ORGAN DONATION & TRANSPLANTATION: THE SPANISH MODEL

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GÖG COLLOQUIUM

21/10/2025

GOBIERNO DE ESPAÑA
MINISTERIO DE SANIDAD

ONT
ORGANIZACIÓN NACIONAL DE TRASPLANTES

GLOBAL DONATION AND TRANSPLANTATION DATA 2024

Kidney	Liver	Heart	Lung	Pancreas	Small bowel
110 190	42 495	10 287	8 236	2 066	174

≈ 173 448 solid organ transplants

≈ 2% increase *vs* 2023

≤ 10% global needs

37% kidney transplants from live donors

23% liver transplants from live donors

47 181 deceased donors (33 815 DBD & 13 366 DCD)

Information from 92 Member States (06 October 2025)

Source: Newsletter Transplant 2025; Global Observatory on Donation and Transplantation (GODT: https://www.transplant-observatory.org/)

TOWARDS GLOBAL CONVERGENCE IN TRANSPLANTATION: SUFFICIENCY,TRANSPARENCY AND OVERSIGHT

Participants in the Global Convergence in Transplantation Summit urge governments to "(…) make progress towards sufficiency in transplantation by (…) **developing and expanding deceased donation to its maximum therapeutic potential, including donation after both the neurological and the circulatory determination of death"**

Participants to the Global Summit in Transplantation (Santander, Spain, November 2023). Transplantation: Sufficiency, Transparency, and Oversight. Transplantation. 2025 Jan 1;109(1):7-9. doi: 10.1097/TP.0000000000005286.

INCREASING AVAILABILITY, ETHICAL ACCESS AND OVERSIGHT OF TRANSPLANTATION OF HUMAN CELLS, TISSUES AND ORGANS

77 WORLD HEALTH ASSEMBLY

MAY 2024. RESOLUTION 77.4

URGES MEMBER STATES TO

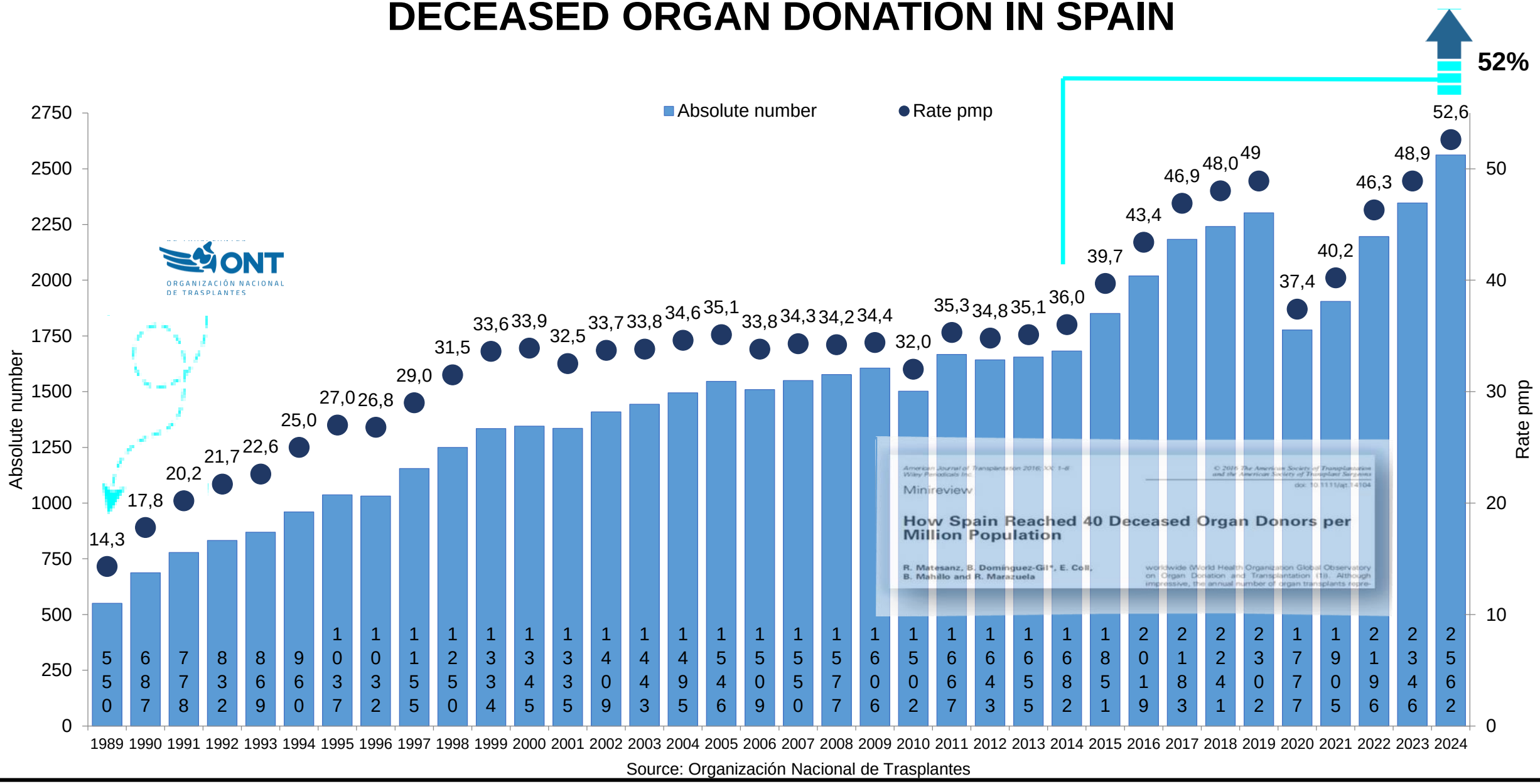
"**integrate donation, transplantation and transplant follow-up activities into health care systems**. so deceased donation is routinely considered as an option at the end of life and transplantation is incorporated in the continuum of care of patients (...)"

"**protect living donors** (...)"

"**increase the availability of human cells, tissues and organs for transplantation with special attention to developing deceased donation to its maximum therapeutic potential**, including donation after the neurological determination of death and. where appropriate. donation after the circulatory determination of death (...)"

http://www.who.int/transplantation/en/

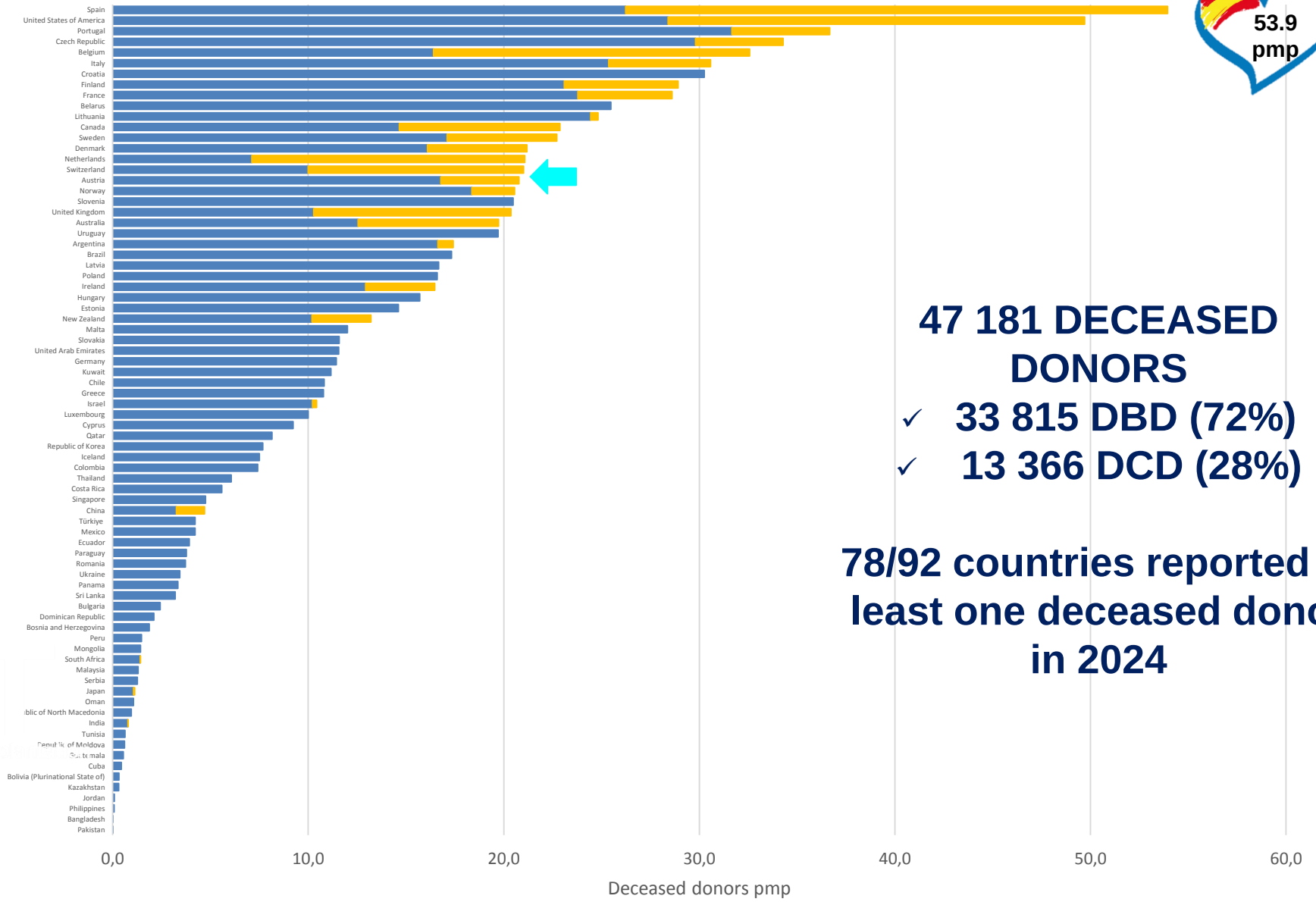
DECEASED ORGAN DONATION IN SPAIN



Source: Organización Nacional de Trasplantes

DECEASED DONATION IN THE WORLD (PMP)

YEAR 2024



53.9 pmp

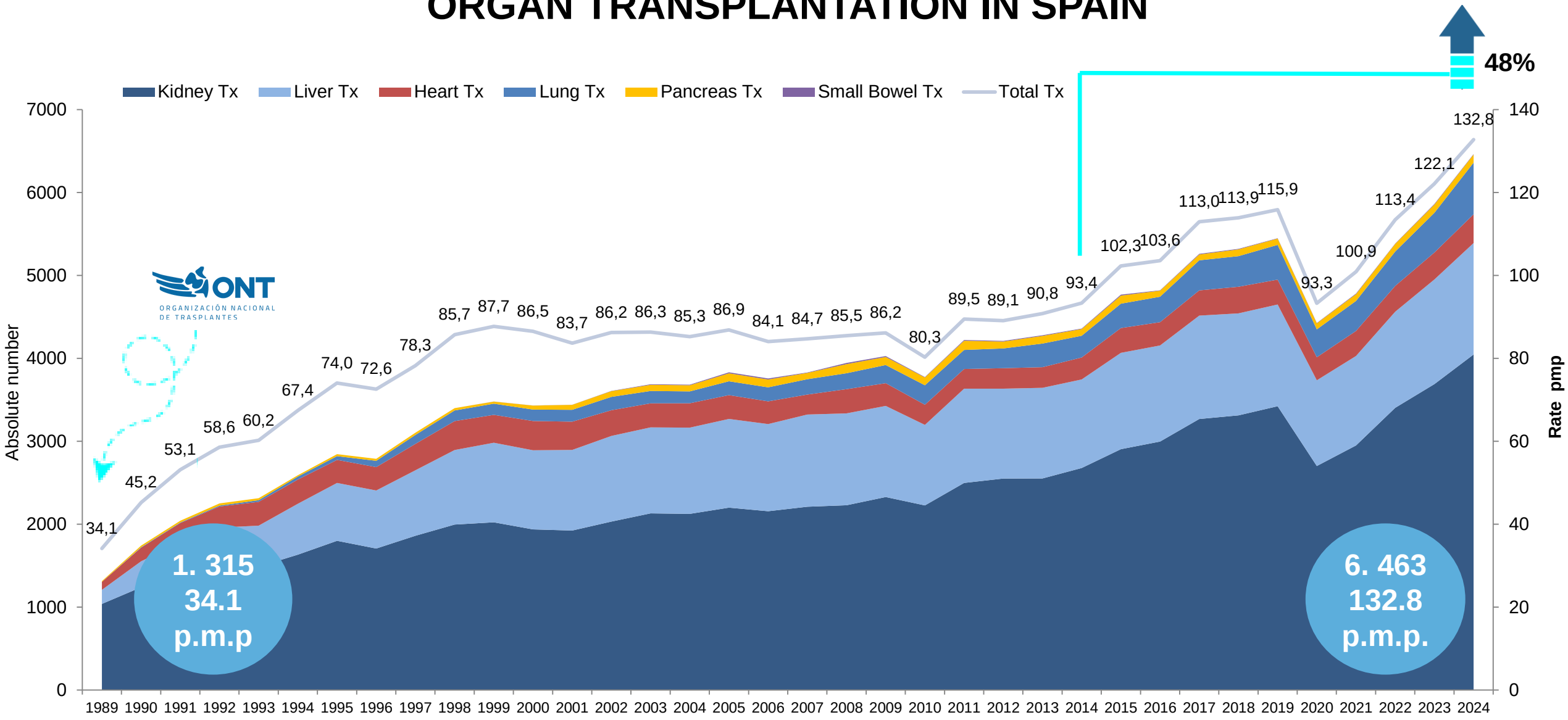
47 181 DECEASED DONORS

- ✓ **33 815 DBD (72%)**
- ✓ **13 366 DCD (28%)**

78/92 countries reported at least one deceased donor in 2024

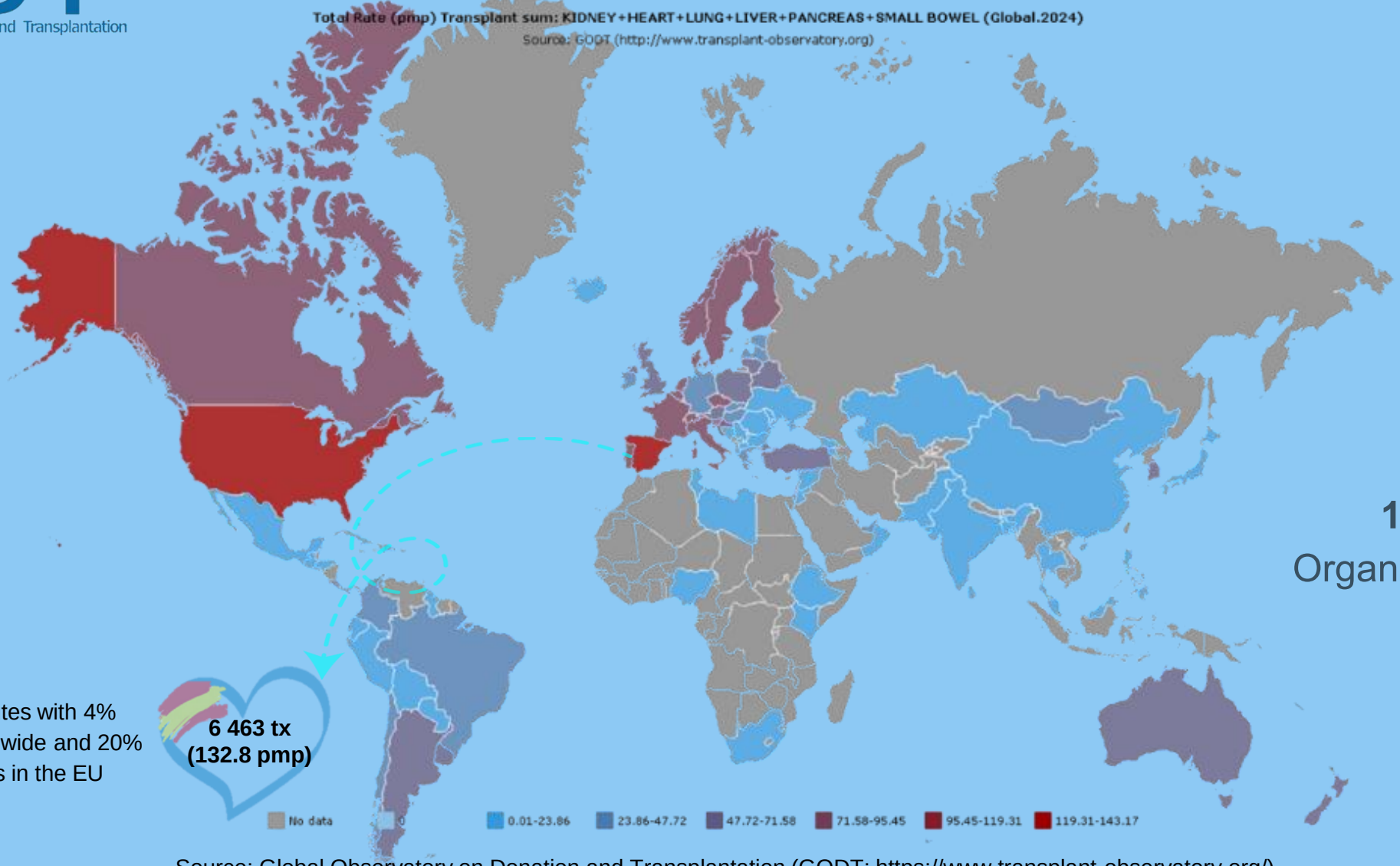
Source: Global Observatory on Donation and Transplantation (GODT: https://www.transplant-observatory.org/)

ORGAN TRANSPLANTATION IN SPAIN



Source: Organización Nacional de Trasplantes

TRANSPLANTS P.M.P IN THE WORLD 2024



173 448
Organ Transplants

Spain contributes with 4% transplants worldwide and 20% of transplants in the EU

Source: Global Observatory on Donation and Transplantation (GODT: https://www.transplant-observatory.org/)

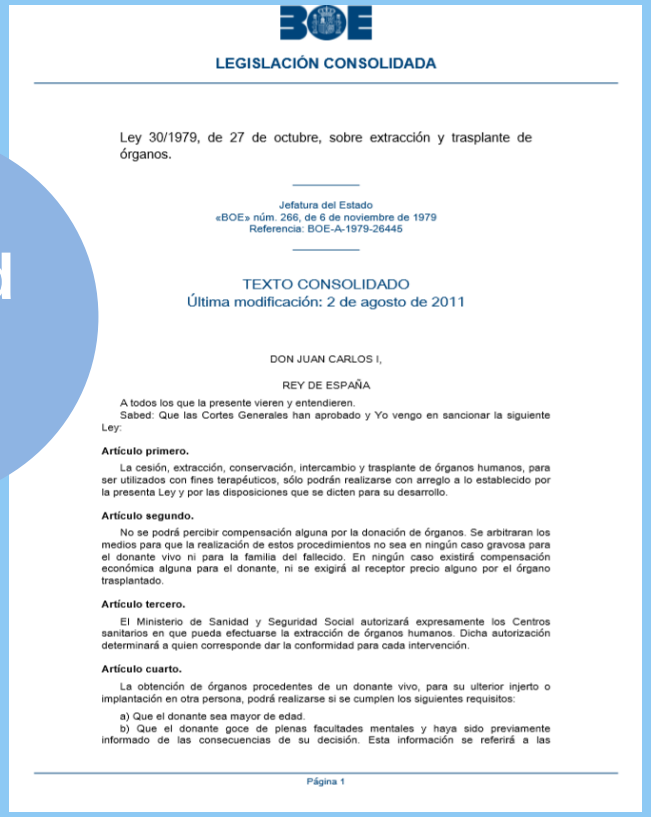
THE SPANISH OPT-OUT SYSTEM: POLICY AND PRACTICE

⊕ Donate seems the “normal” option

⊖ The State as the “owner” of organs

- ✓ DETAILED IN SECONDARY LEGISLATION (RD 1723/2012)
- ✓ ADVANCED DIRECTIVES REGISTRY
- ✓ RELATIVES ALWAYS APPROACHED
- ✓ THEY ALWAYS HAVE THE FINAL VETO

Issued 1979



BOE

LEGISLACIÓN CONSOLIDADA

Ley 30/1979, de 27 de octubre, sobre extracción y trasplante de órganos.

Jefatura del Estado
«BOE» núm. 266, de 6 de noviembre de 1979
Referencia: BOE-A-1979-26445

TEXTO CONSOLIDADO
Última modificación: 2 de agosto de 2011

DON JUAN CARLOS I,

REY DE ESPAÑA

A todos los que la presente vieren y entendieren.
Sabed: Que las Cortes Generales han aprobado y Yo vengo en sancionar la siguiente Ley:

Artículo primero.

La cesión, extracción, conservación, intercambio y trasplante de órganos humanos, para ser utilizados con fines terapéuticos, sólo podrán realizarse con arreglo a lo establecido por la presenta Ley y por las disposiciones que se dicten para su desarrollo.

Artículo segundo.

No se podrá percibir compensación alguna por la donación de órganos. Se arbitraran los medios para que la realización de estos procedimientos no sea en ningún caso gravosa para el donante vivo ni para la familia del fallecido. En ningún caso existirá compensación económica alguna para el donante, ni se exigirá al receptor precio alguno por el órgano trasplantado.

Artículo tercero.

El Ministerio de Sanidad y Seguridad Social autorizará expresamente los Centros sanitarios en que pueda efectuarse la extracción de órganos humanos. Dicha autorización determinará a quien corresponde dar la conformidad para cada intervención.

