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ETHICS OF ORGAN DONATION AND TRANSPLANTATION

Biju Michael, SDB♦
Salesian Pontifical University-Faculty of Theology, Jerusalem

Biotechnology is revolutionizing medical practice throughout the world. The growth of biotechnology in Asia is phenomenal. India is amongst the top 12 biotech destinations in the world and second in Asia. In 2013 the market size of Indian biotechnology industry was $4.3 billion and is expected to rise to $11.6 billion by 2017. Bio-pharma export revenues contributed to 64.5% of total export revenues of the industry and registered 25% growth in 2013.[1] Biocon Limited, a company from Bengaluru, India achieved 6th rank among Global 'Top Twenty Employers' list for the Bio-Pharma sector in the list published by 'Science' Magazine in 2013.[2]

Like all applied technology, biotechnology too raises new questions in the field of ethics. In fact, the last forty years has seen the birth and development of a comparatively new branch of ethics called bioethics. Organ transplant is one field in which biotechnology has made great strides.

♦**Biju Michael** is a Catholic Priest belonging to the Salesians of Don Bosco. He is currently the President of the Jerusalem Campus of the Salesian Pontifical University's Faculty of Theology and holds the chair of Moral Theology in the *Studium Theologicum Salesianum*, Jerusalem. He obtained his Doctorate in Moral Theology from the *Accademia Alfonsiana* in Rome and holds graduate and post graduate degrees in various disciplines. He is an internationally published author of several books and audio-visual programmes. Email: bijumsdb@gmail.com

[1]India Brand Equity Foundation, "Indian Biotechnology Industry Analysis by the India Brand Equity Foundation," http://www.ibef.org/industry/indian-biotechnology-industry-analysis-presentation [accessed: March 5, 2014].

[2]Pharmabiz.com, "Biocon ranked at no. 6 among top 20 global biotech employers by the Science Magazine," http://www.pharmabiz.com/NewsDetails.aspx?aid=78431&sid=2 [accessed: March 6, 2014].

Last year, in Israel, a film called "*Ahim Balev*" (Heart Brothers) telling the story of a heart transplant from a 19 year old Israeli Jewish soldier to an Arab recipient grabbed much attention. It was an example of how biotechnology can come to the aid, not only of saving a life, but also of overcoming deep-rooted mistrust, and bridging the relationships between communities. "I am standing there in the operating room, there's a moment when I'm holding the Jewish heart in one hand and the Arab heart in the other, and I look down and suddenly it occurs to me, there's no difference between them." These words of Dr Jacob Lavee, Cardiac Surgeon and Director of the Department of transplantation at the Sheba Medical Centre in Israel who conducted this heart transplant show how organ transplant can be an occasion to recognize the common brotherhood of all human beings.

The modern history of organ transplants started in the 1950s. Kidney dialysis started in 1948 and the first successful kidney transplant from one human to another took place in 1954. Immunosuppressive drugs began to be used in 1961 allowing greater success rates in organ transplants among humans.[3] The first human heart transplant took place in 1967 even though the recipient died 18 days later. Today the technology has advanced much.

The rise of biotechnology has seen also proportionate growth in the moral teaching on these issues from the Catholic Church's magisterium (official teaching authority). While giving its ethical guidelines the Church is aware that the path of moral life which makes salvation open to all peoples touches deeply every person and that governments also establish ethical committees composed of specialists.[4] For example, in India organ and tissue donations are regulated by "The Transplantation of Human Organs Bill, 1994," Act No. 42 of 1994 which was amended in 2011 by the "Transplantation of Human Organs (Amendment) Act, 2011." The Church therefore addresses her guidelines to all people of good will. This article proposes to examine the basic teaching proposed by the Catholic Church for guiding the conscience of individuals who are confronted

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[3]Thomas A. Shannon and Nicholas J. Kockler, *An Introduction to Bioethics*, 4th revised and updated edition, New York: Paulist Press, 2009, 273.

[4]John Paul II, Encyclical Letter *Veritatis Splendor* (August 6, 1993), Boston: Pauline Books and Media, 2003, no. 3; Pontifical Council for Pastoral Assistance to Health Care Workers, *Charter for Health Care Workers*, Nairobi: Pauline Publications Africa, 1995, footnote 29.

with serious decisions in the context of booming technology in the field of organ donation and transplant.

