
Heart Transplantation in Latin America: Opportunities and Limitations

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No disclosures



Heart
transplant
situation in
the world

Current
profile of
donors and
recipients

Indications
and Status
of Cardiac
Transplantat
ion in Brazil

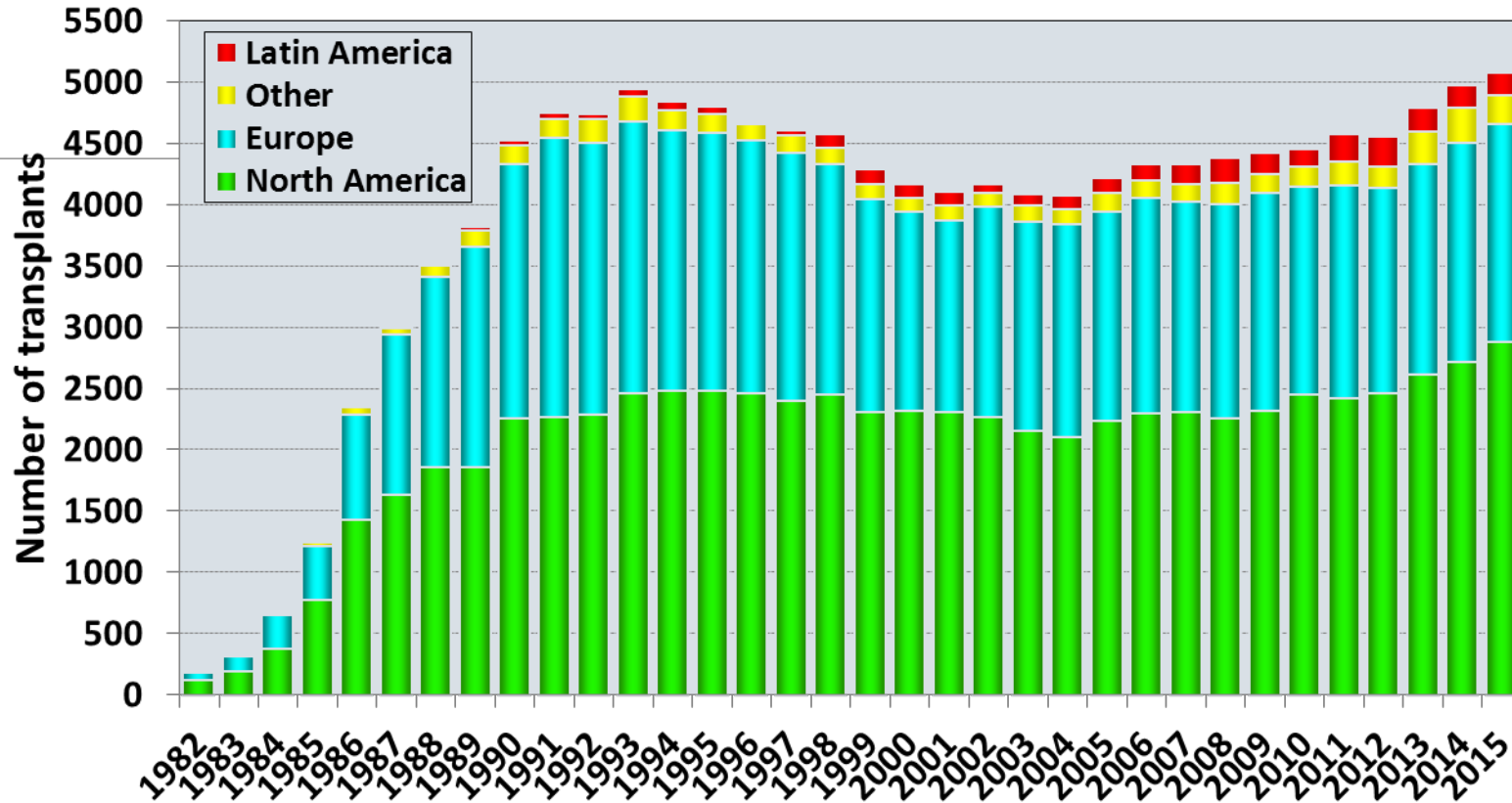
Management
model

Challenges
and
Perspectives



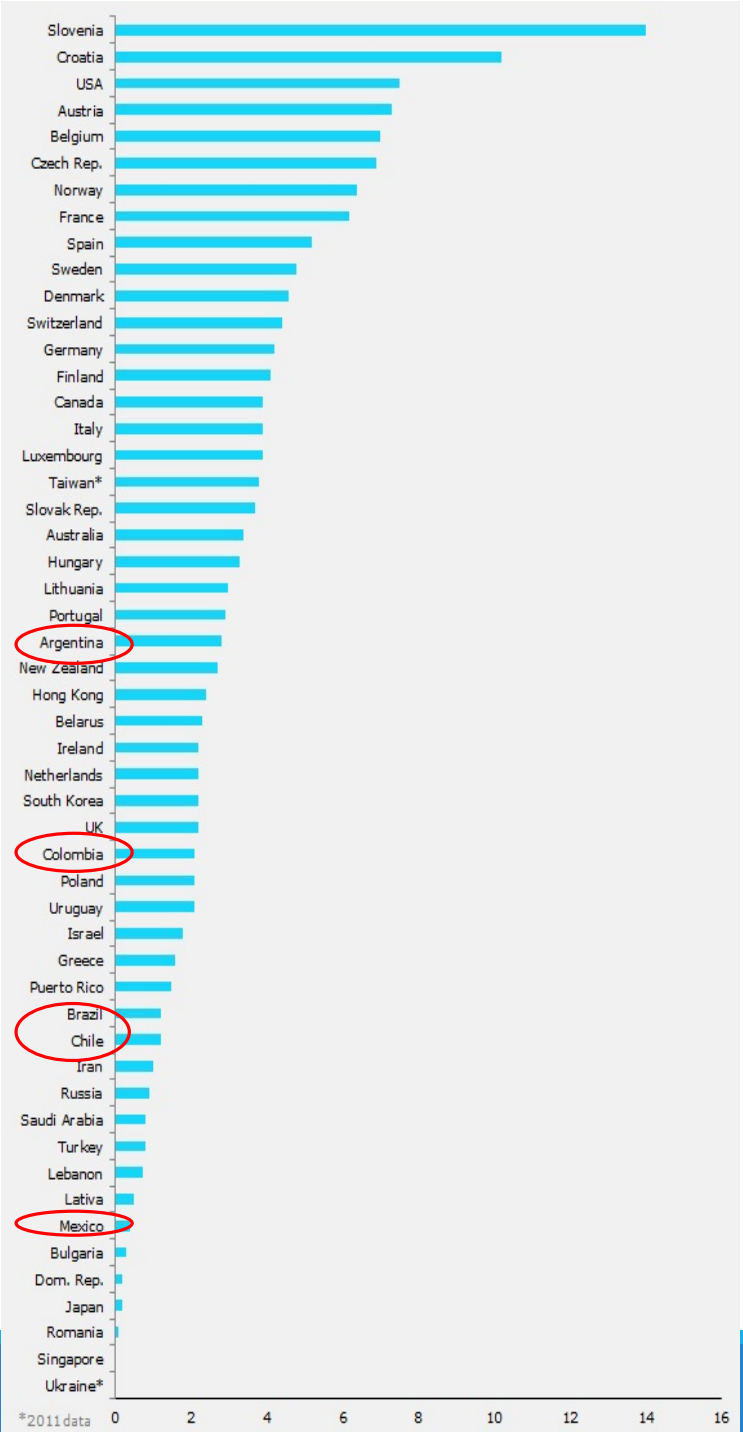
Adult and Pediatric Heart Transplants

Number of Transplants by Year and Location



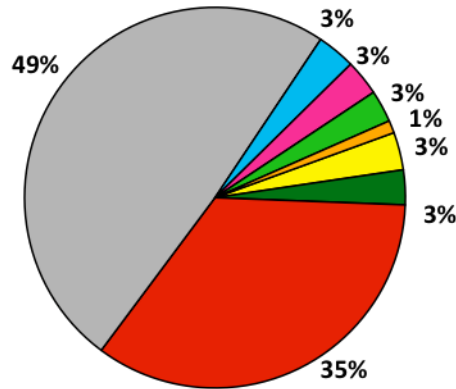
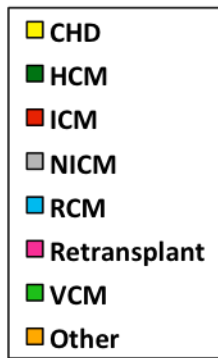
The number of HTx have stabilized over the recent years.

Number of cardiac transplants per million population (pmp)

