

## ***Addressing Infertility with Uterine Transplant: An Ethical Analysis of Three Categories of Donors***

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Keywords: Organ donation, living donor, uterine transplant, deceased donor, infertility

### INTRODUCTION

The first live births via uterine transplant using deceased donors (UTx) occurred in Brazil in 2017<sup>1</sup> and in the United States in 2019.<sup>2</sup> Prior to that, living donors were the source of uteruses for transplant, with the first successful birth in Sweden in 2014, and the first successful birth in the US in 2017. This achievement in reproductive technology gives women with absolute uterine factor infertility (AUI) the option to become a biological parent. In the US, 120,000 women of childbearing age are affected by AUI.<sup>3</sup> Without UTx, their only option for having genetically related children is through gestational surrogacy. Since some religions and cultures prohibit the use of surrogates to achieve motherhood and surrogacy is illegal in many countries, some women would not otherwise have the chance to have biological children. For instance, China, Finland, Germany, Iceland, and other countries prohibit any form of commercial or altruistic surrogacy making adoption the only option for becoming a mother. However, in many cultures, biological ties are central to the understanding of the family. For example, in the Middle East, adoption is uncommon because biological connections are crucial.<sup>4</sup> Therefore, the only option these women would choose to become a mother is UTx. The exclusive value of UTx to these women is being able to experience pregnancy. Thus, UTx gives unique benefits to these women that adoption or surrogacy would not.

The procedure entails surgery on a living or deceased donor to acquire the uterus. Then, the recipient undergoes transplantation followed by a course of immunosuppressive medication. After *in vitro* fertilization (IVF), the embryo is implanted into the transplanted uterus. If the pregnancy progresses, the child is delivered by C-section and the uterus is removed either simultaneously or later. This paper argues that both deceased and living donors should be permitted, while increased-risk donors should not be eligible.

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## ANALYSIS

### I. Permitting Living Donors or Limiting all UTx to Deceased Donors

The ethics of using a uterus from a deceased donor differs from using one from a living donor. The biggest concern for living donation is that it exposes the donor to unacceptable risks, especially considering that the procedure is elective and not life-saving. In other types of transplants, the sacrifice is warranted because the organ is needed to save the recipient's life. For instance, living kidney donations protect against kidney failure.<sup>5</sup> The uterine donor undergoes a four to eight-hour surgery to acquire the uterus for no potential health benefit to themselves or arguably, to the recipient.<sup>6</sup> UTx is not a life-saving procedure. Some argue that because there is no imminent threat to the health of patients with AUFI, it is unnecessary to expose live donors to risks of UTx. While treating AUFI is not technically medically necessary, many women find infertility debilitating to their physical and mental health. As a result, women want their infertility treated. Now that UTx with deceased donors has been successful, the ethical justification for continuing to allow living donation could be questioned. UTx from deceased donors cannot harm the donor and thus has a different overall risk-benefit calculation. It is reasonable to believe that opponents of living donation may view UTx from deceased donors as ethically permissible.

From the public health and ethical perspective, retrieving uteruses from deceased donors is a preferable option for the following reasons: First, there is no medical risk to the donor; thus, public resources do not need to be allocated to resolving the potential complications from the procedure. Additionally, acquiring a uterus from a deceased donor takes less time than from a living donor.<sup>7</sup> Using deceased donors also decreases operating room visits compared to living-donor uterus acquisition, and allocates more time for the operating room to perform other procedures.

However, without living donors, the pool of available uteruses for transplantation narrows. In 2017, there were 2,200 deceased female donors aged 18-47 in the US, defined as those willing to donate, not those with a procurable and usable uterus, or even a uterus at all.<sup>8</sup> 2,200 is an extremely low number of potential uterus donors considering that there are more than 120,000 women with AUFI in the US. Not every available uterus is suitable for donation; each must pass quality control. These donors could have had a hysterectomy, no pregnancies (having had a pregnancy makes the uterus more suitable for transplant), papillomavirus infection, or other conditions that would prevent them from being uterus donors.<sup>9</sup> Therefore, the number of potentially suitable uteruses from deceased donors is probably lower than 2,200. There is significant uterus scarcity.

