

Organ Donation System: Revision in Three Phases and Counterarguments to Concerns Presented by Proponents of the Current Altruistic System

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ABSTRACT. In 1984, organ donation was formally organized in the United States under the National Transplant Act. The legislation established many necessary institutions, but did not address the issue of rising demand and stagnant supply. Altruists believe education is the answer, but this approach has sentenced thousands to death. Commercialization of organ procurement is a viable solution. Commercializing the procurement sector will increase efficiency, alleviate shortages, and save lives. The policy and legal implications are complex but a basic outline for a commercialized system is derived from researchers' suggestions, economics, and lessons from the commercialized sperm donation system. Objections to commercialization are discussed, but these objections are not as important as saving lives.

I. Introduction

A.S. Reddy, a 45-year-old corporate secretary in Hyderabad, India had both his kidneys fail three years ago. While none of his siblings was an appropriate donor, he was fortunate enough to be able to afford private dialysis. After three months of dialysis, Reddy was successfully transplanted with a kidney from a twenty-five year old factory worker named Mrs. Velangani Vitalravi. But this donation was not free of charge. Mrs. Vitalravi used the money she received to buy a piece of land outside her hometown where she plans to build a house one day. Meanwhile, her husband sold one of his kidneys and was able to pay off debts and cover his sister's dowry and wedding expenses. [Bailey, 1990, 2]

While selling organs is not unusual for the poor in India, these illegal activities would not be condoned or ignored in the United States. Yet, illegal organ sales are where the U.S. is heading. Approximately 79,000 individuals are in need of organs, while cadaveric donations remain fixed around 5,000 per year. Medical advances are expected to increase the number in need but little has been done to raise the number of donations. Education for increased awareness has not been sufficient to increase

supply. Other alternatives need to be considered. While Congress is toying with tax credits and Pennsylvania is experimenting with a funeral benefit, academics are examining a commercialized system. A commercialized system would reduce current shortages and address the ethical issues that have been broached. Such a system's efficacy has been supported by research, survey, and successful examples of other commercialized tissue systems. A commercialized system is necessary to reduce black market activity and save thousands of lives each year.

Robert Pence provides a brief history of organ donation's evolution. He identifies three important events that have influenced America's sentiment towards organ sales. The first is the commercialization of blood donation by Frances H. Bass. Mr. Bass had been a used car salesman who desired a more profitable career. In 1955 Bass opened the first paid blood bank and America was faced with the ethical issue of selling tissue [Pence, 2000, 36]. Bass faced opposition from communities and hospitals but this opposition was found to be in violation of free interstate trade by the Federal Trade Commission so Bass's enterprise prevailed. Commercial blood banks are now a necessary part of the medical system. The negative aura associated with this non-altruistic switch in careers, accompanied by the high publicity of the FTC ruling, left a distaste for further commercialization of the human body [Pence, 2000, 36].

The second event occurred in 1971 when Kenneth Titmuss, an Englishman, released a book criticizing the extent to which money influenced the United States's medical system. This publication was quite influential and led many Americans to believe that their medical system was becoming corrupt, if it was not already. Despite Titmuss's conclusions later being proved false, his opinion about America's medical system left an indelible impression on society [Pence, 2000, 37].

The third event to occur seemed to justify Titmuss's observations. In 1983 H. Barry Jacobs, a Virginian, decided to establish the International Kidney Exchange, Ltd. Jacobs planned to obtain kidneys from the poor in Third World countries, and then sell them to Americans who could afford his inflated prices [Pence, 2000, 36 and Holloway, 1996, 145]. His plan, despite being legal in Virginia, was disturbing enough to warrant Congressional action. A subcommittee headed by Albert Gore Jr. recommended "criminalizing" the sale of organs and Congress passed the National Organ Transplant Act of 1984 [Pence, 2000, 36]. This act included regulations concerning organ transplants and decreed a

punishment of five years in prison or \$50,000 in fines if convicted of selling human organs [NOTA, 1984, Title III, Sec 301b].

