



EVALUATION IN HEALTH AND ORGANS AND TISSUE TRANSPLANTATION: INTEGRATIVE REVIEW

AVALIAÇÃO EM SAÚDE E TRANSPLANTES DE ÓRGÃOS E TECIDOS: REVISÃO INTEGRATIVA

EVALUACIÓN EN SALUD Y TRASPLANTES DE ÓRGANOS Y TEJIDOS: REVISIÓN INTEGRADORA

Melina Sousa Vieira¹, Milleni Sousa Vieira², Lidya Tolstenko Nogueira³

ABSTRACT

Objective: to analyze the scientific literature on evaluation in health related to the transplants of organs and tissues policy in Brazil. **Method:** it is an integrative review to search for articles in Medline, Lilacs, IBECs and Cochrane Library from 2004 to 2014. The keywords used were health evaluation and transplantation and public health and transplantation policies. The sample consisted of 14 studies whose data were extracted by a form describing the profile of publications, methodological characteristics and the knowledge produced on the subject. **Results:** there was a concentration of articles in 2011, with a predominance of Qualis A2 and B2. Three thematic categories were developed: the contextualization of transplants in Brazil, the organization of services, knowledge and access, and alternatives for improving the system. **Conclusion:** it is concluded the need for the effective involvement of the institutions of the transplant process. **Descriptors:** Health Evaluation; Health Public Policy; Transplantation.

RESUMO

Objetivo: analisar a produção científica sobre avaliação em saúde relacionada à política de transplantes de órgãos e tecidos no Brasil. **Método:** revisão integrativa, com busca de artigos nas bases de dados Medline, Lilacs, IBECs e Biblioteca Cochrane no período de 2004 a 2014. Os descritores utilizados foram avaliação em saúde e transplantes e políticas públicas de saúde e transplantes. A amostra foi composta por 14 estudos cujos dados foram extraídos mediante um formulário com a descrição do perfil das publicações, as características metodológicas e o conhecimento produzido sobre o tema. **Resultados:** houve concentração de artigos no ano de 2011, com Qualis A2 e B2 predominantes. Foram elaboradas três categorias temáticas: a contextualização dos transplantes no Brasil, a organização dos serviços, conhecimento e acesso, e as alternativas para a melhoria do sistema. **Conclusão:** concluiu-se a necessidade do efetivo envolvimento das instituições que formam o processo do transplante. **Descritores:** Avaliação em Saúde; Políticas Públicas de Saúde; Transplantes.

RESUMEN

Objetivo: analizar la producción científica sobre evaluación en salud relacionada a la política de trasplantes de órganos y tejidos en Brasil. **Método:** revisión integradora, con búsqueda de artículos en las bases de datos Medline, Lilacs, IBECs y Biblioteca Cochrane en el período de 2004 a 2014. Los descriptores utilizados fueron evaluación en salud y trasplantes y políticas públicas de salud y trasplantes. La muestra fue compuesta por 14 estudios cuyos datos fueron extraídos mediante un formulario con la descripción del perfil de las publicaciones, las características metodológicas y el conocimiento producido sobre el tema. **Resultados:** hubo concentración de artículos en el año de 2011, con Qualis A2 y B2 predominantes. Fueron elaboradas tres categorías temáticas: la contextualización de los trasplantes en Brasil, la organización de los servicios, conocimiento y acceso, y las alternativas para la mejoría del sistema. **Conclusión:** se concluye con la necesidad del efectivo involucramiento de las instituciones que forman el proceso del trasplante. **Palabras Descriptores:** Evaluación en Salud; Políticas Públicas de Salud; Trasplantes.

¹Nurse, Expert in ICU, Nursing Residence Program of the Teaching Foundation and Health Science Research of the Federal District Government/FEPECS-DF, Federal University of Piauí/UFPI. Teresina (PI), Brazil. E-mail: mellinasousa@yahoo.com.br; ²Nurse, Master in Nursing, Federal University of Piauí/UFPI, Federal University of Piauí/UFPI. Teresina (PI), Brazil. E-mail: millenisousa1@gmail.com; ³Nurse, Ph.D. Professor in Nursing, Nursing Course and Graduate Program in Nursing, Federal University of Piauí/UFPI. Teresina (PI), Brazil. E-mail: lidyatn@gmail.com

INTRODUCTION

In Brazil, the National Transplant System (SNT) currently manages the largest public program of organs and tissues of the world. The National Policy of Transplantation has peculiarities. Among other health policies, both by the complexity of the procedures involved, as the magnitude of its activities, with important effects on the survival of thousands of patients.

