# NEWSLETTER TRANSPLANT

## International figures on donation and transplantation 2018

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# INTERNATIONAL FIGURES ON ORGAN, TISSUE & HAEMATOPOIETIC STEM CELL DONATION & TRANSPLANTATION ACTIVITIES. DOCUMENTS PRODUCED BY THE COUNCIL OF EUROPE EUROPEAN COMMITTEE (PARTIAL AGREEMENT) ON ORGAN TRANSPLANTATION (CD-P-TO). YEAR 2018.

**Editor: Beatriz Domínguez-Gil**

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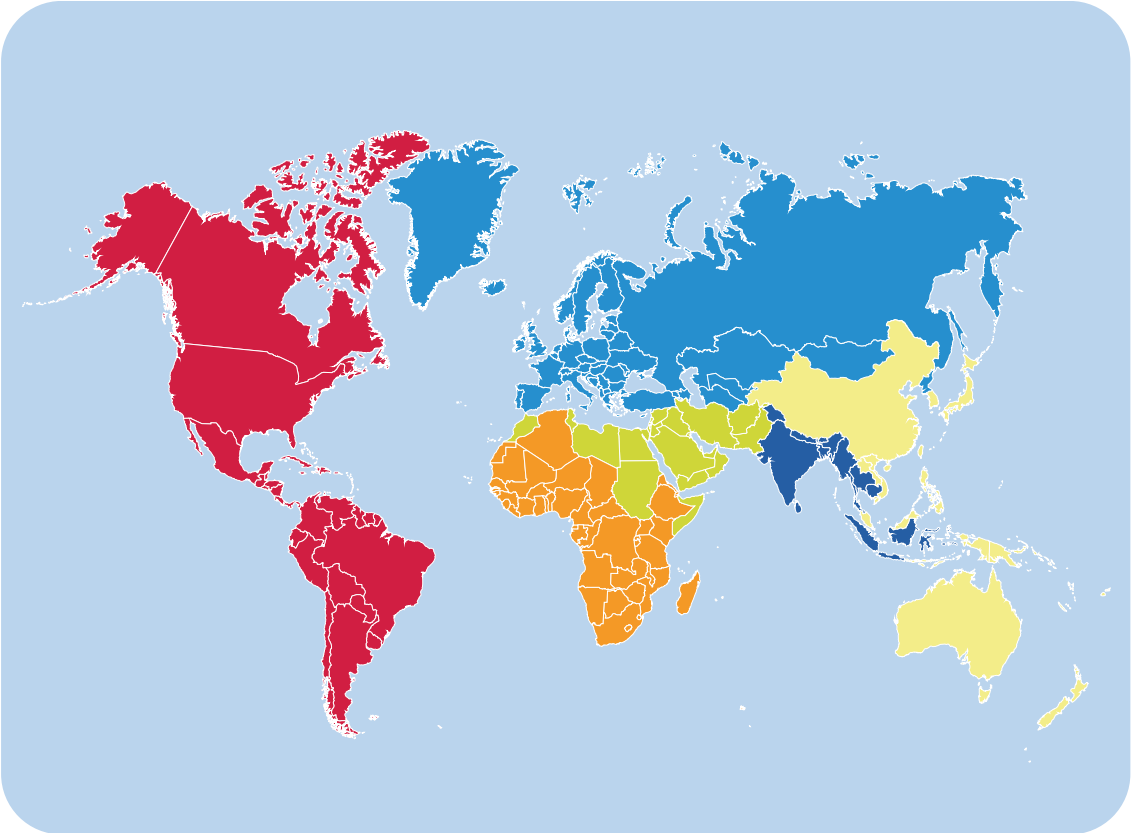
# NEWSLETTER TRANSPLANT 2019



## CONTENTS

**FOR THE PURPOSES OF THIS NEWSLETTER THE FOLLOWING DEFINITIONS WERE USED:**

**Actual deceased organ donor**
An actual deceased organ donor is a person from whom at least one organ has been recovered for the purpose of transplantation, in contrast to a utilised donor, who is an actual donor from whom at least one organ has been transplanted. The number of utilised donors is therefore lower or equal than the number of actual donors.

**Donor after brain death**
A donor after brain death (DBD) is a deceased organ donor in whom death has been determined by neurologic criteria.

**Donor after circulatory death**
A donor after circulatory death (DCD) is a deceased organ donor in whom death has been determined by circulatory and respiratory criteria.

**Total Tx (all combinations included)**
Includes the transplantation of the corresponding organ with or without the simultaneous transplant of a different type of organ (s).

**Double-kidney Tx**
One double-kidney Tx is counted as 1 Tx.

**Tx from living donors**
A living donor is a living human being from whom organs have been recovered for the purpose of transplantation. A living Donor has one of the following relationships with the recipient:

A/ Related: The donor is genetically and/or emotionally related to the recipient.

A1/ Genetically Related: A genetic relation exists between donor and recipient (e.g. brother/sister, parent/offspring).
A2/ Emotionally Related: The donor is a genetically unrelated family member (e.g. spouse) of the recipient or a friend.

B/ Unrelated = Non Related: The donor has no genetic or emotional relationship with the recipient. The relation between donor and recipient must be outlined further by a sub-specification.

B1/ Paired exchange or cross-over: By a controlled programme, unrelated donor and recipient pairs exchange grafts beyond any emotional or genetic relation, with the aim of overcoming immunological restrictions.

B2/ Non-directed altruistic or anonymous: By a controlled programme, the donor can provide a graft to society which allocates this to a previously unknown recipient by defined rules.

B3/ Directed altruistic: By a controlled programme, the donor provides a graft to a recipient of the donor's choice.

**Heart-lung Tx**
One heart-lung Tx is counted as 1 lung Tx, 1 heart Tx and 1 heart-lung Tx.

**Double-lung Tx**
One double-lung Tx is counted as 1 Tx.

**Total number of patients transplanted**
When more than one organ is transplanted into the same recipient, only one recipient is counted (e.g. kidney-liver-heart Tx = counted as one recipient).

**Paediatric**
Includes only paediatric activity (patients aged < 18 years).

**Waiting List (WL)**
**Example:** At 1/1/201X there were 200 patients active on the WL. Along the year, 100 patients are newly included on the WL (first row). In total, 300 patients have been ever active on the WL during the year (second row). Along the year, 200 patients were transplanted (number recorded in a different questionnaire), 50 patients remain active at the end of the year (third row), 25 patients died (fourth row) and 25 patients were excluded (number not to be reported, but derived from previous figures).

| | |
|---|---|
| Patients included on the WL for the first time in the course of 201X | 100 |
| Total number of patients ever active on the WL during 201X | 300 |
| Patients awaiting for a transplant (only active candidates) on 31/12/201X | 50 |
| Patients who died while on the WL during 201X | 25 |

*(*The United Nations Fund report (UNFPA: http://www.unfpa.org/public/) is used as the data source for estimates of population size)*

# Letter from the Editor

# Letter from the Editor

*Beatriz Domínguez-Gil, MD, PhD*
*Director Organización Nacional de Trasplantes, Spain*
*Editor of Newsletter Transplant*

Dear friends

It is with pleasure that I introduce a new issue of the *Newsletter Transplant*, one of the most valuable tools produced by the Committee of Transplantation of the Council of Europe (CD-P-TO) in conjunction with the Spanish Organización Nacional de Trasplantes (ONT). Since 1996, this publication has allowed the CD-P-TO to share information on donation and transplantation activities in member states of the Council of Europe (CoE) – and beyond – and to present some of the projects developed by this committee and documents of relevance to the field. The *Newsletter Transplant* is in itself an opportunity to demonstrate the active contribution of the CD-P-TO to secure fundamental human rights, as well as to increase organ availability, improve the effectiveness of transplantation systems and enhance the quality and safety of organs, tissues and cells for clinical use.

Without doubt, monitoring of practices in donation and transplantation of substances of human origin in member states is essential for the sake of transparency and international benchmarking. This is the main aim of the *Newsletter Transplant*, and the reason it has become an international reference. In this new issue, the *Newsletter Transplant* reports data from almost 70 countries throughout the world for the year 2018 (global data refer to 2017). The information presented relates to organ donation and transplantation activities, management of the waiting lists, rate of refusals to organ donation and transplant centres. Data are displayed by age group and gender for both organ donors and recipients. Let me take this opportunity to remind you that the underlying data collection is also hosted by the Global Observatory on Organ Donation and Transplantation (http://www.transplant-observatory.org/) developed and maintained by the ONT on behalf of the World Health Organization. The Observatory allows users to download data and create figures online. For obvious reasons, not all information that is collected from countries is displayed in the *Newsletter Transplant* and the *Observatory*, but additional data can be provided to final users on an ad hoc basis and upon request.

Information presented in the *Newsletter Transplant* is not limited to the organ field, but also covers tissues and cells. Provided by the Centro Nazionale di Trapianti (CNT) in Italy, which conducts the corresponding annual data collection, the *Newsletter Transplant* also presents data on the donation, procurement, processing, distribution and clinical use of tissues and cells from a significant number of countries.

This issue of the *Newsletter Transplant* also presents an important document produced by the CD-P-TO addressing illicit and unethical practices in the field of tissues and cells. In this document, the CD-P-TO analyses the international legal framework that regulates the process of donation and clinical use of tissues and cells of human origin. It concludes that an international agreement is needed to prohibit and criminalise certain unethical practices of particular severity, in terms of violation of the fundamental principles of human dignity and integrity. This work is intended to support decision-making bodies at the Council of Europe to decide on the need to elaborate an Additional Protocol to the Council of Europe *Convention against Trafficking in Human Organs* to address the trafficking of human tissues and cells.

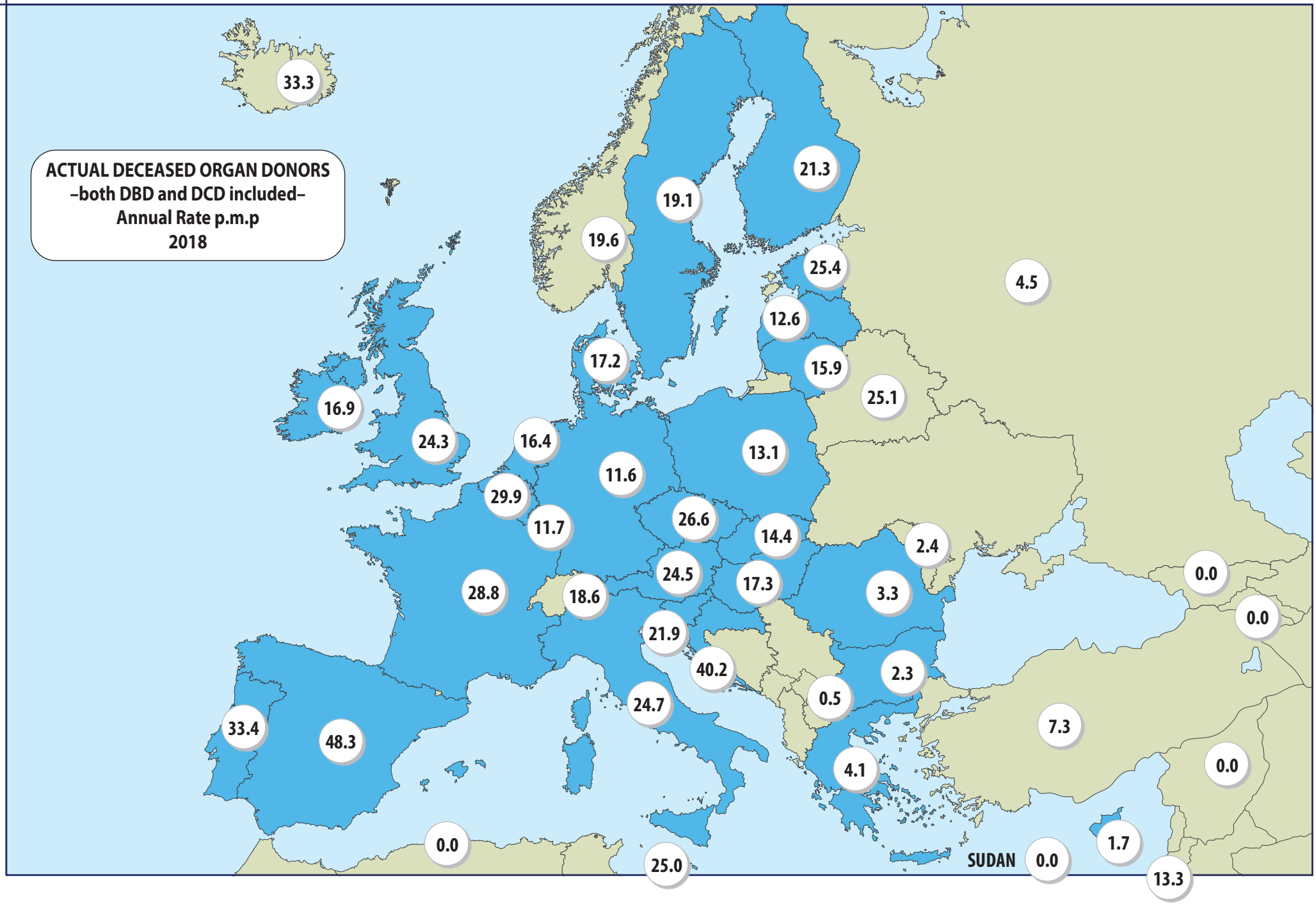
The CD-P-TO has also contributed to the elaboration and dissemination of this Convention, which provides clarity on the practices in the field of organ donation and transplantation that must be criminalised and mechanisms to be strengthened for cooperation and victim protection. This issue of the *Newsletter Transplant* includes the current status of signatures and ratifications and invites countries that have not already done so to move forward in their accession to this important legal instrument.

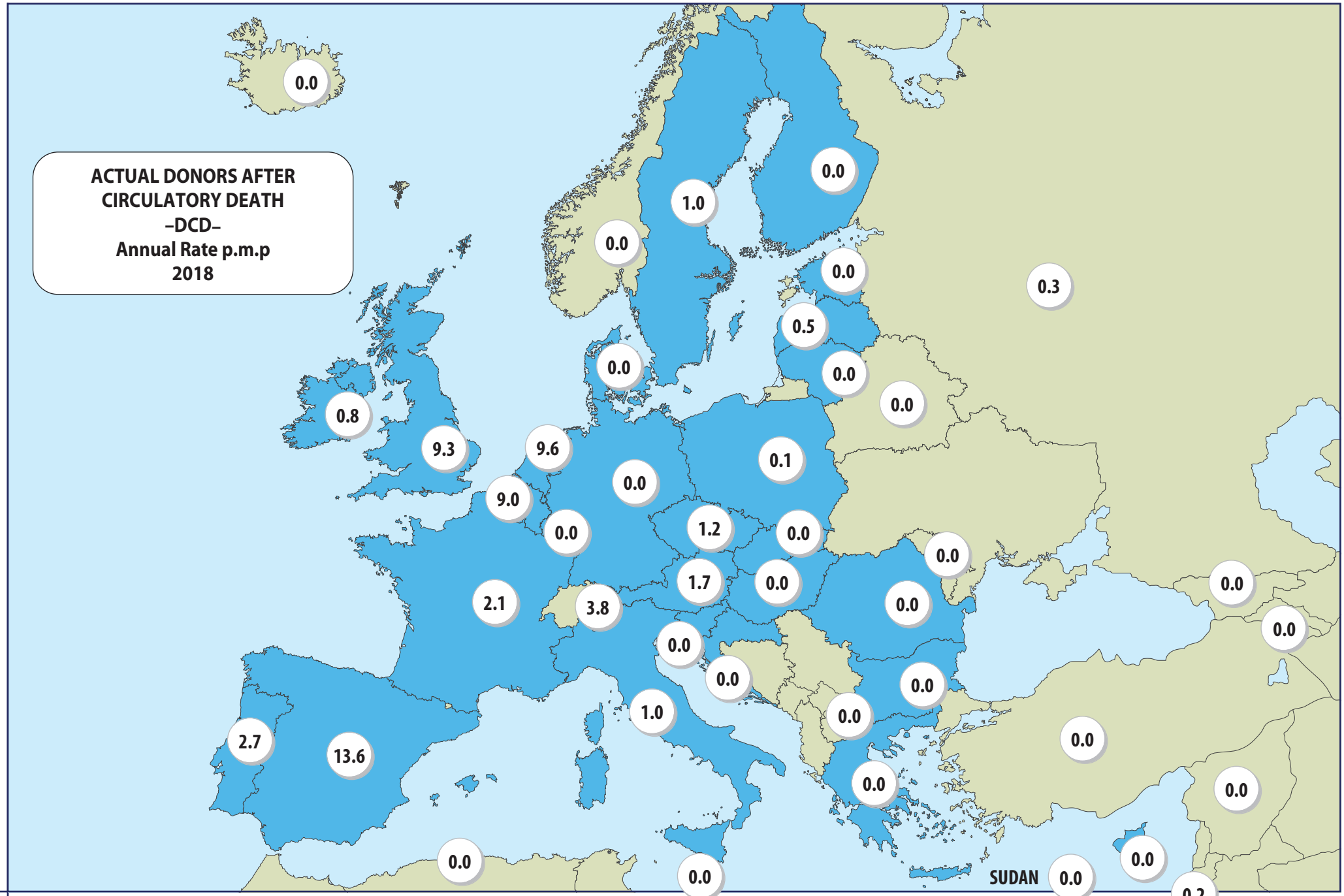
I take this opportunity to remind you of the importance and usefulness of the technical guides in the fields of organs, tissues and cells that are regularly up-

