducing Multifetal Pregnancies in the United States*, 88 TEX. L. REV. 897, 909 (2010).

⁹ TLC.com, <http://tlc.discovery.com/> (last visited Oct. 30, 2011).

¹⁰ Russell Goldman, *Multiple Births Bring Attention That Quickly Fades*, ABC NEWS (Jun. 3, 2009), <http://abcnews.go.com/Business/story?id=7747473&page=2>.

¹¹ Theresa Glennon, *Choosing One: Resolving the Epidemic of Multiples in Assisted Reproduction*, 55 VILL. L. REV. 147, 164 (2010).

unfavorable outcomes if they've never be confronted with such images.¹² Dr. Keith Louis, president of the Center for the Study of Multiple Births in Chicago, complains that public perception "has been buffed, toned, air-brushed and made to look wonderful. What distorts the issue," he added, "is that the press is very eager to do a story on a mother of quintts all of whom are four pounds or more, but they don't find it very newsworthy to describe the cases where the babies are born very prematurely and die one by one."¹³

A. The Problems with Multiple Births

The sheer number of mental and physical impairments associated with multiple births is staggering. Multiples are usually born premature and underweight, thus facing a greater likelihood of permanent disability and/or death. About 60 percent of twins, more than 90 percent of triplets, and virtually all quadruplets and high-order multiples are born premature, with the length of pregnancy decreasing with each additional baby.¹⁴ Furthermore, more than half of twins and almost all high-order multiples are born with low-birth-weight (less than 5½ pounds).¹⁵

Despite the commonality of twins, higher preterm delivery places perinatal mortality rates five to ten times higher as compared to singletons.¹⁶ Twins also exhibit significantly increased rates of cerebral palsy, bronchopulmonary dysplasia, intracranial hemorrhage and blindness resulting from premature delivery.¹⁷ Moreover, studies suggest that ART babies have especially poor outcomes as compared to the overall population, even when matched for

¹² *Id.*

¹³ Shari Roan, *How Many Babies is Too Many?*, L.A. TIMES, May 14, 1996, available at http://articles.latimes.com/1996-05-14/news/mn-3989_1_baby-boom.

¹⁴ Martin, J.A., et al., *Births: Final Data for 2006*, 57 NATIONAL VITAL STATISTICS REPORTS 7 (Jan. 7, 2009).

¹⁵ *Id.*; see also *Multiples, Twins Triplets and Beyond*, MARCH OF DIMES, http://www.marchofdimes.com/pregnancy/trying_multiples.html (lasted visited Dec. 2, 2011).

¹⁶ Adamson, *supra* note 6, at 517.

¹⁷ *Id.* at 517; See also Jason M. Min et al., *Elective Single Embryo Transfer Following In Vitro Fertilization*, 241 J. OBSTET. GYNAECOL. CAN. 363, 365 (2010).

plurality.¹⁸ Needless to say, hospitalizations following multiple births are more frequent and longer.¹⁹ Neonatal costs are higher due to the number of preterm and low-birth-weight infants.²⁰ Compared to singleton births, the cost of twins, triplets and high-order deliveries are approximately four, eleven and eighteen times higher, respectively, due mainly to maternal and neonatal complications.²¹

Mothers of multiples face their own set of complications following birth, with risks escalating with each additional fetus.²² Mothers face an increased risk of hypertension, postpartum bleeding, gestational diabetes, maternal anemia, premature labor with prolonged bed rest, as well as cesarean delivery.²³ It is no surprise then, that maternal morbidity bears a direct relationship to multiple pregnancies.²⁴ Furthermore, pre-existing medical conditions often present more strongly during multiple gestations as opposed to a singleton pregnancy, resulting in a worsening condition likely to remain permanent.²⁵

Aside from physical complications, psychological problems may also arise. The complications associated with multiple gestations sometimes cause feelings of resentment or the feeling that one is being “cheated” out of her pregnancy experience.²⁶ For example, a mother of multiples might anticipate pregnancy as being a pleasurable experience marked by maternal bonding. In reality, however, she may be overwhelmed with legitimate fears of premature delivery and serious medical complications. Other mothers are disappointed that they are not

¹⁸ Adamson, *supra* note 6, at 517.

¹⁹ *Id.* at 518.

²⁰ *Id.*

²¹ Tiffany Sharples, *IVF Study: Two Embryos No Better Than One*, TIME, Mar. 30, 2009, available at <http://www.time.com/time/health/article/0,8599,1888299,00.html>.

²² Mary Ann Davis Moriarty, *Addressing In Vitro Fertilization and the Problem of Multiple Gestations*, 18 ST. LOUIS U. PUB. L. REV. 503, 510 (1999).

²³ Adamson, *supra* note 6, at 517.

²⁴ *Id.* at 517.

²⁵ Moriarty, *supra* note 22, at 510.

²⁶ *Id.* at 510.

permitted to hold their babies in the moments after birth, since many multiples must immediately be rushed to the NICU.²⁷ Following birth, mothers of multiples are more likely to experience maternal depression, parenting stress and decreased quality of life as compared to parents of singletons.²⁸ Maternal bonding becomes more difficult and sibling problems often arise.²⁹ The economic burden alone is a huge contributor to parenting, marital and social challenges.

During the first year of life, infants with very low birth weight cost twenty-four-fold to forty-four-fold more than do normal-birth weight infants.³⁰ Facing growth restrictions in the womb, babies diagnosed with intrauterine growth restriction (IUGR) receive only limited access to oxygen and/or nutrients.³¹ As a result, poor postnatal growth and speech and behavior problems are more common as compared to full-grown babies.³² Given a limited household budget, lack of help at home contributes to the aforementioned challenges.