The National Policy of Transplants of organs and tissues is regulated by Federal Law No. 9,434/97 and No. 10,211/01, having as guidelines the gratuitousness of the gift, the benefit about the receiver and no loss compared to living donor, establishing guarantees and rights to patients requiring such procedures.^{1,2}

The SNT is a coordination by the Ministry of Health and therefore of the Unified Health System (SUS), whose role is to operationalize this health policy nationwide, coordinating and regulating the entire health care system in transplants through operating permits and accreditation of institutions and teams. Each state has a Notification Center, Collection, and Distribution of Organs and Tissues linked to the SNT and coordinating reporting, collection, and distribution of organs in the state, as well as a single regional list. The National Central Notification, Collection, and Distribution of Organs and Tissues carries out these activities nationwide. The SNT aims to enable reliability in actions involving transplants and at the same time, it provides quality care for the donor/receiver. Therefore, it has 555 health facilities that perform 798 procedures for transplants, and 1,376 medical teams authorized to perform transplants.³

The country's development in the transplantation sector has been remarkable. In 2013, the rate of effective donors was from 13.2 per one million population (pmp). There was a continued growth in the detection rate of potential donors reaching 46.5 pmp, and among others, there were 13,744 corneal transplants, 5,433 kidney transplants, 1,723 liver and 271 heart transplants carried out.⁴ In the first half of 2014, although there was a reduction in the number of transplants in the first quarter, the potential donors notification rate was 47.7 pmp with effective rate donations of 28.3%, and the rate of effective donors was 13.5 pmp.⁵

Despite the challenges, the SNT is considered an achievement of the Brazilian health system, and its performance becomes magnified when considering that the non-

realization of transplants brings negative consequences to the probability of a cure to the survival of grafts and patients, the nature and extent of sequelae in patients, in family and society. The indirect costs of not performing transplantation should be considered, such as the renal replacement therapies that annually cost thousands of reais to the state.⁶

The evaluation process of the transplantation policy becomes relevant, as the right to contribute to the improvement of management mechanisms and the assistance to the population.⁷ The assessment consists in making a value judgment about an intervention or one of its components to support decision making. Evaluative research object practices are often policies, programs and health services.⁸

There are few evaluative studies published on the transplant policy in Brazil, maybe because the activities involved in this sector have been regulated in the country for just over 15 years. Thus, this study has the following research question: what is the scientific literature available on health evaluation related to transplants of organs and tissues in Brazil? The objective was to conduct an integrative review of the assessment of health related to the transplant of organs and tissues policy in Brazil.

METHOD

An integrative review was carried out to meet the objective of the study, based on the references: Medline (via Pubmed), Lilacs, Cochrane Library and IBECS (the last three via Virtual Health Library), to locate studies that would discourse about the object study. The keywords and related terms used were: Health Evaluation and Transplants, and Public Health Policies and Transplant.

The period of publication of the articles was from January 2004 to July 2014. The ten-year period was designed to get the latest research related to transplants.

In this review, there were descriptive or analytical studies included that allow the extraction of results and analyzes of health evaluation related to organ and tissue transplants policy. All categories studies were selected (original, reflection, experience report), in Portuguese, English or Spanish.

The researchers conducted the searches independently, selecting the articles of interest through the titles and abstracts. After consensus meeting, a list of eligible studies was elaborated, being read in full by all researchers. The references of the articles

were manually reviewed search for studies that had not been identified by the search strategy.

There were 36 studies identified. When performing the reading material, there were 25 articles excluded, not meeting the objective proposed by this study. Three papers were included from references. Thus, the final sample consisted of 14 scientific studies.

A form was developed to collect the data from the studies, allowing the title registration, database, main author and title, published journal, objectives, methodological design, results and conclusion/contribution of the study to the searched subject. After the analysis, the themes categories of the results have been prepared.

The results were presented in two stages: the first one describes the profile of publications and methodological characteristics, and the second one describes the knowledge produced about evaluation in health related to organs and tissues transplants policy in Brazil.

RESULTS

◆ Profile of found papers.

From the selected studies, 85.8% (12) were in the article category, 7.1% (1) editorial and 7.1% (1) official text published by the Institute of Applied Economic Research (IPEA). As the year of publication, there was a concentration of studies in 2011, totaling 33.3% (5) (Figure 1). In 2005 and 2007, there are no studies in the research area.