The Church's Positive Outlook on Organ Donation and Transplant

The church has strong words of praise for the development of technology in this field. Magisterial support for organ donation is recorded from 1956 during the pontificate of Pius XII.[5] In the words of John Paul II, organ transplants performed in an ethically acceptable manner are "a great step forward in science's service of man"[6] and the progress of the bio-medical sciences, has made it possible for people to project beyond death their "vocation to love"[7] and to nurture a "culture of life."[8]

The Catholic Church sees Organ donation as a "service to life," a way of offering a chance of health and even life itself to the sick who sometimes have no other hope.[9] This service to life legitimizes the medical practice[10] and calls people to new and challenging ways to love unto the end (cf. Jn 13:1; 15:13). The Catechism of the Catholic Church states that "Organ donation after death is a noble and meritorious act and is to be encouraged as an expression of generous solidarity."[11] Donation of vital organs which becomes effective after death is an "*act of great love, the love which gives life to others.*"[12]

Pope Emeritus Benedict XVI called organ donation a "unique testimony of charity" and considered it as a singular way to make

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[5]Pius XII, "To the Delegates of the Italian Association of Cornea Donors and the Italian Union for the Blind, May 14, 1956" in *AAS* 48 (1956) 459-467.

[6]John Paul II, "Address of the Holy Father to the 18th International Congress of the Transplantation Society, August 29, 2000," no. 1, http://www.vatican.va/holy_father/john_paul_ii/speeches/2000/jul-sep/documents/hf_jp-ii_spe_20000829_transplants_en.html [accessed: March 7, 2014].

[7]John Paul II, "Address of the Holy Father to the Participants of the First International Congress of the Society for Organ Sharing, June 20, 1991," no. 4, http://www.vatican.va/holy_father/john_paul_ii/speeches/1991/june/documents/hf_jp-ii_spe_19910620_trapianti_ en.html [accessed: March 7, 2014].

[8]John Paul II, *Evangelium Vitae,* On the Value and Inviolability of Human Life (March 25, 1995), *AAS* 87 (1995) no. 86.

[9]John Paul II, "Address of the Holy Father to the 18th International Congress of the Transplantation Society, August 29, 2000,"no. 1; Cf. *Evangelium Vitae*, no. 86.

[10]*Charter for Health Care Workers*, no. 83.

[11]*Catechism of the Catholic Church,* New York: Image Book Doubleday, 1995, no. 2296.

[12]John Paul II, "Address of the Holy Father to the Participants of the Society for Organ Sharing, June 20, 1991," no. 4.

one's own life a gift for others in imitation of Jesus who taught us that it is in giving up our life that we save it (cf. Lk 9:24).[13] Benedict saw the donation of one's own vital organs as a genuine testament of charity that can foster a "culture of gift and gratitude" in the donor and the recipient.[14]

Words of Caution amidst Praise

The human body "by virtue of its substantial union with a spiritual soul, is a constitutive part of the person who manifests and expresses himself through it."[15] Hence, organ donation is a genuine act of love where we give, not something that belongs to us but something of ourselves. For the same reason, the human body cannot be considered as a mere complex of tissues, organs and functions.[16] "The body can never be considered as a mere object."[17] Accordingly, as John Paul II pointed out "any procedure which tends to commercialize human organs or to consider them as items of exchange or trade must be considered morally unacceptable, because to use the body as an "object" is to violate the dignity of the human person."[18]

Given the great positive value and the possible misuse of the technology that allows transplants, the Church's magisterium from the time of Pius XII (1939-1958) during whose reign the practice of organ transplant began, has maintained constant and informed interest in the development of the practice of organ transplant. With the goal of promoting the dignity of the donor and the recipient, the Church has encouraged the free donation of organs and at the same

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[13]Benedict XVI, "Address to Participants at an International Congress Organized by the Pontifical Academy for Life, Nov 7, 2008," 1, http://www.vatican.va/holy_father/benedict_xvi/speeches/2008/november/documents/hf_ben-xvi_spe_20081107_acdlife_en.html [accessed: March 7, 2014].

[14]Benedict XVI, "Address to Participants at an International Congress Organized by the Pontifical Academy for Life, Nov 7, 2008," 1. Joseph Ratzinger was himself a registered organ donor.

[15]Congregation for the Doctrine of the Faith, *Donum Vitae,* On Respect for Human Life in its Origin and on the Dignity of Procreation (February 22, 1987), *AAS* 80 (1988) no. 3; Cf. Vatican II, *Gaudium et spes,* Pastoral Constitution on the Church in the Modern World (December 7, 1965), *AAS* 58 (1966) no. 14.