The emotional effects of preterm, multiple births may also linger. A number of parents have been shown to present with post-traumatic stress disorder (P.T.S.D.), which is more commonly associated with war, car accidents and physical assaults.³³ Parents of premature infants in prolonged intensive care may experience nightmares or flashbacks, which over time may lead to depression, insomnia, numbness or aggression.³⁴ Researchers say the incidence of P.T.S.D. is not related to how tiny, sick or long the child stayed in the NICU, but rather the

²⁷ *Bonding With Baby: Tips for New Moms*, MEDICINET.COM, <http://www.medicinenet.com/script/main/art.asp?articlekey=53751> (last visited Dec. 2, 2011) (discussing how new mothers should insist on holding their baby to their chest immediately after the birth to initiate bonding, and advising that the medical profession shouldn't interrupt unless they must).

²⁸ Min, *supra* note 17, at 365.

²⁹ Adamson, *supra* note 6, at 518.

³⁰ *Id.* at 518.

³¹ *Intrauterine Growth Restriction*, BABYCENTER.COM, http://www.babycenter.com/0_intrauterine-growth-restriction-iugr_1427406.bc (last visited Dec. 2, 2011).

³² Min, *supra* note 17, at 365.

³³ Laurie Tarkan, *For Parents in the NICU, Trauma May Last*, N.Y. TIMES, Aug. 25, 2009 available at <http://www.nytimes.com/2009/08/25/health/25trau.html?pagewanted=all>.

³⁴ *Id.*

parent's coping style.³⁵ "From the moment my twins were born, I saw potential for tragedy wherever I turned," wrote one parent of premature twins, only one of which survived. "It would be years before I stopped thinking that way."³⁶

B. The Statistics Behind Multiple Births

And still, couples' dreams of becoming parents cloud the potential cost. Despite the frequency and severity of complications, the use of ART is continually on the rise. Approximately 12% of women of childbearing age in the U.S. (or nearly 1 in 8 couples) have sought treatment for infertility, generally defined as being unable to conceive after one year of regular, unprotected intercourse.³⁷ On the whole, more and more children are becoming the product of ART, accounting for slightly more than 1% of total U.S. births.³⁸ Of the 146,244 ART cycles performed at reporting clinics in 2009, ART was responsible for 45,870 live births (deliveries of one or more living infants).³⁹ Because many of these births resulted in multiple babies, the collective births yielded a total of 60,190 infants.⁴⁰

The average age of ART patients falls somewhere around thirty-six,⁴¹ the majority of which opt for double-embryo transfers. In 2008, one embryo was transferred in just over 10% of

³⁵ *Id.*

³⁶ *Id.*

³⁷ CTRS. FOR DISEASE CONTROL & PREVENTION, U.S. DEP'T OF HEALTH AND HUMAN SERVS., ASSISTED REPRODUCTIVE TECHNOLOGY (ART) REPORT: NATIONAL SUMMARY (2009) [hereinafter CDC, *2009 ART National Summary*] <http://www.cdc.gov/art/index.htm>.

³⁸ *Id.*

³⁹ *Id.* (the most recent CDC data on multiples comes from 2008, since births are counted in the year the IVF cycle was started, not the year of birth. Thus, a baby born in December as a result of IVF will not be factored into a clinic's data until the end of the following year. Additionally, the CDC and other government agencies take about twelve months to verify, analyze and compile data. Because these numbers are not published until the first quarter of the new year, the most recent data is three years old at the time it is published). See also *IVF Success Rates Frequently Asked Questions*, FERTILITYSUCCESSRATES.COM, <http://fertilitysuccessrates.com/blog/ivf-success-rate-faq-html.html> (last visited Oct. 29, 2011) (discussing delays in reporting).

⁴⁰ *Id.*

⁴¹ *Id.*

cycles, compared to 77% of cycles in which two embryos were transferred.⁴² Three embryos were transferred in 11% of cycles; four or more in less than 2% of cycles.⁴³ For women who undergo successful fertility treatments, the rate of multiples is about one in three⁴⁴ and usually results in twins.

Statistics indicate a general increase in the number of embryos being transferred, having increased the number of high-order births by at least 200% since the early 1970s, before the invention of IVF.⁴⁵ Today, infertility treatments account for nearly one-third of twins, three-fourths of triplets and nearly all quadruplets and high-order multiple pregnancies.⁴⁶ In 1999, for example, 41% of live-birth deliveries to women younger than thirty-five using ART were multiple-infant births, compared with 35% in 2008.⁴⁷ Though this statistic may seem promising, among women aged forty-one to forty-two years, the percentage of multiple-infant live births increased from 15% in 1999 to 19% in 2002, then decreased to 16% in 2008.⁴⁸ Such data indicates that we have yet to see a general trend toward a decrease in multiples. America continues to grapple with the high incidence of multiple births, largely attributed to multiple-embryo IVF transfers.

III. Causes of Multiple Births

Various factors have contributed to the surge in multiple births. In regard to IVF, pressures come from both directions: intended parents feel pressured to become pregnant as quickly as possible and physicians consequently feel pressured to serve their desire. To achieve

⁴² *Id.*

⁴³ *Id.*

⁴⁴ Sarah Bernard & Hugo Lindgren, *Gangs of New York*, NEW YORK MAGAZINE, Jun. 12, 2006 available at <http://nymag.com/news/features/17205/index1.html>.

⁴⁵ Moriarty, *supra* note 22, at 508.

⁴⁶ *Id.* at 508.

