

GUEST EDITORIAL

## The Transplant Trolley Problem

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Since being introduced by Philippa Foot in 1967, The Trolley Problem has generated so much debate and discussion that it has earned its own droll designation “Trolleyology.” However, the circumstances differ, and the dilemmas in these scenarios involve a trolley going down the tracks on course to run down helpless persons in their way. An observer is forced to choose the levers to pull in order to save which lives. The dilemma posed is whether and when it is permissible to knowingly and intentionally sacrifice a life in order to save more.

There has been criticism of the Trolley Problem as a remote from reality philosopher’s thought experiment with little real-world context.<sup>1,2</sup> However, from the perspective of those of us in the trenches of organ transplantation, those dilemmas are real, and being routinely faced when life and death decisions are part of our daily struggles. In the transplant world, we have a mismatch of supply and demand. The demand for organs is the runaway trolley, and the transplant community must decide which levers to pull. Until the supply issue is addressed by breakthroughs in technology, we have to deal with things as they are.

Currently, organ transplantation is like having a car in which the carburetor or piston is not working and, instead of changing those parts, the whole engine must be taken out and replaced with a new one. Someday such a procedure will seem barbaric. If a patient’s liver or heart has a deficiency, we may be able to inject stem cells that will differentiate themselves and fix the failing organ.<sup>3</sup> Alternatively, if someone is born with an enzyme deficiency, why replace the whole organ when replacing the enzyme<sup>4</sup> will do? We are not technologically there yet, but eventually we are going to know how to repair an organ’s function.

Similarly, compared to what will be available in the future, our treatment of kidney disease is very rudimentary. Instead of a huge machine, we will be able to make a dialysis filter so small that it will be implantable and replace your kidney.<sup>5</sup>

Furthermore, in the future, advancing technology will develop perfusion machines that may allow nontransplantable organs to heal outside the body and become transplantable.<sup>6</sup> Organs will be able to be perfused on a machine and pumped with the right nutrients and oxygen to keep it alive as it heals. Maybe, with preservation, multiple more organs could be saved, making for a broader sharing of organs for those on waiting lists and have supply come closer to meeting demand.

Lately, we are hearing more about resurrecting the question of using xenografts.<sup>7</sup> Could this be an acceptable source of organs to help solve the supply problem? What would be the cost benefit analysis? An obvious possible risk would be *Zoonosis*—the introduction of a whole new set of viruses and other infections from other species into humans. We need only to be reminded of COVID-19 and multiple hypotheses possibly stemming from bats<sup>8</sup> to ring alarm bells—and those are only the practical concerns, not the ethical ones.

All of this crystal ball gazing is just that. Looking into the future is going to bring new ethical issues, including, for example, “How long do we want to live?”

Until advancing technology comes to our aid with more tools in our arsenal, organ transplantation remains the Holy Grail along with the inescapable allocation dilemmas.

Back to today, what we try to do is allocate the organ to make the best possible use of this precious resource. However, determining standards of measurement as to how this is to be achieved is extraordinarily complex. The general demarcation is the sickest person gets the first available organ. Looking at

the entry level for consideration, the question is “What is the minimum level needed to achieve a place on the waiting list?” It is defining what is the value of life and what could be a more important question than that?

There is a gateway inconsistency in determining the entry level for transplant. Every Center has its own selection committee. If a Center declines a patient for transplantation, they routinely facilitate and encourage a second opinion at another Center. Yet, the organ pool is the same. An organ removed from the pool by one Center means an available organ has been removed for use elsewhere.

Undeniably, sometimes beyond medical measures, a moral compass is brought into committee discussions on decision-making. Some Centers transplant patients with Alcoholic Hepatitis, whereas other Centers deny transplants on the grounds that this population of patients may have a higher recidivism rate.<sup>9</sup> What about the recreational drug user who also has recidivism? Are those cases different from the morbidly obese patient who, because of their diet and weight, develops severe end-stage organ failure, such as cirrhosis, from fatty liver or Heart Failure from multiple myocardial infarctions secondary to Coronary Artery Disease? Should organs be denied to the patients if they have a high risk of posttransplant obesity? Moreover, there are the added difficult decisions as to how many organs should a person be allotted. What is the correct balance for United Network for Organ Sharing (UNOS)<sup>10</sup> to set standards for recipients to be placed on organ transplant lists without denying individual programs’ autonomy?