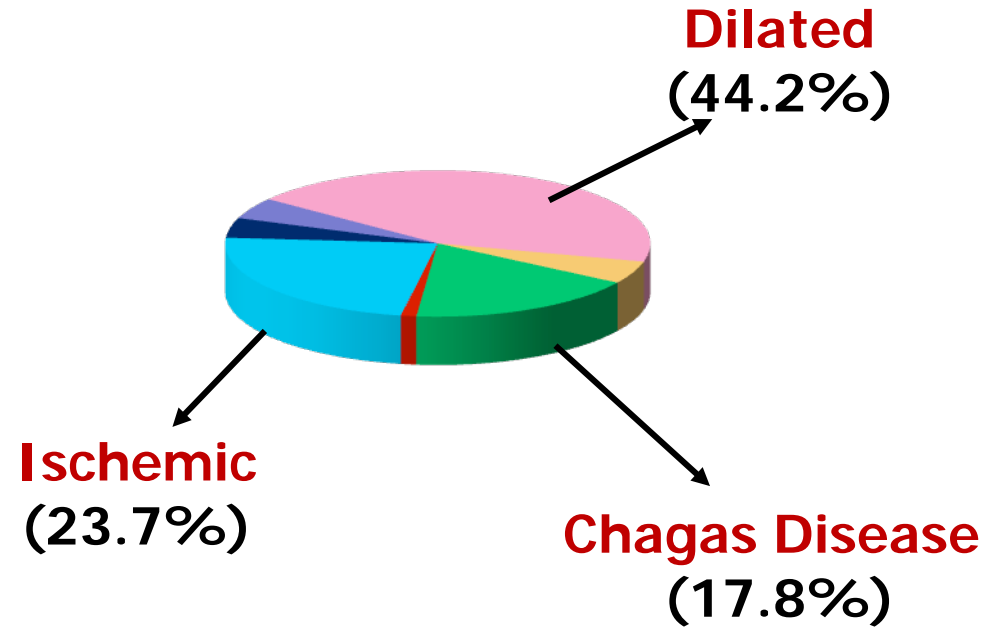


- USA 8 pmp
- Spain 6 pmp
- Brazil 1.7 pmp

Adult Heart Transplants Diagnosis



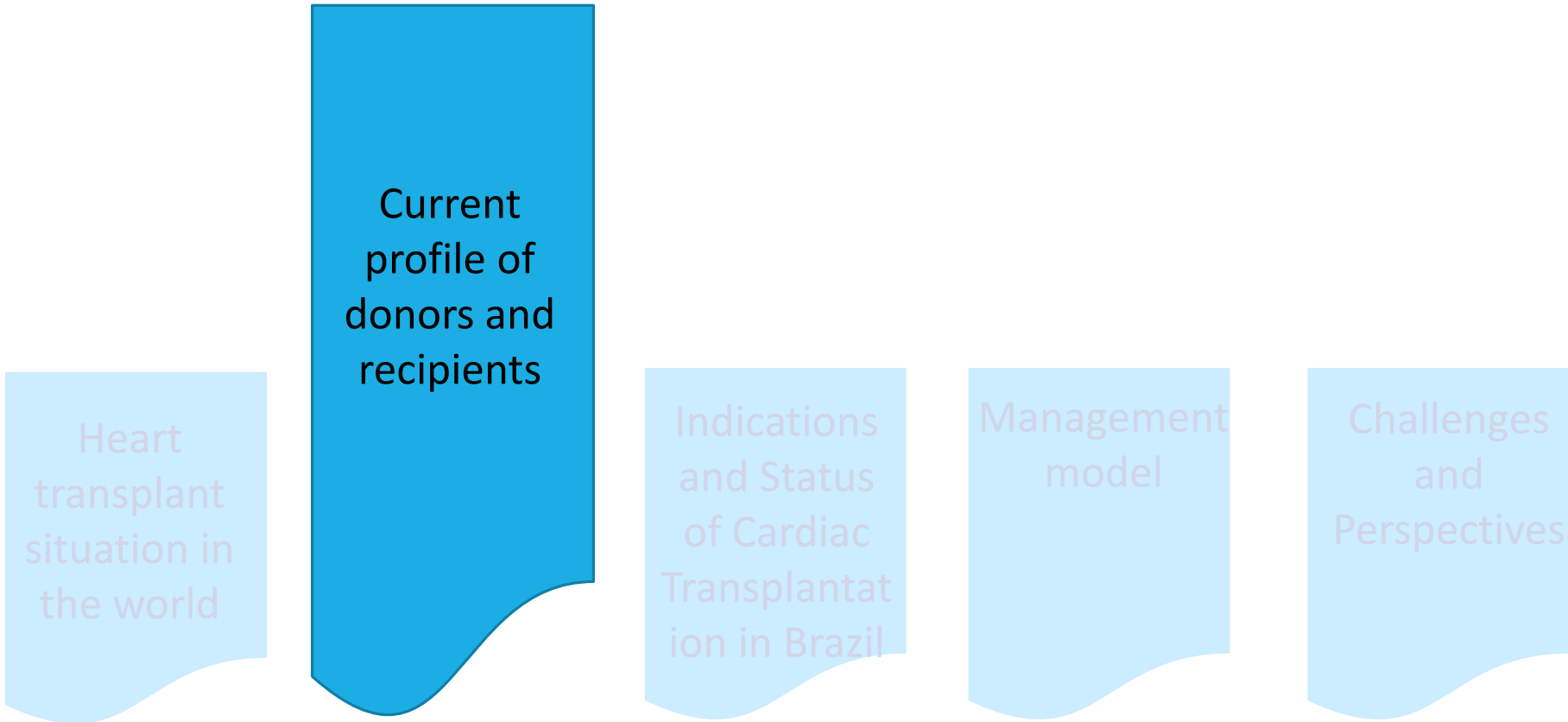
1/2009 – 6/2015



NICM = Non-ischaeamic cardiomyopathy
 ICM = Ischemic cardiomyopathy

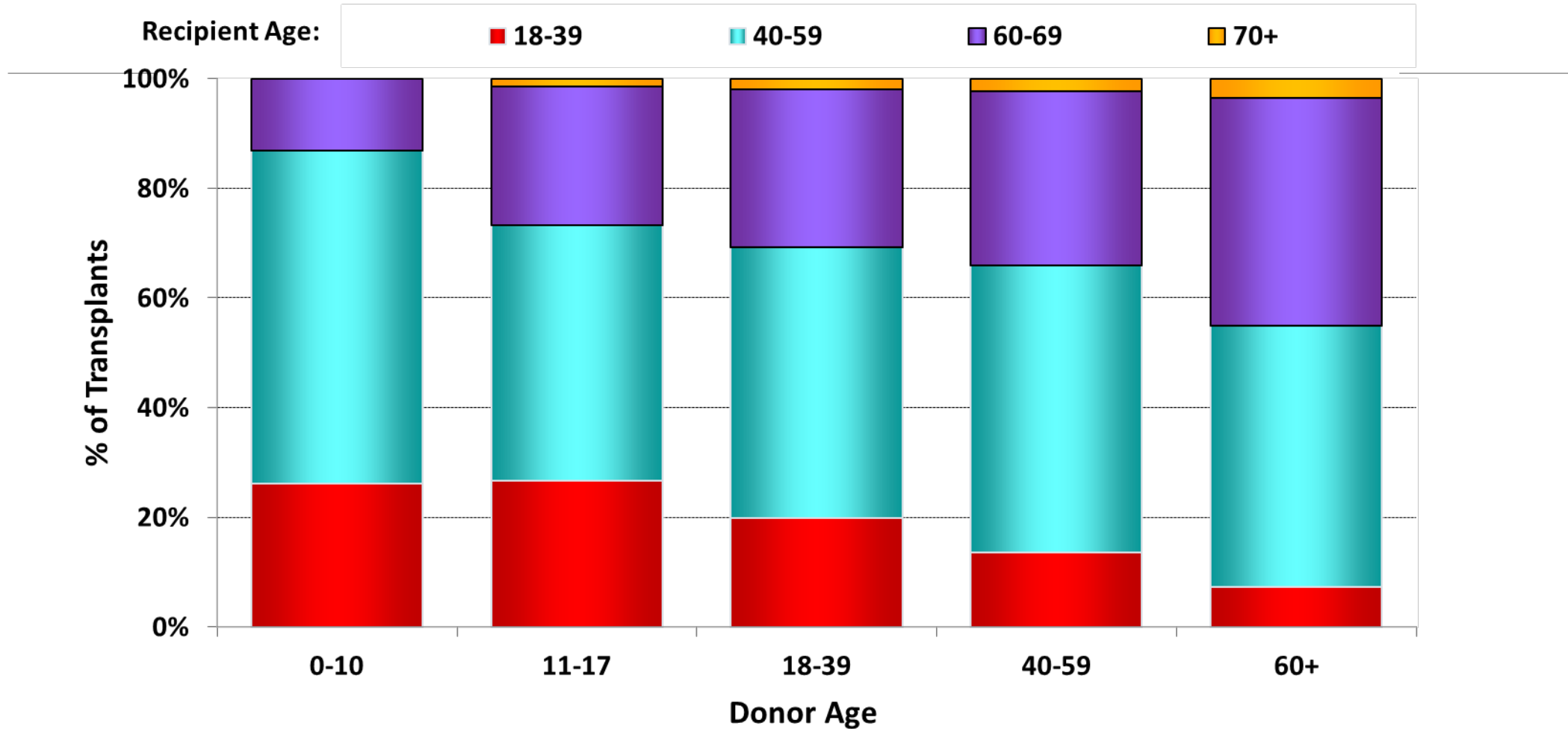
Heart Transplants InCor





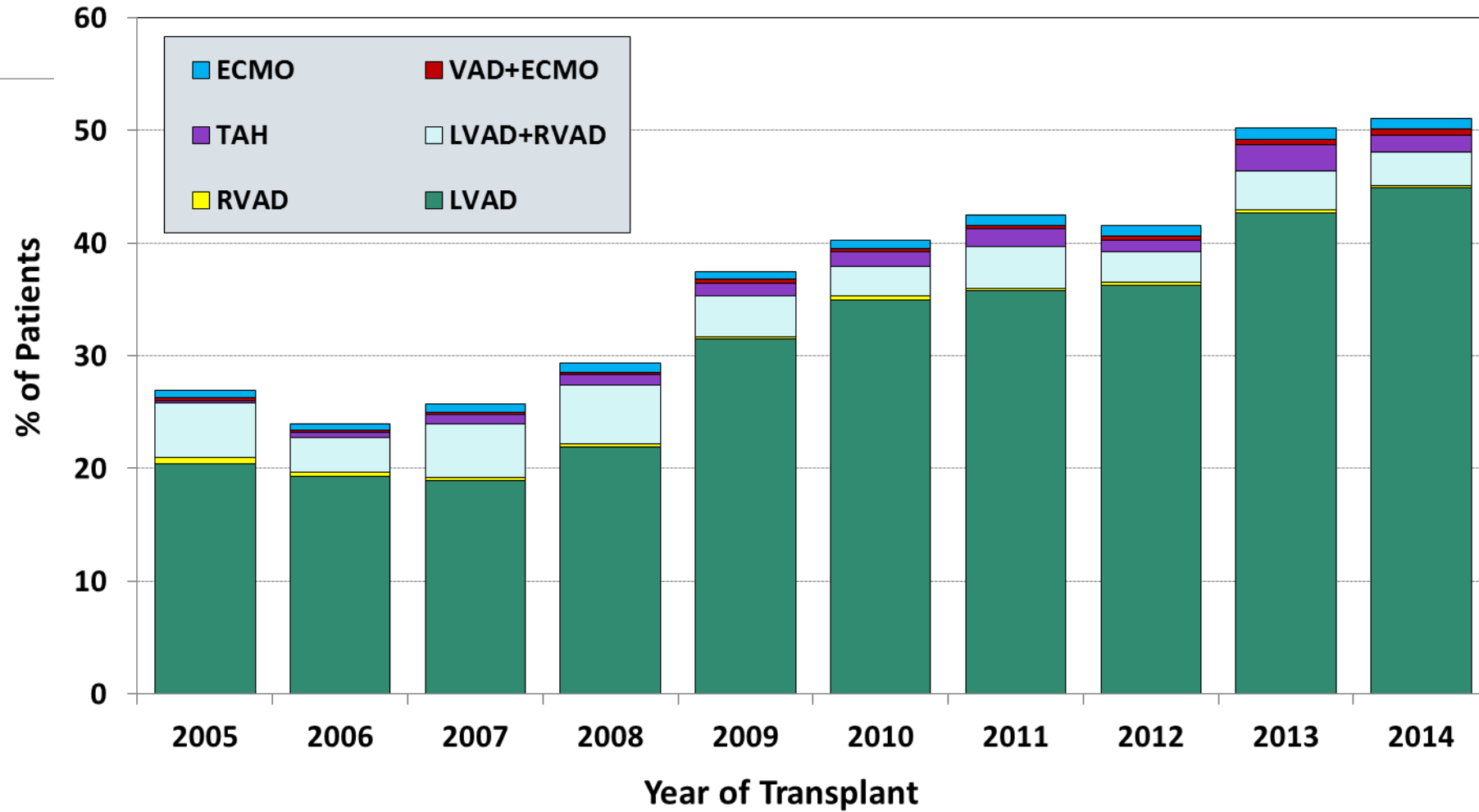
Adult Heart Transplants - Donor and Recipient Age

(Transplants: January 2009 – June 2015)



Adult Heart Transplants

% of Patients Bridged with Mechanical Circulatory Support* by Year and Device Type