⁴⁷ CTRS. FOR DISEASE CONTROL & PREVENTION, U.S. DEPT OF HEALTH AND HUMAN SERVS., ASSISTED REPRODUCTIVE TECHNOLOGY (ART) REPORT: ART TRENDS 1999-2008, <http://www.cdc.gov/art/ART2008/section5.htm>.

⁴⁸ *Id.*

pregnancy in the least time, a multiple embryo transfer may appear to be the best course of treatment.

A. Pressures on Patients

It is not surprising that parents opt for multiple transfers, considering the irresistible pressures to conceive quickly and at the least cost. For one, hormone therapy is significantly less expensive than other infertility treatments and therefore is usually attempted first.⁴⁹ As previously mentioned, hormone therapy has a tendency to cause an overproduction of eggs that, when fertilized, cause multiple gestations. In contrast, IVF offers patients some control over the probability of multiples: the more embryos one transfers, the greater chance one will end up with multiples. Still, frustration and impatience, insurmountable costs and difficult post-pregnancy decisions may sometimes tempt parents into making multiple transfers despite medical recommendations.

1. Psychological Pressures

Above all else, the emotional frustration of infertility leads couples to undervalue the potential problems associated with multiple births. Because a couple will not be deemed infertile until they have experienced at least twelve months of unprotected intercourse, most couples have endured the disappointment of being unable to conceive long before they ever walk through the clinic's doors.⁵⁰

The grief associated with miscarriage and feelings of shame and inadequacy also create a desire to become pregnant as soon as possible. Anxiety and depression are common during

⁴⁹ See generally Glennon, *supra* note 11, at 153-154.

⁵⁰ Sivinski, *supra* note 8, at 902-903.

treatment, while feelings of anger and depression generally follow each failed attempt.⁵¹ Apart from the emotional burdens, female patients must endure rounds of blood tests, hormone injections, vaginal ultrasounds, and egg retrieval before implantation can even take place.⁵² The process is taxing, leading patients to elect a multiple embryo transfer in order to achieve what they believe will be the fastest and thus, most favorable result.

Insurance provisions setting age restrictions or mandatory periods of infertility also add to pressures to become pregnant in the least time. Some states allow health plans that require more than one year of infertility before a patient is eligible for treatment – at least two states require *five* years of regular, unprotected intercourse without success.⁵³ Other states impose upper age restrictions, refusing coverage for women who waited too long before seeking treatment.⁵⁴ These kinds of provisions provoke panic, leading patients to feel like they are “running out of time” before they lose insurance coverage. Consequently, parents are compelled to seek a riskier multiple implantation, hoping to become pregnant sooner rather than later.

Finally, parents will be especially hesitant to opt out of “default rules.”⁵⁵ Currently, a two-embryo transfer is considered the norm in the IVF community.⁵⁶ If most patients are recommended they transfer two embryos, a new patient is likely to want at least as many of their own embryos transferred. This is true regardless of a favorable pregnancy prognosis indicating the procedure would likely result in twins.

2. *Costs*

⁵¹ A Eugster & A.J.J.M Vingerhoets, *Psychological Aspects of In Vitro Fertilization: A Review*, 48 SOC. SCI. MED. 575-589 (1999); Baik Seok Kee, Byeong Jun Jung & Sang Hoon Lee, *A Study on Psychological Strain in IVF Patients*, 17 J. ASSIST. REPROD. GENET. 445-448 (2009).

⁵² Sivinski, *supra* note 8, at 903.

⁵³ Glennon, *supra* note 11, at 173.

⁵⁴ *Id.*

⁵⁵ *Id.* at 162-163.

⁵⁶ *Id.*

Many couples may also adopt the view that multi-embryo transfers are financially advantageous. Because the U.S. healthcare system is largely owned and operated by the private sector, most health insurance plans do not cover IVF. As a result, market forces have driven up price. Just one round of IVF costs an average of \$12,400.⁵⁷ Because patients usually must undergo more than one cycle in order to obtain a child, each IVF live birth is estimated to cost between \$38,000 and \$85,000.⁵⁸ Should a cycle result in multiple pregnancies, however, parents can obtain their ideal family at the cost of just one successful round of IVF. For some, this provides an incentive to implant multiple embryos, hoping the cycle will actually result in a multiple birth.

Several studies report that most patients treated for infertility actually *prefer* to have twins rather than one child at a time.⁵⁹ Most frequently, patients cited “a desire for siblings, a positive attitude towards twins and a wish to have as few IVF treatments as possible” as accounting for this preference.⁶⁰ Most couples desperate to become pregnant are prepared to do anything in order to become parents, including opting for a riskier procedure over any elevated risk of being left childless. However, these studies required hypothetical and retrospective judgments.⁶¹ Importantly, participants who already had children were less likely to express a desire for twins.⁶² In fact, researchers predict that if results of single-embryo transfer improve, couples’ attitudes will more likely reflect a preference for singletons.⁶³

⁵⁷ Sivinski, *supra* note 8, at 903.

⁵⁸ *Id.*

⁵⁹ M. Garel, et al., *Patient Attitudes Toward Twin Pregnancies and SET: A Questionnaire Study*, 23 HUM. REPROD. 1232-1233 (2008) available at <http://humrep.oxfordjournals.org/content/23/5/1232.full>. See also Christine Glazebrook, et al., *Attitudes of Infertile Couples to a Multiple Birth: A Review of the Literature and Results from a Survey*, 3 CURRENT WOMEN’S HEALTH REV. 43-48 (2007) available at <http://www.benthamscience.com/cwhr/sample/cwhr3-1/D0005W.pdf>.

⁶⁰ Garel, *supra* note 59.

⁶¹ Glazebrook, *supra* note 59.

⁶² *Id.*

⁶³ Garel, *supra* note 59.