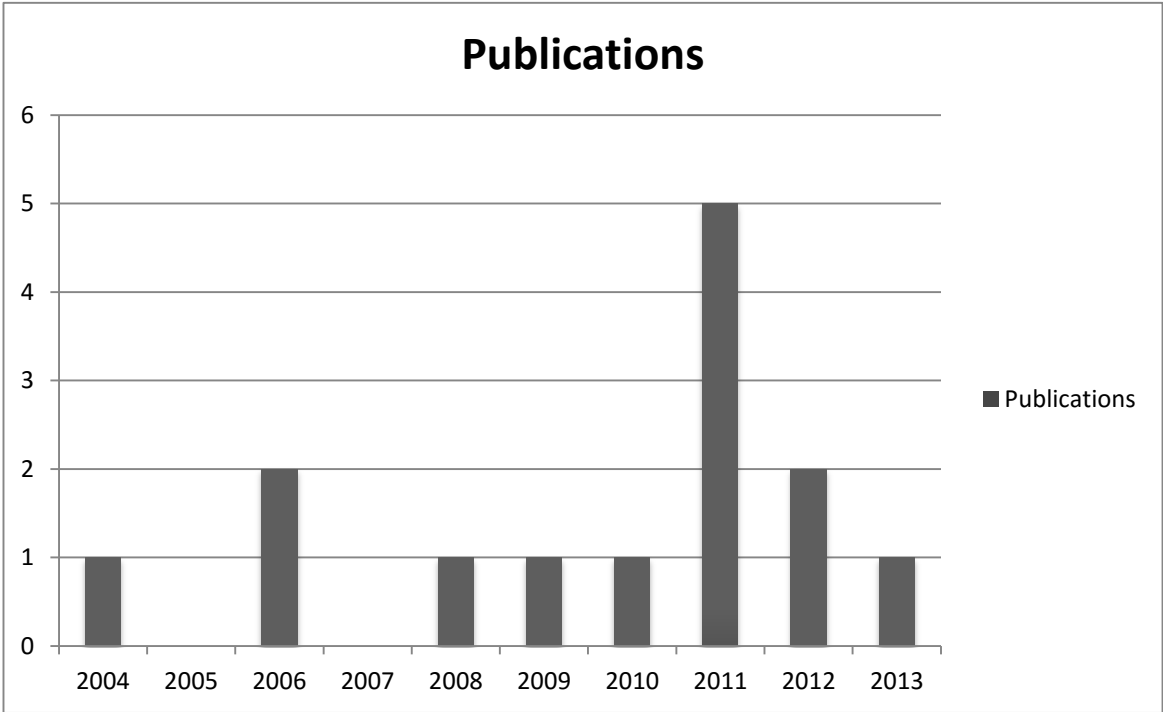


Figure 1. Scientific publications on health evaluation related to transplant policy, per year.

Regarding the journals, there was a homogeneous distribution of nine studies in scientific journals; worth mentioning that

28.6% (4) were published in the *Cadernos de Saúde Pública*, with Qualis A2 in Nursing (Figure 2).

Journal	Quantity of publications	QUALIS for Nursing
Cadernos de Saúde Pública	04	A2
Ciência e Saúde Coletiva	01	B1
Revista Brasileira Terapia Intensiva	01	B2
Revista Brasileira Hematologia e Hemoterapia	01	B1
Revista Brasileira de Clínica Médica	01	B2
Revista da Rede de Enfermagem do Nordeste	01	B2
Jornal Brasileiro de Nefrologia	01	B2
Revista de Direito Sanitário	02	B3
Jornal Brasileiro de Medicina	01	B4

Figure 2. Description of the studies, according to nursing journals and QUALIS.

Seven of the studies analyzed were primary, two were analyzed based on data provided by the SNT, and five were critical reflections on the subject. As for the methodological approach of primary studies, six had a quantitative approach, and only one showed quantitative and qualitative approach.

The primary studies were distributed according to the population: data available for SNT (3 studies); patients enrolled in waiting list for transplantation (1 study); patients of a School Center (1 study); intensive hospitals of a Brazilian capital (1 study); and records of patients with open Brain Death Protocol (1 study).

♦ Relevant aspects for the Health Evaluation related to organ and tissue transplants policy.