To expand the donor pool, living-donor transplants should be allowed to continue. Using living donors respects individual autonomy. The uterus does not serve a vital purpose and women who have had successful pregnancies and do not want to become pregnant again can donate without a concern for their own fertility. Because most living donors are related to the recipients, they will also benefit from this procedure since it would enable them to have family relationships, perhaps becoming an aunt or grandparent. By decreasing wait time, allowing living donors also would provide the option of UTx while women are younger and more likely to achieve pregnancy since the IVF would be more likely to succeed increasing the chances that UTx would result in a child.

### II. Increased-Risk Donors

To further expand the pool of donors, some favor making organs from "increased-risk" donors available to recipients. Increased-risk donors range from those with a history of IV drug use or certain sexual or

behavioral histories.<sup>10</sup> The main risk associated with transplantation from increased-risk donors is the possibility of transmission of infections like HIV, hepatitis B, or hepatitis C.

Whether the scarcity of transplantable uteruses makes it ethical to include increased-risk donors in the UTx donor pool, assuming there is still a scarcity once other qualified living donors are permitted depends on the risks and benefits. The organs of increased-risk donors are offered to patients for life-saving procedures such as a liver transplant.<sup>11</sup> For example, since the donor pool in South Africa is small, in one case, the best option was for a child to receive a partial liver transplant from his HIV-positive mother. The donation was approved to save the life. The risk of HIV infection, and the need for lifetime antiretroviral therapy paled in comparison to death due to the unavailability of a deceased or low-risk liver donor.<sup>12</sup> Yet, UTx is not a life-saving procedure. Because infertility treatment is not lifesaving, the risks do not outweigh the benefits.

Increased-risk donations use the organs that otherwise may have been disposed of (or rejected by potential recipients) categorically even if a donor did not actually have the underlying disease like HIV, hepatitis B, or hepatitis C.<sup>13</sup> Yet increased-risk donations pose ethically unacceptable risks to the recipient and their fetus in the case of UTx. If the patient remained on the waitlist for a uterus transplant, she and the resulting fetus would forgo the risks associated with using an increased-risk donor. It is possible that being on a waitlist could be psychologically traumatizing for a patient. This does not justify the potential to expose the woman and possibly a fetus to HIV, or hepatitis B or hepatitis C if an increased-risk donor provided a uterus and had an undetected condition. While infertility may be devastating to the women wanting UTx, UTx should not be treated as a life-saving procedure. Therefore, it is unethical to expand the donor pool to include increased-risk donors.

### III. Potential Downsides of the Availability of Uterine Transplant

The availability of UTx to the public may impose additional pressure on women affected by infertility to try an additional burdensome procedure before giving up genetic motherhood. In cultures where family ties are important, the spouse or family members may pressure women to undergo UTx for the benefit of having biological children. Moreover, it may add overall pressure on the women to become mothers and exacerbate the deficiency stigma on infertile women. Moreover, the availability of UTx may compromise the future of many children who are waiting for adoption. Adoption may start to be seen by others only as a last resort after attempting to have biological children. This is problematic because there are many already existing children who need parental love.

These downsides can be addressed by assurances that women freely enter UTx. Counseling and assurances that women are acting of their own accord and not under duress or societal pressure can mitigate the downsides. The autonomy and the choice to engage in new assisted reproduction should not be dismissed out of a fear that women are choosing UTx for the wrong reasons.

## CONCLUSION

UTx offers women with AUI unique benefits like the experience of pregnancy and having children genetically related to them. A woman deciding whether to receive a uterus from a living or deceased donor, or not to undergo UTx at all should understand the risks and benefits, including the risk of the UTx not resulting in a viable pregnancy. Doctors or hospitals should decide whether to perform UTx on a case-by-case basis. Increased-risk donation that could expose the recipient and fetus to transmissible disease should be prohibited because the risks associated with increased-risk donation are not morally justified by UTx. Remaining on the transplant list would be safer. While increased-risk UTx should be prohibited, other living-

donor procedures should be continued to widen the donor pool. Living-donor UTx will empower the donor since she will voluntarily make the decision to donate, helping another person. Women with infertility whose only chance to have a biological child should not be limited to uteruses supplied by deceased donors.

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<sup>1</sup> France 24, "First Baby Born after Uterus Transplant in France," France 24 (France 24, February 17, 2021), <https://www.france24.com/en/live-news/20210217-first-baby-born-after-uterus-transplant-in-france>.