3. *Risks of Reduction*

Given that IVF is only a fairly recent innovation, patients and physicians may also neglect to account for post-pregnancy concerns, such as induced fetal reduction. In a procedure that essentially amounts to an abortion, one or more fetuses is injected with potassium chloride, which ends the fetal heartbeat.⁶⁴ Though induced fetal reduction bears obvious emotional costs, it is generally performed successfully with only a 4 to 5% risk of miscarriage.⁶⁵ Still, the risk proves too great for many parents who have endured an especially long road of infertility. The vast majority of patients opt for a multiple birth over a selective reduction.

Although studies suggest that the effects of selective reduction are less upsetting than those after an abortion, it is not uncommon for grief and postpartum depression to return.⁶⁶ One study found that more than 65% of couples who underwent a selective reduction recalled acute feelings of emotional pain, stress and fear during the procedure, while 70% said they mourned the loss of the fetus.⁶⁷ “These poor patients are caught between a rock and a hard place,” said Lynda Haddon, who counsels couples over fetal losses through the support group, Multiple Births Canada. “They tried so hard to get pregnant and probably spent a lot of time, energy, emotion, money and now they have to kill some of them, now they have to reduce. Even though the child was lost through reduction, it lives on, in mind, in fantasy.”⁶⁸

Supporters of the procedure distinguish it from abortion in that it does not terminate pregnancy, and instead helps people to have healthy babies. “You have to keep the big picture in mind,” says Dr. Mark Evans, a reduction specialist. “We’re not losing one. We’re saving

⁶⁴ Sivinski, *supra* note 8, at 906.

⁶⁵ *Id.*

⁶⁶ Liz Mundy, *Too Much to Carry?*, WASHINGTON POST, May 20, 2007, available at <http://www.washingtonpost.com/wp-dyn/content/article/2007/05/15/AR2007051501730.html>.

⁶⁷ Patricia Schreiner-Engel, et al., *First-Trimester Multifetal Pregnancy Reduction: Acute and Persistent Psychologic Reactions*, 712 AM J OBSTET GYNECOL 541-547 (1995).

⁶⁸ Tom Blackwell, *When is Twins Too Many?*, NATIONAL POST, Dec. 10, 2010, available at <http://www.nationalpost.com/news/When+twins+many/3960709/story.html>.

some.”⁶⁹ Nevertheless, there is no way to know how many IVF pregnancies start out as triplets or quadruplets and are then quietly reduced to twins or singletons. The CDC does not include selective-reduction figures because of the general disinclination to report them.⁷⁰ Based on patient surveys, however, approximately one-third of infertile couples would not choose fetal reduction for religious and/or ethical reasons, indicating they would instead opt for a multiple birth.⁷¹

B. Pressures on Providers

Infertility is not only a medical-based practice area – it has now become a fiercely competitive business attracting billions of dollars in revenue and an increasing number of doctors fighting for patients.⁷² As such, providers face their own set of incentives to implant multiple embryos, which has the potential to compromise medical ethics and add to growing healthcare costs.

Commonly, physicians may choose to implant multiple embryos in an effort to boost “success rates.” The sole regulation regarding IVF is that clinics report pregnancy success rates to the CDC, who then publishes them.⁷³ Rates are expressed as the number of live births the clinic was responsible for divided by the number of cycles performed.⁷⁴ Thus, if a patient delivers triplets, the clinic will obtain three live birth “success” factored into their total.⁷⁵

Because most IVF cycles are paid for out-of-pocket, patients shopping around for fertility clinics

⁶⁹ Mundy, *supra* note 66.

⁷⁰ *Id.*

⁷¹ Strong, *supra* note 1, at 275.

⁷² See Gina Kolata, *Fertility Inc.: Clinics Race to Lure Clients*, N.Y. TIMES, Jan. 1, 2002, available at <http://www.nytimes.com/2002/01/01/science/fertility-inc-clinics-race-to-lure-clients.html?pagewanted=all&src=pm>.

⁷³ Sivinski, *supra* note 8, at 905.

⁷⁴ *Id.*

⁷⁵ *Id.*

tend to scrutinize success rates.⁷⁶ First and foremost, clinics have an incentive to implant multiple embryos to achieve at least one healthy child, so that a cycle may be termed a “success.” Additionally, clinics are indirectly incentivized to implant multiple embryos in the event that they lead to multiple births, thus multiplying “successes.”⁷⁷ In this way, success rates function as a form of publicity, working to rake in new patients.⁷⁸

Unfortunately, these success rates paint a distorted picture for prospective patients. According to the current data system, *any* live birth is termed a success. The data does not take into account the overall health of the babies or mother following birth.⁷⁹ Even a premature, blind low-birth-weight baby will be termed a “success.” Because the numbers do not account for clinics churning out sick babies in large numbers, the current system reinforces multiple-embryo implantation without paying any regard to potentially devastating consequences.

IV. Current Regulation

Federal and state legislation regarding assisted reproduction is sparse. Currently, there is no federal law regulating the number of embryos to be transferred per IVF cycle. Federal lawmakers have, however, regulated the publication of IVF success rates. The Fertility Clinic Success Rate and Certification Act of 1992 seeks to prevent the exploitation of women desperate to conceive by requiring clinics to report success rates, measured by the number of pregnancies or live births per cycle.⁸⁰ The Act oversees quality standards in reporting and makes comparisons between clinics easier.⁸¹ As previously mentioned, however, patients flock to

⁷⁶ See Sivinski, *supra* note 8, at 905-906 (discussing how though the CDC reports clinic-specific multiple-birth rates, patients are primarily concerned with pregnancy rate. This leads patients to undervalue the number of multiple gestations each clinic is responsible for, as well as their consequences).