Another allocation challenge we face is age.<sup>11</sup> Should allocation decision criteria be the same for a teenager or a pediatric patient as they are for an octogenarian? Even if that person lives to be 100, they would have at maximum 20 years of life on the transplanted organ. In contrast, the younger recipient could have 80 years of life on that same organ. How should these allocations of life be doled out? In real life, they are debated without resolution. We attempt to treat all patients equally, but, in actuality, we may not. It is the classic scenario: when the ship is sinking, who gets to be on the lifeboat?

There are those who are willing to extend that lifeline and risk themselves in order to save others. Such cases are not unusual in transplant, with parents being willing—most often eager—living donors for their children, or family members and close friends donating to each other. How should their wishes be assessed?

Psychological evaluations for possible undercurrents of coercion are explored. Beyond that, what if the requests involve stretching the boundaries of predictable success rates. If a success rate is defined at 85% and a patient’s brother volunteers to give a kidney to his sibling where the success rate is judged to be only 20%, should the surgery be allowed? The brother may say, “I will only donate to my brother (so not adding to the pool of available organs), a 20% chance is better than zero and giving him one kidney is not a major risk for me.” What is the responsibility of surgeons regarding such a surgery?<sup>12</sup>

Then, there are others who, for altruistic reasons, volunteer to assume the risk of donating an organ to a stranger. Such an act is clearly supererogatory, and when it happens, we view these altruistic donors as heroes.

Even if the supply issue were to be addressed, the problem of financing transplantation would still exist. Should every citizen have a right for a transplant? How does health funding get utilized? A theoretical example is if, for example, an organ transplant costs 100,000 dollars, would a society be ethically justified in investing those dollars in saving one life with transplantation, or should it be investing in prenatal care or research for vaccine immunization, which impact many more? What if transplants were limited to only those who could afford them and people who could not would be denied strictly on a financial basis. In such a society, would transplants be like having a car—not a right but a life-saving advantage for those with financial means.

There is also a political side to these conundrums. We are comfortable utilizing organs from cadaveric donors with drug addictions, but if these same donors, or their cohorts, would have needed a transplant during their lifetime, they would have not been eligible. Is this hypocrisy? We are willing to take their organs, but not willing to transplant—surely a social justice issue.<sup>13</sup>

Another long-standing issue has to do with the buying of organs, having individuals travel to countries where they are engaged in purchasing organs despite the long-term deleterious effects to

the donor's health. However, there are economic benefits that should be taken into consideration: first to the institution and second to the individual donor.

From the perspective of an institution, such as a transplant center, the payor that possesses the means is able to subsidize others from the community being transplanted. By collecting higher reimbursements from individuals with private insurance, transplant centers can offset the cost of lower paying entities, such as government insured patients or more indigent patients. In this way, the scales of justice are a bit more balanced.

Furthermore, one could argue that there may also be a benefit to the donors themselves. If the financial resources from selling an organ allows the donor to provide food and shelter for their family, should society prevent this individual from making that choice?