Artículo cuarto.

La obtención de órganos procedentes de un donante vivo, para su ulterior injerto o implantación en otra persona, podrá realizarse si se cumplen los siguientes requisitos:

a) Que el donante sea mayor de edad.
b) Que el donante goce de plenas facultades mentales y haya sido previamente informado de las consecuencias de su decisión. Esta información se referirá a las

Página 1

THE PROCESS OF DECEASED ORGAN DONATION

Identification of possible organ donors

donor management

diagnosis of death

consent and legal authorization

logistics

organ recovery

TRANSPLANTATION

Improvements in donation

Improvements in organization

Matesanz R. et al. Transpl Int 2011; 24: 333-43

BASIC PRINCIPLES OF THE SPANISH MODEL

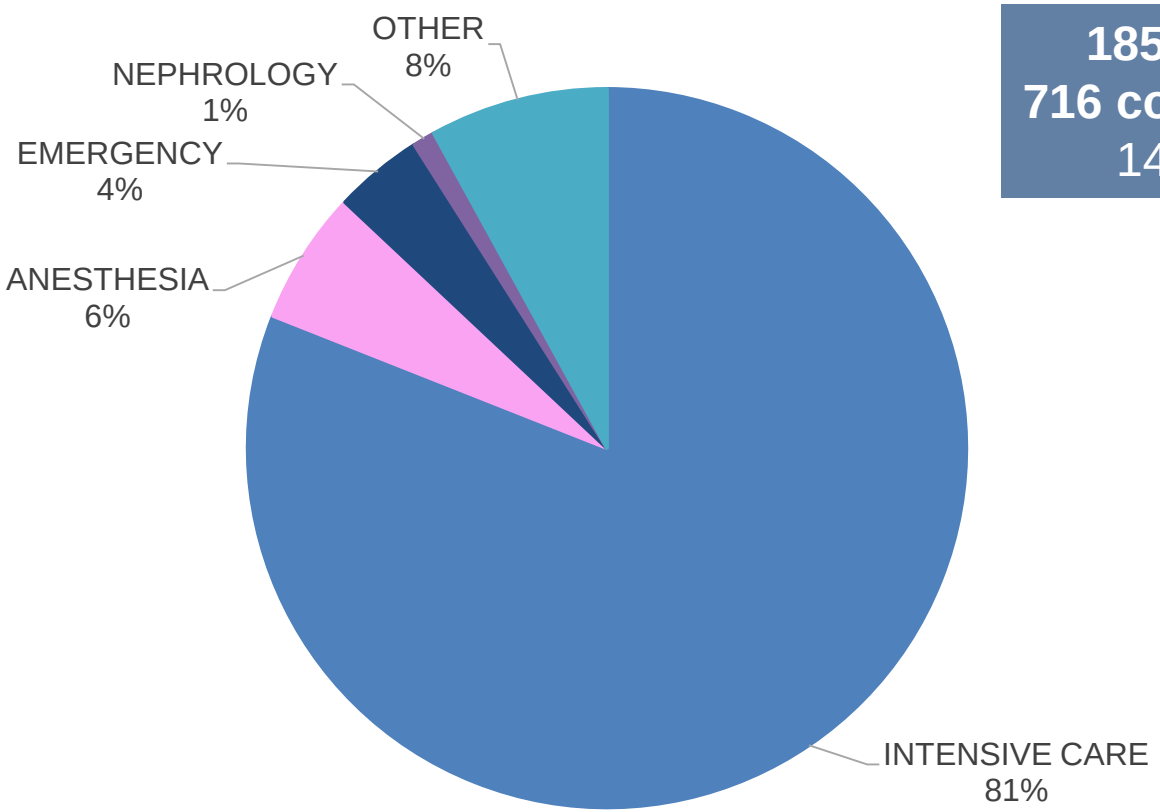
1. Appropriate legal and technical framework
2. Donor coordination network
3. Special profile of donor coordinators
4. Donor coordinators inside the hospital
5. Central office (ONT) in support of the system
6. Quality assurance program in organ donation
7. Great effort in professional training
8. Hospital reimbursement
9. Continuous attention to the media

Matesanz R. et al. Transpl Int 2011; 24: 333-43

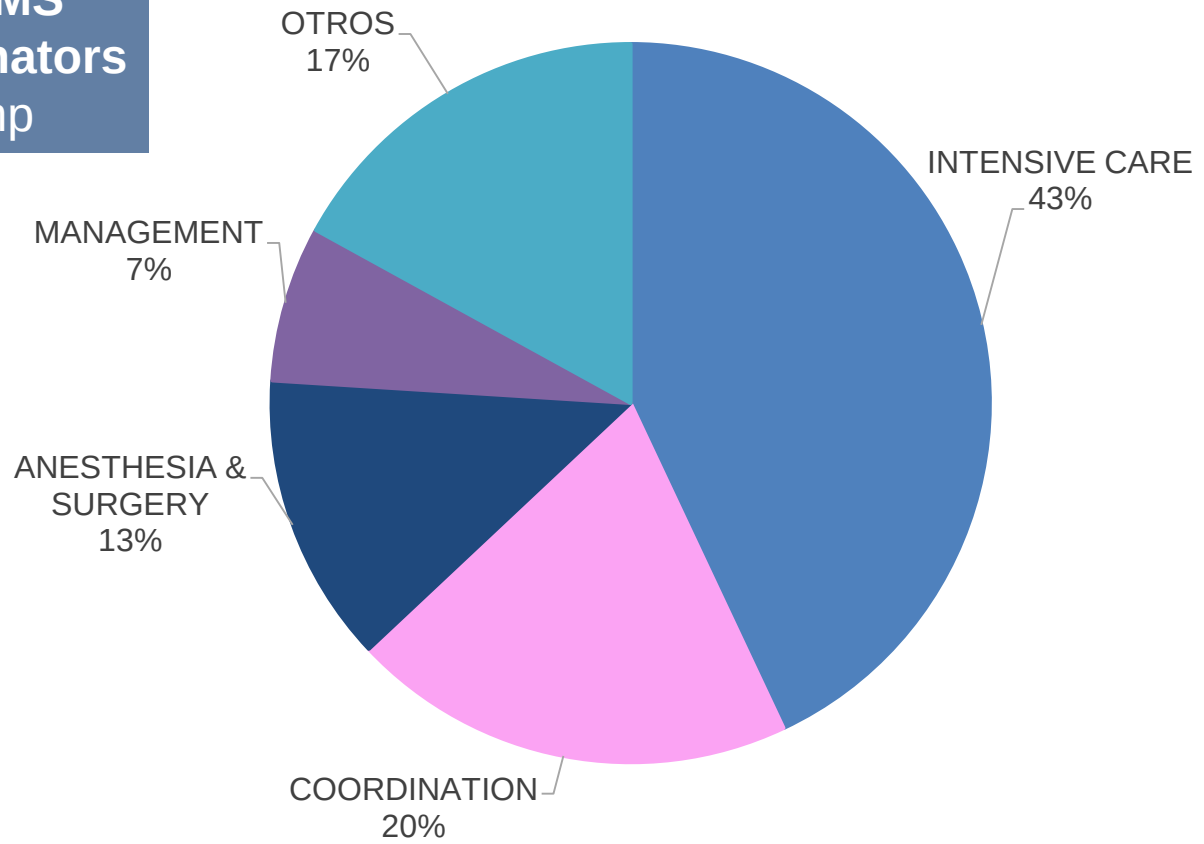

KEEP
CALM
The
Intensivist
Is Here

DONOR COORDINATION HOSPITAL UNITS. SPAIN 2025

185 TEAMS
716 coordinators
14.7 pmp



PHYSICIANS (453; 63%)
Full-time: 4%
Part-time: 96%



NURSES (263; 37%)
Full-time: 24%
Part-time: 76%

Source: Organización Nacional de Trasplantes

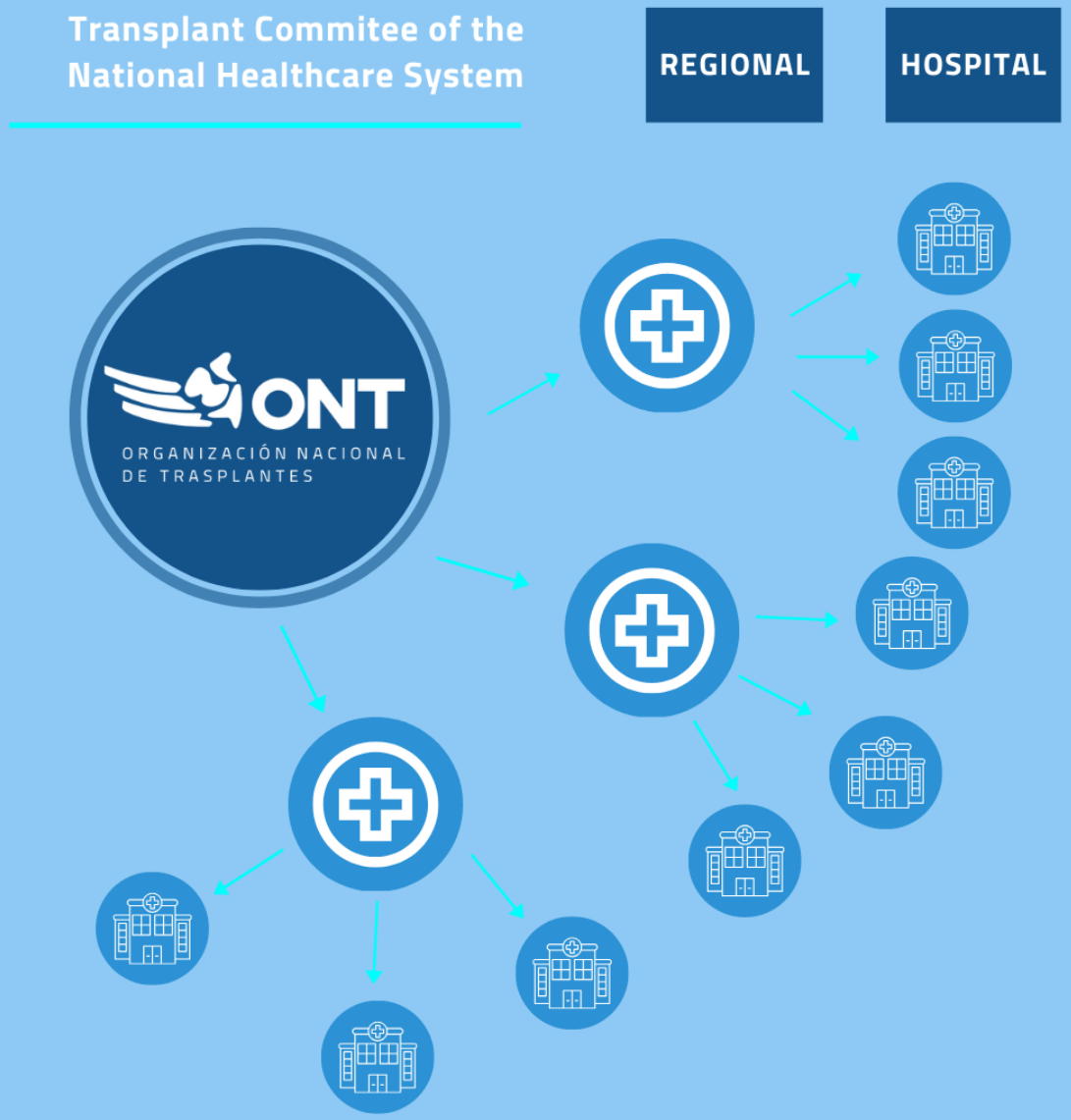
RECOMMENDATIONS

DEFINITION OF THE DTC TEAM

STRUCTURE OF DTC TEAM

FUNCTIONS OF DTC TEAM

A SYSTEM THAT COORDINATES COORDINATORS



"Hawthorne effect: everyone who feels observed automatically changes their behaviour"

ONT: CENTRAL AGENCY IN SUPPORT OF THE SYSTEM

Not only an organ sharing office

1. Management of waiting lists
2. Organ allocation
3. Logistic support to the process of donation
4. Quality assurance program in organ donation
5. Promotion and education
6. Training programs
7. Relationship with the media
8. National registries
9. Legislation
10. International cooperation

POTENTIAL DONOR AUDIT SPAIN SINCE 1999

POSSIBLE DONORS (2023 DATA)					
DBD		**Global***		**DCD**	
2, 000 (42%)		**4, 780**		**2, 483* (52%)**	
Medically unsuitability					
359	17.9%	1, 608	33.6%	1, 045	42.1%
Failure to identify and refer					
8	0.4%	64	1.3%	0	2.0%
Problems in donor management					
29	1.5%	91	1.9%	40	1.6%
Logistical problems					
4	0.2%	18	0.4%	11	0.4%
No suitable recipient					
20	1.0%	43	0.9%	22	0.9%
Consent declined					
295	14.8%	561	11.7%	240	9.7%
Coroner refusal					
16	0.8%	20	0.4%	3	0.1%
Other					
19	0.9%	117	2.4%	64	2.6%
BD diagnosis not completed				Out of protocol	
0				6	
ACTUAL DONORS					
DBD		**Global**		**DCD**	
1, 250	**62.5%**	**2, 258**	**47.2%**	**1, 008**	**40.6%**

*195 no DBI

>200 EXTERNAL AUDITS

Possibility of improvement ~ 22% !

https://www.ont.es/wp-content/uploads/2024/10/MEMORIA-ANUAL-PROG.-GARANTIA-CALIDAD-2023.pdf

GREAT EFFORT IN PROFESSIONAL TRAINING

General courses on Donor Coordination

Courses targeted to residents in Intensive Care Medicine

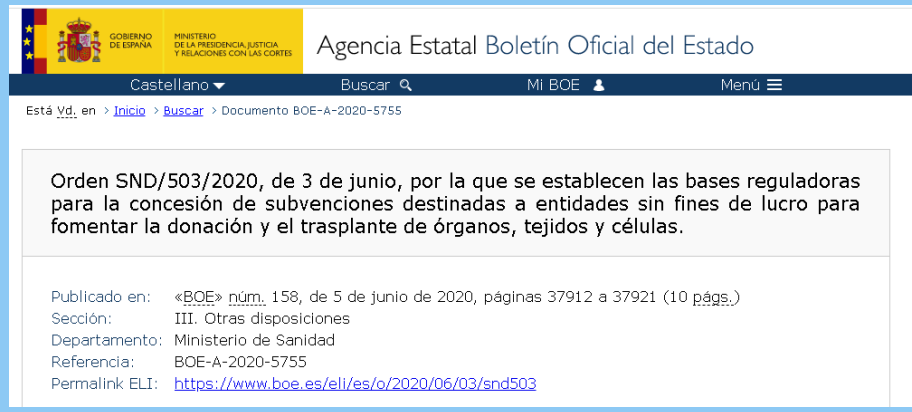
Courses targeted to Emergency Care personnel

Courses targeted to Neurologists – Stroke Units

Courses targeted to non-health care professionals

Specific courses on communication in critical situations

Specific courses on DCD, living donation, others



>20,000 HEALTH CARE PROFESSIONALS TRAINED THROUGH ONT COURSES SINCE 1991

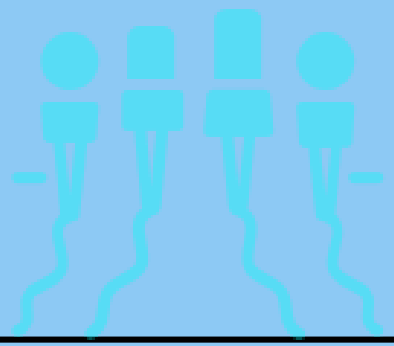
Matesanz R. Transplant Int 2011; 24: 333

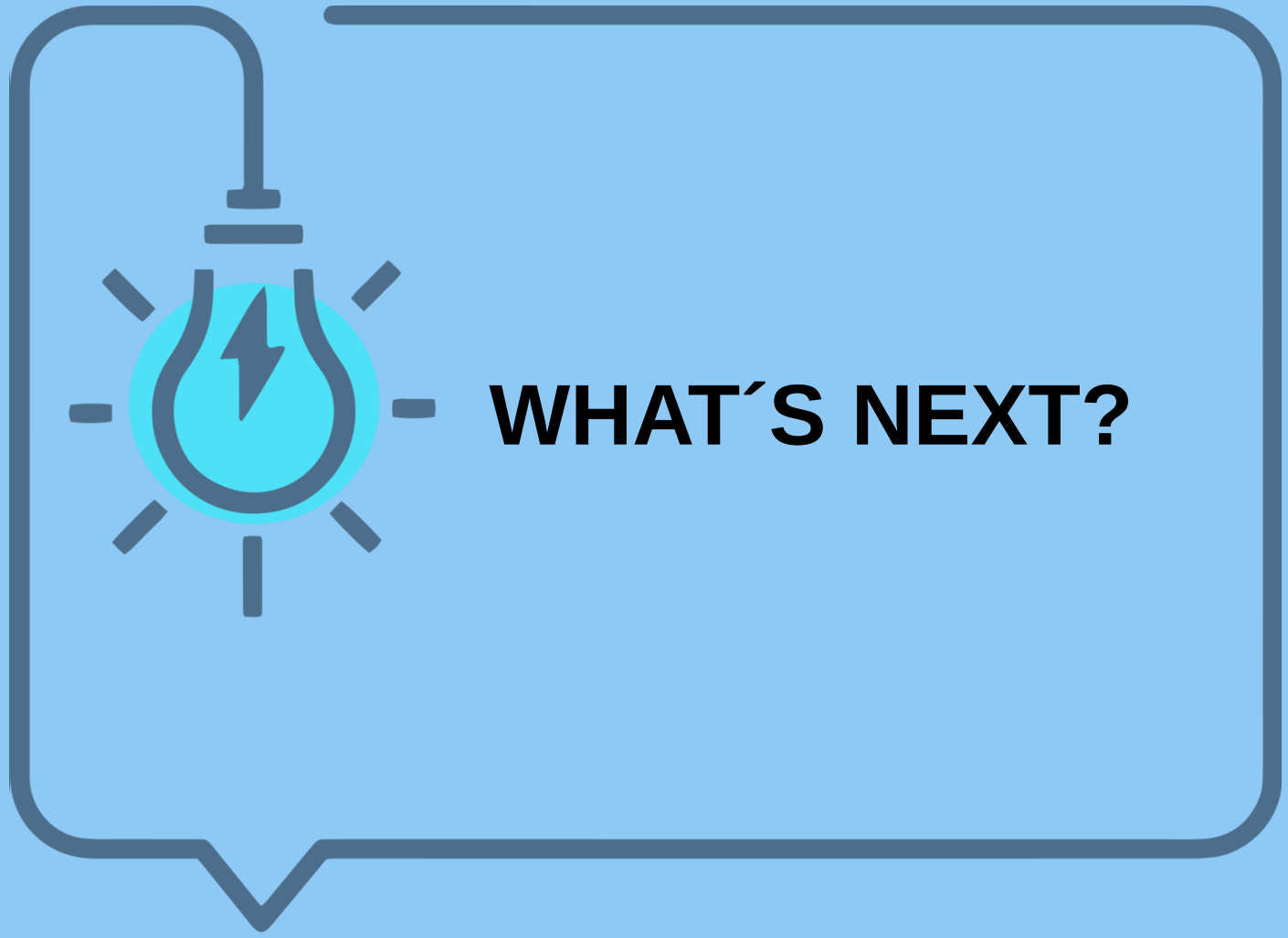
HOSPITAL REIMBURSEMENT

Donation is another clinical activity at the hospital & is appropriately funded

CONTINUOUS ATTENTION TO THE MEDIA

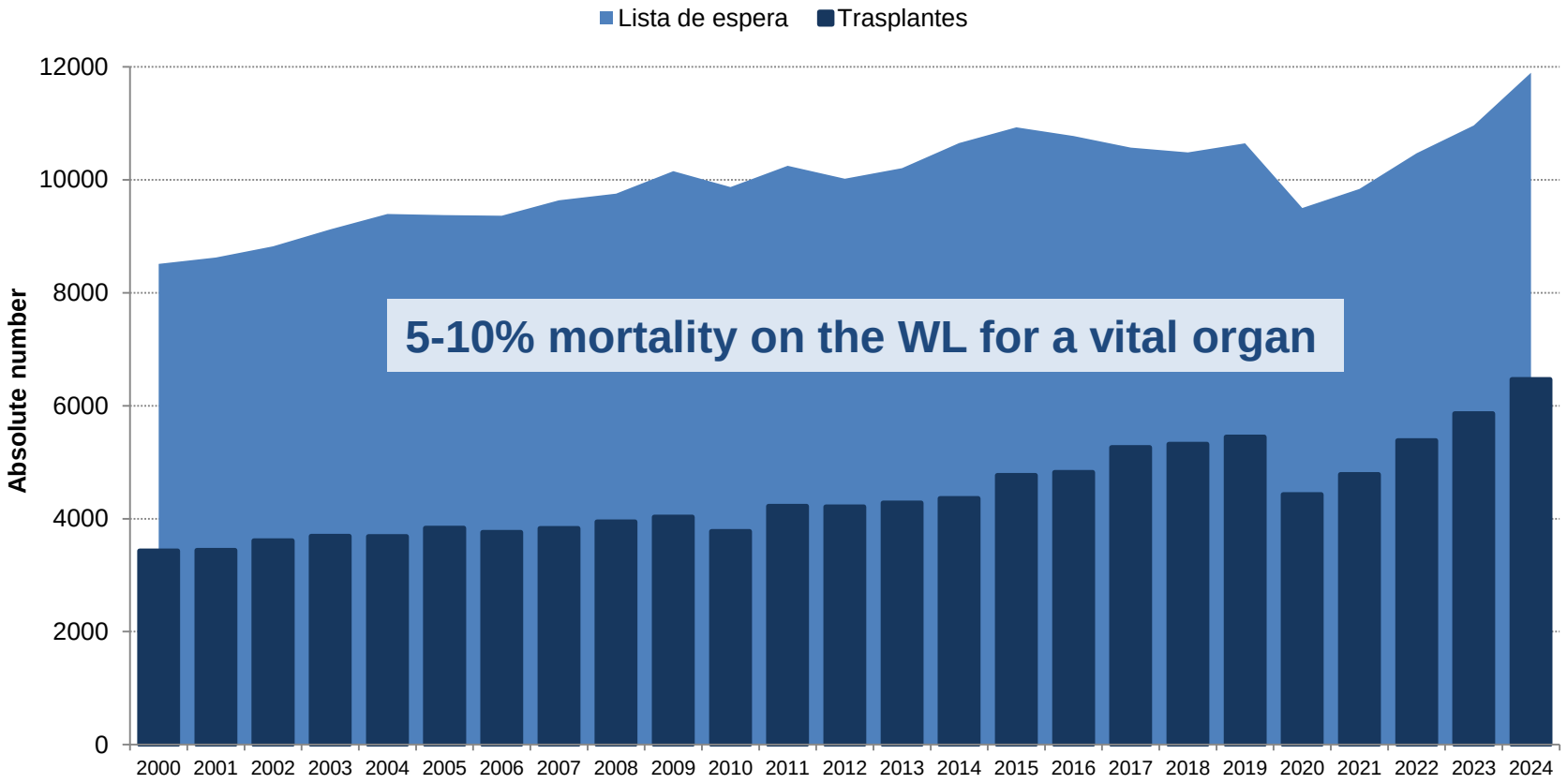
1. **Telephone/web contact 24/7 available to the public, professionals and the media**
2. **Permanent and immediate accessibility to the media (local, national, international)**
3. **Connection with the media**
4. **Control of information without intermediaries**