[16]*Donum Vitae*, no. 3

[17]Benedict XVI, Encyclical Letter *Deus Caritas Est,* On Integral Human Development in Charity and Truth (June 29, 2009), *AAS* 101 (2009) no. 5.

[18]John Paul II, "Address of the Holy Father to the 18th International Congress of the Transplantation Society, August 29, 2000," no. 3.

time proposed ethical considerations that will help to harmonize technical progress with ethical rigour so as to defend and promote the integral good of the human person in keeping with his unique dignity.[19]

Before we analyse the moral implications of organ transplant, we shall have to clarify the types of donors and the types of transplantation that is in practice today.

Types of Donors

Human organs can be transplanted from *living donors* or from *donors after their death.* Living donors donate organs and tissues without which they can still live. But in the case of vital organs of the human body like the heart they cannot be donated without clear danger to the life of the donor and so they are harvested only after the death of the person even though the person might make the donation while still alive. Sometimes the relatives make the donation after the death of the person. *Keratoplastia* is a term used for transplantation of organs that are received from a donor after his or her death.

It should be remembered that while we classify human donors as living donors and donors after their death, technology today allows for transplant from non-human donors too.

Types of Transplantation

The development of biotechnology allows for various types of transplantation. The distinctions are important for the moral evaluation of these practices.

Autoplastic transplantation means transplanting a part of the body from one part to another of the same person.

Homoplastic transplantation means transplanting a part of the body from a person to another person of the same species. *Allografting* is another name for homoplastic transplantation and refers to donation and transplant between members of the same species.

Hetero-transplantation means transplanting a part of the body of an animal to that of a human person (cornea, valves etc., when it is possible). *Xenografting* is another name for hetero-transplantation

[19]John Paul II, "Address of the Holy Father to the 18th International Congress of the Transplantation Society, August 29, 2000," no. 1-2; Cf. *Donum Vitae,* no. 4.

which refers to transplantation of an organ or tissue of an animal into a human recipient and so it refers to transplantation between two species.

Artificially developed organs are also being used to great benefit. They are considered to be hetero-transplants.

Ethical Evaluation

As it is evident from the above descriptions of the various types of donors and transplantations, the moral evaluation of a donation and transplant depends on the details involved. In the section that follows we shall analyse each of these.

Ethical Evaluation of Autoplastic Transplantation

The human body being a constitutive part of the person, every human being has the duty to respect and care for the body. Vatican II pointed out, "Though made of body and soul, man is one... man is not allowed to despise his bodily life, rather he is obliged to regard his body as good and honourable since God has created it and will raise it up on the last day."[20] Each human being therefore has the duty to maintain bodily integrity. The US Bishops Conference's Ethical and Religious Directives for Catholic Health Care Services states, "All persons served by Catholic health care have the right and duty to protect and preserve their bodily and functional integrity."[21]

Autoplastic transplantation which implies the explant and implant on the same person involves a certain degree of tampering with bodily integrity. However, it can be considered ethically right, based on the principle of totality which holds that the parts of a physical entity, as parts, are ordained to the good of the physical whole.[22] When the good of the whole is in danger, the parts which exist for the good of the whole can be moved to achieve the good of the whole.

Ethical Evaluation of Homoplastic Transplants

Homoplastic transplants involve transplanting tissues or organs from one human person to another. Consent of the donor is a pre-condition.

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[20] *GaudiumetSpes*, no. 14.

[21] United States Conference of Catholic Bishops, *Ethical and Religious Directives for Catholic Health Care Services*, no. 29, http://www.usccb.org/issues-and-action/human-life-and-dignity/health-care/upload/Ethical-Religious-Directives-Catholic -Health-Care-Services-fifth-edition-2009.pdf [accessed: March 7, 2014].

[22] *Charter for Health Care Workers*, 84.