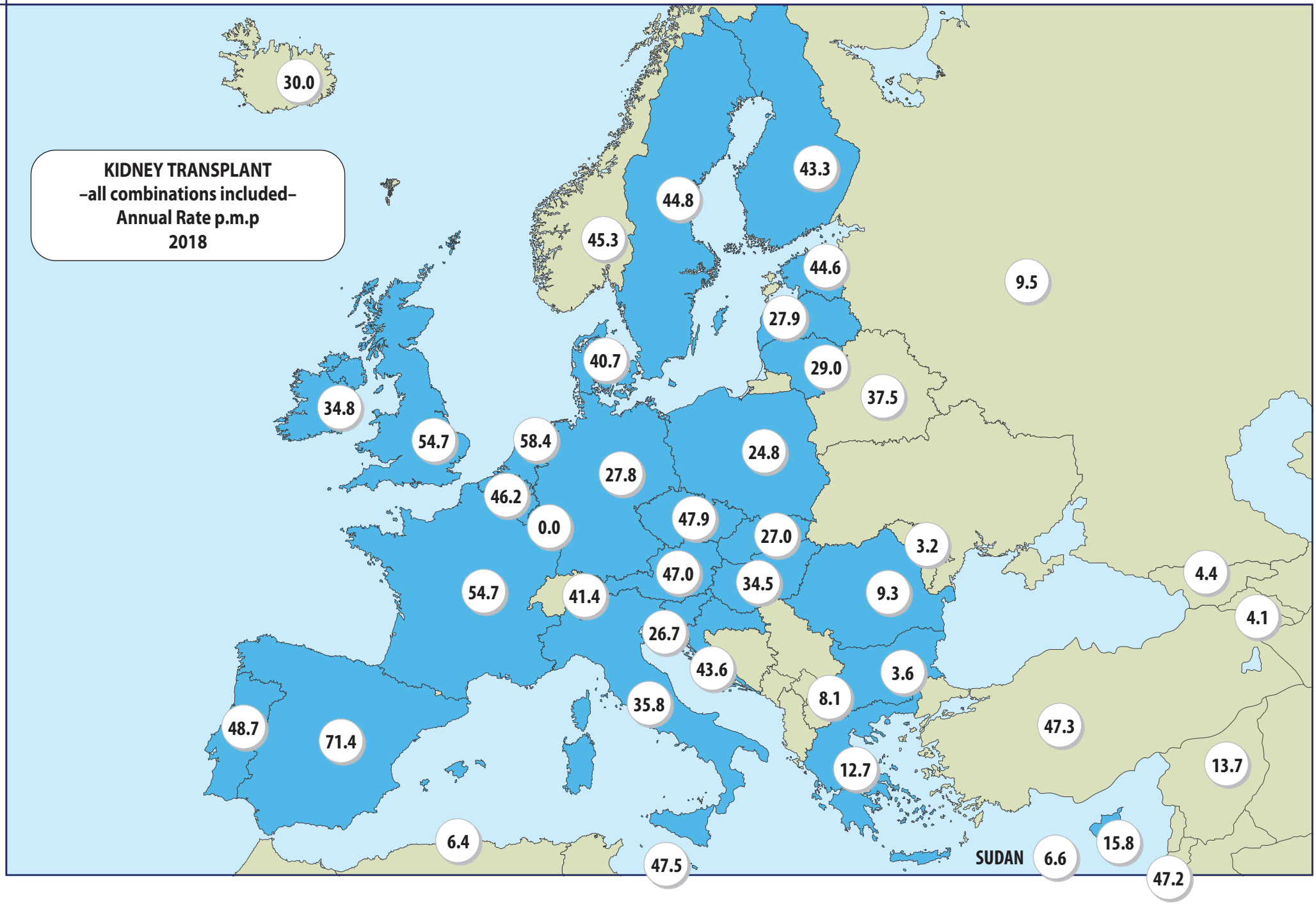
dated by the CD-P-TO. These are invaluable tools for regulators and health professionals throughout Europe and beyond.

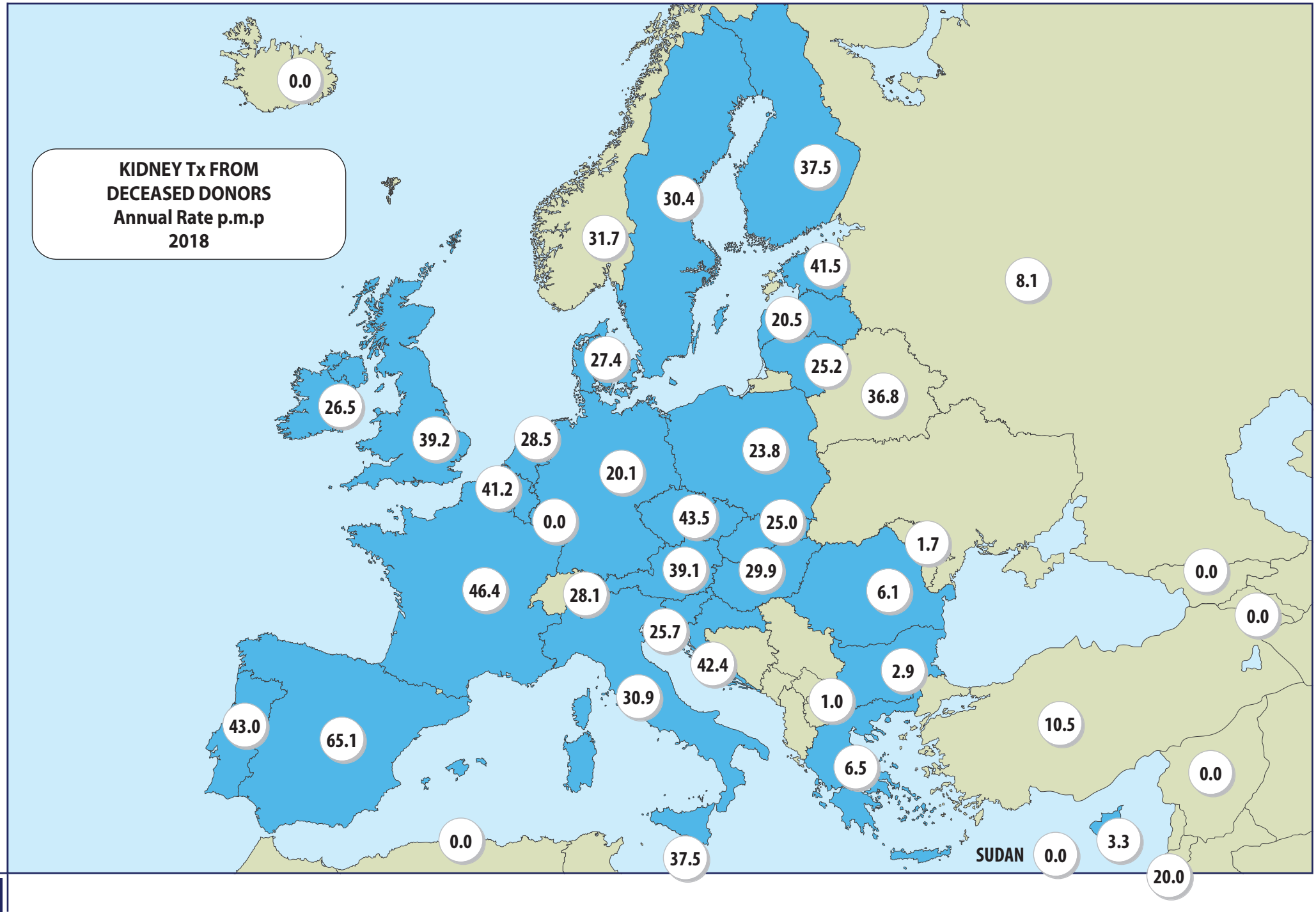
Please allow me to finish this letter by thanking all those who make the *Newsletter Transplant* possible - members of the CD-P-TO, national focal points providing data on a regular basis and the EDQM secretariat. But, most importantly, let me thank the members of the ONT whose continuous work, commitment and enthusiasm are essential for an exercise that every year showcases the European progress in the fascinating field of transplantation.

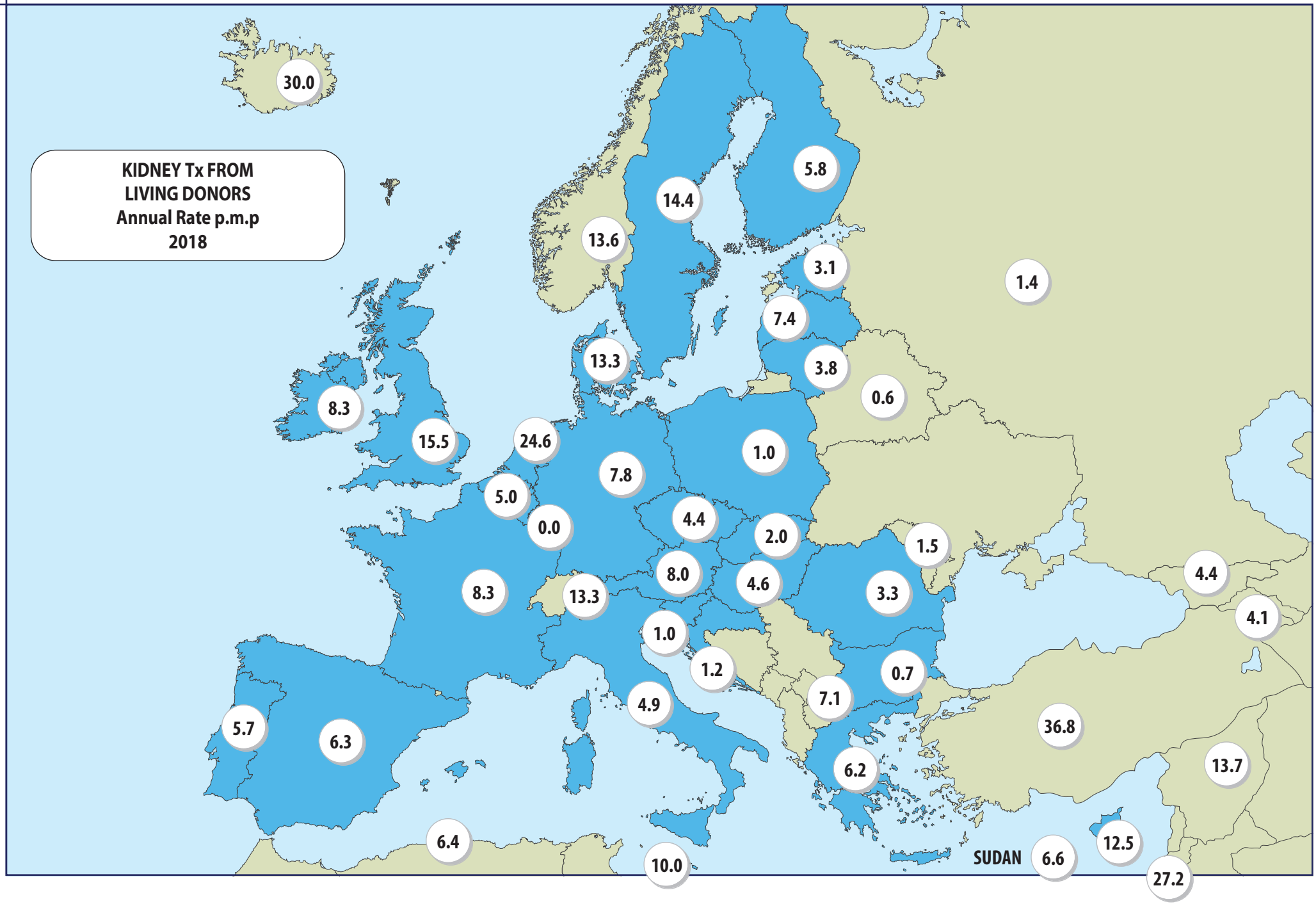
# International Figures on Organ Donation and Transplantation Activity. Year 2018

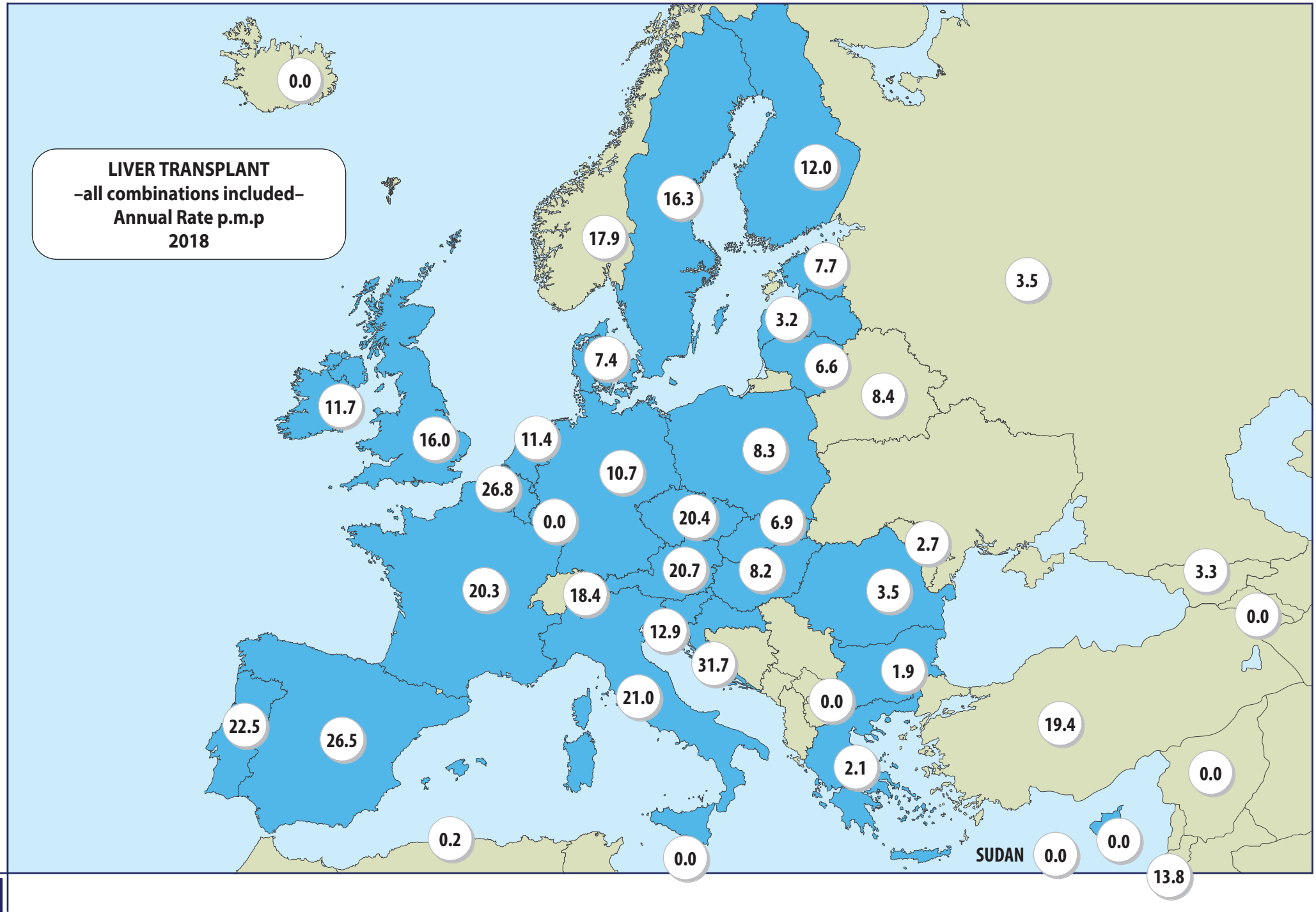

ACTUAL DECEASED ORGAN DONORS
–both DBD and DCD included–
Annual Rate p.m.p
2018
33.3
19.1
21.3
19.6
25.4
4.5
12.6
17.2
15.9
25.1
16.9
24.3
16.4
13.1
11.6
29.9
11.7
26.6
14.4
2.4
24.5
17.3
3.3
0.0
28.8
18.6
0.0
21.9
40.2
2.3
0.5
24.7
7.3
33.4
48.3
4.1
0.0
0.0
1.7
SUDAN
0.0
13.3
25.0

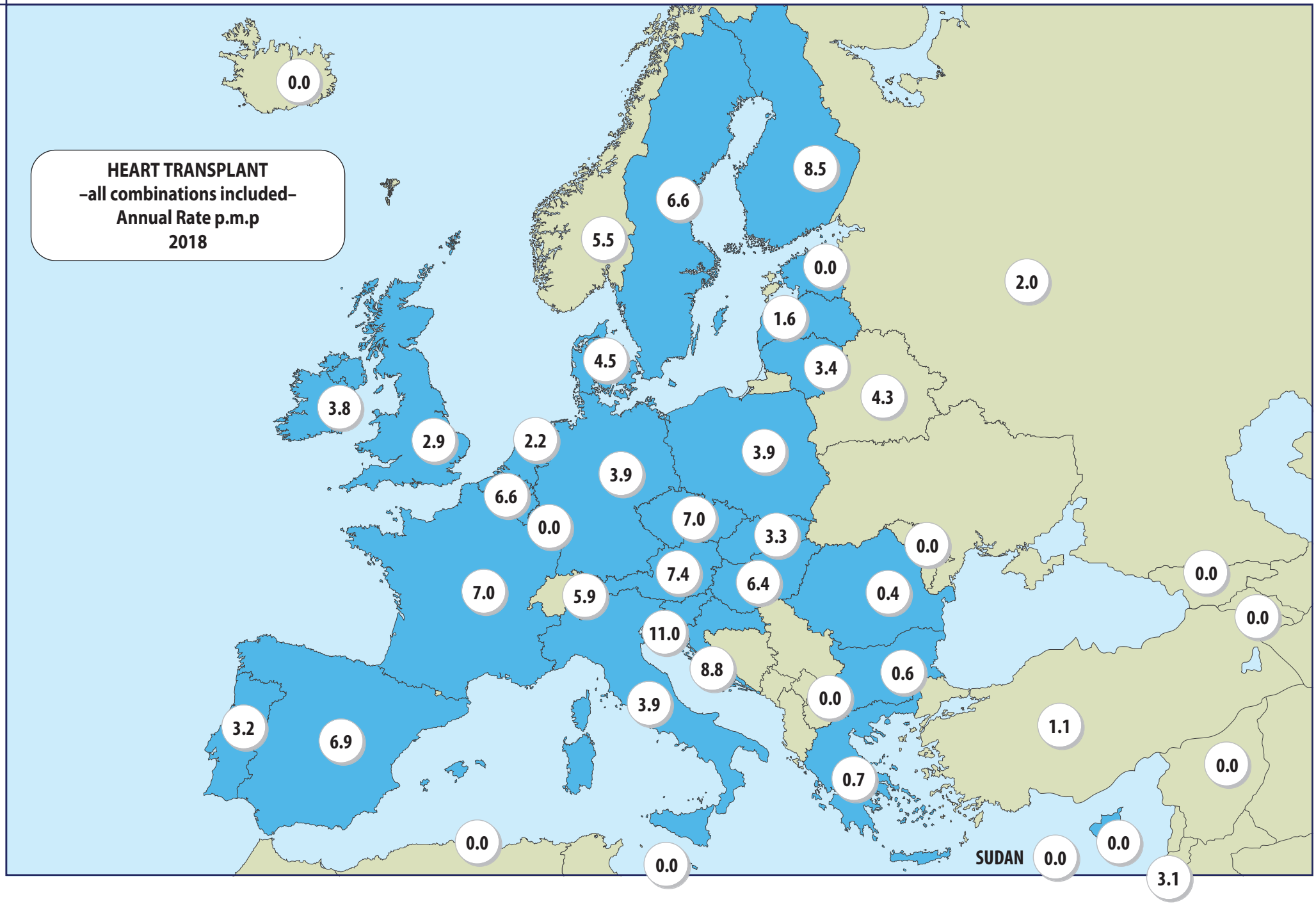

ACTUAL DONORS AFTER
CIRCULATORY DEATH
–DCD–
Annual Rate p.m.p
2018
0.0
0.0
1.0
0.0
0.0
0.3
0.5
0.0
0.0
0.8
9.3
9.6
0.0
0.1
9.0
0.0
1.2
0.0
0.0
1.7
0.0
0.0
2.1
3.8
0.0
0.0
0.0
0.0
1.0
2.7
13.6
0.0
0.0
0.0
0.0
0.0
0.0
0.0
SUDAN
0.0
0.0
0.2

