

The Future of the Eye Banks in Brazil

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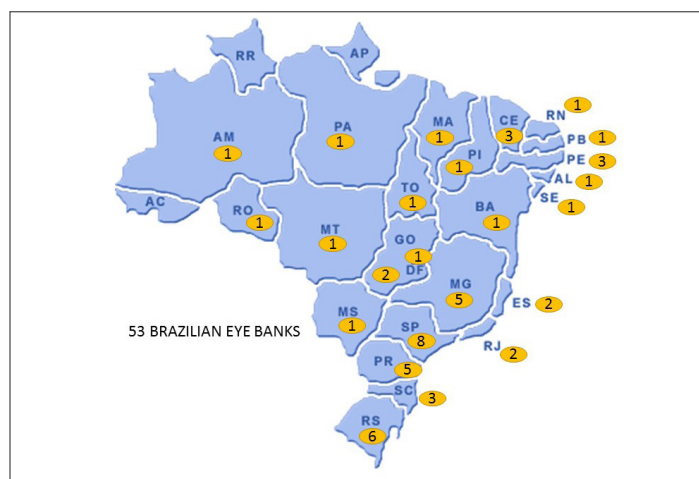
EYE BANKS AND CORNEAL TRANSPLANTS IN BRAZIL

Although the first Eye Bank in Brazil was created in 1949 in Rio de Janeiro¹, it was only in the 1990's, with the opening of a branch of the Pan-American Association of Eye Banks (APABO) in the country that the activities of the Eye Banks began to be professionalized, and rules and routines started to be legally established.² Organizational and quality standards, training of professionals by APABO and a minimum of public financial resources for the processing of the tissues by the Eye Banks allowed an increase of 3,500% in the number of corneal transplants. From 1991 to 2016, according to APABO data, the number of transplants performed per year increased from 500 (with almost 100% of the corneas coming from the United States) to 18,000 (with 100% of the corneas obtained locally).^{2,3} Since the data processing systems of the governmental institutions responsible for regulating this activity are not yet standardized and unified, official statistics are still not accurate, and the number of corneal transplants tends to be slightly higher than what appears in the official report.

The proper organization of the Eye Banks made possible not only the increase in the number of donations and surgeries with locally donated tissue, but also promoted better qualifications of medical and technical professionals, resulting not only in the availability of high quality tissues, but also in the improvement of surgical techniques and in the training of new and more experienced surgeons. Of course, the final result has been the rehabilitation of an increasing number of visually impaired patients, a shorter waiting period, an increased margin of safety, and optimization of costs.³

The establishment of waiting lists controlled by the Health Ministry and State Transplant Centers has brought credibility and transparency to the system, guaranteeing fairness in care. Patients from different regions got access to treatments that in the past were restricted due to geographic and/or socioeconomic factors. To the benefit of patients,

the new rules also required minimum standards of quality as well as compliance with sanitary standards of good practices.³ Currently, there are 53 Eye Banks in 23 States and the Federal District (only three States do not have Eye Banks: Acre, Amapá and Roraima — in the North region of the country).^{2,4} 72% of these Eye Banks belong to public hospitals (federal, state or municipal), and 28% belong to philanthropic or private hospitals / services which also treat patients from the public healthcare system and, therefore, are able to receive public resources.²

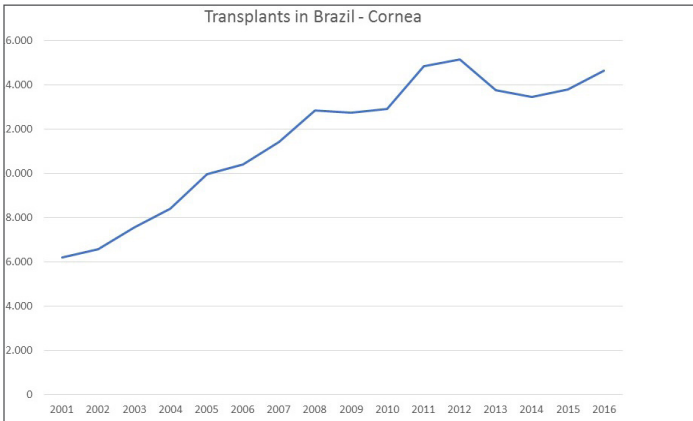


The National System of Transplants (SNT) and Pan-American Association of Eye Banks (APABO).