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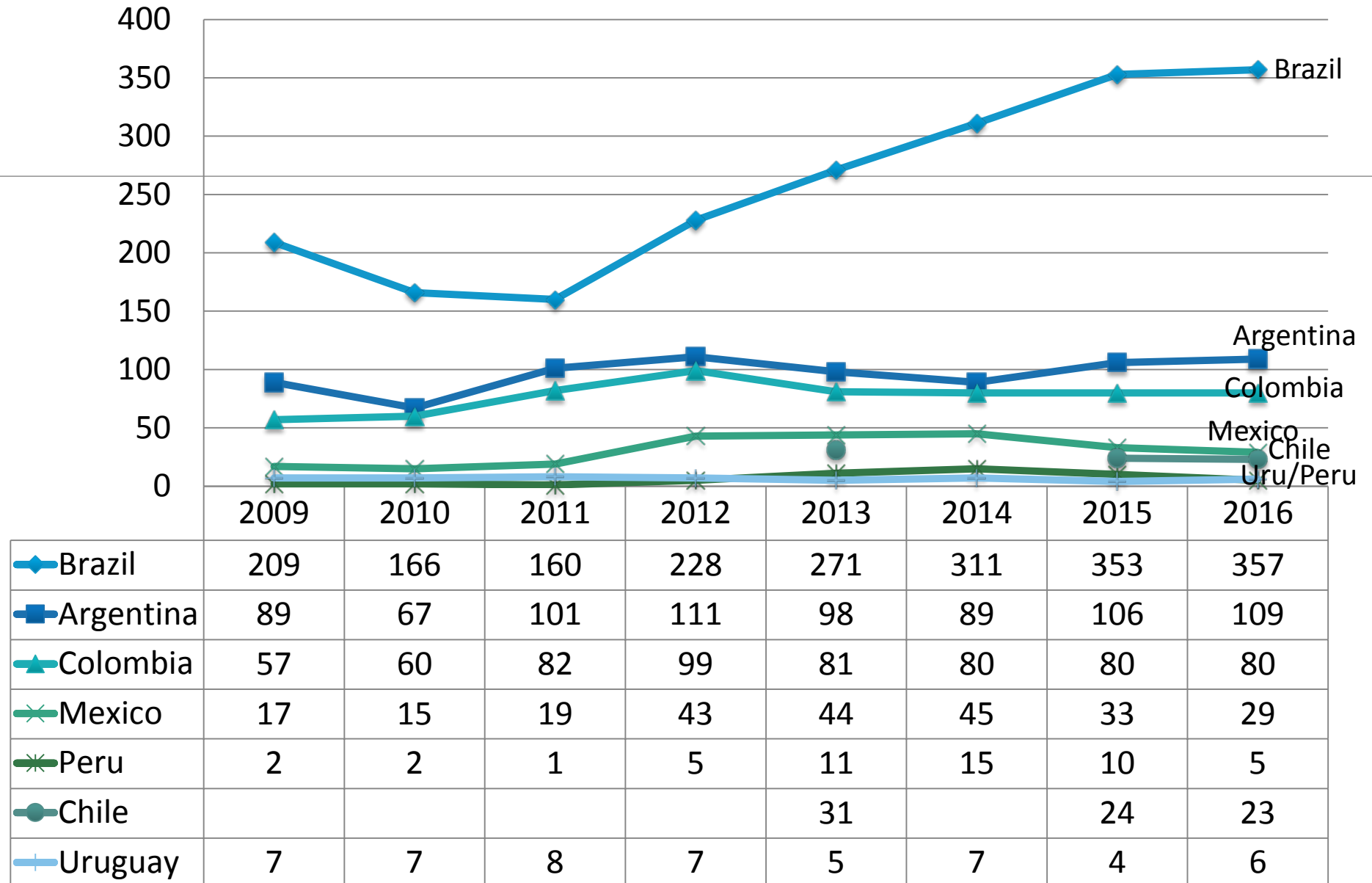
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Heart Transplant in Latin American





Uruguay



This picture was taken at the symposium in Montevideo, Uruguay last December. This symposium was commemorating the 100TH HTx

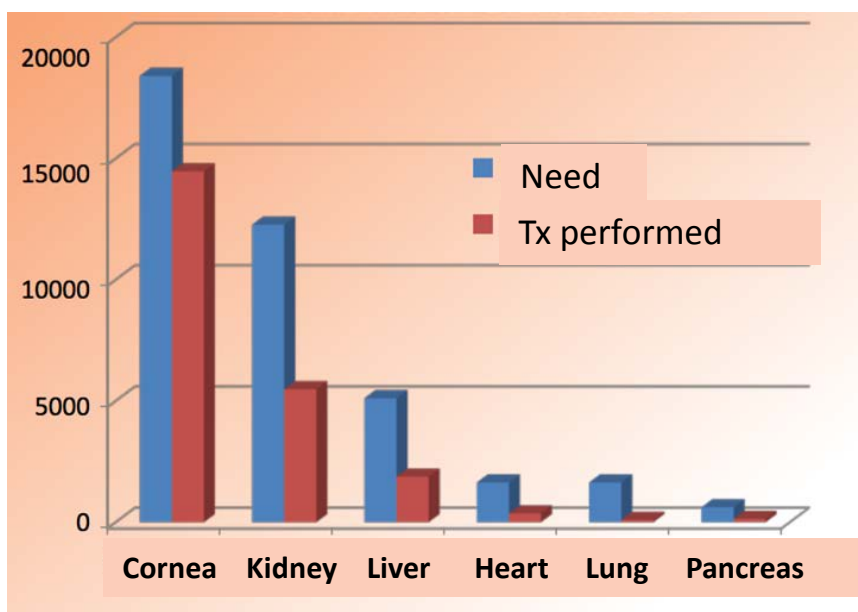
Courtesy of Juan Mejia

Estimated Need vs. Transplants Performed – Brazil, 2016

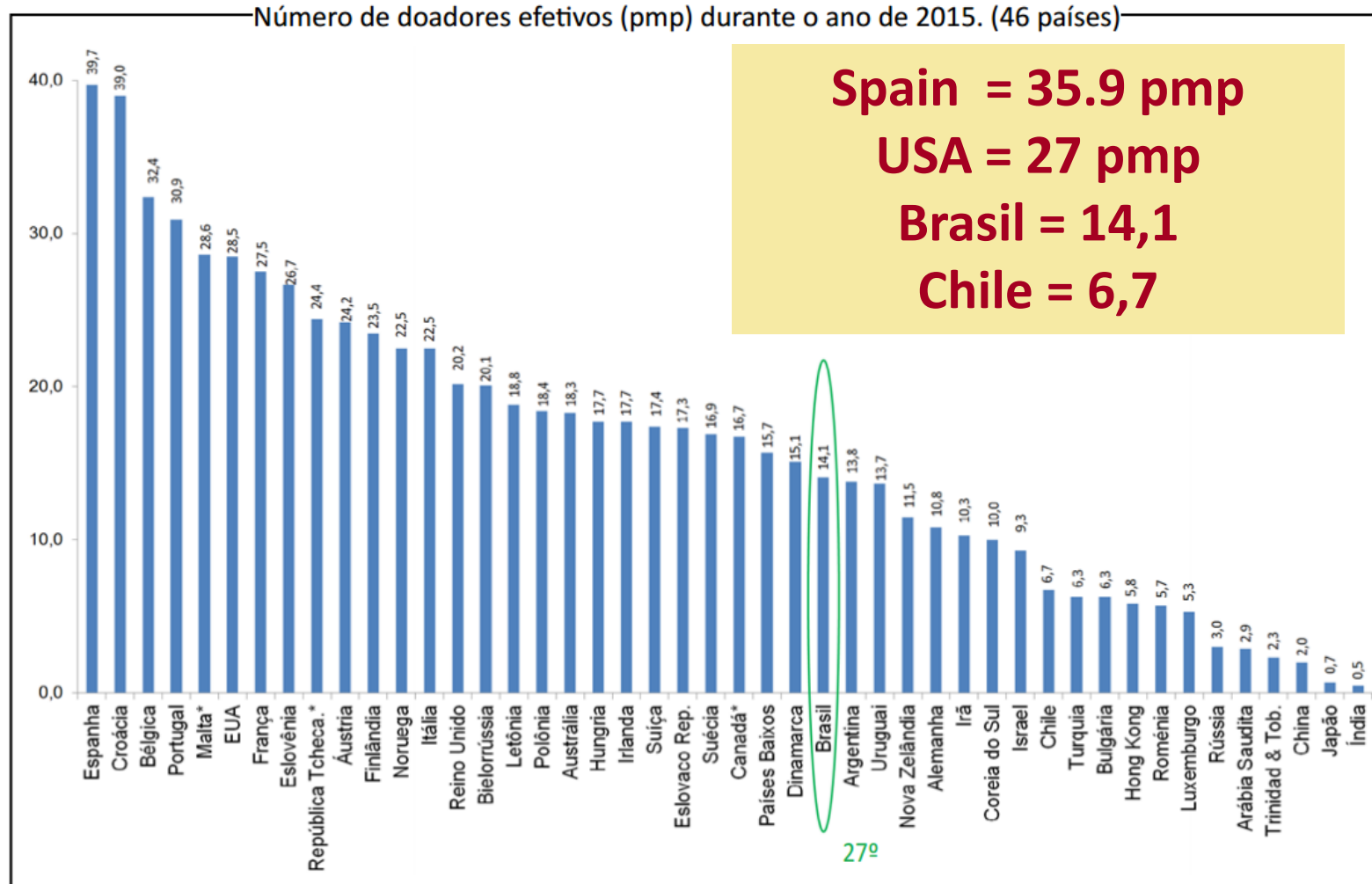


Annual estimated need and number of TX	Cornea	Liver	Kidney	Heart	Lung
Estimated need	18,401	12,267	5,111	1,636	1,636
Transplants performed	14,534	5,492	1,880	357	92

21.8%



Number of effective donors (pmp) in 2015 (46 countries)





Argentina

Unfortunately from Argentina not so good news, the donation rate fell for the first time in 10 yrs in 2016, and this obviously effected the number of HTx

The donation rate falls for the first time in 10 yrs. 2016 had the lowest number of transplants 1,694. There are 8,137 patients on the waiting list.

11|03|1700:34



<http://www.perfil.com/ciencia/la-tasa-de-donantes-de-organos-cae-por-primera-vez-en-10-anos.phtml>



Colombia

Donation of organs will be made mandatory in Colombia

The president of Colombia, Juan Manuel Santos, sanctioned this law that makes it compulsory to donate organs in the country, except in cases where people protest otherwise.

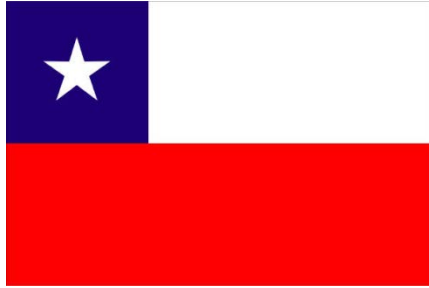
May, 2016



El País.com.co

<http://www.elpais.com.co/colombia/conozca-la-ley-que-puede-salvar-la-vida-de-tres-mil-nos-que-esperan-un-organo.html>

Courtesy of Juan Mejia



Modification to Law No. 19.451, in 2013 Regarding the determination of those who can be considered donors of organs.