The dislike of organ sales is not limited to the United States. Since the passage of the National Transplant Act of 1984, the World Medical Association has "condemned the purchase and sale of human organs" [Pence, 2000, 38; Rothman et al., 1997, Sec II, par 1]. Likewise, the World Health Organization has stated that it believes the sale of human organs to be in violation of the Universal Declaration of Rights, though they have failed to provide evidence for their rationale [Rothman et al, 1997, Sec II, par 1]. Despite international agreement on the illegality of organ sales, they are becoming an increasingly popular phenomenon in the Third-World. India, for example, has many in dire need of kidney transplants. Despite religious beliefs that oppose violation of the human body, the sale of kidneys occurs on a regular basis. There are only 650 dialysis machines in India, which has 80,000 individuals diagnosed with end stage renal failure. For many, the only chance for life is to purchase a kidney [Pence, 2000, 35]. Approximately two thousand individuals each year sell a kidney. The donor receives around \$1000 and the broker receives six to ten times that amount [Pence, 2000, 35]. While \$1000 may not appear to Americans to be sufficient compensation for the risks, it must be realized that the income per capita in India is \$380 [World Bank, 1999].

The demand for all organs is increasing rapidly while cadaveric donation under the current altruistic, or voluntary, system remains stable. To illustrate, from 1995 to 1999, the number of individuals on the waiting list increased by 46.3%, while cadaveric donation increased by only 8.3%. Living donors narrow this gap, but not enough. The chart below illustrates the number and type of donors for the past six years.

While these numbers are discouraging, scholars and researchers in a variety of fields are aware of the growing problem, and change has started to occur. Increasing awareness and pressure has even pushed Congress to look at the alternatives being presented.

Cadaveric and Living Donors Recovered in the U.S.
1988 - December, 2000

Year Donor Recovered	Donor Type		Total
	Cadaveric Donor	Living Donor	
	Number of Donors	Number of Donors	Number of Donors
1995	5359	3458	8817
1996	5416	3756	9172
1997	5477	4021	9498
1998	5799	4496	10295
1999	5822	4748	10570
2000	5984	5600	11584
Total	64465	42953	108418

Based on OPTN data as of July 6, 2001. Data subject to change based on future data submission or correction.

II. Legislative History

The National Organ Transplant Act of 1984 (NOTA) was the first federal legislation to address organ sales. The NOTA established a task force whose purpose was to examine issues affecting organ donation, assess the situation, and advise Congress on what, if anything, should be done [NOTA 1984]. Their recommendations included limiting the use of live donors, more equitable distribution, safeguarding the poor and disadvantaged, establishing more extensive guidelines, and prohibiting any financial reward system [Banks, 1995, 14]. The NOTA also provided a general set of guidelines for the industry and created the Organ Procurement and Transplantation Network (OPTN). This organization has control of many administrative tasks and serves as a resource for Congress and the public [NOTA, 1984].

In the past few years Congress appears to be taking a more progressive stance in its legislation pertaining to organ donation. The Gift of Life Tax Credit Act of 2001 is one step to encourage donation. This

legislation would create a \$10,000 tax credit towards the donor's estate. The Public Health and Welfare Law established a second task force on January 16, 2002 to re-examine the organ donation situation.

On the international level, the Bellagio Task Force Report on Transplantation, Bodily Integrity, and the International Traffic in Organs examined the conditions, justifications, explanations, and rationale of various sides of the organ sale debate. They found that there were "no inarguable ethical principles that would justify a ban on the sale of organs under all circumstances" [Rothman et al, 1997, 4]. The task force felt that prohibition would cost lives and inhibit individual autonomy, although they did recommend a continued ban on solid organ sales by living, unrelated donors. Other reward programs should be experimented with in the future. Another recommendation was the creation of a "permanent monitoring body" called the "International Human Donor Surveillance Committee" [Rothman et al, 1997, 7]. This body would serve a number of functions and help establish international regulations to regulate trade in organs.

III. Alternatives

Some researchers advocate options not yet available such as animals as donors and extending the classification of donors to include non-heart-beating patients. This paper, however, focuses only on what is currently feasible.

A. ALTERNATIVE ONE: MAINTAIN THE CURRENT ALTRUISTIC SYSTEM

Donations would continue to be voluntary. The emphasis would be on educating the public to increase donations. While not subject to undue moral, religious, or ethical controversy, this alternative has not succeeded in meeting the rising demand. Pricing is not an issue because donations do not receive any financial reimbursement. Organs obtained are distributed according to the UNOS formula and are based on need and location. The government currently regulates non-profit firms in the procurement sector and provides grants for education and expansion.

Three slight departures from the altruistic system have been suggested. The first is to keep the current altruistic system but provide a death benefit to the donor's family [Peters, 1998, 199; Bailey, 1990, 2].

