Ethics of Organ Transplantation

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What is organ transplantation?

- An organ transplant is a surgical operation where a failing or damaged organ in the human body is removed and replaced with a new one. An organ is a mass of specialized cells and tissues that work together to perform a function in the body.
- The heart is an example of an organ. It is made up of tissues and cells that all work together to perform the function of pumping blood through the human body.
- A graft is similar to a transplant. It is the process of removing tissue from one part of a person's body (or another person's body) and surgically re-implanting it to replace or compensate for damaged tissue. Grafting is different from transplantation because it does not remove and replace an entire organ, but rather only a portion.

“Organ Transplant”

- Not all organs are transplanted. The term “organ transplant” typically refers to transplants of the solid organs: heart, lungs, kidneys, liver, pancreas and intestines.
- Animal and artificial organs may also serve as transplantable organs.
- Other types of transplants that are less invasive or may require specialized procedures, include:
- skin grafts or transplants
- corneal transplants
- bone marrow transplant

The transplant process

- When a person falls ill because one of his or her organs is failing, or because the organ has been damaged in an accident or by disease, the doctor first assesses whether the person is medically eligible for a transplant.
- If so, the doctor then refers the individual to a local transplant center.
- The transplant center evaluates the patient's health and mental status as well as the level of social support to see if the person is a viable candidate for an organ transplant.
- If the patient is a transplant candidate a donor organ must be found.
- There are two sources for donor organs. The first source for organs removes them
- from recently deceased people. These organs are called cadaveric organs.
- A person becomes a cadaveric organ donor by indicating that they would like to be an organ donor when they die.
- This decision can be expressed either on a driver's license or in a health care directive. In Minnesota, designating your organ donation desires on a drivers license is legally binding.

Transplant process 2

- In some states or countries, when a person dies and he or she has not indicated organ donation preferences, the family is asked if they would be willing to donate their relatives' organs.
- Some states' hospitals have policies requiring family consent for organ removal, regardless of whether organ donation wishes are written down.
- Therefore, many organ donation advocacy organizations encourage people to discuss their organ donation preferences with their families to assure that their wishes are known and followed.

Transplant process: living donors

- The second source for donor organs is a living person. Living donors are often related to the patient, but that is not always the case. Spouses and close friends frequently donate organs to ailing loved ones.
- Some people who wish to donate their organs may decide to donate to a stranger.
- A few not-for-profit organizations maintain lists of willing living donors.
- For example, the National Marrow Donor Program maintains a list of people willing to donate bone marrow to a stranger and there are a variety of non-related living kidney donor organizations that maintain regional lists of willing donors.
- Individuals who wish to donate one of their organs to a stranger may also initiate a non-directed donation (NDD).
- Non-directed donors approach either a transplant center or a nationally sponsored organ procurement organization and offer one of their organs for transplant to anyone who may need it

LIVING ORGAN DONATION

Living people who wish to donate their organs can donate in two ways:

1. Donate one-half of a paired organ set.
Example: Kidney

2. Donate a portion of an organ that will still be able to function without it.
Example: A portion of the liver.
Example: A lobe of the lung

Distributing cadaveric organs

- If a person does not have a readily available living donor or is ineligible for a living donation because their predicted outcome is questionable, they are placed into a waiting pool for an organ from a cadaver by their transplant center.
- The United Network for Organ Sharing (**UNOS**) maintains the list for the national waiting pool.
- When donor organs become available after a person dies an organ procurement organization (**OPO**) takes the organs into custody. The OPO then matches the donor organs with the appropriate transplant patients by gathering information about the donor organs and entering it into a computer program.
- The program takes this information and compares it to information about the patients in the waiting pool. The computer then generates a ranked list of transplant patients who can receive the donor organs.

Information that factors into the ranked list include- Ranking Criteria

- Organ type, blood type and organ size
- Distance from the donor organ to the patient
- Level of medical urgency (not considered for lung transplant candidates)
- Time on the waiting list

What happens after ranking

- After the generation of the ranked list, the donated organ is offered to the first patient's transplant center.
- However, the first person on the ranked list may not receive the organ. Additional factors to be evaluated before the organ procurement organization selects the appropriate candidate are:
- Is the patient available and willing to be transplanted immediately?
- Is the patient healthy enough to be transplanted?
- Once the appropriate candidate is located, the organ procurement organization takes the organ and delivers it to the transplant center where the transplant will be performed. This entire process must occur very quickly as organs are only transplantable for a short time period after they've been removed.