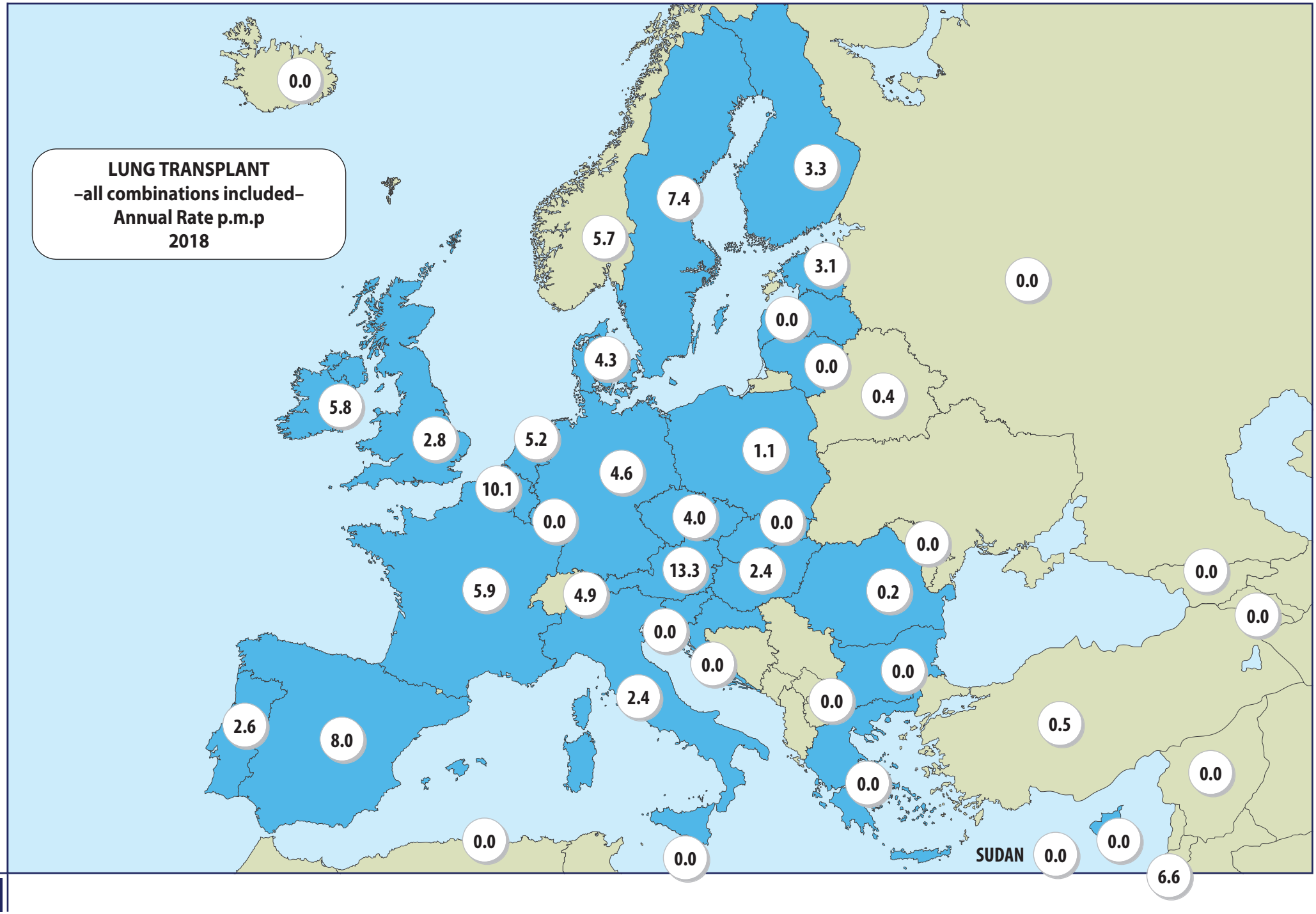

KIDNEY TRANSPLANT
–all combinations included–
Annual Rate p.m.p
2018
30.0
43.3
44.8
45.3
44.6
9.5
27.9
40.7
29.0
37.5
34.8
54.7
58.4
24.8
27.8
46.2
0.0
47.9
27.0
3.2
47.0
34.5
9.3
4.4
54.7
41.4
4.1
26.7
43.6
3.6
8.1
35.8
48.7
71.4
47.3
12.7
13.7
6.4
47.5
SUDAN
6.6
15.8
47.2

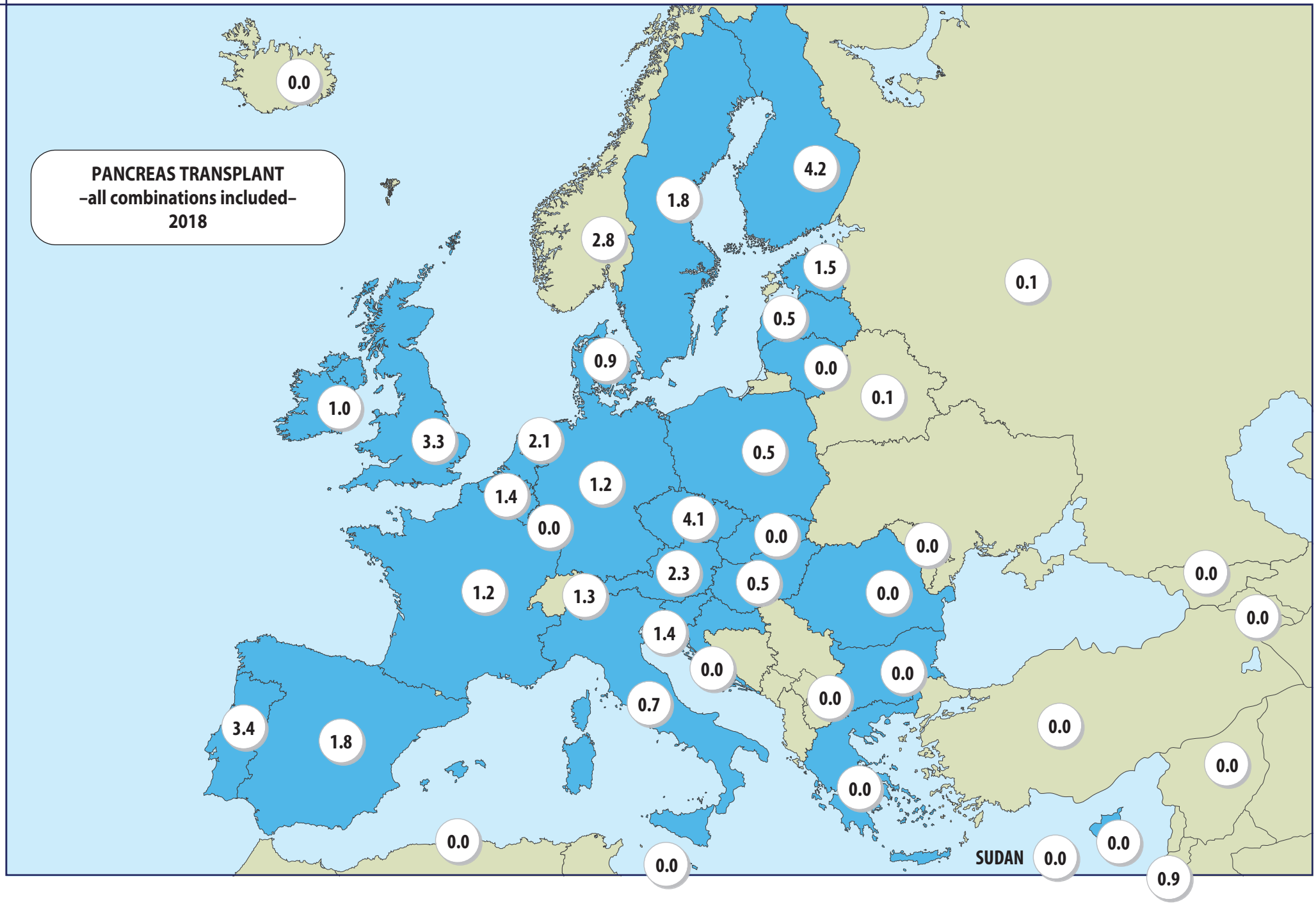

KIDNEY Tx FROM
DECEASED DONORS
Annual Rate p.m.p
2018
0.0
37.5
30.4
31.7
41.5
8.1
20.5
27.4
25.2
36.8
26.5
39.2
28.5
23.8
20.1
41.2
0.0
43.5
25.0
1.7
39.1
29.9
0.0
46.4
28.1
6.1
0.0
25.7
42.4
2.9
30.9
1.0
43.0
65.1
10.5
6.5
0.0
0.0
37.5
SUDAN
0.0
3.3
20.0

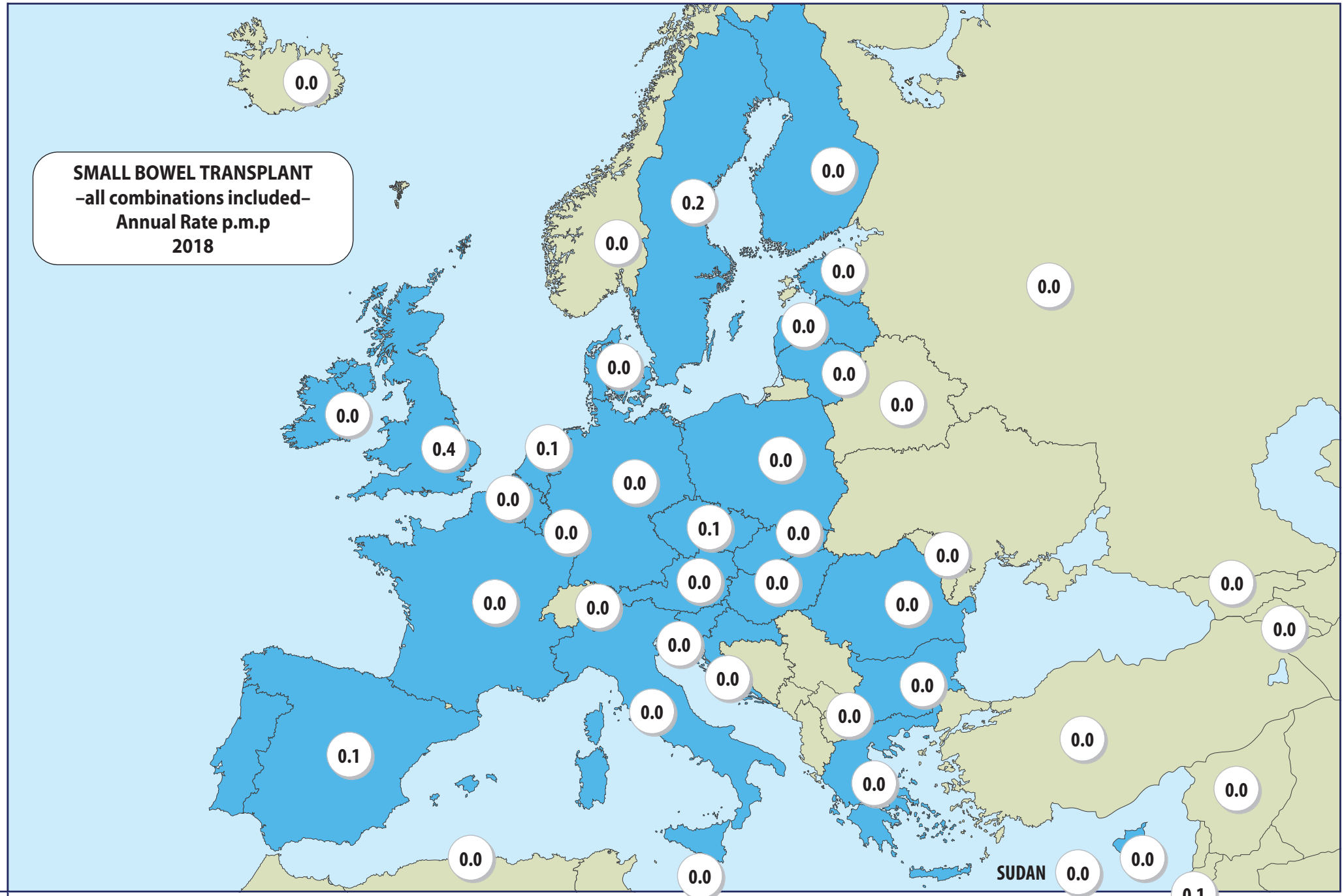

KIDNEY Tx FROM
LIVING DONORS
Annual Rate p.m.p
2018
30.0
14.4
5.8
13.6
3.1
1.4
7.4
13.3
3.8
8.3
0.6
15.5
24.6
1.0
7.8
5.0
0.0
4.4
2.0
1.5
8.0
4.6
3.3
4.4
8.3
13.3
4.1
1.0
1.2
0.7
7.1
4.9
5.7
6.3
36.8
6.2
13.7
6.4
10.0
SUDAN
6.6
12.5
27.2

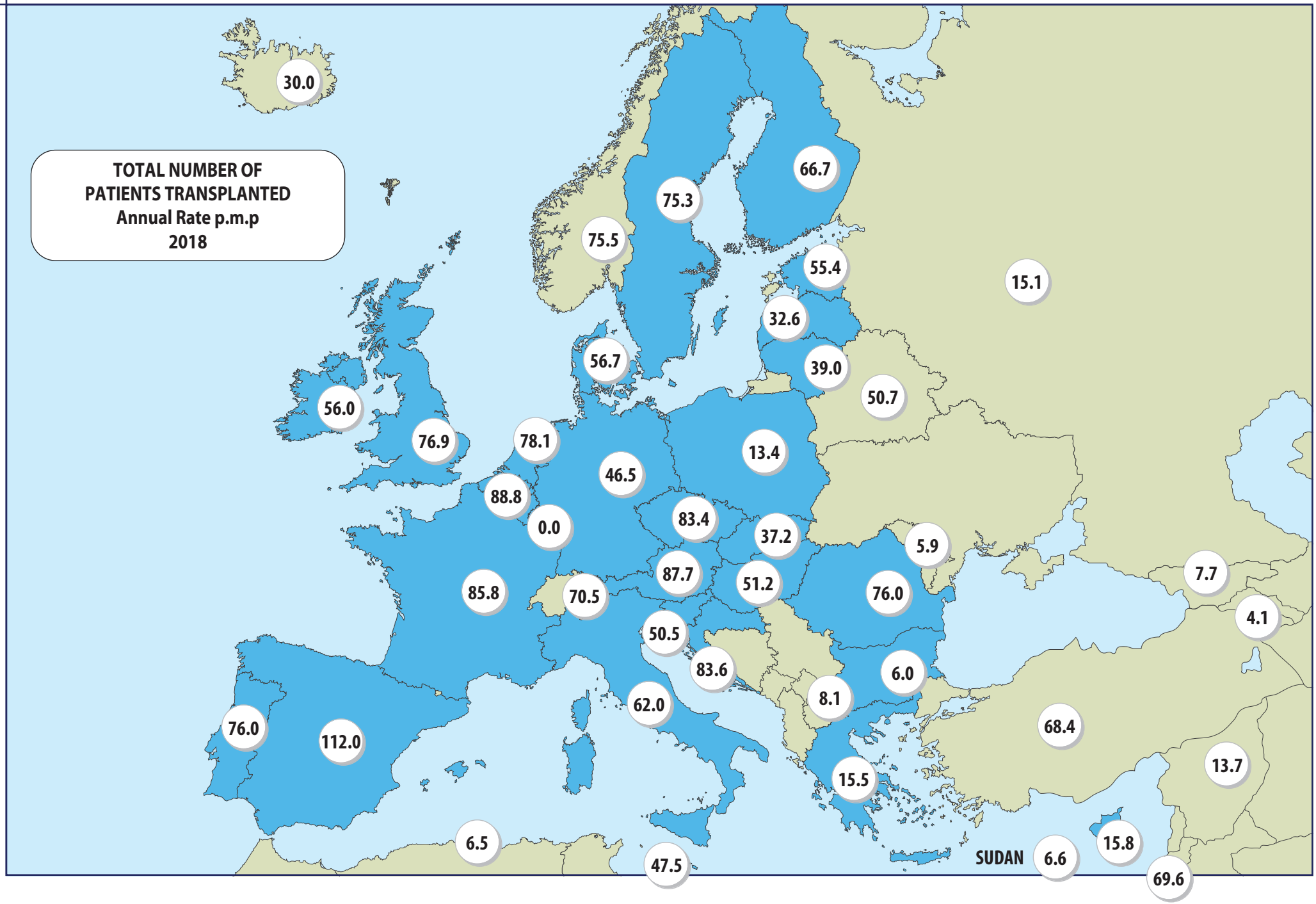

LIVER TRANSPLANT
–all combinations included–
Annual Rate p.m.p
2018
0.0
12.0
16.3
17.9
7.7
3.5
3.2
7.4
6.6
8.4
11.7
16.0
11.4
8.3
10.7
26.8
0.0
20.4
6.9
2.7
20.7
8.2
3.3
20.3
18.4
3.5
0.0
12.9
31.7
1.9
21.0
0.0
22.5
26.5
19.4
2.1
0.0
0.2
0.0
SUDAN
0.0
0.0
13.8


HEART TRANSPLANT
–all combinations included–
Annual Rate p.m.p
2018
0.0
8.5
6.6
5.5
0.0
2.0
1.6
4.5
3.4
4.3
3.8
2.9
2.2
3.9
3.9
6.6
0.0
7.0
3.3
0.0
7.4
6.4
0.4
7.0
5.9
0.0
0.0
11.0
8.8
0.6
0.0
3.9
3.2
6.9
1.1
0.0
0.7
0.0
0.0
0.0
SUDAN
0.0
3.1