This benefit, financial in nature, would go directly to the firm in charge of funeral arrangements, ensuring that the family would receive no direct payment from the death of their relation. Pennsylvania has recently implemented a program of this type offering a benefit of \$300, but it is too soon to effectively judge the result [Pence, 2000, 35]. The problem with this departure remains the same as the original; it is not expected to attract enough donors to meet increasing demand. Some attribute this to the small amount of the death benefit.

Another variant is to donate the benefit to a charity on the family's behalf [Banks, 1996, 19]. Few researchers feel this idea would have a positive impact on supply. The final idea is to make the donation a tax credit to the estate. Congress is considering this proposal in the "Gift of Life Tax Credit Act of 2001." This bill was referred to Committee on May 16, 2001 but has seen no further action [H.R. 1872, 2001].

There have been other suggestions for improving the current system that have yet to work, theoretically or in practice. Broadening the scope of cadaveric bodies eligible for donation is one suggestion. Pence states that this broadening would allow donations from young people in vegetative states, non-heart-beating patients, and anencephalic babies. However, the questionable nature of these "deaths" would only increase public distrust of the medical system [Pence, 2000, 43]. A second alternative is to rely on technology for breakthroughs in artificial organs. Thus far, artificial skin and ears are common and work well, but other breakthroughs in artificial tissues are not expected in the near future [Pence, 2000, 43].

Another suggestion for increasing supply is to avoid the problem of the family refusing to donate after notification of the death. This includes "required request" and "mandated choice" that have already been implemented in many states [Pence, 2000, 43]. Medical personnel are required to ask the respective family (required request) when an individual has been identified as a potential donor. Mandated choice is the required "Y" or "N" on drivers' licenses to indicate whether one wishes to donate upon death. Neither of these suggestions avoids the family because, under law, they are the ultimate decision-makers for the disposition of the body even if that decision goes against the deceased's wishes. Also, under the auspices of "getting around family refusal" is a European concept called presumed consent. Banks refers to it as "mandatory prescription or organ draft." Under this option a person is a donor unless he has given written notice to the government stating otherwise [Banks, 1995, 14; Pence, 2000,

43]. This concept challenges the personal rights and autonomy of individuals. In addition, it has failed to alleviate shortages in Europe.

B. ALTERNATIVE TWO: A MARKET SYSTEM FOR ORGAN DONATION

Some feel that a market system would challenge the ethical base of society. People with this attitude fail to understand that this alternative has the potential to save thousands of lives each year. Barnett, Blair, and Kaserman believed it necessary to describe what a market system would not be in order to dispel false assumptions. They believed that a living donor market would be unnecessary as estimates indicate that there are enough cadavers to satisfy demand each year. The problem is getting the family to donate the organs. The market would not function as an auction where those in need would bid and the highest price would win out. Price would initially be set according to research findings or by the government even though this would not likely be a market-clearing price. This practice would not be continued any longer than necessary because a market-clearing price is needed to alleviate shortages. As with any theoretical market system, there would be no shortage at equilibrium so there would be no need to auction organs. Finally, the public would not see organ brokers on street corners. Procurement firms would instead fill orders as organs became available [Barnett et al, 1998, 210].

A pure market system is felt by many to be unrealistic. The stigma attached to the sale of organs makes it difficult for society to accept. Misunderstandings of how markets function also contribute to the fear and condemnation that would exist with implementation. More realistic is a regulated market system with the government requiring licensing, quality controls, and other regulations.

A market system is expected to alleviate shortages by providing financial incentives for people to donate. Market advocates suggest spot markets, futures markets, or both. A spot market would leave the decision to sell the organs to the deceased's family at the time of death. With a futures market, a potential donor would be able to sell the right to harvest his organs upon his death by contracting with a procurement firm. The contracts would include various verifications of the organs' continued viability.

Markets provide motivation for firms to create strategies that "more effectively encourage donation" [Caplan, 1998, 211]. This may include

training in diplomacy for employees and creating compensation packages that maximize the benefit to families in exchange for the organ. To prevent firms from competing at the bedside of dying patients, Barnett, Blair and Kaserman suggest an auctioning of hospital rights. This would entail auctioning the right to procure organs from a specific hospital's premises for a limited amount of time [Barnett et al, 1998, 211]. This option would only be available to firms licensed by the government.

Barnett, Blair, and Kaserman state that most market advocates want to separate procurement and distribution. Distribution of the organs would be according to the surgeon's application of the United Network of Organ Sharing formula, and payment would be left to third parties (insurance companies, government, Health Care Financing Administration). The anticipated result of this dual system is a smaller number on the waiting list and a decrease in the time a patient could expect to wait for an organ. Once placed on the list, the median time to wait for a kidney is currently 35.3 months [SRTR, 2001].