⁷⁷ *Id.*

⁷⁸ See Guido Pennings, *Multiple Pregnancies: A Test Case for the Moral Quality of Medically Assisted Reproduction*, 15 HUM. REPROD. 2466, 2466 (2000).

⁷⁹ See Glennon, *supra* note 11, at 169-170.

⁸⁰ Velikonja, *supra* note 5, at 482.

⁸¹ *Id.*; Moriarty, *supra* note 22, at 512

clinics with the most favorable numbers, which puts pressure on clinics to improve success rates by implanting more embryos per transfer.⁸²

Meanwhile, state law regulating insurance coverage is spotty and sporadic. Only fifteen states – Arkansas, California, Connecticut, Hawaii, Illinois, Louisiana, Maryland, Massachusetts, Montana, New Jersey, New York, Ohio, Rhode Island, Texas and West Virginia – have passed laws that require insurers to either cover or offer coverage for infertility diagnosis and treatment.⁸³ Only thirteen states, with the exclusion of California and Texas, actually *require* insurance companies to offer coverage.⁸⁴ Even then, coverage is usually limited by the imposition of age limits, the number of cycles that can be performed, the source of semen used and an overall cap on lifetime treatments.⁸⁵ In fact, California, Louisiana and New York have laws that specifically *exclude* coverage for IVF.⁸⁶ As an example of how scant coverage actually is, a survey of adults in Washington State revealed that only 2% of insures were covered for infertility treatment.⁸⁷ Providers have given a number of reasons for the lack of coverage, including the fact that treatment is not medically necessary to protect a patient's health, that ART is experimental in nature and/or that infertility must be classified as a pre-existing condition.⁸⁸

In the absence of comprehensive regulation on assisted reproduction, industry guidelines are the most common starting point for couples deciding how to proceed with IVF. The current regulatory void, however, allows physicians tremendous discretion over the IVF process. The American Society for Reproductive Medicine (ASRM) in conjunction with the Society for Reproductive Technology (SART) promulgates voluntary guidelines for the IVF process. The

⁸² *Id.*

⁸³ CDC, 2009 ART National Summary, *supra* note 37.

⁸⁴ *Id.*

⁸⁵ Sivinski, *supra* note 8, at 904.

⁸⁶ CDC, 2009 ART National Summary, *supra* note 37.

⁸⁷ Strong, *supra* note 1, at 275.

⁸⁸ *Id.*

Societies recommend more or less embryos be transferred depending on the patient's age and pregnancy prognosis, which includes the quality of the embryo created, the success or failure of IVF in the past and the availability of excess cryopreserved embryos.⁸⁹ Patients may fall into one of four prognosis categories: most favorable, above average, average and below average.⁹⁰ Generally speaking, for women under thirty-five years old, the guidelines suggest that either one or two embryos be transferred; for women thirty-five to thirty-seven, two to three embryos; for women thirty-eight to forty, three to four embryos; and for women over forty, up to five embryos.⁹¹ Additionally, the ASRM has carved out an exception for the number of embryos to be transferred if the patient exhibits "exceptional circumstances."⁹² Though clinics are not legally bound by these guidelines, clinics may face expulsion from professional organizations if they choose not to comply.⁹³ Such expulsion may affect whether a treatment obtained at a particular clinic will be covered by a patient's insurance.⁹⁴

Though the guidelines are methodically constructed, physicians largely fail to abide by stated recommendations. For one, enforcement has been challenging because the guidelines are so loosely worded.⁹⁵ Nearly every patient can be considered an "exceptional circumstance" if a physician is willing to account for some distant, prior affliction in one's medical history. In fact, fewer than 20% of U.S. clinics follow professional guidelines on how many embryos should be used for women under thirty-five.⁹⁶ These statistics indicate that clinics are largely susceptible to patient pressures, operating out of fear of losing business should they resist patient pressures to implant more than the suggested number of embryos.

⁸⁹ Sivinski, *supra* note 8, at 898.

⁹⁰ Strong, *supra* note 1, at 276.

⁹¹ Sivinski, *supra* note 8, at 898.

⁹² *Id.*

⁹³ *Most Fertility Clinics Break Rules*, *supra* note 4.

⁹⁴ *Id.*

⁹⁵ Strong, *supra* note 1, at 277.

⁹⁶ *Most Fertility Clinics Break Rules*, *supra* note 4.

V. Proposed Solutions

Undoubtedly, the multiple birth epidemic warrants a call for action. Due to the complex nature of the practice area, however, potential legislation would fail to take account of patients' individual needs. Rather, this issue would be most effectively addressed using a new set of guidelines backed by strong physician support. The potential for change boils down to altering patients' decision-making context. Patients are undoubtedly influenced by others' decisions regarding IVF. If implanting one embryo is described as the norm among doctors or other couples who have undergone IVF, they too will opt for a single-embryo transfer. By instituting a holistic approach to infertility focused on patient education and physician support, as well as increased access to IVF, ART patients will become more willing to attempt single-embryo transfers thereby reducing multiple births.

A. Law Requiring Limits on Embryos Transferred

At least eight countries have laws limiting the number of embryos that may be transferred per IVF cycle.⁹⁷ The nature and structure of the U.S. healthcare system, however, demands an alternative approach. Strongly embedded into the U.S. constitution are the fundamental rights of privacy and personal autonomy. If the government does not currently fund IVF, shouldn't it follow that it may not regulate the procedure?⁹⁸ The privatization of care and U.S. legacy of valuing individual rights over state interests favors a scheme that endorses a woman's right to privacy, a physician's informed judgment and fertility as an expanding practice area.