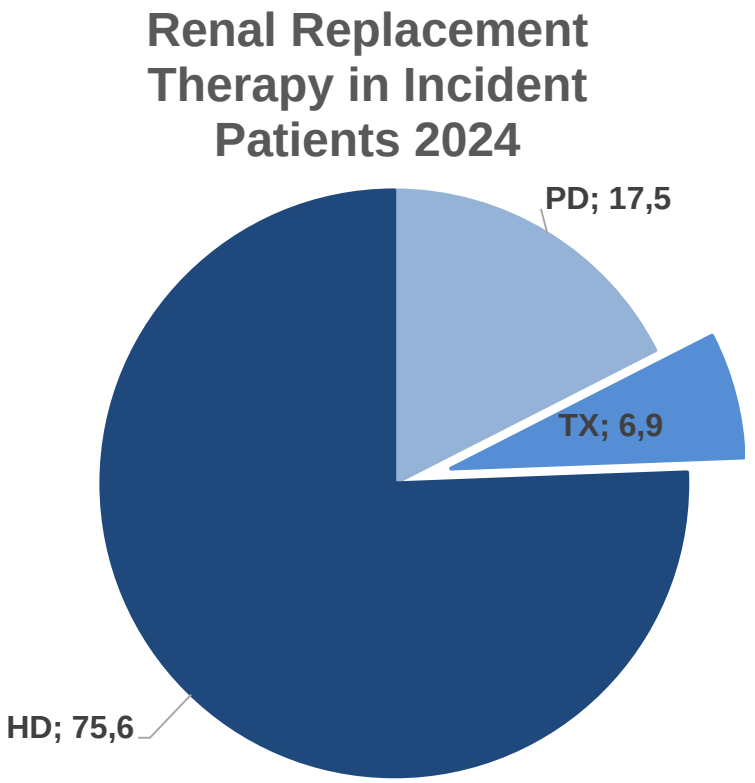


WHAT´S NEXT?

STILL FAR FROM SELF-SUFFICIENCY IN TRANSPLANTATION



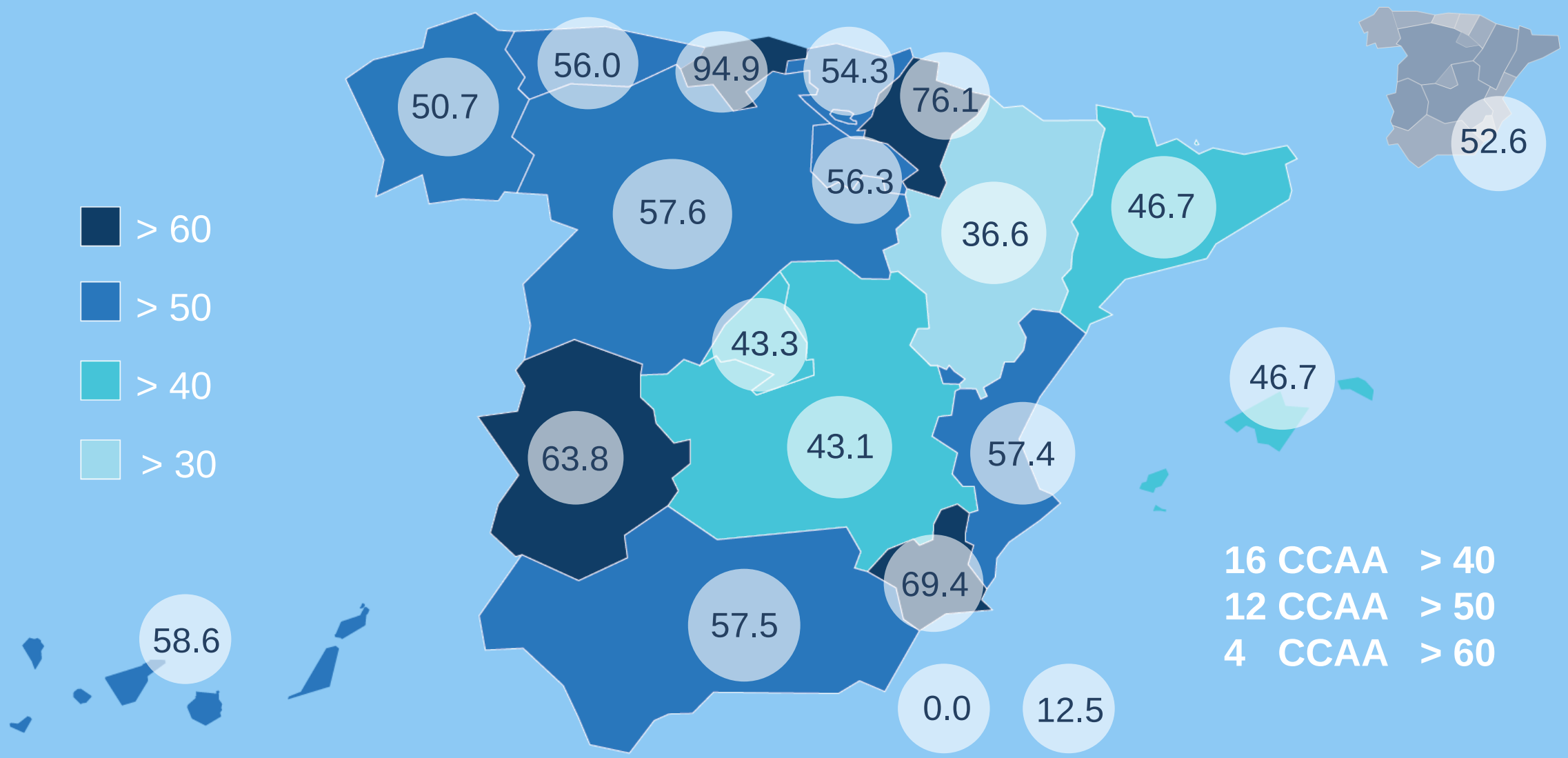
Waiting list *versus* transplants in Spain



PREEMPTIVE KIDNEY TRANSPLANTATION EXCEPTIONAL

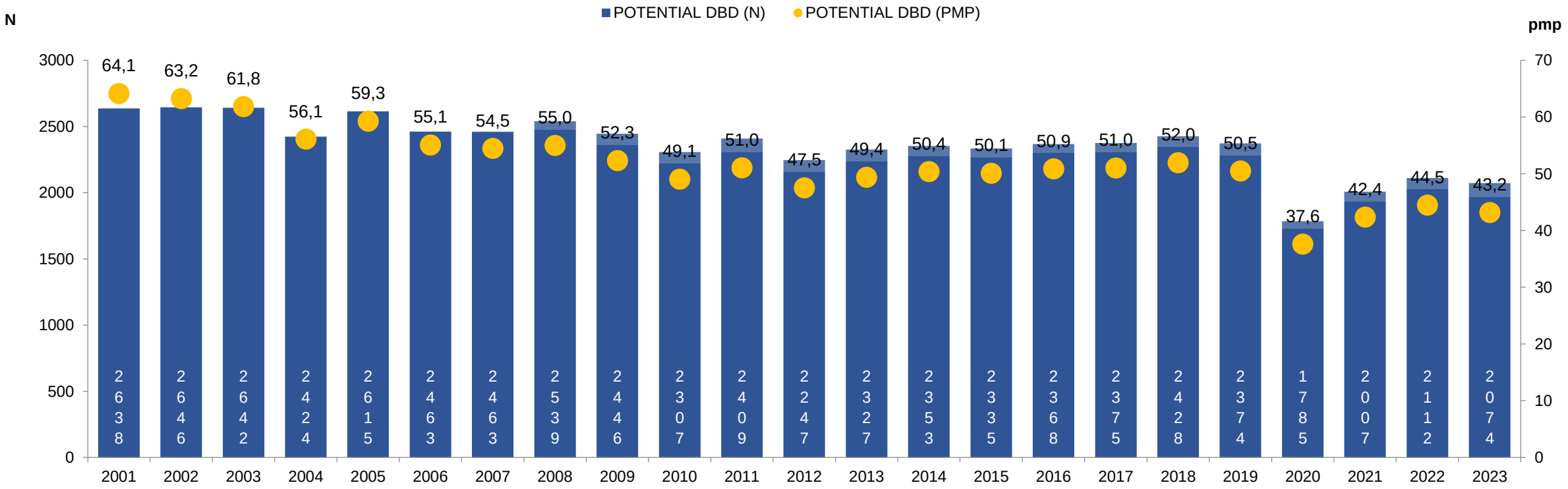
Source: Organización Nacional de Trasplantes

DECEASED DONATION IN SPAIN 2024



Source: Organización Nacional de Trasplantes

DECREASE IN THE INCIDENCE OF BRAIN DEATH IN SPAIN



Source: Organización Nacional de Trasplantes

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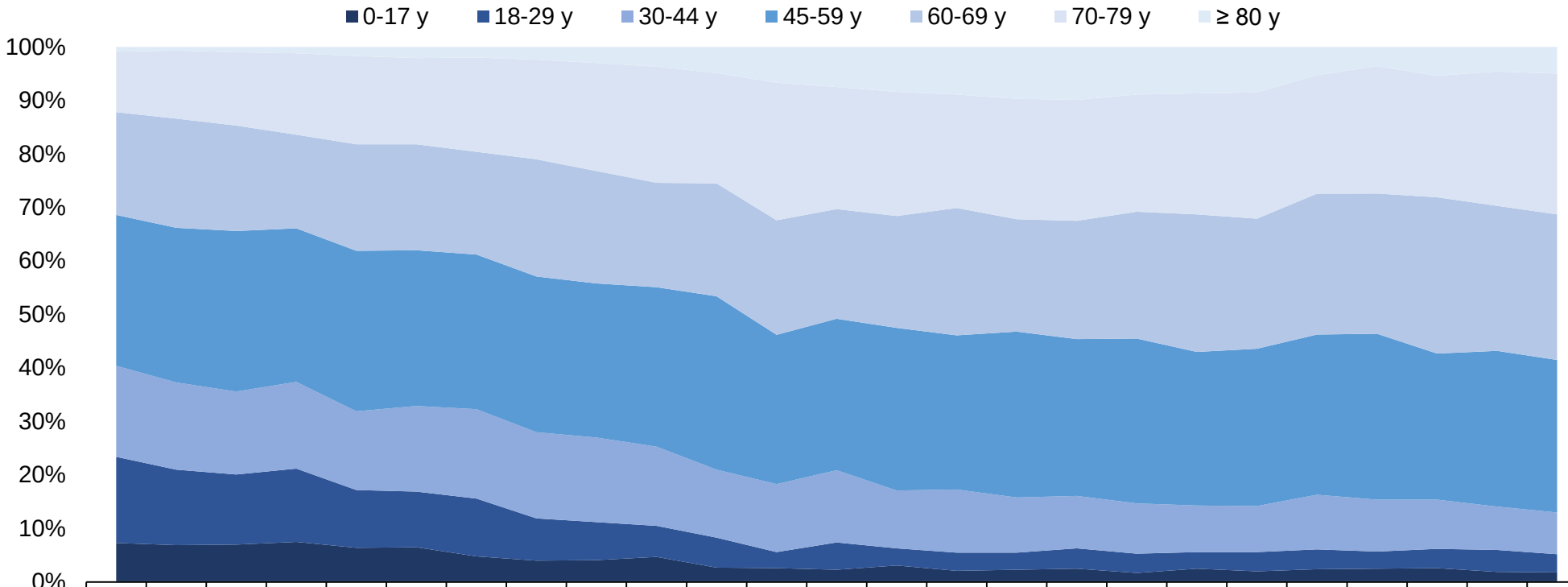
THE EXPANDED CRITERIA AND THE NON-STANDARD RISK DONOR

DECEASED DONOR AGE IN SPAIN



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
≥ 80 y	0,9	0,7	1,0	1,2	1,7	2,1	2,0	2,4	3,0	3,7	4,9	6,7	7,5	8,4	8,9	9,7	9,9	8,9	8,7	8,5	5,3	3,6	5,4	4,6	5,0
70-79 y	11,3	12,7	13,7	15,2	16,5	16,1	17,6	18,6	20,2	21,7	20,6	25,7	22,8	23,2	21,2	22,5	22,6	21,9	22,6	23,6	22,1	23,8	22,7	25,1	26,3
60-69 y	19,2	20,4	19,7	17,5	19,9	19,8	19,2	21,9	21,0	19,5	21,1	21,4	20,5	20,9	23,8	21,0	22,1	23,7	25,7	24,3	26,3	26,2	29,2	27,1	27,2
45-59 y	28,2	28,9	30,0	28,7	30,0	29,1	28,9	29,1	28,8	29,8	32,4	27,9	28,3	30,4	28,8	31,0	29,3	30,8	28,7	29,4	29,9	31,0	27,3	29,1	28,5
30-44 y	17,0	16,3	15,5	16,2	14,7	16,0	16,7	16,1	15,8	14,8	12,7	12,7	13,5	10,8	11,8	10,3	9,8	9,4	8,7	8,6	10,2	9,7	9,2	8,1	7,8
18-29 y	16,1	14,1	13,1	13,7	10,8	10,4	10,8	7,9	7,1	5,8	5,6	3,0	5,1	3,2	3,4	3,2	3,8	3,6	3,1	3,6	3,7	3,2	3,6	4,1	3,4
0-17 y	7,3	6,9	7,0	7,5	6,4	6,5	4,8	4,0	4,1	4,7	2,7	2,6	2,3	3,1	2,1	2,3	2,5	1,7	2,5	2,0	2,4	2,5	2,6	1,9	1,8

59% DONORS ≥ 60 y
31% ≥ 70 y
5% ≥ 80 y

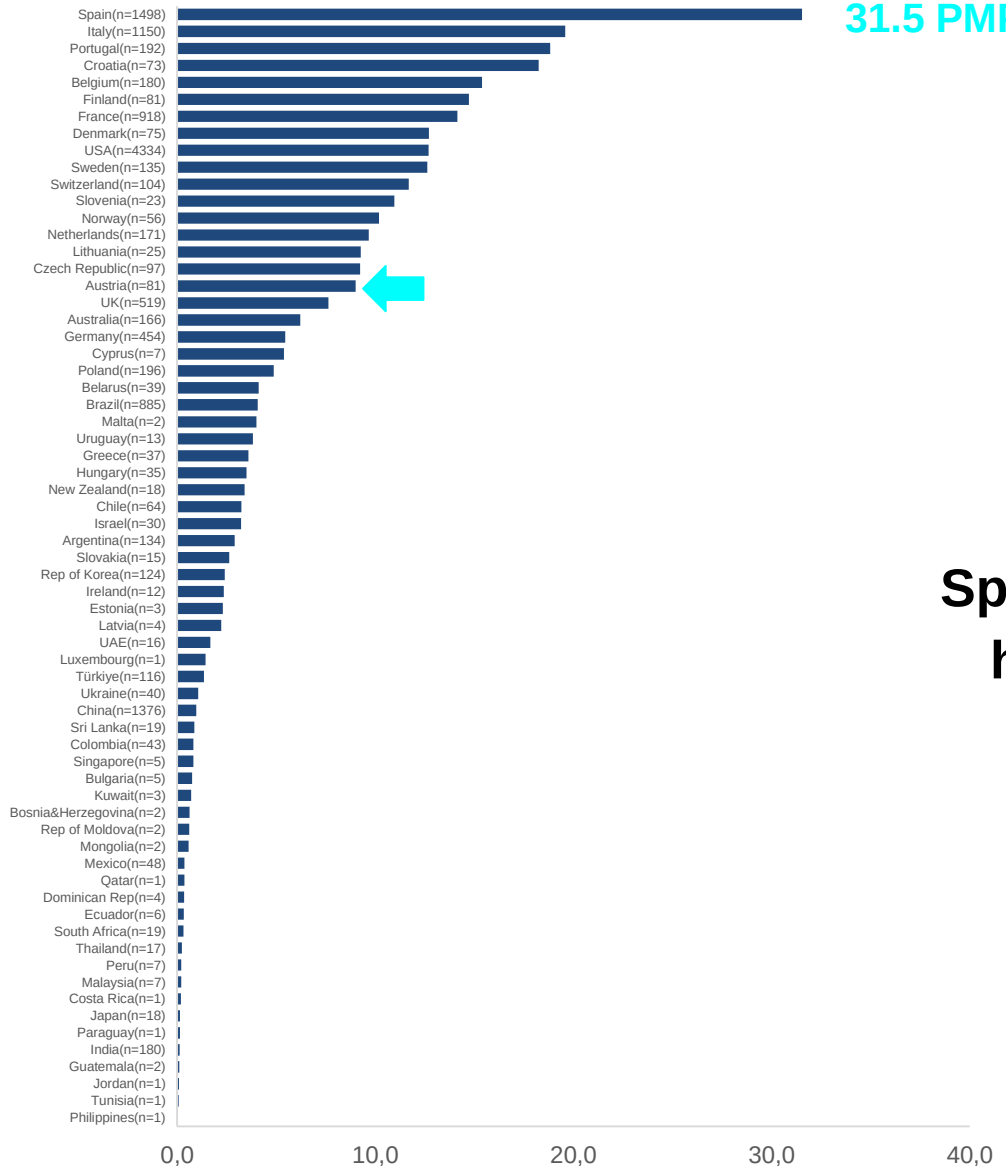
Mean age

61 years 2024

13%

Source: Organización Nacional de Trasplantes

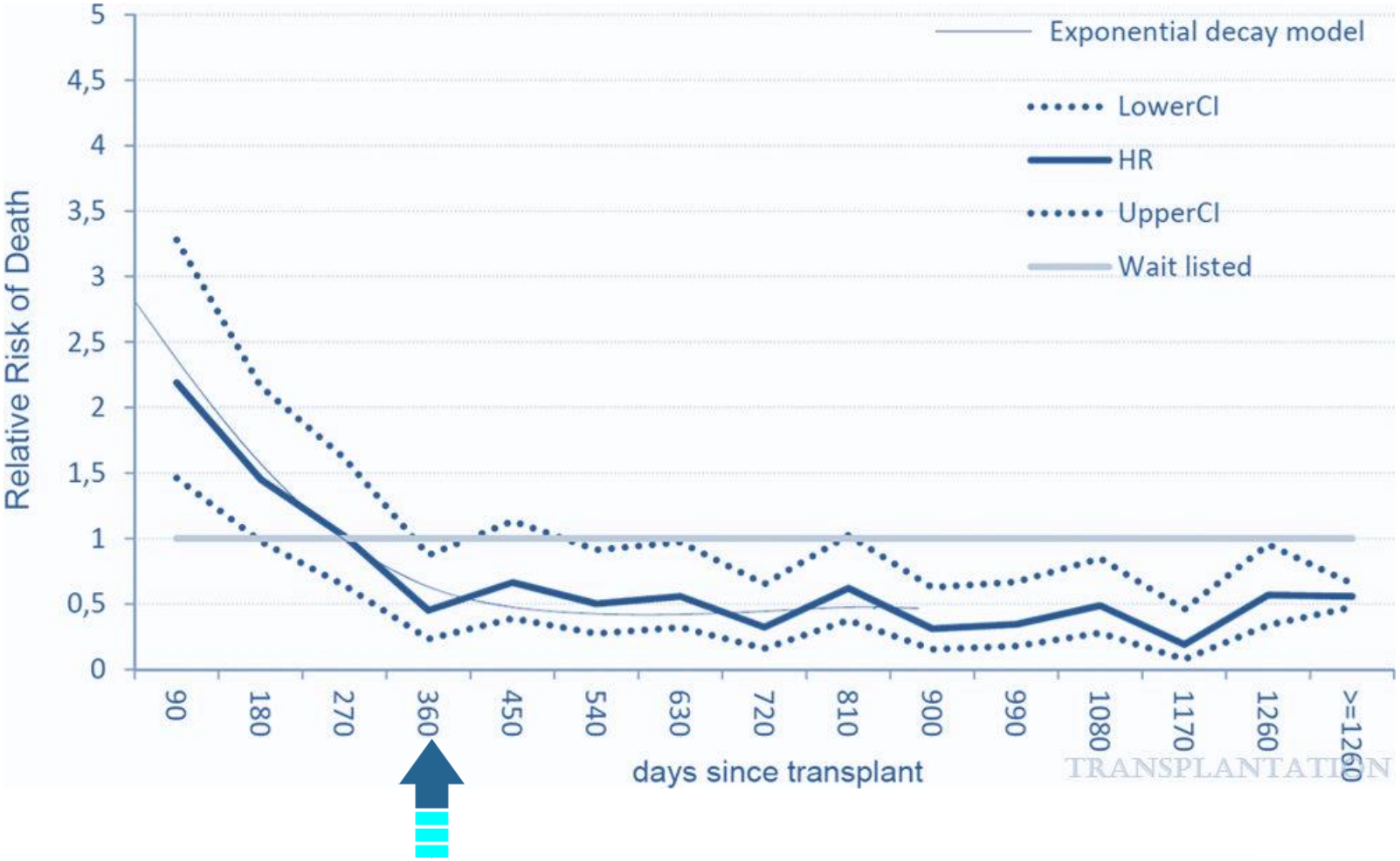
DECEASED DONORS > 60 YEARS PMP IN 2024



Spain is the country with the highest rate of deceased donors > 60 years

Source: Global Observatory on Organ Donation and Transplantation (https://www.transplant-observatory.org/)