IV. Ethical and Logical Arguments Connected to a Market System

The first and foremost argument for a market system, or rewarded donation system, is that it saves lives. Medicine has the "capacity, facilities, and personnel to save them (lives) but the taboo against rewarded donation prevents it from doing so" [Pence, 2000, 39]. A market system would provide the needed supply and many indirect benefits. To list a few:

1. Families receive added utility from the continued life of the transplant recipient.
2. Patients who receive transplants could continue working, paying society back for any cost imposed.
3. Financial rewards could help surviving members pay for subsequent expenses, like the education of surviving children.
4. The quality of life for the recipients of transplants would increase, dialysis would no longer be necessary, and in the long run transplants are cheaper. [Pence, 2000, 40]

Barnett, Blair, and Kaserman, as well as Banks, suggest that a market system could decrease the total cost of medical care to those in need of transplants. This is because transplants are less expensive than years of dialysis and other life-long treatments, which are the only other options available to those in need of an organ.

Pence, as well as Holloway, Barnett, Blair, and Kaserman, address many market opponents' concerns about the implementation of a market system, regulated or pure. One concern is the possible coercion of the poor to donate organs in order to improve their situation. Altruists assume that the poor are unable to make beneficial choices, and therefore suggest the government choose for them. While coercion of the poor is a real concern, a market system is not the source of this coercion. Society and the individual's own situation provide the "coercion," not the market. A market system is a voluntary exchange that offers a choice. It does not force decisions or threaten participants [Barnett et al, 1998, 212]. A related concern is that the Third-World poor may be exploited. Exploitation, as defined by the left side of the political spectrum, currently occurs so it can only be hoped that through regulation and the legalization of organ markets further harm can be avoided [Pence, 2000, 54].

An additional concern is transplant accessibility for the poor, which is generated by the belief that in a market system only the wealthy can afford organs. As the current system provides few organ transplants for free it would be hypocritical to assume that money does not already have an influence on the system [Pence, 2000, 46]. The current cost of a liver transplant is \$250,000, which suggests that without government aid a transplant is not an option for most individuals [Barnett et al, 1998, 213]. Adding the market price of the organ would not substantially increase the total bill. Maintaining a non-market based distribution system would ensure that the recipient is chosen by his need, not his income. So accessibility need not be more of a concern than it is today.

Some who are against financial incentives believe that they are inherently wrong, stating that it goes against God's will. The Catholic Church is one group that has spoken out publicly against organ donation and others agree. Other market adversaries argue that the sale of body parts (i.e. organs) will lead society to objectify the human body. There tends to be a lack of dignity or respect for the body being donated [Caplan et al, 1998, 220]. However, if this rationale is followed, the objectification of the human body has already occurred with the

commercialization of blood donation, sperm, female reproductive eggs, hair, and cadavers for research.

The issue of premature termination is most often associated with coma patients. Some feel that some families may “pull the plug” in order to receive payment earlier. Protections are already in place to prevent this behavior. The attending physician, who makes the determination of brain death, has no incentive to terminate the patient prematurely, as he receives no benefit from it. Only after the organs have been procured would the family be able to receive payment. Also, the payment for the organ is minimal in comparison with the cost of treatment for a person in a vegetative state. That cost may actually be a more likely reason for termination than a financial reward upon that person’s death [Barnett et al, 1998, 214].

There has also been some concern that organ quality would be reduced because financial incentives might encourage the least savory to donate. Lifestyle choices such as drinking and smoking or diseases could be detected by physicians with minimal effort, and if found they would disqualify a candidate. Others worry that financial incentives may provide the wrong motive for people to donate, with the right motive defined as altruism. Millions of dollars have been spent on education trying to promote altruism with few results. Sociobiologists, like E.O. Wilson, suggest that humans are equipped with a limited supply of altruism that is mainly reserved for close family, friends, and people in their community [Pence, 2000, 49]. Time, effort, pain, and the trouble associated with donation also limit the extent of altruism shown to others. So while altruism may be “right,” there are several obstacles limiting its ability to alleviate shortages in the system.

