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David Orentlicher

University of Nevada, Las Vegas -- William S. Boyd School of Law

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Multiple Embryo Transfers: Time for Policy

by David Orentlicher

The birth of eight children to Nadya Suleman led to an outcry over the common practice in assisted reproduction of transferring multiple embryos to a woman's uterus. The practice increases the chances of a live birth, but also raises the likelihood of multiple births, with their risks and costs. It is time for the United States to enact policy that will limit the number of embryos transferred to a woman.

Health Problems

In vitro fertilization in the United States often leads to multiple births. More than 30 percent of deliveries using fresh embryos and nearly 25 percent of those using frozen ones result in multiple births,¹ with 48 percent of all IVF infants born in multiple births.²

Any multiple birth raises health risks. Among twins, more than 60 percent are born prematurely; among triplets or other multiples, more than 95 percent are premature.³ Primarily for this reason, IVF twins, triplets, and other multiples are more likely than singletons to require neonatal intensive care, to develop cognitive and physical disabilities, and to die. Twins have an infant mortality rate four to five times that of singletons; triplets have an eight- to tenfold increase.⁴ These infants are also at increased risk for cerebral palsy, deafness, and blindness, and they exhibit delayed language development and lower verbal intelligence.⁵ Multiple births pose greater health risks for the mother as well. They increase the risk for maternal

hypertension, preeclampsia, hemorrhage, Cesarean section, and death, as well as for postpartum depression and high parenting stress.⁶

These risks drive up the cost of health care. In one study, the delivery-associated hospital costs were twice as high per child for twins as for singletons, and four times higher for triplets.⁷ Lifetime medical costs may be two hundred times higher.⁸

IVF patients might be willing to assume the increased risks of multiple births in order to increase their likelihood of having at least one child. Studies indicate, however, that the success rate improves only marginally with multiple transfers, and some studies have found no difference. In one study involving women younger than age thirty-six with good-quality embryos, double-embryo transfers increased the live birth rate from 39 to 43 percent, but the multiple birth rate increased from 1 to 33 percent.⁹ In another study of women with good prospects for successful IVF, those with single-embryo transfers had the higher live birth rate—41 percent versus 36 percent for the double-embryo transfers. Moreover, the multiple birth rate rose from zero for single-embryo transfers to 37 percent for double-embryo transfers.¹⁰ For women who have less favorable prospects, on the other hand, a double-embryo transfer may significantly increase the chances of success. In one study, it doubled the pregnancy rate.¹¹

To be sure, there are other tradeoffs between single- and double-embryo

transfers. To achieve a comparable overall live birth rate, women using single-embryo transfers may need to undergo two IVF cycles instead of one, doubling their cost of treatment. And older women who want two children may prefer to have twins rather than successive singletons. Because of the decline in fertility with advancing age, a forty-year-old woman may not be able to become pregnant a second time.¹²

The Response

Professional guidelines discourage multiple-embryo transfers, especially for women under age thirty-five. Suleman's physician transferred six embryos for her pregnancy, but Society for Assisted Reproductive Technology and American Society for Reproductive Medicine guidelines indicate that she should have received only one or two. Yet IVF procedures with two or more embryos are still common. Nearly 90 percent of embryo transfers involve at least two embryos, and more than 40 percent involve at least three.¹³ To be sure, the percentage of IVF procedures with more than two embryos has recently declined, but the shift has been to double- rather than single-embryo transfers. As a result, triplet or high-order births have declined while twin births have increased.¹⁴

If professional guidelines have not been effective, what other approaches might make sense? This depends on why physicians transfer multiple embryos. Studies do not generate uniform data, but a few considerations appear important. Several of these reflect patient preference. First, when patients weigh the chances of successful IVF and the risks of multiple births, the desire to have at least one child appears stronger than the desire to avoid multiple births.¹⁵ To the extent that IVF patients believe multiple-embryo transfers are more likely to succeed, they will prefer the multiple-embryo transfer. Second, IVF patients generally bear the full cost of their treatment. If a single-embryo transfer is less successful than a multiple-embryo transfer, then single-embryo transfers will require more IVF

cycles (and higher fees) for one child. And patients who want two children may prefer having twins with one IVF cycle than singletons in two cycles. Finally, some patients simply want twins.

Multiple-embryo transfers may also be driven by physician preference. IVF clinics compete for patients, and maximizing overall birth rate is one way to do this, especially since the federal government publishes clinics' success rates on the Internet. However, empirical data suggest that competition among IVF clinics may not have a significant effect on multiple birth rates.¹⁶

These considerations suggest three changes in law and practice to reduce multiple births from IVF.

Education. Some IVF patients prefer multiple-embryo transfers because they underestimate both the success rate of single-embryo transfers and the health risks for multiple-birth children. Most probably assume they will increase their chances of success with multiple-embryo transfer, and many do not appreciate the extent to which twins and triplets have elevated health risks, especially with television shows like *Jon and Kate Plus Eight*. When IVF patients receive information about the health risks of multiple births, they become more interested in single-embryo transfers.¹⁷

Funding. Financial considerations may also lead patients to prefer multiple-embryo transfer. IVF can cost as much as \$15,000. If a couple wants two children, they may want to have both in one IVF cycle. If insurers covered the cost of IVF, though, then the financial pressure on patients would be eased.