The medical intervention in transplants is inseparable from a human act of donation and the person from whom the removal is made should freely consent to the removal of the tissue or part. Transplants presuppose a free and conscious previous decision on the part of donors or of someone who legitimately represents them. "It is a decision to offer, without recompense, part of oneself for the health and wellbeing of another person and the medical act makes the donation possible, thus becoming a catalyst that allows the expression of our essential call to love and communion."[23] The medical act should not be seen as yet another intervention, but as part of the donor's act of "life-giving love" and the doctor should not lose sight of "the mystery of love contained in what he is doing."[24]

Donation of organs from one person to another can be considered because of the primacy of love and charity over the value of physical integrity of the body.[25] As the US Bishops state,

> The transplantation of organs from living donors is morally permissible when such a donation will not sacrifice life or seriously impair any essential bodily function or alter personal identity. The anticipated benefit to the recipient should be proportionate to the harm done to the donor. Furthermore, the freedom of the prospective donor must be respected, and economic advantages should not accrue to the donor.[26]

Living donors can donate non vital organs or even paired vital organs like kidneys if it would affect only anatomical or biological integrity of the body and not functional integrity.[27] Theologians like Grisez, using the principle of *double effect*, argue that if functional integrity is not affected living donors can donate paired vital organs.[28] The US Bishops give one example in the possibility of a

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[23]*Charter for Health Care Workers*, no. 90. Cf. John Paul II, "Address of the Holy Father to the Participants of the Society for Organ Sharing, June 20, 1991," no. 3.

[24]John Paul II, "Address of the Holy Father to the Participants of the Society for Organ Sharing, June 20, 1991," no. 5.

[25]Thomas A. Shannon and Nicholas J. Kockler, *An Introduction to Bioethics*, 276.

[26]United States Conference of Catholic Bishops, *Ethical and Religious Directives for Catholic Health Care Services*, no. 30.

[27]Argument proposed by Bert Cunningham and then Gerald Kelly. Cf. William E. May, *Catholic Bioethics and the Gift of Human Life*, 2nd edition, Huntington, Indiana: Our Sunday Visitor, 2008, 355; Cf. Bert Cunningham, *The Morality of Organic Transplantation*, Washington, DC: The Catholic University of America Press, 1944.

[28]Germain Grisez, *The Way of the Lord Jesus*, Vol. 2, *Living a Christian Life*, Quincy, IL: Franciscan Press, 1993, 542. It is argued that the 'object' morally specifying the chosen act is not the mutilation. John Paul II in *Veritatis Splendor,* no. 78 states, "*The morality of the human act depends primarily and fundamentally on the "object" rationally*

person rightfully donating one of the two kidneys. Removal of one kidney represents loss of biological integrity but does not necessarily compromise functional integrity since human beings are capable of functioning with only one kidney.[29] The demand to retain personal identity forbids the transplantation of the brain and the gonads. They ensure the personal and procreative identity respectively. These organs embody the characteristic uniqueness of the person, and medicine is bound to protect it.[30]

Therefore, homoplastic transplantation of non-vital organs or paired vital organs can be ethically undertaken when it is from living donors who give informed consent out of solidarity which joins all human beings and out of charity which prompts one to give to suffering brethren.

Donation that is effected after the death of the donor for the transplantation of vital or non-vital organs is a great act of charity. Even in the case of donation effected after death, a corpse must always be respected even though it does not have the same dignity that a living person has. It is the union of the body and soul that makes one a subject of rights and the corpse does not have that status.[31]

We can now summarise some of the basic conditions put forward by the Church's magisterium for the ethically acceptable practice of the donation and transplantation of non-vital or paired-vital organs while the donor is alive or of vital-organs after the death of the donor:

- The principles of solidarity and charity warrant reaching out to others with generosity.

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chosen by the deliberate will, as is borne out by the insightful analysis, still valid today, made by Saint Thomas. In order to be able to grasp the object of an act which specifies that act morally, it is therefore necessary to place oneself *in the perspective of the acting person.* The object of the act of willing is in fact a freely chosen kind of behaviour. To the extent that it is in conformity with the order of reason, it is the cause of the goodness of the will; it perfects us morally, and disposes us to recognize our ultimate end in the perfect good, primordial love. By the object of a given moral act, then, one cannot mean a process or an event of the merely physical order, to be assessed on the basis of its ability to bring about a given state of affairs in the outside world. Rather, that object is the proximate end of a deliberate decision which determines the act of willing on the part of the acting person."

[29]United States Conference of Catholic Bishops, *Ethical and Religious Directives for Catholic Health Care Services*, footnote 16.

[30]*Charter for Health Care Workers*, no. 88.

[31]*Charter for Health Care Workers*, no. 87.

- The principle of totality guides the transfer of tissues from one part of the body to another.

- Every organ or human tissue transplant affects corporeal integrity of the donor and so care should be taken that donation does not cause serious danger to life or personal identity.

