

Ethical Controversies in Organ Transplantation

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1. Introduction

Since the 1st successful kidney transplant in 1954 done between two identical twins [Merrill et al 1958] organ transplantation has become a life-saving procedure for many disease conditions hitherto considered incurable. Clinical organ transplantation has been recognized as one of the most gripping medical advances of the century as it provides a way of giving the gift of life to patients with terminal failure of vital organs, which requires the participation of other fellow human beings and of society by donating organs from deceased or living individuals [Ehtuish et al 2006 & Hariharan et al 2000]. The gap between the demand for organ transplantation and the supply of donor organs is growing [The economist 2008]. The waiting list of the United Network for Organ Sharing has grown from 21,975 names in 2000 to 32,722 in 2008 Fig. (1).

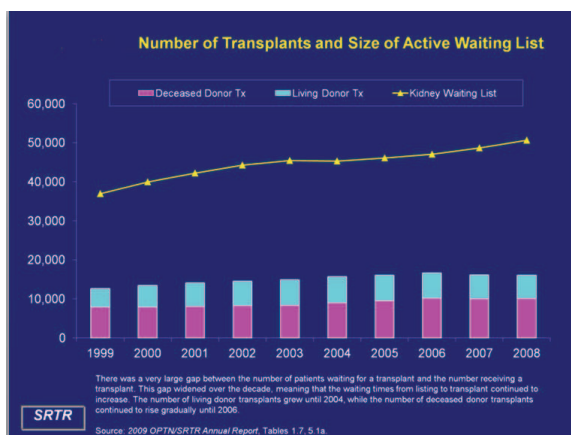


Fig. 1. The gap between the demand for organ transplantation and the supply of donor organs (UNOS) publications

The scarcity of organs has dire consequences. And an average of 19 people dies each day waiting for a transplant that never comes [United Network for Organ Sharing (UNOS) 1999]. The World Health Organization WHO global observatory showed that in 2009 about 100,900 people receive a lifesaving organ transplant, representing only less than 10% of the global needs Fig. (2). the entire issue has raised serious ethical concerns and the debate over

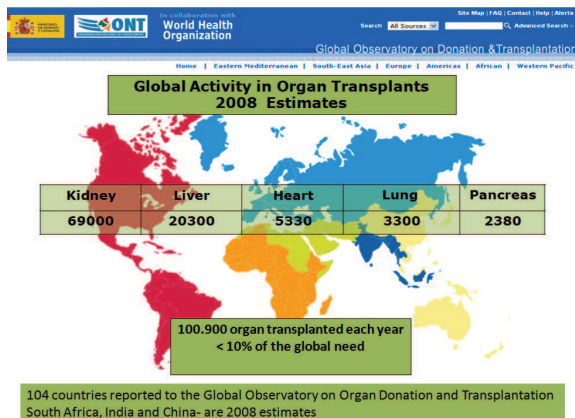


Fig. 2. Number of Transplants done worldwide WHO publication

them rages unabated. As further advances are made in such areas as cloning [Savules et al 1999], the ethical debate should grow more intense. The increasing incidence of vital organ failure and the inadequate supply of organs, especially from cadavers, have created a wide gap between organ supply and organ demand, which has resulted in very long waiting times to receive an organ as well as an increasing number of deaths while waiting. These events have raised many ethical, moral and societal issues regarding supply, the methods of organ allocation, and the use of living donors including minors. It has also led to the practice of organ sale by entrepreneurs for financial gains in some parts of the world through exploitation of the poor, for the benefit of the wealthy the ethical questions are complicated by an outgoing debate over the definitions of certain key terms such as life, death, human, and body. One example is the definition of brain death [Delmonico et al 1973]. People have been confused over the issue because of the highly public cases of people recovering from comas even after many years. The distinction between the idea of brain death and coma becomes a matter that must be clearly defined. A family that is asked to donate body organs from dead relative on the basis of brain death must be confident that there is no hope of recovering. Other ethical issues of organ donation are considered bioethical an important one is the idea of cloning. The technology that would allow the cloning of genetically matched clones for the purpose of body harvesting another issue is known as xenotransplantation which involves the harvesting of certain compatible animal organs for use in humans. A whole new plethora of ethical issues surround this idea due to fear from animals and the diseases might transmitted from them, or to protect them, even animal rights groups have joined in these debates. There is no question that body donation and organ donation will remain a hot topic for many years to come. Organ transplantation in general, and kidney transplants in particular, are fraught with ethical issues and dilemmas worldwide, about which there is ongoing debate, especially because of the shortage of organs. The ethical questions associated with transplantation are many [Abouna 2008]. Is the human body a commodity? How should decisions be made about who should receive scarce organs? Who should pay for transplants? Should someone who has received one organ transplant be given a second transplant? Or should people who have not had a transplant be given priority over those who have already had one? Should one person receive several organs or should several people each receive one? Should one person have a

second transplant when the first one fail or should a different person be given a first chance at new organ? Should people who have young children be given an organ transplant over a single person? Should young people be given an organ transplant over an elderly person? Should age and whether or not a person has children even matter? Should organs be given to people who have abused their bodies (smoking and drinking etc,) or only to people whose organs are damaged by disease? Should hands or other appendages, which are not essential to life, be transplanted? Who can “donate” the organs of people who cannot give informed consent to the process? Should money now spent on transplantation be put to other uses? Is it possible to prevent the coercion of some donors? Should suicidal individuals be given an organ transplant? What if they attempted suicide in the past but are not currently contemplating suicide? Should people who can’t afford expensive anti-rejection drugs be passed over for a transplant? Should people who don’t have Insurance and can’t pay for a transplant be allowed to go on the National waiting list? Should condemned prisoners receive organ transplants? What if they are serving a life sentence without parole? Should country lawmakers be involved in transplantation? When should courts be involved in these questions?

The questions go on and on; the answers are never simple. Knowing that there are more people who need organs than there are organs available, how would you answer these questions? Are your answers based on a belief of equal access or maximum benefit distribution?

2. What is organ transplantation?

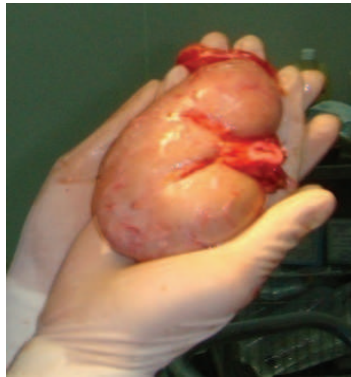
An organ transplant is a surgical operation involves removing of an organ from one person (donor) and transferring it to another (recipient), keeping the native organs like Kidneys or removing them like Livers and Hearts. The need to obtain informed consent from both persons (and their surrogate decision-makers) is compulsory. This is in keeping with the ethical principle of respect for persons and is expressed in many ethical guidelines today.

3. Important milestones in the history of organ transplantation

- 1950 – 1954 The first successful kidney transplant. A kidney is taken from one identical brother and transplanted in another, where it worked for 8 years.
- 1960 - 1962 The first successful cadaveric transplant used deceased donor kidney. The kidney worked for almost 2 years.
- 1966 First successful liver transplant. The liver worked for over one year.
- 1967 First successful heart transplant. The heart worked for 2 1/2 weeks.
- 1980 – 1981 First successful heart-lung transplant. The organs worked for 5 years.
- 1982 First artificial heart transplant.
- 1983 Cyclosporine, an immunosuppressant drug, was approved by the FDA.
- 1986 A baboon heart was transplanted into Baby Faye and worked for 20days.
- 1989 The first successful living-related liver transplant.
- 1990 – 1996 The first “split liver” transplant was performed where one cadaveric liver was split into several pieces to transplant into more than one person.
- 2000 First culture of human embryonic stem cells.

4. Types of organ donors

The sources of organs for transplantation, i.e., living donor (related and nonrelated), cadaveric donor, and brain-dead patients. In countries where transplantation is well established, organs are sourced from living and cadaveric donors using different strategies, i.e., an opt-in (explicit consent), opt-out (presumed consent), and donation after brain death, donation after controlled cardiac death, and extended criteria for deceased donors.



Gift of Life

4.1 Living organ donation

Four categories of donation by living persons can be distinguished: **Living Related Organ Donation "blood or emotional"**: directed donation to a loved one; **Altruistic Organ Donation**: non-directed donation, in which the donor gives an organ to the general pool to be transplanted into the recipient at the top of the waiting list; **Living Non-Related Organ Donation**: directed donation to a stranger, whereby donors choose to give to a specific person with whom they have no prior emotional connection; and **Cross donation** where a living donor wants to donate to his blood or emotional relative an organ but blood groups does not match, there is a complete mismatch or cross matching is positive. Two families or more can cross donate if matches exist. Each type of donation prompts distinct ethical concerns. Living Related Organ Donation is presumed to be the most ethical form of organ donation [Spittal A 1997]. One can argue that the psychological and non-specific benefits to the donor are real, particularly when a close relative is returned to normal health. There can, however, be no doubt that the physical consequences of living donation are entirely detrimental to the donor. Motives behind the 1st degree living renal donation are understandable and one may assume that the living donation between relatives carries the same altruistic motives. In related organ donation, the donor saves the life and attains the wellbeing of its immediate relative by accepting a physical injury and debilitation to itself. While many related donors fall neatly into this altruistic categorization, unfortunately, there are many examples where the related donors have attained physical, emotional or financial toll from the recipient. With directed donation to loved ones or friends, worries arise about the intense pressure that can be put on people to donate, leading those who are reluctant to do so to feel coerced. In these cases, transplantation programs are typically willing to identify a plausible medical excuse, so that the person can bow out gracefully. Equally

important, however, are situations in which people feel compelled to donate regardless of the consequences to themselves. In cases like these, simply obtaining the informed consent of the relative is insufficient; physicians are obligated to prevent people from making potentially life-threatening sacrifices unless the chance of success is proportionately large. Non directed donation raises different ethical concerns. The radical altruism that motivates a person to make a potentially life threatening sacrifice for a stranger calls for careful scrutiny [Garwood et al 2007].

Transplantation teams have an obligation to assess potential donors in all these dimensions and prohibit donations that arouse serious concern. Directed donation to stranger raises similar ethical questions with a few additional wrinkles. This type of donation usually occurs when a patient advertises for an organ publicly, on television or billboards or over the Internet. Such advertising is not illegal, but it has been strongly discouraged by the transplantation community. Two central objections are that the practice is unfair and that it threatens the view that an organ is a "gift of life," not a commodity to be bought and sold. Some argue that just as we have a right to donate to the charities of our choice, so should we be able to choose to whom to give our organs. In practice, however, this means that those who have the most compelling stories and the means to advertise their plight tend to be the ones who get the organs – rather than those most in need. This strikes some ethicists as unfair. Unlike monetary gifts, they argue, organ transplantation requires the involvement of social structures and institutions, such as transplantation teams and hospitals. Hence, the argument goes, these donations are legitimately subject to societal requirements of fairness, and transplantation centers should refuse to permit the allocation of organs on the basis of anything but morally relevant criteria [Hull et al 1997].

The most ethically problematic cases are those in which the recipient is chosen on the basis of race, religion, or ethnic group [Epstein 2007]. A person with organ damage or organ failure may look for a living donor to donate an organ, allowing the patient to bypass the national waiting pool to receive a cadaveric organ.

4.1.1 Directed versus anonymous donation

Currently there is some debate whether altruistic donation should be anonymous or the donor should choose the recipient that he wishes to donate the organ to [Epstein et al 2009]. Donation could be criticized ethically that it unfairly favors some potential recipients by allowing them to jump to the top of the waiting list; however, many transplant surgeons and ethicists believe that this is a very special kind of advantage when a good Samaritan donates one of his organs to a friend or colleague who is on the waiting list. For this not only helps the recipient, but actually also helps those who are on the waiting list who will move up the ladder and will have a better chance of having a cadaveric organ.

4.1.2 Benefits to living donation [Abouna 1998]

- The operation can be pre-arranged so, the hot and cold ischemia will be minimized which will have a good impact on the transplantation outcome.
- There are often better matches between donors and recipients with living donation, because many donors are genetically related to the recipient.
- Psychological benefits for both the donors and recipients.