At 12 months, the RR of death among recipients ≥60 years with a first kidney transplant from a donor ≥60 years was significantly lower than patients who remained in dialysis waitlisted



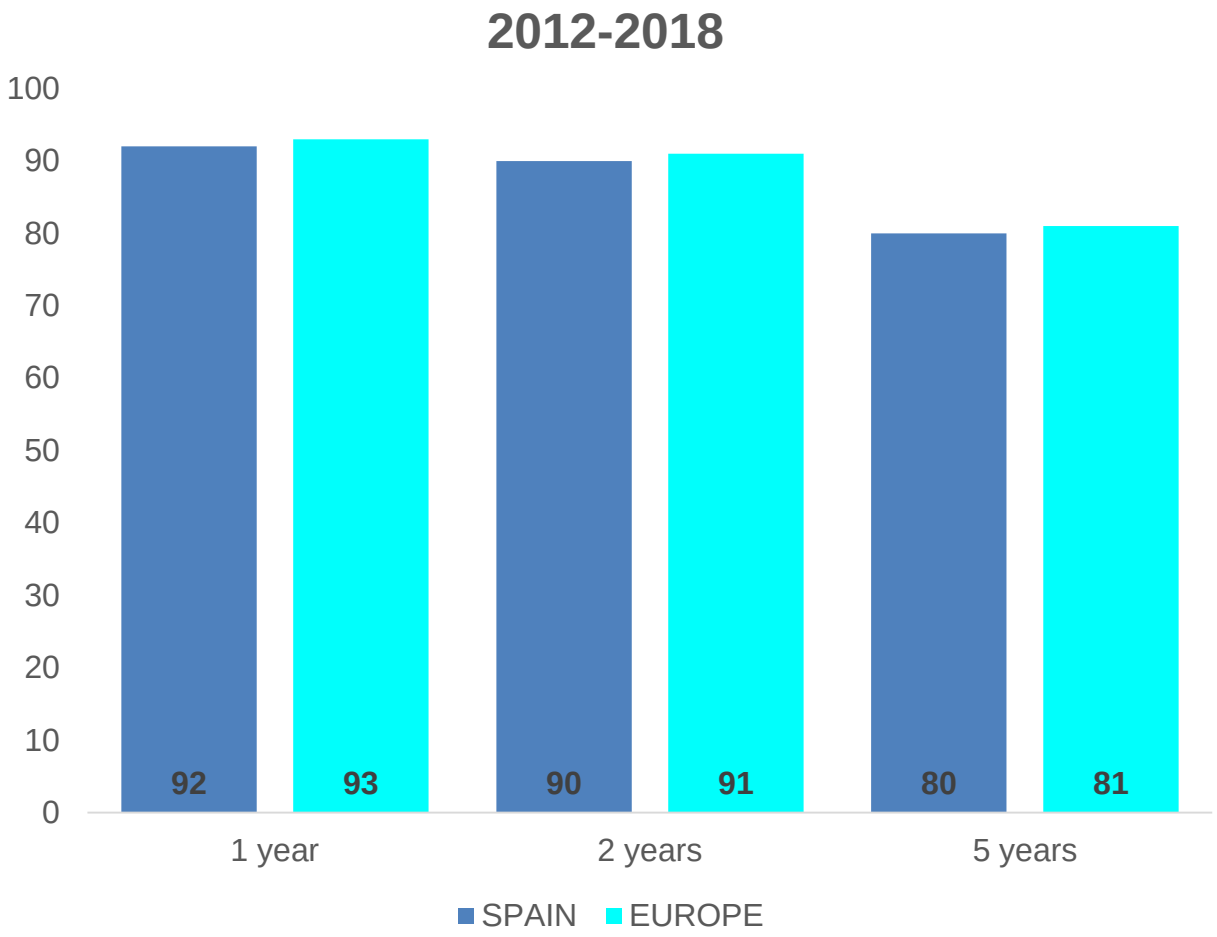
Relative risk of death at 12 mo after kidney transplantation in 2 donor age groups (60–79 y and ≥80 y), compared to remaining on dialysis on the waiting list

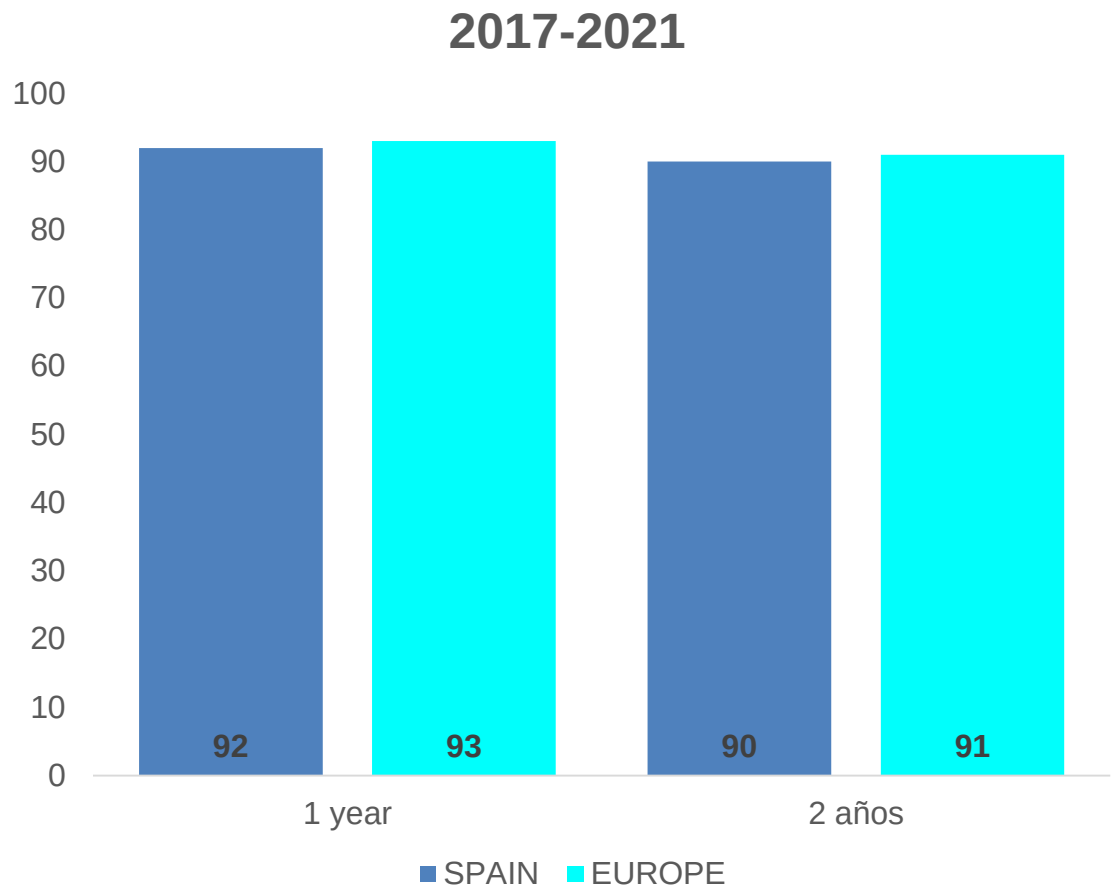
	Adjusted HR mortality risk from donor 60–79 y[a];(n = 1084)	*P*	Adjusted HR mortality risk from donor ≥80 y[a];(n = 128)	*P*
Global	0.50 (0.44–0.58)	<0.001	0.54 (0.38–0.77)	0.001

Arcos E, et al. Transplantation 2020; 104(1):176-183

GRAFT SURVIVAL AFTER KIDNEY TRANSPLANT SPAIN *VS* EUROPE

First graft (deceased donor) from day of transplant, adjusted*





**Recipient age and sex and primary renal disease*

Source:2022ERA-EDTA Annual Report:https://www.ont.es/wp-content/uploads/2024/10/eraregistry_survival_report_2022__ES.pdf

“ We perceive greater risk in acts of commission than in acts of omission: if a patient dies during or after transplantation, it’s the doctor’s responsibility; if the patient dies from organ failure while awaiting a transplant, we can blame the indifference of the Universe.”

Getting Comfortable with Risk
Dr. Robert A. Montgomery
New Engl J Med 2019; 381 (17)

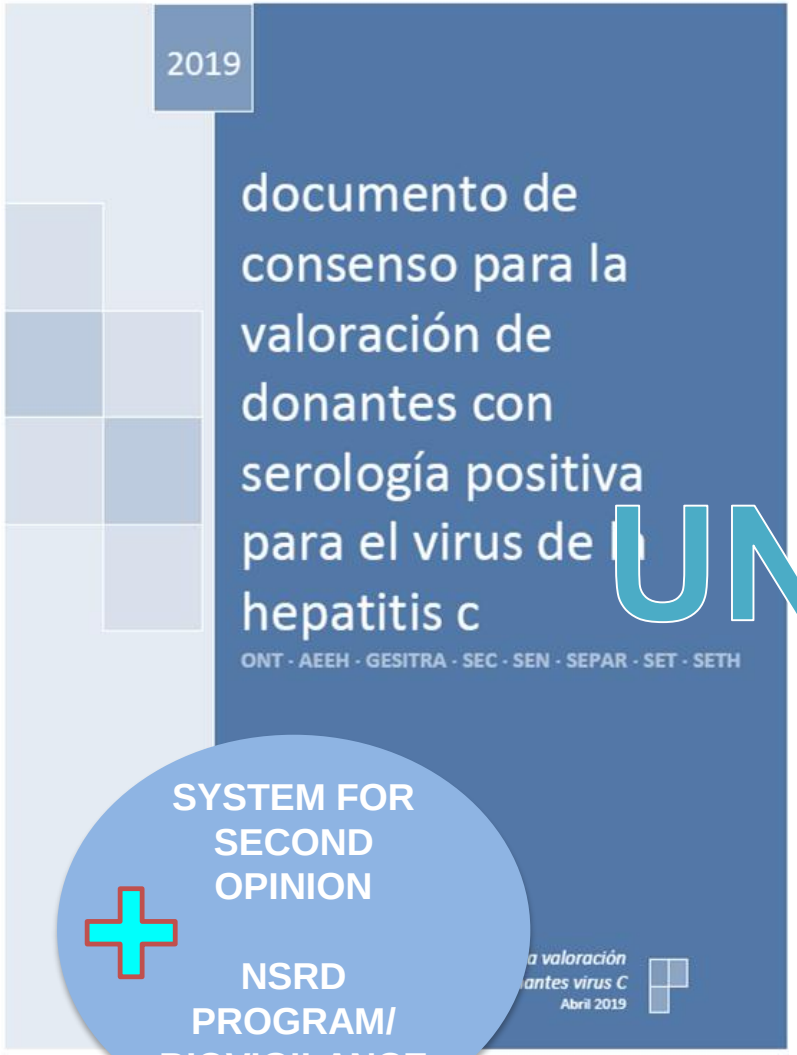
SPECTRUM OF RISK ATTITUDES APPLIED TO TRANSPLANTATION

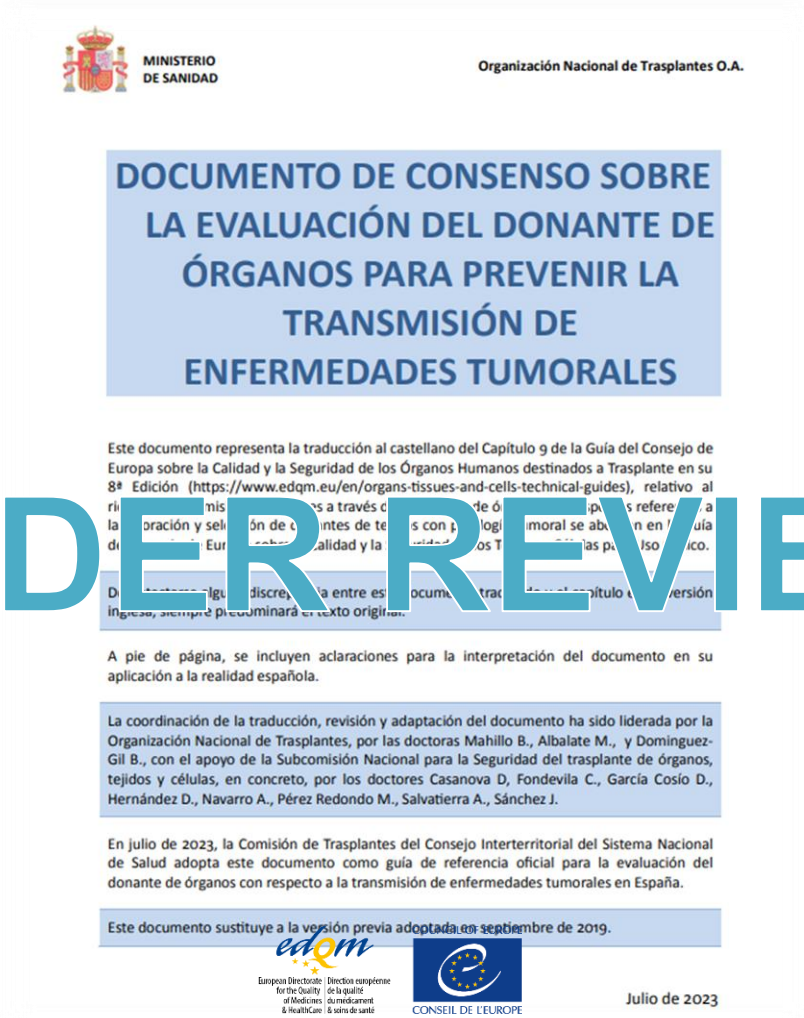
Attribute	Risk avoiding	Risk averse	Risk neutral	Risk tolerant	Risk seeking
Focus	Focus mainly on negative risk and avoiding loss at all costs	Focus on managing or avoiding negative risk drives most decisions	Focus on managing risk balance between negative and positive	Focus is on positive risk, but negative risk is also considered	Focus on positive risk and maximising gain—*all-or-nothing* philosophy
Attitude	Risk is very bad and to be avoided at all costs	Risk is bad but acceptable in some circumstances	Risk is seen as both bad and good to be managed equally	Risk is good but unacceptable in some circumstances	Risk is very good and to be embraced at all costs
Transplant example	Declining all organ offers as '*no organ is ever risk-free*'	Declining most organ offers as '*no organ is risk-free*'	Accepting some organ offers but declining some as '*not every organ offer is better than no offer*'	Accepting most organ offers as '*any organ is better than no organ*' in majority of cases	Accepting all organ offers as '*any organ is better than no organ*'
Risk versus benefit scale	Risk >>> Benefit	Risk > Benefit	Risk = Benefit	Risk < Benefit	Risk <<< Benefit
Optimal attitude[a]	Problematic	Questionable	Good	Ideal	Problematic

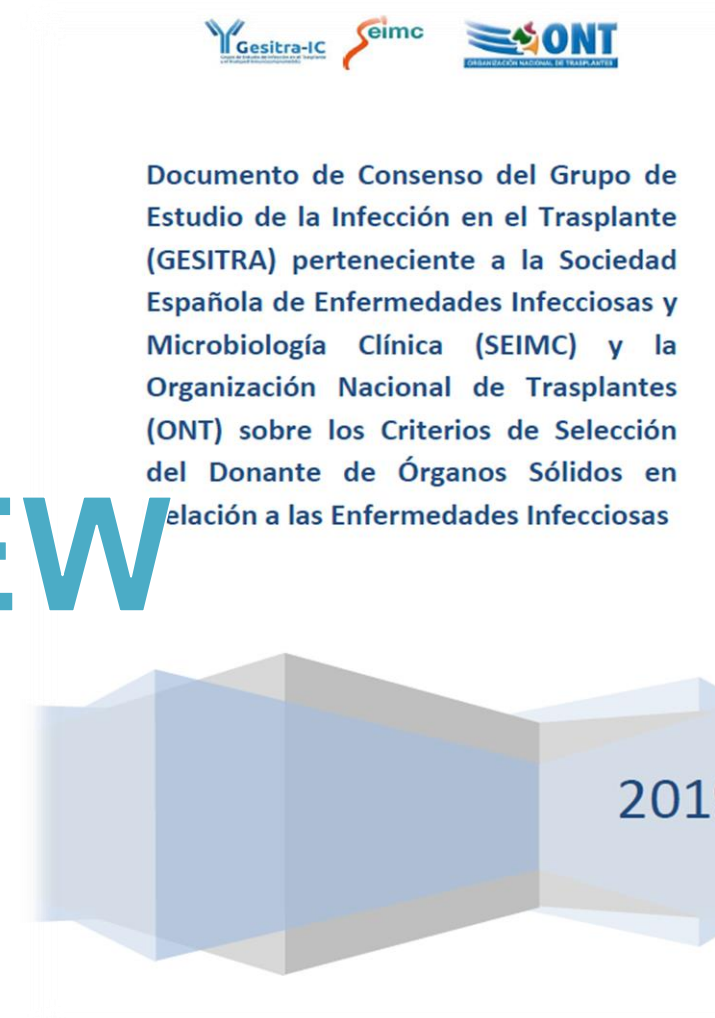
[a]Author opinion.

Sharif A. Risk Aversion, Organ Utilization and Changing Behavior. Transpl Int 2022; 35:10339. doi: 10.3389/ti.2022.10339.