In studies, several aspects of organ transplantation were analyzed from the perspective of the transplants policy and evaluation in health. Thus, from the reading of the articles, three thematic categories were elaborated related to the aspect pointed out by the study related to transplant policy.

♦ The SNT and the context of transplants in Brazil.

In this category, six studies that discuss politics transplants of organs and tissues, their organization and the context of transplantation were included.

Two studies conducted an overview of the situation of transplants in Brazil, showed geographical disparities, and in particular, the situation of kidney transplants. They found an increase in the absolute and a relative number of transplants with organs from deceased donors, with 66.8% of kidney transplants performed in 2011 with organs from deceased donors. They analyzed the regional disparities between the states, with São Paulo, Federal District, Rio Grande do Sul, and Santa Catarina is presenting performance close to developed countries. However, Amazon did not conduct any collecting activity from deceased organ donors in the period. Concerning to kidney transplants, the South and Southeast regions performed most of these transplants and held the largest number of scientific publications in the organ transplant area in recent years. Finally, they stressed the importance of developing research on transplants in the country, with transplant centers and receivers included in national and international clinical studies.⁹⁻¹⁰

Two other studies analyzed the cost of the transplant and the SNT efficiency and effectiveness and ability to perform organ transplants in the Brazilian states. Between

1995 and 2003, corneal transplantation showed increasing the cost per unit, and the kidney transplant did not show a definite trend regarding expenditures per unit, although total spending system with transplants were growing. On efficiency, SNT performance was higher in the short-term model than to the long-term model, due to the transient response of the system as task forces and campaigns that despite the short-term effective, they do not change the structure of service. The performance of the state of São Paulo was highlighted with the highest number of kidney transplants, 34.60% of the national total. São Paulo also excelled in corneal transplants, with 48.29% of 9,848 corneal transplants performed in the country in 2006. Higher rates of compliance with the transplant need in the Midwest, South and Southeast were detected. The North and Northeast regions had relatively lower rates, despite Ceará and Pernambuco having excelled in some indicators. There are considerable discrepancies in effectiveness, productivity and ability to perform organ transplants such as the kidney, cornea, and liver, among Brazilian states.¹¹⁻²

Another study shows the disparities in transplant waiting lists between the units of the states. In 2004, 2005 and 2006, there was less waiting time for transplants in the South and Southeast, which concentrate most of the transplants performed and patient in waiting list. In the Northeast, the states of Ceará and Pernambuco were highlighted because they had estimated waiting time relatively small and expected high rate of achievement of transplants.¹³

Another study also analyzed the waiting lists for transplants in Brazil. However, it was an approach to the general situation of estimating the elasticity of waiting times. It pointed out that waiting times for transplants and variables such as average service and the average arrival rate, are not linear, and elasticity may or may not be constant. Also, the waiting period is quite sensitive to changes in average rates of service and arrival. Thus, improvements in patients' attendance rates necessarily provide significant reduction in the number of patients on the waiting list.¹⁴

♦ Organization of services, knowledge and access to transplants.

In this category, five studies were included focusing on the organization and structure of parts of the services involving organ donation and transplants (2), knowledge about brain

death (2) and the access of patients with the transplants waiting list (1).

The first study describes significant achievements in the field of hematopoietic stem cell transplants with the regulatory process and policy discussions. It highlighted the broad participation of users and associations in the discussion for national regulation. There was an increase in the number of health units for this type of transplantation.¹⁵

The second study identified the profile of potential organ donors and, for this particular sample, it showed that the predominance of potential donors were male (60%), notification occurring in greater numbers in the emergency department (74.3%). The conclusion of protocols brain death occurred in time for organ collecting, and 57.1% of the protocols were closed with both clinical and the laboratory data for the diagnosis of brain death (BD). However, 60% of potential donors were not effective donors, mainly because there are medical contraindications or hemodynamic instability and family refusal.¹⁶

Another study characterized the profile of patients enrolled on the waiting list for kidney transplantation, the clinical outcome and analyzed barriers to access to this type of transplant. From 835 patients followed for six years, 22.7% were transplanted, 15.6% died, 15.4% were on the waiting list, and 46.2% remained on the list. Among the difficulties in access to kidney transplantation in the Unified Health System reported by the professionals involved in the donation/transplantation process, there are the gaps in preventing the Primary Health delaying the early diagnosis and treatment in the initial stages of chronic kidney disease, difficulties in carrying out pre-transplant tests in public service, and weaknesses in the collection system and distribution of organs such as underreporting of potential donors, low collection rates of organs and the lack of appropriate structure for the maintenance of a possible donor.¹⁷

