Organ Shortage Today

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A Vital Health and Socio-Political Issue

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FOREWORD

The objective of this book is to carry out, through the experience of researchers with significant international knowledge, an in-depth examination of the current problem of organ donation and transplantation and its serious consequences.

Consequently, the primary objective of this work is to analyse the proposals to modify the current circumstances that dominate the performance of this medical practice, which generates a unique opportunity to overcome the loss of life due to organ shortage.

As the respective chapters will show, the responsibility of society, at all its levels, which, for various reasons, has not responded sufficiently to its primary and significant role as both a protagonist and beneficiary of this revolutionary scientific advance, is a primary conclusion.

The possibility of collaborating to achieve a society that better understands its need and (why not?) its duty to fully respond to organ donation and prevent the distressing unjust deaths caused by organ shortage is a crucial objective of this book.

The concomitant realization of formidable scientific experience of American surgeons and the recent successful transplantation of a biogenetically transformed pig heart in a patient at imminent risk of death promises a future for thousands of otherwise doomed patients. This alternative of hope must be delivered for as long as necessary to become a common practice.

Today's reality, exemplified by the dismal international statistics on organ shortage, affirms the need for change in social behaviour and the current solutions to achieve an indispensable objective: a greater responsiveness to everything organ donation currently means.

The participation of eminent persons involved in the medical practice of transplantation, ethics, legal measures, religious conceptions, social education at all levels, and the economic impact of organ transplantation as well as the participation of the media in the mission to change people's behaviour towards donation is the primary objective of this publication.

Félix Cantarovich

ABBREVIATIONS

A.A.:	African American
ALCER	Association Fighting Against Kidney Diseases of Burgos
ARM:	Awareness, Recruiting, and Mentoring
CARM:	Autonomous Community Region of Murcia
CATG:	Transplant Coordination Centre of the Autonomous Region of Galicia
CKD:	Chronic Kidney Disease
CPRA	Calculated panel reactive antibody
DBD:	Donors with a Brain Death
DCD:	Donors after Cardiac Arrest - Donation after Circulatory Death
DICG:	Declaration of Istanbul Custodian Group
EAEHD:	Hospital and Home Educational Care Team University Hospital of Guadalajara
ECD:	Expanded Criteria Donor
ESKD:	End Stage Kidney Disease
ESRD:	End-Stage Renal Disease
GODT:	Global Observatory for Donation and Transplantation
HD:	Haemodialysis
HEW:	Health Educational and Welfare
HICs:	High Income Countries
HLA:	Human Leukocyte Antigen
INCUCAI:	Institute National Central Unique Coordinator the Ablation and Implant
ICT:	Information and Communication Technologies
ICU:	Intensive Care Unit
IRODaT:	International Registry in Organ Donation and Transplantation
KDOC:	Kidney Donor Outcomes Cohort
KDPI:	Kidney Donor Profile Index
KPD:	Kidney Paired Donation
L/H:	Latino/Hispanic
LD:	Living Donations. Live Donors
LDAC:	Living Donor Assistance Centre

LMIC's:	Low- and middle-income countries
LVD:	Living Voluntary Donors
MOTTEP:	Minority Organ Tissue Transplant Education Program
NOTA:	National Organ Transplantation Act
NRR:	National Refusal Register
OCCAT:	Catalan Transplant Organization
ODM:	Organ Donors Per Million
ODT:	Organ Donation and Transplantation
OECD:	Organization for Economic Co-operation and Development
ONT:	National Transplant Organization
OPO	Organ Procurement Organization
PMSI	Programme de Médicalisation des Systèmes d'Information
QALY:	Quality Adjusted Life Year
QoL:	Quality of Life
RCTs:	Randomised Controlled Trials
SERGAS:	Galician Health Service
STALYC:	Sociedad de Trasplantes de América Latina y el Caribe
UNESCO:	United Nations Educational, Scientific and Cultural Organization
WHO:	World Health Organization

CHAPTER ONE

ORGAN SHORTAGE, A VITAL GLOBAL SOCIAL AND POLITICAL EMERGENCY

FÉLIX CANTAROVICH

Additional information is available in Chapter Contributors.