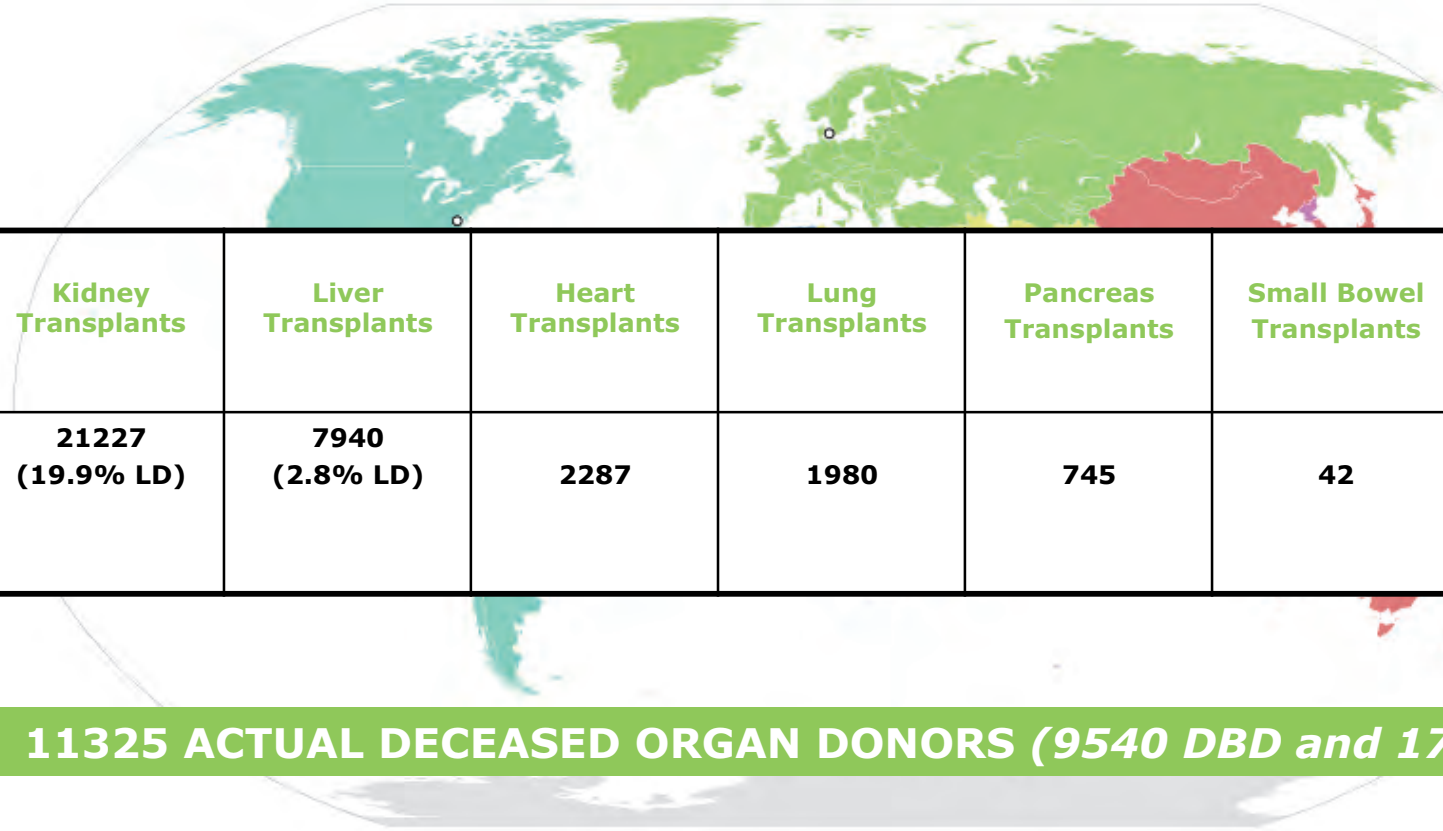

LUNG TRANSPLANT
–all combinations included–
Annual Rate p.m.p
2018
0.0
7.4
3.3
5.7
3.1
0.0
0.0
0.0
4.3
0.4
5.8
2.8
5.2
1.1
4.6
10.1
0.0
4.0
0.0
0.0
13.3
2.4
0.0
5.9
4.9
0.2
0.0
0.0
0.0
0.0
2.4
0.0
2.6
8.0
0.5
0.0
0.0
0.0
SUDAN
0.0
0.0
6.6


PANCREAS TRANSPLANT
–all combinations included–
2018
0.0
4.2
1.8
2.8
1.5
0.1
0.5
0.9
0.0
1.0
0.1
3.3
2.1
0.5
1.2
1.4
4.1
0.0
0.0
0.0
2.3
0.5
0.0
1.2
1.3
0.0
0.0
1.4
0.0
0.0
0.7
3.4
1.8
0.0
0.0
SUDAN
0.0
0.0
0.9


SMALL BOWEL TRANSPLANT
–all combinations included–
Annual Rate p.m.p
2018
0.0
0.2
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.4
0.1
0.0
0.0
0.0
0.0
0.1
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.1
0.0
0.0
0.0
SUDAN
0.0
0.0
0.1


TOTAL NUMBER OF
PATIENTS TRANSPLANTED
Annual Rate p.m.p
2018
30.0
66.7
75.3
75.5
55.4
15.1
32.6
56.7
39.0
50.7
56.0
76.9
78.1
13.4
46.5
88.8
83.4
37.2
0.0
5.9
87.7
7.7
85.8
70.5
51.2
76.0
4.1
50.5
83.6
6.0
8.1
62.0
76.0
112.0
68.4
13.7
15.5
6.5
47.5
SUDAN
6.6
15.8
69.6

# EUROPEAN UNION DATA

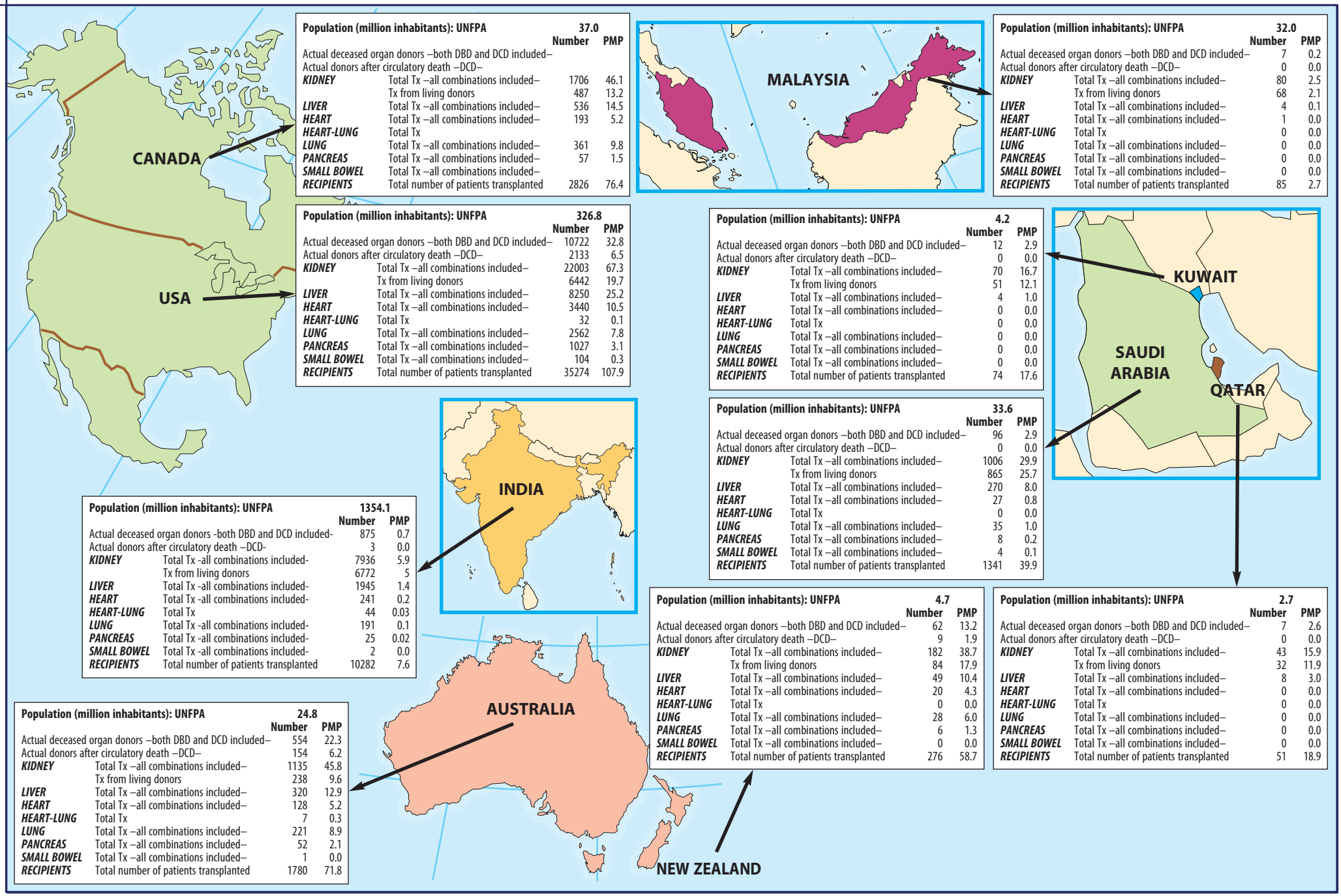


| Kidney Transplants | Liver Transplants | Heart Transplants | Lung Transplants | Pancreas Transplants | Small Bowel Transplants | Organs Transplanted |
|---|---|---|---|---|---|---|
| 21227 (19.9% LD) | 7940 (2.8% LD) | 2287 | 1980 | 745 | 42 | 34221 |

## 11325 ACTUAL DECEASED ORGAN DONORS *(9540 DBD and 1785 DCD)*

***2018 data***

***N= 28 COUNTRIES (509.7 million inhabitants)***




**Population (million inhabitants): UNFPA** 37.0

| | | Number | PMP |
|---|---|---|---|
| Actual deceased organ donors –both DBD and DCD included– | | | |
| Actual donors after circulatory death –DCD– | | | |
| ***KIDNEY*** | Total Tx –all combinations included– | 1706 | 46.1 |
| | Tx from living donors | 487 | 13.2 |
| ***LIVER*** | Total Tx –all combinations included– | 536 | 14.5 |
| ***HEART*** | Total Tx –all combinations included– | 193 | 5.2 |
| ***HEART-LUNG*** | Total Tx | | |
| ***LUNG*** | Total Tx –all combinations included– | 361 | 9.8 |
| ***PANCREAS*** | Total Tx –all combinations included– | 57 | 1.5 |
| ***SMALL BOWEL*** | Total Tx –all combinations included– | | |
| ***RECIPIENTS*** | Total number of patients transplanted | 2826 | 76.4 |

**Population (million inhabitants): UNFPA** 326.8

| | | Number | PMP |
|---|---|---|---|
| Actual deceased organ donors –both DBD and DCD included– | | 10722 | 32.8 |
| Actual donors after circulatory death –DCD– | | 2133 | 6.5 |
| ***KIDNEY*** | Total Tx –all combinations included– | 22003 | 67.3 |
| | Tx from living donors | 6442 | 19.7 |
| ***LIVER*** | Total Tx –all combinations included– | 8250 | 25.2 |
| ***HEART*** | Total Tx –all combinations included– | 3440 | 10.5 |
| ***HEART-LUNG*** | Total Tx | 32 | 0.1 |
| ***LUNG*** | Total Tx –all combinations included– | 2562 | 7.8 |
| ***PANCREAS*** | Total Tx –all combinations included– | 1027 | 3.1 |
| ***SMALL BOWEL*** | Total Tx –all combinations included– | 104 | 0.3 |
| ***RECIPIENTS*** | Total number of patients transplanted | 35274 | 107.9 |

**Population (million inhabitants): UNFPA** 1354.1

| | | Number | PMP |
|---|---|---|---|
| Actual deceased organ donors -both DBD and DCD included- | | 875 | 0.7 |
| Actual donors after circulatory death –DCD- | | 3 | 0.0 |
| ***KIDNEY*** | Total Tx -all combinations included- | 7936 | 5.9 |
| | Tx from living donors | 6772 | 5 |
| ***LIVER*** | Total Tx -all combinations included- | 1945 | 1.4 |
| ***HEART*** | Total Tx -all combinations included- | 241 | 0.2 |
| ***HEART-LUNG*** | Total Tx | 44 | 0.03 |
| ***LUNG*** | Total Tx -all combinations included- | 191 | 0.1 |
| ***PANCREAS*** | Total Tx -all combinations included- | 25 | 0.02 |
| ***SMALL BOWEL*** | Total Tx -all combinations included- | 2 | 0.0 |
| ***RECIPIENTS*** | Total number of patients transplanted | 10282 | 7.6 |

**Population (million inhabitants): UNFPA** 24.8

| | | Number | PMP |
|---|---|---|---|
| Actual deceased organ donors –both DBD and DCD included– | | 554 | 22.3 |
| Actual donors after circulatory death –DCD– | | 154 | 6.2 |
| ***KIDNEY*** | Total Tx –all combinations included– | 1135 | 45.8 |
| | Tx from living donors | 238 | 9.6 |
| ***LIVER*** | Total Tx –all combinations included– | 320 | 12.9 |
| ***HEART*** | Total Tx –all combinations included– | 128 | 5.2 |
| ***HEART-LUNG*** | Total Tx | 7 | 0.3 |
| ***LUNG*** | Total Tx –all combinations included– | 221 | 8.9 |
| ***PANCREAS*** | Total Tx –all combinations included– | 52 | 2.1 |
| ***SMALL BOWEL*** | Total Tx –all combinations included– | 1 | 0.0 |
| ***RECIPIENTS*** | Total number of patients transplanted | 1780 | 71.8 |

**Population (million inhabitants): UNFPA** 32.0

| | | Number | PMP |
|---|---|---|---|
| Actual deceased organ donors –both DBD and DCD included– | | 7 | 0.2 |
| Actual donors after circulatory death –DCD– | | 0 | 0.0 |
| ***KIDNEY*** | Total Tx –all combinations included– | 80 | 2.5 |
| | Tx from living donors | 68 | 2.1 |
| ***LIVER*** | Total Tx –all combinations included– | 4 | 0.1 |
| ***HEART*** | Total Tx –all combinations included– | 1 | 0.0 |
| ***HEART-LUNG*** | Total Tx | 0 | 0.0 |
| ***LUNG*** | Total Tx –all combinations included– | 0 | 0.0 |
| ***PANCREAS*** | Total Tx –all combinations included– | 0 | 0.0 |
| ***SMALL BOWEL*** | Total Tx –all combinations included– | 0 | 0.0 |
| ***RECIPIENTS*** | Total number of patients transplanted | 85 | 2.7 |

**Population (million inhabitants): UNFPA** 4.2

| | | Number | PMP |
|---|---|---|---|
| Actual deceased organ donors –both DBD and DCD included– | | 12 | 2.9 |
| Actual donors after circulatory death –DCD– | | 0 | 0.0 |
| ***KIDNEY*** | Total Tx –all combinations included– | 70 | 16.7 |
| | Tx from living donors | 51 | 12.1 |
| ***LIVER*** | Total Tx –all combinations included– | 4 | 1.0 |
| ***HEART*** | Total Tx –all combinations included– | 0 | 0.0 |
| ***HEART-LUNG*** | Total Tx | 0 | 0.0 |
| ***LUNG*** | Total Tx –all combinations included– | 0 | 0.0 |
| ***PANCREAS*** | Total Tx –all combinations included– | 0 | 0.0 |
| ***SMALL BOWEL*** | Total Tx –all combinations included– | 0 | 0.0 |
| ***RECIPIENTS*** | Total number of patients transplanted | 74 | 17.6 |

**Population (million inhabitants): UNFPA** 33.6

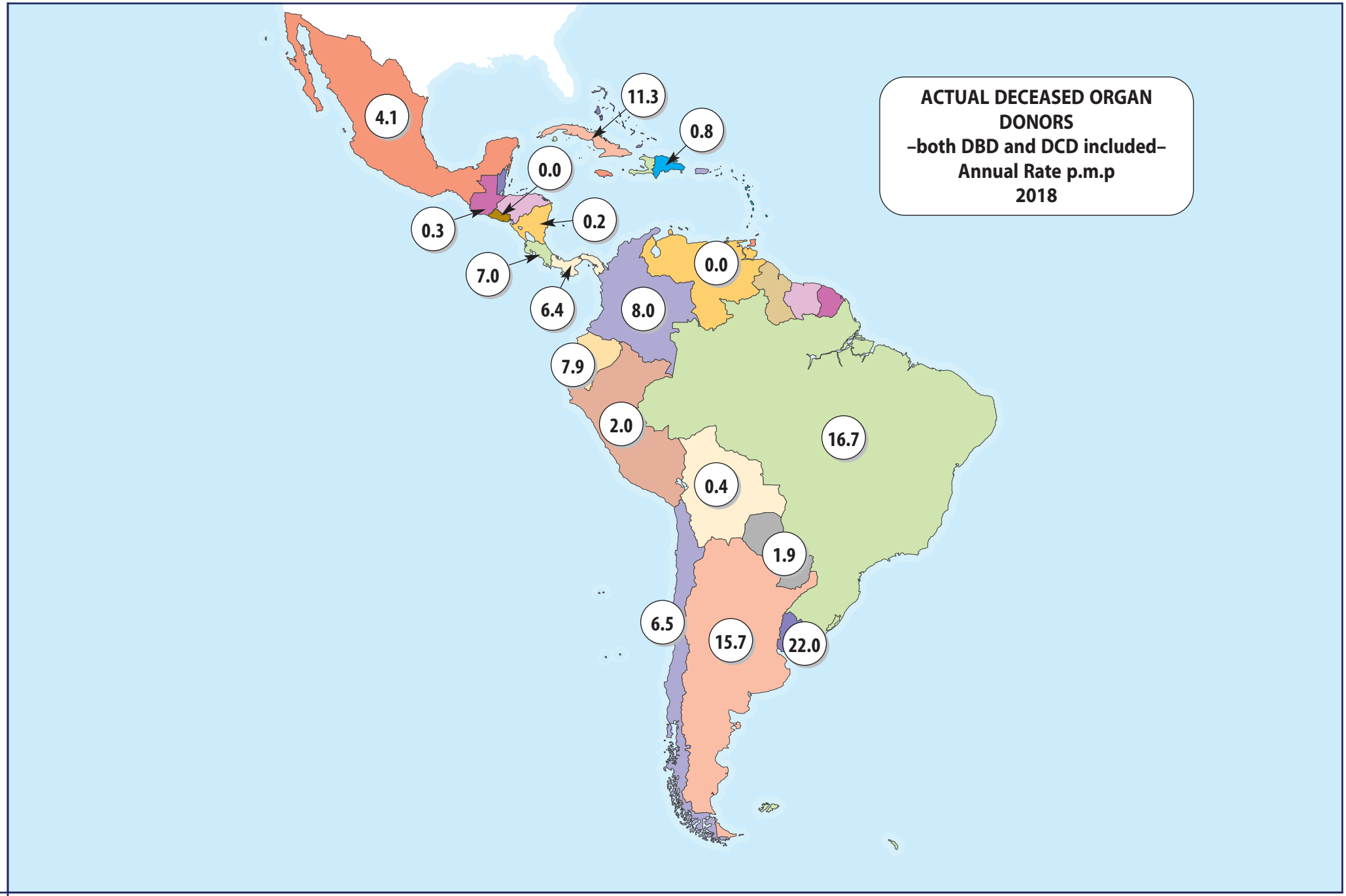
| | | Number | PMP |
|---|---|---|---|
| Actual deceased organ donors –both DBD and DCD included– | | 96 | 2.9 |
| Actual donors after circulatory death –DCD– | | 0 | 0.0 |
| ***KIDNEY*** | Total Tx –all combinations included– | 1006 | 29.9 |
| | Tx from living donors | 865 | 25.7 |
| ***LIVER*** | Total Tx –all combinations included– | 270 | 8.0 |
| ***HEART*** | Total Tx –all combinations included– | 27 | 0.8 |
| ***HEART-LUNG*** | Total Tx | 0 | 0.0 |
| ***LUNG*** | Total Tx –all combinations included– | 35 | 1.0 |
| ***PANCREAS*** | Total Tx –all combinations included– | 8 | 0.2 |
| ***SMALL BOWEL*** | Total Tx –all combinations included– | 4 | 0.1 |
| ***RECIPIENTS*** | Total number of patients transplanted | 1341 | 39.9 |