First, infertility treatments are still a developing area. It is likely that the slow and arduous process of modifying regulations would hinder physicians and patients from taking

⁹⁷ Strong, *supra* note 1, at 276.

⁹⁸ Sivinski, *supra* note 8, at 907.

advantage of scientific breakthroughs as they arise.⁹⁹ By only having to make changes to SART guidelines, however, changes can be effected more quickly and as frequently as necessary. Eventually, advanced technology may even eliminate the need for regulatory limits altogether.¹⁰⁰

Secondly, the personalized nature of fertility and importance of pregnancy prognosis makes blanket legislation ineffectual. Clinical judgment is not formulaic; each patient is different from the next. Therefore, an individualized course of treatment offers each patient the best chance of success. It is crucial that clinicians be able to alter the procedure in extreme cases, using their better judgment.¹⁰¹ Nature is simply too complicated to impose unbending regulation on a broad spectrum of patients.

Finally, heightened awareness of self-regulation techniques have proven to be effective in limited multiple births. Statistics are beginning to show that the industry is becoming more willing to police itself.¹⁰² Between 1996 and 2007, the U.S. saw an 87% decrease in triplet and quadruplet pregnancies as the average number of embryos transferred steadily dropped, despite an increase in the number of IVF cycles overall.¹⁰³ Only the twin rate remains high, which may be corrected through elective, single-embryo transfers¹⁰⁴ encouraged through patient education, the national reorganization of success rates, and increased insurance coverage.

B. Stronger Counseling and Education

As already discussed, patients stressed by infertility often feel a pressing need to become pregnant in *this cycle*, leading patients to implant multiple embryos. Even when aware of the associated risks, patients are more willing to suppress potential challenges associated with ART

⁹⁹ Strong, *supra* note 1, at 279.

¹⁰⁰ Deborah L. Forman, *When "Bad" Mothers Make Worse Law: A Critique of Legislative Limits on Embryo Transfer*, 14 U. PA. J.L. & SOC. CHANGE 273, 308 (2011).

¹⁰¹ Sivinski, *supra* note 8, at 908.

¹⁰² Forman, *supra* note 100, at 308.

¹⁰³ *The Trouble with Twin Births*, N.Y. TIMES (Oct. 11, 2009), <http://roomfordebate.blogs.nytimes.com/2009/10/11/the-trouble-with-twin-births/>.

¹⁰⁴ *Id.*

as compared to their physicians.¹⁰⁵ Some go as far as to argue that patients are too emotionally involved with the process to make independent and realistic decisions about the number of embryos to implant.¹⁰⁶ Therefore, the threat of being left childless must be counterbalanced with informative education on associated risks.

Some evidence suggests that weaknesses in informed consent lie not in the information patients receive, but in their ability to process it.¹⁰⁷ Patients may discount known risks, particularly those of twins, if those risks don't conform to their pre-existing view of multiples. By recognizing this mode of thinking as an obstacle to informed patient decision-making, however, doctors can present information in ways patients are more likely to process and absorb. For example, one study suggests that brochures and DVDs educating patients on the risks of multiples can be especially effective in persuading patients to transfer fewer embryos.¹⁰⁸ The study found that participants who received a DVD reported a significantly greater preference for single embryo transfer – even above those who received a brochure – due to the emotional impact of hearing testimonials from mothers of twins.¹⁰⁹ Using DVDs as an educational tool, then, would serve as a cost-effective way to change patient attitudes toward single embryo implantation.

Doctors must also adopt a steadfast role by clearly formulating their own standard of care strong enough to stand in opposition to a couple's wishes.¹¹⁰ Because information delivery can be more important than substance, in-person consultation can be especially helpful in conveying important information.¹¹¹ Dr. Mousa Shamonki, director of the IVF program at the University of

¹⁰⁵ Adamson, *supra* note 6, at 518.

¹⁰⁶ *Id.*

¹⁰⁷ Foreman, *supra* note 100 at 311.

¹⁰⁸ *Id.*

¹⁰⁹ *Id.* at 311-12.

¹¹⁰ Adamson, *supra* note 6, at 521.

¹¹¹ Urska, *supra* note 5, at 503; *See also* Sivinski, *supra* note 8, at 910.

California, Los Angeles says he is often confronted with patients who want to implant more embryos in order to boost their chances of getting pregnant. Shamonki counsels his patients that the implantation of additional embryos, however, often serves only to increase the *multiple* pregnancy rate, rarely increasing the *overall* pregnancy rate significantly.¹¹² In other words, it is the quality of the transferred embryo and not the number of embryos that determine pregnancy success.¹¹³ By educating patients on such statistics face-to-face, doctors like Shamonki can help to increase acceptance of single-embryo implantation.

Overseas, counseling has proven to have such an effect. The Swedish have found that single-embryo transfers increase with patient counseling, accounting for 70% of IVF procedures in Sweden in 2005.¹¹⁴ Though this statistic is largely due to Sweden's universal healthcare system providing coverage for more than one IVF cycle, counseling nevertheless lessened feelings of impatience.¹¹⁵ Similarly, a 2011 study found that 94% of infertility patients surveyed and receiving treatment at the University of Iowa Hospitals supported that center's one-embryo transfer policy.¹¹⁶ The policy, which has been in place since 2004, provides that women under age thirty-eight with the best prognosis receive just one embryo per treatment.¹¹⁷ Since the policy was implemented, the number of treatments has remained steady, pregnancy rates have increased and the number of multiple gestations has dropped from 34.8% to 17.5%.¹¹⁸ Doctors attribute the overwhelming patient support to the educational component of the policy, which runs through the risks of twins for mothers and infants.¹¹⁹ The highest levels of support came

¹¹² *Most Fertility Clinics Break Rules*, *supra* note 4.

