

# Cash For Kidneys: How Do We Solve the Kidney Shortage

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**T**welve people filed into six operating rooms; nine surgical teams set to work and ten hours later six people emerged with new, working kidneys [1]. Simultaneously transplanting six kidneys is an extraordinarily convoluted operation, and would only take place in the dismal context that the United States finds itself in: a desperate shortage of kidneys. The situation has degraded to such an extent that, as with the case above, patients and potential donors are resorting to bartering with their organs. Five of the six recipients had relatives who were immunologically unable to donate to them and, with the addition of an altruistic donor, were able to mix and match types so they all received kidneys. The operation was performed simultaneously so none of the parties could back out [1].

This extraordinary story is just one sign that we are in the midst of a medical crisis. The dire shortage of kidney donations is leading to the deaths of about 4,000 people annually in the US [2]. And that's a low bound; some estimates reach as high as 9,000 per year [3]. Currently over 86,000 people are waiting for a donation [4]. Perhaps the most frightening statistic is the change in death rate for people on the waiting list which, between 1998 and 2007, rose 76% [5]. While the situation is growing worse daily, many economists, alongside medical professionals, are entering the fray to explore innovative and controversial solutions, like the kidney exchange above, which may begin to bring down some of these disturbing statistics. While many of these solutions appear to be at least somewhat effective, they bring along with them a number of moral concerns which must also be addressed.

The first kidney transplant was performed in Boston in 1954. This new operation would, over the next half century, save thousands of lives, with dramatically increased numbers of transplants starting in the 1970s due to the introduction of powerful immunosuppressants [2]. The increasing safety of donation from live donors prompted a widespread fear that impoverished citizens from abroad would be shipped into the US to have their organs snatched. In response, in 1984 Congress passed the National Organ Transplant Act, barring the sale of organs for any reason [6]. In the years since, only altruistic donations have been permitted.

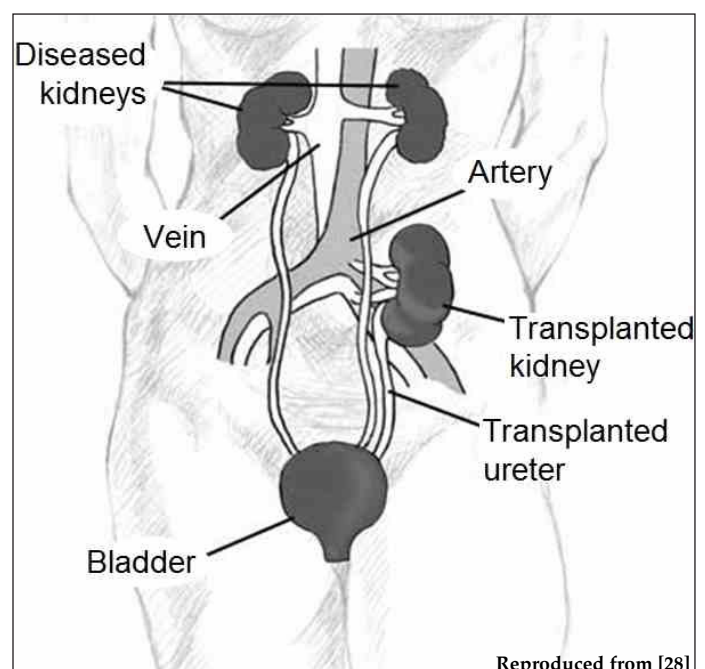
The only way to receive an organ under the current system is from a living donor who decides to donate an organ without any compensation, or from a cadaver whose family decides to donate, also without compensation. As we have seen, demand has soared and supply stagnated. Since 1988 the number of dialysis dependent individuals (those with severe kidney disease but unable to find a transplant) has tripled [7].

The situation may appear bleak, but to an economist this is a clear problem of misaligned incentives. Currently the only incentive for nonrelated donors to donate is pure

altruism, which goes a long way in explaining why about 80% of living donors are related to the recipient [2] and why cadaveric donations have fallen relative to living donations [3]. In the current US system, which requires potential donors to opt-in to allow their organs to be harvested after death, large swaths of the public neglect to do so, leaving us in a situation in which less than one half of potential cadaveric donors donate [8].