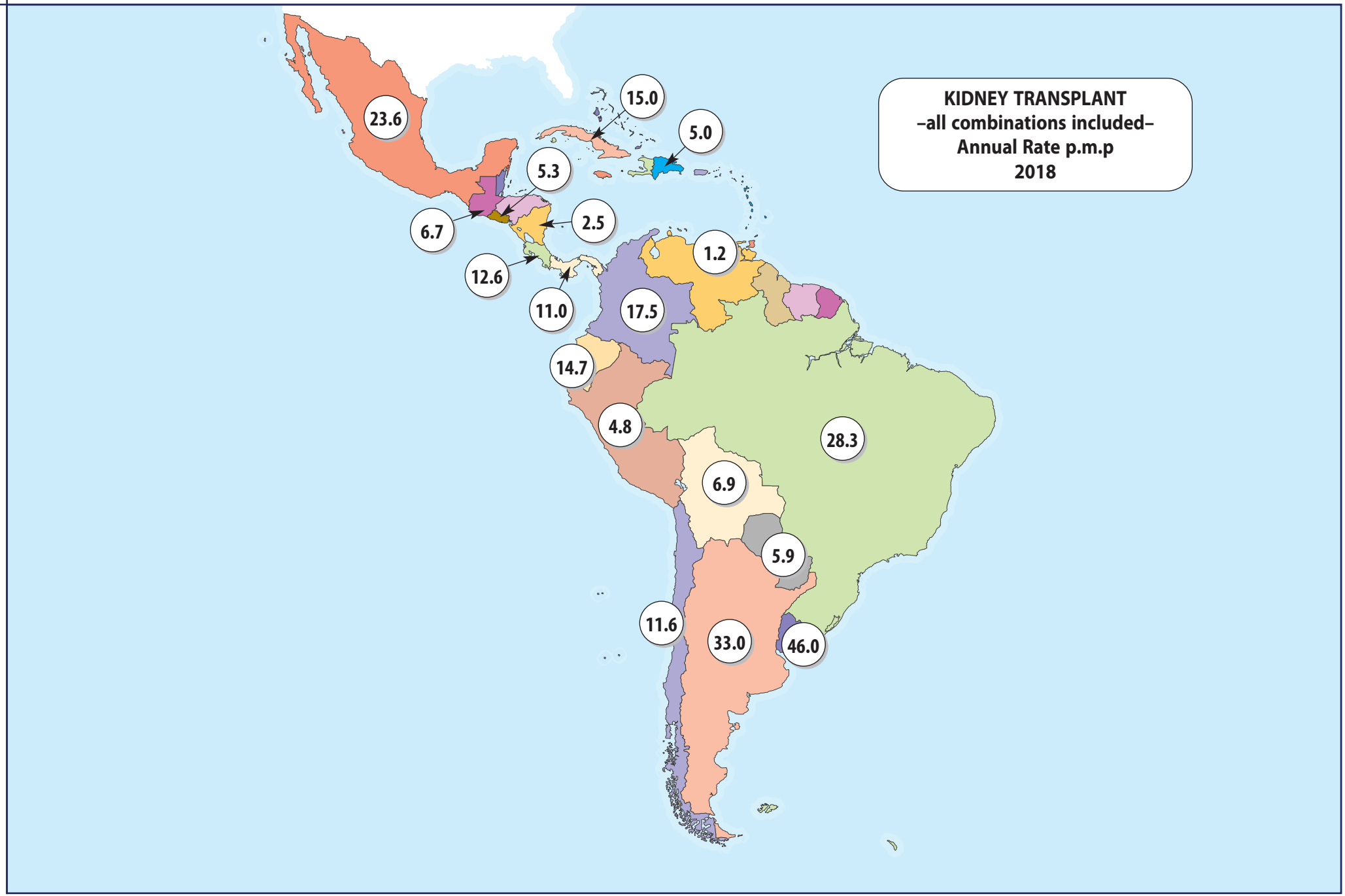
**Population (million inhabitants): UNFPA** 4.7

| | | Number | PMP |
|---|---|---|---|
| Actual deceased organ donors –both DBD and DCD included– | | 62 | 13.2 |
| Actual donors after circulatory death –DCD– | | 9 | 1.9 |
| ***KIDNEY*** | Total Tx –all combinations included– | 182 | 38.7 |
| | Tx from living donors | 84 | 17.9 |
| ***LIVER*** | Total Tx –all combinations included– | 49 | 10.4 |
| ***HEART*** | Total Tx –all combinations included– | 20 | 4.3 |
| ***HEART-LUNG*** | Total Tx | 0 | 0.0 |
| ***LUNG*** | Total Tx –all combinations included– | 28 | 6.0 |
| ***PANCREAS*** | Total Tx –all combinations included– | 6 | 1.3 |
| ***SMALL BOWEL*** | Total Tx –all combinations included– | 0 | 0.0 |
| ***RECIPIENTS*** | Total number of patients transplanted | 276 | 58.7 |

**Population (million inhabitants): UNFPA** 2.7

| | | Number | PMP |
|---|---|---|---|
| Actual deceased organ donors –both DBD and DCD included– | | 7 | 2.6 |
| Actual donors after circulatory death –DCD– | | 0 | 0.0 |
| ***KIDNEY*** | Total Tx –all combinations included– | 43 | 15.9 |
| | Tx from living donors | 32 | 11.9 |
| ***LIVER*** | Total Tx –all combinations included– | 8 | 3.0 |
| ***HEART*** | Total Tx –all combinations included– | 0 | 0.0 |
| ***HEART-LUNG*** | Total Tx | 0 | 0.0 |
| ***LUNG*** | Total Tx –all combinations included– | 0 | 0.0 |
| ***PANCREAS*** | Total Tx –all combinations included– | 0 | 0.0 |
| ***SMALL BOWEL*** | Total Tx –all combinations included– | 0 | 0.0 |
| ***RECIPIENTS*** | Total number of patients transplanted | 51 | 18.9 |


ACTUAL DECEASED ORGAN DONORS
–both DBD and DCD included–
Annual Rate p.m.p
2018
4.1
11.3
0.8
0.0
0.3
0.2
7.0
6.4
0.0
8.0
7.9
2.0
16.7
0.4
1.9
6.5
15.7
22.0


KIDNEY TRANSPLANT
–all combinations included–
Annual Rate p.m.p
2018
23.6
15.0
5.0
5.3
2.5
6.7
12.6
11.0
1.2
17.5
14.7
4.8
28.3
6.9
5.9
11.6
33.0
46.0


KIDNEY Tx FROM DECEASED DONORS
Annual Rate p.m.p
2018
7.5
13.9
1.2
0.0
0.6
0.2
8.4
0.0
9.0
14.6
13.4
3.5
23.4
0.7
3.6
24.6
42.3


KIDNEY Tx FROM
LIVING DONORS
Annual Rate p.m.p
2018
16.1
1.1
3.8
5.3
6.1
2.4
4.2
1.9
1.2
2.8
1.3
1.3
4.9
6.8
2.3
8.4
3.7

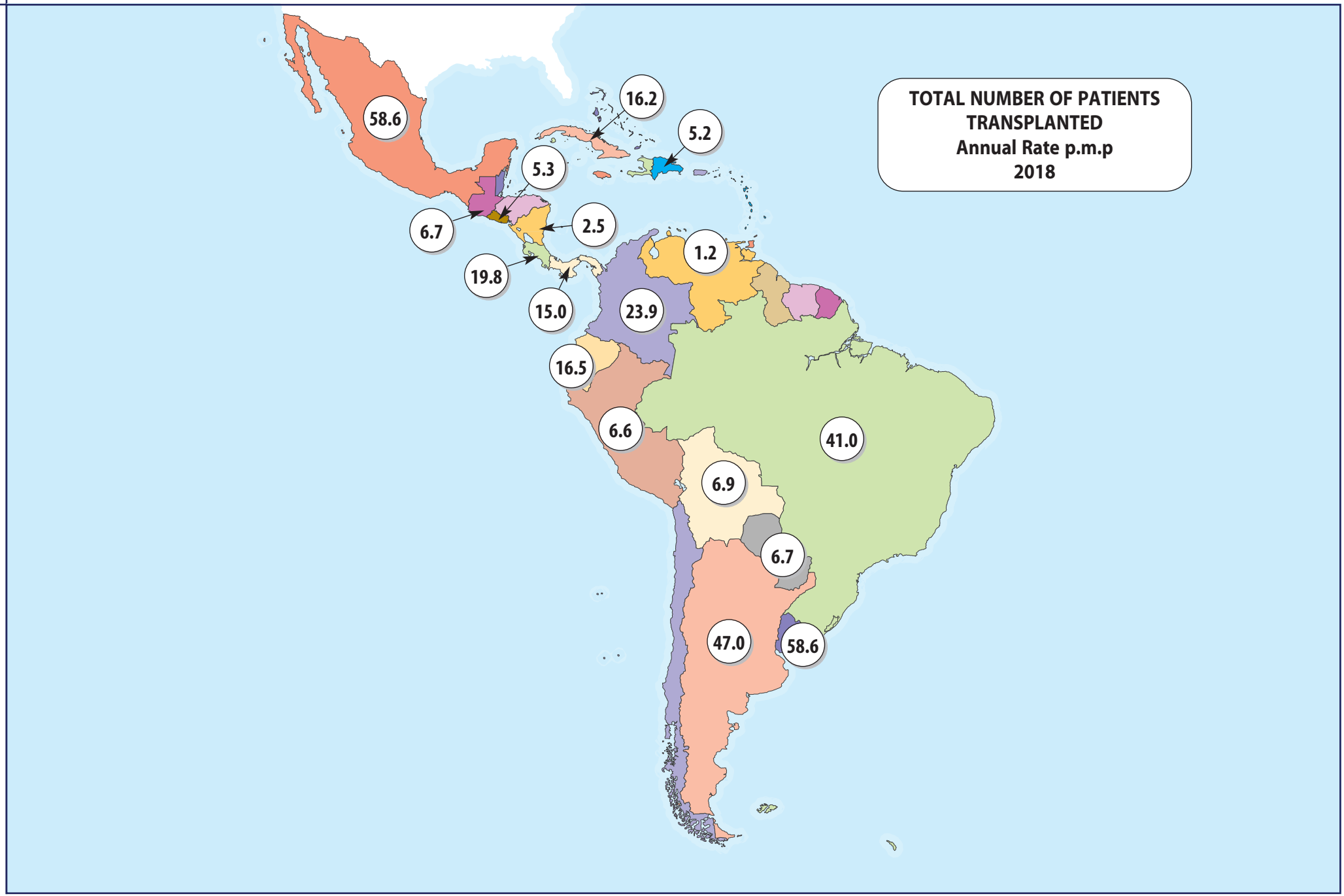

LIVER TRANSPLANT
–all combinations included–
Annual Rate p.m.p
2018
1.8
1.1
0.3
0.0
0.0
0.0
5.4
3.8
0.0
5.1
1.7
1.4
10.5
0.1
0.4
4.8
10.6
7.1


HEART TRANSPLANT
–all combinations included–
Annual Rate p.m.p
2018
0.2
0.0
0.0
0.0
0.0
0.0
1.6
0.2
1.2
0.0
0.0
0.4
1.7
0.0
0.3
1.6
3.0
4.0

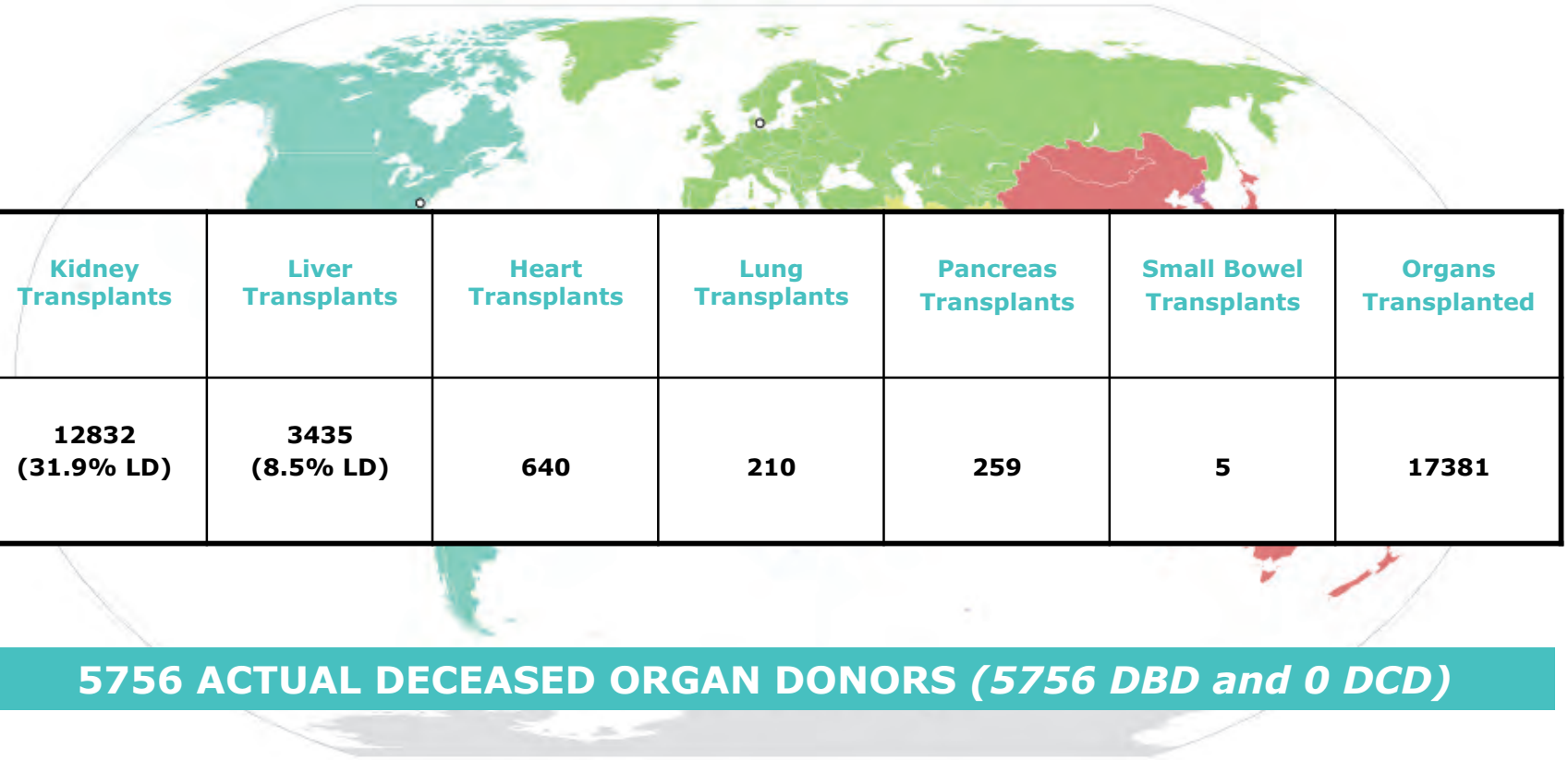

LUNG TRANSPLANT
–all combinations included–
Annual Rate p.m.p
2018
0.0
0.0
0.0
0.0
0.0
0.0
0.4
0.0
0.3
0.1
0.1
0.6
0.0
0.0
0.7
1.0
1.4


PANCREAS TRANSPLANT
–all combinations included–
Annual Rate p.m.p
2018
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.2
0.0
0.1
0.7
0.0
0.0
0.4
2.0
0.0


SMALL BOWEL TRANSPLANT
–all combinations included–
Annual Rate p.m.p
2018
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0
0.0


TOTAL NUMBER OF PATIENTS
TRANSPLANTED
Annual Rate p.m.p
2018
58.6
16.2
5.2
5.3
6.7
2.5
1.2
19.8
15.0
23.9
16.5
6.6
41.0
6.9
6.7
47.0
58.6

# LATIN AMERICAN COUNTRIES



| Kidney Transplants | Liver Transplants | Heart Transplants | Lung Transplants | Pancreas Transplants | Small Bowel Transplants | Organs Transplanted |
|---|---|---|---|---|---|---|
| 12832 (31.9% LD) | 3435 (8.5% LD) | 640 | 210 | 259 | 5 | 17381 |