- Organ transplants conform to the moral law and can be meritorious only if the physical and psychological dangers and risks incurred by the donor are proportionate to the good sought for the recipient.

- No recipient has any right to the tissues or organs of any donor living or dead.

- Donors and recipients should consider their decision in the light of the Church's teaching on *ordinary* and *extraordinary* means of preserving life.

- Organ transplants are morally acceptable only if the donor or those who legitimately speak for him/her have given their informed consent. Human authenticity demands informed consent also on the part of the recipient of the donation.

- There should be no rewards attached to donation except incurred costs. Commercialization of human organs which would violate human dignity by treating the human body as an "object" is immoral.

- It is morally inadmissible directly to bring about the disabling mutilation or death of a human being, even in order to delay the death of other persons. Exploitation of living human embryos and foetuses (whether or not they are produced by in vitro fertilization for use as "biological material" or as donors of tissues and organs) is immoral.[32]

- Organ donation after death is a noble and meritorious act and is to be encouraged as an expression of generous solidarity.

We have discussed so far the possibility of ethically donating and transplanting non-vital organs or paired-vital organs *before or after* death of the donor and of vital organs *after* the death of the donor. But what about transplantation of vital organs (the heart for example) from one human being to another? Vital organs should not be

[32] *Evangelium Vitae*, 63; Congregation for the Doctrine of the Faith, Instruction *Dignitas Personae* On Certain Bioethical Questions (September 8, 2008), Boston: Pauline Books and Media, 2008, no. 19.

removed from living donors since it would directly bring about their death. But technology today allows for transplantation of vital organs immediately after the death of a donor. This brings us to a more detailed discussion of transplantation of vital organs after the death of the donor.

Donation and Transplantation of Vital Organs

The cases that involve donation and transplantation of vital organs demand further discussion since the organs that are harvested have to be harvested soon after death and transplanted without much delay. This triggers the debated question about determination of death. What constitutes death? How do we determine with certainty that death has occurred? What are the guidelines for harvesting organs from donors who are dead?

As the Catechism of the Catholic Church points out, donation after death is a noble and meritorious act.[33] Already in 1956, Pius XII stated that donation of organs from a corpse is morally blameless and noble and to be positively justified rather than condemned.[34] If there is no certainty that it is a corpse, the removal of organs can cause or hasten death. The duty to ensure that it is a corpse, of which Pius XII spoke[35] is reiterated by the Charter for health care workers when it states that steps should be taken so that "a corpse is not considered and treated as such before death has been duly verified."[36]

Before we move to discuss how certainty can be achieved with regard to death having occurred, we need to clarify what we understand by death.

The Catechism of the Catholic Church defines death using philosophical and theological terminology as "the separation of the soul from the body."[37] There is no science that can directly identify such an event. Therefore what we mean by determination of death is the identification of biological signs consequent on the loss of the unity of the body and soul. The discussions about death being a

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[33]*Catechism of the Catholic Church*, no. 2296.

[34]Pius XII, "To the Delegates of the Italian Association of Cornea Donors and the Italian Union for the Blind, May 14, 1956," 464.

[35]Pius XII, "To the Delegates of the Italian Association of Cornea Donors and the Italian Union for the Blind, May 14, 1956," 466.

[36]*Charter for Health Care Workers*, no. 87.

[37]*Catechism of the Catholic Church*, no. 997.

process[38] should be understood in this light. Death is an event which is perceived through consequent signs. Science or technology can be used not to determine the exact moment of death (understood as separation of body and soul), but to determine with accuracy the biological signs that follow the moment of death. John Paul II stressed that it is the task, competence, responsibility of the scientists not theologians and philosophers to identify the indisputable signs that death has occurred. The church does not make technical decisions but uses the data received from sciences to enlighten the Christian understanding of the human person as a unity of body and soul. We therefore depend on science to identify the biological signs that can give us assurance that a person is indeed dead.[39]

The 1960s marked intense discussions on defining death. The first human heart transplant in 1967 took place in this context. In 1985, the Pontifical Academy of Sciences' working group declared: "A person is dead when there has been total and irreversible loss of all capacity for integrating and coordinating physical and mental functions of the body as a unity."[40] Death was considered to have occurred when: "a) spontaneous cardiac and respiratory functions have irreversibly ceased, which rapidly leads to a total and irreversible loss of all brain functions, or b) there has been an irreversible cessation of all brain functions, even if cardiac and respiratory functions which would have ceased have been maintained artificially."[41] This foresees the possibility of determining the occurrence of death in the traditional way (cardio-respiratory criterion) or by way of determination of brain death (neurological criterion).