Data from the Health Ministry — through the National System of Transplants (SNT) and National Health of Surveillance Agency (ANVISA) — and from the Brazilian Association of Organ Transplants (ABTO), which track the transplants performed and patients on the waiting lists, show that the number of corneal donations and transplants increased 150% in the period from 2001 (when it began to be officially measured by the SNT — created in 1997) to 2012. In the last five years, this number has remained stable, with growth being interrupted by the serious economic and political crisis that affects the country and that has restricted the programs and the resources in the health area.^{5,6,7}

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National System of Transplants (SNT) and Centers for Notification, Collection and Distribution of Organs and Tissues (CNCDO) of the Federative Units.

Waiting lists that no longer existed in some States appeared again, and patients who might already have had their surgeries scheduled electively are waiting again on the lists for weeks. By the end of 2016, according to SNT data, 12,865 patients waited on the 27 state waiting lists for a corneal transplant.⁵ However, we know that this number does not represent reality, since many patients still do not have access to specialized ophthalmologic care and, therefore, to waiting lists. This is also the result of financial difficulties, the precariousness of the health system and transportation in some regions, among other factors. It is estimated that the underreporting index may be higher than the official number of active patients on the waiting lists.³

CORNEAL TRANSPLANTS PERFORMED			
	SNT	ANVISA	ABTO
2011	14.838	15.983	14.672
2012	15.141	16.505	15.281
2013	13.765	15.873	13.744
2014	13.456	14.929	13.036
2015	13.793	16.387	13.861
2016	14.641	Not available yet	14.534

National System of Transplants (SNT), National Health of Surveillance Agency (ANVISA) and Brazilian Association of Organ Transplants (ABTO).

ACTIVE PATIENTS ON THE WAITING LIST		
	SNT	ABTO
2011	6.418	x
2012	4.861	5.961
2013	6.015	5.379
2014	8.581	8.602
2015	10.297	10.210
2016	12.865	10.923

National System of Transplants (SNT) and Brazilian Association of Organ Transplants (ABTO).

THE CHALLENGES

The future of corneal transplants is still intrinsically related to the future of Eye Banks.⁸ And the future of Eye Banks in Brazil, as provided by Brazilian legislation, is intrinsically related to public investments in health. Unlike other countries, Brazilian Eye Banks cannot charge for the processing of donated eye tissues. Regardless of the status of the institution to which the Eye Bank belongs (public, private, or philanthropic), donor eye tissue processing procedures are paid through government reimbursement for each donation/donor.⁹ And only a minority of the Eye Banks (7.5%), linked to philanthropic services, is able to raise and receive funds from other sources.² The Law provides:

PUBLIC REIMBURSEMENT FOR THE PROCESSING OF DONATED EYE TISSUES			
Procedure	Value (R\$)	Value (US\$) Approx.	Limit Per Donor
Family interview for corneal donation	420,00	128,00	1
Physical inspection of the donor	215,00	65,5	1
Enucleation procedure (uni or bilateral)	322,38	98,50	1
Preservation and evaluation of the corneas	367,20	111,20	2
Endothelial corneal cell count	64,80	19,80	2
Preservation media for corneas	148,00	45,30	2
Serology of possible donor of cornea and sclera	60,00	18,40	1
TOTAL	R\$ 2.177,38	US 663,00	

Health Ministry and Pan-American Association of Eye Banks (APABO).