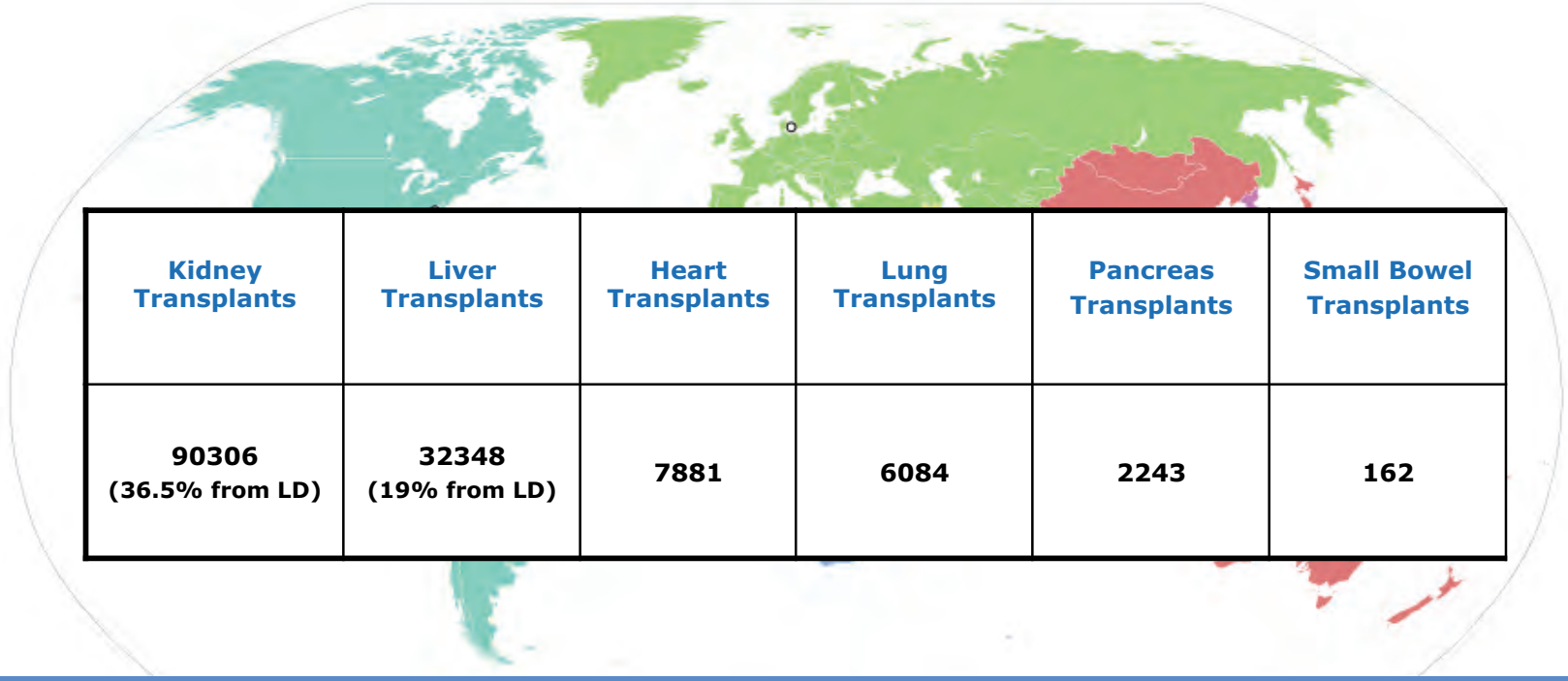
## 5756 ACTUAL DECEASED ORGAN DONORS *(5756 DBD and 0 DCD)*

***2018 data***

***N= 18 COUNTRIES (619.1 million inhabitants)***

GODT
Global Observatory on Donation and Transplantation

# INTERNATIONAL ACTIVITIES IN ORGAN TRANSPLANTATION 2017 ESTIMATES



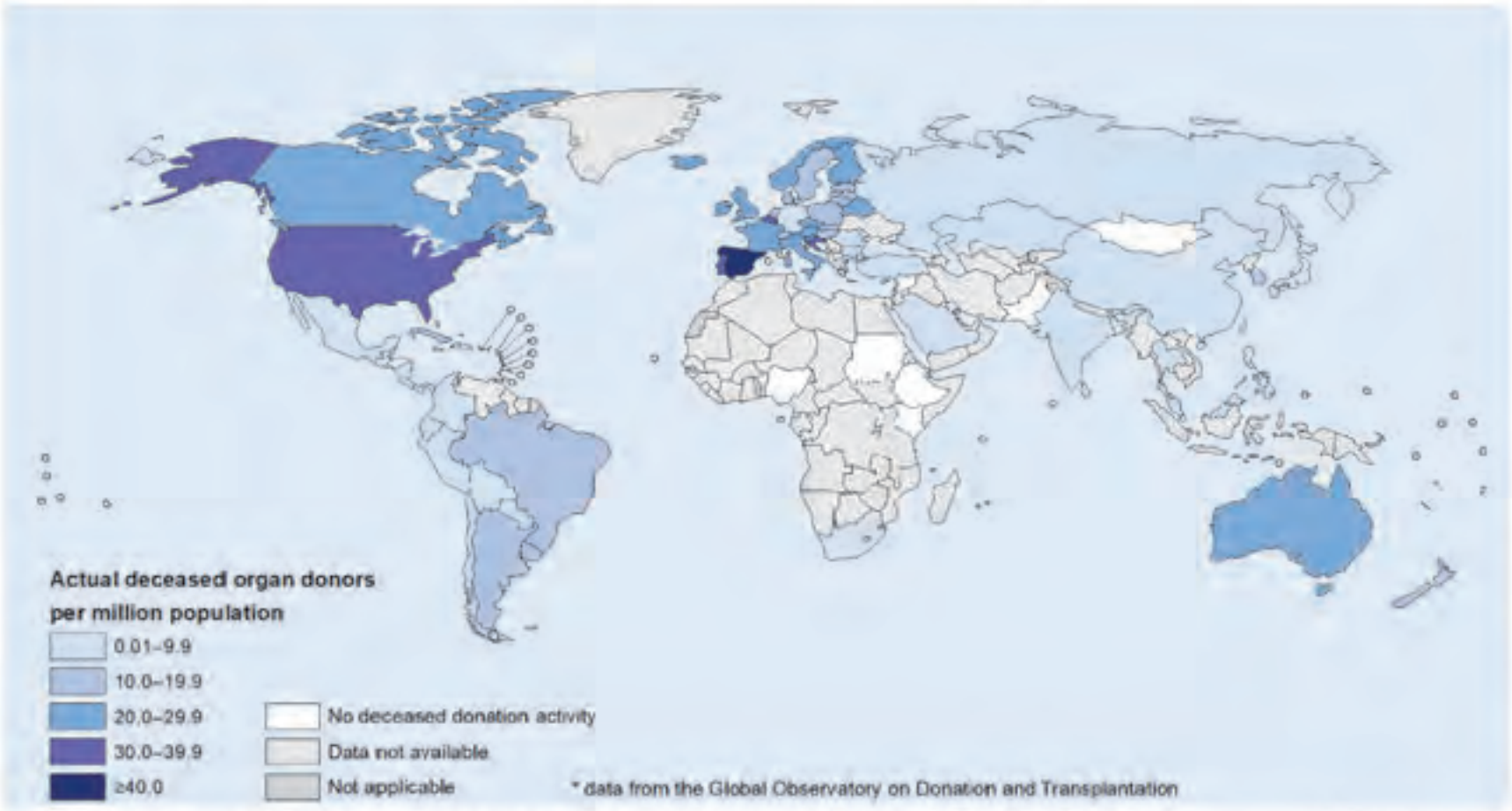
| Kidney Transplants | Liver Transplants | Heart Transplants | Lung Transplants | Pancreas Transplants | Small Bowel Transplants |
|---|---|---|---|---|---|
| 90306 (36.5% from LD) | 32348 (19% from LD) | 7881 | 6084 | 2243 | 162 |

## 37447 ACTUAL DECEASED ORGAN DONORS *(29462 DBD and 7985 DCD)*

- ***Information of 82 Member States on organ transplantation activities is included in the GODT***
- ***139024 organ transplants were reported for 2017***

GODT
Global Observatory on Donation and Transplantation

## Actual donors from deceased persons, 2017*

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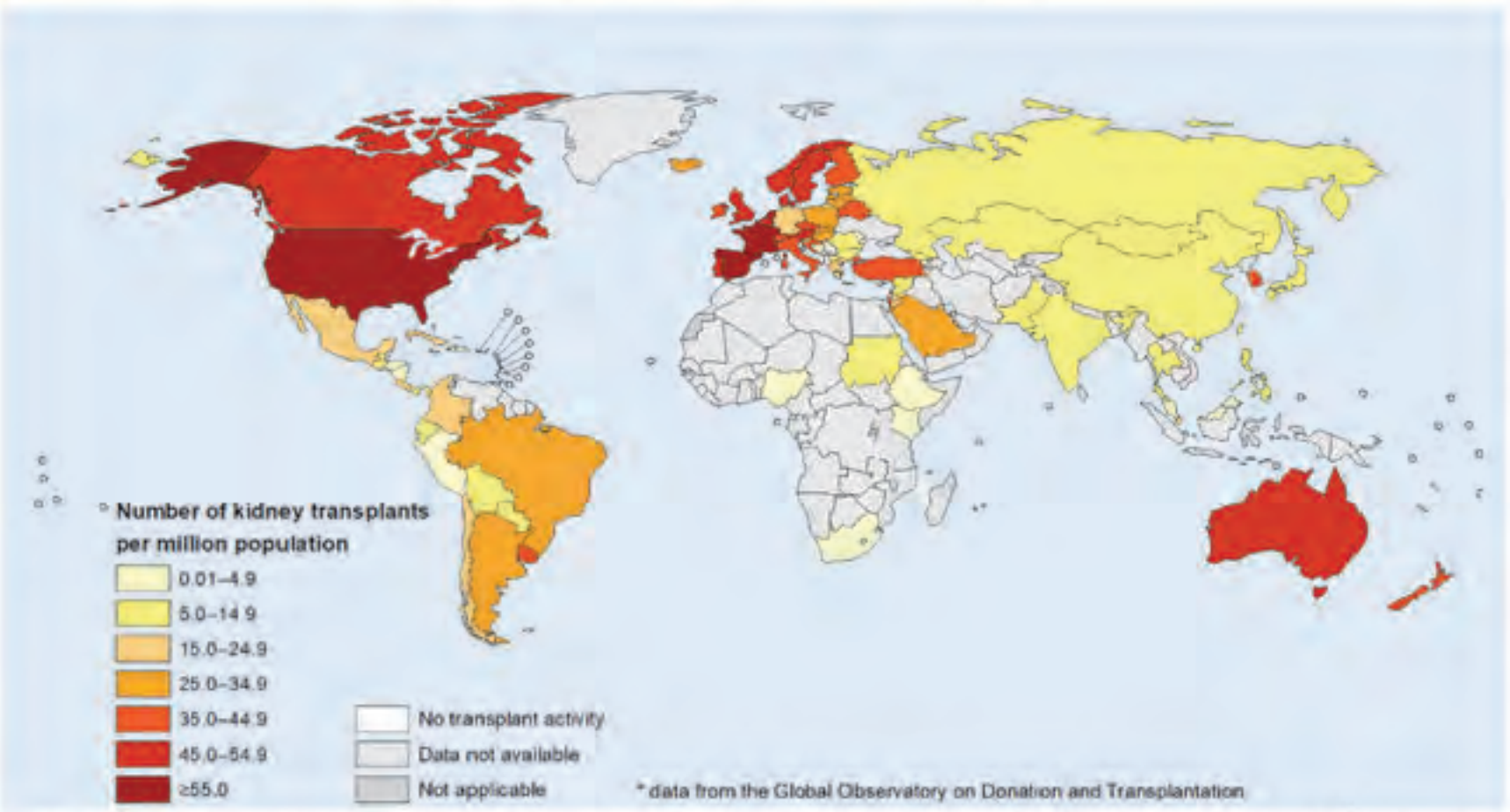
Data Source: Global Observatory on Donation & Transplantation. Map Production: Information Evidence and Research (IER) World Health Organization

World Health Organization

GODT
Global Observatory on Donation and Transplantation

## Kidney transplantation activities, 2017*

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Data Source: Global Observatory on Donation & Transplantation. Map Production: Information Evidence and Research (IER) World Health Organization

World Health Organization

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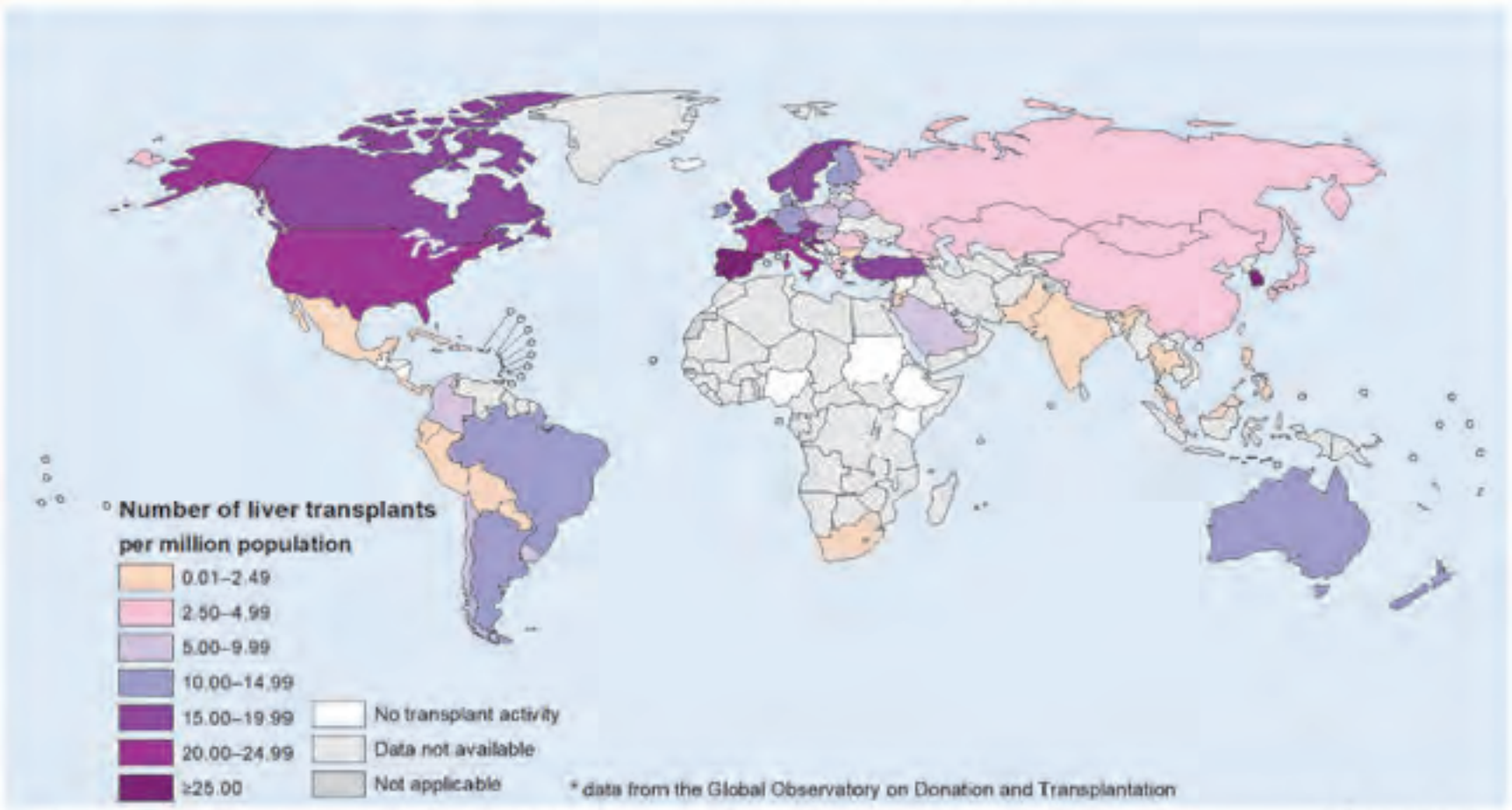
## Liver transplantation activities, 2017*



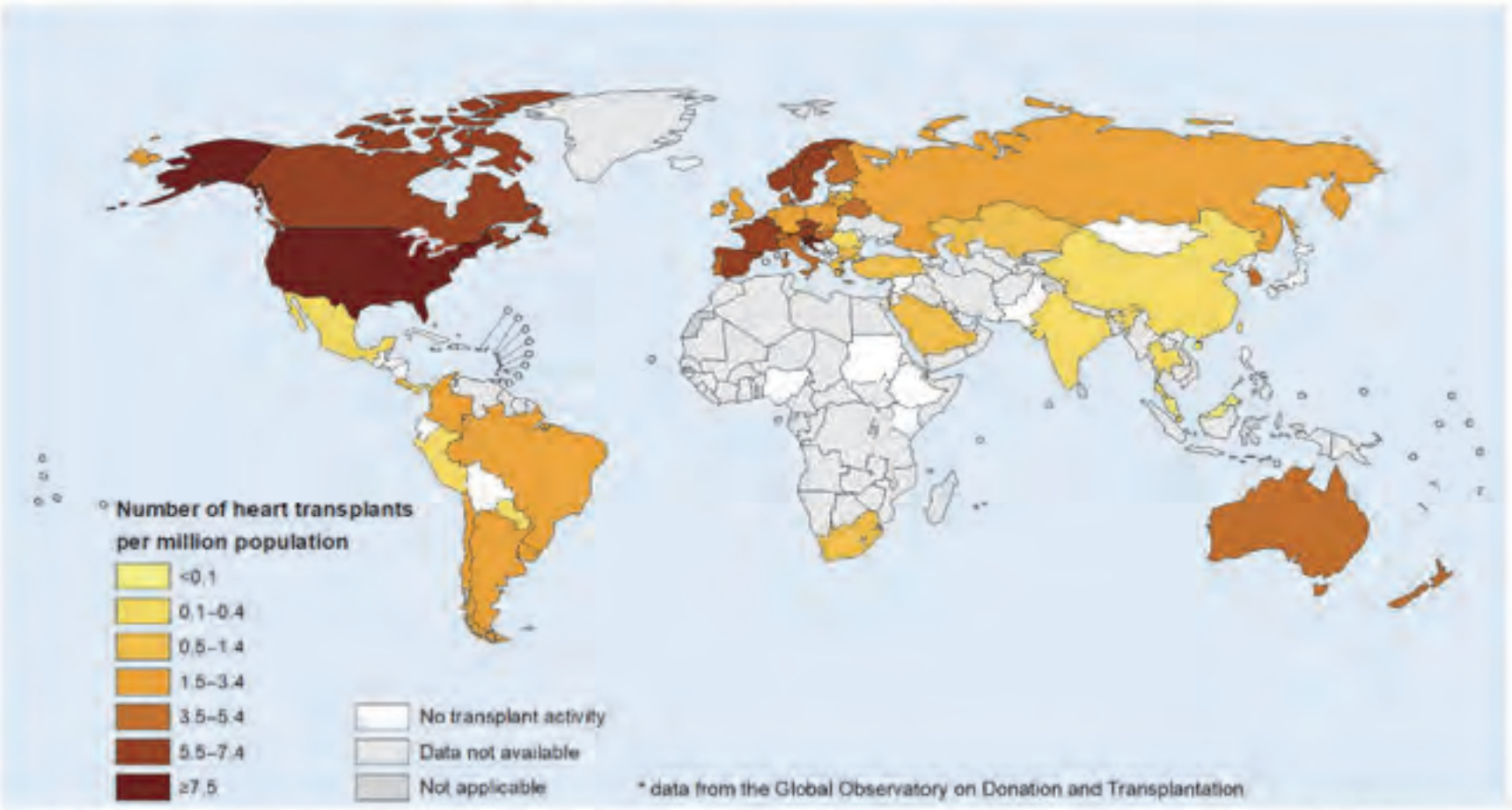



Data Source: Global Observatory on Donation & Transplantation. Map Production: Information Evidence and Research (IER) World Health Organization