SUPPORT TO THE SAFE USE OF NON-STANDARD RISK DONORS





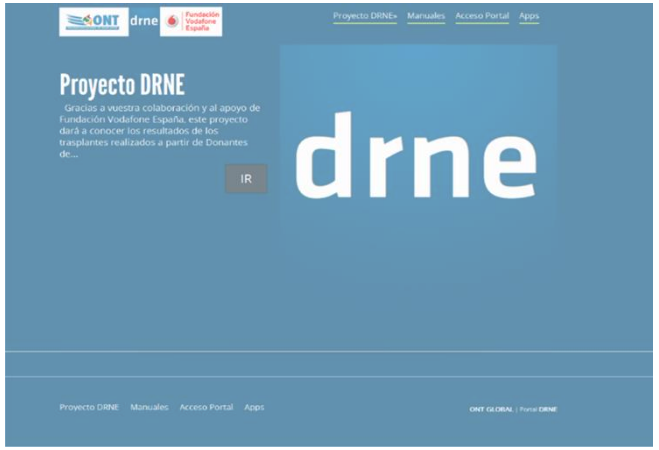


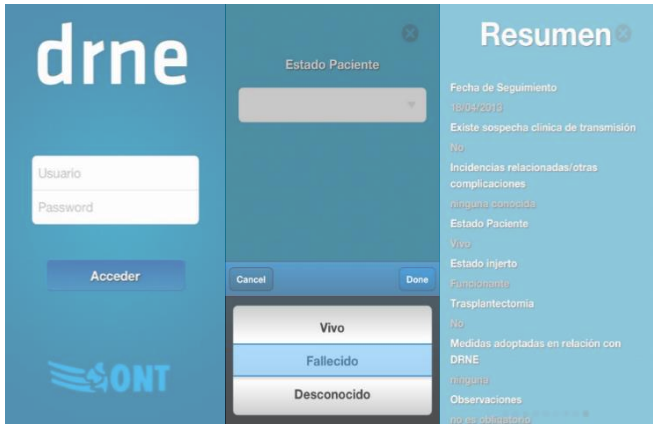
SYSTEM FOR SECOND OPINION

NSRD PROGRAM/ BIOVIGILANCE

Source: Organización Nacional de Trasplantes

SUPPORT TO THE SAFE USE OF NON-STANDARD RISK DONORS





NON-STANDARD RISK DONORS (KNOWN BEFORE TX)

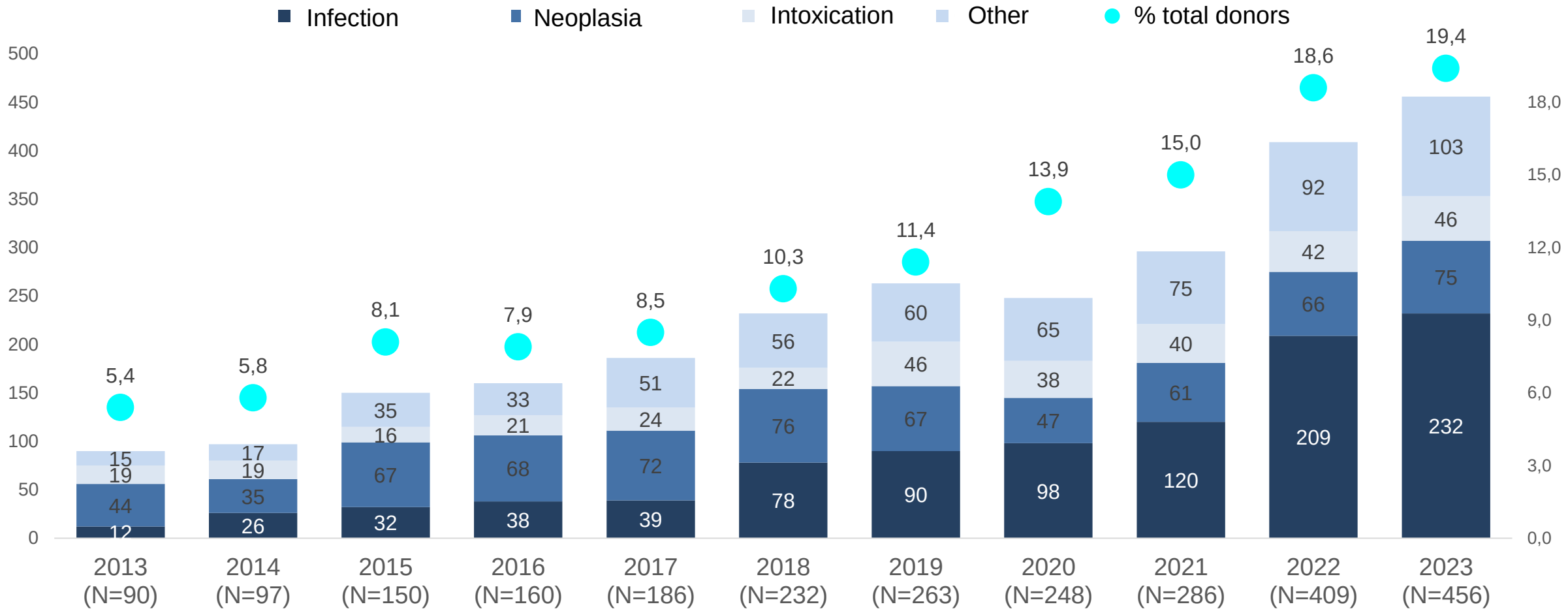
- ✓ Prospective follow-up of recipients
- ✓ Minimum data set
- ✓ Frequency depending on the conditions in the donor
- ✓ Coordinators/transplant teams
- ✓ Mobile devices/PC

BIOVIGILANCE (KNOWN AFTER TX)

- ✓ Alert
- ✓ Investigate
- ✓ Manage
- ✓ Prospective follow-up of recipients

Mahíllo B, et al. Transplantation. 2022 Apr 1. doi: 10.1097/TP.0000000000004117.

NON-STANDARD RISK DONORS IN SPAIN



12% of deceased donors were NSRD with > 5,500 transplants during 2013-2023

Source: Organización Nacional de Trasplantes

TRANSPLANTS FROM DONORS WITH CANCER. SPAIN 2013-2018

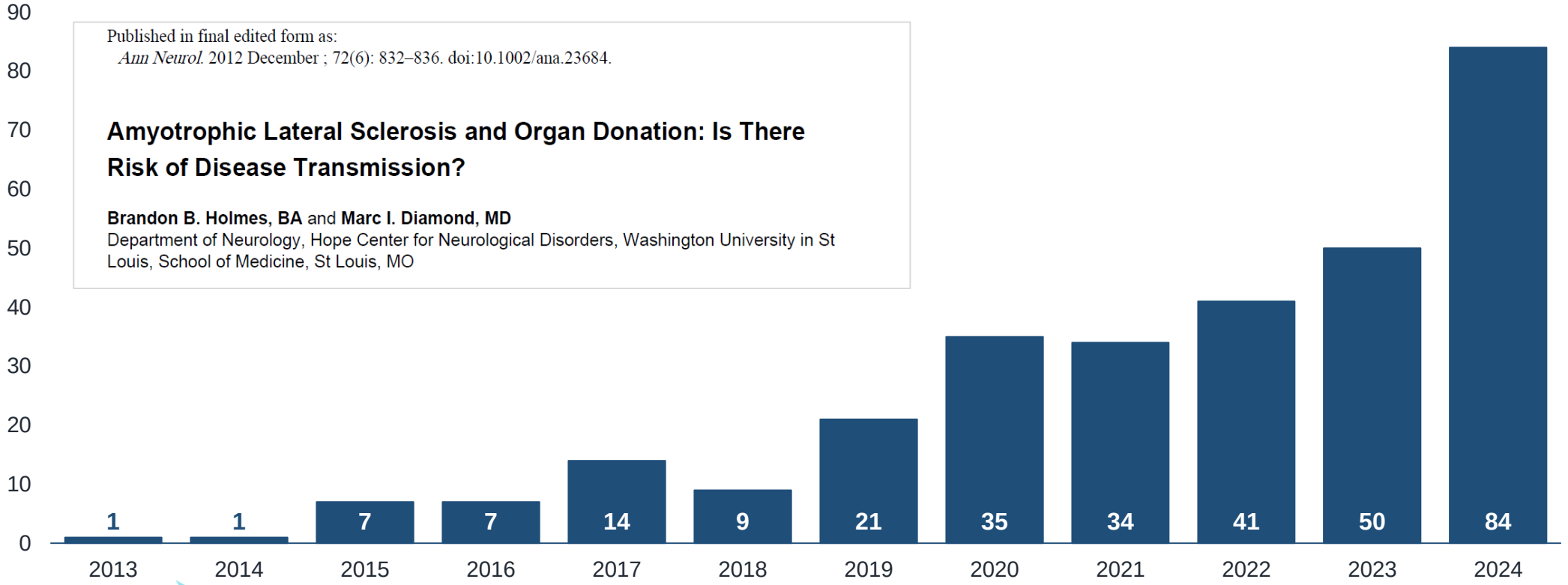
TUMOR (location in the donor)	DONORS WITH CANCER	RECIPIENTS AT RISK	RECIPIENTS WITH CONFIRMED DTC*	GRAFT LOSS RELATED TO DONOR CANCER**	RECIPIENT DEATH RELATED TO DONOR CANCER
ADENOCARCINOMA OMENTUM	1	2	0	1	0
BREAST	9	28	0	0	0
CHOLANGIOCARCINOMA	1	3	1	0	0
CNS (WHO I-IV)	104	279	0	0	0
COLO-RECTAL	10	18	0	0	0
DUODENAL	1	2	2	0	2
ESOPHAGEAL	1	4	0	0	0
GALLBLADDER	1	3	0	1	0
GASTRIC	3	9	0	0	0
GIST	6	12	0	0	0
HEAD AND NECK	14	25	0	0	0
HEMATOPOIETIC	16	31	0	0	0
LIVER	3	5	0	0	0
LUNG	8	21	9 (43%)	10	7
NEUROENDOCRINE	4	10	0	0	0
OVARIAN	1	2	0	0	0
PROSTATE	41	91	1	0	0
RCC	71	116	2	2	0
SUPRA-RENAL	6	18	0	0	0
TESTICULAR	2	5	0	0	0
THYROID	4	13	0	0	0
UROTHELIAL	18	39	0	0	0
UTERINE CERVIX	8	24	0	0	0
UTERUS	7	16	0	0	0
UNDIFFERENCIATED	1	1	1	1	0
OTHER	7	19	0	0	0
TOTAL	**349**	**802**	**16 (2%)**	**15 (2%)**	**9 (1%)**

DTC IN 6 / 10,000 TRANSPLANTS (ALL UNKOWN IN THE DONOR)

*Donor-origin classified as posible, probable or definite/certain.
**Includes 5 prophylactic transplantectomies.

Mahíllo B, et al. Transplantation. 2022 Apr 1. doi: 10.1097/TP.0000000000004117.

ORGAN DONORS WITH ALS IN SPAIN



Published in final edited form as:
Ann Neurol. 2012 December ; 72(6): 832–836. doi:10.1002/ana.23684.

Amyotrophic Lateral Sclerosis and Organ Donation: Is There Risk of Disease Transmission?

Brandon B. Holmes, BA and **Marc I. Diamond, MD**
Department of Neurology, Hope Center for Neurological Disorders, Washington University in St Louis, School of Medicine, St Louis, MO

- **304** actual donors (8 DBD & 296 DCD)
- **826 tx** (469 kidney, 212 liver, 3 liver-kidney**,** 100 lung, 26 heart & 16 pancreas-kidney)
- **NO SERIOUS ADVERSE REACTION RELATED TO THE DONOR´S CONDITION**

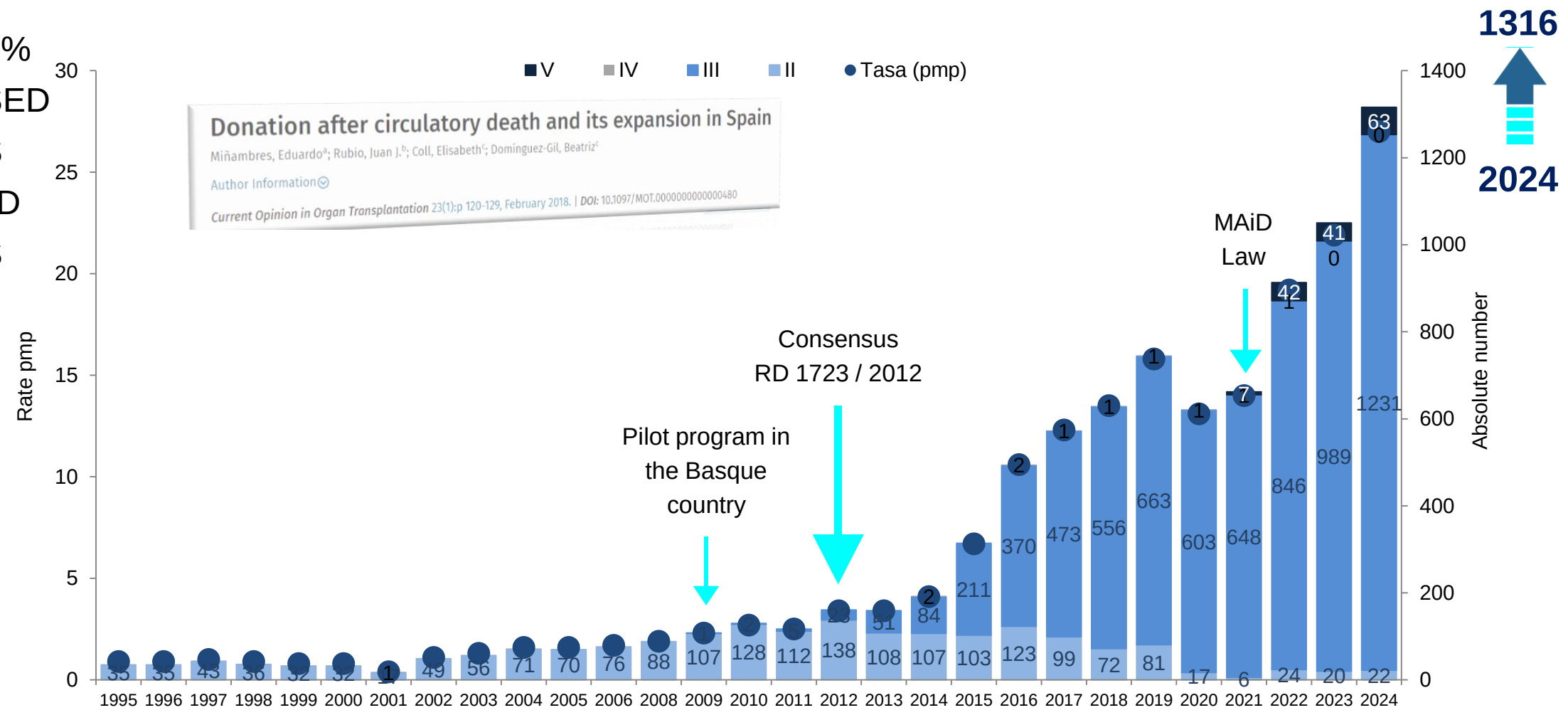
Source: Organización Nacional de Trasplantes

2

DONATION AFTER THE CIRCULATORY DETERMINATION OF DEATH

DONATION AFTER THE CIRCULATORY DETERMINATION OF DEATH IN SPAIN

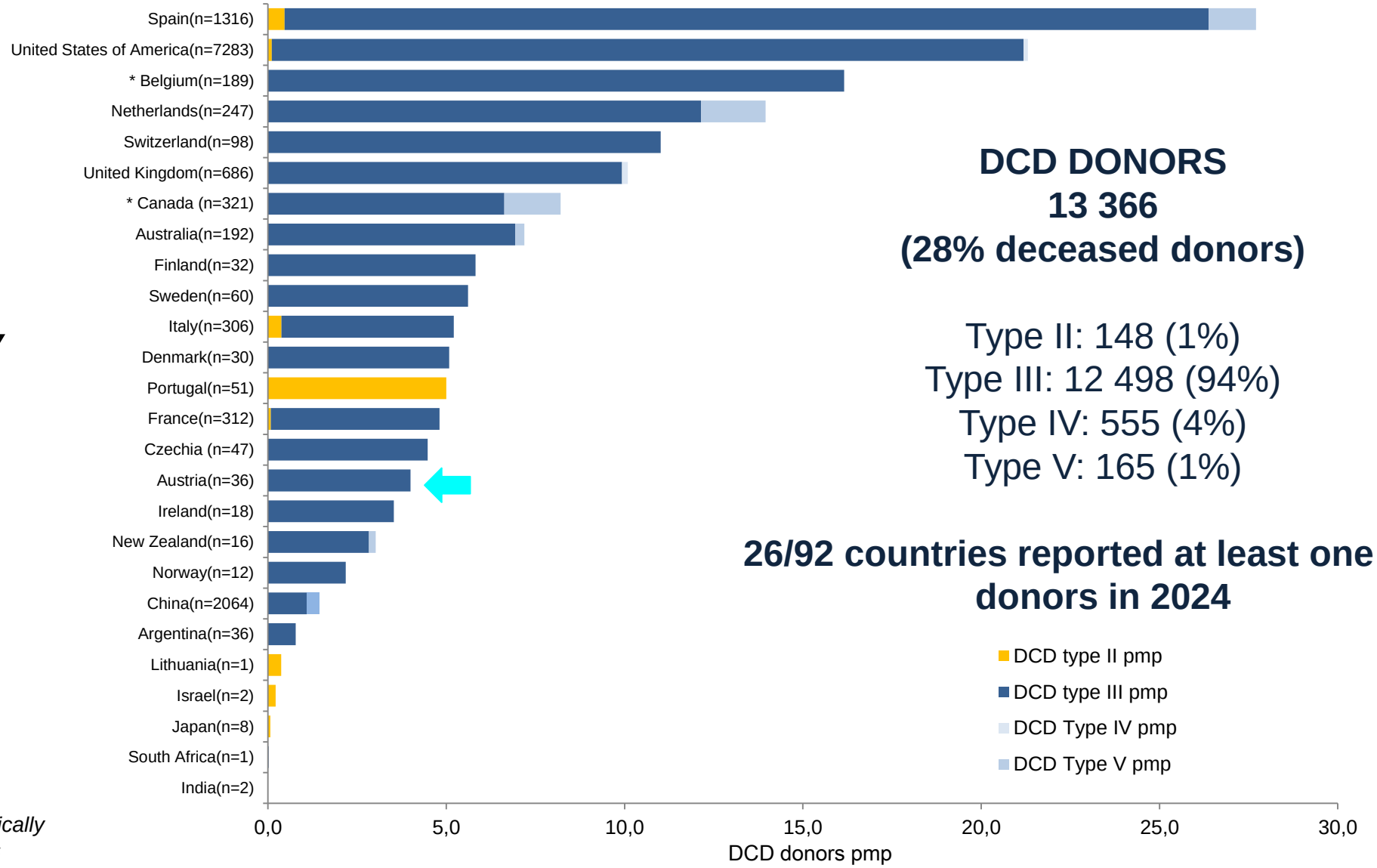
IN 2024, 51% OF DECEASED DONORS WERE DCD DONORS



Source: Organización Nacional de Trasplantes

DCD DONORS BY MAASTRICHT TYPE (PMP)

YEAR 2024



DCD DONORS
13 366
(28% deceased donors)

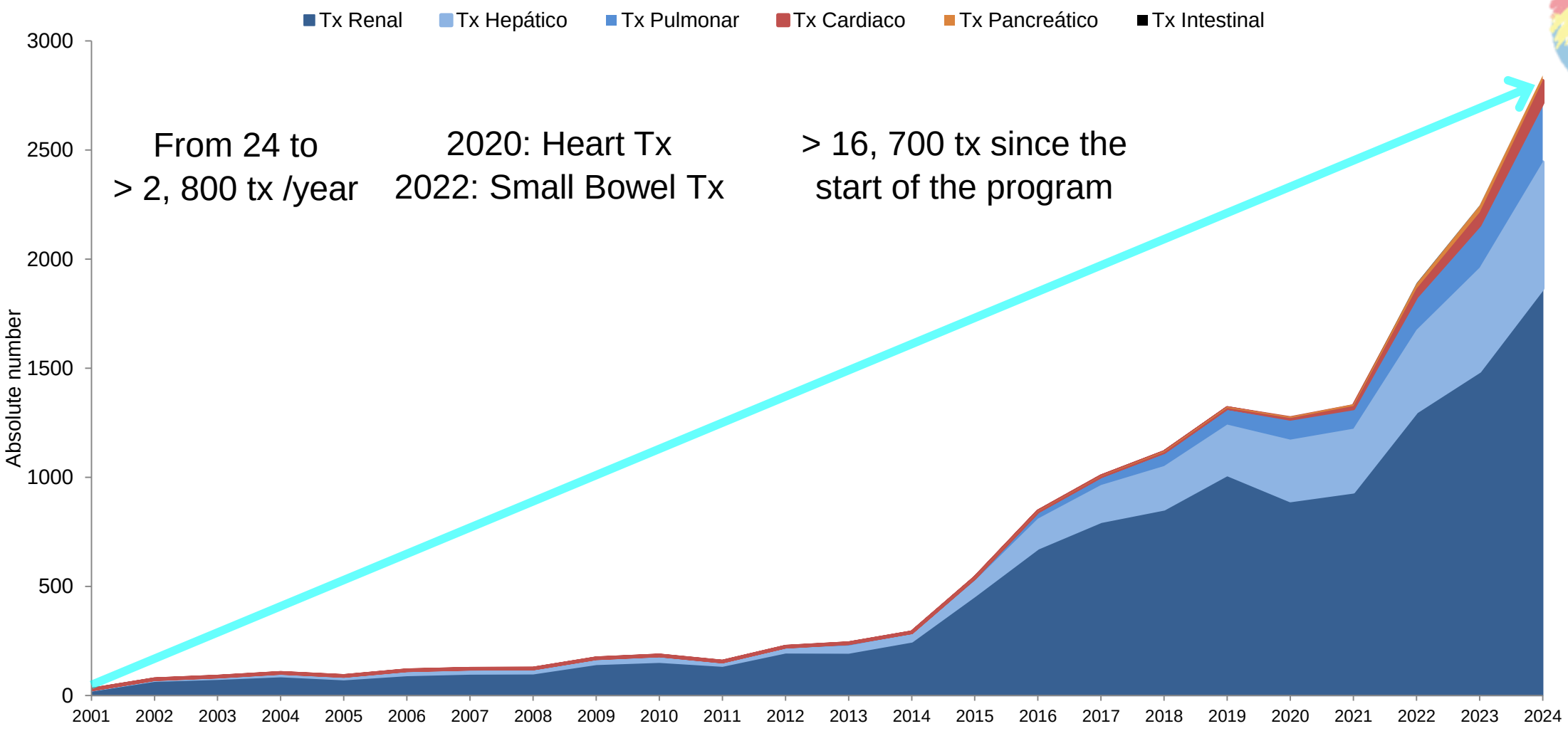
Type II: 148 (1%)
Type III: 12 498 (94%)
Type IV: 555 (4%)
Type V: 165 (1%)

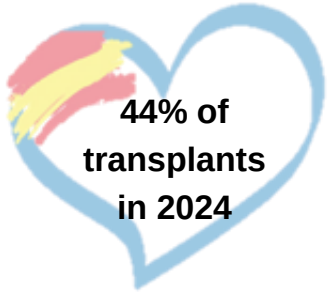
26/92 countries reported at least one DCD donors in 2024

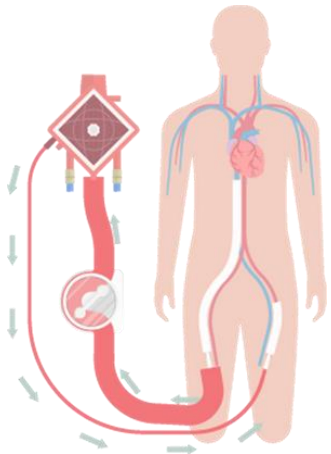
** Data on type III DCD donors not specifically reported, but inferred from other sources*