Not everyone encourages the practice of living donation for all people.

4.1.3 Drawbacks of living donation [Landolt et al 2001]

- Health consequences: Pain, discomfort, infection, bleeding and potential future health complications.
- Psychological consequences: Family pressure, guilt or resentment.
- Pressure: Family members may feel pressured to donate when they have a sick family member or loved one.
- No donor advocate: While the patients have advocates, like the transplant surgeon or medical team (who are there to advise the patient and work in favor of his or her best interests) donors do not have such an advocate and can be faced with an overwhelming and complicated process with no one to turn to for guidance or advice.

A few medical and ethical professionals argue that living donation is inappropriate under any circumstances and should not only be discouraged but abandoned all together because of the risk and dangers associated with donating organs.

WHO publications

Other critics seek to discourage living donation because they think extending life through costly and physically taxing medical procedures is not the purpose of health systems. Although there are some who object to the practice of living donation, this potential source of organs is currently a major focus as a way to reduce the shortage of organs. Increasing the number of living donors could occur through a variety of strategies from education and civic duty promotion to the sale and purchase of organs Fig. (3).

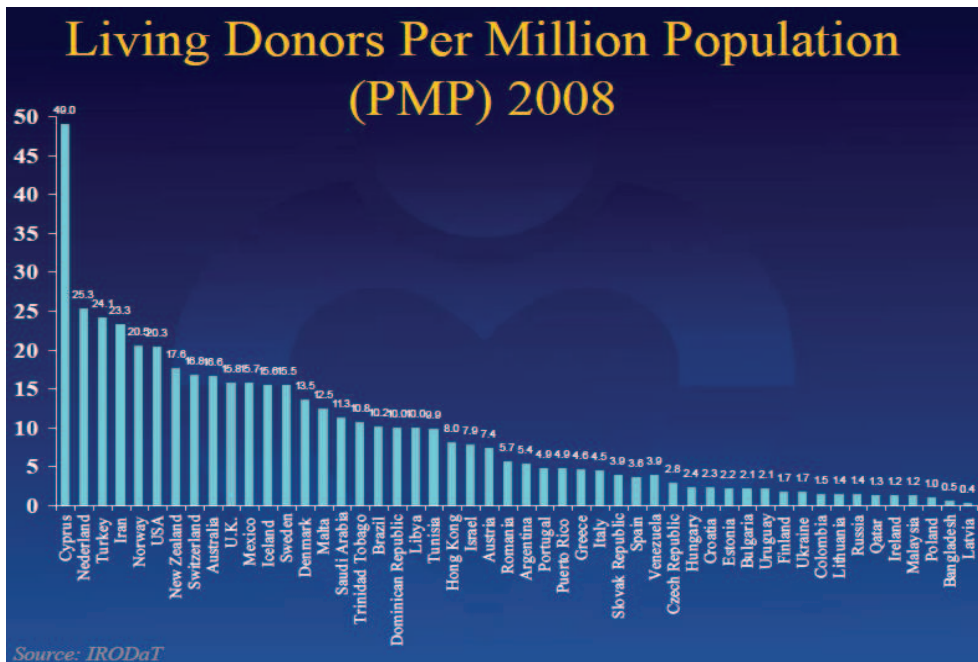


Fig. 3. International Registry of Organ Donation

4.1.4 Justification of transplantation from living donors

Living related donation, emotional related or altruistic are very justifiable on humanistic grounds and they are ethically and medically acceptable, providing that donor evaluation both medical and psychological is carried out in accordance with accepted protocols and that a fully informed consent is given by the donor. Also, the rate of donor complications after kidney donation is extremely small. The reported mortality rate after kidney donation is 1 in 10,000 [Delmonico et al 2007].

On the side of the donor, there are many psychological and spiritual benefits, and most donors express an increased sense of pride and satisfaction and the joy of giving a gift of life to a relative, a friend or to another fellow human being. Another justification is that the success rate of living donor kidney transplantation is considerably higher than that of cadavers [Hunsicker 1999]. The expected patient survival rate and graft function at 5 years in 2007 is 99 and 96%, respectively, with living donors and 96 and 91% with cadaver donors, which is much better than 1998 statistics and that is most probably due to the recent introduction of more effective immunosuppression medications Fig. (4a&b).

In living donor transplantation it must be shown that the benefits to both donor and recipient outweigh the risks associated with donation and transplantation.

Unadjusted 1-Year Graft and Patient Survival by Organ (1998 and 2007)

Graft Survival	Year of Transplant		% Change	P-Value
	1998	2007		
Kidney: deceased donor graft survival	89%	91%	3%	<0.0001
Kidney: living donor graft survival	95%	97%	2%	<0.0001
Pancreas transplant alone	78%	76%	-1%	0.8341
Pancreas after kidney	72%	82%	10%	0.0302
Kidney-pancreas: kidney	91%	93%	2%	0.1355
Kidney-pancreas: pancreas	83%	86%	4%	0.0392
Liver: deceased donor graft survival	80%	86%	6%	<0.0001
Liver: living donor graft survival	70%	87%	16%	0.0022
Intestine	50%	75%	25%	0.0004
Heart	85%	88%	3%	0.0006
Lung	75%	80%	5%	0.0115
Heart-lung	54%	90%	36%	0.0001

Patient Survival	Year of Transplant		% Change	P-Value
	1998	2007		
Kidney: deceased donor patient survival	95%	96%	1%	0.0055
Kidney: living donor patient survival	98%	99%	1%	0.0015
Pancreas transplant alone	98%	98%	0%	0.9320
Pancreas after kidney	94%	97%	3%	0.2472
Kidney-pancreas	94%	97%	3%	0.0093
Liver: deceased donor patient survival	86%	89%	3%	<0.0001
Liver: living donor patient survival	80%	91%	11%	0.0173
Intestine	67%	78%	11%	0.0995
Heart	86%	89%	3%	0.0006
Lung	77%	82%	5%	0.0016
Heart-lung	57%	90%	34%	0.0003

Source: 2009 OPTN/SRTR Annual Report, Table 1.11b, 1.12b.

Fig. 4a. Patient & Graft survival (UNOS Published Reports)

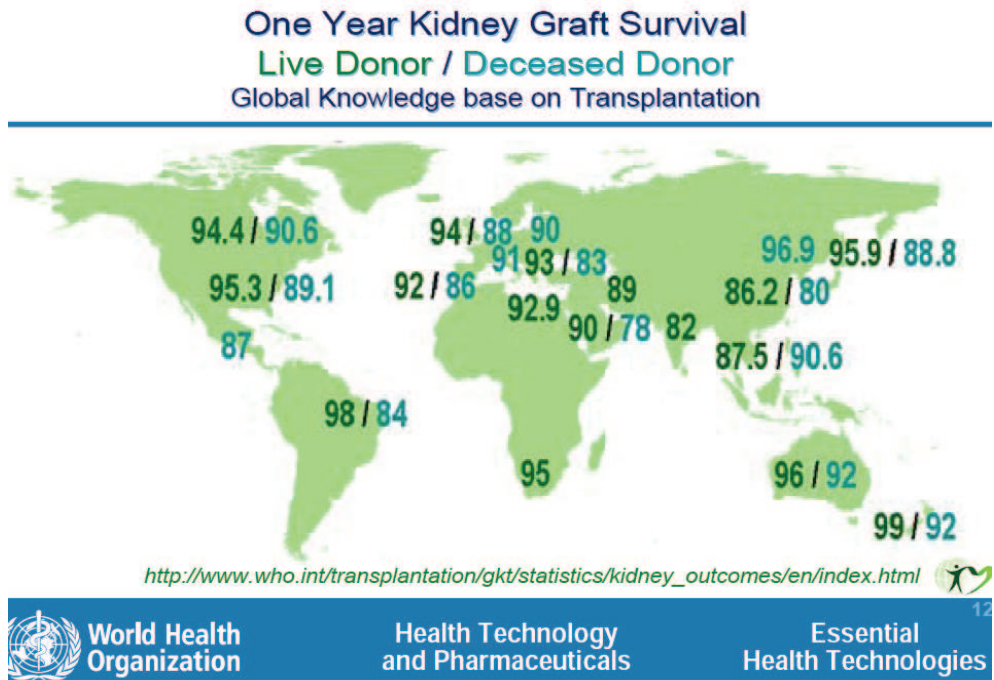


Fig. 4b. Patient & Graft survival (WHO Published Reports)

4.1.5 The decision to donate organs within the family

Many decisions to be living donors will be made within a family context - whether blood relations or less commonly, spouses, or in-laws - and involve the needs of specific members of that family. Very often, in living donation, there will be a host of pressures and family complexities to take into account. These may affect the extent to which a decision to donate or not to donate is genuinely free. Understanding some of these complexities and family dynamics can assist greatly in reaching a decision that is genuinely voluntary. It is important to distinguish between different kinds of pressure that a person faced with the decision about living donation may feel Avoidable pressures or Unavoidable pressures [Spital A 1996]. The decision to be a living donor should be based on adequate information and understanding, an informed decision is one based on information relevant to the making of that decision. Of course, in assisting a potential donor to make his or her decision about donation, doctors have an ethical and legal duty to warn about material risks in a treatment [Danovitch 2007]. Material risks are those that most people would want to know and also those that would be significant for a particular individual. It follows that a donor, before deciding about donation, should ask the appropriate medical practitioner to disclose the risks of the intended procedure and of its short and long term effects.

4.1.6 Psychological issues in live donation

This includes information and understanding about possible emotional and psychological consequences of making a decision one way or the other, for the potential recipient, the

potential donor, the relationship between these two people, and for other family members. These questions can only be answered within the context of understanding a particular family and/or the particular individuals involved whatever the outcome, certain issues may take some time to resolve.

Tissue typing and other medical checks may identify only one suitable donor in a family, which can lead to great pressure being put on that person. There may be more than one suitable donor and in these cases there can be complex pressures again as a choice is made between these people. As examples of such pressures, focus may fall on one of the suitable people for various reasons, perhaps without sufficient thought. In other cases there may be one person who is extremely eager to donate and so perhaps too willing to overlook possible difficulties that may be encountered. Often, such very willing people may need even more careful counseling to ensure that their decision is sound.

Living donation offers the recipient immediate hope. Because the results are generally favorable, the mood of the recipient, family and donor are usually optimistic. Against this background, other issues need to be considered [Jarvis 1995]:

Chances of survival of recipient:

It is argued by some that it is preferable to donate to recipients who are not critically ill, because choosing recipients with higher chances of survival better balances the risk to the donor. In addition, when such recipients are chosen, there is less need to make a decision under pressure and the additional time allows thorough medical and psychological evaluation of the proposed donor.

Changes in donor/recipient relationship:

The exceptional nature of what has happened and what both the donor and recipient have shared may be mutually enhancing. After a donation, there is often increased contact between a donor and the recipient where they are known to each other. Our experience suggests that reaction to being identified as a donor is very positive [Mathieson 1999].

Feeling if the transplant fails:

If the donation does fail, the donor may have feelings of guilt or inadequacy or feelings of anger, sadness, or that the donated organs or tissues have been wasted, and that the discomforts he or she has suffered have been made for nothing.

Feelings of 'ownership' towards the recipient:

Living donors can feel closer to recipients and have expressed attitudes of ownership about the state of health and activities of the recipient. They may feel that they have a right to ensure that the recipient is taking good care of his or her health and therefore of the donated organ or tissue. Conversely, the recipient may identify with the donor and feel that part of the donor is living in them. Ultimately such feelings may not be in the best interest of either party.

Recipient feelings of guilt if the donation has harmful effects on the donor:

A recipient may feel guilty and responsible if the donor suffers from his or her donation.

Consequences of not donating:

A decision not to donate can have a major impact on relationships within a family. The recipient's illness is often life-threatening and death may occur before or after transplantation. It is therefore important that the family, including prospective donors, do

not have unrealistic expectations for the recipient nor underestimate the difficulties for the donor. A decision not to donate might be entirely appropriate for the individual, but still have profound effects on family relationships if the proposed recipient dies. It is very important to consider whether such factors amount to undue pressure on a potential donor

4.2 Deceased organ donation

Organs for transplantation which obtained from living donors unfortunately, have so far been unable to keep up with demand. As a result, there are a large and steadily increasing number of potential recipients awaiting transplantation, some of whom will die before an organ can be found. This scarcity of organs for transplantation can only be met from the cadavers Fig. (5). Cadaveric source is beneficial in another way that it provides multi-organ donation. To utilize cadaveric organs effectively, it needs legal formalities and most of the countries have passed cadaveric law [Alashek, Ehtuish etal 2009].