Abstract

In this study we analyse the current state of a serious and persistent social emergency, organ shortage, and discuss the possible alternatives for a tentative solution.

Different authors, based on the results so far obtained, have suggested the following preponderant factors as potentially responsible for this reality and consider ideas and conclusions concerning its possible solution:

- Society's inhibitions about organ donation
- Partially effective social education policies
- Controversial legal specifications regarding organ donation
- Relative overall compliance with established ethical-economic standards regarding the costs of organ transplantation.

An analysis of these points generates a series of proposals for discussion.

Introduction

Society is currently suffering COVID 19, a life-threatening epidemic with high contamination and severe mortality rates. This serious situation has generated social changes, and therapeutic attempts in a hurry to solve it.

In the future response to COVID 19, science has always shown that it finds the solutions necessary to overcome the most serious global medical crises.

This pandemic has resulted in a drastic reduction in the number of transplants worldwide. In France and the US, this trend has affected 90% of heart and liver transplants, which are life-saving surgeries. This situation in the current practice of transplantation reinforces the obligation to modify in the near future, the current inefficient strategies regarding organ donation and transplant (Paris Transplant Group, 2020).

In any case, it must be highlighted that organ shortage should be considered a prolonged silent pandemic, requiring a "fundamental therapy", a human body after life. It is crucial to recognize that this unusual therapeutic paradox "death/life" depends exclusively on a positive social attitude towards organ donation.

Unfortunately, over the years, the social bias toward organ donation is the main cause of the persistent unjust deaths of hundreds of patients on the endless waiting lists (Sissons and Stevens, 2017). This critical situation can only be resolved through in-depth reviews by government health and education policy makers, with the aim of generating solutions of genuine efficiency for people's well-being, and reversing this life-threatening daily reality.

Background

In the late 1950s, French neurologists discovered a coma state they termed "*coma dépassé*"; today it is called "brain death" (Machado et al. 2007). In the same year, Richard Lawler performed the first successful deceased-donor kidney transplant (Radhakrishnan, 2020).

This was the beginning of a new era of medicine in which society is the main protagonist. In February 2021, more than 100,000 patients in the US were on the transplant waiting lists; in 2020 only 39,000 transplants were performed. The need for donor kidneys in the US is increasing at 8% per year (U.S. Organ Donor Government, April 2021).

Sixty-one years have passed since the first patient started chronic renal failure treatment by repeated haemodialysis (HD) in 1960. Haemodialysis patients represent 1% of the US Medicare population but account for 7% of its budget, with an average cost of $90,000 per patient; a total of $28 billion annually. On the other hand, and of fundamental global importance for the economies of health, spending for transplant patient care in the US is $3.4 billion (University of California San Francisco, 2020). Furthermore, in France, 60,900 patients had therapy for renal failure, 45% by transplantation. The

annual mean cost per patient for HD was €89,000. A first-year renal transplant cost €86,000, and then €20,000 in the following years. The UK's dialysis budget is approximately £540 million, which represents 3% of the NHS's total budget. The cost of highly cost-effective transplants is £25,800 (Rabeau, 2012; Blagg, 2007).

However, the enormous advantage transplants represent for people's health and states' budgets is of no avail because of the persistent restrictive societal behaviour towards organ donation. Transplant statistics remain insufficient to solve the crisis. As an example of the general global experience, the number of patients waiting for a transplant from 1991 to 2019 were consistently higher than the number of organ donors in the US:

- 1991 – 6,953 donors, 15,756 transplants, waiting list patients, 23,198.
- 2000 – 11,934 donors, 23,266 transplants, waiting list patients, 74,078.
- 2015 – 15,062 donors, 30,973 transplants, waiting list patients, 122,071.
- 2019 – 19,267 donors, 39,718 transplants, waiting list patients, 112,568.

The percentage of donors to transplants performed showed:

- 1991 – 6,953 donors, 15,756 transplants, waiting list patients, 23,198: **29,97 %**
- 2019 – 19,267 donors, 39,718 transplants, waiting list patients, 112,568: **7,11%**

(U.S. Organ Donor Government, Statistics Stories, October 2021).