Before we discuss further the criteria of brain death, it is good to be aware of new developments that use the cardiac death criteria itself. Shannon and Kockler explain a protocol that the University of Pittsburgh initiated in 1993 for the use of non-heart-beating cadavers as sources of organs.

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[38]William E. May, *Catholic Bioethics and the Gift of Human Life*, 329.

[39]John Paul II, "Address of the Holy Father to the 18th International Congress of the Transplantation Society, August 29, 2000," nos. 4-5; Cf. William E. May, *Catholic Bioethics and the Gift of Human Life*, 331.

[40]Cited in William E. May, *Catholic Bioethics and the Gift of Human Life*, 319; Cf. *Charter for Health Care Workers*, no. 129.

[41]Cited in William E. May, *Catholic Bioethics and the Gift of Human Life*, 319-320; Cf. *Charter for Health Care Workers*, no. 129.

> The protocol was this: If an individual was on a life-support system and dying and elected to have the life-support system removed, then that individual could elect to be an organ donor, too. This donor was taken to the operating room and prepared for the surgery to remove the organs. Then the life-support system was removed. The harvesting team waited for the heart to stop beating. They then waited an additional two minutes. If the heart did not spontaneously resume beating within the two-minute period, physicians declared the patient dead, and the team removed the organs.[42]

Even this practice is mired in controversy. For instance, Shannon and Kockler ask, does it meet the Uniform Determination of Death Act criteria? Could we not apply cardiopulmonary resuscitation? If not applied (even with the slightest possibility of success), can it be technically said that the patient's heart has *irreversibly* stopped? Besides, how long should one wait after the heart stops?[43]

The World Medical Association and other National Medical bodies agree to the principle that when organ donation is involved, the death should be verified by two or more physicians and the physicians determining the time of death should in no way be immediately concerned with the performance of the transplantation. Normal practice is that the decision to remove life sustaining medical care is made first, and only after that any evaluation of the patient as possible donor is made. This avoids any coercion from the transplant team. There are moves by some organizations to remove these safety measures which now ensure ethical practice; the efforts by interested groups to remove these should be resisted.

Medical science tells us that brain death can precede heart death. Accordingly, when there is reliable evidence of cessation of all brain wave activity as measured for example on an electroencephalograph, the person is really dead and the heart can at once be transplanted into another person.

Today brain death is accepted by many (though contested by some) as a reliable verification of death. The Pontifical Academy of Sciences in 2006 reiterated its acceptance of brain death as a criteria for determining death.[44] The Charter for Health Care Workers and the

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[42]Thomas A. Shannon and Nicholas J. Kockler, *An Introduction to Bioethics*, 282.

[43]Thomas A. Shannon and Nicholas J. Kockler, *An Introduction to Bioethics*, 283.

[44]Cf. Pontifical Academy of Sciences, *Declaration on the Artificial Prolongation of Life and Determining the Precise Moment of Death*, Oct 21, 1985, nos. 1, 3 in R.J. White, H. Angstwurm and I. Carrasco De Paula, *Working Group on the Determination of Brain*

speech of John Paul II in 2000 consider it to be providing 'moral certainty' and hence sufficient for the healthcare worker to act in favour of organ transplant.[45] "When total cerebral death is verified with certainty, that is, after the required tests, it is licit to remove organs and also to surrogate organic functions artificially in order to keep the organs alive with a view to a transplant."[46]

This affirmation of accepting the present day science that considers brain death as a sure criteria of death is now being challenged by some people in the light of new developments in science. Experts like D. Alan Shewmon, an acknowledged authority on the function of the brain, Professor of paediatric neurology at UCLA Medical Centre and consultant for the Pontifical Academy of Sciences are beginning to question the moral certainty. It is shown that those declared to be brain dead still exhibit in some cases, capacity to assimilate nutrients, maintain body temperature, heal wounds, grow proportionately, fight infection, etc., which are signs of some integration. Some experts explain this as "residual biological activities" like the twitching of a lizard's amputated tail.[47] E. Christian Brugger, Senior Fellow of Ethics

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Death and its Relationship to Human Death, White et al, ed., Vatican City: Pontificia Academia Scientiarum, 1992, 207-209; Cf. Pontifical Academy of Sciences, *The Signs of Death*, The Proceedings of the Working Group of 11-12 September 2006, Marcelo Sanchez Sorondo, ed., Vatican City: Pontificia Academia Scientiarum, 2007, xxii-xxiii.