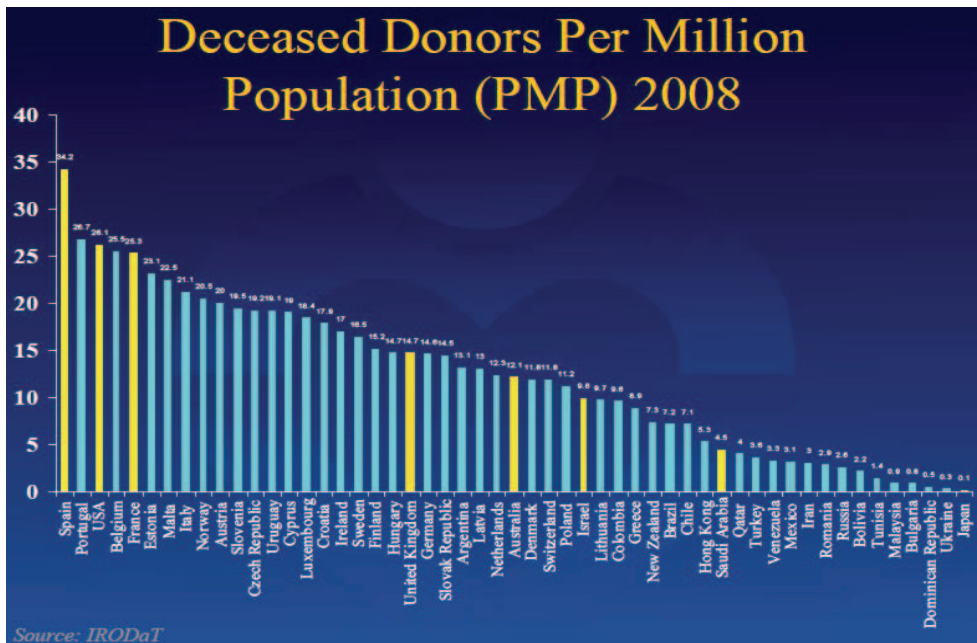


Fig. 5. International Registry of Organ Donation WHO Publications

4.2.1 Strategies to promote cadaveric organ donations and self sufficiency

a. Education

Educational efforts focus on increasing the number of people who consent to be an organ donor before they die. And educating families when they are considering giving consent for their deceased loved one's organs. Social responsibility and the idea of "the gift of life" should be popularized

b. Mandated choice

Under this strategy, every individual would have to indicate his wishes regarding organ transplantation, perhaps on driver's licenses. When a person dies, the hospital must comply with their written wishes regardless of what their family may want. The positive aspect of this strategy is that it strongly enforces the concept of individual autonomy of the organ donor. A mandated choice policy would require an enormous level of trust in the medical system. People must be able to trust their health care providers to care for them no matter what their organ donation wishes

c. Presumed consent

This method of procuring organs is in fact the policy of many European nations. In countries with presumed consent, their citizens' organs are taken after they die, unless a person specifically requests to not donate while still living. Advocates of a presumed consent approach might say that it is every person's civic duty to donate their organs once they no longer need them (i.e. after death) to those who do. People against presumed consent would argue that to implement this policy, the general public would have to be educated and well-informed about organ donation, which would be difficult to adequately achieve. Doubters of the presumed consent approach might also argue that requiring people to opt out of donating their organs requires them to take action and this might unfairly burden some people. The countries having presumed consent principles like Spain and Canada shows higher donation rate 40-50 per million population [Miranda etal 1998 & Rithalia etal 2009].

d. Incentives

Incentives take many forms [Beier etal 2008]. Some of the most frequently debated incentive strategies are:

1. Give assistance to families of a donor with funeral costs
2. Donate to a charity in the deceased person's name if organs are donated
3. Offer recognition and gratitude incentives like a plaque or memorial
4. Provide financial or payment incentives

One of the most highly debated incentives would give donating families assistance with burial or funeral costs for their loved one this could be an attractive incentive for many families.

Proponents say that since the person will be dead and unable to receive the recognition, that this would not be a coercive action. Some ethicists believe that many of the incentives above, while not attached directly to cash money, are still coercive and unfair. They believe that some people will be swayed to donate, in spite of their better judgment, if an incentive is attractive enough. They further argue that a gesture may seem small and a mere token to one person, but others might interpret it quite differently. A final anti-incentives argument offered by some ethicists discourages the practice of incentivizing organ donation [Jasper etal 1999]. They believe that society should instead re-culture its thinking to embrace a communitarian spirit of giving and altruism where people actively want to donate their organs

4.2.2 Maximizing donation form deceased donors

In order to maximize the donation from deceased donors it is important to consider the following:

- Legal and organizational framework

- Coordinating authority over health system
- Citizen's understanding: donation in school curriculum
- Ongoing reality and momentum in media
- Adaptation of relevant models (Spain) in emerging countries

4.3 Minors and children as donors

It is another issue that needs considerate discussion. Living donors provide the best outcome for children undergoing renal transplantation. Most of these donors are parents. When parents are unable to donate, siblings are often considered. But what if the siblings are also children? Should they be permitted to donate? They are below 18 years of age and not able to consent and they might be pushed or convinced to donate. And what about those who are mentally subnormal and their families want to use them as donors?

Sometimes there are reports that children have been kidnapped, only to re-appear later lacking one kidney, or that they simply disappear and are subsequently killed to have all their transplantable organs removed for profit. However, the issue is covered in a broader sense by more general provisions. There are endless rumors surrounding this area. Members of various organizations who travel in the suspected countries say that the trafficking in children who are sold for transplantation is well known, but it is too difficult and very dangerous to catch the people involved [Spital A 1997],

4.4 Executed prisoners as donors

Several authors and ethicists have recently commented on the current practice in some countries of the use of organs from executed prisoners. While all societies strongly condemn the arbitrary use of taking organs from executed prisoners, which is a common practice in some countries, where organs are taken and given to various institutions for transplantation or even sold to other countries. It is suggested that it will be ethically permissible to allow a prisoner on death row to donate an organ to a relative or a friend. [Miller 1999].

One argument in favor of taking organs from prisoners, who are put to death, is that it is the execution that is ethically unsound and not the organ removal. Indeed, in light of the severe organ shortage, some ethicists could make the argument that to not use the organs for transplantation is wasteful. Some ethicist, put forth the argument that obtaining organs from condemned prisoners is allowable if the prisoner or their next of kin consents to donation, as long as organ donation is not the means by which the prisoner is killed because that violates the principle that a cadaveric donor be dead prior to donation. Some could argue that organ retrieval from executed prisoners is morally justifiable only if a "presumed consent" donation practice was in place. Many, if not most, bioethicists consider taking organs from condemned prisoners a morally objectionable practice. And immoral [Cameron et al 1999].

4.5 Alternative organ sources

Some potential non-traditional sources of organs are:

4.5.1 Animal organs – "xenotransplantation"

Animals are a potential source of donated organs. Experiments with baboon hearts and pig liver transplants have received extensive media attention in the past. One cautionary argument in opposition to the use of animal organs concerns the possibility of transferring animal bacteria and viruses to humans. Some argue that xenotransplantation is the only

potential way of addressing this shortage. As immunological barriers to xenotransplantation are better understood, those hurdles are being addressed through genetic engineering of donor animals and the development of new drugs therapies [Starzl et al 1964 & Grant et al 2001]. The focus of ethical attention has changed from the moral correctness of using animals for research/therapy to an increasingly appreciated danger of the establishment and spread of xenozoonoses in recipients, their contacts and the general public. There are a number of reasons for not using subhuman primates for xenotransplantation, including their closeness to humans, the likelihood of passing on infections, their availability (gorillas, chimpanzees), their slow breeding and the expense of breeding them under specified pathogen free conditions. The pig, although domesticated and familiar, is too distant to evoke the same feeling as we have for primates, has the correct size organs, is probably less likely to pass infections, breeds rapidly and is not endangered; moreover, millions of them are eaten every year. Although drawing ethical conclusions is difficult at the stage of knowledge and debate, it seems acceptable to manipulate pigs genetically and to proceed to using their organs for xenotransplantation trials when infection control measures and the scientific base justify it [Bukler et al 1999 & Sim et al 1999]. The use of pigs in Muslim countries would be more controversial and disruptive although it is acceptable by Islamic religion in case of a real need and when there is no alternative [Rahman 1998]. In this case the question of informed consent is likely to be ambiguous and awkward. It might end up more of a binding legal contract than consent, as we understand it now. Xenotransplantation is also unlikely to cost less than or significantly alleviate the shortage of cadaveric organs in the short term. The international dimension of the risk of infection is becoming obvious, but there has so far been no effort to convene an international forum to agree on universally acceptable guidelines. However, before xenotransplantation can be fully implemented, both the scientific/medical communities and the general public must seriously consider and attempt to resolve many complex ethical, social and economic issues that it presents [Platt 1999].

4.5.2 Artificial organs

Artificial organs are yet another potential option.

The ethical issues involved in artificial organs often revert to questions about the cost and effectiveness of artificial organs. People who receive artificial organ transplants might require further transplanting if there is a problem with the device.

4.5.3 Organs from fetuses

The ethics of using tissues and organs from fetuses have been a matter of enormous discussion. Aborted fetuses are a proposed source of organs. Debates address whether it is morally appropriate to use organs from a fetus aborted late in a pregnancy for transplantation that could save the life of another infant. Many people believe that this practice would encourage late-term abortions, which some individuals and groups find morally objectionable. Another objection comes from people who fear that encouraging the use of aborted fetal organs would encourage "organ farming," or the practice of conceiving a child with the intention of aborting it for its organs [Golmakani et al 2005], but the use of spontaneously aborted fetus or anencephalic newborn could be encouraged. Although there is ethical debate concerning the possible use of organs of anencephalic babies for transplant. Some have argued that because of the absence of neocortex these are 'nonpersons' and are

'brain-dead' and thus, such infants should be available for organ donation if this is the wish of the parents. However, as brain stem function is present in these infants, the 'whole of the brain' or 'brain stem' requirement for certification of brain death precludes removal of organs until cardiorespiratory death occurs.

4.5.4 Stem cells –“The future”

Stem cells are cells that can specialize into many different cells found in the human body. Researchers have great hopes that stem cells can one day be used to grow entire organs, or at least groups of specialized cells [Bartholomew et al 2001 & Eradini 2002]. Some of the very recent developments in transplantation over the past decade have been the use of stem cells from bone marrow, cord blood, and from fetal and adult tissue, including somatic cells and neural cells. These cells have the great potential for differentiation and proliferation into other types of body cells including neuronal, hepatic, hemopoietic and muscular and thus help many patients with organ failure after their transplantation into the patients. These stem cells have also been shown to induce immunological tolerance and chimerism when they are transplanted into recipients of vital organ grafts and their rejection of a transplanted organ such as bone marrow, kidney, heart, liver, is prevented [Fandrich 2002]. A new hope is emerging now with the possibility of preserving the architecture of an organ i.e. preserving capsule, vascular structures and draining system and removing the destroyed or fibrosed cells and replace them with new cell mass produced by stem cells like removing all non-functioning Hepatocytes and replacing them with a new Hepatocyte cell mass, The ethical objections concerning stem cells have focused primarily on their source. While stem cells can be found in the adult human body, the seemingly most potent stem cells come from the first few cells of a human embryo. When the stem cells are removed, the embryo is destroyed. Some people find this practice morally objectionable and would like to put a stop to research and medical procedures that destroy human embryos in the process.