On the other hand, the acceptance in the last decades of the so-called expanded criteria donors (ECD), previously rejected by transplantation teams, should be considered in current statistics (Ruck and Segev, 2018; Bein, Combes and Meyfroidt, 2021).

Organ shortage generates ethical-social and legal dilemmas that require urgent and effective political solutions. Until the present, legal modifications have been made that facilitate improving individual conduct regarding organ donation and allocation. The results of the presumed consent law, which has been passed in many countries with the intention of increasing consent for organ donation, are currently controversial (Costa-Font, Rudisill and Salcher-Konrad, 2021; Neto, Campelo and Nunes da Silva, 2007).

Moreover, the statistic showing an improvement in social donation consent in some countries that have adopted the presumed consent law has been evaluated by various authors, as due to the efficient action of hospital coordinators (Shah, Trivedi and Vanikar, 2012.).

In the analysis of the potentially critical factors that may influence positive social behaviour towards organ donation, it has been suggested that the "gift" concept is too slight to justify the gravity surrounding this decision. This generous concept of accepting organ donation, is suitable but not necessarily adapted to this major decision.

Essential altruism and solidarity have recently been arguing for their application in organ donation. It has been discussed that there is a need to assess the ambiguity of "gift giving" in the decision to donate organs as well as its value with respect to altruism and solidarity. There is an emerging need to review these controversies, and to adapt conceptual and legal changes that will allow expanding the current limited resources in organ and tissue transplantation (Caplan, 2014).

This social-health emergency must engender changes for concrete legal, medical, ethical, religious, and economic alternatives related with organ donation and transplantation. Political leaders in education and health, law experts, members of monotheistic religions, psychologists, economists, and even patients who hope their lives will be saved despite the shortage of organs, must act to urgently develop the necessary changes that society needs (Barshes et al, 2007).

Nevertheless, regarding the possibility of changes in social behaviour with respect to organ donation, experience clearly indicates that only an education that unambiguously explains to society what the possibility of an organ transplant, particularly from a deceased donor, today may mean for their own lives tomorrow, will be able to achieve a globally positive change in this social conduct (Cantarovich, 2004; Council on Science and Public Health, Report 2 (I-17); McGlade and Pierscionek, 2013). A clear explanation about the gravity of the organ shortage crisis, as well of the importance of a dialogue within families about this problem, is essential for a positive donation decision.

Social trust in transplantation is based on equity, altruism, and autonomy. Saving more lives is a moral good deed. Today, social education on organ donation implies charity and is represented by the motto "The gift of life". Unfortunately, it has been pointed out that up-to-date public education

campaigns concerning organ donation have not fully achieved their objective. Because of the failures in education communication, it has been suggested that social media such as Facebook might better deal with this problem and ameliorate the crisis (Shanmugarajah et al. 2014).

It has been considered that the organ allocation option should reflect the risks of patients with indefinite social support. However, this alternative for patient selection is questionable because, conversely, it has been suggested that the value of social support should be evaluated by looking forward to the better survival of the graft (Berry, Daniels and Ladin, 2019).

Proposals for modifying the organ shortage dilemma

Concerning the permanent organ scarcity, it is important to review the concepts and proposals underlined in the literature, as regards the following subjects:

a. Ethical-legal changes
b. Social and Professional Education
c. Medicinal changes
d. Economics aspects

a. Ethical-legal changes

The World Health Organization (WHO) specifies that the states should guarantee people's well-being through legislative, administrative, economic, and judicial measures, ensuring the right to health and doing their duty to save people's lives. However, these measures have not been legally regulated for patients awaiting organ donation.

It has been considered that helping someone at risk of death is a civil obligation: "the duty to rescue". However, this duty to rescue is rarely formalized by some form of sanction for those who do not fulfil the significant social task that means organ donation (WHO, 2017).

