



Organ Shortage, Will People's Knowledge be a Path to the Solution?

Félix Cantarovich*

Affiliation: Faculty of medical science, catholic university, Argentina

***Corresponding author:** Félix Cantarovich, Faculty of Medical Science, Catholic University, Argentine, Tel: +00 54 11 4801 6757, Email: felix.cantarovich@orange.fr

Citation: Cantarovich F. Organ shortage, will people's knowledge be a path to the solution? (2019) Nursing and Health Care 4: 44-49.

Received: Sep 07, 2019

Accepted: Sep 18, 2019

Published: Sep 23, 2019

Copyright: © 2019 Cantarovich F. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Organ shortage transforming death into life, which is what organ transplants symbolize, needs the end of somebody life, a scientific miracle of our times, but as well a social problem. Prejudices or ignorance inhibits to offering life to another human being. The consequence of this conflicting situation is that patients waiting for transplantation, "unfairly" die every day. States and Social Security should be involved in this problem. Programming efficient education will be important for change social conduct towards organ donation. As well, several studies emphasize the persistence of an insufficient university medical teams training in transplantation. Organ shortage and waiting lists patient's mortality is a failure of social communication on organ donation and transplantation. Proposals to review social and university education in current organ shortage crisis might be an ethical duty for states health and education officials. Solidarity is a positive people's feeling, nevertheless faced with death of a loved one; it does not seem to be an enough reason to justify authorization to donate. For many people, organ donation represents a perverse and unjustified action of mutilation. Considering the negative reactions that often can occur in the moment in which the alternative of deciding the donation of organs of a loved one is presented; we have proposed the inclusion in the social education plans the following concepts:

- Organ shortage is a health emergency.
- Throughout our lives, we might need organ or tissue transplantation.
- Our body after death is a unique source of health to be shared.
- Organ donation meant to "share life" more than "to gift life".
- Organ donation should be a social agreement.
- People should know the social risks involved in establishing economic incentives for donation.

This analysis is made to provide a basic knowledge of a vital medical crisis, and to suggest to decision makers of educational programs useful suggestions for this serious problem. In addition, and very particularly this work is directed to the Society, the main protagonist of this problem, requiring to receiving a correct and detailed information on the dilemma of the lack of organs, in quest that the donation decision will be an act of full awareness. A french philosopher, Jean Rostand has said "To dream you have to know".

Keywords: Organ Shortage, Altruism, Donation, People's behaviour, Share life, Social education.

The main purpose of this work is to make people know the essential details of the extraordinary possibility, which today's medicine presents to everyone, transforming death into life, basically with the use of death itself. Organ shortage is a social, psychological, ethical, moral and political problem. Hundreds of patients on waiting lists are unjustly dying every day. The cruel reality is that society is denying another human being a chance to survive.

It is also true, and society knows, that globally thousands of people die every day due to socioeconomic inequalities. However, the causes of these deaths are complex, mainly social injustice and political corruption. Conversely, organ shortage crisis might be much simpler to solve. The primary objective should be to develop efficient educational programs, to correctly give to the people a clear knowledge of what organ transplantation represents for society. The transplantation of organs and tissues, responsible for the previously symbolising metaphor, has undoubtedly constituted a millenary, but also mysterious advance of science. Already at 800 B.C. Indian doctors had likely

begun grafting skin-technically the largest organ-from one part to another part of the body, to repair wounds and burns.

Complex transplants such as "successful" transplantation of an entire leg, performed by the 13th century by Cosmos and Damien, physicians and saints, were imagined by Fra Angelico, which was reproduced by several famous paintings. Developing imagination, and linking art with medical knowledge and organ transplants, we could relate the fact that Saint Cosmos and San Damian were identical brothers, reminding us that twin brothers present potential immunity to rejection; of course Cosmos and Damien were the doctors; but the fact that the painter has imagined a transplant of limbs, a medical success recently carried out at the end of the 20th century, leaves without doubt the most creative speculation of every transplant professional, that will admire this enigmatic painting of the 13th century.