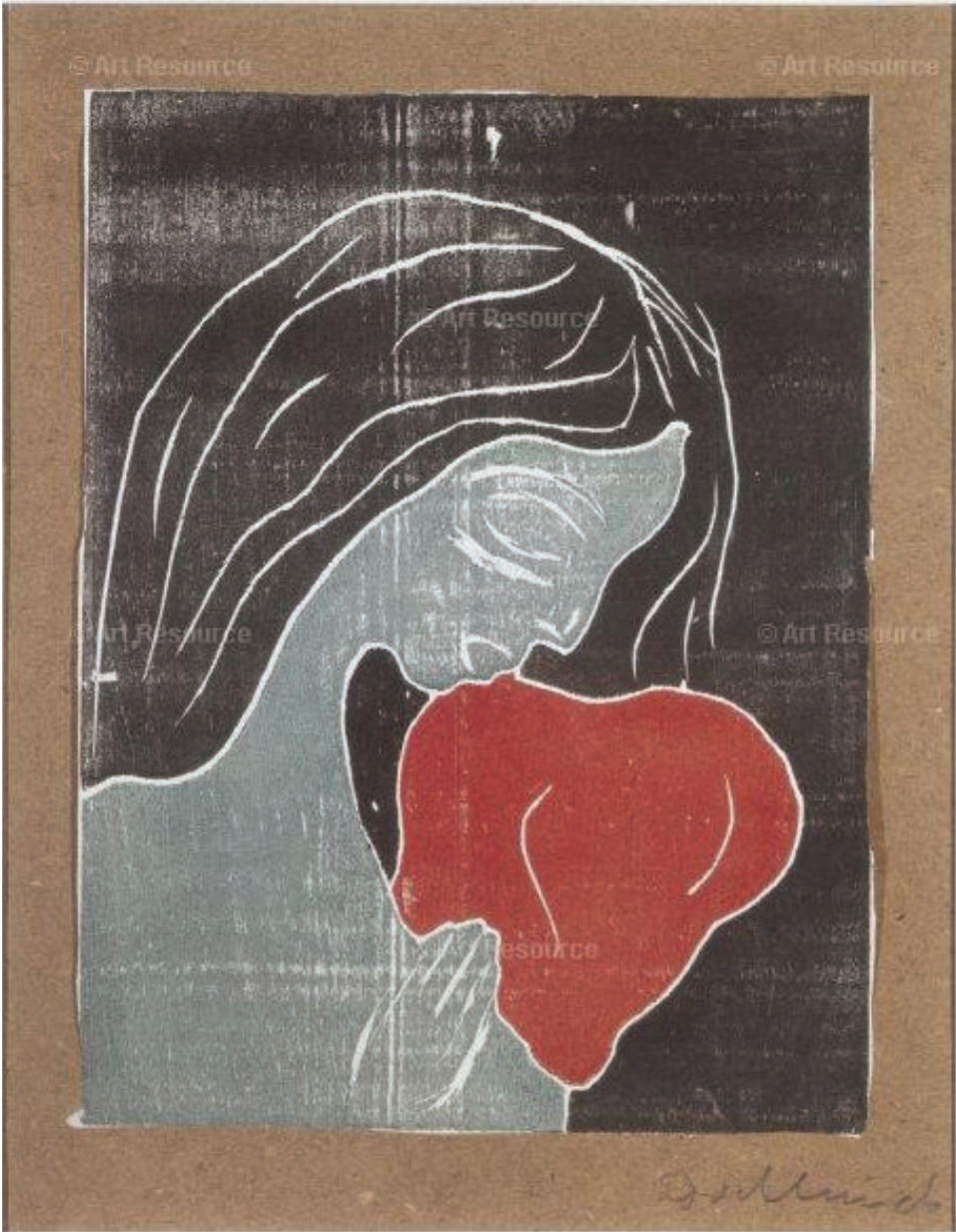
For many decades, there is an abundance of literature not in support of transplant tourism in which many reasons and arguments are offered,<sup>14,15,16</sup> However, as described above, there are economic benefits for both institutions and individuals that cannot be ignored and, in effect, explain their existence. Should the practice of organ selling be allowed? It is far simpler to condemn organ sales from a theoretical perspective when sitting down for an ethical discussion than it is for the person whose family's very existence depends on it. The real question is not whether selling organs is morally permissible, but how to address the insidious inequities in a social structure that creates it.

The takeaway from these ethical issues is that the answers are not so straightforward as are sometimes surmised. What may seem clear regarding who should be awarded an organ, who is an appropriate donor, and society's role in establishing policies are not agreed upon even within one society, much less cross-culturally. Making the hard decisions as to which levers to pull to avoid the trolley's decimating effects may be a matter of different levers under different circumstances.

## Notes

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