Remarkably, the "abandonment of persons" has been legally sanctioned: the Argentinian legal code includes: "Who endangers the life or health of another, either by endangering a person or by abandoning him or her to his or her fate, shall be liable to a sentence of between 2 and 6 years" (Criminal Code of the Argentine Nation, Law 11,179, 1984 Updated). Nevertheless, this law does not specifically mention the possibility of including those people who deny the donation of an organ that might save a person's life.

In addition, it should be remarked that current laws regulating donation have not resolved the present health emergency. It has therefore been suggested that educational efforts and efficient legal reforms could change society's unsatisfactory behaviour and it would take a role in preserving lives through organ donation.

The practice of transplantation requires a specific legality. In addition, the benefit of organ donation imposes the subject has a clear social knowledge as well as a complete acceptance of the procedure. It is important to recognize that in this regard, several authors have proposed well-defined educational and legal medical proposals. In 1968, Dukeminier said, "Society must face the fact that cadaveric organs can save human lives, perhaps their own. To achieve this goal requires the decision to advance in the policy of preserving life, or to remain paralyzed by its taboos" (Dukeminier and Sanders, 1968; Simmons and Simmons, 1971; Miller, 1987).

Regarding this urgent social demand, different authors have issued ideas and suggestions of real value over the years. In 1994, Freeman said: "The rescue of a person in danger of death, when the action does not involve personal risks, is a legal responsibility. As well, the author stated that faced with the present organ shortage emergency, states should resolve this crisis generating radical ethical-legal solutions, respecting the concept of reciprocity". Evaluating the fact that in the US, almost none of the state's policies on organ donation have completely solved transplantation needs, Chatterjee considered that new policy designs are necessary to increase donation rates and reduce the widening gap between supply and demand for organs (Freeman, 1994; Chatterjee et al. 2015).

In support of these comments, different authors have considered that a real change in legal-educational strategies regarding donation and transplantation is necessary. An efficient national policy with rational proposed formulas and regulations should be implemented by those responsible. It is a fair evaluation that new ethical-legal resolutions that challenge the socio-sanitary crisis could potentially conflict with principles of social autonomy. To prevent such conflicts, a correct and pedagogical programme in social education is required.

A question of significant importance is: Could the refusal to donate a deceased person's organs, if this decision does not affect the integrity of the potential donor, be included in the legal definition of "abandonment of persons"?

New strategies regarding organ donation and transplantation should maintain as fundamental ethical values the principles of justice, utility, and respect for people. Failure to assess these factors will be ethically and legally unacceptable (Howard, 2006).

The implicit obligation to help someone at risk of death must be evaluated by experts who would then generate clear information that would allow people to recognize that rejecting organ donation could also potentially represent a risk to their own life. New educational programs must be implemented to prevent ethical-legal proposals being considered by society as contrary to principles of autonomy and generating the potential for public conflict (Marshall, Thomasma and Daar, 1996).

Moreover, controversial political proposals have been suggested for legalizing economic incentives for organ donation. This proposal has been hotly debated, considering that it obscures the social justice in organ transplantation, amending the established essential concepts of social altruism and civic duty, orthodox motivations for organ donation decisions (Flescher, 2018).

To resolve the organ shortage emergency without further delay, state health policies responsible for people's right to health should evaluate legal claims when organ donors and recipients' lives are in danger. As a paradigm, it is important to consider that in 2021 in the US alone, 17 people waiting for a transplant die every day (U.S. Health Resources & Service Administration, 2021).

To improve the organ shortage crisis, legal regulations must facilitate social behaviour in relation to donation. The states, global leading health organizations, and teams responsible for transplantation should be responsible for promoting new education programs that might facilitate society's understanding of new ethic-legal measures that would help to solve the current organ shortage dilemma.

b. Social and Professional Education

The inadequate results of social and university education programs have been an essential cause of the unsatisfactory response to donation (Cantarovich, 2004; Radunz et al. 2015; Siebelink et al. 2017).

Analyses of the main factors of this uncertainty have found people's ignorance (cognitive factor) to be the predominant donation barrier. Nevertheless, innovative studies are suggesting that fear of death, mutilation, monotheistic church views, and medical staff behaviour (non-

cognitive factors) are also essential factors in people's organ donation decision (Morgan et al. 2008).