Also, always in the field of creativeness bordering on the fantasy, involving a medicine that fundamentally uses the end of someone's life to start another one; the story of transplantation leads us to the



initiative of Professor Pichlmayr, who makes the first living liver segmental donor, speculating, according to current knowledge of medical sciences, on the regeneration of the rest of the organ.

This experience make us to returning to the ancient story of Prometheus, punished by the Gods of Olympus to be chained on the mountain, offering eternally to eat their liver to the eagles; the fantasy leads us to question to how the ancient Greeks knew about liver regeneration, the only justification of the current progress of living donors liver transplantation.

States and/or private social security agencies should be actively involved in the solution of the social problem of organ shortage. Their participation in the development of elaborated educational programs will be extremely important, searching changes in social conduct towards organ donation, essential requirement for safety and welfare for the XXI century society. In addition, should be well pointed out that besides saving lives, organ transplantation generates economic resources to the social security of a nation.

People should know, to evaluate the benefit for public health budgets of organ transplantation, that it not only will avoid possible death of waiting lists patients, but also it will provide substantial economics savings for the state's health programs. When patients waiting for a renal transplant, that represent practically more than 80% of the waiting lists and with a probable long survival, will be transplanted, the only ones that can practically be transplanted by a living donor, patient lists will decrease, and dialysis treatments will also decrease.

The vital fact of transplantation, saving thousands of lives each year, also represents for the state, eliminating dialysis treatments, a benefit that would be approximately of \$46 billion per year. This result is even more valuable considering that the 5-year patient survival of a kidney transplant is twice the survival conferred by dialysis [1-3]. A celebrated researcher issued these concepts "Physicians are the natural advocates of the poor and the social problems fall for the most part under their jurisdiction". Regarding these thoughts, we made add the following words: "If the disease is a social evil, medicine must be a social good". To-day these notions about medicine and social security should be evaluated in relation to the innovative practice of organ transplantation, medical achievement actively developed [4].

The vital requirement to transform death into life, which is what organ transplants symbolize, fundamentally needs, as the primary resource to realize this scientific miracle of our times, the end of somebody life. Due to prejudice, ignorance or misunderstanding, the individual moral responsibility to offer life to another human being is forgotten. The consequence of this conflictive situation is that patients waiting for an organ transplant "unfairly" die every day.

A first notion that society should clearly understand and accept is that everybody should have the right to receive an organ when necessary, and the duty to donate at the end of life [5-7]. No matter that several surveys have shown that most people are willing to donate their organs or those of a family member after death; at the time of grief, many of them overlook this commitment, and the answer will be negative [8].

In general, the response to donation is highly positive; as an example, in US 94.9% of adults responded their intention to donate their organs [9]. However, showing that people change in face of death, particularly in the case of a loved one, the 2015 US statistics revealed that only 30973 transplants were performed from 15064 donors, while more than 121000 candidates were waiting for a transplant. As a regrettable consequence of this situation, in US in 2018, 43,000 patients per year die waiting for a transplant, a higher number than due to homicide, Parkinson's disease or Human Immunodeficiency Virus (HIV), and roughly comparable to the death toll from suicide [10,11].

With respect to people's information about the ethical-moral aspects and benefits for health and socio-economy that transplants represent for society, the persistence of organ shortage and the consequent

inadequate social behaviour towards donation, show that a clear understanding of moral and ethical principles of donation, essentially necessary at the time of death of a loved one, has not been reached by people. Undoubtedly, this situation will require an urgent review of social education plans on transplants and organ donation [12,13].

This current ethical-moral problem demands constant reflection of decision makers, concerning people's education plans on organ donation. Fundamentally, it is necessary to solve the critical dilemma between the people who require a possibility of life, and the strong inhibitions to donate that many public feels in face of death. Challenging the serious problem of continuous and growing deaths on waiting lists, the involvement by health team protagonists requires an accurate evaluation. Medical teams, and particularly family doctors, should have a key role in facilitating clear education on donation, to patients, families and the whole society. Make easy people's knowledge, should be an ethical professional concern considering their relevant position to discuss this difficult subject [14,15].