Another facet of this concern is that money would provide incentive for the family to lie about their loved one’s habits. Some of this concern originates from blood contamination from hepatitis and AIDS in the eighties, but this is not a good comparison. The lack of quality control in the blood donation system stemmed from the lack of liability the blood system had. There was little incentive to provide quality control [Barnett et al, 1998, 215; Banks, 1995, 3]. It is expected that liability laws will be strongly enforced for an organ donation market. Also, there will be a greater supply generated by a market system enabling surgeons to choose the better quality organs to use, with quality reflected in the price charged [Barnett et al, 1998, 215].

V. Analysis and Conclusions

To create a pure market system seems foolhardy but to remain with the current altruistic system would ignore a rising and serious problem. A more moderate system is necessary.

If estimates are correct that there are enough viable cadavers available each year to satisfy demand, then a live donor market is not necessary in an early stage. Instead, reform should begin with the creation of a cadaver donor market. This will quell a number of concerns and arguments that arise with a live donor market. However, Fox and Swazey state the “progress made in many states during the 1980s in lowering automobile and motor cycle accident rates through the passage of new seat belt, motorcycle helmet, maximum speed, and drunk driving safety laws” is a possible concern [Holloway, 1996, 150]. Increased safety precautions will limit cadavers eligible for donation and the future may require living donors to continue meeting demand.

VI. Mixed Reorganization

Given the severity of the shortage, a viable long-term solution is needed. A mixed, regulated market system should be implemented, with restructuring occurring in three phases. The gradual introduction of a market for organs would allow time to assess needs for further expansion and allow the social and moral adjustments required for further change. The first phase would consist of creating a spot market for cadaveric donors. This step would introduce financial incentives into the system while avoiding some of the more serious questions that are associated with other aspects of organ sales. If further augmentation were necessary, phase two, a futures market for cadaveric organs, and phase three, a live donor market in kidneys and bone marrow, could be introduced.

A. PHASE ONE

A market system, not known for equity in distribution, should retain its need-based allocation. Distribution of the organs procured would be left to the discretion of the surgeon or hospital according to the United Network of Organ Sharing (UNOS) formula. Once the market reaches the point at which supply and demand are in equilibrium, distribution will no longer be an issue as there will be a sufficient number of organs for those

in need. Distribution will be reduced to placing an order with a procurement firm and waiting for it to arrive.

As suggested by Barnett, Blair, and Kaserman, spot markets and futures markets for organs would allow for a greater number to be procured by the firms. A spot market would allow families of patients to contract with a procurement firm for the sale of their relative's organs at the time brain death is declared. There would be no contact between the procurement firm and the family until after a licensed physician or hospital representative has notified both of that death is imminent. This would protect the family and help avoid organ sales based on speculation as to time of death. There would be no income limitations on who could donate their loved one's organs. The view that the poor should be prevented from donating is patronizing and is an infringement on the rights of those with lower incomes.

The procurement arena is the area that will see the greatest amount of change. Procurement firms will be responsible for obtaining organs. Unlike the medical staff, procurement firms have an incentive to ask for the organ. Even if not mandated, training in sensitivity and diplomacy will be necessary to obtain the number of organs needed to earn a profit. Procurement firms would find it in their best interest to create liaisons with the hospitals where they have the right to procure. This approach would allow for a quick response when a possible donor has been identified as time is of the essence in this industry. It would also give the hospital and its employees consistency with whom they interact.

These procurement firms will be subject to government regulation and inspection. In current renewable tissue markets, the government has outlined specific guidelines as to how the business is to be run. A comparable type of regulation would be used to regulate organ donation. The regulation and assistance provided by the government to non-profit procurement firms would provide an organizational framework for prospective for-profit firms [NOTA, 1984]. Regulation would also reassure individuals and the medical community about the quality of the organs procured. There would be no under-the-table dealings and those firms suspected of such behavior would be penalized.

The government has the obligation to protect those who cannot protect themselves. Concern about the mentally handicapped, children, and those in vegetative states has been expressed. In all of the proposed plans these groups would be protected. Until licensed physicians declare brain death, there would be no legal avenue available in which these individuals'

organs can be sold. Physicians would be penalized, as they are now, if they act unethically in the treatment of a patient. Families could also be penalized if they insist on unethical treatment.

1. Pricing

Prices would be set as the market determined, but there has to be an incentive to entice firms to enter. There would be two markets in which the procurement firm would act. The first would be the buyers' market or the market in which they actually procure the organs from the families. The demand for the organs by the procurement firms would be somewhat inelastic due to the procurers' need to fill orders. Supply would also tend to be inelastic despite the family not having to endure any physical pain in the sale. The emotional pain and suffering associated with the decision to donate would make supply fairly price insensitive.