Two other papers evaluate the knowledge of intensive care physicians and the population about brain death. The first study showed an insufficient knowledge of medical related to brain death protocol, reflecting the reduction in notifications of potential donors and collection agencies. The second study pointed out that although most of the study population were for organ donation, they did not understand the meaning of brain death and showed distrust the ability of professionals to establish such a diagnosis. These results showed the need for continuing education of medical professionals and the

institution of permanent strategies for enlightenment and awareness about organ donation.¹⁸⁻¹⁹

♦ Alternatives for system improvements.

In the third category, there were three studies listing strategies for organization and operation of transplant policy.

The first study conducted a critical reflection on the necessity and legitimacy of implementing targeted policies on organ and tissue transplantation sector, based on the theory of capabilities and theory of bioethics of protection. Thus, it argues that this policy should prioritize the most socially vulnerable, so that patients who can afford the service can do the transplant on the private area, and those who cannot do it, they would do it in public area, considering a context of scarce resources, as is the case in Brazil.²⁰

Another study discusses the regulation of organ transplantation policy based on bioethics and autonomy of the individual. When considering the shortage of organs and donation as one of the barriers to increasing the number of transplants, this study stressed the need for continuing education for physicians and the population aiming at the involvement and adherence to any donation/transplantation process, and made a reflection on the existence of a regulated trade of organs and permitted by Brazilian law to increase the supply of organs. It also raised questions about the free use of the body.²¹

The last work reflected on the approach of the population in the process of forming the single list of organ receivers. It discussed the importance of the waiting list of institution within the micro-states, reducing the area of coverage for each priority queue criteria while simultaneously allowing more effective monitoring of the population in the organ donation process.²²

DISCUSSION

Despite the advances obtained, the consolidation of transplant policy in Brazil still faces challenges such as disparity in donation and organ collection and transplants performance in the different regions of the country.

With a reduction in some numbers in the first quarter of 2014, the target of 15 effective donors/pmp should be achieved with difficulty. In the first half of the year, the data also show regional disparities in some states like Santa Catarina, Ceará and São Paulo and the Federal District, reaching a rate of effective donors more than 20 pmp, while Mato Grosso, Amapá, Roraima, and Tocantins

Vieira MS, Vieira MS, Nogueira LT.

Evaluation in health and organs and tissue...

did not show effective donors in the period. However, it should be noted the continued growth of the state of Ceará and the Federal District in the rates of donation and transplantation, while the Federal District reached the rate of 29.6 effective donors/pmp, the best rate in the country in that period.⁶

Among the difficulties of the system, there is the reduced number of brain death patients' notification (BD) and inadequate maintenance of the potential organ donor, which contribute to non-realization of donations. For proper care of potential organ donor, it is necessary that the health staff, especially nurses, have knowledge about BD pathophysiology as well as the physiological changes resulting from this process in the patient with BD, which can trigger multiple organ dysfunction, having a direct impact on the quantity and quality of transplanted organs.²³⁻⁴

Other obstacles should be highlighted such as infrastructure deficiency of hospital network and human and material resources for the maintenance of the potential donor, lack of knowledge of health professionals about the donation/transplant process failure in the early identification of a potential donor, family denial and the lack of facilities for the diagnosis of BD.^{14,25-7}

In the process of organ and tissue donation, family refusal is related to cultural and religious values, the lack of understanding by families of brain death diagnosis and the lack of credibility in the health system. Brain death is not yet a widely publicized concept and culturally accepted throughout society. Failure to understand the irreversible condition of brain death and the belief in the evolution of the framework for healing are some reasons of why families refuse to donate. Moreover, not only the population but health professionals also present resistance as the understanding of the concept of brain death.^{19,26,28}

The theme on organ donation and transplantation are not systematically incorporated into training for professionals, both in undergraduate and in graduate schools. Thus, the implementation of continuing education measures for health professionals is relevant to provide training and awareness of the donation/transplantation process.²⁹

Finally, by transplantation of organs and tissues being located at the boundary between the individual and the collective, between life and death, raised moral dilemmas related to bioethics that exceeded the patients and

influenced discussions throughout society. Questions such as equitable criteria transplant indication, allocation of high-tech public resources, illegal trade in organs and autonomy of use of the body were discussed to permeate the regulation of activities involving transplants.^{25,30}

Thus, permanent society and health professional awareness strategies and structural changes and identifying assistance gaps in the transplant sector can improve the performance of the National Transplant System, and above all the reduction in waiting time for a transplant for patients who are on the waiting lists.