5. Life & death

With the development of mechanical ventilators, new drugs, and other forms of treatment, it became possible to artificially maintain circulatory and respiratory functions, even after the brain had stopped functioning. In the past four decades many countries amended their death statutes to include a definition of death by the complete and irreversible cessation of all brain functions. Since that time almost all cadaveric organs have been recovered from patients who have been declared "brain dead." Veatch has never been comfortable with the term "brain death," preferring instead "brain-oriented definition of death." Since the 1970s he has argued that the entire brain does not have to be dead for the individual as a whole to be dead. Instead, he advocates a "higher-brain-oriented definition" of death—in other words, one is dead when there is irreversible loss of all 'higher' brain functions" he further proposes creating a new definition of death law that incorporates the notion that one need only have an irreversible loss of consciousness as opposed to an irreversible loss of all brain functions [Veatch 2008]. Veatch's proposal is clearly controversial. It suggests a violation of an ethical boundary most clinicians are currently unwilling to cross. Perhaps he is correct that such a change is inevitable and that the "definition of death at the conceptual level is a religious/philosophical/social policy choice rather than a question of medical science". There was clear leadership from individuals such as pioneering transplant surgeon, Dr. David Hume; Dr. Hume wrote "there is only one definition of death, irreversible brain

damage. Cessation of heart beat does not constitute death unless it has caused irreversible brain damage there must be no spontaneous respirations" [Delmonico 2010]. These observations were later corroborated by Dr. William Sweet published in the *New England Journal of Medicine* when he wrote "it is clear that a person is not dead unless his brain is dead" [Sweet 1978]. The time-honored criteria of stoppage of heart beat in circulation are long enough for the brain to die". Dr. Sam Shemie has clarified the paradigm for donation and death by emphasizing on the "required absence of circulation" and by underscoring the vital functions of the brain as an essential criterion of life [Shemie 2007]. "Where the extracorporeal machines of transplantation can support or replace the function of organs such as the heart, lung, liver or kidney, the brain is the only organ that cannot be supported by medical technology". On the other hand Byrne and others have rejected brain death as constituting death of the person contending the "cessation of the entire brain function, whether irreversible or not, is not necessarily linked to total destruction of the brain or the death of the person". Byrne, apparently, bases his opinion regarding death as philosophically constituting a separation of the soul from the body [Byrne 1979]. However, applying that personal philosophy to the diagnosis of death defies a legal and medical standard, and an ethical and practical sensibility. No one knows when the soul may separate from the body at the time of death. However, the legal and medical definition of death is clear in terms of neurological and circulatory function. It becomes unethical to impose futile clinical treatments to a comatose individual, if the function of the entire brain is irreversibly lost. What would opponents of the brain death determination do with a patient on a ventilator with such a clinical condition have them maintained indefinitely in such a state? To propose the brain death criteria as constituting death was the central issue that confronted the Harvard Committee in 1967 [Ad Hoc 1968]. No one knows when the soul separates from the body, but a precise time of death must be specified for obvious legal, medical and social reasons, so that futile treatment can be concluded (without further obligation or responsibility to provide resuscitative or supportive technologies) and proper disposition of the body with burial and estate and property transfer, etc can be exercised. For many years, Truog has also objected to the determination of death by neurologic evaluation and by circulatory function. He wrote in the *New England Journal of Medicine* that "arguments about why these patients should be considered dead have never been fully convincing" [Truog 1997]. The definition of brain death requires a complete absence of all functions of the entire brain yet many of these patients retaining essential neurologic function, such as regulated secretion of hypothalamic hormones". The rebuttal to this assertion has been given by Shemie [Shemie et al 2006] who claimed that "the release of antidiuretic hormone (ADH) from the hypothalamus is not considered to be essential neurologic function. Brain death is determined by an absence of consciousness, receptivity and responsiveness, spontaneous movement, spontaneous breathing and absence of brainstem reflexes". Brain death does not require every brain cell to be nonviable but the criteria require an irreversible loss of neurologic function of a patient interminably supported by a mechanical respirator. For Truog and others however, these patients are not considered dead because they indeed can be supported indefinitely beyond the acute phase of their illness. It is well known however that despite the irreversible loss of brain function the remainder of the body can be maintained by mechanical support; for example, even by patients who become brain-dead during pregnancy yet successfully have their fetuses brought to term. The clinical condition still constitutes the death of the mother and a viable fetus buys continued mechanical support until birth. Again in the *New England Journal of*

Medicine. Truog and Veatch [Veatch 2008 & Truog et al 2008 & Life 9 November 1962] have asserted the donation after cardiac death (DCD) is not acceptable; that is, the recovery of organs after the determination of death by circulatory and respiratory criteria. Truog suggests that recovery of the heart following DCD is “paradoxical” because the hearts of patients who have been declared dead on the basis of the irreversible loss of cardiac function have in fact been transplanted and successfully functioned in the chest of another”. Veatch is similarly not convinced that the donor is dead and stated that “if someone is pronounced dead on the basis of irreversible loss of heart function, after all. It would not be possible for heart function to be restored in another body. Both Veatch and Truog misinterpret the uniform declaration of death act UDDA which precisely stated that it applies to an individual who had sustained irreversible cessation of circulatory and respiratory functions. It is not a matter of the cessation of heartbeat or cardiac function per se but an irreversible cessation of circulation in the donor. The consequence of the absence of circulation is upon the function of the brain results in an irreversible loss of neurologic function – the UDDA definition of death [Ad Hoc committee 1968 & President Commission 1981 & Delmonico et al 1999].

Bernat has written that circulation – not heartbeat – is the critical function that must be lost using circulatory-respiratory tests to determine death [Bernat 2008]. For example, we do not declare patients dead who are on heart lung machines during cardiac surgery, on ECMO awaiting heart transplantation (even if they never receive a heart), or carrying artificial hearts because, despite absence of heartbeat, their circulation remains continuously maintained. That is why the death standard requires absence of circulation. “Whether the asystolic heart is subsequently left alone, removed and not restarted or removed and restarted in another patient is irrelevant to the circulatory status of the just-declared dead patient [Norton 1992]. Removing and restarting the heart elsewhere simply has no impact on the previous death determination because that patient remains permanently without circulation in exactly the same way as if the non-beating had been left in place”. And as an everyday example after slaughtering the rooster it jumps higher and stronger as never than done in its life, this movement doesn’t indicate that he is still alive and it continues bleeding strongly indicating that the heart is still functioning, and on the opposite side the heart beating may stop spontaneously, known as cardiac arrest and attempts of rescue continue, in many cases the restitution succeed. The heart start beating again and life gets back to its normal state, moreover doctors can stop the heart for hours during the operation of the open heart, however the blood circulation does not stop, not even for seconds, therefore the heart beating does not mean life and the stoppage of heart beating does not necessarily mean death. Irreversible loss of consciousness may be due to partial or total brain injury [Shewmon 1998]. For the determination of brain death, irreversible coma must be due to injury to the brain so severe as to cause loss of brain functions

Death is when blood stop reaching the brain causing a permanent harm to the brain and leading to a permanent loss of all its functions including the brainstem functions and to diagnose death it is necessary to prove the cessation of the functions of the brain, and then brain commences disintegration and its known that many cells from a dead person remain alive after the declaration of his death. Therefore we find that the muscular cells responds to electrical stimulations and some cells within the liver continue transforming the glucose to glycogen, so cells do not die all at once, however they differ in their timing of death and perish after death of the person. We can extend the life of these cells if they are put in saline

solution, especially with the flow by means of a pump hence allowing the use of organs and cell of the dead person for another patient needing them, the death is a process and not an event.

Brain death can be defined as follows: When the brain is damaged, and its activities completely cease, brain death is present, even if it is possible for the patient to be kept breathing and his heart is beating with artificial respiration and medications; even if the heart and liver are functioning that is not live it is just artificial. The consideration of legality of brain death as "true death" was first considered in the early 1960's; with the 1968 Harvard report becoming the "standard" definition of brain death. the majority of countries and international professional associations have accepted it.

5.1 Islamic opinion

The majority of Muslim jurists consider organ transplantation to be permissible on the basis of principles that needs of the living outweigh those of the dead. Saving a life is of paramount value in Islam as the following verse from the Quran illustrates "And if any one sustains life, it would be as if he sustained the life of all mankind" [Ebrahim 1995 & Ebrahim 1998 & Van Bommel 1999 & Al Faqih 1991]. The Islamic Jurisprudence Assembly Council in its meeting in Saudi Arabia on Feb 6-11, 1988 ratified resolution number 26.1.41 declared the following fatwa the permissibility of proxy consent: "Transplantation of an organ of the dead to a living human being whose life or essential function of the body would rely on the donated organ is allowed, provided that the dead (before his death) or his heirs permit it. Shiite scholars have made similar rulings. The majority of Shiite jurists confirm organ transplantation especially when human life is at stake.[Moqaddam 2000 & Ghods et al 2006 & Zargooshi 2008].

Ordinarily, the dead have a right in Islam to the sanctity and wholeness of their body, but as we have already noted, the need to save a life overrides this injunction as it has a prima facie importance in the mundane affairs of mankind. While saving a life is of paramount importance in Islam, the family of the deceased must consent and there are in no way obliged to consent to organ donation even if it involves the death of another person who is alive but gravely ill. It has been reasoned that the "ownership" of organs, like that of property, is relative and subjective because God is the ultimate "owner" of the universe having created it. Therefore, it would be permissible to donate them because God had placed great value on saving a life.

5.2 Church opinion

In the address of pope John Paul II to the Transplantation Congress in Rome in 2000, regarding the determination of death, he said ..."it is helpful to recall that the death of the person is a single event, consisting in the total disintegration of the unitary and integrated whole that is the personal self". And that "it is a well-known fact that for some time certain scientific approaches to ascertaining death have shifted the emphasis from the traditional cardio respiratory signs to the so-called neurological criterion. Specifically, this consists in establishing, according to clearly determined parameters commonly held by the international scientific community, the complete and irreversible cessation of all brain activity (in the cerebrum, cerebellum and brain stem). This is then considered the sign that the individual organism has lost its integrative capacity" [Abouna 1984 & Pope John Paul II 2000].

6. Brain death is death

6.1 Misuse of terminology

Patients who fulfill the brain function criterion for death are commonly said to be 'brain dead'. This term, unfortunately, suggests that there are two ways of being dead, being 'brain dead' and being 'really dead'. The term 'brain death' is also used, incorrectly, in other contexts to describe much lesser degrees of neurological dysfunction than it strictly implies. This misuse of the term is to be found in the medical and related professions as much as in the general public. It has led to confusion surrounding the idea of a brain function criterion and its relation to 'brain death'. It may be that it is too late to reclaim the term for its legitimate use. Whenever it is used, it is important that it is sufficiently qualified to ensure that its meaning is clear, and professional medical bodies may have a role to play in encouraging correct application of the term.

6.2 Explaining brain function criterion to the family of the deceased donors

Even apart from confusion over the use of the term 'brain death' it can be very difficult for families to fully understand the reality of death based on a brain function criterion. To casual observation, patients fulfilling the brain function criterion for death appear to be sleeping rather than dead. The skin is warm. The chest rises and falls with mechanical ventilation. The heart and the kidneys continue to function. There are even reports that pregnancy may be maintained in patients fulfilling the brain function criterion for death. This ambiguity is reflected in the way medical and paramedical staff relates to the beating-heart cadaver in the period before organ donation. Nurses will often talk to such a cadaver as they carry out their nursing care as if the body retained the ability to hear. Acceptance of death by the brain function criterion in the context of organ donation asks much more of a family than does the same diagnosis with a view to cessation of treatment. Community education programs might go part way in helping families understand the issues involved. Detailed explanations with appropriate written material should be provided. Practitioners dealing with families should be trained in the process of explaining the brain function criterion and in grief counseling in general. Families should be provided with the opportunity to ask relevant questions and to have their questions answered in a genuinely sympathetic environment. Sufficient time should be provided to ensure that families really understand the brain function criterion before the issue of organ donation is broached. Families should then be allowed whatever time and assistance are necessary to make a decision concerning organ donation and then to deal with the particular grieving problems over the ensuing days and weeks. They should be offered the opportunity to view the body after the retrieval process has occurred when it has the appearance of being dead [Shemie et al 2006 & Delmonico et al 1999 & Norton 1992].