In the second market the procurement firms become the sellers and hospitals are the buyers. Shown below is the second market. Demand, based on the hospitals' need, will be almost completely inelastic because the cost of the organ is going to be passed on to a third party. Besides handling, publicity, and other overhead expenses the price of the organ is not going to affect the hospital's decision to a great extent; medical need determines demand. Also, those on the list have already cleared funding for the procedure so the cost of the organ itself will have little influence, as payment has already been secured.

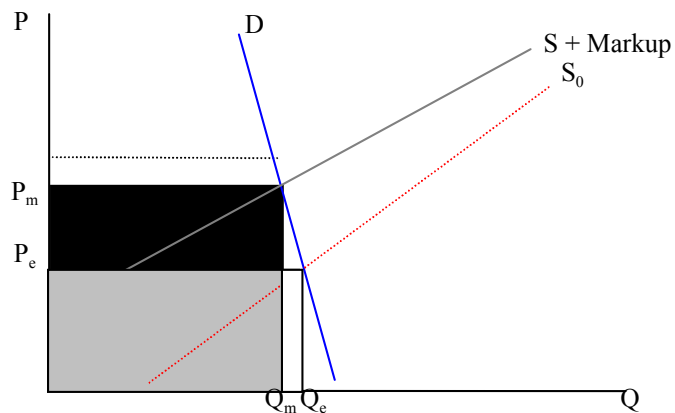


FIGURE ONE: Determining Price in the Sellers Market

Supply would be more elastic than demand because procurers will have the option of selling to any number of different hospitals within their area. Price must be high enough to offset the cost of the organ or there is no incentive for the procurement firm to offer its product. The dotted line represents the supply curve before markup. It is expected that firms in the procurement industry will place a mark-up on their product, with a higher mark-up on lower priced organs that will decrease as price and quantity increase. The solid line represents the supply curve with the mark-up.

2. Choices

Donating families who would not like to personally receive a reward can allocate it elsewhere. Options may include donating the money to a charity, placing the funds into a trust for surviving dependents, or using the value of the benefit as a tax credit to the estate. A firm that offers more services to families will appeal to hospitals when they sell the right to procure and to families when they are approached with this decision.

Voluntary, altruistic donation would not be abolished. Those who wish to take this route would be, in effect, donating the organs to charity. Procurement firms would not profit from these “free” organs. Instead, the physician would contact the UNOS to determine the recipient. A person in need would be given a new chance at life without an additional charge.

3. Expansion

While technology is increasing the medical community's ability to transplant, it will also be decreasing the supply of cadavers for donation. Seat belts, air bags, helmet laws and a variety of other safety precautions are decreasing the severity of accidents, the main cause of brain death [Fox & Swazey in Holloway, 1996, 150]. Eventually the system will run into shortages again. Alleviating these shortages is the purpose of phases two and three.

B. PHASE TWO

Phase two would consist of expanding the cadaveric spot market to include a futures market. This would allow procurers to enhance their ability to supply future demand by contracting with the living for the right to harvest their organs upon death. While simple when stated in that manner, this would be a complex addition to the spot market. In a futures market there are many more avenues for corruption to occur.

Organs are not like other future-traded commodities. As the years pass, organs are more susceptible to deterioration and damage than most other goods. Behavior, age, and life style would affect the eligibility and price offered to potential donors. The question of whether payment should be made at the time the individual signs the contract or upon actual harvesting would arise. If payment were to be given at the time of signing, procurers may lose as clients age and the value of their organs declines. But if payment is postponed until after the client's death, then the incentive to sign away those rights while living is decreased. Further research would need to be completed on what effect postponed payment would have on the incentive to agree to donate after death.

Contracts would likely contain requirements for annual physicals and behavior restraints in order to ensure that the organs are being maintained. Buyout clauses would allow families or the individual to change his mind while providing compensation for the procurers who have been inconvenienced by the change.

While market expansion would be occurring, the pricing, choices offered to families, and procurement responsibilities mentioned in phase one would remain virtually the same. Oversight would expand to account for the contractual obligations, extensive conditions, and to ensure fair practices for consumers and firms.

C. PHASE THREE

Phase three is the last and final phase proposed. This phase would expand the organ market to include a spot market in the sale of organs by the living. Due to the legal restriction that donation cannot trade a life for a life, this market would only include the sale of kidneys and bone marrow, the two organs that can be donated and still comply with this restriction. The sale of organs by the living is much more controversial and challenging than either of the previous two phases. The concerns addressed previously become more evident and compelling, which is why this would be a last resort to alleviate shortages.