[45]*Charter for Health Care Workers*, no. 87; "Here it can be said that the criterion adopted in more recent times for ascertaining the fact of death, namely the *complete* and *irreversible* cessation of all brain activity, if rigorously applied, does not seem to conflict with the essential elements of a sound anthropology. Therefore a health-worker professionally responsible for ascertaining death can use these criteria in each individual case as the basis for arriving at that degree of assurance in ethical judgement which moral teaching describes as "moral certainty". This moral certainty is considered the necessary and sufficient basis for an ethically correct course of action. Only where such certainty exists, and where informed consent has already been given by the donor or the donor's legitimate representatives, is it morally right to initiate the technical procedures required for the removal of organs for transplant." John Paul II, "Address of the Holy Father to the 18th International Congress of the Transplantation Society, August 29, 2000," no.5.

[46]*Charter for Health Care Workers*, no. 87.

[47]Zenit, "Transplants from Murder Victims, Diverging Definitions of 'Brain Death'," 1, http://www.zenit.org/en/articles/transplants-from-murder-victims [accessed: March 6, 2014]. Shewmon's challenge can be seen in "Recovery from 'Brain Death': A Neurologist's Apologia," *The Linacre Quarterly* (February 1997), 30-96; "Brain Death,' 'Brain Death' and Death: A Critical Re-Evaluation of the Purported Evidence," *Issues in Law & Medicine* 14, 2 (1998) 125-145. Shewmon uses the example of a boy named T.K. who survived two decades after being declared brain dead.

at the Culture of Life Foundation says "Although Shewmon's evidence certainly does not establish that brain dead bodies are bodies of living (albeit highly disabled) persons, in my judgment, and in that of other competent scholars and scientists, it raises a reasonable doubt that excludes 'moral certitude' that ventilator-sustained brain dead bodies are corpses."[48] In this context it is good to remember the words of Pope Emeritus Benedict XVI:

> In any case, it is useful to remember that the various vital organs can only be extracted "ex cadavere" [from a dead body], which possess its own dignity and should be respected. Over recent years science has made further progress in ascertaining the death of a patient. It is good, then, that the achieved results receive the consensus of the entire scientific community in favor of looking for solutions that give everyone certainty. In an environment such as this, the minimum suspicion of arbitrariness is not allowed, and where total certainty has not been reached, the principle of caution should prevail.[49]

Ethical Evaluation of Hetero Transplantation

As we have seen, hetero transplantation (xenotransplantation) means transplanting a part of the body of an animal to that of a human person (cornea, valves etc., when it is possible). This is licit, when the need of the patient is great, when no human or artificial organs are available, when the suitable equipment and specialists are available, when the patient has given his consent and a largely positive result can be foreseen.[50] In addition to the concern for the benefit and the dignity of the human person, John Paul II identified attentive consideration for animals, which is always a duty even when they are operated on for the greater good of man, who is a spiritual being in the image of God.[51]

While xenotransplantation can be ethically practiced, it is not licit for the generative glands to be transplanted because transplantation

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[48]Zenit, "Transplants from Murder Victims, Diverging Definitions of 'Brain Death', 1.

[49]Benedict XVI, "Address to Participants at an International Congress Organized by the Pontifical Academy for Life, Nov 7, 2008," 1.

[50]*Charter for Health Care Workers*, no. 89.

[51]John Paul II, "Message addressed to the Congress organized by the Pontifical Academy for Life on the justness of *"xenotransplants"*, as they are called scientifically, July 1, 2001," no. 2, http://www.vatican.va/holy_father/john_paul_ii/speeches/2001/documents/hf_jp-ii_spe_20010702_pc-life_en.html [accessed: March 7, 2014].

of generative glands would provoke great sexual and psychic disturbances in man for sex hormones have a very strong influence on the whole organism and personality.[52] John Paul II asserted the teaching of Pius XII who already in 1956 spoke about the issue of xenotransplant: "for a *xenotransplant* to be licit, the transplanted organ must not impair the integrity of the psychological or genetic identity of the person receiving it; and there must also be a proven biological possibility that the transplant will be successful and will not expose the recipient to inordinate risk."[53]

One problem that scientists face with regard to xenotransplantation is rejection of foreign parts by the human body. Some scientists now try to overcome this by inserting human immune system genes into pig embryos in order to have human proteins in the pig's organs for donation. However, this raises the danger of potential interspecies gene transfer. Besides, additional problems arise for members of religions like Judaism or Islam that prohibit the use of pork.[54]

Use of artificial organs (which also falls within the category of hetero-transplantation), can be moral if the dignity of the person is respected and beneficial effect is present.[55]

After having considered the ethical concerns with regard to the various forms of donation and transplantation of organs, we shall now ponder another question that arises due to the disparity between the high numbers of recipients awaiting organ transplants and the low numbers of donated organs.