The transplant procedure

- When the transplant patient is ready for the donor organ, the transplant center then surgically removes and replaces the failed or failing organ through the following general procedure:
- 1. Make an incision in the body near the failing organ
- 2. Cut the arteries and veins that run to the organ
- 3. Remove the organ through the incision
- 4. Take the new organ and insert it into the body through the incision
- 5. Connect the new organ to the arteries and veins
- 6. Close the incision

Post-transplant

- After the transplant, the patient embarks on a long road to recovery. If surgery goes well, the patient still must face the possibility of rejection.
- Rejection is the process where the body fights off the newly implanted organ.
- Rejection is harmful to transplant success because the body fights off the new organ as it would a virus or bacteria. In fact, the body's immune system treats the organ as it would any other harmful foreign invader.
- The immune system makes proteins called antibodies that go to the transplanted organ and try to kill it.
- In order to hold back the antibodies that threaten the new organ, transplant patients have to take powerful immunosuppressant drugs to keep the level of antibodies down low enough for the organ to integrate into the body and start working

A history of organ transplantation

- The medical practice of organ transplantation has grown by leaps and bounds over the last 50 years. The major transplant-related medical advances in the last century include:
- Successful transplantation of different kinds of organs What began with the kidney has now expanded to hearts, lungs, livers and other organs.
- Development of cadaveric and living organ donation practices
- Deciding who can donate organs has been a flexible and changing process, starting with living donors and then moving to include deceased and brain dead donors. The debate about increasing and restricting the pool of eligible donors continues today.
- In 2001, living donors outnumbered cadaveric donors for the first time in United States history.

Other advances in organ transplantation

- Development of anti-rejection drugs to increase success
- Anti-rejection drugs have done wonders to increase the success of organ transplants. During the 1960s and 1970s, immunosuppressant drugs helped increase the success rate of organ transplants.
- In the 1980s, Cyclosporine was discovered and dramatically improved the success rate for transplant recipients and helped improve patient outcomes
- Using animal organs for human transplantation (called Xenotransplantation)
- In 1986, the first xenotransplanted organ transplant was performed. This intriguing field of study becomes more attractive to some researchers as the number of people needing organ transplants continues to grow.

More recent advances in organ transplantation

- Invention and use of the first artificial organs The first artificial heart transplant in the 1980s was closely followed by the news media and the American public.
- Splitting organs into pieces (either from living donors or cadaveric donors).The first split liver transplant in 1996 allowed one cadaveric liver to be used among multiple transplant patients.
- Stem cell research: Stem cell research is examining adult and human embryo cells in an attempt to discover how organs are developed and what stimulates their growth.

ETHICAL ISSUES

ETHICAL ISSUES 1: ORGAN SHORTAGE

- The primary ethical dilemmas surrounding organ transplantation arise from the shortage of available organs.
- Not everyone who needs an organ transplant gets one and in fact, the scales tip quite heavily in the opposite direction.
- The United Network for Organ Sharing (UNOS) maintains a comprehensive, up to- date website that gives the status of people awaiting organ transplants. According to UNOS over 83,000 people are currently awaiting transplants in the United States.
- The UNOS website reports that in 2003 more than 19,000 organ transplants were performed. The organs were taken from approximately 9,800 donors both living and deceased.
- While 19,000 transplants may seem like a large number, 83,000 people remain on the waiting list for an organ and the gap between the number of available donor organs and the number of people who need organs grows daily.

Statistics on organ demand and availability

- “On average, **106 people are added** to the USA organ transplant waiting list each day--one every 14 minutes.
- “On average, **68 people in the USA receive organ transplants** every day from either a living or cadaveric donor.
- “On average, **17 patients die everyday while awaiting an organ transplant**-- one person every 85 minutes.
- In 2002, 6,187 individuals died on the U.S. organ transplant waiting list because the organ they needed was not donated in time.

Causes of Organ shortage

- The number of donated organs has stayed fairly constant over the last few years while the number of people needing organs continues to increase.
- Many explanations are offered to explain the length of the list – such as the number of new medical technological advances and the aging population.
- One possible explanation as to why the number of donated organs from cadavers remains static concerns the increasing effectiveness of seat belt campaigns and air bag use. In the past, a large source of healthy cadaveric organs came from victims of car crashes.
- With static or declining numbers of car crash fatalities, there are also declining sources of healthy human organs for transplant.