Chile

"Artículo único.- Introdúcense las siguientes modificaciones en la ley N° 19.451, que establece normas sobre trasplante y donación de órganos:

1) Reemplázase el artículo 2° bis por el siguiente:

"Artículo 2° bis.- Las personas cuyo estado de salud lo requiera tendrán derecho a ser receptoras de órganos.

Toda persona mayor de dieciocho años será considerada, por el solo ministerio de la ley, como donante de sus órganos una vez fallecida, a menos que hasta antes del momento en que se decida la extracción del órgano, se presente una documentación fidedigna, otorgada ante notario público, en la que conste que el donante en vida manifestó su voluntad de no serlo. El notario deberá remitir dicha información al Servicio de Registro Civil e Identificación para efectos del Registro Nacional de No Donantes, según lo establezca el reglamento respectivo.

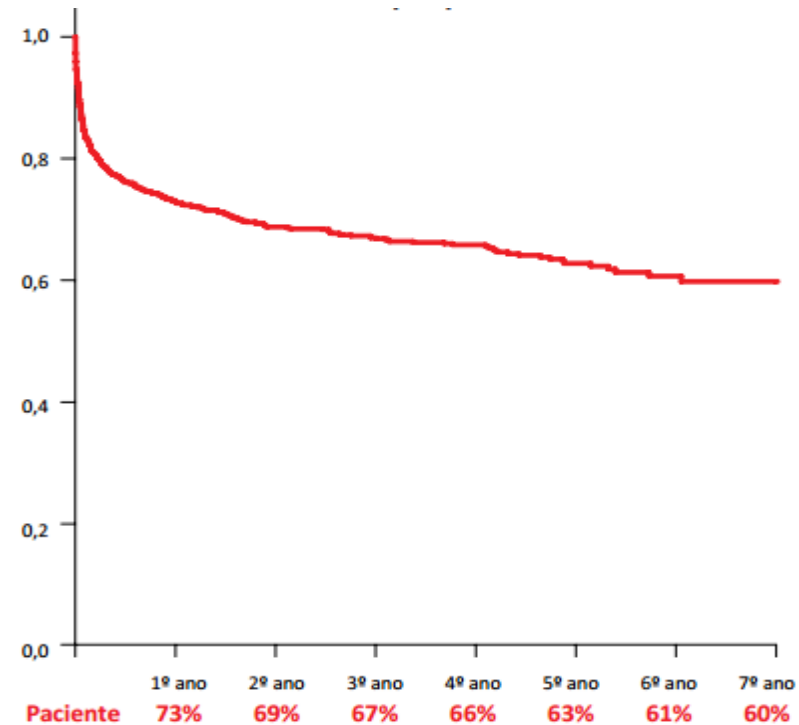
En caso de existir duda fundada respecto de la calidad de donante, se deberá consultar en forma previa sobre la extracción de uno o más órganos del fallecido, por orden de prelación, a las siguientes personas:

- a) El cónyuge que vivía con el fallecido o la persona que convivía con él en relación de tipo conyugal.
- b) Cualquiera de los hijos mayores de 18 años.
- c) Cualquiera de los padres.
- d) El representante legal, el tutor o el curador.
- e) Cualquiera de los hermanos mayores de 18 años.
- f) Cualquiera de los nietos mayores de 18 años.
- g) Cualquiera de los abuelos.
- h) Cualquier pariente consanguíneo hasta el cuarto grado inclusive.

Biblioteca del Congreso Nacional de Chile; Legislación Chilena, 2013

In the same way as Colombia , Chile has modified a law regarding organ donation, and now everyone is considered a donor after death. Except those who have protested otherwise.

Transplant centers / Survival Curve in 2016



Limitations of Cardiac Transplant

Scarcity and Quality Donor

- Delay in the recognition of brain death
- Inadequate management of potential donors
- High doses of vasopressors
- Inadequate structure to evaluation (Echo not available)

Structure Teams

- Cardiac surgeon and clinicians not exclusively dedicated to transplant

Recipient

- Late referral
- Difficult to obtain circulatory assist devices



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**How to move forward on these
issues to increase the number of
transplants?**



Heart Institute (InCor):

- The largest Heart Transplant Center of Latin America
- 790 Adult and Pediatric Heart TX since 1985
- 130 in patients with *Chagas* disease
- **60-70 Adult and Pediatric Heart Transplants/year**

Heart Transplant Center

Development of centers to improve clinical conditions of recipients and to increase the number of viable donors that may have an impact on the number and outcome of transplants

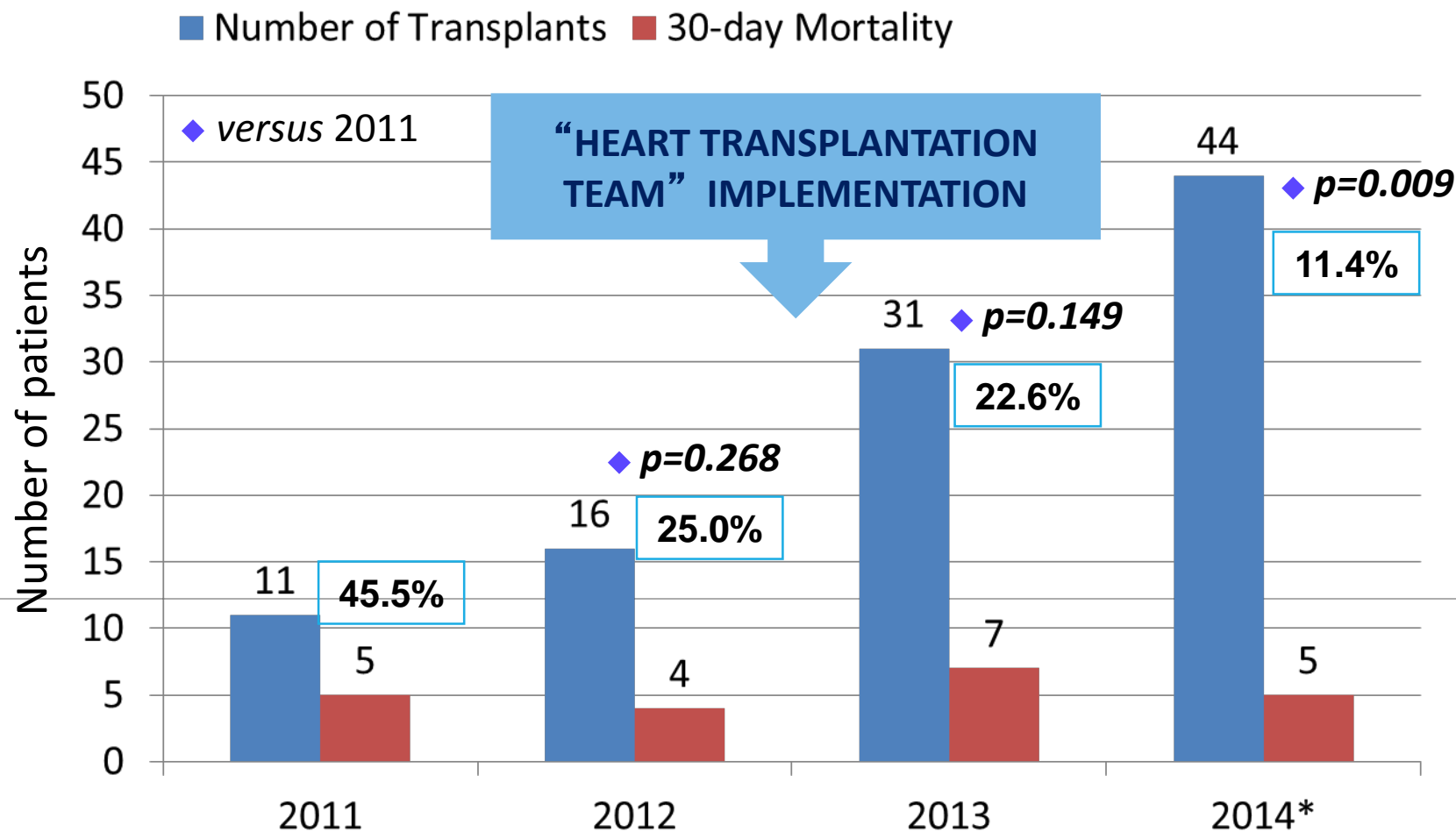
Heart Transplantation Team

InCor-HCFMUSP



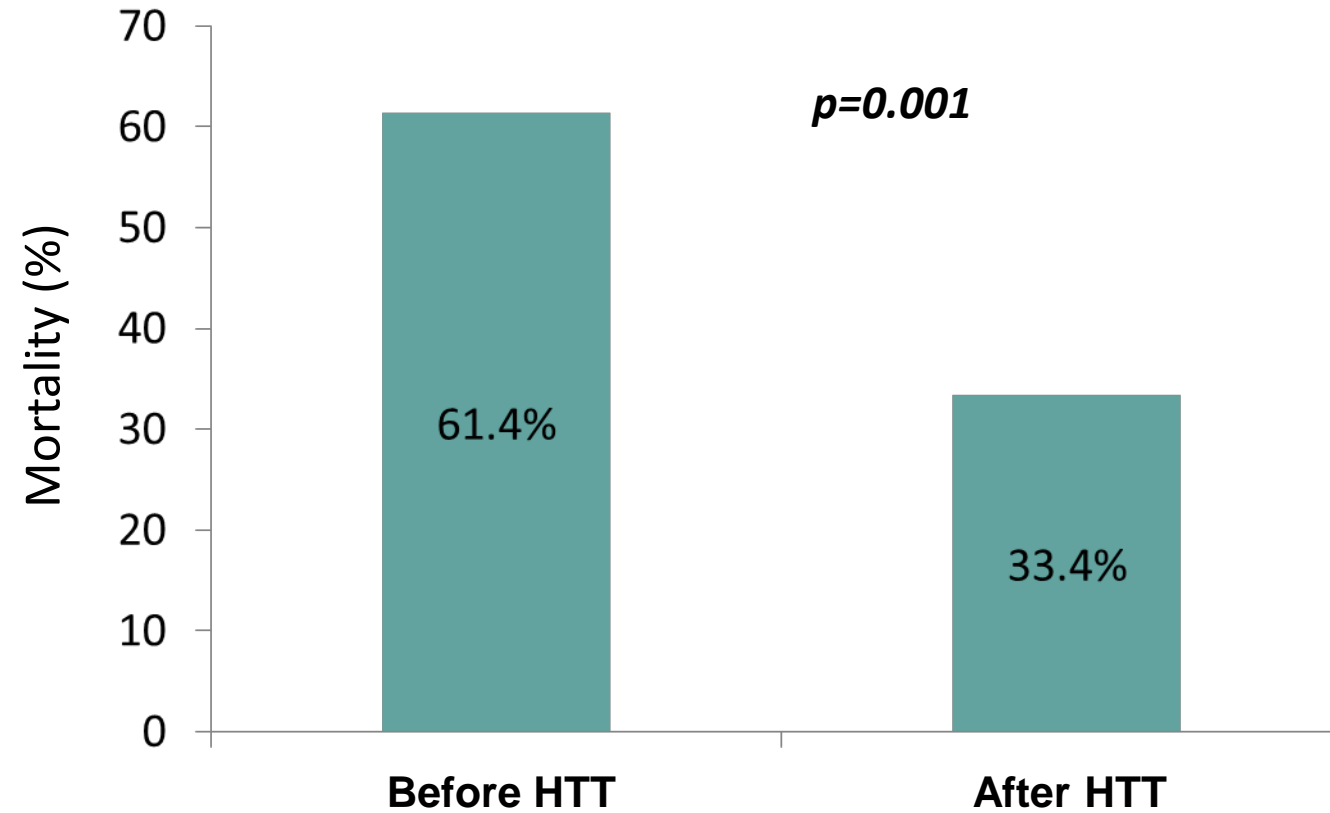
-
- Nurse - 24 hours for initial assessment of the donor
 - 4 clinical physicians
 - 3 surgeons dedicated to heart transplantation
 - Donor procurement at distance
 - Echocardiography evaluation project
 - Perspective of circulatory assist devices as a bridge to transplant
-