6.3 Deciding to donate or not to donate organs after death

The main reason why people may consider donating organs is because of the very great benefit that this can bring to others. Organ transplantation may be a lifesaving treatment for patients with liver or heart disease, and it may be the only hope of treatment there is. For kidney patients, having a transplant can mean being able to cease, and this can bring a great improvement in health and lifestyle. For instance, it may enable a kidney patient to return to the workforce, or to work longer hours, and it can even mean that a woman can now have a baby. The transplantation of a cornea can give someone back his or her sight [Ehtuish et al 2006 & Abouna 1998 & Hunsicker 1999 & Alashek et al 2009 & Cohen et al 1995].

Transplantation is generally a very successful procedure. The success rates of transplantations vary, but in all cases these have increased considerably since transplantation first began (Fig. 4b). It can be difficult in medical science to predict which procedures will become more successful and eventually routine. However, kidney transplantation is now considered to be accepted medical treatment and this is likely to happen in other areas of transplantation. Some people decide not to donate organs because they are not confident that donation would be in accordance with their dead relative's wishes. Some people think that transplantation is a very costly procedure from which relatively few people benefit. If you believe that your family may gain some comfort from donation, this may be a reason to consider it for yourself. On the other hand, if you feel that your family may be upset about donation, you may decide against it. This shows the importance of discussing donation with your family. You need also to bear in mind that the people who donate organs are mostly those who have died suddenly and unexpectedly and they are often quite young. For the families of these patients, death may be especially traumatic. When deciding about donation for yourself before death, you may begin by thinking of how you would feel if you were in the position of needing lifesaving organ or tissue transplantation. In making your decision, you also may feel, for instance, that you no longer need your body, and would like to feel that you had done something to help others. Or you may feel that it is important that your body remains intact for burial or cremation. If you belong to a religious faith, you may want to consider how organ donation and transplantation is understood from that religious point of view. Indeed you may wish to consult a religious advisor on the appropriateness of organ donation in your particular circumstances.

6.4 Making a decision when a relative has died

Deciding about organ donation on behalf of a loved relative who has just died may be a very difficult decision to make. Often the relative's death will have been the result of a traumatic event such as a car accident or a head injury. This makes the death an especially sad one for family and friends, means that people are asked to make a serious decision at a difficult, stressful and emotional time. You may feel shocked, bewildered, angry, and numb [Norton 1992]. But, for practical reasons, if organ donation is to occur, it must take place within a certain time period: so there will be only a limited time in which to make this decision. The difficult circumstances in which the decision has to be made make it all the more important that you are well-informed and that you feel confident that you have considered the matter as fully as you wish. Families are greatly assisted in their decision-making at a time of crisis if they have previously discussed organ and tissue donation and the wishes of individuals are known. There are three scenarios that need to be considered: (1) Your relative dies having made known his or her wish to donate organs after death: in this case the family is consulted in order to clarify what the person's wishes were in relation to organ donation and to see whether the family has any objections to the deceased's wishes being acted on. Donation will not proceed in the face of objection from families. If you know that your relative wished to donate his or her organs and/or tissues, this may provide you with a substantial reason for you to consent to the request for donation. Islamic religion respect the intestate and wishes of the person before he died and the relatives are obliged to implement the intestate that is clear in many verses in Quran. (2) Your relative dies having made known to you his or her wish not to donate organs: in this case, made this known to hospital staff and organ donation will not be discussed further. (3) Your relative dies and either had

no views about organ donation (as in the case of a young child) or had not made his or her views known to you: in this case the hospital authorities will consult the family to find out whether anything is known about the deceased person's wishes and/or to find out whether the family will consent to donation on behalf of their deceased relative. One thing that you may like to do in this situation is to make a judgment based on your knowledge of that person. What was his or her attitude to transplantation: had he or she ever shown any sign of being in favor or against it? What were his or her beliefs and feelings about the body and about how it should be treated after death? Was he or she the kind of person who would want to help others? Would he or she have been likely to have discussed organ donation with someone outside the family? It is professional practice not to pressure people in any way. The decision that you have to make is not a purely rational or 'head' decision but also an emotional or 'heart' decision. You may need time to come to terms a little more with the emotional significance of events, may be to accept that your relative really is dead. You may wish for time to imagine how you may feel afterwards, whatever decision you make; and how others in your family may feel. You may feel you need time alone, or time with just your family [Evans 1993 & Courtney et al 2009].

6.5 Some key questions you might consider in case of organ donation

Do I think that donating organs and/or tissues for transplantation (or other purposes) is a worthwhile cause? How would I feel if I needed a transplanted organ? How does organ donation fit with my religious, spiritual and moral beliefs? How would I feel if a friend or relative needed an organ? What do my other family members think about organ donation? Have I made my wishes about organ donation known to my family? If I decide I want to donate organs, how will this affect my family? Am I satisfied that I understand the concept of 'brain death' as a way of determining death? Do I feel that I could trust the medical staff involved if I were ever in a situation to be a potential organ donor? How do I think of my body after death? Are there some organs I would like to donate, and not others? Will my family try to carry out my wishes? Will counseling be available for my family if they need it? Am I satisfied that respect will be shown to my body? Are there other people I would like to consult? [Miranda et al 1998 & Jasper et al 1999 & Cameron et al 1999 & Cohen et al 1995]

7. Entry of patients to transplantation programs

Decision-making becomes necessary at two stages of the process of organ and tissue allocation. The first stage deals with those considerations which should be taken into account in deciding on the identity of the individual patients to whom offers of transplants are to be made. Decisions of this type, by reason of the technical details involved, will remain a responsibility of medical personnel. Entry to, and exclusion from, a transplantation program both raise ethical issues.

Entry to a program is offered following assessment of patients by the program personnel. Exclusion criteria include age restrictions, abnormalities in other organ systems, previous history of malignant disease and other medical considerations. In making decisions about which patients are to be admitted to a program, there is merit in more than one medical practitioner being involved.

The second stage of decision-making relates to whether an individual chooses to become a transplant recipient. This is a decision to be made by the patients in the light of advice received from their medical attendants and consultation with their families. Acceptance of

the offer requires an informed decision on the part of a patient and/or their family. Prior to this decision, a patient should receive a full description of what is entailed in being in the program, what procedures can be expected and their possible risks and benefits. On the other hand, if a patient is excluded from a transplantation program, he or she is entitled to know why? [Turcotte et al 1989].

In an attempt to ensure that transplanted kidneys have the best outcome possible for individual patients, concurrent medical conditions that introduce a potential risk following transplantation should be managed before acceptance on to the waiting list. If a pre-existing condition is likely to be affected adversely by the ongoing immunosuppression required after transplantation (for example, immunosuppression increases the risk of recurrence of cancer and of persistence of chronic infection) a patient may be excluded from transplantation in his or her own interest. Though some may think it is unfair to deny a patient the opportunity to receive a transplanted kidney because of renal disease which could recur in the graft, others might consider it unreasonable to inflict repeated transplantation when there is a high risk of rejection. In rare circumstances, the kidney allocation system may be suspended to provide an organ for transplantation to a critically ill patient. To ensure fairness in allocation, the selection criteria and weighting of different criteria are subject to repeated review by personnel from all institutions involved in renal transplantation.

7.1 Factors influencing entry to, and ranking in, a transplantation program

- a. The patient sickness.
- b. The patient most likely to benefit based on medical or other criteria.
- c. The length of the patient on the waiting list.
- d. All patients on the waiting list should have an equal chance.
- e. The patient's importance for the well-being of others, for example previous organ donors.
- f. The patients who have previously had one or more transplants.
- g. Capacity of the patient to pay.

8. Allocation of kidneys

The allocation of kidneys occurs under circumstances not paralleled in the case of other organs because candidates for transplantation are drawn exclusively from patients already within a dialysis program. This introduces the difficulty that, whereas selection to receive a kidney is determined by clearly defined and promulgated criteria that are uniformly applicable nationally, selection to enter dialysis programs is affected by a variety of sets of guidelines. In some cases uniform criteria for entry to dialysis are being formulated. However, in other instances, individual clinics have their own guidelines, not all of which are readily available. This lack of transparency precludes ethical assessment of the procedures employed and this should occasion concern: it is an ethical issue in itself. As kidneys can be preserved safely by simple cold storage for at least twenty-four hours, the results of a blood T-cell cross match and tissue matching can be available before transplantation is undertaken. Because of the length of waiting lists, several potential recipients are commonly equally well matched with each presenting donor. Allocation of kidneys should be organized on a national basis so that recipients with the closest tissue matching with the donor are selected to receive the organs. This provides the best chance of success. Currently, kidneys are raised by allocation of

transplant resources allocated to potential recipients according to the best available tissue match. If there are no suitably matched potential recipients on the national waiting list, the length of time on dialysis usually determines the recipient. Factors such as recipient age, period on dialysis, pre-sensitization to tissue antigens, presence of diabetes mellitus and the previous receipt of a transplant are likely to be taken into account.

The concept of distributive justice – how to fairly divide resources – arises around organ transplantation. Distributive justice theory states that there is not one “right” way to distribute organs, but rather many ways a person could justify giving an organ to one Particular individual over someone else. Equal access criteria include [UNOS 2001]:

- Length of time waiting (i.e. first come, first served)
- Age (i.e. younger to younger, older to older or youngest to oldest)
- Organ type, blood type and organ size
- Distance from the donor to the patient
- Level of medical urgency

Equal access supporters believe that organ transplantation is a valuable medical procedure and worth offering to those who need it. They also argue that because the procedure is worthy, everyone should be able to access it equally.

Successful transplants are measured by the number of life years gained. Life years are the number of years that a person will live with a successful organ transplant that they would not have lived otherwise. This philosophy allows organ procurement organizations to take into account several things when distributing organs that the equal access philosophy does not – like giving a second organ transplant to someone who’s already had one or factoring in the probability of a successful medical outcome.

Three primary arguments oppose using the maximum benefit distribution criteria. First, predicting medical success is difficult because a successful outcome can vary. Is success the number of years a patient lives after a transplant? Or is success the number of years a transplanted organ functions? Is success the level of rehabilitation and quality of life the patient experiences afterward? These questions pose challenges to those attempting to allocate organs using medical success prediction criteria. The second argument against maximum benefit distribution is that distributing organs in this way could leave the door open for bias, lying, favoritism and other unfair practices more so than other forms of distribution due to the subjective nature of these criteria. Third, some ethicists argue against using age and maximizing life years as criteria for distributing organs because it devalues the remaining life of an older person awaiting a transplant. Regardless of how old someone is, if that person does not receive a transplant they will still be losing “the rest of his or her life,” which is valuable to everyone.

9. Organ trafficking

Organs trading

The transfer, traveling, hosting, receiving living or deceased persons, or their organs, through threat, by force or any other forms of oppression or kidnapping or fraud, or deceit, or misuse of power or position, mis-receipt by a third party of money or subsidies submitted to oppress the contingent donor and use him as an organ donor.

Commercialization of organs

It is the policy or conduct by which the organ is dealt with as if it is a trade goods, including their purchase, sale or use for material gain.

Travel for organs transplantation

It is the travel of organs, donors, recipients or professionals of organs transplantation over the international borders for purpose of organs transplantation.

9.1 Methods and means used for organ trafficking and transplant tourism

The donor, recipient and surgeon may be of the same country. The agreement may be done before they get to the surgeon. The donor and recipient may travel to the country of the surgeon. The patient may travel to the donor country and vice-versa. The donor may be from one country, the patient from another country and the surgeon from third country, and all may travel to a fourth country to perform the transplantation

[Bramstedt 2007] Fig (6a&b). This needs organizers and coordinators, until the matter arrived to the existence of organized gangs aiming for benefit and do not care of the donor or the patient. They are standing on extortion principle and earning profits on the account of poor people and those in need. The matter arrived to even stealing organs, yet to kidnap children and women and even men in order to get their organs for selling them to whom pays more [Fasting etal 1998].