In addition, a review of educational donation programs should also consider the role of Olson's classic concept of reciprocity in individual's organ donation consent decisions. By the concept of reciprocity, the author is referring to the fact that when individual benefits, which might be obtained due to collective action, are not highlighted, people's participation will not be so evident. The reciprocity concept should be an essential element in new educational programmes aimed at society (Sandler, 2015).

The concept of mutilation is one of the main barriers to organ donation. The conceptual interrelationship between mutilation and cremation has been studied, considering the relationship between cremation, relatives' grief, and the position of monotheistic churches. It is interesting to note the evolution of cremation of deceased persons over time. Cremation was completely forbidden in the year 789 in France and in 1887was criticized in French legislation. Nowadays, cremation represents ~40% of relative's decision in France. That figure rises to 85% in Switzerland, and 90% in the UK and Scandinavian countries. In the US, the cremation rate was 53.1% in 2018. In summary, it has been suggested that there is no particularly notable connection between cremation and levels of grief in family's behaviour (Birrell et al. 2020).

From the education point of view, taking these notions into account when developing pragmatic modifications of the social and professional education strategies, we propose the evaluation of the following suggestions:

- Revise current programmes of transplantation and increase public awareness of the ethical and practical aspects of donation.
- Enlist the assistance of health, sociopsychology, and pedagogical experts to improve public information.
- Try, pedagogically through information, to manage the reticence that the image of mutilation generates in society.
- Enlist the active participation of leaders of religious communities in donation and transplantation education.
- Promote organ donation information among young people in schools and universities.

Regarding the impact of education programmes on social behaviour about organ donation consent, as we mentioned previously, particular attention has been drawn to the usefulness of the global slogan "Organ donation is a gift". The controversial catchphrase is based on individual interpretation of

its moral-ethic concept concerning organ donation consent. It has been suggested that this slogan might not imply the potential of having an organ available if needed; something that may be required in anyone's future. As Olson suggested, a negative personal behaviour might be generated when it is not clarified that the collective social action can generate an individual benefit (Caplan, 2014).

An alternative slogan in the revised transplantation education programs should reflect that what organ donation really means is society sharing an irreplaceable need (Sandler, 2015; Cantarovich, 2005).

Furthermore, the notion that during life we are all potential organ receptors, and the significant idea that today a dead body might represent a unique source of health, should be pedagogically introduced in new education programs concerning organ donation.

Therefore, a review of social education programs should include new slogans with a potential positive influence on social behaviour toward donation. We consider it useful to transmit the following concepts to society:

- Throughout our lives we all are potential recipients of a transplant.
- Today our afterlife body is a single potential source of health for others.
- Education can transform organ donation into a binding social commitment.

In addition, these proposals might be included in innovative educational programs:

- Organ shortage: A health emergency.
- Donation is not giving; it is sharing life.
- Our body after death might be a source of health.
- During life we are all potential recipients of a transplant.
- Monotheistic religions accept organ donation after death.

These observations concerning to organ donation consent, pedagogically adapted by means of a structured psychological and pedagogical methodological application, must be included in the needed revision of social transplantation and donation education programmes.

Concerning the value of education for organ donation, several authors have remarked on the importance of youth education in the problem of organ

shortage. However, although this activity has been anecdotally developed, a global generalization of this proposal has not yet been systematically developed (Shoenberg, 1991).

This analysis of the state of the organ shortage crisis should allow us to define the most significant causes of its persistence and evaluate changes in social education proposals related to the health and legal criteria capable of generating a change.

c. Medical changes

Concerning the main medical proposals to improve the organ shortage, donor criteria acceptance has been modified, and medical teams may now operate according to the so-called ECD. Formerly rejected by medical teams, these donors present some borderline functional or metabolic impairment. However, no matter that significant long-term function was not accomplished by these grafts compared with non ECD, current experience has shown that their use has saved the lives of patients on waiting lists.