Heart Transplantation Team - InCor-HCFMUSP



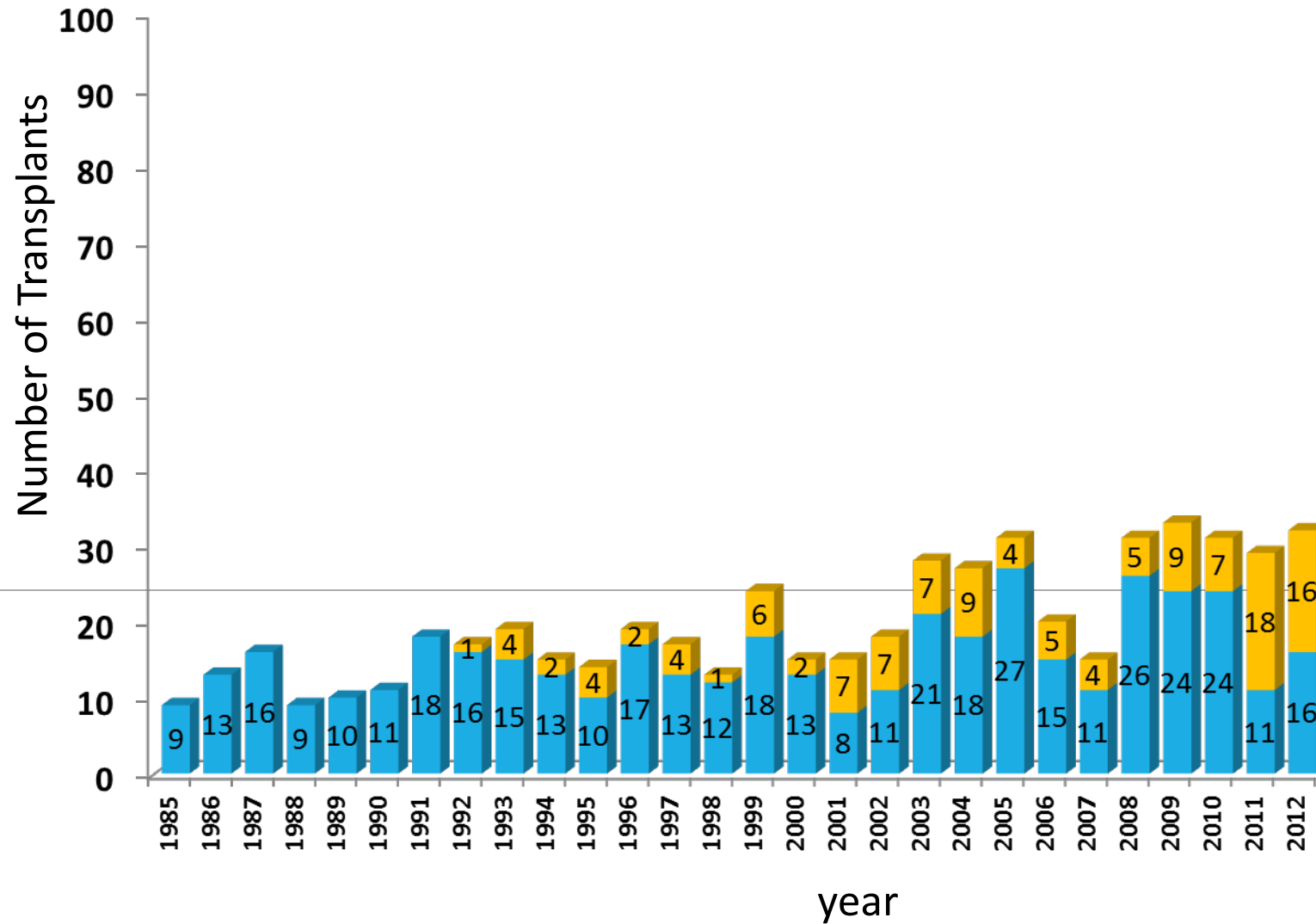
Mortality rate 2016 = 6.8%

Mortality in waiting list



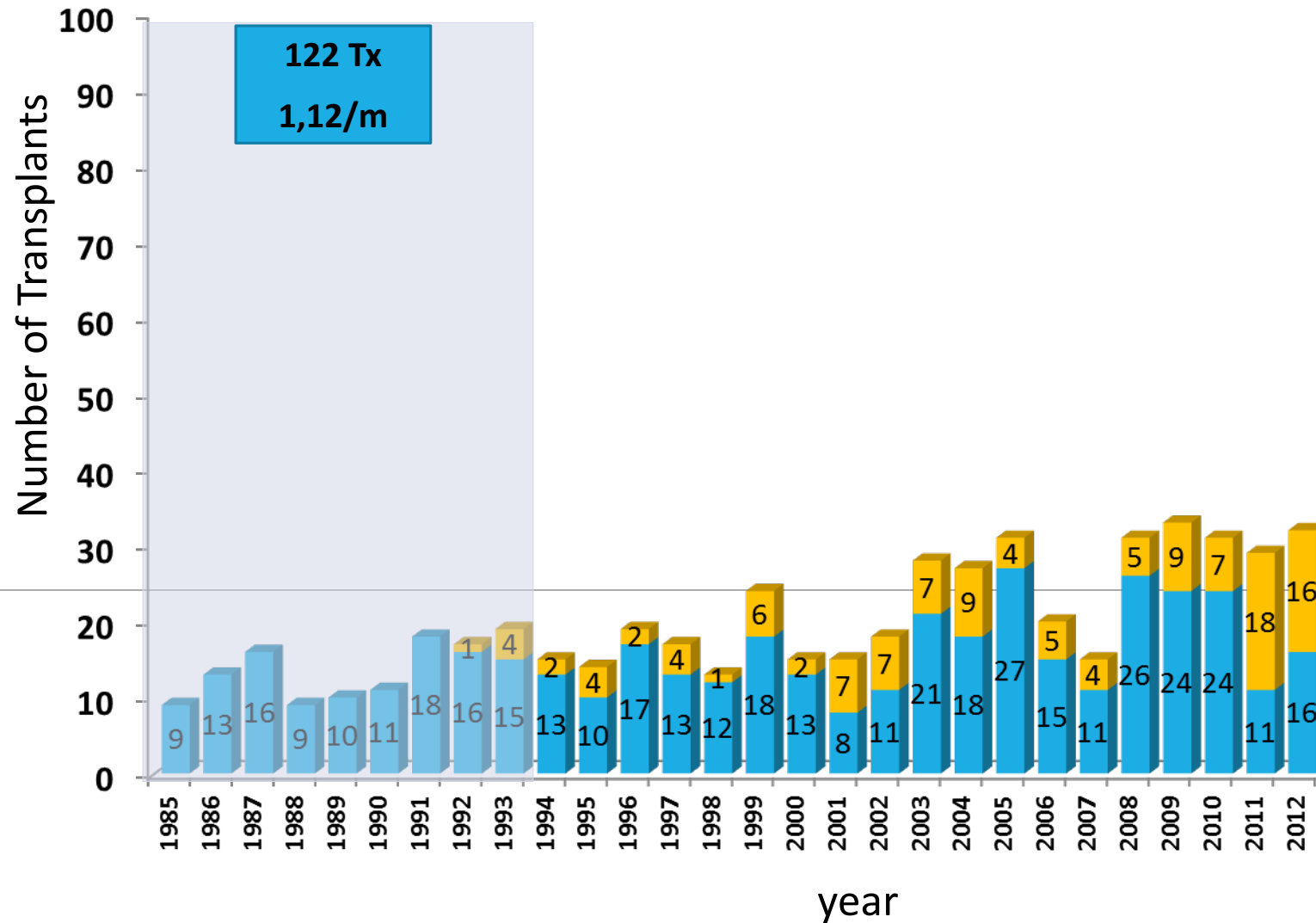
No. Heart Transplant – INCOR

32 years – 784 Patients



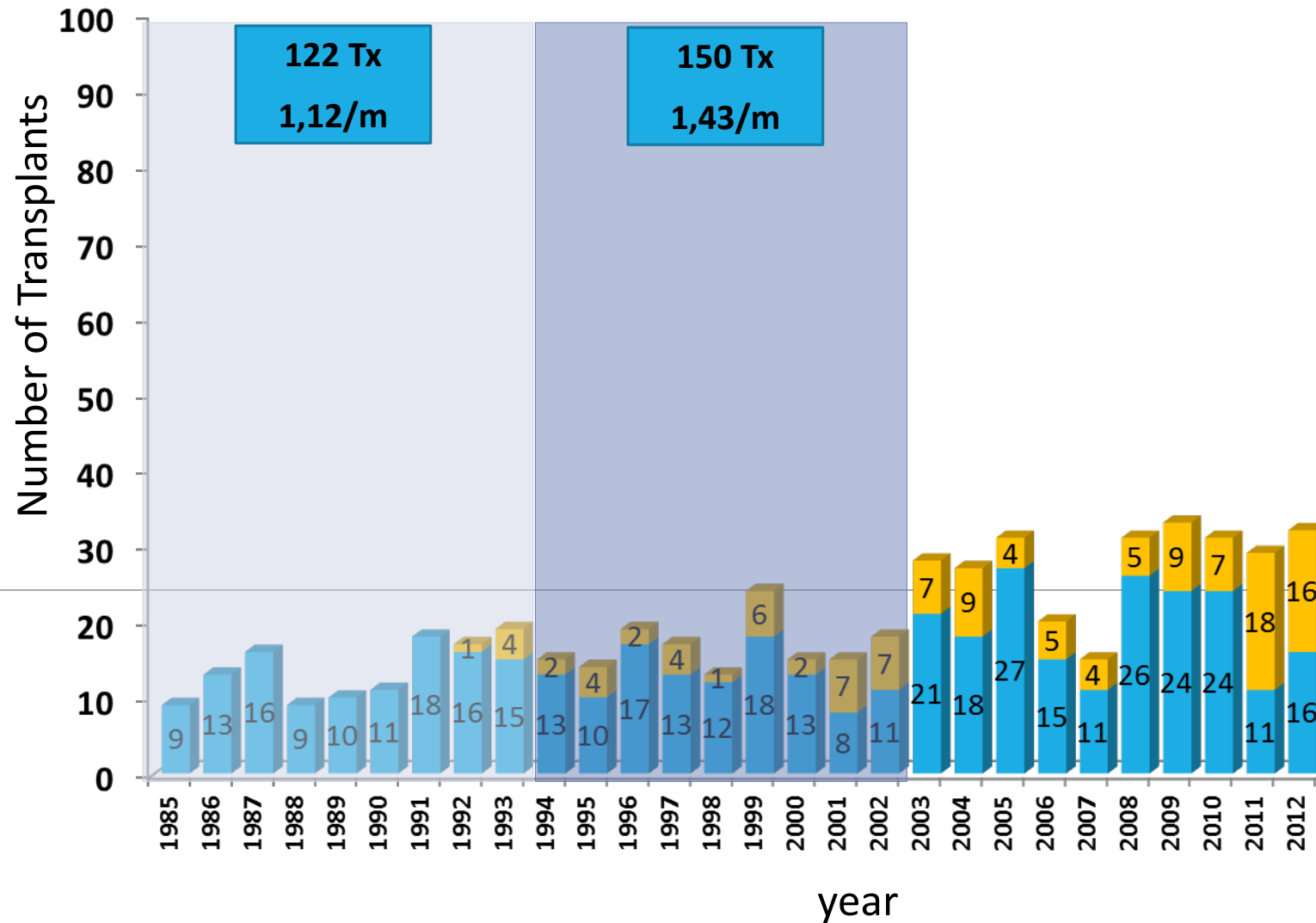