If we're to change the amount supplied, then, we need to shift incentives for donating or remove potential barriers to altruism. The first place to look is within the current system, especially where there are inefficiencies which don't require systematic change. A suggestion currently being tested is kidney exchange, of which the six-way trade related earlier is an example. If two individuals are in need of a kidney, and each has a willing donor who is unable to donate to them for immunological reasons, the donors can essentially swap kidneys by giving to the recipient they are compatible with, thereby adding years to the recipients' lives and removing them from the waiting list [9]. This kidney barter maintains the basic altruistic incentives while making it possible for a wider number of people to donate.

“ Before us is a real tragedy, one that confronts us with powerful moral difficulties ”



Efforts are ongoing to create regional exchanges to allow for these trades to be set up, and some economists envision taking it to a new level, with long chains of donors organized around anonymous donors who have no preference to whom their kidney goes, allowing for non-simultaneous trades [10]. While this option has the fewest legal barriers, the extent to which these exchanges, which thus far have been rare, can make a dent in the overall problem has been questioned [12].

A number of countries worldwide have taken a larger scale approach, turning the opt-in system on its head with a system known as presumed consent, whereby possible donors are assumed to permit donation unless they have specified otherwise [13]. In other words, any cadaver coming into the hospital with harvestable organs is presumed to consent to harvesting unless they have written documentation asserting otherwise. This form of incentivizing is known as liberal paternalism: systems need to be set up with some default assumptions and, the reasoning goes, it's better to set up systems that lead to better outcomes over all [14]. On the other hand, some find this an overreach that removes personal autonomy and can lead to hostility to the healthcare system – as in fact happened in Brazil when they recently attempted a system of presumed consent [15]. Empirical evidence suggests that, in the aggregate, presumed consent raises donation rates by about 30% [16].

Somewhere between these two options lies the novel Israeli approach, instituted in January of this year, wherein donors receive priority for future receipt of organs. If an individual donates an organ, they are automatically placed higher on the waiting list if they should need to receive in organ themselves in the future. No money changes hands but an added incentive is thrown in to boost supply [17]. An effort to enact similar legislation is underway in the U.S. [3]. While this system of incentives may have helped alleviate some of the pressure on the waiting list, some experts believe that any deviation from a strict needs-based approach leads to undesirable outcomes, as sick patients “may end up being pushed to the back of the queue,” in favor of those who have donated [18].

All of these remedies, while they may depart from traditional altruistic donations, don't radically change the basic system: no money changes hands between the donor and the recipient, and the only form of compensation comes through barter of organs.

Because these solutions have failed to completely bridge the supply-demand gap, some economists suggest a more radical departure: an explicit monetary market for organs. How exactly this market would work is highly contested, with views ranging from almost completely laissez faire to a single payer who would then distribute the kidneys based on need [19, 20]. The essential point of the market, though, is that monetary compensation could be offered as an incentive to donate. A marketplace would target two groups: those that would donate upon death and those that would, because they have two viable kidneys, donate while alive. The first group would likely be incentivized by payments, paid while the individual is living, to permit harvesting upon death if the organs were to prove viable [6]. Alternatively, the heirs would be

paid if they agreed to allow the donation of organs of their already deceased relations [3].

Because there is greater demand for kidneys than there are total viable cadavers, some individuals would also need to be prompted to donate while alive [2]. Moreover, organs from living donors lead to better long-term health than do cadaverous organs [20]. Living donors would be incentivized by being compensated for their lost wages, the risks associated with the surgery, and potential hampering of living standards. Recent leaps in transplantation have reduced the risks from surgery to around a 0.03% mortality rate and minimized long-term declines in the living standard of the donor [18].

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Given these advances, Becker and Elias estimate that the price of a kidney would range between \$7,700 and \$27,700, though they believe it to be closer to the former [2]. Because this would only constitute a 12% increase in total cost of surgery, the increased supply would well exceed the decrease in demand caused by the price bump [2]. While this increase in supply appears to lead to good outcomes, many elements of this market system have been questioned on moral grounds.

