How to Cite this article: Darío Jiménez and Fernando Jiménez, Global Perspectives on Kidney Transplantation: Ecuador, Kidney360, Publish Ahead of Print, 2022, 10.34067/KID.0003452022

Article Type: Global Communication

Global Perspectives on Kidney Transplantation: Ecuador

DOI: 10.34067/KID.0003452022

Darío Jiménez and Fernando Jiménez

Key Points:

Abstract:

Disclosures: D. Jimenez Acosta reports the following: Speakers Bureau: AstraZeneca. F. Jiménez reports the following: Speakers Bureau: BOEHRINGER INGELHEIM.

Funding:

Author Contributions: Darío Jiménez: Methodology; Visualization; Writing - review and editing Fernado Jiménez: Conceptualization; Data curation; Formal analysis; Methodology; Supervision; Writing - original draft; Writing - review and editing

Data Sharing Statement:

Clinical Trials Registration:

Registration Number:

Registration Date:

The information on this cover page is based on the most recent submission data from the authors. It may vary from the final published article. Any fields remaining blank are not applicable for this manuscript.

Copyright 2022 by American Society of Nephrology.
Global Perspectives on Kidney Transplantation: Ecuador

Darío Jiménez¹ and Fernando Jiménez² on behalf of the Transplant Unit, Hospital de los Valles, Quito, Ecuador

1. Enrique Garcés Hospital, Nephrology, Quito, Ecuador
2. Hospital de los Valles, Transplant unit, Quito, Ecuador

Correspondence:
Darío Jiménez, MD
Enrique Garcés Hospital
Nephrology
Mariana de Jesús Av OE-8
Occidental Av.
Quito, 170147
Ecuador
dxjimenezmd@gmail.com
Introduction

Ecuador is a country located in South America that has a territorial area of 283560 km2. The population as of April 2022 is 17,933,987 (1) distributed in 4 natural regions; coast, mountains, east and island region. It is estimated that approximately 1.9 million inhabitants are affected by some degree of chronic kidney disease (CKD). The Ministry of Public Health has reported that up to December 2021, there were 17,278 hemodialysis patients, with a prevalence of 957 PMP, in addition there were 892 patients with peritoneal dialysis and 771 transplant patients. (2).

Distribution of the health system in Ecuador. Access to dialysis and transplant services.

The financing of health care is through a free public network and the private system. The Public Care System, which is the main financer, is carried out through: the Ministry of Public Health, the Social Security System, the Police and Armed Forces health systems.

CKD is listed as a catastrophic disease. The care of this group of patients in the public network generates an annual cost of about 650 million, a fact that has led to serious economic difficulties for access to drugs and coverage (3), (only the 1% of the population consumes 20 to 22% of the Public Health budget). the contribution of private health services plays an important role in relieving the state budget, which in 2020 and 2021 was also seriously affected by the COVID-19 pandemic.

The National Institute of Donation and Transplantation of Organs, Tissues and Cells (INDOT) is an entity attached to the Ministry of Public Health (MSP), responsible for the regulation, coordination, control, promotion, surveillance and evaluation of transplant activity in the country. According to the information issued by this organization, in the National Waiting List for kidney transplantation as of April 10, 2022, there are 282 patients throughout the Ecuadorian territory. (4), the average time on the waiting list is not known
Background of transplant activity in Ecuador. Number and results

In Ecuador, the first kidney transplant from a related living donor was performed in 1976 at the Armed Forces Hospital in Quito. From 1976 to 2001 the transplant activity was carried out in several public and private institutions, (pancreas transplants – kidney, pediatric and cadaveric donor). In this period, 233 transplants were counted (predominantly in private centers 58%), the majority in the Quito city.

In July 1994, the first “National Organ and Tissue Transplant Law” was enacted, but it was only in July 1998 that the “Organ and Tissue Transplant Law Regulations” were published, and in December 1999 the Ministerial agreement was generated of creation of the ONTOT (National Organization for Organ and Tissue Transplantation). The constant political changes in the country have not helped in giving a clear and constant regulation in the area of transplants.

In 2001, a private institute was created (Pro-Transplantation Group) that generated the first formal cadaveric harvest and donation program that definitively promoted transplant activity in the country and until 2007 it was this group that almost exclusively carried out this treatment, completing 126 surgeries, however, Ecuador did not have a record of transplant activity and this information was lost from official sources. As of 2007, there was greater stability in political terms in Ecuador and the foundations were laid for a better activity registration system in the country, which was published by a group of Ecuadorian authors pointing out that between 2007 and 2018, 1334 kidney transplants were performed, with which the rate of transplants from cadaveric donors increased from 1.27 to 13.33 pmp. At the same time, the living donor rate fell from 2.81 to 1.29 (6). In 2010, pediatric kidney transplants formally began (25 had previously been done sporadically) and in 2012 innovative procedures began, such as kidney-pancreatic and hepato-renal transplants.
On March 4, 2011, the new "Organic Law on Donation and Transplantation of Organs, Tissues and Cells in Ecuador" came into force. The General Regulations to the law have been in force since July 13, 2012 and gave way to the transition from the National Agency for Organ and Tissue Transplantation (ONTOT) to the "National Institute of Donation and Transplantation of Organs, Tissues and Cells" (INDOT), created on July 14, 2012 as a regulatory entity attached to the Ministry of Public Health.