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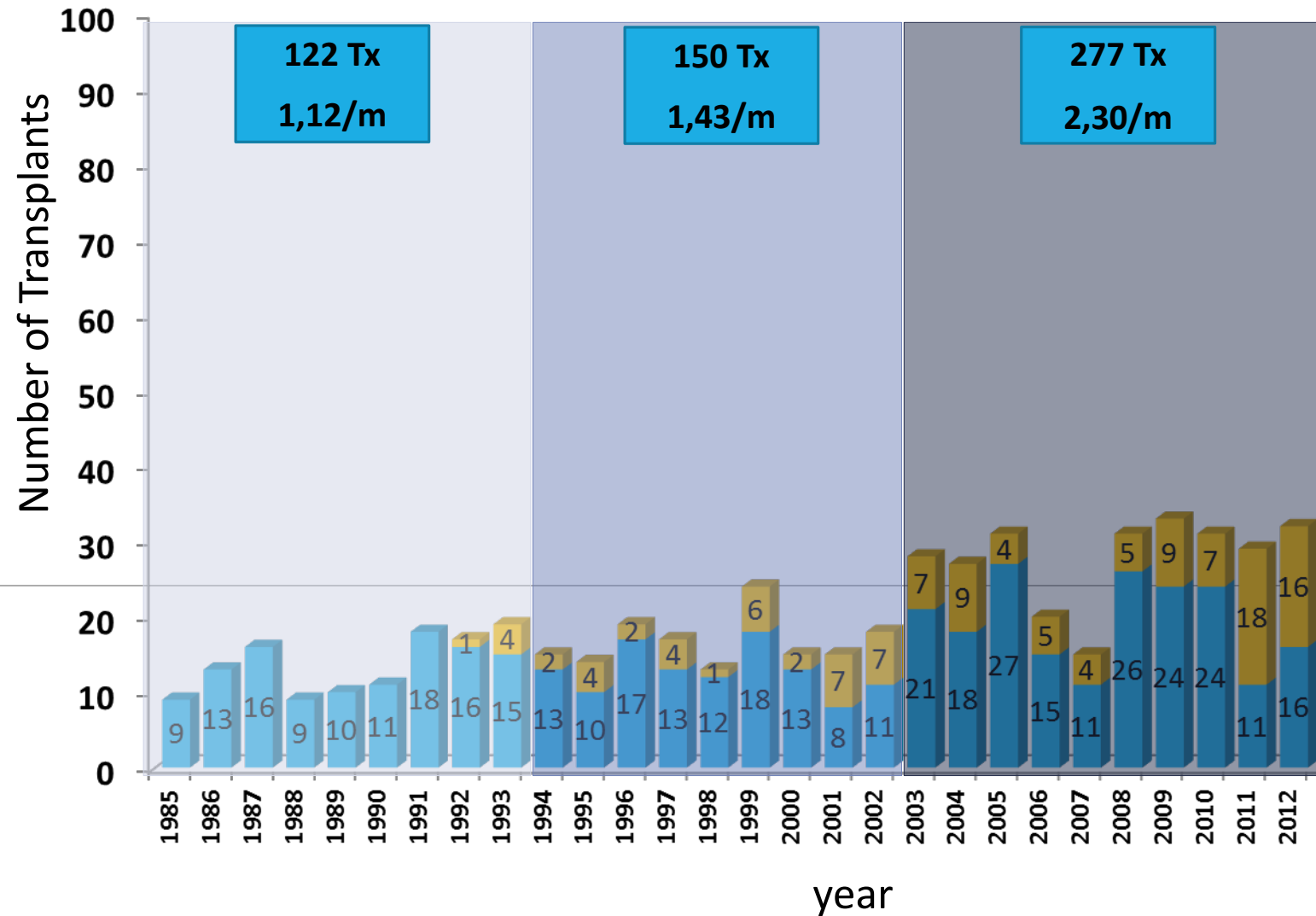
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No. Heart Transplant – INCOR

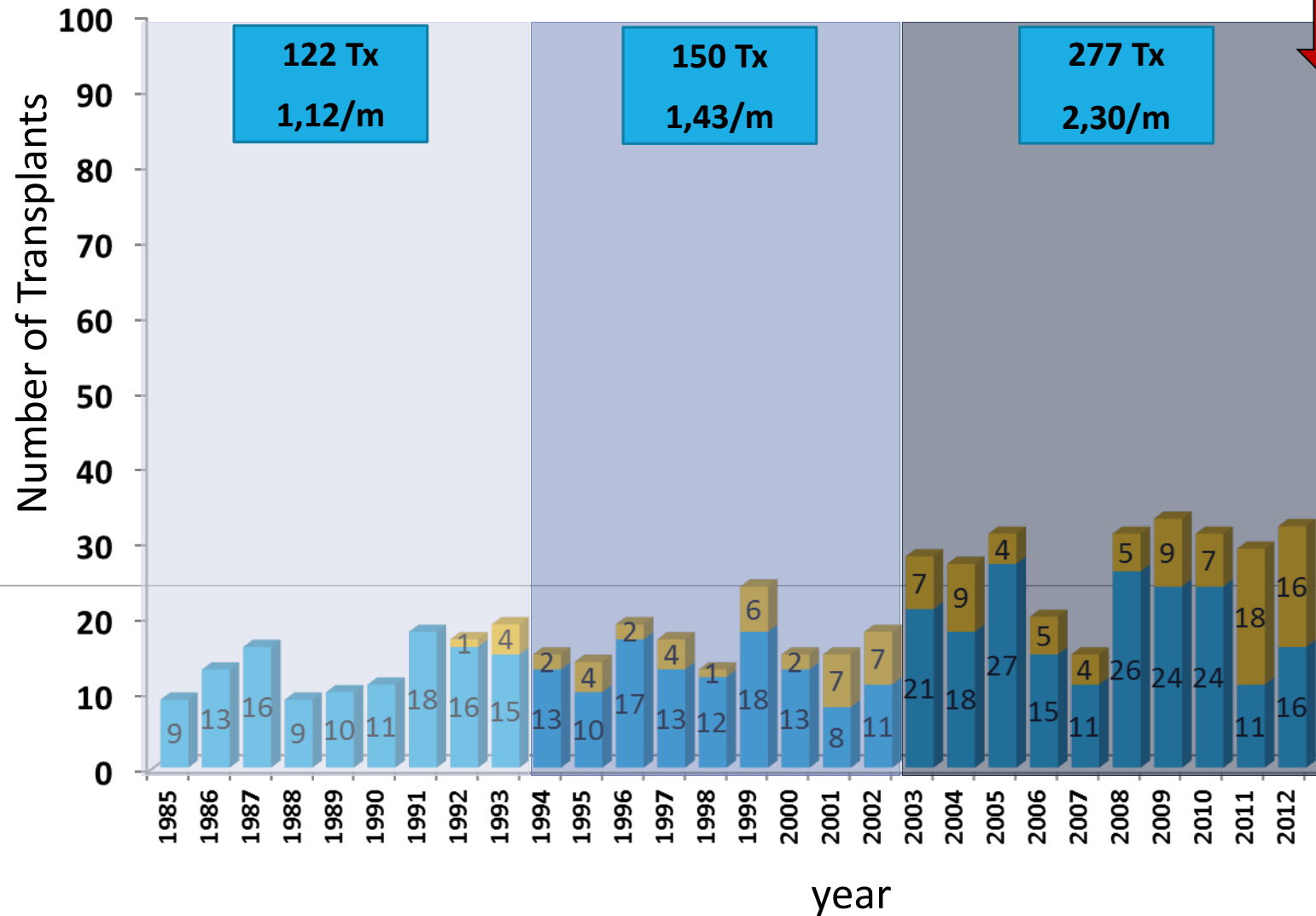
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No. Heart Transplant – INCOR