<sup>2</sup> "For the First Time in North America, a Woman Gives Birth After Uterus Transplant From a Deceased Donor," Health Essentials from Cleveland Clinic (Health Essentials from Cleveland Clinic, July 9, 2019), <https://health.clevelandclinic.org/for-the-first-time-in-north-america-woman-gives-birth-after-uterus-transplant-from-deceased-donor/>.

<sup>3</sup> Max M. Maurer et al., "First Healthy Baby After Deceased Donor Uterus Transplantation: Birth to a New Era?" *Transplantation* 103, no. 4 (2019): pp. 652-653, <https://doi.org/10.1097/tp.0000000000002627>.

<sup>4</sup> Yassari, N. "Adding by Choice: Adoption and Functional Equivalents in Islamic and Middle Eastern Law." *The American Journal of Comparative Law*, 63(4), 927-962. Retrieved April 22, 2021, from <https://www.jstor.org/stable/26425445> (Acknowledges that traditional Islamic law prohibits adoption but arguing jurisdictions have worked around the prohibition to create avenues toward adoption.)

<sup>5</sup> Though some people might argue that dialysis would be an option, generally kidney transplants are justified by medical necessity and a transplant both saves the life and significantly improves quality of life compared to dialysis.

<sup>6</sup> "Uterus Transplants: A New Door Opens," Penn Medicine, April 29, 2019, <https://www.pennmedicine.org/news/internal-newsletters/system-news/2019/may19/uterus-transplants-a-new-door-opens>.

<sup>7</sup> Niclas Kvarnström et al., "Live versus Deceased Donor in Uterus Transplantation," *Fertility and Sterility* 112, no. 1 (2019): pp. 24-27, <https://doi.org/10.1016/j.fertnstert.2019.05.029>, 25.

<sup>8</sup> Max M. Maurer et al., "First Healthy Baby After Deceased Donor Uterus Transplantation: Birth to a New Era?" *Transplantation* 103, no. 4 (2019): pp. 652-653, <https://doi.org/10.1097/tp.0000000000002627>, 653.

<sup>9</sup> Max M. Maurer et al., "First Healthy Baby After Deceased Donor Uterus Transplantation: Birth to a New Era?" *Transplantation* 103, no. 4 (2019): pp. 652-653, <https://doi.org/10.1097/tp.0000000000002627>, 653.

<sup>10</sup> Shelly Bansal et al., "Risky Business: Taking the Stigma Out of High-Risk Donation in Lung Transplantation," *The Annals of Thoracic Surgery* 100, no. 5 (2015): pp. 1787-1794, <https://doi.org/10.1016/j.athoracsur.2015.05.065>, 1787. The Centers for Disease Control (CDC) define the high-risk donor if a person meets one or more of the following criteria: "1) men who have had sex with other men in the last 5 years, 2) a history of intravenous drug abuse, 3) persons who have hemophilia, 4) persons who have engaged in sex for money or drugs in the past 5 years, 5) persons who have engaged in sex with individuals who have high-risk behaviors or those that are suspected to have HIV, 6) anyone who has been exposed to HIV in the last 12 months, 7) inmates, and 8) children born to mothers who had HIV or mothers who met the criteria for high risk.

<sup>11</sup> Jean Botha et al., "HIV and Solid Organ Transplantation: Where Are We Now," *Current HIV/AIDS Reports* 16, no. 5 (April 2019): pp. 404-413, <https://doi.org/10.1007/s11904-019-00460-7>, 404.

Harriet Rosanne Etheredge et al., "Needs Must: Living Donor Liver Transplantation from an HIV-Positive Mother to Her HIV-Negative Child in Johannesburg, South Africa," *Journal of Medical Ethics* 45, no. 5 (2019): pp. 287-290, <https://doi.org/10.1136/medethics-2018-105216>.

(A partial liver transplant was done from an HIV-positive mother to an HIV-negative child in South Africa in 2017).

<sup>12</sup> Botha, et al.

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<sup>13</sup> David S. Goldberg and Josh Levitsky, "Transplanting Livers from HCV -Infected Donors into HCV -Negative Recipients: Promise but Mind the Pitfalls," *American Journal of Transplantation* 19, no. 5 (December 2018): pp. 1264-1265, <https://doi.org/10.1111/ajt.15193>, 1264.