¹¹³ Moriarty, *supra* note 22, at 516.

¹¹⁴ Sivinski, *supra* note 8, at 910 (Sweden bars more than two embryo transfers for younger women).

¹¹⁵ *Id.*; *See also* Glennon, *supra* note 11, at 189.

¹¹⁶ News Release, University of Iowa (Sept. 28, 2011) *available at* <http://news-releases.uiowa.edu/2011/september/092811IVF-policy.html>.

¹¹⁷ *Id.*

¹¹⁸ *Id.*

¹¹⁹ *Id.*

from patients who were apprehensive about the risks of twins, as well as those who had stored extra, frozen embryos in an effort to obtain a healthy singleton if not in their first cycle, then in their second.¹²⁰

Furthermore, counseling patients on the possibility of having to undergo a second IVF cycle using a frozen embryo is extremely important. Not only does such willingness lessen pressure to receive a favorable outcome on the first go-around, but it may also serve as a reality-check from a financial standpoint. If a couple cannot afford a second round of IVF, it is unlikely they can afford to raise multiples.¹²¹ Due to the overwhelming emotion involved in the process, however, patients may fail to acknowledge this fact. Exposing patients to objective information, then, is necessary if they are to make rational, well-thought-out decisions.¹²² Though patients are likely to resist single-embryo implantation at first, “counseling by courage”¹²³ can slowly help to transform patients’ decision-making context.

C. New Data Collection System

To ensure patients make well-informed decisions on implantation, the nationalized data system must be reorganized and recompiled. First, the system should be designed to encompass cumulative treatment rather than just individual cycles.¹²⁴ This way, patients will have a realistic indicator as to how many cycles they can expect to undergo, rather than “placing all their eggs” – literally and figuratively – in just one cycle. IVF should not be regarded as a one-shot, gamble focused on a single go-around. Rather, patients should regard IVF as a *process*, requiring patience and precision. As such, calculations measuring success after one fresh cycle *and*

¹²⁰ *Id.*

¹²¹ Sivinski, *supra* note 8, at 910.

¹²² Pennings, *supra* note 78, at 2467.

¹²³ Adamson, *supra* note 6, at 521.

¹²⁴ *See* Adamson, *supra* note 6, at 520.

subsequent cycles using cryopreserved embryos should be made available.¹²⁵

Data must also be reworked to provide a uniform computation of success rates to eliminate confusion.¹²⁶ There is some evidence that data used to advertise clinics' "success rates" may be inconsistent.¹²⁷ Due to the fierce competition of the industry, some fertility clinics have turned to aggressive marketing techniques to win over the good will of OB-GYNs, who will refer patients to particular clinics. Certain advertising practices, however, are misleading or fraudulent. While a clinic may comply with the SART reporting requirement, information advertised to potential patients on a clinic's website may offer different information. Some clinics advertise success rates that are the nation's average rather than their own.¹²⁸ Others may only publicize results from patients with good outcomes or group certain hard-to-treat patients into a "research" category in order to remove them from the clinic's statistics.¹²⁹ In order to ensure patients are comparing apples to apples, a strict, nationalized system must be put into effect to ensure the reliability of data used for marketing purposes.

Finally, policies should define "success" in terms of healthy babies, not a superficial live birth count. SART and the CDC must address the problem of multiple gestations by providing more information than simply how many "successes" result in twins, triplets, or high-order multiples. Currently, nothing the national summary reports or individual clinic reports explains why patients should be concerned with these numbers.¹³⁰ Statistics on multiple gestations are unlikely to dissuade patients from implanting multiple embryos if the risks associated with multiples are not clearly stated. This undertaking is admittedly difficult, considering a fair number of twins are born healthy and without complications. At the very least, however,

¹²⁵ *Id.*

¹²⁶ Kolata, *supra* note 72.

¹²⁷ *Id.*

¹²⁸ *Id.*

¹²⁹ *Id.*

¹³⁰ Glennon, *supra* note 11, at 168.

information on multi-gestational risks should be linked to the newest data, which is what potential patients are most likely to use in determining a course of treatment.¹³¹ Long-term epidemiologic studies on the development and progress of ART babies would similarly further this goal.¹³² If the CDC is to aid rather than distort the decision making process, it must effectively direct patients to more detailed information on the risks of multiples.

D. Widen Access to IVF

The costs of IVF are so high that they often quash one's dreams of becoming a parent. One-third to one-half of infertility patients in the United States drop out of treatment with a reproductive specialist, for many due to cost.¹³³ If patients are not forced to pay out-of-pocket, however, they will feel less pressure to conceive in fewer cycles and will therefore be less inclined to transfer multiple embryos at one time.¹³⁴

Europe illustrates this trend: In 2000, the rate of triplets per live birth in Europe was 2.0% and the twin rate was 24%.¹³⁵ In contrast, the rate of triplets in the United States was 4.3% and the twin rate was 30.7%.¹³⁶ Though the per capita utilization of ART in Europe is nearly three times higher than in the U.S., fewer embryos are transferred per cycle, which results in fewer multiples.¹³⁷ Only 6.7% of transfers involved more than three embryos compared to approximately one-third of patients in the U.S.¹³⁸

Without a doubt, mandating insurance coverage would effectively eliminate the

¹³¹ *Id.* at 169.

¹³² Adamson, *supra* note 6, at 520.

¹³³ Adamson, *supra* note 6, at 518.

¹³⁴ Sivinski, *supra* note 8, at 911.

¹³⁵ Adamson, *supra* note 6, at 519.