Distributive Justice: Ethical Distribution of available organs

- The concept of distributive justice – how to fairly divide resources – arises around organ transplantation because there are not enough organs available for everyone who needs one.
- 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.
- One distributive justice criteria is **Equal Access**.
- Organs allocated according to equal access criteria are distributed to patients based on objective factors aimed to limit bias and unfair distribution. Equal access criteria include:
- 1. Length of time waiting (i.e. first come, first served)
- 2. Age (i.e. youngest to oldest)

Distributive justice

- Society uses a variety of factors as a criteria for distributive justice, including the following:
- to each person an equal share
- to each person according to need
- to each person according to effort
- to each person according to contribution
- to each person according to merit
- to each person according to free-market exchanges

Equal Access v Maximum benefit

- 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.
- To encourage equality in organ transplantation, the equal access theory encourages a distribution process for transplantable organs that is free of biases based on race, sex, income level and geographic distance from the organ.
- Some who believe in equal access distribution would also like to have an organ distribution process free of medical or social worthiness biases. Medical "worthiness" biases could exclude patients from reaching the top of the transplant waiting list if lifestyle choices like smoking and alcohol use damaged their organs. Social "worthiness" biases would factor in a patient's place in society or potential societal contribution before giving them an organ. This would affect, among others, prisoners being punished for offenses against society.

Equal Access v Maximum benefit

- The primary reasons for wanting to prevent individual worth from factoring into organ distribution include:
- a) the argument that individual worth does not determine medical need;
- b) the dilemma involved in deciding who will make decisions of who is worthy or not worthy to receive an organ, and;
- c) the slippery slope of determining an individual's worth and whether or not it is fair to label someone worthy of a medical procedure
- On the other hand, some ethicists argue that individual worth is important to consider during organ distribution. They argue that distribution is biased **against** worthy individuals when individual worthiness factors are not included.
- A second type of distributive justice criteria is **maximum benefit**. The goal for maximum benefit criteria is to maximize the number of successful transplants. Examples of maximum benefit criteria include:

Maximum benefit

- Medical need (i.e. the sickest people are given the first opportunity for a transplantable organ)
- Probable success of a transplant (i.e. giving organs to the person who will be most likely to live the longest)
- People who support the maximum benefit philosophy believe organ transplants are medically valuable procedures and wish to avoid the wasting of organs because they are very scarce. To avoid waste, they support ranking transplant candidates by taking
- Recent research shows that when given scenarios of two people who both need an organ transplant, the general public's organ distribution preferences are influenced by whether or not a person made behavioral lifestyle choices
- that caused their illness. (Ubel PA, Jepson C, Baron J, et.al.)

Maximum benefit ctd

- SUPPORTERS OF MAXIMUM BENEFIT DISTRIBUTION SAY… "Organs should be distributed so that the greatest benefit is derived from every available organ into account how sick the patient is and how likely it is that the patient will live after he or she receives a transplant."
- 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.

Current organ distribution policy

- The current organ distribution method relies on each transplant center to determine which criteria they will use to fairly allocate organs
- UNOS encourages transplant centers to consider the following criteria for distributing organs:
- 1) medical need;
- 2) probability of success, and;
- 3) time on the waiting list.
- Most experts agree that these three criteria are relevant. Childress states that ethical conflicts arise both when specifying what the criteria mean, and when *weighing* the criteria in cases of conflict.
- Some authorities suggest that “Policies need to be aimed at both increasing organ donations as well as creating a system that allocates them in the fairest ways possible.”

ORGAN SHORTAGE: ETHICAL QUESTIONS

Transplantable organs are scarce. Knowing that there are more people who need organs than there are organs available, how would you answer the following questions? Are your answers based on a belief of *equal access* or maximum benefit distribution?

1. 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?

2. Should people whose lifestyle choices (smoking, drinking, drug use, obesity, etc.) damaged their organ be given a chance at an organ transplant?

3. Should suicidal individuals be given an organ transplant? What if they attempted suicide in the past but are not currently contemplating suicide?

4. Should people who have young children be given an organ transplant over a single person? Over an elderly person? Should age and whether or not a person has children even matter?

5. 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?

6. Should condemned prisoners receive organ transplants? What if they are serving a life sentence without parole?

ETHICAL ISSUES PART: INCREASING DONOR ORGANS

- One way to avoid the ethical problems associated with the shortage of transplantable organs is to increase the number of donor organs.
- However, fears abound that policies to maximize organ donations could go too far – leading to organ farming or premature declarations of death in order to harvest organs.
- Many, if not most, people agree that taking organs from any source is a justifiable practice within certain ethical boundaries. Controversies result from an inability to define exactly where those boundaries lie.
- Everyone may have their own unique ideas about the boundaries they would like to see concerning the following three sources of transplantable organs: cadaveric donors, living donors and alternative organ sources.