Source: Global Observatory on Donation and Transplantation (GODT: https://www.transplant-observatory.org/)

TRANSPLANTS FROM DCD DONORS IN SPAIN

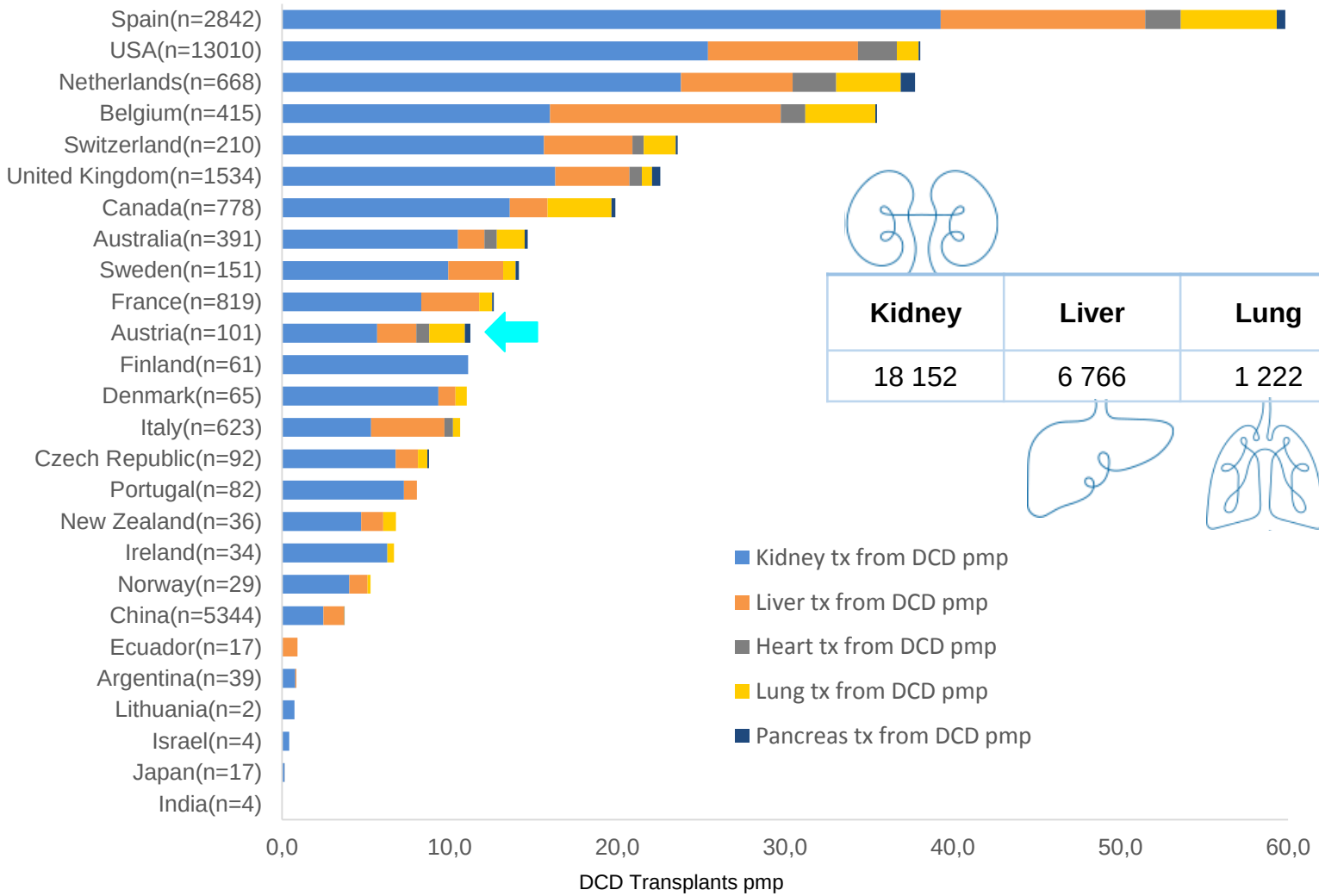






Source: Organización Nacional de Trasplantes

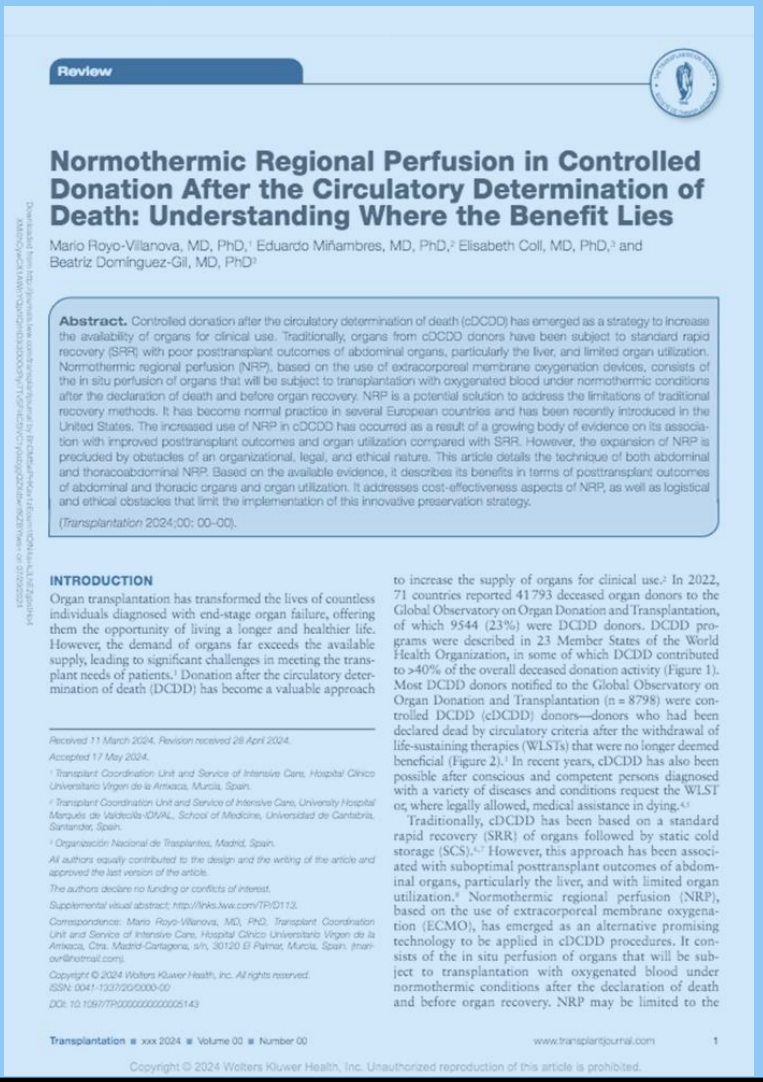
TRANSPLANTS FROM DCD DONORS BY ORGAN TYPE (PMP). YEAR 2024



Kidney	Liver	Lung	Heart	Pancreas	Small bowel	Total
18 152	6 766	1 222	1 073	154	1	27 368

Source: Global Observatory on Donation and Transplantation (GODT: https://www.transplant-observatory.org/)

THE REVOLUTION OF NRP IN DCD



Review

Normothermic Regional Perfusion in Controlled Donation After the Circulatory Determination of Death: Understanding Where the Benefit Lies

Mario Royo-Villanova, MD, PhD,[1] Eduardo Miñambres, MD, PhD,[2] Elisabeth Coll, MD, PhD,[3] and Beatriz Domínguez-Gil, MD, PhD[3]

Abstract. Controlled donation after the circulatory determination of death (cDCDD) has emerged as a strategy to increase the availability of organs for clinical use. Traditionally, organs from cDCDD donors have been subject to standard rapid recovery (SRR) with poor posttransplant outcomes of abdominal organs, particularly the liver, and limited organ utilization. Normothermic regional perfusion (NRP), based on the use of extracorporeal membrane oxygenation devices, consists of the in situ perfusion of organs that will be subject to transplantation with oxygenated blood under normothermic conditions after the declaration of death and before organ recovery. NRP is a potential solution to address the limitations of traditional recovery methods. It has become normal practice in several European countries and has been recently introduced in the United States. The increased use of NRP in cDCDD has occurred as a result of a growing body of evidence on its association with improved posttransplant outcomes and organ utilization compared with SRR. However, the expansion of NRP is precluded by obstacles of an organizational, legal, and ethical nature. This article details the technique of both abdominal and thoracoabdominal NRP. Based on the available evidence, it describes its benefits in terms of posttransplant outcomes of abdominal and thoracic organs and organ utilization. It addresses cost-effectiveness aspects of NRP, as well as logistical and ethical obstacles that limit the implementation of this innovative preservation strategy.

(*Transplantation* 2024;00: 00–00).

INTRODUCTION

Organ transplantation has transformed the lives of countless individuals diagnosed with end-stage organ failure, offering them the opportunity of living a longer and healthier life. However, the demand of organs far exceeds the available supply, leading to significant challenges in meeting the transplant needs of patients.[1] Donation after the circulatory determination of death (DCDD) has become a valuable approach to increase the supply of organs for clinical use.[2] In 2022, 71 countries reported 41 793 deceased organ donors to the Global Observatory on Organ Donation and Transplantation, of which 9544 (23%) were DCDD donors. DCDD programs were described in 23 Member States of the World Health Organization, in some of which DCDD contributed to >40% of the overall deceased donation activity (Figure 1). Most DCDD donors notified to the Global Observatory on Organ Donation and Transplantation (n = 8798) were controlled DCDD (cDCDD) donors—donors who had been declared dead by circulatory criteria after the withdrawal of life-sustaining therapies (WLSTs) that were no longer deemed beneficial (Figure 2).[3] In recent years, cDCDD has also been possible after conscious and competent persons diagnosed with a variety of diseases and conditions request the WLST or, where legally allowed, medical assistance in dying.[4,5]

Traditionally, cDCDD has been based on a standard rapid recovery (SRR) of organs followed by static cold storage (SCS).[6,7] However, this approach has been associated with suboptimal posttransplant outcomes of abdominal organs, particularly the liver, and with limited organ utilization.[8] Normothermic regional perfusion (NRP), based on the use of extracorporeal membrane oxygenation (ECMO), has emerged as an alternative promising technology to be applied in cDCDD procedures. It consists of the in situ perfusion of organs that will be subject to transplantation with oxygenated blood under normothermic conditions after the declaration of death and before organ recovery. NRP may be limited to the

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All authors equally contributed to the design and the writing of the article and approved the last version of the article.

The authors declare no funding or conflicts of interest.

Supplemental visual abstract; http://links.lww.com/TP/D113.

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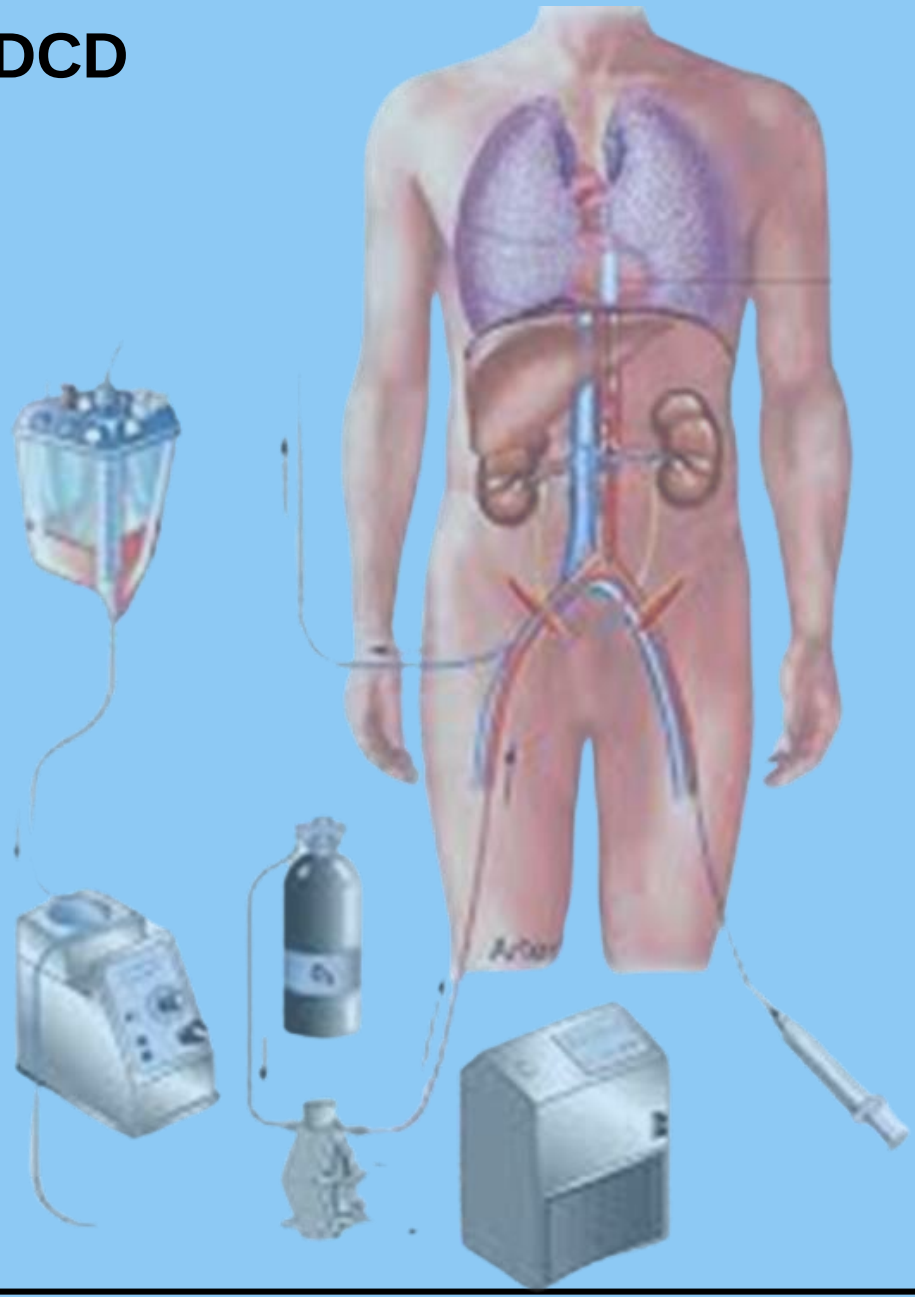
DOI: 10.1097/TP.0000000000005143

The use of the ECMO technology for the *in situ* perfusion of organs was conceived in Spain during the 90s for the practice of uDCD



ONT
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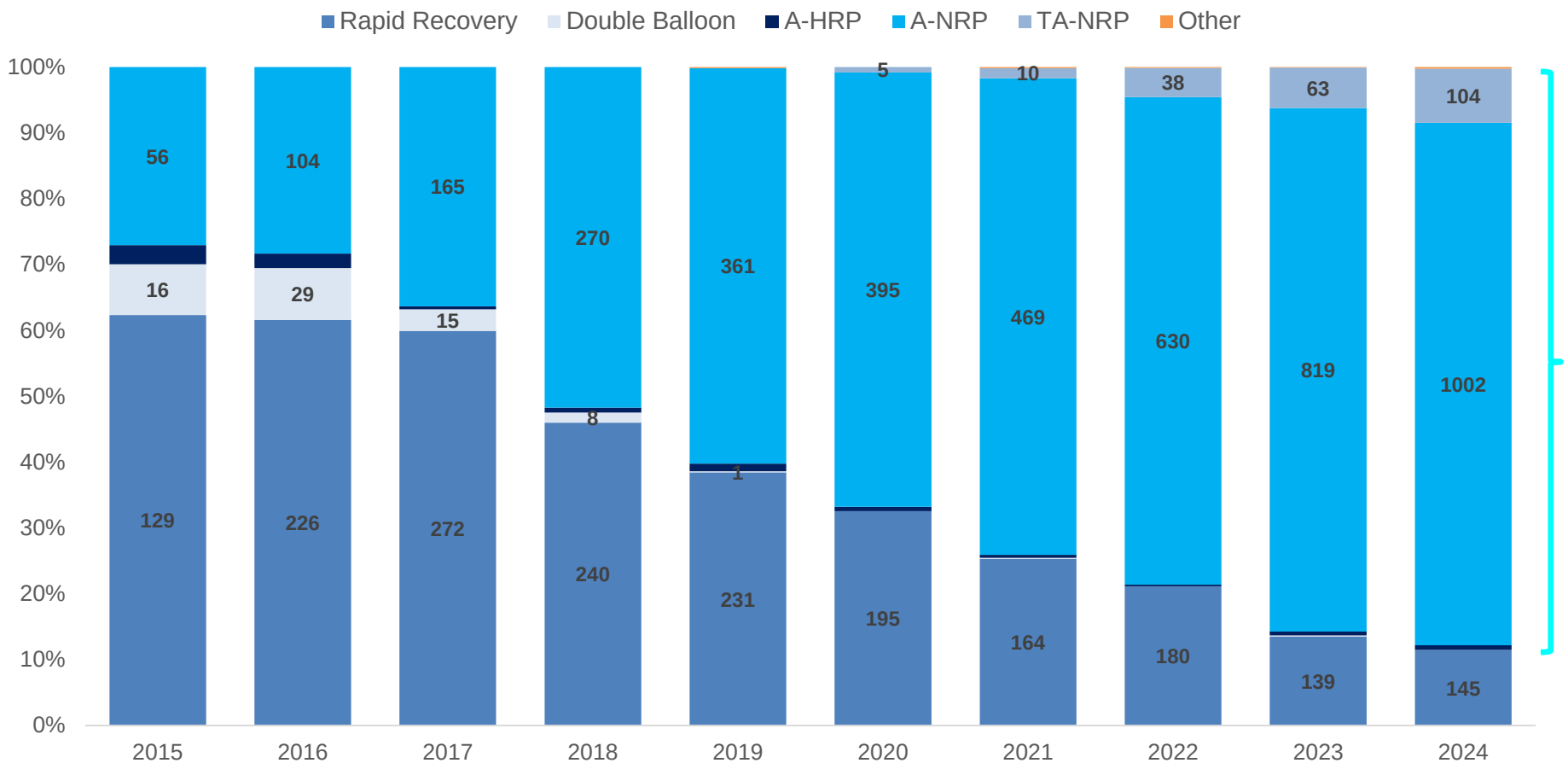
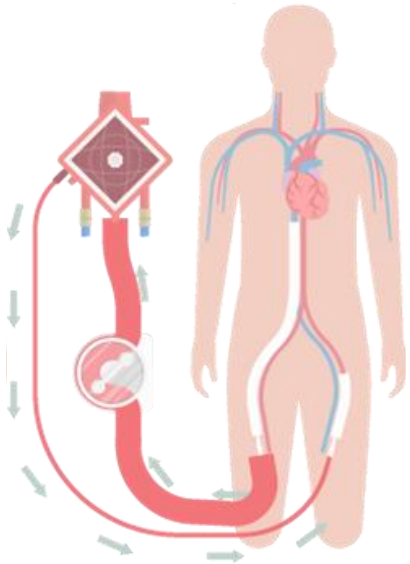
IN SITU PRESERVATION AND RECOVERY OF cDCD ORGANS IN SPAIN



IN 2024, ≈ 90% OF cDCD PROCEDURES WERE PERFORMED WITH A-NRP OR TA-NRP

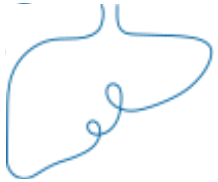
≈4 300 A-NRP & 220 TA-NRP PROCEDURES IN A DECADE

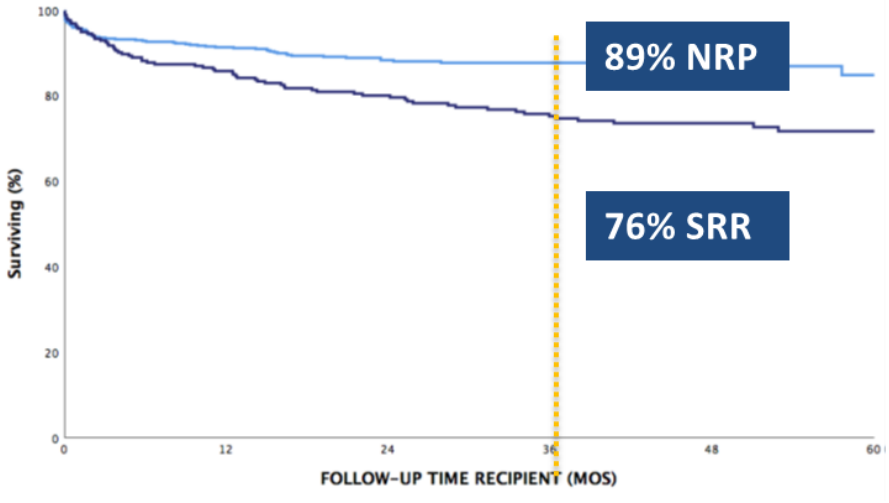


Source: Organización Nacional de Trasplantes

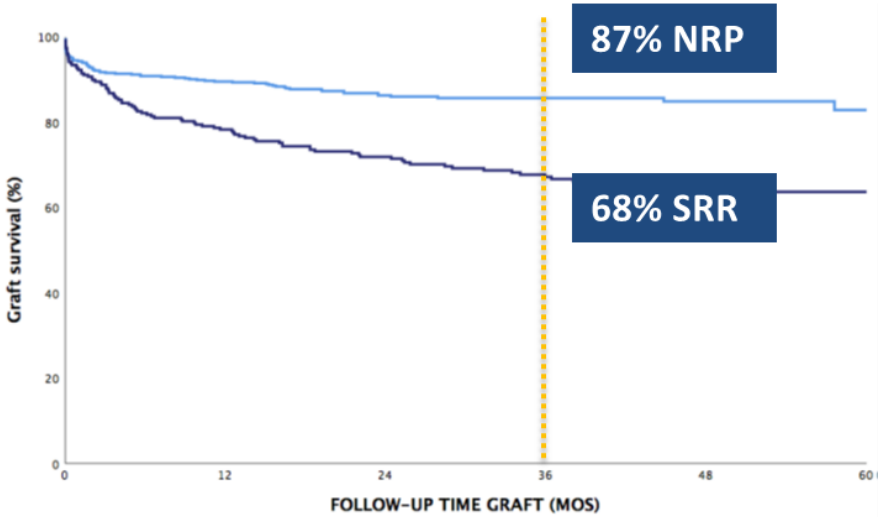
cDCD LIVER TRANSPLANTATION. SPAIN 2012-2019