¹³⁶ *Id.*

¹³⁷ *Id.*

¹³⁸ *Id.*

“financial gamble” aspect of the decision-making context.¹³⁹ Consider a study comparing infertility programs in states with mandated comprehensive insurance coverage for IVF and programs in states without such coverage: researchers found that there was a statistically significant decrease in the number of pre-embryos per transfer and the multiple birth rate in states with comprehensive coverage.¹⁴⁰ A patient is more likely to accept a doctor’s recommendation to transfer one embryo if she is free to undergo a second round of IVF should the first one prove unsuccessful.

The obvious argument against widening access to IVF is the already surmounting healthcare costs facing the current U.S. healthcare system. While IVF is expensive, however, these procedures account for only 0.3% of total healthcare expenses.¹⁴¹ Though insurance carriers are not paying for IVF, they are paying for medically necessary treatments for twins, triplets and high-order multiples. The cost of preterm, low-birth-weight multiples, over time, is so expensive that it might actually prove to be *more* costly than increased IVF coverage.¹⁴² Massachusetts, for example, requires insurers to cover an unlimited number of IVF cycles and has seen only minimally affected insurance premiums.¹⁴³ By shifting costs, increased IVF coverage may actually decrease the overall, U.S. healthcare burden.

Furthermore, simply mandating *some* coverage would likely provide substantial benefits. Innovative treatment packages stipulating financing and/or refund guarantees would increase the number of patients who can afford treatment while also giving them the best chance at a healthy,

¹³⁹ Camille Davidson, *Octomom and Multi-Fetal Pregnancies: Why Federal Legislation Should Require Insurers to Cover In Vitro Fertilization*, 17 WM. & MARY J. WOMEN & L. 135, 151 (2010).

¹⁴⁰ Strong, *supra* note 1, at 275.

¹⁴¹ Sivinski, *supra* note 8, at 912.

¹⁴² *Id.*; See also Alison McCook, *Insurance Sways Outcome of In Vitro Fertilization*, REUTERS, Aug. 28, 2002; See also Tarun Jain, et al., *Insurance Coverage and Outcomes of in Vitro Fertilization*, 347 N. ENGL. J. MED. 661-666 (2002) available at <http://www.nejm.org/doi/full/10.1056/NEJMsa013491>.

¹⁴³ See Mackenzie Carpenter, *Blue Cross Draws Line on In-Vitro Fertilization Procedure*, PITTSBURGH POST-GAZETTE, June 27, 1993, at A1 (Massachusetts officials say premiums have risen by just 0.2 to 0.5 percent per year, or about \$1 per month).

singleton birth.¹⁴⁴ Drafting creativity might allow comprehensive coverage for the first IVF cycle only if a single-embryo is transferred, for example.¹⁴⁵ Such schemes serve a dual purpose: on the one hand they widen access to IVF while on the other, they attract patients and promote business.

Finally, ethical concerns help lay the groundwork in the push for uniform coverage. By requiring patients to pay out-of-pocket, IVF is only an option for those who possess a certain income. By mandating coverage, however, people of all income levels may share the joys or parenthood. Crucially, the U.S. Supreme Court held in *Bragdon v. Abbott* that reproduction is a “major life activity” and that any substantial limitation on one’s ability to procreate is defined as a disability under the Americans with Disabilities Act (ADA).¹⁴⁶ Though the Court’s holding should provide the grounds necessary to win over coverage from insurers, this legal implication has yet to be seen.¹⁴⁷ Infertility, after all, is unlike disease or illness in that its consequences are not life threatening. And yet, a vast number of insurance providers cover the costs of allergy medication, erectile dysfunction drugs and massage therapy. As one patient puts it, “if a major bodily function isn’t working, what would you call it? Not an illness? That is just nonsensical to me.”¹⁴⁸ Ultimately, increased access to IVF is crucial if we are to reduce patient pressures to implant multiple embryos, thereby lessening the incidence of multiple births.

VI. Conclusion

Quite obviously, fertility is a complicated and fragile practice area facing a wide range of patients; one 37 year-old is not the same as another, the same way someone who has excellent

¹⁴⁴ Adamson, *supra* note 6, at 521.

¹⁴⁵ Sivinski, *supra* note 8, at 912.

¹⁴⁶ Strong, *supra* note 1, at 276.

¹⁴⁷ *Id.*

¹⁴⁸ Carpenter, *supra* note 143.

quality embryos is not the same and someone with poor quality embryos.¹⁴⁹ That being said, every patient must be treated as an individual with their own set of needs. “These decisions are complex and need to be individualized, which is why we strongly believe that guidelines are better than hard rules,” said Dr. David Adamson, a former president of the American Society for Reproductive Medicine in an interview with USA Today.¹⁵⁰ Any inflexible statute would prevent physicians from tailoring procedures for clients with extenuating circumstances.¹⁵¹

Our focus, then, must not be on a regulatory structure limiting reproductive choice, but on avoiding the problems associated with multiple gestations.¹⁵² The decision of whether or not to implant multiple embryos requires a careful balancing of social good and personal reproductive rights.¹⁵³ By reorganizing national data, counseling patients on the risks associated with multiples, and widening access to IVF, we can change the decision-making context to steer parents toward the safest and best result – opting for single-embryo transfer in order to reduce the incidence of multiple births. When first-time parents are blessed with a happy, healthy singleton, it is not hard to see that sometimes less is more.

¹⁴⁹ Sharples, *supra* note 21.

¹⁵⁰ *Most Fertility Clinics Break Rules*, *supra* note 4.

¹⁵¹ Sivinski, *supra* note 8, at 908.

¹⁵² Adamson, *supra* note 6, at 520.

¹⁵³ *Id.*