These same values have been applied, without adjustments, for years (without taking into account the accumulated inflation indices). The cost of the preservation media, for example, has not been readjusted since 2001. Currently, Eye Banks are buying each bottle of the media for a value approximately 450% higher than that established for reimbursement by the Health Ministry — which has compromised the continuity of activities. The same preservation media sold in other countries, such as United States, for approximately US\$50 is being sold in Brazil by the same supplier for approximately US\$244. This is an inexplicable difference of almost 400%. Another example is serologic testing; the amount paid is not enough to carry out all the tests requested by Brazilian legislation and international medical standards.²

In addition to being insufficient to cover costs, generating an inevitable deficit, the resources provided in the legislation for reimbursement of the procedures performed by Eye Banks, are not always applied to what they are intended, since they are paid to the hospital institutions where the Eye Banks are installed. Thus, the Eye Banks do not have managerial autonomy to apply the resources, and the hospital institutions, faced with insufficient budgets for so

many priority demands, direct these resources away to the emergency services or for the basic health needs. Even if they fully direct the funds received to the Eye Banks, these resources would not be sufficient to cover the costs, since the calculation for the definition of the value of each procedure does not include all the costs related to the operation of Eye Banks (fixed, variable, non-operational, indirect... costs).^{2,10} Moreover, the amount that the institutions receive from the government for each donation is variable. It does not always reach the maximum of US\$663, since not all donated tissues are suitable for preservation.

Another important aggravating factor is related to the distribution of the Health Ministry's resources for organ and tissue transplants. Corneal transplants represent about 70% of all transplants performed in Brazil annually from cadaveric donors.^{2,7} And of the total resources allocated to activities and procedures related to organ and tissue transplants, approximately 1% is allocated to the processing of the donated eye tissues and between 2% and 3% to the surgical procedures with corneas and sclera.⁵

The insufficient value of public investments in the processing of donated eye tissues, legal limitations to obtain additional resources and the structuring of Eye Banks as departments within management hospital institutions, hinder the development and improvement of activities. While in other countries Eye Banks already provide pre-cut tissues for the new surgical techniques (lamellar and endothelial corneal transplants), in Brazil, surgeons are responsible for the preparation of the tissues in the operating room. Misconceptions and bureaucracy have prevented Eye Banks from evolving in the same proportion as scientific and technological advances.²

PROSPECTS FOR THE FUTURE

According to data from the Brazilian Association of Organ Transplants (ABTO), Brazil occupies second place in absolute number of organ and tissue transplants in the world and has the largest public transplant program worldwide.⁷

In order not to run the risk of failing to fulfill its fundamental role in providing health care for the population and losing its place in the world scene of corneal transplants, Eye Banks depend on broad and necessary reform of the Brazilian health system and the adoption of less bureaucratic and truly responsible and ethical practices of public health management. As with everything related to Brazilian society today, there is a great expectation for the implementation of tools for effective and transparent control of the use of public resources and for the professional and strategic planning for allocation of these resources.

The advances achieved by Eye Banks in Brazil, in just over two decades, were the result of hard work based on a model of recognized success — that of the United States —, under the guidance of APABO and in partnership with the Brazilian Council of Ophthalmology (CBO) and government authorities.^{3,2} Public resources and support for the establishment of rules and regulations were key factors in leveraging activities. However, much remains to be done to improve the system, and public policies need to be reviewed, without disregarding the experiences and the successful results obtained. More attention and resources need to be devoted to eye tissues, with long-term commitment. There is an enormous potential for obtaining donations of corneas in Brazil that has not yet been explored due to lack of investment for the implementation of new actions in this area. New policies should take into account this potential and also the prevention of corneal blindness, the expansion of the public ophthalmological care and the traceability of transplanted patients.¹⁰

Since corneal diseases affect an extremely active population range, visual rehabilitation (resulting from the work of Eye Banks) enables the reintegration of patients into the productive community and provides an invaluable increase in the quality of life of these people, representing a gain for all (mainly, by the biopsychosocial and economic aspects). This factor alone is an irrefutable justification for investments in the field of donation and corneal transplantation and renders essential the improvement of Brazilian legislation and a change in the concept of the structure and management Eye Banks. The resources for the Eye Banks and corneal transplants are of very low impact on the public coffers but have enormous positive societal benefits.¹¹

With greater public investment, the availability of resources from other sectors, focus on the most cost-effective interventions, evidence-based decision making, periodic and efficient revision of needs, and careful analysis and management of risks, processes and results, waiting lists would no longer exist. Corneal transplant surgeries would become elective, and Brazilian Eye Banks could also contribute to the rehabilitation of patients in other Latin American countries, generating a wide range of benefits and a significant contribution to the global fight against blindness.^{8,12}

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