But before we deal with the moral issues we should be confident in the efficacy of a market system at all. Fortunately, we have a large case study: the country of Iran. As the only country in the world that permits the sale of kidneys, Iran is also the only country without a kidney waiting list: there are no major shortages [7]. The market, at least in theory, is a highly regulated and hierarchical system that attempts to decouple potential conflicts of interest. The process begins with the medical centers that identify viable sellers, which are staffed by volunteers and not compensated by the number of sellers they produce. To ensure the health of the seller a second examination is conducted by a doctor with the right to veto the potential seller. If the seller is approved, a fixed sum is paid to him or her by the government, with the rest being made up by the recipient, or, if they are unable to afford it, a number of official charities. This system is a useful proxy for observing the good and ill of legalizing financial incentives to donors. The benefits accrued over the course of a decade, as Iran gradually cleared all shortages in kidneys, the only country worldwide to achieve this feat [7].

This is the primary aim of any kidney system, but there are some major concerns about how the market operates. For one, the Iranian system may not be as efficiently regulated as it appears, allowing for significant under-the-table monetary exchanges. Moreover, data suggest that most of the sellers are young men in extreme poverty, many of whom eventually regret having sold their kidneys

[22]. This is coupled with some very troubling long-term health problems that sellers face [7]. These problems may be endemic to kidney markets in general, but relative to more advanced economies the negative long-term health effects seems to be a particular Iranian phenomenon.

Kidney markets can make a significant difference in removing shortages, but it comes at a cost. How do we weigh these moral costs to society? First, we must assess exactly what these moral difficulties are. There are two types of moral problems: first, categorical moral problems with the very act of selling an organ as dehumanizing, and second, unfair or distasteful outcomes that result from allowing organs to be sold. Often these two are confused and it would be best to separate them at the outset.

Many individuals opposed to the sale of organs believe the act reduces human dignity [23]. The argument runs that by selling the organs that constitute our bodies we are engaging in commodification of our bodies [24]. Opponents of this view counter that we are currently operating markets in human reproductive material, apparently without major negative consequences and that people trade parts of themselves when they work for a wage [18, 25]. Still, if one considers the human body sacrosanct and therefore unsellable, a market in organs is likely morally untenable.

Others believe that while selling a kidney is not immoral per se, the consequences of a market would be unfair and exploitative. We have already seen that the poor donate disproportionately in Iran. This is not immediately clear, however, as a free market might lean towards healthy, less impoverished individuals, as has happened in the case of the Army, which, despite expectations to the contrary, has received higher quality recruits as a volunteer force than it did under the draft, and actually gets a higher proportion of its soldiers from the highest-earning quintiles than the lowest [2, 26, 27].

Moreover, other markets engage in offering less pleasant jobs to poorer individuals because they have fewer opportunities – this is overall a good thing for the poor, because they lack many alternatives. Likewise, the huge cash boost after selling a kidney could allow a poorer individual to buy a new home, invest in a college education, or help a relative pay for necessary surgery, among many praiseworthy reasons to accept the tradeoff [24]. Becker and Elias offer the analogy of dangerous occupations, such as logging and fishing: we allow individuals to accept compensation for risky activities because the social welfare is, on balance, benefited. The wages in these occupations are commensurately higher than similarly skilled, but less dangerous occupations; in this case, certain risks are being accepted in return for payment. It appears that while there are fairness objections, many could be overcome by education, a required cooling-off period before donation, and by requiring a single buyer [2, 6].

Before us is a very real tragedy, one that confronts us with powerful moral difficulties. To bridge the current kidney shortage we can turn to working within the system, whether by switching to presumed consent, crafting sophisticated swaps, or by giving donors priority to organs. While these all may be productive, it seems that they are ultimately not enough to eliminate waiting lists, which leaves us with the contentious possibility of a financial market in kidneys. Economic analysis suggests that this would be very effective at eliminating shortages, potentially saving thousands of lives, possibly to the benefit of the sellers. Ultimately, however, science cannot inform us as to the morality of this decision. We can arbitrate the facts by analysis; the moral truth lies in the vast realm of human subjectivity. ■

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