803 cDCDD LIVER TX 2012-2019:
NRP: 545
SRR: 258

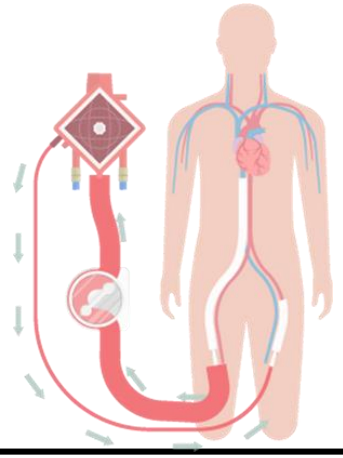




No. at risk	0	12	24	36	48	60
NRP	545	498	320	181	92	34
SRR	258	220	180	142	99	49



No. at risk	0	12	24	36	48	60
NRP	545	488	316	179	91	34
SRR	258	202	167	130	88	41

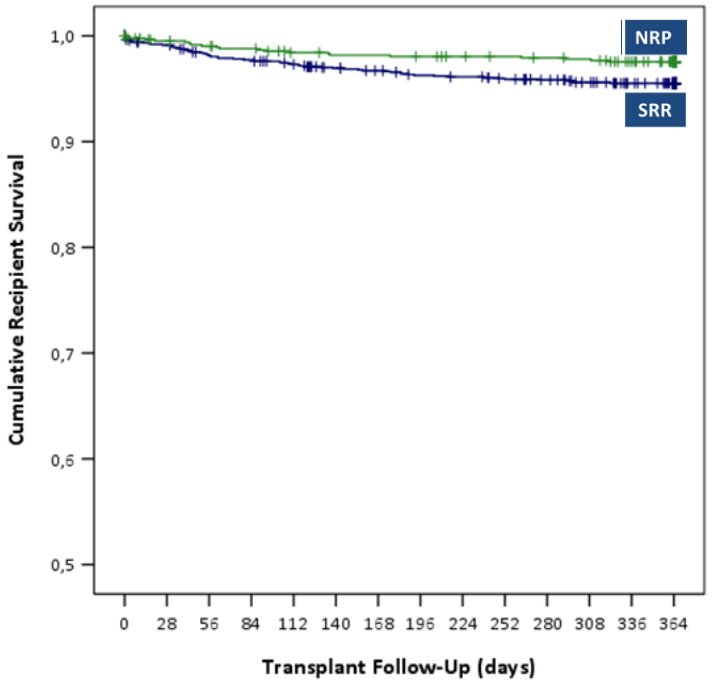


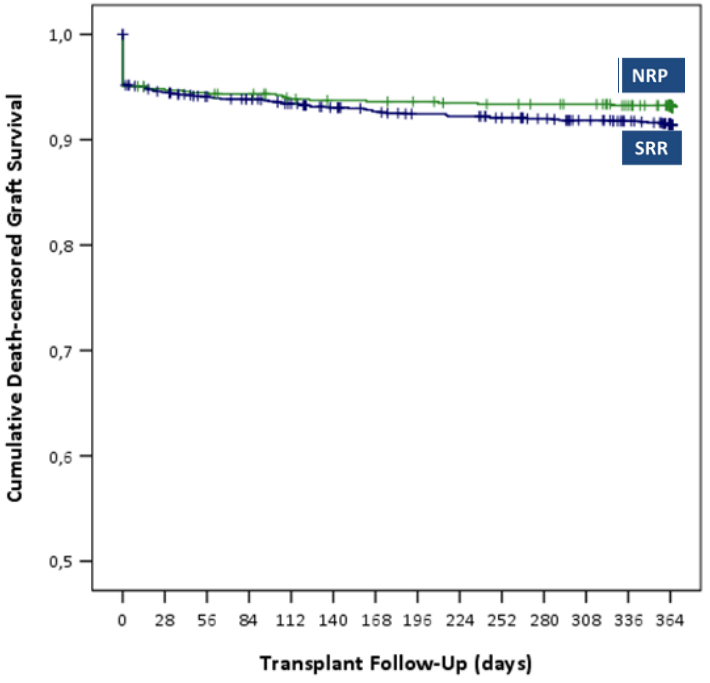
	NRP (N=545)	SRR (N=258)	Unadjusted Risks estimate (95% CI)[2]	*P* value	Adjusted[1] Risks estimate (95% CI)[2]	*P* value
EAD (%)	81 (15)	60 (23)	0.576 (0.397-0.837)	**0.004**	0.562 (0.363-0.871)	**0.010**
PNF (%)	16 (3)	15 (6)	0.490 (0.238-1.007)	0.052	0.573 (0.252-1.303)	0.184
HAT (%)	22 (4)	19 (7)	0.529 (0.281-0.996)	**0.049**	0.452 (0.219-0.932)	**0.032**
All biliary complications (%)[3]	63 (12)	75 (29)	0.319 (0.219-0.464)	**<0.001**	0.300 (0.197-0.459)	**<0.001**
ITBL (%)	6 (1)	24 (9)	0.109 (0.044-0.269)	**<0.001**	0.112 (0.042-0.299)	**<0.001**
Re-transplantation (%)	19 (3.5)	31 (12)	0.265 (0.146-0.478)	**<0.001**	0.279 (0.147-0.531)	**<0.001**
Graft loss (%)	77 (14)	88 (34)	0.422 (0.311-0.574)	**<0.001**	0.371 (0.267-0.516)	**<0.001**
Patient death (%)	65 (12)	66 (26)	0.494 (0.350-0.696)	**<0.001**	0.540 (0.373-0.781)	**0.001**

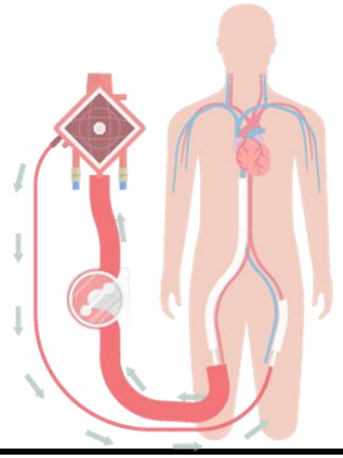
Hessheimer AJ. et al. Am J Transplant. 2021 Dec 2. doi: 10.1111/ajt.16899.

cDCD KIDNEY TRANSPLANTATION. SPAIN 2012-2018

2.302 CDCD KIDNEY TX 2012-2018:
NRP: 865
SRR: 1, 437







	UNIVARIATE				ADJUSTED				PSM				
	P	OR	CI95%		P	OR	CI95%		ATT (%)	P	OR	CI95%	
Primary non function	0.637	0.91	0.6	1.36	0.426	1.26	0.71	2.22	(6.6 vs. 4.7)	0.261	1.44	0.73	2.91
Delayed graft function	<0.001	2.16	1.79	2.6	<0.001	2.1	1.6	2.78	(45.4 vs. 29.7)	<0.001	1.97	1.43	2.72
		HR				HR					OR		
1-year graft loss	0.165	1.25	0.91	1.72	0.051	1.49	1	2.28	(9.9 vs. 5.8)	0.034	1.77	1.01	3.17
1-year patient death	0.017	1.85	1.12	3.07	0.055	1.83	0.99	3.46	(4.3 vs.2.3)	0.111	1.93	0.8	4.97

Padilla M. et al Am J Transplant 2021. Apr 23. doi: 10.1111/ajt.16622

Emma, una española de 13 meses, la primera en el mundo en recibir un trasplante de intestino en asistolia

11/10/2022

La niña fue dada de alta del Hospital madrileño de La Paz y se encuentra en perfecto estado de salud en su domicilio

ABC Salud

American Journal of Transplantation 23 (2023) 577–581

Contents lists available at ScienceDirect

American Journal of Transplantation

journal homepage: www.amjtransplant.org

Case Report

First case report of multivisceral transplant from a deceased cardiac death donor

Ane M. Andres[1,2,3,4,*], Jose Luis Encinas[1], Alba Sánchez-Galán[1], Javier Serradilla Rodríguez[1,2], Karla Estefania[1], Rocio Gonzalez Sacristan[5], Alida Alcolea[5], Pilar Serrano[5], Belén Estébanez[6], Iñigo Velasco Leon[7,8], Paula Burgos[7,8], Alvaro Gonzalez Rocafort[8], Bunty Ramchandani[8], Belén Calderón[9], Cristina Verdú[9], Esperanza Jimenez[10], Paloma Talayero[11], Pablo Stringa[12], Itziar de la Peña Navarro[13], Esther Ramos[5], Francisco Hernandez Oliveros[1,2,3]

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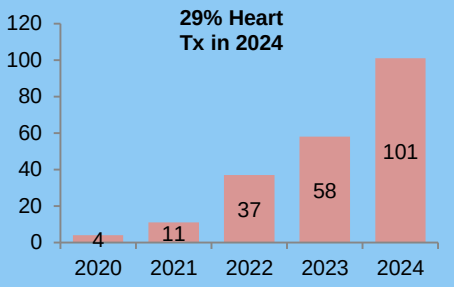
cDCD HEART TRANSPLANTATION. SPAIN 2020-2024

211 (22 ped)



Source: Organización Nacional de Trasplantes

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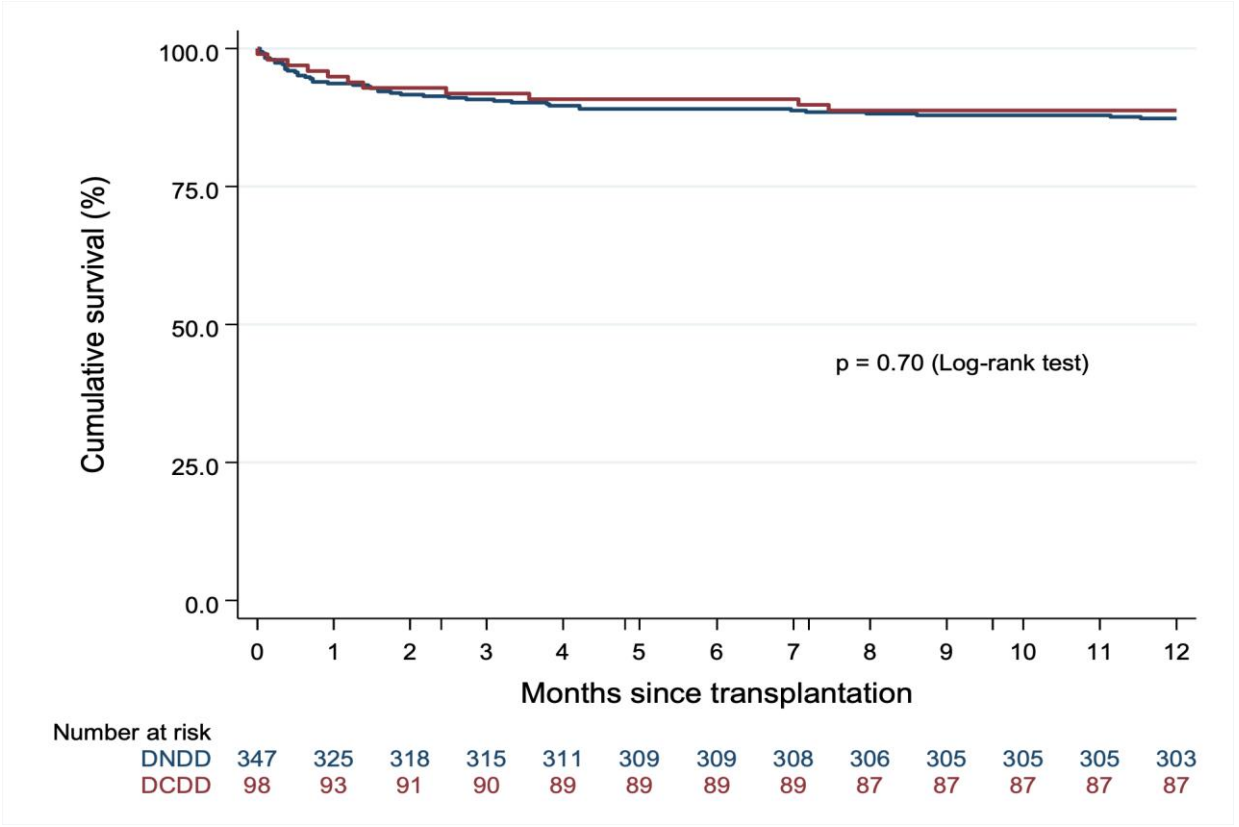
cDCD HEARTS RECOVERED VIA TA-NRP FOLLOWED BY SCS SHOW EQUIVALENT OUTCOMES *vs* DBD HEARTS

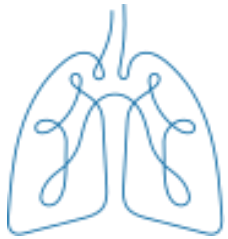
98 TA-NRP DCD *vs*
347 DBD HEART TX
11 centers in Spain
(adult cases, 2020-2023)

The primary outcome (composite of 1-year all-cause death or severe PGF) was met by 21 (21.4%) and 77 (22.2%) patients, respectively (p=0.87). Thirty-day and 1-year survival were 94.9% and 88.8% in the DCD *vs* 93.7% and 87.3% in the DBD group (p=0.70). Severe PGF was observed in 13 (13.3%) *vs* 52 (15.0%) patients (p=0.67). **By inverse probability weighting, the DCD heart was not associated with the primary outcome** (HR 0.97;95%CI 0.58-1.62;p=0.91).



Pérez-Blanco A, et al. Am J Transplant. 2025 Feb 22:S1600-6135(25)00082-6. doi: 10.1016/j.ajt.2025.02.006.

APPROPRIATE OUTCOMES OF LUNG TX WHEN A-NRP IS USED IN cDCD



SPAIN 2015-2020

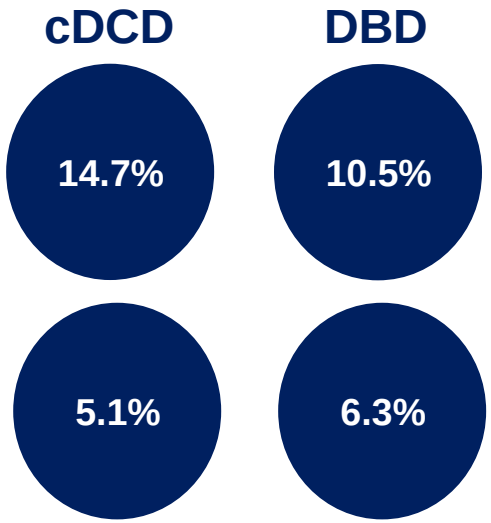
170 cDCD A-NRP *vs*
1, 579 DBD lung transplants

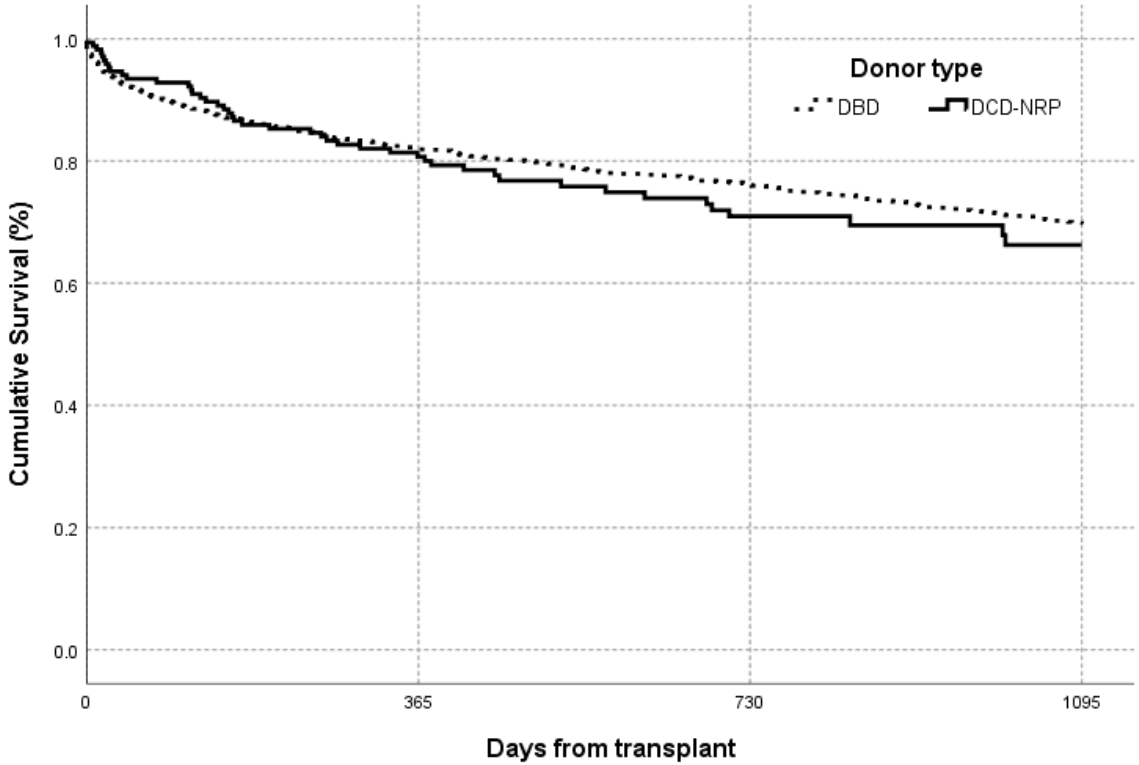
PGD GRADE 3 AT 72 HOURS

***P* = 0.139**

MORTALITY AT 30 DAYS

***P* = 0.502**

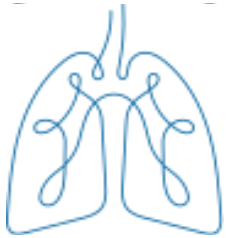




	Survival probability (number at risk)		
	1 month	1 year	3 years
DBD (N=1579)	93.7 (N=1456)	81.9 (N=1221)	69.7 (N=696)
DCD-NRP (N=170)	94.7 (N=155)	80.7 (N=118)	66.2 (N=35)

Campo-Cañaveral de la Cruz JL, et al. Am J Transplant 2023;23(7):996-1008. doi: 10.1016/j.ajt.2023.04.016.