CONCLUSION

There was a concentration of studies in 2011 with Qualis A2 and B2 prevalent, most of them were primary, with a quantitative approach. The existence of a geographical disparity was evidenced in both the number of potential donors as the rate of actual donations, with a concentration of transplants in more developed regions and in the capital, which also detained most of the patients in waiting list. The waiting list for transplants was highlighted with a variable elasticity, suffering a positive impact by improving the patient care rates.

Regarding the organization of services and access to transplants, there was an underreporting of potential donors, or even a failure in the conversion of notifications in actual donations, both by insufficient knowledge of brain death protocol, such as other limiting factors ranging from the family disagreement to the hospital conditions of donor maintenance.

Limitations of this study should be subject to permanent policies to increase the effective number of donations and consequent increase in the number of transplants. The donation and allocation of organs are a laborious and delicate process that depends on the population of credit in the system, infrastructure of health services and the commitment of professionals. To consolidate Brazil as the second country in the world in a number of transplants, the effective involvement of all institutions being pillars of the donation/transplantation process is required.

REFERENCES

1. Brasil. Lei nº 9.434, de 4 de fevereiro de 1997. Dispões sobre a remoção de órgãos, tecidos e partes do corpo humano para fins de transplante e tratamento e dá outras

providências [Internet]. 1997 [cited 2014 Jun 25]. Available from: http://www.planalto.gov.br/ccivil_03/leis/l9434.htm

2. Brasil. Lei nº 10.211, de 23 março de 2001. Altera dispositivos da Lei n. 9.434/97, que dispõe sobre a remoção de órgãos, tecidos e partes do corpo humano para fins de transplante e tratamento e dá outras providências [Internet]. 2001 [cited 2014 June 25]. Available from: http://www.planalto.gov.br/ccivil_03/leis/leis_2001/l10211.htm

3. Brasil. Ministério da Saúde [Internet]. Sistema Nacional de Transplantes [cited 2014 Apr 30]. Available from: http://portal.saude.gov.br/portal/saude/area.cfm?id_area=104

4. Associação Brasileira de Transplantes de Órgãos. Registro Brasileiro de Transplantes [Internet]. XIX (4). 2013 [cited 2014 July 15]. Available from: [http://www.abto.org.br/abtov03/Upload/file/RBT/2013/rbt2013parcial\(1\).pdf](http://www.abto.org.br/abtov03/Upload/file/RBT/2013/rbt2013parcial(1).pdf)

5. Associação Brasileira de Transplantes de Órgãos. Registro Brasileiro de Transplantes [Internet]. 2014 [cited 2014 Aug 10];20(2):[about 5 screens]. Available from: <http://www.abto.org.br/abtov03/Upload/file/RBT/2014/rbt-1semestre-parc.pdf>

6. Marinho A, Cardoso SS, Almeida VV. Disparidades nas filas para transplantes de órgãos nos estados brasileiros. Cad Saúde Pública [Internet]. 2010 Apr [cited 2014 July 11];26(4):786-96. Available from: <http://www.scielo.br/pdf/csp/v26n4/20.pdf>

7. Contandriopoulos AP, Frias PG, Lira PIC. A avaliação na área da saúde: conceitos e métodos. In: Hartz ZMA. Dos modelos conceituais à prática na análise da implantação de programas. Rio de Janeiro: Fiocruz; 1997.

8. Vieira-da-Silva LM. Conceitos, abordagens e estratégias para avaliação em saúde. In: Hartz ZMA, Vieira-da-Silva LM. Avaliação em saúde: dos modelos teóricos à prática de avaliação de programas e sistemas de saúde. Rio de Janeiro: Fiocruz; 2005.

9. Medina-Pestana JO, Garcia VD, Felipe CR, Abbud-Filho M, Galante NZ, Almeida ERB, et al. The context of the organ transplantation in Brazil in 2011. J Bras Med. 2012; 100(2):7-15.

10. Medina-Pestana JO, Galante NZ, Tedesco-Silva Jr H, Harada KM, Garcia VD, Abbud-Filho M, et al. The context of the renal transplantation in Brazil and its geographical disparity. J Bras Nefrol. 2011; 33(4):472-84.