The current organ shortage crisis justified, searching for the causes responsible for this problem, to analyses the characteristics and results that university education, especially in the area of medical sciences, has achieved in the practice. Different studies carried out worldwide, emphasize the persistence of an insufficient university education, with respect to different aspects of the practice of transplantation, and as well concerning the preponderant role that the medical team should have to improving people's knowledge about the organ shortage crisis.

Regarding the statement that specifies the need for a precise university medical education on the problems of transplantation and donation, different surveys concerning students and professionals in different branches of medical sciences, showed that this proposal has not been sufficiently complemented over time [5,16-18].

As well, globally public health authorities have the responsibility to propose to the people a clear understanding of the importance of their participation in organ transplant programs. The state's responsibility to achieving higher rates of organ donation is fundamental. The persistence of organ shortage, and the constant increasing mortality of patients on waiting lists, consequence of inadequate public education programs, represents a failure of those responsible of social communication programs on organ donation and transplantation. In current organ shortage crisis, a lack of proposals to review social education plans, might be considered as an ethical responsibility by state health and education officials [19-22].

Organ transplantation represents a transformation of death into life. Certainly, the alternative that people will acknowledge this reflexion, should be sustained by rational strategies of educational programmes on transplantation and donation. Given the possible strong reaction to people's sensitivity, that this concept may produce, a suggested slogan such as "After death, the body is a unique source of health" might be a useful alternative for its acceptance by society [23].

Solidarity is a positive feeling in most people; however, given the death of a loved one, it does not seem to be an enough reason to justify the authorization to donate. For many people organ donation represents a perverse and unjustified act of mutilation, significant inhibition cause for rejection of the donation consent. This difficult situation in the requesting donation interview with the family can often be complicated by the lack of medical education on aspects of donation methodology, and with their possibility of having useful arguments to help people understanding their potential responsibility in the current organ shortage crisis [24-26].

Potential reasons of current social behaviour towards organ donation have been suggested:

- There is only partial awareness of how common and indispensable organ transplantation is.
- The knowledge that a transplant may be needed during their life, is not well-thought-out by people.



- Suspicion that chances for transplantation is dependent upon a patient's socioeconomic status.
- Lack of awareness that deceased organs and tissue transplants should be accepted as a health insurance benefit for everybody.
- Universities, mainly in the field of medicine, have not developed relevant programs on transplantation.
- Persistent rejection consent to donation is a consequence of people's ignorance or fear about brain death diagnosis [5,27,28].

With regard to the possibility of insufficient knowledge or doubts about the diagnosis of death, and mainly to the controversial ethical-moral reactions that can occur in the public, and even in the area of medical practice concerning to the confirmed equivalence between brain death diagnosis and death due to cardio circulatory arrest; an explicit concept has been suggested: "A sustained increase in the number of organs available for transplantation could never be achieved until the concept of brain death, debated clearly at all popular and scientific levels, reaches a definitive consensus on the part of the whole society" [29,30].

Moreover, religious misunderstandings are another factor that repeatedly comes up in the research of donation barriers. The ignorance of the concern of monotheist churches on this topic might be a reason for a family's rejection to donation. On the other hand, medical teams frequently might wish to avoid this sensitive subject, because of their own lack of knowledge about religious issues related to transplantation.

While the lack of public knowledge of the economy that organ transplants representing for the state's health budgets, is not an inhibitory factor at the time of donation, might be useful that the educational programs make clear to the people, the importance that this savings represents for the solutions to other problems, related to society well-being. A study from Kalo, et al. concerning economic aspects, with respect to dialysis treatments, showed that on average, the costs per patient over three years were significantly higher ($P < 0.001$) in the hemodialysis group than in the group that received transplants. Also, the cost of one year gained by transplantation was significantly less ($P < 0.001$) than the cost associated with hemodialysis.

The understanding of the potential economic benefits associated with increasing organ transplantation, might be another motivating factor in the moments of people's decision-making regarding donation [2,31]. The educational efforts trying to overcome people's barriers towards donation should offer clear information on the risks of inadequate conduct toward donation. People should understand that anyone, at any time in life, might require an organ transplant. Also, it should be acknowledged that during life everybody should have the right to receive an organ if necessary, and the duty to be a donor when life ends. In addition, people should be assured, by those responsible for the daily practices of different religious creeds, that all monotheistic religions accept and support organ donation.