Cadaveric organ donation

- Currently, once a person dies, his or her organs may be donated if the person consented to do so before they passed away.
- A person's consent to donate their organs is made while still living and appears on a driver's license or in an advance directive. After consenting to donate organs, nothing happens with that information until the person dies.
- A person is considered dead once either the heart stops beating or brain function ceases (brain death). After death, the organs are taken from the deceased person's body.
- If possible, the deceased person may be kept on life support once they have died until the organs can be taken, in order to preserve the organs until they are removed.
- If the deceased person's organ donation wishes are unknown, the hospital, physician, or organ procurement organization will approach a family member to obtain consent to remove the organs. The family members with the authority to do so is generally determined by this hierarchy: spouse>adult child>parent>adult sibling>legal guardian

Five strategies to increase cadaveric organ donations

- EDUCATION
- MANDATED CHOICE
- PRESUMED CONSENT
- INCENTIVES
- PRISONERS

Living organ donation

- 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.
- According to UNOS, there are a number of benefits to living donation, both for the donor and the patient:
- The donation can be pre-arranged, allowing the patient to begin taking anti-rejection drugs in advance, thereby increasing the chances of success
- 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

Drawbacks to becoming a living donor

- **Health consequences: Pain, discomfort, infection, bleeding and potential future health complications are all possible**
- **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**

BUYING AND SELLING ORGANS

- 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
- Wealthy people would be able to access more readily

Effects of offering payment for kidneys- Reported in JAMA 2002

- 96% of people sold their kidneys to pay off debt
- 74% of people who sold their kidneys still had debt 6 years later
- 86% of people reported a deterioration in their health status after donation
- 79% would not recommend to others that they sell their kidneys
- Arguments that favor the buying and selling of human organs are scarce. Robert Veatch argues that the United States has the money and resources to eliminate socioeconomic disparities, and if this were done, people could then sell their organs, because it is poverty that requires people to act out in desperation for money and not with an objective and informed mind.

Alternative organ sources

- ANIMAL ORGANS
- ARTIFICIAL ORGANS
- STEM CELLS
- ABORTED FETUSES

LEGAL AND SOCIAL ISSUES

- Organ donation laws exist for two primary purposes:
- The first purpose of organ donation laws is to help ensure a safe and fair organ donation collection and distribution practice.
- The second type of organ donation laws have been enacted to widen the pool of potential donors in an effort to increase the number of organs available for transplant
- Consent Laws: In the 1990's, states began to pass first person consent laws. These laws require hospitals and organ procurement organizations to follow a patient's organ donation wishes as indicated on their driver's license or in a health care directive.
- Where the laws are enacted, the hospital and the organ procurement organization has a legal right to follow a deceased person's written organ donation wishes and does not require them to approach the deceased person's family for permission to remove the organs.

THE IMPACT OF TRANSPLANTATION

- Receiving an organ donated from a living or deceased donor is a life changing event.
- Organ donation impacts a staggering number of people and the stories of how organ transplantation has affected someone's life are often collected to be shared with others.

Case Study:
Informed consent for organ donation

- Two brothers, Vusi and Zondi, accompanied by their mother, present themselves in the out-patient service of the department for transplantation surgery. Vusi wants to donate a kidney to Zondi. 25-year-old Zondi has been on dialysis for two years now, due to chronic pyelonephritis. He does not experience major physical trouble on dialysis.
- In fact, he can even drive his own car home most of the time. However, his career potential is rather limited as he cannot work for three half-days per week. He has just finished his training as a carpenter and is now looking for a job, so far without success. The response has frequently been: "If you could work full time, we'd take you on the spot."
- Although he is on the waiting list for a kidney, no organ is likely to be available soon, given his rare blood group. Zondi starts to get frustrated by this situation, particularly as he intends to marry his girlfriend this year and start a family. At one of his last check-ups, Zondi's Nephrologist told him about the possibility of a living organ donation. The long term results of such transplantation are excellent, said the physician, and he would most likely be able to work full-time and live a normal life. With this prospect in mind, Zondi talks to his family.
- The possibility that Vusi, his elder brother, might be a candidate is raised. Vusi is almost deaf and moderately mentally retarded. He has attended a special school from second grade on and currently lives at home. He is, however, not under guardianship. As he has not learned the standard sign language, only his mother is able to fully understand what he wants to communicate. She says it is his urgent wish to donate. He keeps signaling her he wants to help and that he wants to give a kidney to his brother. Zondi is willing to accept his brother's offer and asks the transplant surgeon to accept him for further examination.