Furthermore, it is important to highlight Rapaport's "kidney pair donation" (KPD) suggestion when discussing the problem of donor/receptors with severe immunological incompatibilities. This idea consists of combining families where donors and recipients are incompatible, bringing them together with compatible donors and recipients. In the past decade, KPD has become the fastest-growing source of transplants for these patients (Ojo, 2005; Raslan et al. 2017).

Without a doubt, the modifications of classic donor acceptance criteria have succeeded in saving lives inexorably condemned to an unjust death. Unfortunately, however, the results continue to be ruthlessly reflected in the constant increase in the number of patients on waiting lists, and in their mortality (U.S. Health Resources & Service Administration, 2021).

On the other hand, considering the current increase in people's longevity and metabolic diseases, preventative global programs such as "Discovering, not suffering" should be intensively developed by states responsible for health policies. Communication campaigns to alert society about the benefits of health prevention must be conducted persistently. This strategy, with regular public monitoring, will uncover hidden kidney, liver, and cardiopulmonary disease, and obesity and mitigate potential future end organ failures. The possibilities of achieving a real modification of this emerging problem, as we have suggested, is a change in the social response

to donation (Levitt, 2015; Cantarovich, 2019, Hull, 2008; Sauaia el al. 1994; Centers for Disease Control and Prevention).

However, no matter the observable improvements achieved through the medical modifications regarding organ allocation, concomitant intensive preventive medicine programmes might result in a real modification of this emergent problem (Hull, 2008; Sauaia et al. 1994; Centers for Disease Control and Prevention).

d. Economic aspects

It was defined that the states, regardless of people's education or social-economic levels, have the obligation to provide equal health and safety to all citizens. In 1984, the National Organ Transplantation Act (NOTA) in the US outlined the guiding principles of transplantation. One of the main rules was to prohibit monetary involvement in organ donation. However, these recommendations have not always been strictly enforced. Unacceptable socio-economic strategies have been responsible for social injustices in organ transplantation.

One main problem has been the state support for immunosuppressant drugs only for three years. This regulation is clearly contrary to the concepts of equity and justice that states must guarantee all citizens. However, the US recently approved a new Medicare legislation concerning immunosuppressant drugs. The main rule of this statement stated: "After transplantation, immunosuppressive drugs are supplied for the rest of life". The importance of this new Medicare resolution is not only to protect the survival of the transplant patient but also because it will save the state money. The average budget of a dialysis year in the US is thirty times the cost of using a year of immunosuppression drugs (Simmerling, 2007).

The differences in the cost of transplantation in different countries is striking and contradictory to the rules instituted regarding the financial aspects of organ transplantation. As a marked example, kidney transplantation in India is lower than in the US ($13,000 versus $400,000). Furthermore, how can we justify the fact that the cost of complex liver cancer surgery in the US is significantly less than a liver transplant? (Berezhnoi, 2020; Michas, 2020; Costhelper, 2021)

Undoubtedly, these differences in transplantation costs are difficult to understand and explain. Furthermore, it should be considered that these data

do not assess the political and economic social variables related to dissimilar country transplant economies.

These cost differences certainly contradict the advocated norms concerning organ transplantation; to save a patient's life, an organ, primarily from a deceased person, is needed. The paradox is simple: Why the different transplant costs when without organ donation, death is inevitable? These observations, important in the consideration of economic measures, might be consistent with the ethical principles regarding transplantation. The following inquiry is a challenge for the health decision makers: Shouldn't the costs of organ or tissue transplantation be considered equal with the charges for more complex surgical interventions for the same organ?

On the other hand, given that one of the non-cognitive barriers to organ donation is scepticism about medical behaviour, a rational analysis of the significant economic differences in organ transplantations would be a significant element in a more efficient social conduct regarding organ donation (Morgan et al. 2008).

In addition, this analysis of the current economic aspects of transplants also leads us to an evaluation of the role of the pharmaceutical industry. Transplanted patient survival requires the use of anti-rejection drugs during their lifetime. A potential beneficial alternative, then, might be that the pharmaceutical industry leaders consider that the cost of this vital lifetime therapy will be cheaper than the same drugs prescribed for different diseases in the short term (James and Mannon, 2015).