Considering the importance of these factors in social conduct, we proposed the discussion of the following concepts to be considered in the revision of public education programs:

- The shortage of organs is a health emergency.
- Organ donation is meant to share life.
- Throughout our lives, we are all potential organ and tissue receptors
- Our body after death is a unique source of health to be shared.
- Organ donation after death should be a tacit social agreement for the welfare of society.

Many of these concepts related to psychological aspects, are often based on ancestral background and should be studied by social, psychological and religious experts, to find a clear understanding and acceptance by the public [4,32].

Should be of interest to evaluate the transcendental importance in this crisis of the Media, as they constitute the largest source of public

information. Not only because of its potential beneficial aspects, but mainly for the serious consequences that misinformation, based on rumors or unconfirmed facts, might produce in the population's behaviour. It has been evaluated that the most important educational information on transplants and organ donation reaches the people through the Media [33].

The Media often covers sensational news highlighting myths that have been linked to transplantation. In this way, the public has been subjected to reports about confusing episodes of untruths and misinformation such as declaration of premature deaths, transfer of donor personality to the receptor, criminal organs market, corruption in the medical communities and celebrity's privileges in transplant requirements. Essentially, this untruthful information has undoubtedly generated negative reactions in social behaviour towards donation. A well-designed Media campaign can undoubtedly influence the knowledge of the problem and create a consequent improvement of the current partial attitude of society towards donation [34,35].

Although until the present-day, public education towards organ donation have been managed to stress the importance of this medico-social resource, the persistence of organ shortage and the progressive increasing mortality on waiting lists, evidences the need to analyse their results, and to consider alternatives that will encouraging the public to understanding the urgent vital relevance of organ donation. An essential objective of education on transplantation and organ donation should be to motivate individuals to acknowledge that during their existence they have the right to receive an organ if needed, and the duty to be a donor at the end of their life. In the quest of this achievement, we have proposed changes from the classical slogan: "donation is the gift of life" to "to donate is to share life" and "during life we are all potential transplant recipients".

Every single action, in any intend to change individual's conduct toward donation improving educational programs, would be extremely important. Government and private health and social service organizations should be involved in the solution of this public problem. It should be essential that information regarding donation and transplantation should be not susceptible to produce confusing interpretations by Society [5].

Efficient public education, looking forward to developing people's knowledge and understanding of this crisis, now and in the future; will guarantee the necessary qualities for mental, emotional, and physical well-being required to complement current social obligation for people behaviour.

The following positive motivation concerning all aspects of this health social crisis should be necessary to be acknowledged by the people:

- To improve their mental emotional well-being for making informed decisions.
- To experience the potential enjoyment that this accomplishment will signify for them.
- To evaluate the possibilities regarding the mental, emotional and social capacity and physical abilities that a healthy lifestyle would offer the organ required to leave the waiting list if that alternative could be presented in life.
- To establish a pattern of health and wellbeing that will be maintained during life, and that will help to promote the health and well-being of the next generations [21,36].

A society's contemporary incongruities are that the success of organ transplantation is increasing whilst waiting list mortality is also increasing. Almost inexplicably, people's educational approach to improve the supply of organ donation has remained largely unchanged. The importance of a real efficiency of university and social education programs trying to improve current social behaviour towards organ donation is undoubtedly an essential need in the search for solutions for this crisis of health worldwide.



Although different authors have highlighted the relative inefficiency achieved by the different conceptual schemes used in the dissemination of these programs, the methodology of the same has never been modified in this regard. Changing current people's educated methodology about organ donation might be a possible way of dealing with the critical lack of donors. Efforts to change social education programs will require the support of the main international medical societies, and as well of the World Health Organization (WHO), The United Nations, Educational Scientific and Cultural Organization (UNESCO) and representatives of all monotheistic religions.

The evaluations of the social strategies in search of solving the dilemma of the organ shortage, leads us to the analysis of the tactics and results of society's education in transplants and organ donation. The efforts of social education worldwide, has also seek to curb the progress of living donors, generated by the persistent stability of deceased donors, compared to the constantly increasing waiting lists.