APPROPRIATE OUTCOMES OF LUNG TX WHEN TA-NRP IS USED IN cDCD



SPAIN 2021-2023

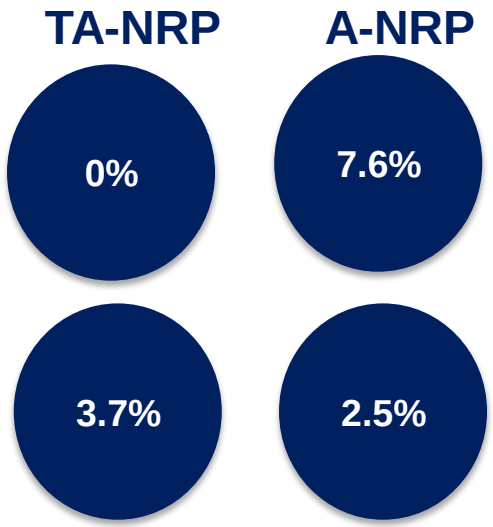
28 cDCD TA-NRP *vs*
255 cDCD A-NRP

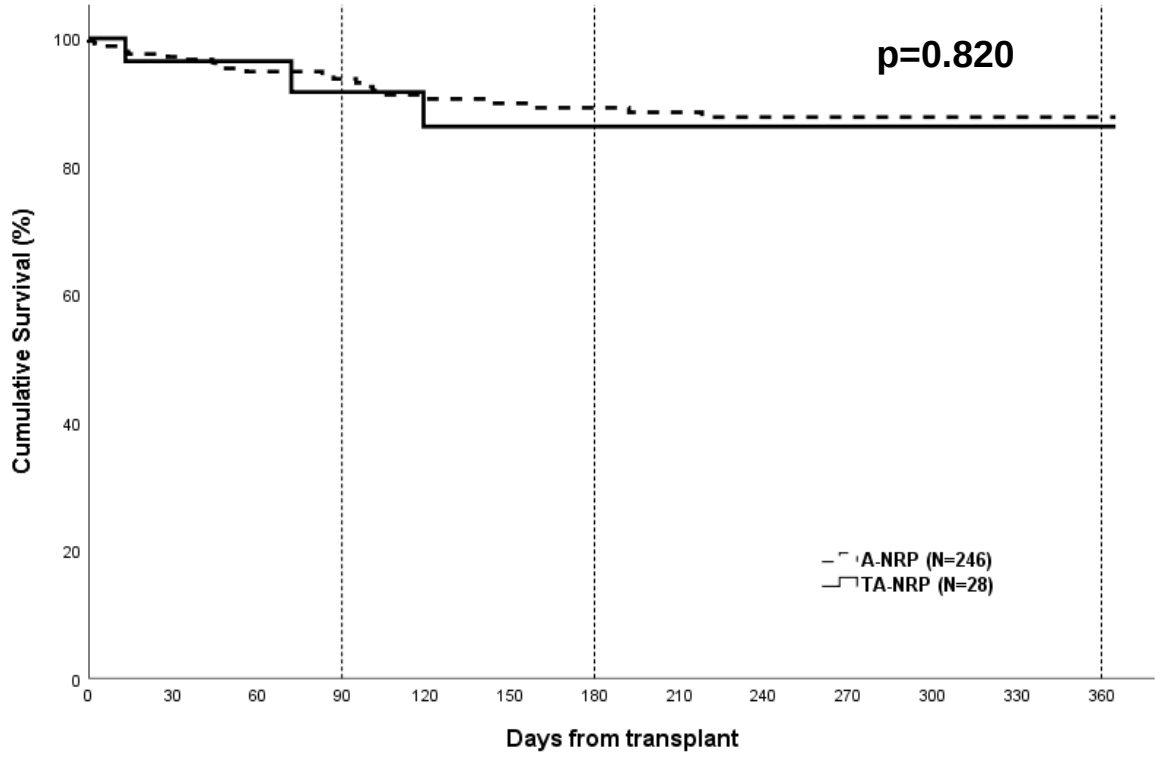
PGD GRADE 3 AT 72 HOURS

***P* = 0.231**

MORTALITY AT 30 DAYS

***P* = 0.529**





	3 months	6 months	1 year
A-NRP	93.7% (161)	89.2% (127)	87.7% (93)
TA-NRP	91.6% (17)	86.2% (15)	86.2% (11)

Minasyan A, et al. J Heart Lung Transplant. 2024 Sep 30:S1053-2498(24)01870-9. doi: 10.1016/j.healun.2024.09.018.

p=0.820

cDCD PROVIDES THE OPPORTUNITY TO DONATE TO PATIENTS OTHER THAN THOSE WITH A DEVASTATING BRAIN INJURY

cDCD

+DBD 

Devastating brain injury

- Emergency care
- Neurology
- Neurosurgery
- Internal medicine
- Oncology, neurology, palliative care (CNS neoplasia)

Lung disease

- Emergency care
- Pneumology
- Internal medicine

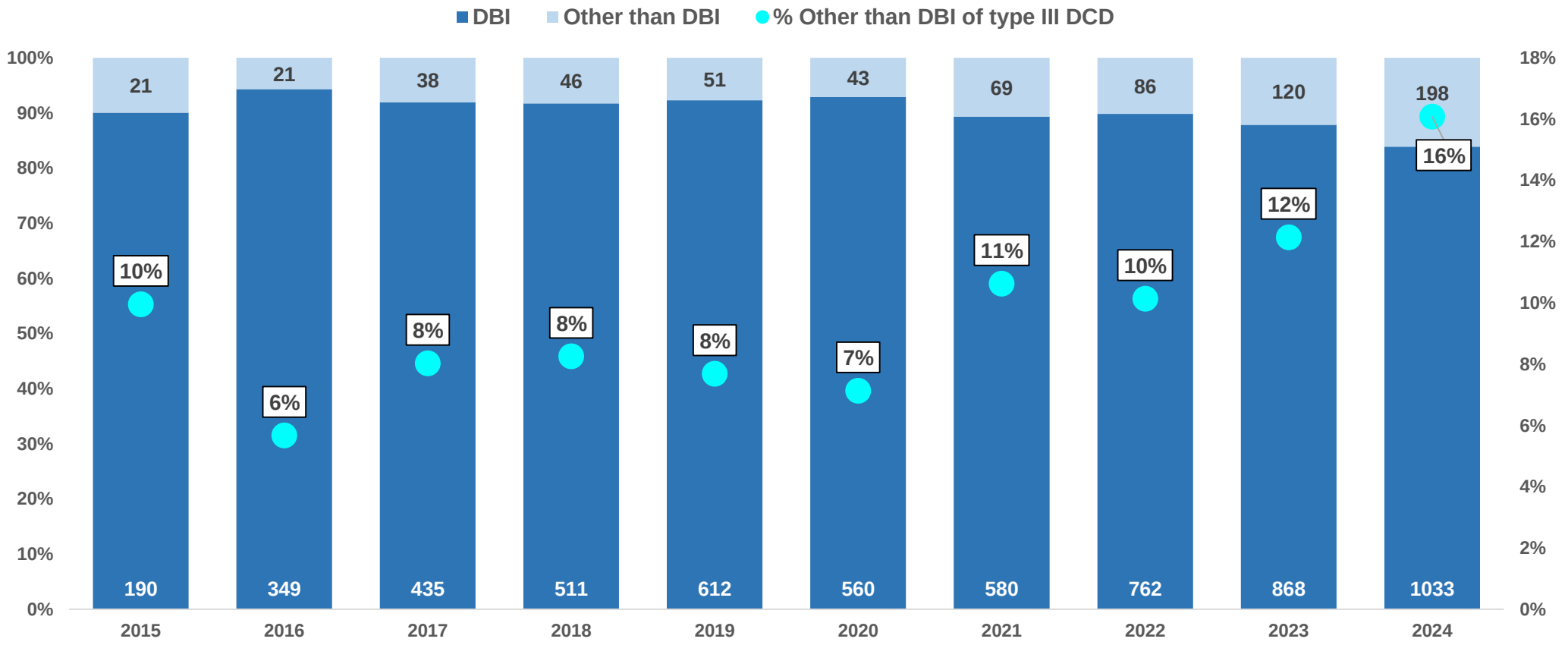
Heart disease

- Emergency care
- Cardiology
- Coronary unit
- Internal medicine

Neurodegenerative disease

- Neurology
- Pneumology
- Palliative care
- ALS units

TYPE III DCD DONORS DEAD AS A RESULT OF A DEVASTATING BRAIN INJURY vs OTHER CONDITIONS*. SPAIN 2015-2024



*Neurodegenerative, lung, heart and other diseases and conditions

Source: Organización Nacional de Trasplantes

3

INTENSIVE CARE TO FACILITATE ORGAN DONATION

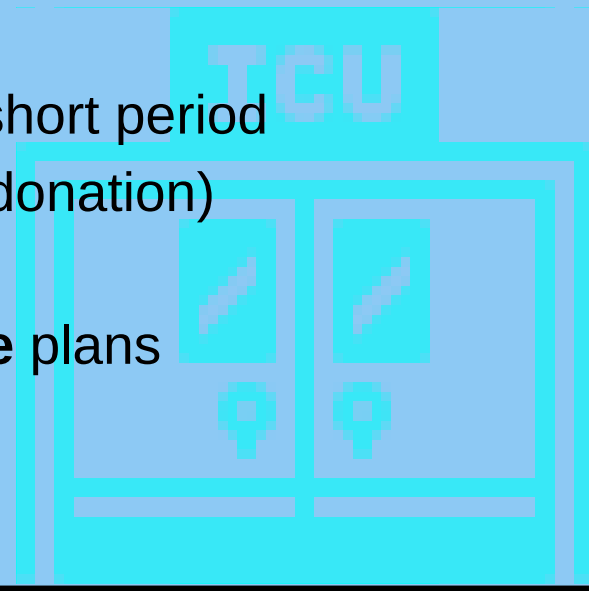
WHAT I TALK ABOUT WHEN I TALK ABOUT…
INTENSIVE CARE TO FACILITATE ORGAN DONATION

- the initiation or continuation of **intensive care measures** (e.g. admission to the ICU. respiratory support. hemodynamic support)

- in patients with **devastating brain injury** (imminent risk of death of a neurologic cause) in whom intensive care with a therapeutic purpose has been deemed futile

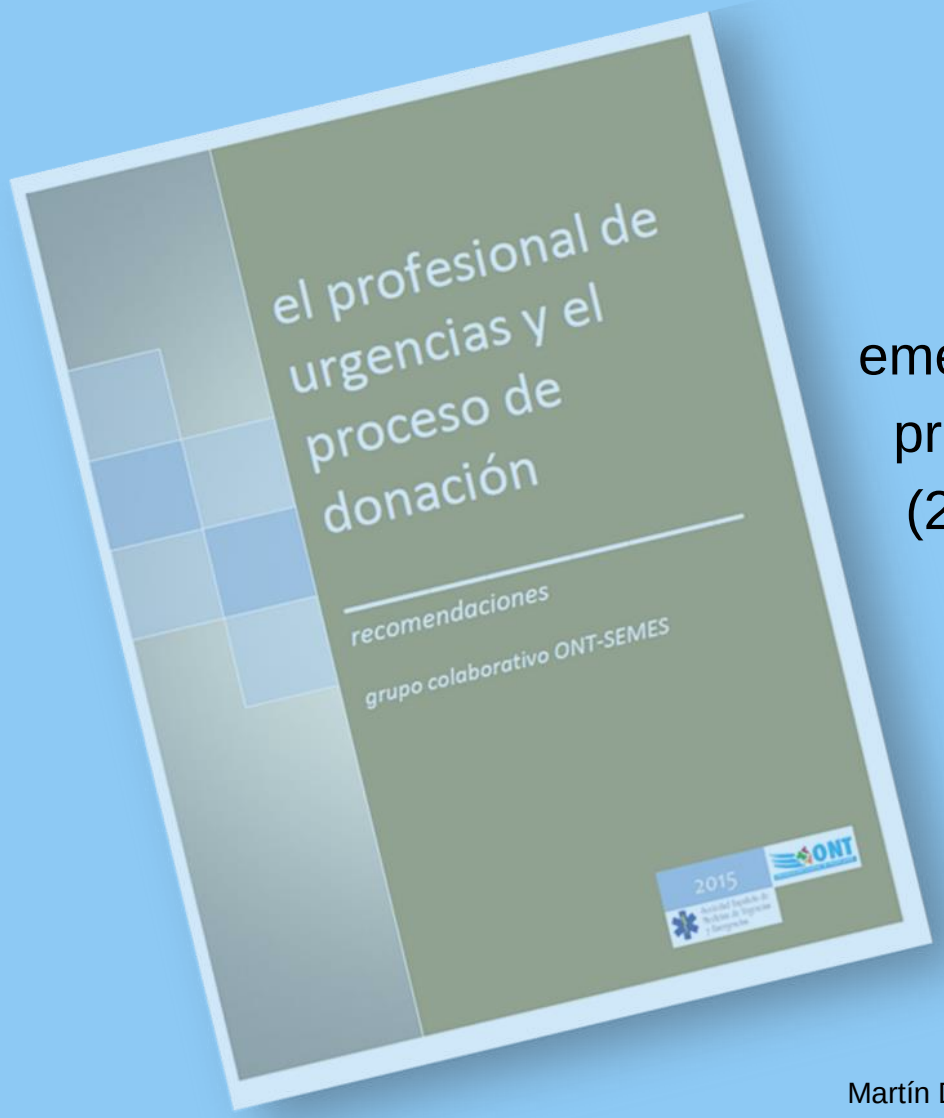
- who are **considered possible donors** (BD is likely to occur within a short period of time and there are no apparent medical contraindications to organ donation)

- in order to **incorporate the option of DBD into their end-of-life care** plans



Martín Delgado MC, et al. Am J Transplant 2019; 19(6):1782-1791

STANDARDS FOR THE PRACTICE OF ICOD

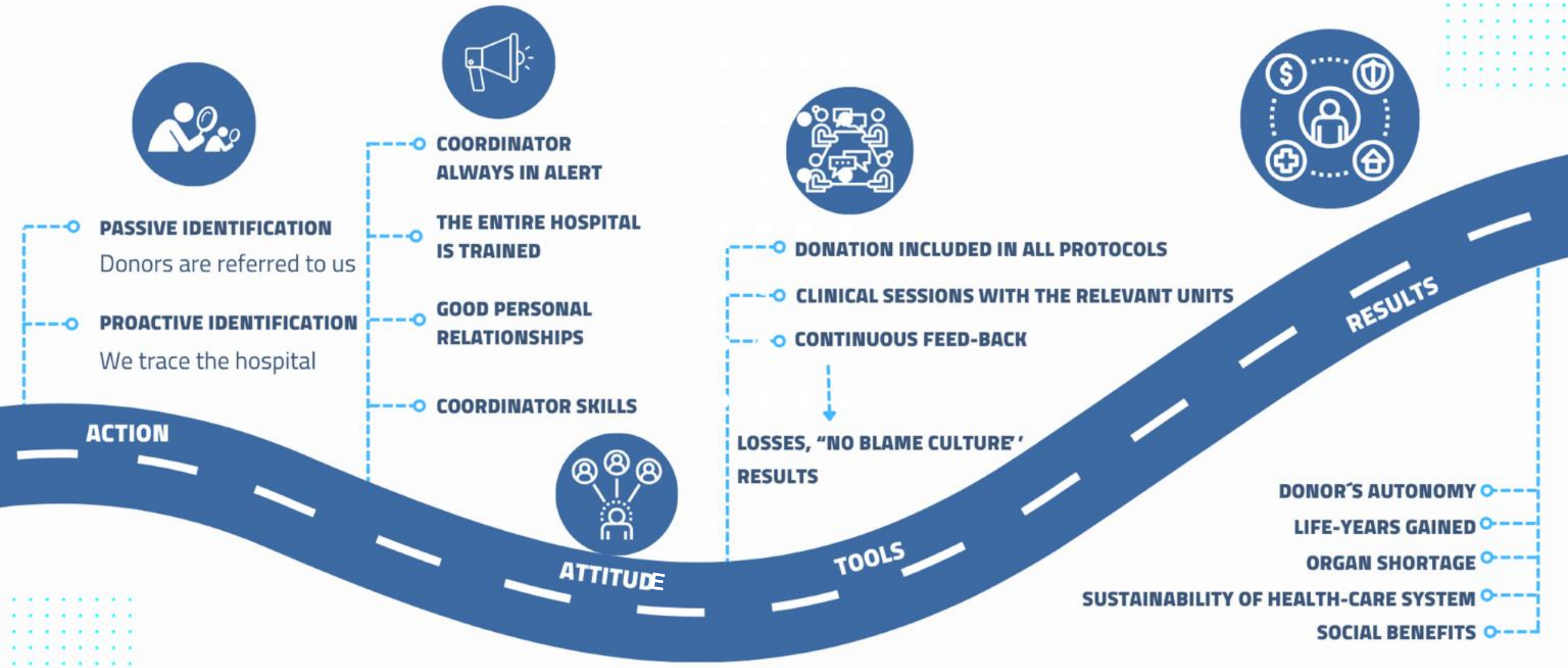


>11 000 emergency care professionals (2009-2024)

>2 000 residents in intensive care (2007-2024)

Martín Delgado MC, et al. Am J Transplant 2019; 19(6):1782-1791

HOW SHOULD THE DONOR COORDINATOR IDENTIFY POSSIBLE DONORS IN THE ENTIRE HOSPITAL?



Courtesy: Dr. Mario Royo-Villanova. Hospital Universitario Virgen de la Arrixaca. Murcia (Spain)

POTENTIAL DONOR AUDIT SPAIN 2023 (125 HOSPITALS)

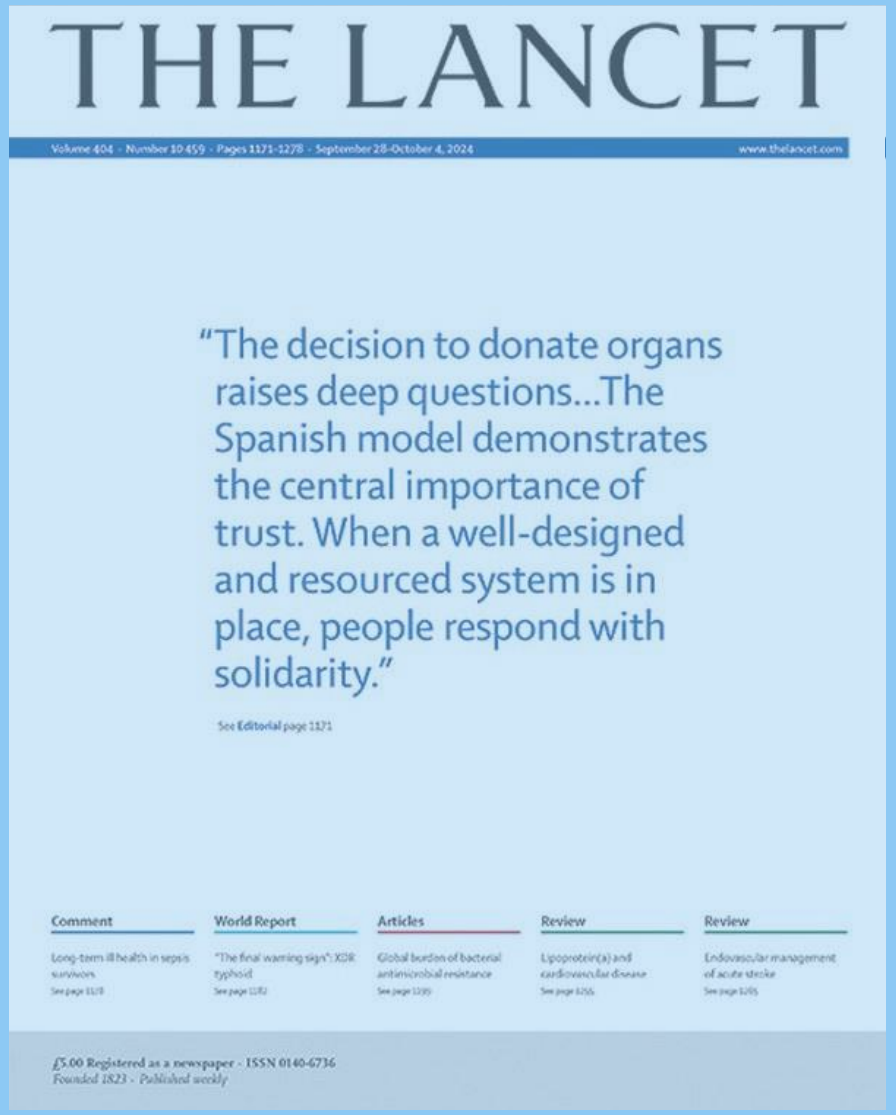
POSSIBLE DONORS (2023 DATA)					
DBD		Global*		DCD	
2, 000 (42%)		4, 780		2, 483* (52%)	
Medically unsuitability					
359	17.9%	1, 608	33.6%	1, 045	42.1%
Failure to identify and refer					
8	0.4%	64	1.3%	0	2.0%
Problems in donor management					
29	1.5%	91	1.9%	40	1.6%
Logistical problems					
4	0.2%	18	0.4%	11	0.4%
No suitable recipient					
20	1.0%	43	0.9%	22	0.9%
Consent declined					
295	14.8%	561	11.7%	240	9.7%
Coroner refusal					
16	0.8%	20	0.4%	3	0.1%
Other					
19	0.9%	117	2.4%	64	2.6%
BD diagnosis not completed				Out of protocol	
0				6	
ACTUAL DONORS					
DBD		Global		DCD	
1, 250	**62.5%**	**2, 258**	**47.2%**	**1, 008**	**40.6%**

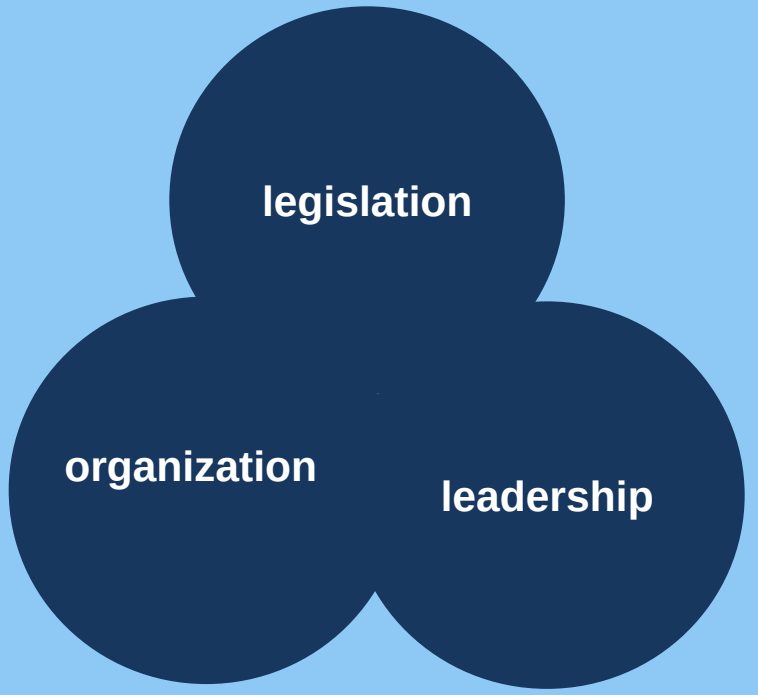
*195 no DBI

ICOD 33%

ICOD 37%

https://www.ont.es/wp-content/uploads/2024/10/MEMORIA-ANUAL-PROG.-GARANTIA-CALIDAD-2023.pdf





SPANISH MODEL DONATION & TRANSPLANTATION

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ORGANIZACIÓN NACIONAL DE TRASPLANTES

THANK YOU

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