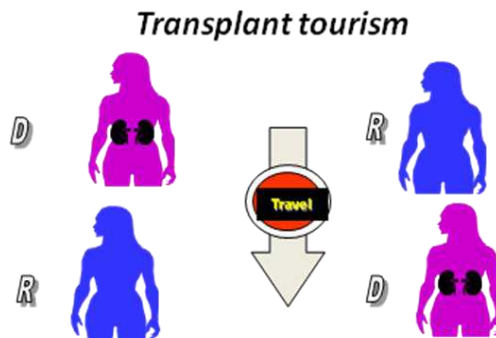


Fig. 6a. The patient may travel to the donor country and vice-versa

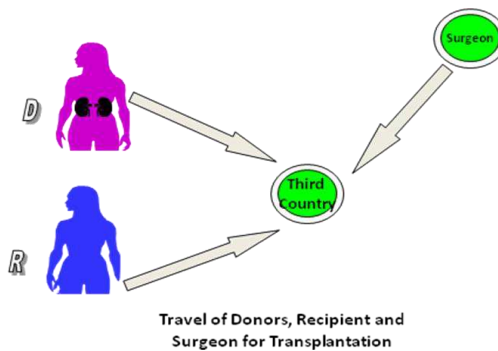


Fig. 6b. The travel of donors, recipients and surgeons for Transplantation

9.2 Organ sale

Paying people to donate their kidneys is one of the most contentious ethical issues being debated at the moment. The most common arguments against this practice include:

- Donor safety
- Unfair appeal of financial incentives to the economically disadvantaged
- Turning the body into a money-making tool “commodity”
- Wealthy people would be able to access more readily

The idea of nonfinancial incentives may be rising in popularity as a way to entice people to donate their organs. Financial incentives aimed at encouraging living donation have received much attention from bioethicists lately. Most experts argue that buying and selling human organs is an immoral and disrespectful practice [Daar 1998]. The moral objection raised most is that selling organs will appeal to the socioeconomically disadvantaged (poor, uneducated people) and these groups will be unfairly pressured to sell their organs by the promise of money. This pressure could also cause people to overlook the possible drawbacks in favor of cash incentives. On the other hand, wealthy people would have unfair access to organs due to their financial situations. It has been noticed that almost all of the people sold their kidneys to pay off debts and those will still had debt some time later but they will have a deterioration in their health status after donation and most of them would not recommend to others that they sell kidneys. Arguments that favor the buying and selling of human organs are scarce, but a few do exist. One of them is that payments aren't necessarily a bad idea if they work to increase the number of donated organs. The position contends that donating an organ is a relatively small burden compared to the enormous benefit reaped by recipients. Some argues that buying and selling organs is not morally objectionable, but that the system as it exists is inadequate to provide appropriate safeguards. This critique extends not only to the medical system, but also to legal and religious safeguarding organizations as well. It is an important ethical issue in organ transplantation. Whatever the perceptions of this practice in developed countries, it is widespread across the world. There are regional variations in its acceptance and practice. In France it is crime to get involved in paid organ donation. Most of the international organizations and forums have called for a moratorium against the sale of organs [Budiani-Saberi et al 2008] but the debate is not yet over. Recently the existing arguments against paid organ donation have been re-examined and found to be unconvincing. It is argued that the real reason why organ sale is generally thought to be wrong is that (a) bodily integrity is highly valued and (b) the removal of healthy organs constitutes a violation of this integrity [Wilkinson et al 1996]. Both sale and (free) donation involve a violation of bodily integrity. In case of free donation the violation of bodily integrity is typically outweighed by the presence of other goods: mainly, the extreme altruism involved in free donation. There is usually no such outweighing feature in the case of paid donation. Given this, the idea that we value bodily integrity can help to account for the perceived moral difference between sale and free donation. International trade in human organs, particularly in the developing countries of the world where cadaveric organs are not easily available and where there is marked disparity in wealth. As a consequence, a deplorable type of medical practice has emerged, where human kidneys are bought from the poor for transplantation into the wealthy clientele with soaring profits for brokers, private hospitals and physicians [Danovitch 2008]. It is estimated that since 1980, over 2,000 kidneys are sold annually in India, Iraq, Philippines, Iran and elsewhere. to wealthy recipients from the Middle East, the Far East and Europe. Human organ (“Kidneys”) trade which has shifted from India to

Pakistan [Noorani 2008 & Naqvi et al 2007 & Delmonico 2007]. Media, in particular had gone to the extent of labeling it as shifting of “Kidney Bazar”, “Bombay Bazar” from India to Karachi, Lahore and Islamabad [Naqvi et al 2008 & Sajjad et al 2008 & Beasley et al 2000 & Amerling 2001]. Fig (7).



Fig. 7. Kidney bazar

The drawback is that physical harm comes to one person for the benefit of another. However, this is considered an acceptable side effect because of the rule of choosing between the lesser of two maladies, i.e. one person dies and one lives, or, two people live, both with physical deformities. It is not surprising, therefore, that this practice of trading in human organs has alarmed the medical profession, the public and many governments and it has rightly been condemned by all major religions, and by most transplant societies. Organ sale has serious negative impact on all aspects and on everyone involved in the process of transplantation, including the donor, the recipient, the local transplant program, the medical profession and the moral and ethical values of the society. Most ethicists believe that organ sale is an affront not only to altruism, but also to basic human dignity as opposed to a utilitarian approach to the important issue of transplantation for the following main reasons: (a) Organ sale promotes coercion and exploitation of the poor. (b) It promotes poor quality of care to the donor and particularly to the recipient as a result of poor standards of donor selection and inadequate screening for transmissible disease. (c) It benefits ruthless entrepreneurs, greedy doctors who care for their egos and financial gain. It is also against the patient's right for autonomy. It is contrary to accepted moral and ethical beliefs of most societies, including the major religions of Islam, Christianity, and Judaism. It diminishes the current benefit of altruistic donation by living donors and the families of cadaveric donors. It makes human organs a commodity for profit and sale thus inviting corruption and an unjust and unfair system of organ access and distribution and it predisposes to criminal tendencies of selling, kidnapping or killing children and women for organ sale, which has been reported [Spital 1997 & Danovitch et al 2006]. Some proponents of organ sale claim that well-controlled organ purchase does have several major advantages: by making more organs available it can reduce the waiting time for organs, reduce the number of deaths among waiting list patients as well as reduce the overall cost of treatment of patients with end-stage kidney disease. Some professionals in the transplant community believe that it

will be much more productive as well as protective from sale of organs by vendors, at least in the developing countries where cadaver organs are not available, if the practice of organ sale is regulated by an independent organization. They argue that the feeling of repugnance of organ sale for the rich and the healthy should not justify removing the only hope for the destitute and dying. Cameron and Hoffenberg [Cameron et al 1999 & Ghods et al 2006 & Friedman 2006 & Laurance 2008] have recommended that organs be paid for through nationally established organ sharing networks to ensure the quality of care received by donors and to promote the equity of distribution which will involve the ethical and medical problems that exist with organ sale. Radcliffe-Richards et al. [Radcliffe et al 1998] have emphasized that current exploitation of donors and lack of informed consent through organ purchase are due to poverty and lack of education, which do not justify banning organ sale. They suggest that a national organization be established to regulate the sale of organs or provide educational and appropriate consultation to patients to enable them to have informed consent and even a 'guardian' for the donor. Also this organization will regulate and control organ vending, proper selection, payment of fees and provision of necessary care which will prevent the current exploitation, the risk of removing organs, both for the donor and the recipient, and provide screening and counseling, together with reliable payment and financial incentives [Friedman E 2006 & Friedman AI 2006 & Surman et al 2008]. They believe that this will not affect cadaveric donation, since payment can also be made to the family of the deceased. Some have proposed a market for organ donation or sale. The proponents of this model propose a legitimate governmental or nonprofit nongovernmental organization to take charge for the responsibility of compensating the donor, without any direct contact between donors and recipients. This would eliminate profit-seeking middlemen and organ brokers. While in certain instances, this practice has led to elimination of the waiting list [Matas 2008], evidence for negative impact of kidney donation for the donors have been reported. The best is to avoid people and their organs of being a commodity in the market whether it is an open black market or an organized and controlled market. In addition to direct payment, various other forms of compensation such as life and health insurance, medal of honor, reimbursement for travel expenses, compensation for time out of work, or a tax credit have been proposed. The potential problem with this model is that if it is not well organized, it will open the door to an organ market, where the organs are sold to the highest bidder, benefiting the rich and disadvantaging the poor [Chapman 2008 & Godlee 2008 & Thomas 2000]. Concern has also been raised that this will reduce altruistic kidney donation and discourage deceased multi-organ donation. However, some believe that it does not preclude increased donation, and others have shown that it has not inhibited the establishment of deceased donor transplantation programs. Opponents to any form of compensation and an organ market cite the concern that the poor will be viewed as mere providers of spare parts and will live with fewer organs, adding to this their list of disadvantages. According to this viewpoint, the market will be driven by poverty and the poor will be a disadvantage compared to the healthier, feeling a disproportionately higher pressure to sell their organs Fig (8). On a global scale this could translate into people from rich nations travelling to poor countries to buy organs. There is the concern that the market could potentially lead to demeaning bodies to "articles of trade". Degrading human relationships, and particularly damaging the altruistic bond. There is also the concern about the occasional coercion of a spouse by an addicted spouse into selling an organ to pay for the addiction.

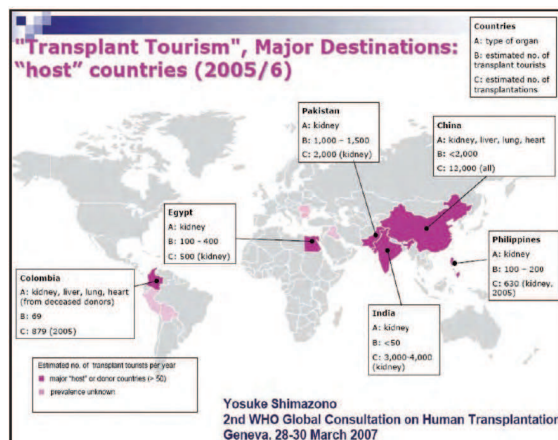


Fig. 8. Major destination host countries WHO publications

With related donor transplantation, altruism is the expected driving force; however, regarding unrelated donors, several valid questions have been raised. Why should the unrelated donors not be at least partially rewarded for their donation? Why should they be expected to undergo the surgery and live with one less organ for the rest of their lives? Are the other parties involved (physicians, surgeons, nurses, etc.) providing their services only altruistically? Why should the only individuals sacrificing their bodies not be appropriately acknowledged? Although current laws in most countries and guidelines by WHO and professional societies prohibit the sales of organs, it has been debated that provision of financial incentive seems not only fair, but may also encourage donation and subsequently benefit the patients on the waiting list [Novelli et al 2007 & Satel et al 2008 & Kranenburg et al 2008]. The main opponents of providing financial incentives have voiced concern over "devaluing" the body to a mere commodity and the potential for commercialization. Some would argue that the body is a property and, in fact, the most valuable commodity that an individual possesses. They would contend that the owner of this property has a right to sell part of it for his/her better good.

There is little doubt that commercialization of organ donation is fraught with drawbacks, dangers and potential immoral consequences. On the other hand, it is clear that efforts to increase the rate of organ donation through education have failed and sole moral incentives have not worked [Delmonico et al 2008 & Colakgin et al 1998 & Prasad et al 2006]. Organs are currently limited by supply, and in the hope of expanding the available organs, it seems prudent to provide incentives not only to encourage donation, but also in order to express appreciation. In the process, we should be cognizant of the fact that we might be sacrificing some good for the sake of other potentially more meritorious goods, weighing the ethical and moral risks of one against the other. The obligation of society is to establish safeguards to protect all parties involved, as well as the humane inter-relationship between donor and recipient. In this regard, the method of acknowledging the good deeds of donors is of paramount importance.

It is clear that we need to look for feasible, ethical alternatives to the current model. This is not limited to whether or not donors should be compensated. Now that living unrelated transplant (LURT) has become an ever increasing reality (Fig 9). Society and the transplant

community should devise safeguards to scrutinize the process [Matas 2007 & Chapman 2008 & Godlee 2008 & Novelli et al 2007 & Satel et al 2008 & Kranenburg et al 2008 & Leung 2006].