Nevertheless, although several authors have suggested that an effective educational strategy could change attitudes and social behaviour's regarding organ donation and that new measure in educational methodology would be necessary to reduce the massive gap between supply and demand for organs; these initiatives so far have never been attempted. Well-organized public education campaigns, based on a detailed analysis by social communicators, psychologists and religious experts of essential barriers to donation, might be useful in overcoming the strong no-cognitive donation fears, and offer a way to challenge this persistent global health crisis [5,37].

For decades the message to the public has basically be relied on concepts of altruism; the "gift" that will save someone's life". Solidarity and altruism have been the fundamental bases preponderantly used searching for a better people's response towards organ donation. Several surveys have shown that individuals are open to donating their organs or those of family member after death; however, at the time of grief, a high percentage fails to remember this commitment, and the 'gift' of life does not come to fruition.

On the other hand, studies currently in force regarding the importance of no-cognitive inhibitory factors towards donation, have never been considered by those responsible for the methodology of public social education programs in this regard [38]. The possible amendments to the current concept of altruistic donation, by means of legal modifications accepting the option of to stimulate a change in the inappropriate behaviour of society towards organ donation using the economic resources of the States, is currently the subject of controversy ethical discussions. The main justification for this option is the present dilemma of dying waiting for the organ that probably will never come.

Current literature shows the tendency to generate an agreement, to change the philosophy of altruistic and essential solidarity of transplant ethics, for the utilitarian option of buying life through economic incentives for donation, legally backed by the States; justifying this decision because of the dramatic need to avoid the death of patients on the waiting list. Certainly, this option goes against the ethical and moral concepts proclaimed as essential with respect to transplantation. This conceptual change of the organ and tissue transplant practice that modifies the philosophy, of the act of donating, generating a materialistic reasoning of it, could be responsible for possible critical consequences at the social level.

This philosophical-materialist discussion currently in force in the media cannot help mentioning a critical question: who will receive and who will give those organs in exchange for a payment. Is this a new opening towards social inequality? [39-41]. An educational program considering rational and subconscious barriers toward donation will help to save the lives that are currently lost daily.

Concerning the importance of this change of people's feelings when facing the reality of death, I suggest based on my experience of several

decades in transplantation and organ procurement as a nephrologist and as well as educator, the evaluation for new educational programs of the following catchphrases:

- Organ shortage is a health emergency.
- The body after death is a unique source of health for everyone.
- Sharing the body after death should be a tacit social agreement for the common welfare of society.
- Organ donation is not giving life; it is sharing life.
- Throughout our lives we are all potential organ and tissue recipients [42,43].

Changing the message and focusing particularly on the young, could be a way toward a solution to this serious social dilemma. Shoenberg, and educator not a medical doctor interested on organ transplantation, pointed out in 1991, to a vast number of important professionals actively engaged in the practice of organ transplants, that teaching young people about organ transplantation would not be particularly difficult. He considered that helping young people understand problems related to donation and organ transplantation will increase their understanding of its importance. The goal of children education in basic concepts of organ donation and transplantation will be useful to multiply the educational effect, by discussing the donation with their families and partners.

Currently, intense and persistent educational efforts focused specifically on young people are relatively rare, and a specific educational structure in this regard is seldom in force globally. It is essential that this topic will be organized by education authorities, initiating as a first face a basic preparation of the teachers, and structuring permanent curricular schemes, to be included in the educational training of young people at all levels of corresponding educational levels.

Shoenberg considered that teaching young people about organ transplantation is not particularly difficult. He noted that helping young people to understand the problems surrounding organ donation and transplantation will increase their understanding of its importance. Consequently, organ donation education for young people, beginning in primary school and continuing at college and university, has been suggested as a promising method of changing social attitudes and behaviour with respect to organ donation [44].

Improving education at all levels of society may offer a possibility to change critical organ shortage. We have considered that a methodology change based on modification of the message to society may be a way to challenge this stagnant dilemma. As we have previously discussed, it should be of importance to consider within new educational plans the complex mentioned barriers to donation. It is evident that the time has come for an essential educational change, to try a professional and public response to the achievement of a solution to a health crisis that implies a new epidemiology of the XXI century: Dying due to ignorance, fears or prejudices by society as a whole.