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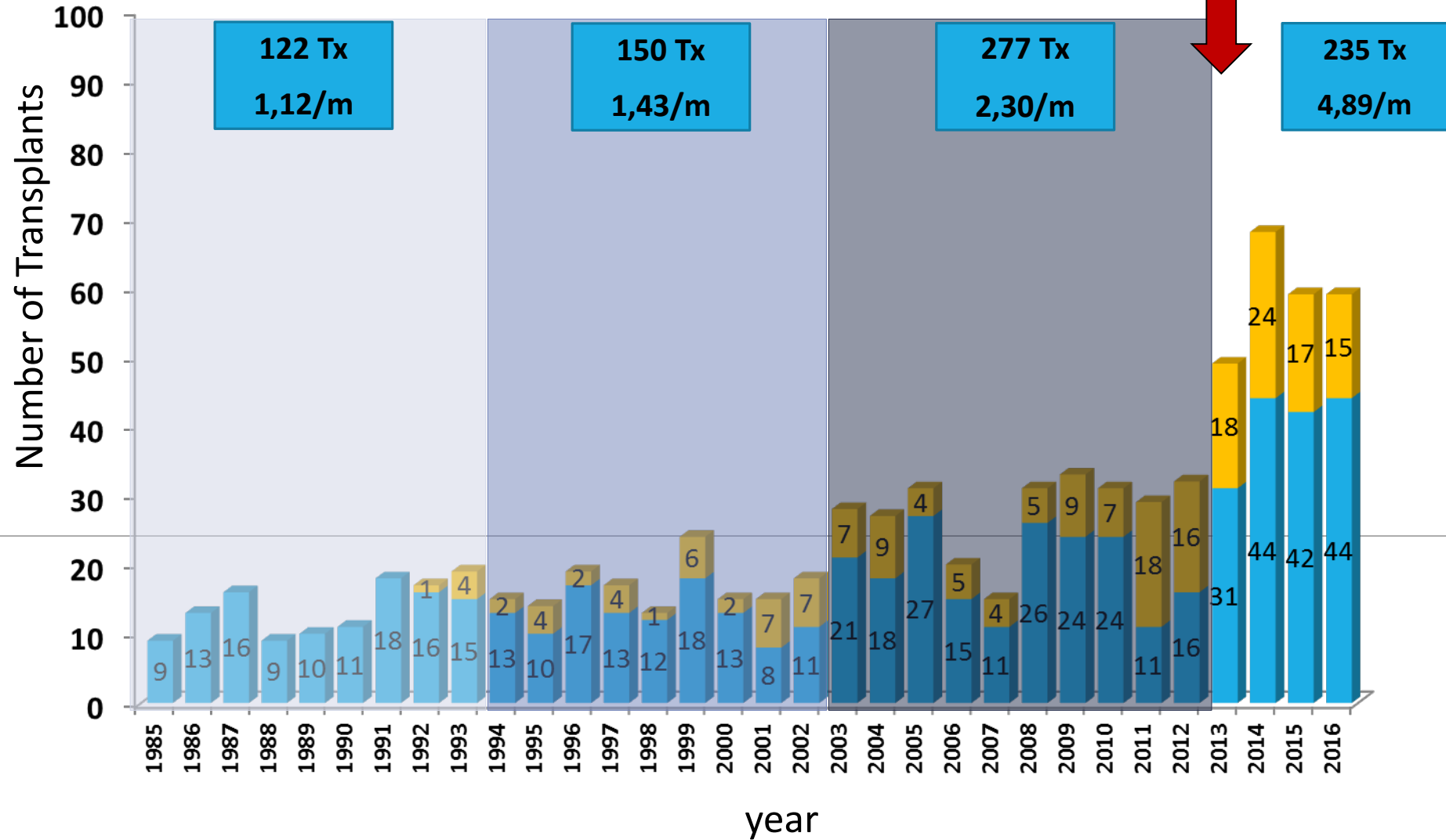
HTT
Implementation



No. Heart Transplant – INCOR

32 years – 784 Patients

HTT
Implementation



Conclusions

- ✓ The implementation of a “Heart Transplantation Team” has played an important role in heart transplant results at our institution
 - Increased the number of transplants / year
 - Increased % of grafts utilization
 - Reduced mortality in waiting list
 - Reduced mortality at 30 days post transplant
- ✓ Multidisciplinary teamwork has contributed to increase the number of heart transplants and reduce mortality rate

This approach should be used in other centers,
where there is space for improvement



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- Hospital Federal dos Servidores do Estado-Rio de Janeiro/RJ
- Hospital Universitário Presidente Dutra - São Luiz/MA
- Hospital Meridional - Vitória/ES
- Hospital do Coração - Rio Grande do Norte/RN
- Hospital Ana Nery- Salvador/BA

Training Programs

- Multidisciplinary training project - Messejana hospital was chosen to be the training center for HTx and MCS
- This project started last year with 5 Centers spread Nation wide
- The project can be used outside Brazil in Latin America and in Africa

Courtesy of Juan Mejia

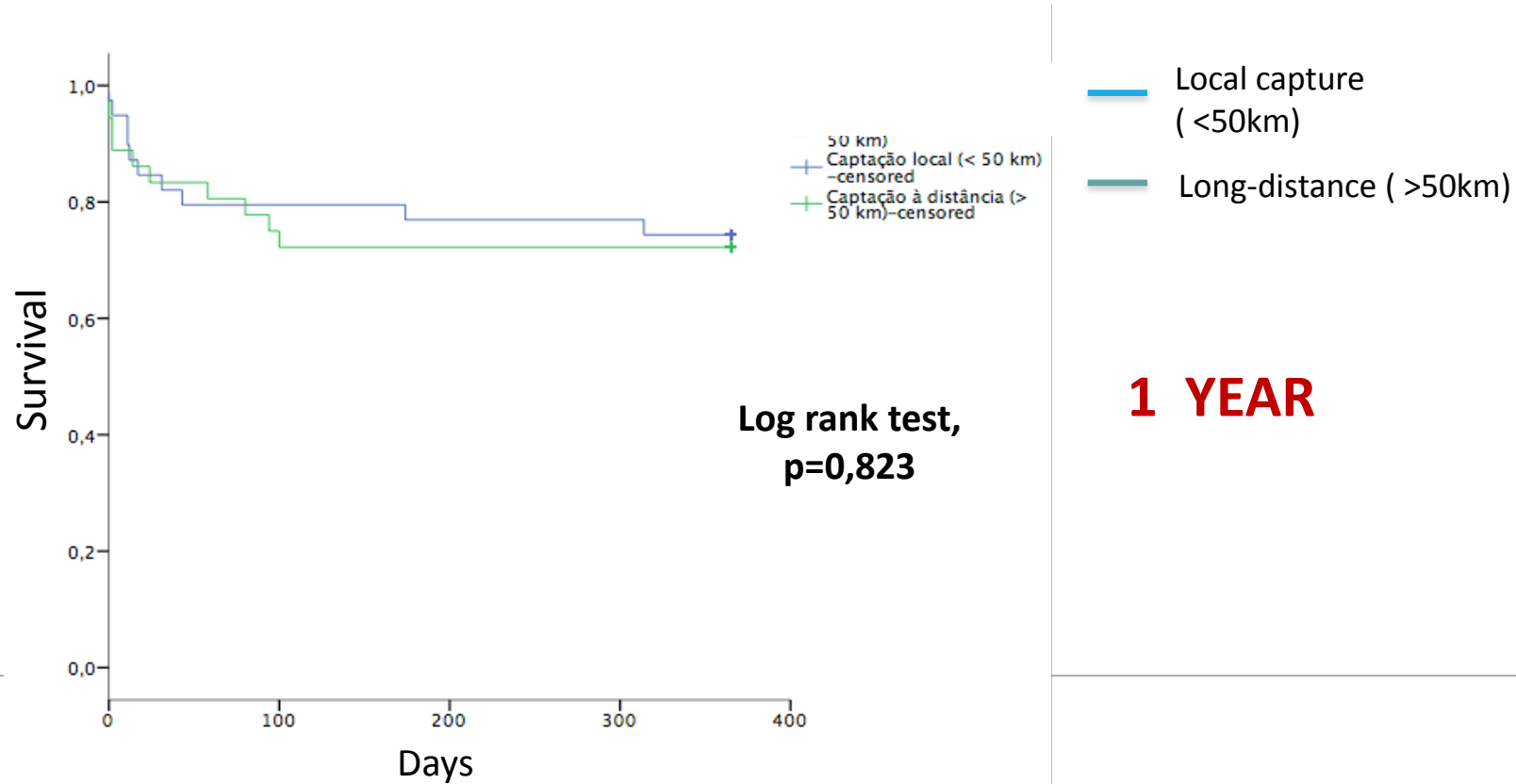
Long-distance heart capture and Survival

- All adult patients submitted to cardiac TX between January 2013 and December 2014 at InCor were evaluated

- Patients were analyzed in two groups: short-distance (G1) and long-distance (G2) capture, the latter characterized by cardiac capture performed at a distance greater than 50 km.



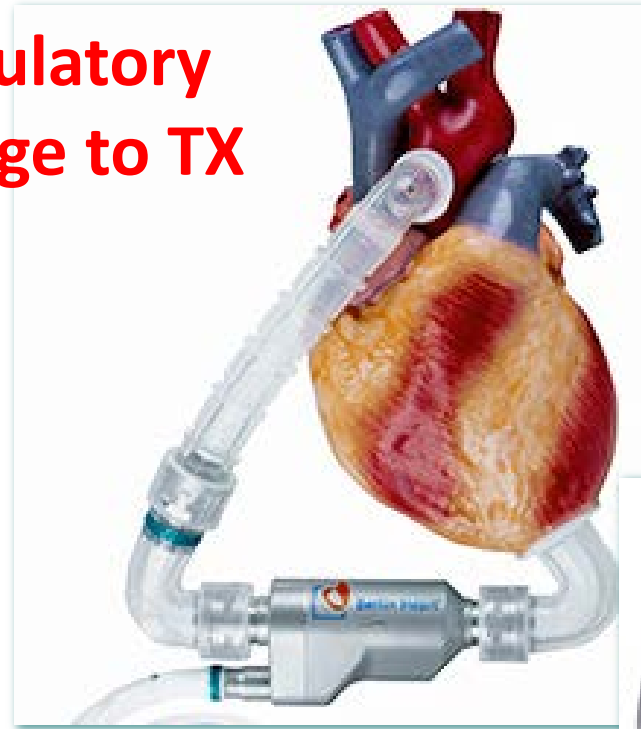
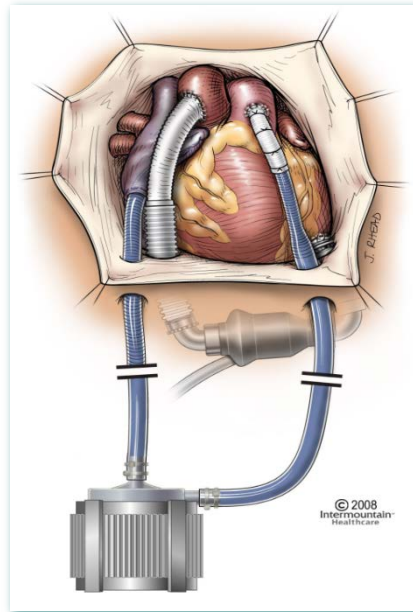
Capture vs. Survival



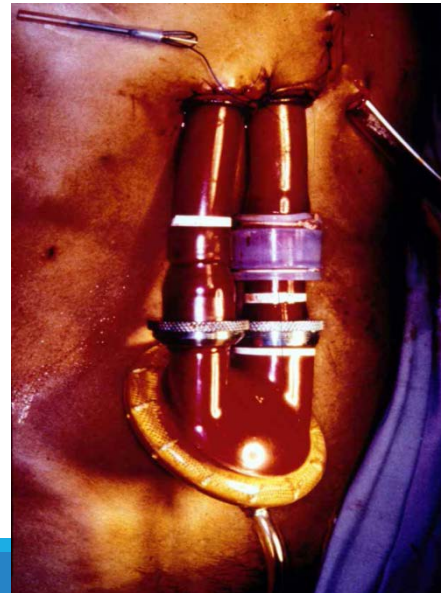
Conclusion: Long-distance organ capture is an acceptable and safe option, not resulting in increased morbidity or mortality in our population, despite the longer ischemia time to the heart.