Although studies based on interviews of IVF patients come to different conclusions about the significance of cost on patient preference, one study of U.S. IVF practices indicates that costs are important. The study compared embryo transfers in states that require insurers to cover IVF costs with those in states that do not. In states with mandated coverage, there were more IVF cycles, with fewer embryos transferred per cycle and fewer multiple births.¹⁸

The funding of IVF services can better align patient incentives with societal interests. While patients face higher

costs from multiple, single-embryo IVF cycles, society bears higher costs from multiple-embryo cycles. The higher costs of multiple IVF cycles are more than offset by higher health care costs from more multiple births.¹⁹ Finally, considerations of equity justify funding for IVF services. Infertility can be a serious disability that warrants medical care, just as other disabilities do.

Legal limits on transfer. Important though they are, education and funding are probably not enough. Legal limits on transfer may be necessary. Data from Sweden demonstrate that this strategy can be effective. Sweden allows only single-embryo transfers, although double-embryo transfers are permitted for women at low risk of multiple births.²⁰ After the law was adopted, the birth rate did not change, but the multiple-birth rate dropped from 35 to 5 percent.²¹

A similar U.S. policy would balance a desire to avoid multiple births with the goal of achieving successful pregnancies. Physicians would transfer a single embryo unless a transfer of two was justified by the mother's age, poorer-quality embryos, or no prior success with IVF. To ensure adherence, advance approval of double-embryo transfers would probably be necessary. If the outcomes were similar to those in Sweden, and if transfer restrictions were coupled with insurance coverage of IVF, the restrictions would not limit reproductive rights.

1. Centers for Disease Control and Prevention, *2006 Assisted Reproductive Technology Success Rates: National Summary and Fertility Clinic Reports* (Atlanta, Ga.: Centers for Disease Control and Prevention, 2008), 22, 55.

2. S. Sunderam et al., "Assisted Reproductive Technology Surveillance—United States, 2006," *MMWR Surveillance Summaries* 58, SS-5 (2009): 1-25, at 8.

3. Centers for Disease Control and Prevention, *2006 Assisted Reproductive Technology Success Rates*, at 23.

4. B. Luke and M.B. Brown, "The Changing Risk of Infant Mortality by Gestation, Plurality, and Race: 1989–1991 versus 1999–2001," *Pediatrics* 118 (2006): 2488-97, at 2492.

5. C.R. Newton et al., "Factors Affecting Patients' Attitudes toward Single- and Multiple-Embryo Transfer," *Fertility and Sterility* 87 (2007): 269-78, at 269.

6. G.L. Ryan et al., "The Desire of Infertile Patients for Multiple Births," *Fertility and Sterility* 81 (2004): 500-504, at 503; B.J. Van

Voorhis, "In Vitro Fertilization," *New England Journal of Medicine* 356 (2007): 379-86, at 382.

7. T. Callahan et al., "The Economic Impact of Multiple-Gestation Pregnancies and the Contribution of Assisted-Reproduction Techniques to Their Incidence," *New England Journal of Medicine* 331 (1994): 244-49.

8. FIGO Committee for the Ethical Aspects of Human Reproduction and Women's Health, "Ethical Guidelines in the Prevention of Iatrogenic Multiple Pregnancy," *European Journal of Obstetrics and Gynecology and Reproductive Biology* 96 (2001): 209-210.

9. A. Thurin et al., "Elective Single-Embryo Transfer versus Double-Embryo Transfer in In Vitro Fertilization," *New England Journal of Medicine* 351 (2004): 2392-2402.

10. H.G.M. Lukassen et al., "Two Cycles with Single Embryo Transfer Versus One Cycle with Double Embryo Transfer: A Randomized Controlled Trial," *Human Reproduction* 20 (2005): 702-8.

11. A.P.A. Van Montfoort et al., "In Unselected Patients, Elective Single Embryo Transfer Prevents Multiples, but Results in Significantly Lower Pregnancy Rates Compared with Double Embryo Transfer: A Randomized Controlled Trial," *Human Reproduction* 21 (2006): 338-43.

12. N. Gleicher and D. Barad, "The Relative Myth of Elective Single Embryo Transfer," *Human Reproduction* 21 (2006): 1337-44, at 1340.

13. Centers for Disease Control and Prevention, *2006 Assisted Reproductive Technology Success Rates*, at 44.

14. S.L. Boulet et al., "Perinatal Outcomes of Twin Births Conceived Using Assisted Reproduction Technology: A Population-Based Study," *Human Reproduction* 23 (2008): 1941-48, at 1941.

15. Ryan et al., "The Desire of Infertile Patients," 502.

16. A.Z. Steiner, R.J. Paulson, and K.E. Hartmann, "Effects of Competition among Fertility Centers on Pregnancy and High-Order Multiple Gestation Rates," *Fertility and Sterility* 83 (2005): 1429-34.

17. Newton et al., "Factors Affecting Patients' Attitudes," 274-75.

18. T. Jain, B.L. Harlow, and M.D. Hornstein, "Insurance Coverage and Outcomes of In Vitro Fertilization," *New England of Medicine* 347 (2002): 661-66.

19. Lukassen et al., "Two Cycles with Single Embryo Transfer," 706.

20. P.O. Karlström and C. Bergh, "Reducing the Impact of Embryos Transferred in Sweden—Impact on Delivery and Multiple Birth Rates," *Human Reproduction* 22 (2007): 2202-7, at 2203.

21. *Ibid.*

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