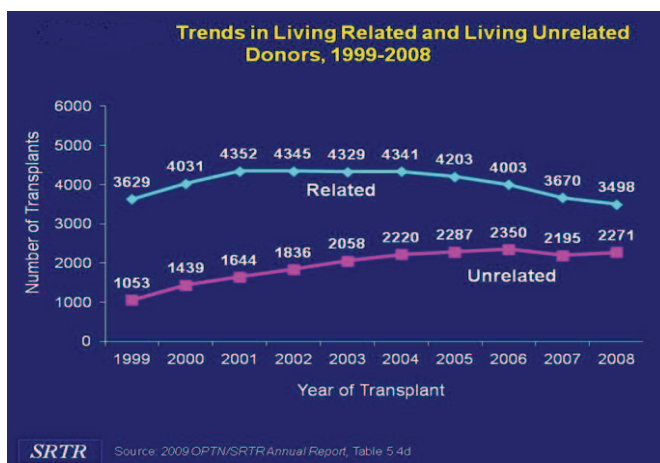


Fig. 9. Trends in living related and living unrelated donors UNOS publications

10. The struggle against international organ trafficking

The antimarket campaign could change things. To be able to do so, however, it needs to embrace a strategy combining new discursive and practical elements.

The campaign against transplant commercialism could be coherent and possibly successful only if it explained that the suffering-preventing capacity of a kidney disease-free and poverty-free world is considerably greater than that of any regulated market in organs [Danovitch et al 2008 & Turner 2008].

10.1 WHO guiding principles for cell, tissue and organ transplantation

WHO has condemned the commercialization of organs in several occasions, starting from the decision of the General assembly No. 40.13 in year 1987 and No. 42.5 in year 1989, and requested the countries to consolidate efforts to implement the decision, then the decision No. 44.25 for the year 1991 which has adopted the first draft of the WHO guiding principles regarding the human cells, tissues and organs transplantation, and which has contoured the methodological and ethical standard framework.

Among the most important recommendations issued by the general assembly, are those issued in its fifty-seventh session (decision 57.18) in may 2004, where the organization has required from the member countries the necessity of existence of an actual supervision on the organ transplantation, and promotion of both living and deceased donation, and to take the necessary measures to protect the poorest and exposed to the organs transplantation tourism. In year 2008, the guiding principles of the WHO have been updated regarding the human cells, tissues and organs transplantation [WHO 2008]. They were adopted by the executive council in its session held in November 2008 these guidelines are.

- Consent for deceased donation
- No conflict between physicians determining death

- Deceased but also live consenting donors
- Minors and incompetent persons be protected
- No sale or purchase
- Promotion of donation no advertising nor brokering
- Physician responsibility on origin of transplant
- Justifiable professional fees
- Allocation rules
- Quality safety efficacy of procedures and transplants
- Transparency and anonymity

10.2 International consultation for the organization of organ transplantation

A group of meetings were held by the WHO joined number of scientists and international and national organizations in order study the challenges facing human cells, tissues and organ transplantation. Open consultations were done in Karachi, Geneva and Madrid, different experts were invited The purpose of all such consultations is to determine the problem about such a matter and also to extract preparatory ideas in order to make them implemented and to encourage countries to have national or regional strategies for self sufficiency by promoting both living and deceased donation and to cooperate towards organ trafficking free world. They urge the need for an international binding treaty to regulate transplantation and to combat organ trafficking [Carmi 1996]. Fig (10)



Fig. 10.

10.3 Amsterdam forum on the care of the kidney donor: Data and medical Guidelines

Kidney and transplant surgeons met in Amsterdam, The Netherlands, from April 1-4, 2004 for the international forum on the care of the live kidney donor. Forum participants included over 100 experts and leaders in Transplantation representing more than 40 countries from around the world. The Forum analyzed the sentinel events associated with live kidney donation; the data emphasized the extremely low Operative mortality rates and the long-term safety of this procedure. Forum participants affirmed the necessity for live donors to receive complete medical and psychosocial evaluation prior to donation. A great detail of discussion focused on prevention of transmissible infectious diseases through live kidney transplantation [Delmonico et al 2007].

10.4 Lisbon conference for the care of kidney transplantation recipients in February 2006

An international conference about the care of the kidney transplantation recipients, held in Lisbon, Portugal, February 2nd-4th 2006, with the cooperation between the WHO and different international and national societies of organs transplantation. The conference has joined more than 100 experts and leaders in organ transplantation. It represents more than 40 countries from all over the world. The conference aimed to determine the main issues and to set recommendations to improve the outcome of kidney transplantation all over the world [The Consensus Statement of the Amsterdam Forum 2004].

10.5 Asian campaign against organs commercialization

A meeting was held in Taipei - January 2008, About the immoral and unfair practices related to the organs transplantation in Asia by local citizens and by others from other areas. The recommendation of the Asian campaign stressed the importance of collective measures against organ trafficking [Bagheri 2005].

10.6 Istanbul declaration

An international summit was held in Istanbul on May 2nd 2008, joining more than 150 representatives for medical professional, governmental and non governmental organizations, and transplant societies from 78 countries and 20 international organizations, The meeting was organized by The Transplantation Society (TTS) and the International Society of Nephrology (ISN). The recommendations of Istanbul Declaration have added very important dimensions to the international standards of organ transplantation and emphasized the encouragement of living and deceased donation and stressed on the living donors care and to view their act as a championship as they are sharing in the Gift of life and the necessity to evaluate the donors medically and psychologically before and after donation [Steering Committee of the Istanbul Summit 2008]. The declaration was centered on Organ commercialism, which targets vulnerable populations (such as illiterate and impoverished persons, undocumented immigrants, prisoners, and political or economic refugees) in resource-poor countries, has been condemned by international bodies such as the World Health Organization for decades. Yet in recent years, as a consequence of the increasing ease of Internet communication and the willingness of patients in rich countries to travel and purchase organs, organ trafficking and transplant tourism have grown into global problems.

The Istanbul Declaration proclaims that the poor who sell their organs are being exploited, whether by richer people within their own countries or by transplant tourists from abroad. Moreover, transplant tourists risk physical harm by unregulated and illegal transplantation. Participants in the Istanbul Summit concluded that transplant commercialism, which targets the vulnerable, transplant tourism, and organ trafficking should be prohibited. And they also urged their fellow transplant professionals, individually and through their organizations, to put an end to these unethical activities and foster safe, accountable practices that meet the needs of transplant recipients while protecting donors.

Countries from which transplant tourists originate, as well as those to which they travel to obtain transplants, are just beginning to address their respective responsibilities to protect their people from exploitation and to develop national self-sufficiency in organ donation. The Declaration should reinforce the resolve of governments and international organizations to develop laws and guidelines to bring an end to wrongful practices. "The

legacy of transplantation is threatened by organ trafficking and transplant tourism. The Declaration of Istanbul aims to combat these activities and to preserve the nobility of organ donation. The success of transplantation as a life-saving treatment does not require – nor justify – victimizing the world's poor as the source of organs for the rich” [Epstein 2008]

10.7 Madrid conference March 23th-25th, 2010

A conference was held in Madrid. It has concentrated about the self-sufficiency of organs for each country or region. The conference has recommended the necessity to set national plans and strategies to promote the donation of organs from deceased and living persons, arriving to the self-sufficiency and to fight, struggle and limit organ trafficking and transplant tourism.

10.8 Global leadership symposium on organs donation

During the period May 10th-13th, 2010, the global leadership symposium on organs donation was held in California. It was attended by a lot of workers in the promotion of organs donation and a number of the international experts in the organs donation and transplantation and ethicists from several countries to more support the organs donation and fight organ trafficking.

11. References

- Abouna GM: Recent Pronouncements by Two Major Religions on Organ Transplantation: Current Status of Clinical Organ Transplantation. The Hague, Nijhoff, 1984, pp XI-XII.
- Abouna GM: Kidney transplantation from live donors: Benefits, possible risks and dilemmas. *J Kuwait Med Assoc* 1998; 30:89-92
- Abouna GM. Organ shortage crisis: problems and possible solutions. *Transplant Proc* 2008; 40:34-38
- Ad Hoc Committee. A definition of irreversible coma: report of the Ad Hoc. Committee of the Harvard Medical School to Examine the Definition of Brain death. *JAMA* 1968; 205: 337-40
- Alashek WA, Ehtuish EF, Elhabashi A, Emberish W, Mishra A: Reasons for Unwillingness of Libyans to Donate Organs after Death. *LIBYAN JOURNAL OF MEDICINE*, VOL 4, NO 3 2009
- Al-Faqih SR: The influence of Islamic views on public attitudes towards kidney transplant donation in a Saudi Arabian community. *Public Health*, 1991; 105(2): 161-65.
- Amerling R: A market for living organs revisited. *Transplant News Issues* 2001; 2:S16-S17.
- Bagheri A. “Organ Transplantation Laws in Asian Countries: A Comparative Study,” *Transplantation Proceedings* 37, no. 10 (December 2005): 4159-4162
- Bartholomew A, Sher D, Sosler S, Stock W, Lazda V, Koshy M, Devine S, van Besien K: Stem cell transplantation eliminates allo-antibody in a highly sensitized patient. *Transplantation* 2001;72:1653-1655.
- Beasley CI, Cherry MJ: Body parts and the market place: insights from Thomistic philosophy. *Christ Bioethics*, 2000; 6(2): 17193.
- Beier UH, Hidalgo G, John E. Financial incentives to promote prolonged renal graft survival: potential for patients and public health. *Med Hypotheses* 2008; 70:218-220.

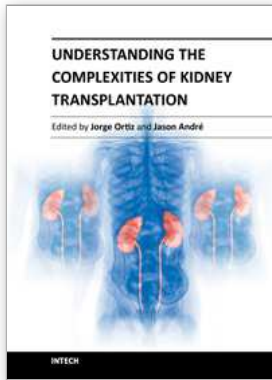
- Bernat JL. The Boundaries of organ donation after circulatory death. *N Engl J Med* 2008;359:669-71
- Bramstedt KA, Xu J. Checklist: passport, plane ticket, organ transplant. *Am J Transplant* 2007; 7:1698-1701.
- Budiani-Saberi DA, Delmonico FL. Organ trafficking and transplant tourism: a commentary on the global realities. *Am J Transplant* 2008; 8:925-92
- Bukler L, Cooper DK: Xenotransplant: *State of the art. Front Biosci* 1999;4:416.
- Byrne PA, O'Reilly S, Quay PM. Brain Death an opposing viewpoint. *JAMA* 1979; 242:1985-90
- Cameron JS, Hoffenberg R: Ethics of organ transplantation reconsidered: Paid organ donation and the use of executed prisoners as donors. *Kidney Int* 1999; 55:724-732.
- Carmi A: Organ transplantation in the mirror of the recent world- wide legislation. *Med Law*, 1996; 15: 341-9
- Chapman J. Should we pay donors to increase the supply of organs for transplantation? *No.BMJ* 2008; 336:1343.
- Cohen B, D'Amato J: Some contemporary ethical consideration related to organ transplantation. *Transpl Int* 1995;8:238-243.
- Colakgin M, Yenicesu M, Akpolat T, et al: Nonrelated living donor kidney transplantation: Medical & ethical aspects. *Nephron*, 1998; 79: 447-51
- Courtney AE, Maxwell AP. The challenge of doing what is right in renal transplantation: Balancing equity and utility. *Nephron Clin Pract.* 2009;111:62-6778.
- Daar AS: Paid organ donation-the grey basket concept. *J Med Ethics*, 1998; 24: 365-8
- Danovitch GM, Leichtman AB. Kidney vending: the 'Trojan horse' of organ transplantation. *Clin J Am Soc. Nephrol* 2006 1: 1133-1135
- Danovitch GM. The doctor/patient relationship in living donor kidney transplantation. *Curr Opin Nephrol Hypertens* 2007; 16:503-505.
- Danovitch GM. Who cares? A lesson from Pakistan on the health of living donors. *Am J Transplant* 2008; 8:1-2.
- Danovitch GM, Delmonico FL. The prohibition of kidney sales and organ markets should remain. *Curr Opin Organ Transplant* 2008;.
- Delmonico FL, Radolph JG. Death: a concept in transition. *Pediatrics* 1973;51:234-9
- Delmonico FL, Murray JE. A medical defense of brain death. *Ethics & Medics* 1999;224:1-268.
- Delmonico FL, Dew MA. Living donor kidney transplantation in a global environment. *Kidney Int.* 2007 Apr;71(7):608-14. Epub 2007 Feb 7
- Delmonico FL. The Pakistani revelation. *Transplant Int* 2007; 20:924-925.
- Delmonico FL, Danovitch GM. Regulated market for organs is unattainable. *Minn Med* 2008; 91:6.2
- Delmonico FL. The concept of Death and Deceased organ donation. *Int J OrgTransplantation Med.*, 2010; 1(1): 15-20.
- Ebrahim AF: Organ transplantation: contemporary Sunni Muslim, legal and ethical perspectives. *Bioethics*, 1995; 9(3-4): 291-302.
- Ebrahim AF: Islamic jurisprudence and the end of human life. *Med Law*, 1998; 17(2): 189-
- Ehtuish EF, Abouna GM, Shebani AH, Abdulmola TS, Shawesh TZ. Kidney transplantation in Libya: a North African and Middle Eastern perspective *Exp Clin Transplant.* 2006 Jun;4(1):425-8