Lack of mechanical circulatory support devices as bridge to TX

Bridge to recovery,
decision, TX Destination
therapy



MCS
paracorporeal
and intracorporeal





Hospital Infantil de México Federico Gómez (HIMFG) makes the first Bi VAD implantation as BTT made in a child in Mexico

Mexico

Realizan en México primer trasplante de corazón artificial en un menor **OCT/2016**

TECH / 4 Oct 2016



<http://www.vanguardia.com.mx/articulo/realizan-en-mexico-primer-trasplante-de-corazon-artificial-en-un-menor>



RESULTS



	PATIENT 1	PATIENT 2	PATIENT 3	PATIENT 4
INDICATION	COMPASSIONATE TREATMENT	PROTOCOL	PROTOCOL	PROTOCOL
DIAGNOSIS	DCM	AO REGURG.	DCM	DCM
AGE	56	23	44	59
TYPE OF SUPPORT	BIVENTRICULAR	UNIVENTRICULAR LEFT	BIVENTRICULAR	UNIVENTRICULAR LEFT
DAYS WITH SUPPORT	13	8	12	6
PUMP OUTPUT	4.9/3.8	4.7	4.0/3.0	4.0
TRANSPLANTED	YES	NO	YES	YES
30 DAYS SURVIVAL POST -TX	NO	YES	YES	YES

This table shows the early results of the Mexican program using short term temporary support. The patient underwent biVAD implantation with a Mexican temporary pneumatic model named Vitalcor. As you can see after 30 days 3 out of 4 survived.

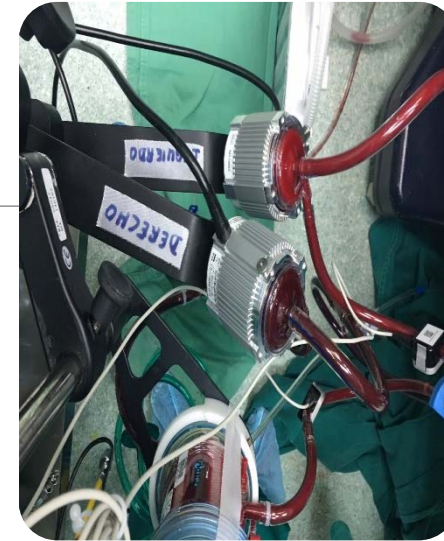
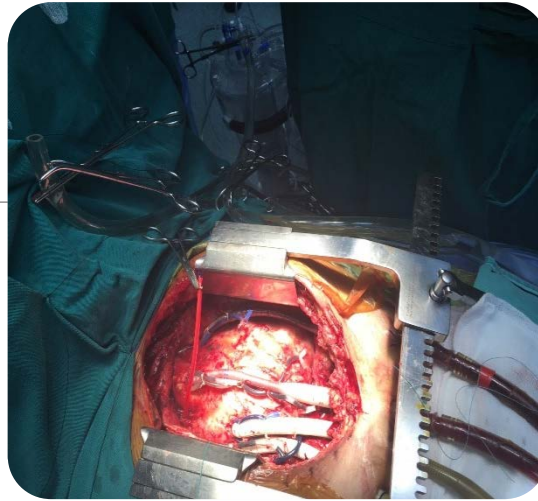


Peru

From Peru we have news of a first patient to undergo BiVAD support with Centrimag as bridge to TX

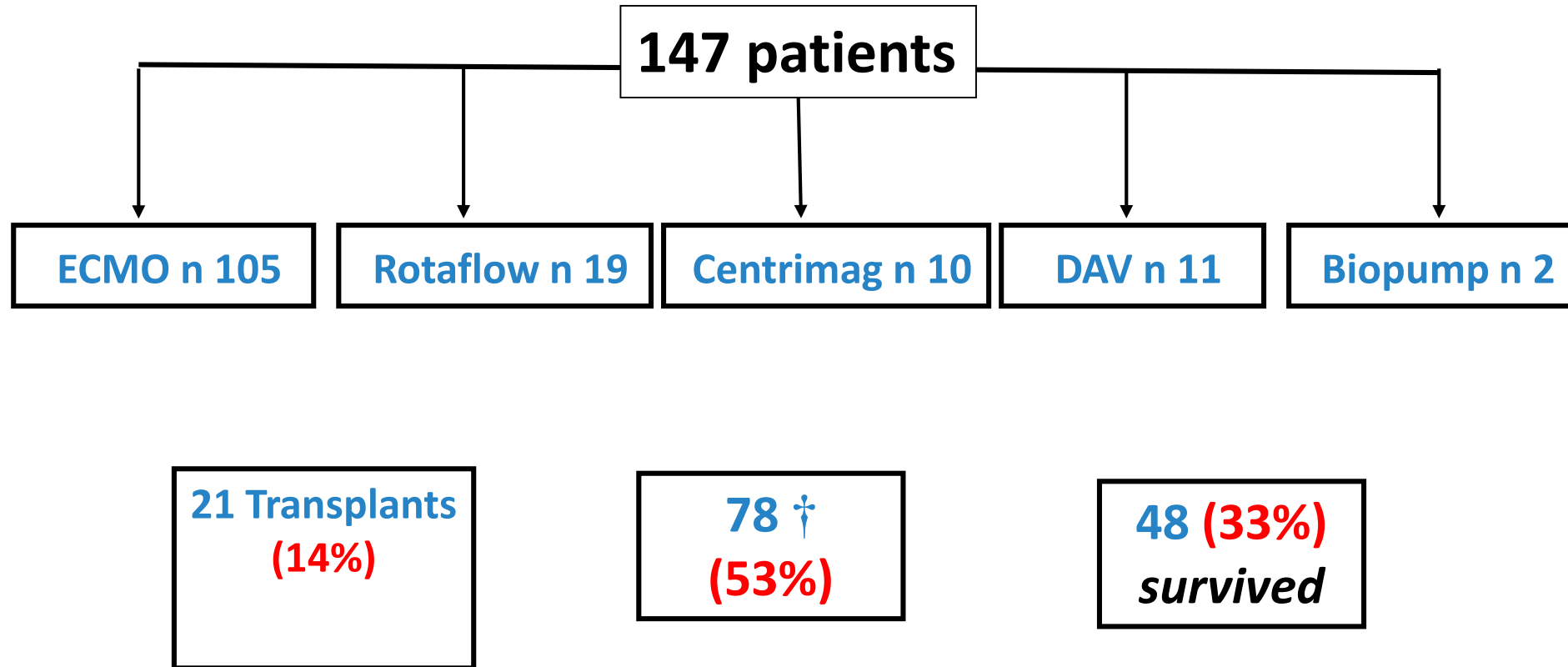
This patient survived and went on to HTx and is doing well

First Case of BiVAD as BTT



Courtesy of Franz Soplopucó. Heart Institute, ESSalud-Lima

Mechanical Circulatory Support – 2011-2016





11 months on waiting list

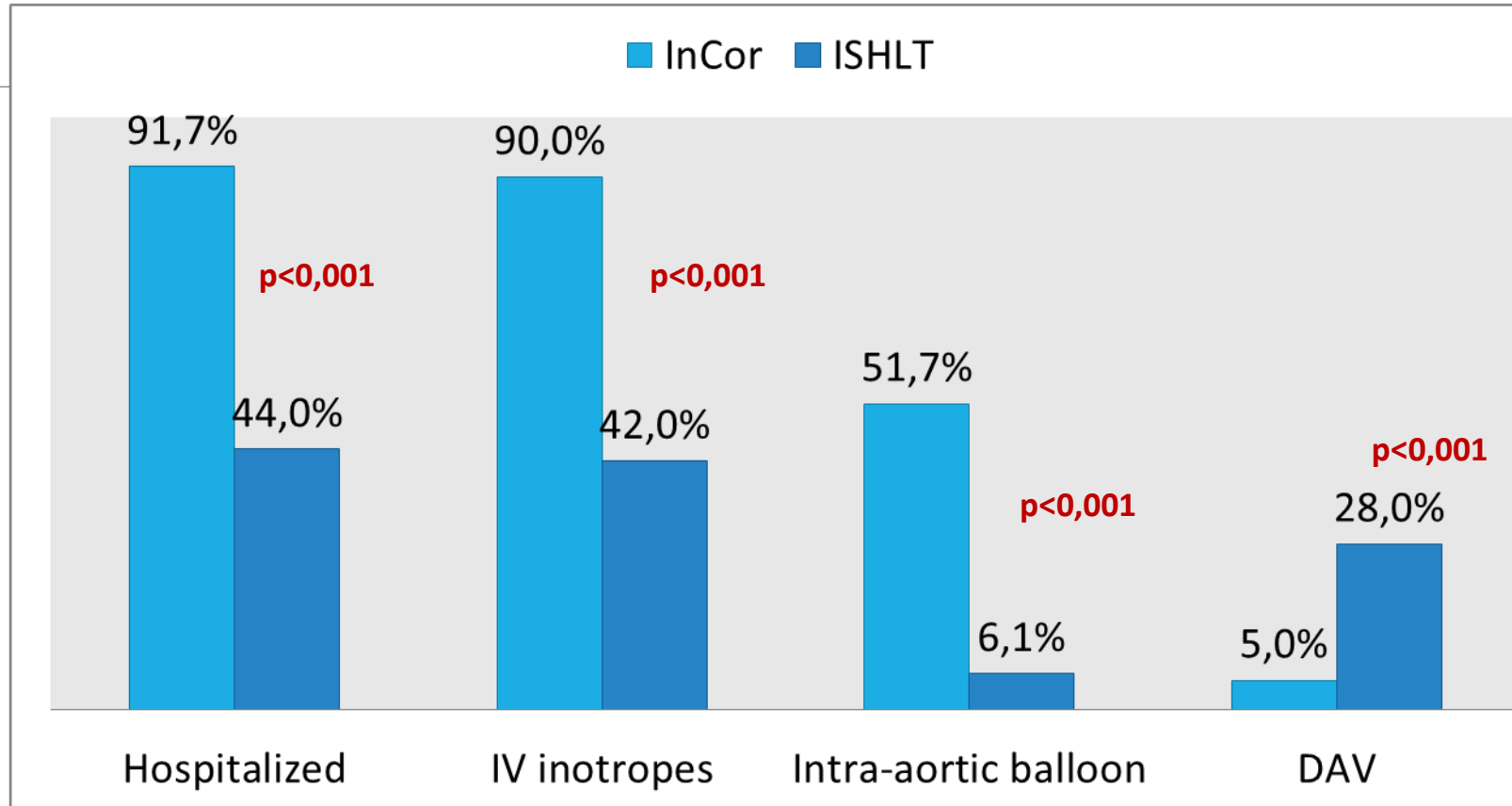


45 days after HTx



MCS as a Bridge to TX / InCor

Profile of heart transplant recipients: INCOR vs. ISHLT Registry



- All adult patients submitted to heart transplantation at the Heart Institute (*InCor*) Brazil, between 11/01/2010 and 10/31/2013 were evaluated
- Data compared to ISHLT Registry in the period from 2006 to 2012

Development of national technology



Final Considerations

- Each Latin American country is trying to improve their numbers and results in HTx procedures in different ways. Some by modifying laws in organ donation, while others starting to use MCS devices, including locally designed and manufactured pumps.
- Some efforts to increase the number of Centers to perform HTx, like the Tutorial Program in Brazil, has been started. A management model, with the concept of Heart Transplant Center is showing very good results.

Final Considerations

- The heart transplantation team acts on indications, surgical procedures, treatment of the post-transplant complications and follow-up of patients
- The training, involvement and motivation of each team member are the key to the success and safety of a heart transplantation program. Building a strong and motivated heart team is crucial for any center that plans to start the transplant program

Celebration 1000 Transplants InCor - 2016



Thank You