11. Marinho A. A situação dos transplantes de órgãos no Brasil. Texto para discussão,

n.1.389 [Internet]. 2009 [cited 2014 June 30]. Available from: http://www.ipea.gov.br/portal/index.php?option=com_content&view=article&id=4628

12. Marinho A, Cardoso SS, Almeida VV. Organ transplantation in Brazilian States: effectiveness, productivity, and capacity. Cad Saúde Pública. 2011; 27(8):1560-8.

13. Marinho A, Cardoso SS, Almeida VV. Disparidades nas filas para transplantes de órgãos nos estados brasileiros. Cad Saúde Pública [Internet]. 2010 Apr [cited 2014 June 30]; 26(4):786-96. Available from: <http://www.scielo.br/pdf/csp/v26n4/20.pdf>

14. Marinho A. A study on organ transplantation waiting lines in Brazil's Unified National Health System. Cad Saúde Pública. 2006; 22(10):2229-39.

15. Bouzas LFS. Os avanços da Sociedade Brasileira de Transplante de Medula Óssea [editorial]. Rev Bras Hematol Hemoter [Internet]. 2004 [cited 2014 June 30];26(3):153-4. Available from: <http://www.scielo.br/pdf/rbhh/v26n3/v26n3a01.pdf>

16. Rodrigues TB, Vasconcelos MIO, Brito MCC, Sales DS, Silva RCC, Souza AMA. Perfil de potenciais doadores de órgãos em hospital de referência. Rev Rene [Internet]. 2013 [cited 2014 June 28]; 14(4):713-9. Available from: <http://www.revistarene.ufc.br/revista/index.php/revista/article/view/853/pdf>

17. Machado EL, Cherchiglia ML, Acúrcio FA. Perfil e desfecho clínico de pacientes em lista de espera por transplante renal, Belo Horizonte (MG, Brasil), 2000-2005. Ciência & Saúde Coletiva [Internet]. 2011 Mar [cited 2014 July 3];16(3):1981-92. Available from: <http://www.scielo.org/pdf/csc/v16n3/32.pdf>

18. Schein AE, Carvalho PRA, Rocha TS, Guedes RR, Moschetti L, Salvia JC, et al. Evaluation of intensivists' knowledge on brain death. Rev Bras Ter Intensiva [Internet]. 2008 Apr/Jun [cited 2014 July 15];20(2):144-8. Available from: http://www.scielo.br/pdf/rbti/v20n2/en_05.pdf

19. Gonçalves TB, Teixeira RKC, Housoume VSN, Silva JAC. Avaliação do conhecimento da população sobre morte encefálica. Rev Bras Clin Med [Internet]. 2012 Jul/Ago [cited 2014 July 15]; 10(4):318-21. Available from: <http://files.bvs.br/upload/S/1679-1010/2012/v10n4/a3040.pdf>

20. Ribeiro CDM, Schramm FR. Atenção médica, transplante de órgão e tecidos e políticas de focalização. Cad Saúde Pública