- Epstein M. The ethics of poverty and the poverty of ethics: the case of Palestinian prisoners in Israel seeking to sell their kidneys in order to feed their children. *J Med Ethics* 2007; 33:473-474.
- Epstein M. The Declaration of Istanbul on Organ Trafficking and Transplant Tourism: an important international achievement with one disturbing loophole. *BMJ* 2008.
- Epstein M, Danovitch G. Is altruistic-directed living unrelated organ donation a legal fiction? *Nephrol Dial Transplant* 2009; 24:357-360.
- Eradini S: Stem cells for all seasons ? Experimental and clinical issues. *JR Soc Med* 2002;95:5-8.
- Evans RW: Organ transplantation and the inevitable debate as to what constitutes basic health care benefit. *Clin Transpl* 1993:359- 391.
- Fandrich F: Pre-implantation stage stem cells induce allogeneic graft acceptance with host conditioning. *Nat Med* 2002;8:171.46.
- Fasting U, Christensen J and Glending S: Children sold for transplant: Medical & legal aspects. Amnesty International-Danish Working Group for children. *Nurs Ethics*, 1998; 5: 518-
- Friedman AL. Payment for living organ donation should be legalized. *BMJ* 2006; 333:746-748.
- Friedman E, Friedman AL. Payment for donor kidneys: pros and cons. *Kidney Int* 2006; 69:960-2.
- Garwood P. Dilemma over live-donor transplantation. *Bull World Health Organ* 2007; 85:1
- Ghods AJ, Savaj S. Iranian model of paid and regulated living-unrelated kidney donation. *Clin J Am Soc Nephrol*. 2006;1:1136-1145.
- Godlee F. Is it time to pilot paying for organs? *BMJ* 2008; 336.
- Golmakani MM, Niknam MH, Hedayat KM. Transplantation ethics from the Islamic point of view. *Med Sci Monit*. 2005;11:105-109.
- Grant D, Mendicino M, Levy G: Xenotransplantation: Just around the corner? *Surgery* 2001;129:243-247
- Hariharan S, Johnson CP, Bresnahan BA, Taranto SE, McIntosh MJ, Stablein D. Improved graft survival after renal transplantation in the United States, 1988 to 1996. *N Engl J Med*. 2000;342:605-612.
- Hull AR & Rosenthal JT: Living kidney donation: A survey of professional attitudes & practices. *Am J Kidney Dis*, 1997; 30: 549-57
- Hunsicker LG: Survival advantage for renal transplantation. *N Engl J Med* 1999; 341:1762-1763.
- Jarvis R: Join the club: A modest proposal to increase availability of donor organs. *J Med Ethics* 1995;21:199-204
- Jasper JD, Nickerson CA, Hershey JC Asch DA: The public's attitudes toward incentives for organ donation. *Transplant Proc*, 1999; 31(5): 2181-84.
- Kranenburg L, Schram A, Zuidema W, et al. Public survey of financial incentives for kidney donation. *Nephrol Dial Transplant* 2008; 23:1039-1042.
- Landolt MA, Henderson SJ, Barrable WM, Greenwood SD, McDonald MF, Soos JG, Landsberg DN: Living anonymous kidney donation: What does the public think? *Transplantation* 2001; 71:1690-169
- Laurance J. Surgeon: organ trade should be legalized. *The Independent* 13 June 2008.
- Leung G. Fun, sun, get a surgery done! The growing trend of transplant tourism. *Issues Berkeley Med J* 2006; 13:7-8.. *BMJ* 2008; 336:1377.

- Life, They decide who lives, who dies: Medical miracle puts a moral burden on a small committee." *Life*, 9 November 1962,102
- Matas AJ. A gift of life deserves compensation: how to increase living kidney donation with realistic incentives. *Cato Institute Policy Analysis* 2007; 604:15.
- Matas AJ. Should we pay donors to increase the supply of organs for transplantation? Yes. *BMJ* 2008; 336:1342.
- Mathieson PW, Jolliffe D, Jolliffe R, Dudley CR, Hamilton K & Lear PA: The spouse as a kidney donor: Ethically sound. *Nephrol Dial Transplant*, 1999; 14: 46-8
- Merrill JP, Murray JE, Harrison JH, Guild WR: Successful homotransplantations of human kidneys between identical twins. *Am J Surg* 1958; 148:343
- Miller DB: Ethics of paid organ donation and the use of executed prisoners as donors. *Kidney Int* 1999; 55:733-737.
- Miranda B and Matesanz R: International issues in transplantation. Setting the scene & flagging the most urgent & controversial issues. *Ann N Y Acad Sci*, 1998; 862: 129-43
- Moqaddam A: Organ transplant not a non-religious act in Iran any more. *Tehran Times*, 2000 27 September.
- Naqvi SAA, Ali B, Mazhar F, *et al.* A socioeconomic survey of kidney vendors in Pakistan. *Transplant Int* 2007; 20:934-939.
- Naqvi SAA, Rizvi SAH, Zafar MN, *et al.* Health status and renal function evaluation of kidney vendors: a report from Pakistan. *Am J Transplant* 2008; 8:1444-1450.
- Noorani MA. Commercial transplantation in Pakistan. *BMJ* 2008; 336:1378.
- Norton DL: Clinical application of brain death protocol. *J Neurosci Nurs* 1992;24:354-35883.
- Novelli G, Rossi M, Poli L, *et al.* Is legalizing the organ market possible? *Transplant Proc* 2007; 39:1743-1745.
- Platt JL: Genetic engineering for xenotransplantation. *Transplant Proc* 1999;3:1488.
- Pope John Paul II. Address to International Congress on Transplants. August 29,2000. (available from <http://www.cin.org/pope/organ-transplant-cloning.html>)
- Prasad GV, Shukla A, Huang M, *et al.* Outcomes of commercial renal transplantation: a Canadian experience. *Transplantation* 2006; 82:1130-1135
- President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research. *Defining Death: A report on medical legal, and ethical issues in the determination of death.* Washington, DC: The Commission; 1981.
- Radcliffe-Richards J, Daar AS, Guttman RD, Hoffenberg R, Kennedy I, Lock M, Sells RA, Tilney N: The case for allowing kidney sales. *Lancet* 1998;351:1950 -1952.
- Rahman F: Health and medicine in the Islamic tradition: change and identity. Chicago, IL: ABC International Group, 1998.
- Rithalia A, McDaid C, Suekarran S, Norman G, Myers L, Sowden A. A systematic review of presumed consent systems for deceased organ donation. *Health Technol Assess.* 2009;13:1-95.
- Sajjad I, Baines LS, Patel P, *et al.* Commercialization of kidney transplants: a systematic review of outcomes in recipients and donors. *Am J Nephrol* 2008; 28:744-754.23.
- Satel S, Hakim N. 'What's wrong with selling kidneys?' *International Herald Tribune* 20 June 2008
- Savules J: Should we clone human beings? Cloning as a source of tissue for transplantation. *J Med Ethics*, 1999; 25: 87-956

- Shemie SD, Baker AJ, Knoll G, et al. National recommendations for donation after cardiocirculatory death in Canada: Donation after cardiocirculatory death in Canada. *Can Med Assoc J*. 2006;175:S1..
- Shemie SD. Clarifying the paradigm for the ethics of donation and transplantation: was "dead" really so clear before organ donation? *Philos Ethics Humanit Med* 2007;2:18
- Shewmon DA. Chronic "brain death": meta-analysis and conceptual consequences. *Neurology* 1998;51:1538-45.
- Sim KH, Marinov A & Levy GA: Xenotransplantation: A potential solution to the critical organ donor shortage. *Can J Gastroentrol*, 1999; 13: 311-8
- Spital A: Do US transplant centers encourage emotionally related kidney donation? *Transplantation*, 1996; 61: 374-7
- Spital A: Should children ever donate kidneys? *Views of US transplant centers. Transplantation*, 1997; 64: 232-6
- Spital A: Ethical & policy issues in altruistic living & cadaveric organ donation. *Clin Transplant*, 1997; 11: 77-78.
- Starzl T, et al: Renal transplantation from baboon to man: Experience with six cases. *Transplantation* 1964;2:752.
- Steering Committee of the Istanbul Summit. Organ trafficking and transplant tourism and commercialism: the Declaration of Istanbul. *Lancet* 2008; 372:5-
- Surman OS, Saidi R, Purtilo R, et al. The market of human organs: a window into a poorly understood global business. *Transplant Proc* 2008; 40:491-493.
- Sweet WH. Brain death. *N Engl J Med* 1978;299:410-2
- The Consensus Statement of the Amsterdam Forum on the care of the live kidney donor. *Transplantation* 2004; 78: 491-492.
- The Definition of Irreversible Coma: Report of ad hoc Committee of Harvard Medical School of Definition of Brain Death. *JAMA* 1968;205: 337
- The Economist The gap between supply and demand. 11-17 October 2008:85- 87
- Thomas C: Living donor receives leave benefits. *Transplant Chronicle* 2000;7:4.
- Truog RD. Is it time to abandon brain death? *Hastings Cent Rep* 1997;27:29-37
- Truog RD Miller FG. The dead donor rule and organ transplantation. *N Engl J Med* 2008;359:674-5
- Turcotte JT, Benjamin M, Caplan AL: Patient selection criteria in organ transplantation: The critical questions. *Transplant Proc* 1989;21: 3377-3445.
- Turner L. Let's wave goodbye to 'transplant tourism' *BMJ* 2008; 36:1377
- United Network for Organ Sharing (UNOS): Annual Report,1999.
- United Network for Organ Sharing (UNOS): Policy of Organ Distribution. June 2001
- Van Bommel A: Medical ethics from the Muslim perspective. *Acta Neurochir Suppl (Wien)*, 1999; 74: 17-277.
- Veatch RM. Donating hearts after cardiac death - reversing the irreversible. *N Engl J Med* 2008;359:672-3
- WHO. WHO guiding principles on human cell, tissue and organ transplantation. EB123/5 2008:1-8. Another document that reaffirms the principles of the international campaign against transplant commercialism and global transplant commercialism in particular.
- Wilkinson S & Garrad E; Bodily integrity & the sale of human organs. *J Med Ethics, Lancet*, 1996; 22: 334-9

Zargooshi J. Iran's commercial renal transplantation program: results and complications. In: Weimar W, Boss MA, Busschbach JJ, editors. Organ transplantation: ethical, legal and psychosocial aspects. Lengerich: Pabst Science Publishers; 2008. pp. 80-94



Understanding the Complexities of Kidney Transplantation

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Kidney transplantation is a complex field that incorporates several different specialties to manage the transplant patient. This book was created because of the importance of kidney transplantation. This volume focuses on the complexities of the transplant patient. In particular, there is a focus on the comorbidities and special considerations for a transplant patient and how they affect kidney transplant outcomes. Contributors to this book are from all over the world and are experts in their individual fields. They were all individually approached to add a chapter to this book and with their efforts this book was formed. Understanding the Complexities of Kidney Transplantation gives the reader an excellent foundation to build upon to truly understand kidney transplantation.

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