Those who wished to sell a kidney or bone marrow would contact a procurement firm, much like those who wish to donate sperm at a sperm bank. Tests would be run on the viability of the organs, blood type, and medical history to ensure that healthy organs are being harvested and that the donor is not being placed at risk unnecessarily. Once these tests were completed, the results would be entered into a database and procurers would be notified as to which hospital had a match to this donor. The location, difficulty, and time required would figure into the price that would be quoted to the hospital and the potential donor.

Living donors could do whatever they wished with the money. Pricing would be market driven as in the prior phases. Oversight, again, would see the greatest amount of change. Protection, in the form of informed consent, would be necessary to ensure that consumers wishing to sell understood the risks involved. Other measures would also have to be implemented to ensure quality and prohibit misconduct. The specifics would best be addressed at the time of implementation with the experience and knowledge gained from the previous two phases.

VII. How does this plan address the arguments?

The ethics of any alternative considering financial incentive for donation will be questioned until it has proven effective. But is the decision to let people die just because their cure requires a financial consideration ethical? After all, medicine costs money, so should that prevent the use of medicine? Some religious people would say that it is God's will. Others would suggest that there are other means to increase donations. The reality is that most would not be as absolute in their stance if the individual in need was a member of their family. Saving lives should be the overriding concern. However, no definitive answer is likely to ever be found and challenges will exist because ethics cannot objectively be defined.

One argument previously suggested is that with commercialization, there would be a movement toward black market activity. This argument is ridiculous because black markets typically develop when something is illegal but in demand, such as illegal drugs. A black market is more likely to develop with the current system in place because the shortage causes a need that begs to be satisfied. China currently is known to execute prisoners and send their organs around the world for a price [Scheper Hughes, 1998, 6]. Even now, Dr. James Light, a doctor at one of the

largest transplant centers in the United States estimates that 15% to 20% of living related donor transplants receive some economic benefit [Bailey, 1990, 3]. The implementation of a legal market system would alleviate the need for a black market to exist.

Some arguments suggest that the cost of the organ would be prohibitive. This would not be the case. Currently the costs of a transplant are prohibitive to a large majority of individuals but they still are eligible candidates either due to good health insurance or to the government's intervention as a payer of last resort. A recent example is a California prisoner, convicted of robbery for a second time, who received a new heart for one million dollars at taxpayer expense while serving a 14-year sentence [Sterngold, 2002, A18]. Plus, both Medicare and Medicaid cover the cost of transplants. The additional cost of the organ would be minimal compared to the amount that is already being covered. Adams, Barnett, and Kaserman's survey suggests a cost of \$1000 per organ. Given that the average cost of a liver transplant is \$250,000, that \$1000 represents an increase of 0.4% in the total cost [Adams et al., 1999, 154]. For those with rare tissue or blood types where the cost of the organ would be higher, it still would not represent a large proportion of the total cost.

A final adverse effect suggested by market antagonists is the possible decrease in supply due to the offensiveness of a monetary incentive [Caplan et al., 1998, 22]. The argument is ridiculous because people could still donate organs if they did not wish to receive a reward. Adams, Barnett, and Kaserman do not eliminate the slight possibility of reduced supply, but the "new" donors, those encouraged by the incentive, have the potential to far outnumber those who may defect from the group currently donating.

VIII. Implementation

Before changes to legislation are discussed, the legal issues must be addressed. According to Banks, there are two legal questions which must be answered before the sale of organs can be considered. The first of these is the question of whether "a property interest exists in dead bodies, and if so, to what extent does such interests extend to the deceased, the family, or the guardian" [Banks, 1995, 9]? This question affects the current voluntary donation system by asking whether the family or the donor has the right to decide what is to be done with the deceased upon

his death. State law currently regulates organ donation. Beyond a right to burial, which includes the donation of organs, most courts have found that no other property rights exist for the family [Banks, 1995, 12].

The second legal question is the most important. This question asks for the “determination of the status of the human body, as property or life” [Banks, 1995, 12]. While this question has yet to be answered in association with organs, many market proponents argue that the sale would not violate any laws, which prohibit the sale of human life. The court cases of *Davis v. Davis* and *Hecht v. Superior Court of California* involved the distribution of reproductive tissue. In both instances the reproductive tissue was treated as a special type of property that may represent potential life but did not represent human life. So the court was able to determine who had authority over the tissue distribution [Banks, 1995, 5]. Based on these decisions, Banks indicates that treating tissue as special property will be a starting point for the legalization of human organ sales. The cases, in an indirect manner, decided when “fully protected human life begins,” and so cleared some obstacles for the commercialization of organs [Banks, 1995, 5]. Once these legal questions have been answered, the current law would need to be revised before a market could be created.