- [Internet]. 2006 Sep [cited 2014 June 28]; 22(9):1945-53. Available from: <http://www.scielo.br/pdf/csp/v22n9/19.pdf>
21. Stancioli B, Carvalho NP, Ribeiro DM, Lara MA. O sistema nacional de transplantes: saúde e autonomia em discussão. Rev Direito Sanit [Internet]. 2010-11 Nov/Feb [cited 2014 June 30]; 11(3):123-54. Available from: <http://www.revistas.usp.br/rdisan/article/view/13225/15040>
22. Pedra AS, Moraes DP. A criação de microrregiões como critério preponderante na fila única de transplante de órgãos: uma proposta de participação popular por aproximação. Rev Direito Sanit [Internet]. 2010-11 Nov/Feb [cited 2014 June 30]; 11(3):155-73. Available from: <http://www.revistas.usp.br/rdisan/article/view/13226/15041>
23. Freire SG, Freire ILS, Pinto JTJM, Vasconcelos QLDAQ, Torres GV. Alterações fisiológicas da morte encefálica em potenciais doadores de órgãos e tecidos para transplantes. Esc Anna Nery [Internet]. 2012 Oct/Dec [cited 2014 July 15]; 16(4):761-6. Available from: http://www.scielo.br/scielo.php?pid=S1414-81452012000400017&script=sci_arttext
24. Virginio BCAA, Escudeiro CL. Notification of brain death in an intensive care unit: a descriptive study. Online braz j nurs [Internet]. 2012 Oct [cited 2014 Aug 20]; 11(Suppl 1):546-9. Available from: <http://www.objnursing.uff.br/index.php/nursing/article/view/3787>
25. Barros PMR, Araújo EC, Lima LS. Transplante de órgãos e tecidos: aspectos históricos, ético-legais, emocionais e repercussão na qualidade de vida. J Nurs UFPE on line [Internet]. 2009 [cited 2014 July 20]; 3(4):1192-201. Available from: http://www.ufpe.br/revistaenfermagem/index.php/revista/article/view/137/pdf_992
26. Moraes EL, Massarollo MCKB. Reasons for the family members' refusal to donate organ and tissue for transplant. Acta Paul Enferm [Internet]. 2009 [cited 2014 July 15]; 22(2):131-5. Available from: http://www.scielo.br/pdf/ape/v22n2/en_a03v22n2.pdf
27. Kemp CD, Cotton BA, Johnson JC, Ellzey M, Pinson CW. Donor conversion and organ yield in traumatic brain injury patients: missed opportunities and missed organs. J Trauma [Internet]. 2008 June [cited 2014 ago 20]; 64(6):1573-80. Available from: <http://ovidsp.tx.ovid.com/sp-3.18.0b/ovidweb.cgi?WebLinkFrameset=1&S=N>

- [DPPFPIDLLDDBHDKNCJKBDGCINKGAA00&returnUrl=ovidweb.cgi%3f%26TOC%3dS.sh.22.23.26.29%257c24%257c50%26FORMAT%3dtoc%26FIELDS%3dTOC%26S%3dNDPPFPIDLLDDBHDKNCJKBDGCINKGAA00&directlink=http%3a%2f%2fgraphics.tx.ovid.com%2fovftpdfs%2ffpddncgcbddkll00%2ffs046%2fovft%2flive%2fgv025%2f00005373%2f00005373-200806000-00024.pdf&filename=Donor+Conversion+and+Organ+Yield+in+Traumatic+Brain+Injury+Patient+s%3a+Missed+Opportunities+and+Missed+Organ+s.&PDFIdLinkField=%2ffs046%2fovft%2flive%2fgv025%2f00005373%2f00005373-200806000-00024&link_from=S.sh.22.23.26.29%7c24&pdf_key=B&pdf_index=S.sh.22.23.26.29&D=yrovft](http://ovidsp.tx.ovid.com/sp-3.18.0b/ovidweb.cgi?WebLinkFrameset=1&S=N)
28. Houri LF, de Oliveira CD, de Souza CV, de Moura MR, de Araújo Ferreira LM, Oliveira VD, et al. Intentionality of organ/tissues donation for transplantation within a Brazilian hospital complex. Transplant Proc [Internet]. 2012 Oct [cited 2014 Aug 22]; 44(8):2272-5. Available from: http://ac.els-cdn.com/S0041134512007178/1-s2.0-S0041134512007178-main.pdf?_tid=7dff088-b3cb-11e5-b7c6-00000aacb361&acdnat=1452012408_90f2a054d443348673423326c6aedd92
29. Cicolo EA, Roza BA, Schirmer J. Doação e transplantes de órgãos: produção científica da enfermagem brasileira. Rev Bras Enferm [Internet]. 2010 Mar/Apr [cited 2014 July 15]; 63(2):274-8. Available from: <http://www.scielo.br/pdf/reben/v63n2/16.pdf>
30. Gomes JRAA, Rosa TN, Garrafa V. Transplantes de órgãos: análise bioética e prática profissional. Rev SOBECC [Internet]. 2008 Apr/Jun [cited 2014 July 10]; 13(2):48-57. Available from: <http://bases.bireme.br/cgi-bin/wxislind.exe/iah/online/?IsisScript=iah/iah.xis&src=google&base=BDENF&lang=p&nextAction=lnk&exprSearch=14905&indexSearch=ID>

Vieira MS, Vieira MS, Nogueira LT.

Evaluation in health and organs and tissue...

Submission: 2014/10/25
Accepted: 2015/10/27
Publishing: 2016/02/01

Corresponding Address

Melina Sousa Vieira
Rua Cravos, 1092
Bairro Morada do Sol
CEP 64056-315 – Teresina (PI), Brazil