World Health Organization

GODT
Global Observatory on Donation and Transplantation

## Heart transplantation activities, 2017*

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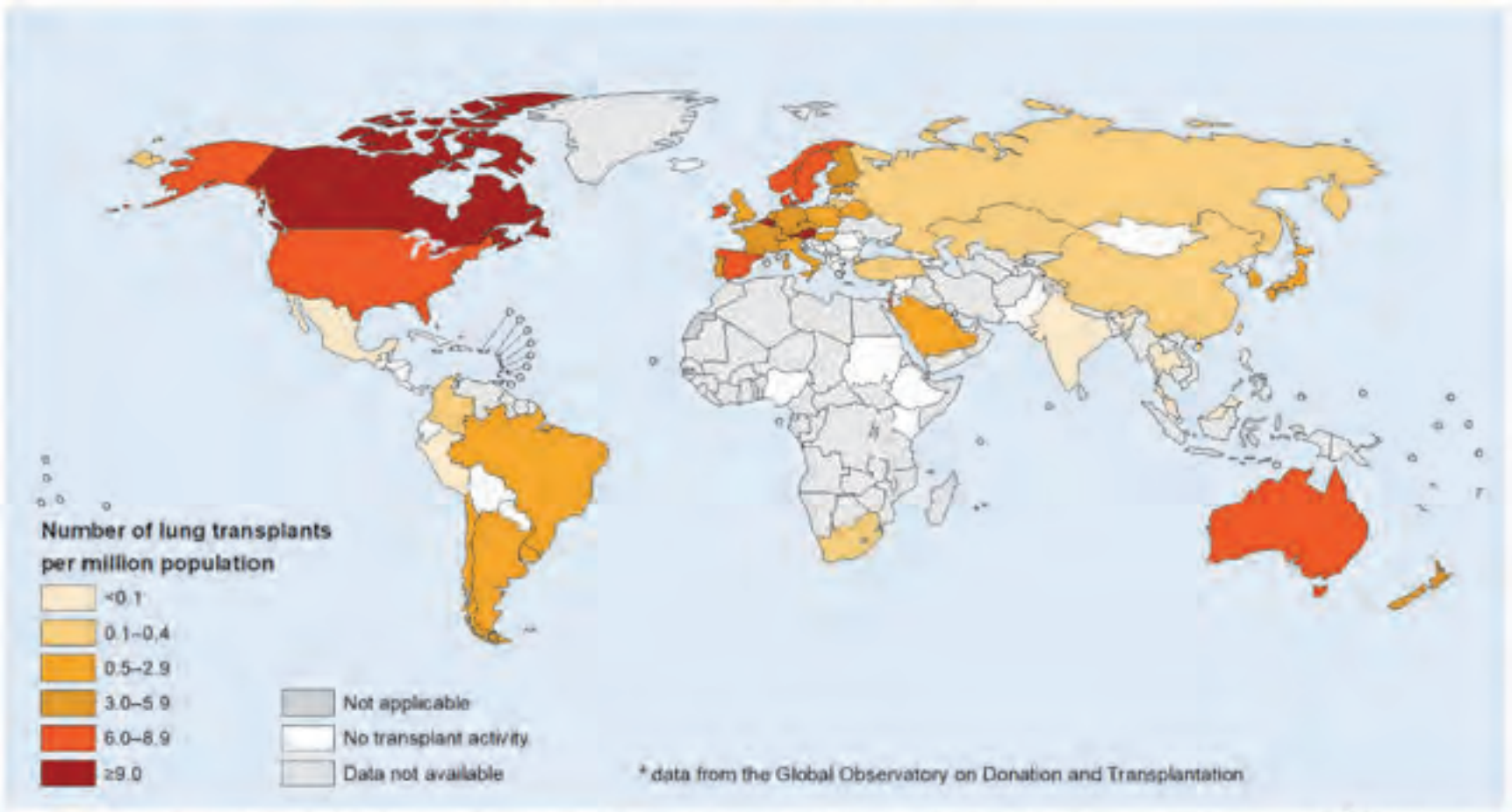
Global Observatory on Donation and Transplantation

## Lung transplantation activities, 2017*

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Data Source: Global Observatory on Donation & Transplantation. Map Production: Information Evidence and Research (IER) World Health Organization

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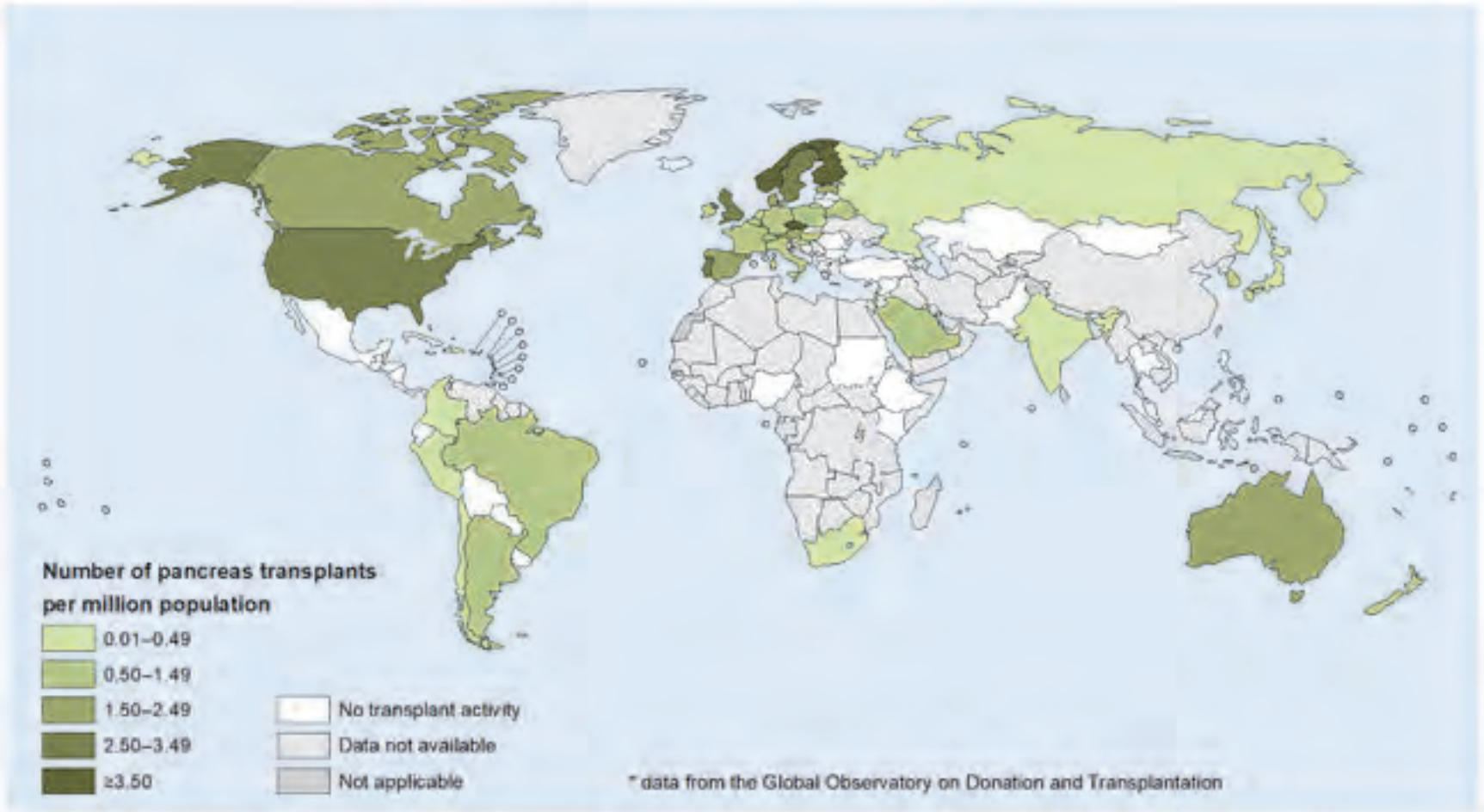
Global Observatory on Donation and Transplantation

## Pancreas transplantation activities, 2017*






Data Source: Global Observatory on Donation & Transplantation. Map Production: Information Evidence and Research (IER)

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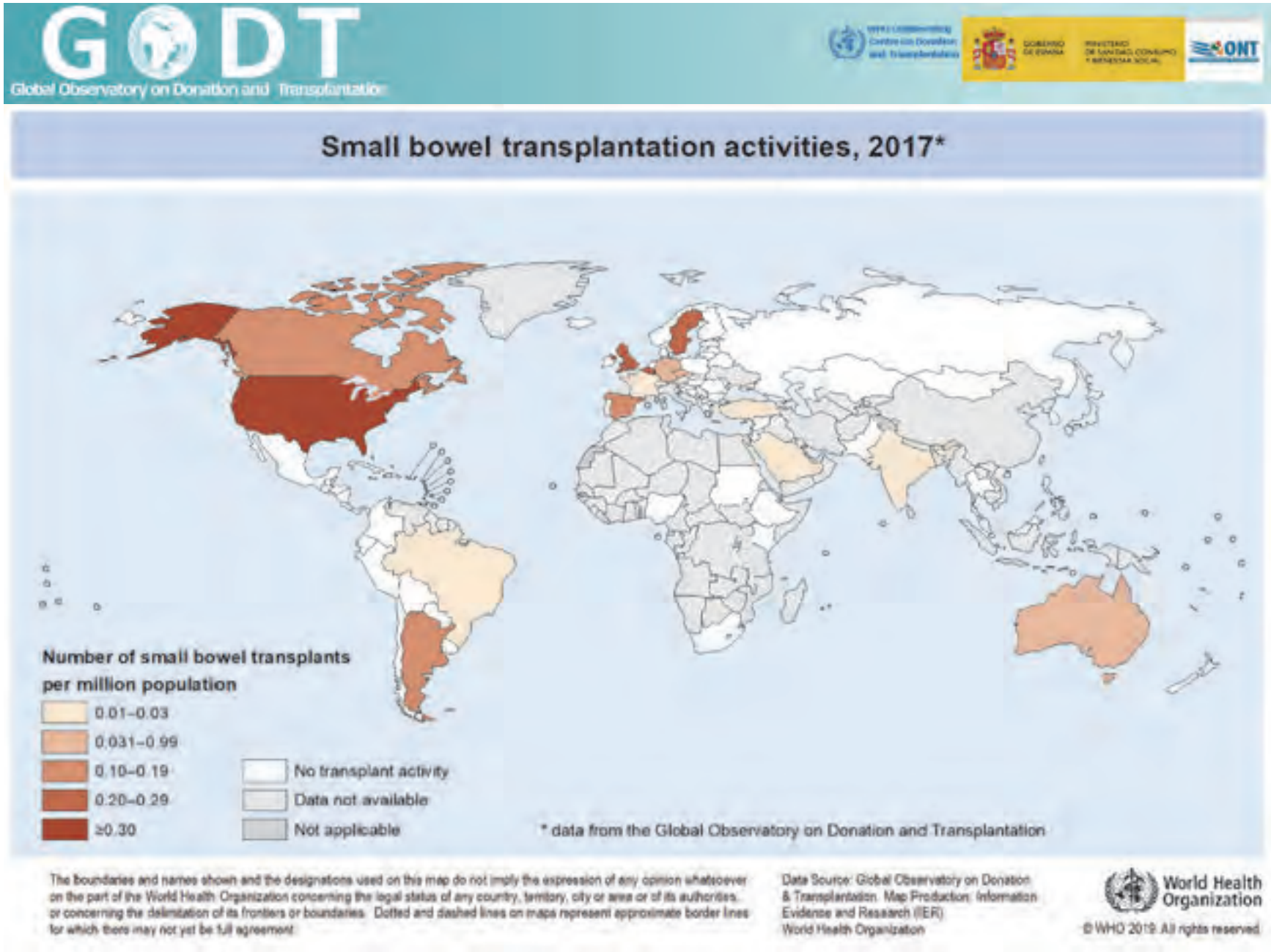
GODT
Global Observatory on Donation and Transplantation
ONT
Small bowel transplantation activities, 2017*
Number of small bowel transplants per million population
0.01–0.03
0.031–0.99
0.10–0.19
0.20–0.29
≥0.30
No transplant activity
Data not available
Not applicable
* data from the Global Observatory on Donation and Transplantation
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Data Source: Global Observatory on Donation & Transplantation. Map Production: Information Evidence and Research (IER) World Health Organization
World Health Organization
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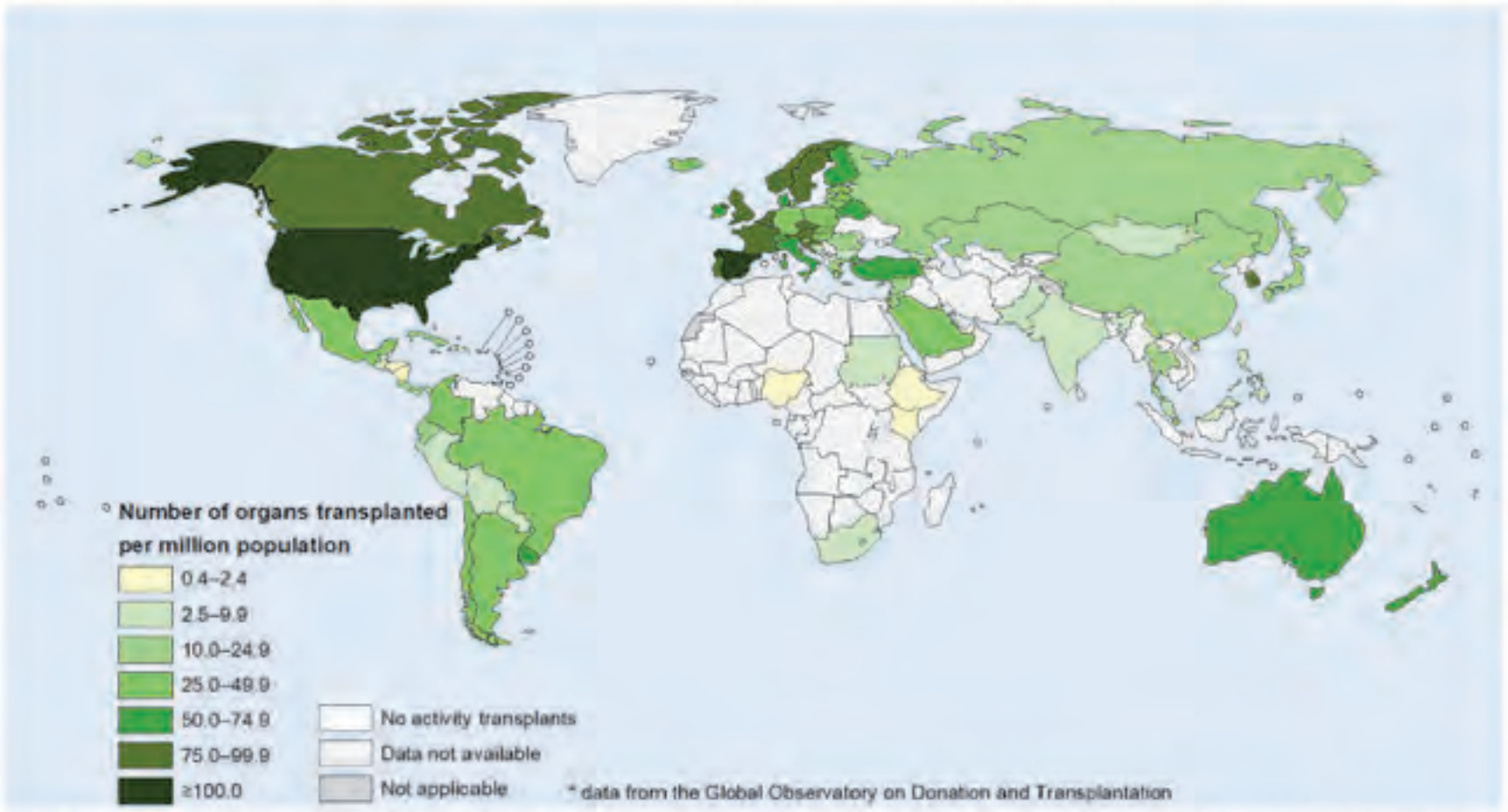
GODT
Global Observatory on Donation and Transplantation

## Global transplantation activities of solid organs, 2017*

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Data Source: Global Observatory on Donation & Transplantation. Map Production: Information Evidence and Research (IER) World Health Organization