Transplantation is not a private transaction between donor and recipient. Organ donation, enabled by the advancement of medicine, is an expression of social solidarity. Nevertheless, years have passed, and nothing has changed; organ shortage is still a daily public health problem. Certainly, these deaths are affected by the individual responsibility to donate, but the current policies of social education on organ donation the inadequate university education on organ transplantation are also factors. This obvious reality has created thoughtful revisions, concerning health prevention policies and social education. Uncertainties related to the allocation of donor organs increase the stress for doctors, patients, and the families involved in the donation decision.

Discussion and conclusions

This analysis of the global crisis that is the organ shortage, currently sharply aggravated by the COVID 19 pandemic, has evidenced the most important causes of its intransience, and suggested alternative future solutions.

We believe in the value of insisting that a unique feature of transplantation is the paradox of saving a life by using the organs of a deceased person. This unique reality of medical science should undoubtedly be supported by ethical-legal formulations and clearly defined by inviolable medico-institutional and socio-economic behaviours.

Although the number of transplants performed over time has progressively increased, the overall observation of figures shows that organ shortage is persistently increasing over time. This certainty is clearly expressed by the percentage difference between donors and patients on waiting lists over the years.

The data that has been detailed previously concerning the general behaviour of people regarding organ donation showed that when faced with the death of a loved one, organ donation consent has been maintained at a negative stability of 50% (White et al, 2014; Vetterli et al, 2015; Janahi et al, 2018).

In the analysis of the results of the existing legal regulations about consent to organ donation, the experience in countries which have introduced presumed consent is controversial with respect to the organ donation rates (Rithalia et al, 2009).

With respect to the legal provisions aimed to regulating or modifying current social behaviour towards donation, we considered that personal feelings and conduct can only be modified by a realistic education programme aimed at society. However, in view of the persistent refusal to donate organs, the question that should be analysed is whether the attitude of those people who can, with their decision, determine the fate of one or more patient's lives, should not be in some way placed within the ethical-legal concept of "abandonment of persons".

Obviously, such a decision will have to be supported by social education programs, developed by specialists in ethical and psychological social problems, that clearly inform people of the respect for autonomy on the one hand, and the significance for the lives of each person that organ transplants currently mean on the other.

Society's conceptual recognition of its responsibility concerning organ donation consent will allow people to accept the socio ethical-moral consequence represented by the refusal to "rescue" someone in danger of death.

Undoubtedly, another factor of transcendent importance in the achievement of a modification of the critical medico-social situation generated by organ shortage, is the usefulness of the education programs on organ donation and transplantation at social and university levels. The evolution through the years of these programs has been structured in response to the concept "Donation is a gift of life". The controversial comments regarding the real effectiveness of this slogan, as well as the recent research suggesting the impact of non-cognitive factors on peoples' organ donation behaviour, such as fear of death, mutilation, and distrust in medical conduct, has indicated the advisability of including in education programs the following proposals:

- Donating organs is sharing life.
- During our existence, we are potential transplant recipients.
- After life, our body is a potential source of health through organ donation.
- Organ donation should be seen as a social and legal responsibility.
- All monotheistic churches authorize and support organ donation.

Surely the prevention of risk factors for end organ failure through solidly structured policies for the periodic control of the population by defined programs of preventive medicine at all levels of people's age, and socio-political status would be of incomparable value.

Finally, it is necessary to highlight the global controversies in the economics of organ and tissue transplantation. This problem, which we have previously underlined, shows a paradoxical difference in the costs of this practice internationally. The price disproportion clearly contradicts the internationally defined precepts of economics regarding the practice of organ transplantation. An international study in pursuit of a logic rationalization of the costs of a medical intervention which requires as a fundamental therapy the use of the organs of a deceased person, developed by political decision-makers, different medical and institutional levels, and the pharmaceutical industry would be of essential value.

Official institutions and organizations responsible for transplantation should promote new education programs that will facilitate society's understanding of new ethic-moral and legal measures aimed at facilitating the solution of the current problem of organ shortage.