Q: How should the surgeon Proceed?

- 1. The surgeon should proceed with the examination because Vusi has made his strong view known through his mother; he wants to help his brother.

- 2. The surgeon should not proceed with the examination while discussing the following issues:

- A. Is Vusi competent?
- B. What are the risks and benefits to Vusi?
- C. Are there other potential donors in the family?
- D. What are the opinions of the mother and other family members on this issue?

- 3. The surgeon should not proceed with the examination because he has no basis upon which to conclude that Vusi is competent to consent, that the benefits of organ donation will outweigh the risks for Vusi, and that there are no other potential donors in the family.

References

- *Adapted for student teaching from Ethics of Organ Transplantation. Center for Bioethics. University of Minnesota*

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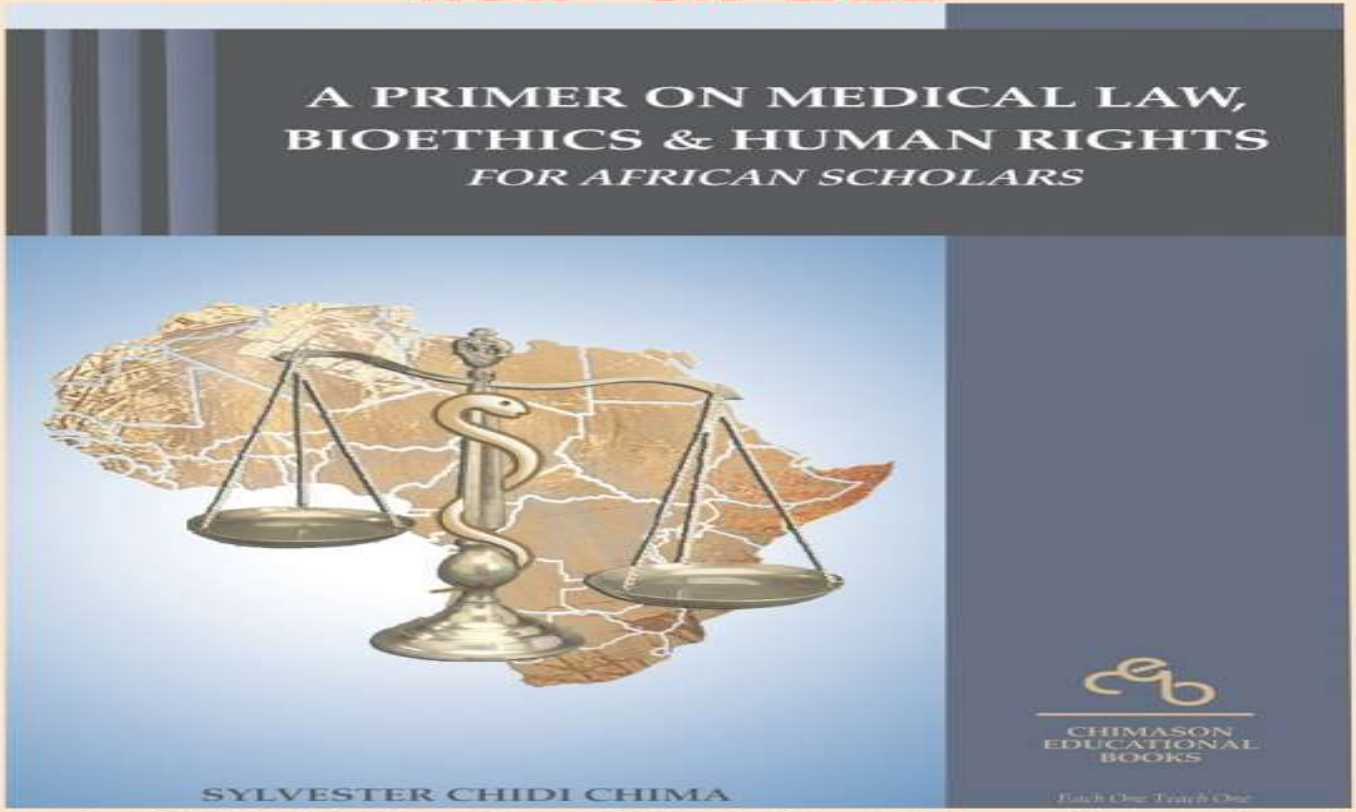

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