Research conducted in the US has demonstrated that rational factors have less influence on individual's behaviour than no-rational variables such as a fear of mutilation or death and a lack of confidence in physicians. Within the accountable reasons of the shortage organ, we have commented that the request for donation can generate a representation of perverse and unjustified action of mutilation towards the loved one. This situation makes it difficult and even cancels the request interview with the family of the potential donor [38].

We certainly consider that the total lack of evaluation of the importance of no-rational or no-cognitive inhibitions in current education programs might be a cause of this people's attitude. On the other hand, the lack of university training of medical teams about medical, legal, social and religious aspects of organ donation methodology, previously described, are also causes of failure of this crucial interview in face of the potential donor death [24-26]. Through the last decades we have appreciated attempts trying to find a solution of organ shortage at political, medical and legal proposals.



An analysis of them would show that some can generate controversies, sometime crossing the limits established from the ethical-legal point of view, and even from the classic medical criteria in donor and recipient acceptances. With respect to the proposed legal modifications, and already implemented in several countries, the presumed consent that requires citizens to establish in an official registry their desire not to be a donor, otherwise it will be in case of death; The results of this law are still uncertain. Anyway, my thinking is that there are no laws that modify the behaviour or feeling of people, this possibility can only be achieved with education.

Medical challenges to save lives of patients dying in waiting lists, with the acceptance of the so called expanding criteria donors, donors in cardio-circulatory arrest, or family exchanged transplantation, because extremely difficult immunologic incompatibility, are at some point ethically controversial; but nevertheless, morally understanding, when doctors are impotent to avoid a patient death [45-47].

Finally, after this evaluation of the important efforts that have been made at legal and medical levels and even controversial economic proposals to stimulate people's behaviour toward donation, generating an alternative to change the solidarity and altruistic fundamental basis of the philosophy of organ donation, should be important to emphasize again that, unfortunately, a possible basic resource for change that has not yet been tested is the review and implementation of new public education programs that can achieve a different response from society.

This summary analysis of the dilemma of organ shortage search to make available to the people a basic knowledge of organ transplantation, a vital chance for its subsistence, and as well to suggest to decision makers possible options, that might be useful to improve this serious problem. In addition, and very particularly, this work is directed to society that is requiring sufficiently knowledge concerning its attitude towards a health crisis in which is the main protagonist and whose solution depends entirely on its decision.

References

1. van Oosten M, Jager K, Logtenberg S, Leegte M, Hemmelder M, et al. Healthcare costs of chronic kidney disease, dialysis and kidney transplant patients compared to match controls (2018) *Nephrol Dial Transplant* 33: i147. <https://doi.org/10.1093/ndt/gfy104.fp343>
2. Loubeau PR, Loubeau JM and Jantzen R. The economics of kidney transplantation versus haemodialysis (2001) *Prog Transplant* 11: 291-297. <https://doi.org/10.1177/152692480101100411>
3. Held PJ, McCormick F, Ojo AO and Roberts JP. A cost benefit analysis of government compensation of kidney donors (2016) *Am J Transplant* 16: 877-885. <https://doi.org/10.1111/ajt.13490>
4. Cantarovich F. Social security and social transplantation (2017) *ARC J Nurs Health Sci* 3: 23-25. <http://dx.doi.org/10.20431/2455-4324.0303003>
5. Cantarovich F. Efficacy of education strategies concerning organ shortage: state-of-the-art and proposals (2018a) *J Health Soc Sci* 3: 125-136.
6. Wilkinson M and Wilkinson S. The Donation of Human Organs, EN zalta (Ed) the stanford encyclopedia of philosophy (2019) Spring edition, Stanford University, USA.
7. Cantarovich F. Critical review of public organ donation education programs (2019) *Journal of Education and Social Policy (JESP)* 6: 1-8. <https://doi.org/10.30845/jesp.v6n1p6>
8. Volz Wenger A and Szucs TD. Predictors of family communication of one's organ donation intention in Switzerland (2011) *Int J Public Health* 56: 217-223. <https://doi.org/10.1007/s00038-010-0139-2>
9. [Department of Health and Human Services \(2013\)](#)
10. Giralanda R. Deceased organ donation for transplantation: challenges and opportunities (2016) *World J Transplant* 6: 451-459. <https://doi.org/10.5500/wjt.v6.i3.451>