In 2019, 226 kidney transplants were performed (only 4 living donors), and in 2020 - 2021 the activity as in the rest of the world suffered a marked decrease due to the COVID 19 pandemic, accounting for 144 in total.

The current legislation allows the donation in life of up to the fourth degree of consanguinity and must be over 18 years of age and a spouse or stable partner who must be certified before a notary. The identification, procurement, maintenance, ablation and distribution of cadaveric donor organs is regulated by INDOT with the participation of accredited centers for organ ablation on a scheduled basis. Initially the order of priority is for the regional where the donor is identified, if there is no suitable recipient it will be offered at the national level and there is as a priority criterion people with ERCT who have previously been a donor, code 0 or children in case the donor is under 30 years of age.

In the span of 46 years, 2089 Kidney transplants have been documented, 558 of live donor (26,71%), 1531 of deceased donor (73,29%). In the 2002 to 2021 period, government support programs with dead donors were formally started. (Table 1.)

Traditionally kidney transplants are performed by vascular surgeons and urologists and post-transplant recipients care is provided by nephrologists. The average length of hospital stay after kidney transplantation is 7 days provided there are no complications. Graft and patient survival 98,84% at 1 year; no mortality data available at 5 and 10 years
Transplant costs are mainly covered by social security, followed by the public health system; police and armed forces insurance. However, now it is more common to observe self-financed patients or with private insurance.

**Possibilities of improvement in kidney transplantation in Ecuador**

It is important to emphasize the role those private institutions have played in the development of transplant activity in the country, since public institutions have periodically suffered from shortages of medical and pharmacological resources, etc. Between 2007 and 2017 it was very difficult to keep private entities functioning due to a bureaucratic activity and discrimination towards private medicine, which even led to some patients being transplanted in other countries such as Colombia and the United States. In the last 4 years there has been an approach to teamwork of the different intuitions, this generates a gain for the country in terms of decongesting the spending of public institutions and in economic terms work and taxes that are reinvested in our country.

We need to create conditions that make it possible to lower the prices of medicines, medical and laboratory supplies through laws that reduce costs and import times. It is impressive to know that only in the neighboring country many of the exams, supplies and medicines can cost up to a third of what they cost in Ecuador, which is why many patients bring medicines from abroad.

It is necessary to reactivate the Ecuadorian Transplant Society. During the period 2007 to 2017, scientific societies lost all ability to generate opinion or support in all professional fields. In medical terms, the role of the transplant society was never been important and that is why, especially, the statistical data were lost and only theses or isolated works remained that are only historical references, on the other hand, the contribution that can be given to guarantee the suitability of the medicines and supplies that they want to enter in terms of quality and safety.
Simplify accreditation and reaccreditation processes through the review of the forms used in the qualification, in addition to making a qualification based on the results rather than on the numbers or list of requirements.

We consider organ donors with cardiac arrest as a source that has not been used in Ecuador.

The biggest barrier to transplant development is the lack of medication, supplies and reagents for specific tests. This implies high costs of medicines and supplies. Some tests are not regularly available and when available they are very expensive.

It would be important for the Ecuadorian Transplant Society to resume its activity of control and development of transplants, ensuring better statistics, follow-up of survival and promote new therapeutic and diagnostic advances in the country.

**Disclosures:** D. Jimenez Acosta reports the following: Speakers Bureau: AstraZeneca. F. Jiménez reports the following: Speakers Bureau: BOEHRINGER INGELHEIM.

**Funding:** None.

**Acknowledgments:** Transplant Unit Hospital de los Valles, Quito, Ecuador: Jorge Huertas, Jose Maria Aguirre.

Author opinions based on knowledge and continuous work in the area of kidney transplantation in Ecuador, should be considered as recommendations in a personal capacity and not of the Ecuadorian Society of Transplants or the Institutions where they work.

The content of this article reflects the personal experience and views of the author(s) and should not be considered medical advice or recommendation. The content does not reflect the views or opinions of the American Society of Nephrology (ASN) or Kidney360. Responsibility for the information and views expressed herein lies entirely with the author(s).

**Author Contributions:** Darío Jiménez: Methodology; Visualization; Writing - review and editing. Fernando Jiménez: Conceptualization; Data curation; Formal analysis; Methodology; Supervision; Writing - original draft; Writing - review and editing.
Bibliography


Table 1. Percent of live donor vs deceased donor transplants

<table>
<thead>
<tr>
<th>Periods</th>
<th>Live Donor</th>
<th>Deceased Donor</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976-2001</td>
<td>221</td>
<td>12</td>
<td>233</td>
</tr>
<tr>
<td>2002-2022</td>
<td>337</td>
<td>1519</td>
<td>1856</td>
</tr>
<tr>
<td>n</td>
<td>558</td>
<td>1531</td>
<td>2089</td>
</tr>
<tr>
<td>%</td>
<td>26.71%</td>
<td>73.29%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>