A. INSTITUTIONS

At first review creating a market that will serve as the new supply engine is beyond the scope of state governments. To ensure quality and consistency, a federal program to oversee and enforce standards is necessary. Unlike sperm donation, which is regulated primarily at the state level, the retrieval and sale of organs requires more risk medically and has the potential to be more complex. Because of this, state-level guidance would not be comprehensive enough to protect consumers. In addition, discrepancies in state guidelines would lead to interstate conflict and lawsuits.

Congress should take advantage of the lessons of past choices. In creating task forces to study this issue, they made sure to choose a representative sample of the public. Prior task forces consisted of individuals who were experts in a variety of fields, as well as the general public and special interests. If it is possible, this representation should be continued.

One last point on implementation is the possible use of incentives. In the document that started this debate, the NOTA, the legislation included grants that were to be allocated each fiscal year for education and to help non-profit procurement firms to become established or expand. Congress may wish to continue these services. Incentives to draw firms into the market will help their establishment and encourage cooperation with the prescribed guidelines. Once functioning, the market would no longer need the incentives and the new firms would provide tax revenue for the government. The benefits for a plan of this sort would require further research to ensure that the costs do not outweigh whatever benefit will be obtained.

B. LESSONS LEARNED FROM OTHER SYSTEMS

The knowledge gained from other tissue markets should also be integrated into the development of the new organ donation system. Early in their life commercial and non-profit blood banks were exempt from liability for their product under the Uniform Commercial Code due to the courts' determination that the sale of blood is a service [Banks, 1995, 3]. Sperm banks have never enjoyed this honeymoon period. They are liable for their product, which has provided incentive for the creation of stringent qualifications and testing procedures in order to ensure quality and safety. Stringent national licensing programs, like those provided by the New York State Department of Health and the American Association of Tissue Banks, have provided protection for consumers and goals for firms to strive for in their business practices [Sperm Bank Directory, 2002].

It is expected that organ donors, like viable sperm donors, will not be not numerous. The strict medical and family history guidelines disqualify a large percentage, approximately 90%, of individuals looking to donate sperm [Sperm Bank Directory, 2002]. One firm located in Atlanta, Georgia and another in California, in an effort to find more donors, placed ads in their local newspapers advertising part-time employment [Welch, 1989, 1]. While receiving a good response, the active solicitation of donors in this indirect manner tends to lend suspicion to the entire industry and could not be allowed in the procurement of organs.

The sperm bank industry is growing and expanding not only in the number of firms involved but in the range of services offered to customers. They have answered consumers demand for fertility services and have been profitable in this endeavor. While sperm banks are not

without problems or ethical questions, the industry exemplifies the success that can be achieved in the sale of human tissue. Commercial blood banks and sperm banks are the pioneers of a market-oriented industry in human tissue and have opened the way for commercializing organ donation.

The environment that sperm banks and commercial blood banks have created is now more open to new alternatives than ever before. Society has seen ethical challenges and integrated these changes into their lives. A procurement market for organ donation can be one of these changes.

The extreme shortages of organs will continue to increase as technology advances. When surrogacy and adoption came up short in providing a child to those who wished to have one, sperm banks, a market-oriented regulated system, stepped in to meet demand. It is the right time to take the next step, to introduce a market-oriented organ donating system as a viable alternative for saving lives.

IX. Conclusion

There are ethical dilemmas associated with the commercialization of the human body. There are legal and institutional controversies and change has social repercussions. It must be remembered, however, that thousands of people die each year due to the inadequacy of the current system. Projections indicate that these deaths are only going to increase due to the limits of an altruistic system. Alternatives exist, but it is not enough to just consider these alternatives; considerate and cautious action must be taken. A regulated market system provides responses to concerns, has the potential to alleviate shortages, and can be implemented through a phased system so that change is gradual. Also, this alternative does not eliminate other choices, including a return to an altruistic system. Some legal questions need to be answered before this system can be implemented but recent judicial decisions lend support for a market-based system. Once these questions are answered, judicially or by statute, the government must be ready to react and a regulated market system is the right step.

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