11. Brooks MJ. CDC: US death rates inch down for many leading diseases (2019) *Medscape Medical News*
12. Dalal AR. Philosophy of organ donation: review of ethical facets (2015) *World J Transplant* 5: 44-51. <https://doi.org/10.5500/wjt.v5.i2.44>
13. Persad G, Wertheimer A and Emanuel EJ. Principles for allocation of scarce medical interventions (2009) *Lancet* 373: 423-431. [https://doi.org/10.1016/s0140-6736\(09\)60137-9](https://doi.org/10.1016/s0140-6736(09)60137-9)
14. Ladin K and Hanto DW. Family physicians' role in discussing organ donation with patients and the public (2012) *Virtual Mentor* 14: 194-200. <https://doi.org/10.1001/virtualmentor.2012.14.3.ecas3-1203>
15. MacDonald SI and Shemie SD. Ethical challenges and the donation physician specialist: a scoping review (2017) *Transplantation* 101: S27-S40. <https://doi.org/10.1097/tp.0000000000001697>
16. Reich DJ, Magee JC, Gifford K, Merion RM, Roberts JP, et al. Fellowship training committee transplant surgery fellow perceptions about training and the ensuing job market-are the right number of surgeons being trained? (2011) *Am J Transplant* 11: 253-260. <https://doi.org/10.1111/j.1600-6143.2010.03308.x>
17. Akkas M, Anik EG, Demir MC, İlhan B, Akman C, et al. Changing attitudes of medical students regarding organ donation from a university medical school in Turkey (2018) *Med Sci Monit* 24: 6918-6924. <https://doi.org/10.12659/msm.912251>
18. Masclansa JR, Vicente R, Ballesteros MA, Sabater J, Roca O, et al. Network PLUTO (Postoperative Lung Transplantation) Solid organ transplant training objectives for residents (2012) *Medicina Intensiva* 36: 584-588. <https://doi.org/10.1016/j.medine.2012.10.014>
19. Sten JA. Rethinking the national organ transplant program: when push comes to shove (1994) *J Contemp Health L and Pol'y* 11: 197-219.
20. McGlade D and Pierscionek B. Can education alter attitudes, behaviour and knowledge about organ donation? A pre-test-post-test study (2013) *BMJ Open* 3: e003961. <https://doi.org/10.1136/bmjopen-2013-003961>
21. Cantarovich F. The role of education in increasing organ donation (2004b) *Ann Transplant* 9: 39-42.
22. Reubsaet A, Reinaerts EBM, Brug J, van Hooff JP and van den Borne HW. Process evaluation of a school-based education program about organ donation and registration, and the intention for continuance (2004) *Health Educ Res* 19: 720-729. <https://doi.org/10.1093/her/cvg083>
23. Cantarovich F. The society, the barriers to organ donation and alternatives for a change, Georgios Tsoulfas (Ed) (2018b) *Intech Open, United Kingdom*. <https://doi.org/10.5772/intechopen.73756>
24. Tretyakov KA. Critique of national solidarity in transnational organ sharing in Europe (2018) *J Law Biosci* 5: 1-34. <https://doi.org/10.1093/jlb/lx040>
25. Saunders B. Altruism or solidarity? The motives for organ donation and two proposals (2012). *Bioethics* 26: 376-381. <https://doi.org/10.1111/j.1467-8519.2012.01989.x>
26. Bardell T, Hunter DJW, Kent WDT and Jain MK. Do medical students have the knowledge needed to maximize organ donation rates? (2003) *Can J Surg* 46: 453-457.
27. Streat S. Clinical review: Moral assumptions and the process of organ donation in the intensive care unit (2004) *Crit Care* 8: 382-388. <https://doi.org/10.1186/cc2876>
28. Barnieh L, Klarenbach S, Gill JS, Caulfield T and Manns B. Attitudes toward strategies to increase organ donation: views of the general public and health professionals (2012) *Clin J Am Soc Nephrol* 7: 1956-1963. <https://doi.org/10.2215/cjn.04100412>
29. Streba I, Damian S and Ioan B. Medical and ethical dilemma in brain death (2012) *Rev Med Chir Soc Med Nat Iasi* 116: 731-738.
30. Long T, Sque M and Addington-Hall J. What does a diagnosis of brain death mean to family members approached about organ donation? A review of the literature (2008) *Prog Transplant* 118: 118-125. <https://doi.org/10.1097/01.tp.0000331402.18889.d6>