Ethical Issues Regarding Allocation of Donated Organs

Requests or the demand for human organs and tissues usually exceed the supply. Despite efforts to promote organ donation, most countries around the world today have a deficit of donated organs and a long waiting list of expectant recipients. Significant practical and ethical questions regarding efficiency and fairness arise with regard to distribution of these limited resources. On what basis

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[52]*Charter for Health Care Workers*, no. 89.

[53]John Paul II, "Address of the Holy Father to the 18th International Congress of the Transplantation Society, August 29, 2000," no. 7; Cf.Pius XII,"To the Delegates of the Italian Association of Cornea Donors and the Italian Union for the Blind, May 14, 1956," 465.

[54]Thomas A. Shannon and Nicholas J. Kockler, *An Introduction to Bioethics,* 284; Cf. *Dignitas Personae*, nos. 24ff.

[55]*Charter for Health Care Workers*, no. 89.

should this person rather than that person be chosen to receive a given organ? Who should choose?

To be morally right, the criteria chosen should in no way discriminate on the basis of age, sex, race, religion, social standing etc., or on the basis of utility judged from work capacity or social usefulness of the proposed recipient. The decision should rather be based on "*immunological and clinical factors.* Any other criterion would prove wholly arbitrary and subjective, and would fail to recognize the intrinsic value of each human person as such, a value that is independent of any external circumstances."[56] Living donors however often direct their donation to a particular person and this should be respected.[57]

Organs should not be sold. A just reward for the expenses involved would be right.[58] Today this is becoming a serious issue as organ trafficking is increasing and making poor people more vulnerable. Buying and selling contradicts the principle of charity which is part of the necessary justification for donation and transplantation of organs from one person to another.

The argument that paying donors especially in poor nations will increase the donation of organs and help alleviate poverty is debated and has been proved wrong in the results of a survey of 305 individuals who sold their kidney in Chennai, India. The study concluded that "among paid donors in India, selling a kidney does not lead to a long term economic benefit and may be associated with a decline in health."[59] Another study in India also attests to the negative effect of paid transplants in developing counties even when regulation is proposed. "Corruption pervades all sections of the society and it would be naïve to assume that the regulators of paid transplants would remain untouched by this menace."[60]

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[56]John Paul II, "Address of the Holy Father to the 18th International Congress of the Transplantation Society, August 29, 2000," no. 6.

[57]Thomas A. Shannon and Nicholas J. Kockler, *An Introduction to Bioethics,* 278.

[58]A recompense is well refused by the donor. However, accepting something cannot be termed totally immoral. It should not of course become commerce. Cf. Pius XII, "To the delegates of the Italian Association of Cornea Donors and the Italian Union for the Blind, May 14, 1956," 465.

[59]MadhavGoyal, et. al, "Economic and Health Consequences of Selling a Kidney in India," *JAMA* 288, 13 (October 2002) 1589.

[60]Vivekanand Jha, "Paid transplants in India: The Grim Reality," *Nephrol Dial Transplant* 19 (2004) 542.

If and when market forces are allowed to dictate the donation, there is the danger that there will no more be giving and receiving, but only selling and buying and that will lead to objectification and commodification of the person, resulting in the loss of human dignity.[61]

Conclusion

Organ donation and transplantation made possible by the development of bio-medical technology has rightly extended our opportunities to prolong acts of love and solidarity even beyond our death. Bio-technology in this sense has become an aid to express our essential call to love and communion. The Catholic Church encourages all persons to use this great opportunity to nurture a culture of life by donating organs whenever possible. Whatever is done to the least of the brethren is done unto Christ himself (cf. Mt 25:31-46). Defence and promotion of the integral good of the human person remains the touchstone with regard to the ethical evaluation of the technology that continues to develop.

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[61]Thomas A. Shannon and Nicholas J. Kockler, *An Introduction to Bioethics*, 279.