31. Kaló Z, Járay J and Nagy J. Economic evaluation of kidney transplantation versus hemodialysis in patients with end-stage renal disease in Hungary (2001) *Prog Transplant* 11: 188-193. <https://doi.org/10.1177/152692480101100307>
32. Cantarovich F. The patient waiting list dilemma. Strategies options to solve a social injustice (2018c) *Dialysis Trans O A c* 1: 180004.
33. Kalra GG and Bhugra D. Representation of organ transplantation in cinema and television (2011) *Int J Organ Transplant Med* 2: 93-100.
34. Morgan SE, Harrison TR, Long SD, Afifi WA and Stephenson MT et al. Family discussions about organ donation: how the media influences opinions about donation decisions (2005) *Clin Transplant* 19: 674-682. <https://doi.org/10.1111/j.1399-0012.2005.00407.x>
35. Matesanz R and Miranda B. Organ donation-the role of the media and of public opinion (editorial comments) (1996) *Nephrol Dial Transplant* 11: 2127-2128.
36. [Nuffield Council on Bioethics: human bodies in medicine and research](#)
37. Chatterjee P, Venkataramani AS, Vijayan A, Wellen JR and Martin EG. The effect of state policies on organ donation and transplantation in the United States (2015) *JAMA Intern Med* 175: 1323-1329. <http://dx.doi.org/10.1001/jamainternmed.2015.2194>
38. Morgan SE, Stephenson M, Harrison TR, Afifi WA and Long SD. Facts versus 'feelings': how rational is the decision to become an organ donor? (2008) *J Health Psychol* 13: 644-658. <https://doi.org/10.1177/1359105308090936>
39. Allen MB and Reese PR. Financial incentives for living kidney donation: ethics and evidence (2013) *Clin J Am Soc Nephrol* 8: 2031-2033. <https://doi.org/10.2215/cjn.09820913>
40. Levy M. State incentives to promote organ donation: honoring the principles of reciprocity and solidarity inherent in the gift relationship (2018) *J Law Biosci* 5: 398-435. <https://doi.org/10.1093/jlb/lsv009>
41. Hippen B, Friedman Ross L and Sade RM. Saving lives is more important than abstract moral concerns: financial incentives should be used to increase organ donation (2009) *Ann Thorac Surg* 88: 1053-1061. <https://doi.org/10.1016/j.athoracsur.2009.06.087>
42. Cantarovich F and Cantarovich D. Education and organ donation: "the unfinished symphony" (2012) *Transplant Inter* 25: e53-e54. <https://doi.org/10.1111/j.1432-2277.2012.01435.x>
43. Cantarovich F. Public opinion and organ donation. A proposal for change. Transplantation Poster Abstracts Session I (2004a) 78: 235-236. <https://doi.org/10.1097/00007890-200407271-00619>
44. [Shoenberg RS. The Reports of the Surgeon General \(1991\) The Surgeon General's Workshop on Increasing Organ Donation: Background Papers. "Planting the Seed: Organ Transplantation Education for Children, Youth and Young adults", Public Health Service, Office of the Surgeon General, United States, 181-198.](#)
45. Ojo AO. Expanded criteria donors: process and outcomes (2005) *Semin Dial* 18: 463-468. <https://doi.org/10.1111/j.1525-139x.2005.00090.x>
46. Steinbrook R. Organ donation after cardiac death (2007) *N Engl J Med* 357: 209-213. <https://doi.org/10.1056/nejmp078066>
47. Park K, Moon JI, Kim SI and Kim YS. Exchange donor program in kidney transplantation (1999) *Transplantation* 67: 336-338. <https://doi.org/10.1097/00007890-199901270-00027>