World Health Organization

# International Data on Organ Donation and Transplantation Activity and Waiting List. Year 2018

## DONATION ACTIVITY

### EUROPEAN UNION COUNTRIES

| Country | Austria | | Belgium | | Bulgaria | | Croatia | | Cyprus | | Czech Republic | | Denmark | | Estonia | | Finland | | France | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Population (million inhabitants): UNFPA** | **8.8** | | **11.5** | | **7.0** | | **4.2** | | **1.2** | | **10.6** | | **5.8** | | **1.3** | | **5.5** | | **65.2** | |
| **DONATION** | | | | | | | | | | | | | | | | | | | | |
| **Actual deceased organ donors** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** |
| Actual deceased organ donor –both DBD and DCD included– | 216 | 24.5 | 344 | 29.9 | 16 | 2.3 | 169 | 40.2 | 2 | 1.7 | 282 | 26.6 | 100 | 17.2 | 33 | 25.4 | 117 | 21.3 | 1881 | 28.8 |
| Actual deceased donors: Number of men | 125 | 14.2 | 209 | 18.2 | 9 | 1.3 | | | | | 174 | 16.4 | 50 | 8.6 | 24 | 18.5 | 58 | 10.5 | 1045 | 16.0 |
| Actual deceased donors: Number of DD > 60 years | 69 | 7.8 | 124 | 10.8 | 1 | 0.1 | | | 0 | 0.0 | 110 | 10.4 | 50 | 8.6 | 5 | 3.8 | 58 | 10.5 | 912 | 14.0 |
| Actual donors after circulatory death –DCD– | 15 | 1.7 | 103 | 9.0 | 0 | 0.0 | | | 0 | 0.0 | 13 | 1.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 138 | 2.1 |
| II/ Witnessed cardiac arrest (uncontrolled) | | | | | | | | | | | 0 | 0.0 | | | | | | | 17 | 0.3 |
| III/ Withdrawal of life–sustaining therapy (controlled) | | | | | | | | | | | 13 | 1.2 | | | | | | | 121 | 1.9 |
| IV/ Cardiac arrest while brain dead | | | | | | | | | | | 0 | 0.0 | | | | | | | 0 | 0.0 |
| **Utilised deceased organ donors** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** |
| Utilised deceased organ donors –both DBD and DCD included– | 202 | 23.0 | 335 | 29.1 | 16 | 2.3 | 151 | 36.0 | 2 | 1.7 | 259 | 24.4 | 85 | 14.7 | 33 | 25.4 | 108 | 19.6 | 1823 | 28.0 |
| Utilised deceased donors: Number of men | 117 | 13.3 | 204 | 17.7 | 9 | 1.3 | | | | | 154 | 14.5 | 43 | 7.4 | 24 | 18.5 | 54 | 9.8 | 1015 | 15.6 |
| Utilised deceased donors: Number of DD > 60 years | 59 | 6.7 | 117 | 10.2 | 1 | 0.1 | | | 0 | 0.0 | 83 | 7.8 | 41 | 7.1 | 5 | 3.8 | 50 | 9.1 | 866 | 13.3 |
| Utilised donors after circulatory death –DCD– | 14 | 1.6 | 98 | 8.5 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 11 | 1.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 132 | 2.0 |
| II/ Witnessed cardiac arrest (uncontrolled) | | | | | | | | | | | 0 | 0.0 | | | | | | | 16 | 0.2 |
| III/ Withdrawal of life–sustaining therapy (controlled) | | | | | | | | | | | 11 | 1.0 | | | | | | | 116 | 1.8 |
| IV/ Cardiac arrest while brain dead | | | | | | | | | | | 0 | 0.0 | | | | | | | 0 | 0.0 |
| **Living organ donors** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** |
| Living Kidney donors: Number of men | | | | | 0 | 0.0 | | | 4 | 3.3 | 14 | 1.3 | 29 | 5.0 | 1 | 0.8 | 14 | 2.5 | 173 | 2.7 |
| Living Liver donors: Number of men | | | | | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 10 | 0.2 |
| Living Lung donors: Number of men | | | | | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |

## DONATION ACTIVITY

### EUROPEAN UNION COUNTRIES

| Country | Germany | | Greece | | Hungary | | Ireland | | Italy | | Latvia | | Lithuania | | Luxembourg | | Malta | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Population (million inhabitants): UNFPA** | **82.3** | | **11.1** | | **9.7** | | **4.8** | | **59.3** | | **1.9** | | **2.9** | | **0.6** | | **0.4** | |
| **DONATION** | | | | | | | | | | | | | | | | | | |
| **Actual deceased organ donors** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** |
| Actual deceased organ donors –both DBD and DCD included– | 955 | 11.6 | 45 | 4.1 | 168 | 17.3 | 81 | 16.9 | 1466 | 24.7 | 24 | 12.6 | 46 | 15.9 | 7 | 11.7 | 10 | 25.0 |
| Actual deceased donors: Number of men | 505 | 6.1 | 20 | 1.8 | 102 | 10.5 | 39 | 8.1 | 802 | 13.5 | 10 | 5.3 | 27 | 9.3 | 6 | 10.0 | 5 | 12.5 |
| Actual deceased donors: Number of DD > 60 years | 402 | 4.9 | 13 | 1.2 | 55 | 5.7 | 20 | 4.2 | 866 | 14.6 | 8 | 4.2 | 20 | 6.9 | 3 | 5.0 | 4 | 10.0 |
| Actual donors after circulatory death –DCD– | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 0.8 | 57 | 1.0 | 1 | 0.5 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| II/ Witnessed cardiac arrest (uncontrolled) | | | | | | | 0 | 0.0 | 24 | 0.4 | 0 | 0.0 | | | | | | |
| III/ Withdrawal of life–sustaining therapy (controlled) | | | | | | | 4 | 0.8 | 32 | 0.5 | 0 | 0.0 | | | | | | |
| IV/ Cardiac arrest while brain dead | | | | | | | 0 | 0.0 | 1 | 0.0 | 1 | 0.5 | | | | | | |
| **Utilised deceased organ donors** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PM** |
| Utilised deceased organ donors –both DBD and DCD included– | 933 | 11.3 | 43 | 3.9 | 167 | 17.2 | 73 | 15.2 | 1371 | 23.1 | 22 | 11.6 | 45 | 15.5 | 7 | 11.7 | 10 | 25.0 |
| Utilised deceased donors: Number of men | 492 | 6.0 | 19 | 1.7 | 101 | 10.4 | 35 | 7.3 | 742 | 12.5 | 10 | 5.3 | 26 | 9.0 | 6 | 10.0 | 5 | 12.5 |
| Utilised deceased donors: Number of DD > 60 years | 387 | 4.7 | 13 | 1.2 | 55 | 5.7 | 16 | 3.3 | 785 | 13.2 | 6 | 3.2 | 19 | 6.6 | 3 | 5.0 | 4 | 10.0 |
| Utilised donors after circulatory death –DCD– | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.6 | 47 | 0.8 | 1 | 0.5 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| II/ Witnessed cardiac arrest (uncontrolled) | | | | | | | 0 | 0.0 | 18 | 0.3 | 0 | 0.0 | | | | | | |
| III/ Withdrawal of life–sustaining therapy (controlled) | | | | | | | 3 | 0.6 | 28 | 0.5 | 0 | 0.0 | | | | | | |
| IV/ Cardiac arrest while brain dead | | | | | | | 0 | 0.0 | 1 | 0.0 | 1 | 0.5 | | | | | | |
| **Living organ donors** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PM** |
| Living Kidney donors: Number of men | | | 18 | 1.6 | 8 | 0.8 | 16 | 3.3 | 81 | 1.4 | 6 | 3.2 | 5 | 1.7 | | | 2 | 5.0 |
| Living Liver donors: Number of men | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 10 | 0.2 | 0 | 0.0 | 0 | 0.0 | | | 0 | 0.0 |
| Living Lung donors: Number of men | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | 0 | 0.0 |

## DONATION ACTIVITY

### EUROPEAN UNION COUNTRIES

| Country | Netherlands | | Poland | | Portugal | | Romania | | Slovakia | | Slovenia | | Spain | | Sweden | | United Kingdom | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Population (million inhabitants): UNFPA** | **17.1** | | **38.1** | | **10.3** | | **19.6** | | **5.4** | | **2.1** | | **46.4** | | **10.0** | | **66.6** | |
| **DONATION** | | | | | | | | | | | | | | | | | | |
| **Actual deceased organ donors** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** |
| Actual deceased organ donors –both DBD and DCD included– | 281 | 16.4 | 498 | 13.1 | 344 | 33.4 | 65 | 3.3 | 78 | 14.4 | 46 | 21.9 | 2241 | 48.3 | 191 | 19.1 | 1619 | 24.3 |
| Actual deceased donors: Number of men | 165 | 9.6 | 329 | 8.6 | 208 | 20.2 | 43 | 2.2 | 49 | 9.1 | 33 | 15.7 | 1344 | 29.0 | 107 | 10.7 | 879 | 13.2 |
| Actual deceased donors: Number of DD > 60 years | 125 | 7.3 | 113 | 3.0 | 187 | 18.2 | 20 | 1.0 | 19 | 3.5 | 26 | 12.4 | 1278 | 27.5 | 113 | 11.3 | 592 | 8.9 |
| Actual donors after circulatory death –DCD– | 164 | 9.6 | 4 | 0.1 | 28 | 2.7 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 629 | 13.6 | 10 | 1.0 | 619 | 9.3 |
| II/ Witnessed cardiac arrest (uncontrolled) | | | 4 | 0.1 | 28 | 2.7 | | | | | | | 72 | 1.6 | 0 | 0.0 | 0 | 0.0 |
| III/ Withdrawal of life–sustaining therapy (controlled) | | | 0 | 0.0 | 0 | 0.0 | | | | | | | 556 | 12.0 | 10 | 1.0 | 619 | 9.3 |
| IV/ Cardiac arrest while brain dead | | | 0 | 0.0 | 0 | 0.0 | | | | | | | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| **Utilised deceased organ donors** | | | | | | | | | | | | | | | | | | |
| Utilised deceased organ donors –both DBD and DCD included– | 273 | 16.0 | 475 | 12.5 | 309 | 30.0 | 65 | 3.3 | 74 | 13.7 | 40 | 19.0 | 1925 | 41.5 | 182 | 18.2 | 1542 | 23.2 |
| Utilised deceased donors: Number of men | 159 | 9.3 | 311 | 8.2 | 186 | 18.1 | 43 | 2.2 | 48 | 8.9 | 30 | 14.3 | 1139 | 24.5 | 103 | 10.3 | 835 | 12.5 |
| Utilised deceased donors: Number of DD > 60 years | 118 | 6.9 | 97 | 2.5 | 161 | 15.6 | 20 | 1.0 | 16 | 3.0 | 21 | 10.0 | 1041 | 22.4 | 105 | 10.5 | 541 | 8.1 |
| Utilised donors after circulatory death –DCD– | 157 | 9.2 | 4 | 0.1 | 23 | 2.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 527 | 11.4 | 10 | 1.0 | 565 | 8.5 |
| II/ Witnessed cardiac arrest (uncontrolled) | | | 4 | 0.1 | 23 | 2.2 | | | | | | | 41 | 0.9 | 0 | 0.0 | 0 | 0.0 |
| III/ Withdrawal of life–sustaining therapy (controlled) | | | 0 | 0.0 | 0 | 0.0 | | | | | | | 485 | 10.5 | 10 | 1.0 | 565 | 8.5 |
| IV/ Cardiac arrest while brain dead | | | 0 | 0.0 | 0 | 0.0 | | | | | | | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| **Living organ donors** | | | | | | | | | | | | | | | | | | |
| Living Kidney donors: Number of men | | | 14 | 0.4 | 16 | 1.6 | | | 1 | 0.2 | | | 94 | 2.0 | 66 | 6.6 | 479 | 7.2 |
| Living Liver donors: Number of men | | | 8 | 0.2 | 1 | 0.1 | | | 0 | 0.0 | | | 8 | 0.2 | 1 | 0.1 | 10 | 0.2 |
| Living Lung donors: Number of men | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |

## DONATION ACTIVITY

### OTHER COUNTRIES

| Country | Algeria | | Armenia | | Australia | | Belarus | | Bosnia and Herzegovina | | Canada | | Georgia | | Iceland | | India | | Israel | | Kuwait | | Malaysia | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Population (million inhabitants): UNFPA** | **42.0** | | **2.9** | | **24.8** | | **9.5** | | **3.5** | | **37.0** | | **3.9** | | **0.3** | | **1354.1** | | **8.5** | | **4.2** | | **32.0** | |
| **DONATION** | | | | | | | | | | | | | | | | | | | | | | | | |
| **Actual deceased organ donors** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** |
| Actual deceased organ donors –both DBD and DCD included– | 0 | 0.0 | 0 | 0.0 | 554 | 22.3 | 238 | 25.1 | | | | | 0 | 0.0 | 10 | 33.3 | 875 | 0.7 | 113 | 13.3 | 12 | 2.9 | 7 | 0.2 |
| Actual deceased donors: Number of men | | | | | 325 | 13.1 | 90 | 9.5 | | | | | | | 7 | 23.3 | | | 67 | 7.9 | 10 | 2.4 | 4 | 0.1 |
| Actual deceased donors: Number of DD > 60 years | | | | | 167 | 6.7 | 20 | 2.1 | | | | | | | 3 | 10.0 | 143 | 0.1 | 45 | 5.3 | 1 | 0.2 | 0 | 0.0 |
| Actual donors after circulatory death –DCD– | | | | | 154 | 6.2 | 0 | 0.0 | | | | | | | 0 | 0.0 | 3 | 0.0 | 2 | 0.2 | 0 | 0.0 | 0 | 0.0 |
| II/ Witnessed cardiac arrest (uncontrolled) | | | | | | | | | | | | | | | | | | | 2 | 0.2 | | | | |
| III/ Withdrawal of life–sustaining therapy (controlled) | | | | | | | | | | | | | | | | | | | 0 | 0.0 | | | | |
| IV/ Cardiac arrest while brain dead | | | | | | | | | | | | | | | | | | | 0 | 0.0 | | | | |
| **Utilised deceased organ donors** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** |
| Utilised deceased organ donors –both DBD and DCD included– | 0 | 0.0 | 0 | 0.0 | 531 | 21.4 | 238 | 25.1 | | | 763 | 20.6 | 0 | 0.0 | 10 | 33.3 | 712 | 0.5 | 110 | 12.9 | 10 | 2.4 | 7 | 0.2 |
| Utilised deceased donors: Number of men | | | | | 312 | 12.6 | 90 | 9.5 | | | | | | | 7 | 23.3 | | | 65 | 7.6 | 8 | 1.9 | 4 | 0.1 |
| Utilised deceased donors: Number of DD > 60 years | | | | | 150 | 6.0 | 20 | 2.1 | | | | | | | 3 | 10.0 | 115 | 0.1 | 42 | 4.9 | 1 | 0.2 | 0 | 0.0 |
| Utilised donors after circulatory death –DCD– | | | | | 145 | 5.8 | 0 | 0.0 | | | 227 | 6.1 | | | 0 | 0.0 | 3 | 0.0 | 2 | 0.2 | 0 | 0.0 | 0 | 0.0 |
| II/ Witnessed cardiac arrest (uncontrolled) | | | | | | | | | | | | | | | | | | | 2 | 0.2 | | | | |
| III/ Withdrawal of life–sustaining therapy (controlled) | | | | | | | | | | | | | | | | | | | 0 | 0.0 | | | | |
| IV/ Cardiac arrest while brain dead | | | | | | | | | | | | | | | | | | | 0 | 0.0 | | | | |
| **Living organ donors** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** |
| Living Kidney donors: Number of men | 94 | 2.2 | 4 | 1.4 | 99 | 4.0 | 2 | 0.2 | | | | | 10 | 2.6 | 4 | 13.3 | | | 127 | 14.9 | 40 | 9.5 | 25 | 0.8 |
| Living Liver donors: Number of men | 4 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | | | 9 | 2.3 | 0 | 0.0 | | | 11 | 1.3 | 0 | 0.0 | 1 | 0.0 |
| Living Lung donors: Number of men | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | | | 0 | 0.0 | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |

## DONATION ACTIVITY

### OTHER COUNTRIES

| Country | New Zealand | | Norway | | Qatar | | Republic of Moldova | | Russian Federation | | Saudi Arabia | | Sudan | | Switzerland | | Syrian Arab Republic | | The Rep. of North Macedonia | | Turkey | | United States of America | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Population (million inhabitants): UNFPA** | **4.7** | | **5.4** | | **2.7** | | **4.0** | | **144.0** | | **33.6** | | **41.5** | | **8.5** | | **18.3** | | **2.1** | | **81.9** | | **326.8** | |
| **DONATION** | | | | | | | | | | | | | | | | | | | | | | | | |
| **Actual deceased organ donors** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** |
| Actual deceased organ donors –both DBD and DCD included– | 62 | 13.2 | 104 | 19.6 | 7 | 2.6 | 10 | 2.4 | 646 | 4.5 | 96 | 2.9 | 0 | 0.0 | 158 | 18.6 | 0 | 0.0 | 1 | 0.5 | 598 | 7.3 | 10722 | 32.8 |
| Actual deceased donors: Number of men | 32 | 6.8 | 59 | 11.1 | 6 | 2.2 | 6 | 1.5 | 423 | 2.9 | 85 | 2.5 | | | 94 | 11.1 | | | | | 377 | 4.6 | 6497 | 19.9 |
| Actual deceased donors: Number of DD > 60 years | 20 | 4.3 | 54 | 10.2 | 0 | 0.0 | 4 | 1.0 | 68 | 0.5 | 6 | 0.2 | | | 80 | 9.4 | | | 0 | 0.0 | 203 | 2.5 | 1544 | 4.7 |
| Actual donors after circulatory death –DCD– | 9 | 1.9 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 37 | 0.3 | 0 | 0.0 | | | 32 | 3.8 | | | 0 | 0.0 | 0 | 0.0 | 2133 | 6.5 |
| II/ Witnessed cardiac arrest (uncontrolled) | | | | | | | | | 26 | 0.2 | | | | | 0 | 0.0 | | | | | | | 29 | 0.1 |
| III/ Withdrawal of life–sustaining therapy (controlled) | | | | | | | | | 0 | 0.0 | | | | | 32 | 3.8 | | | | | | | 2104 | 6.4 |
| IV/ Cardiac arrest while brain dead | | | | | | | | | 9 | 0.1 | | | | | 0 | 0.0 | | | | | | | 0 | 0.0 |
| **Utilised deceased organ donors** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** |
| Utilised deceased organ donors –both DBD and DCD included– | 58 | 12.3 | 100 | 18.9 | 6 | 2.2 | 8 | 2.0 | 639 | 4.4 | 94 | 2.8 | 0 | 0.0 | 154 | 18.1 | 0 | 0.0 | 1 | 0.5 | 560 | 6.8 | 10106 | 30.9 |
| Utilised deceased donors: Number of men | 30 | 6.4 | 56 | 10.6 | 5 | 1.9 | 4 | 1.0 | 417 | 2.9 | 83 | 2.5 | | | 91 | 10.7 | | | | | 356 | 4.3 | 6158 | 18.8 |
| Utilised deceased donors: Number of DD > 60 years | 17 | 3.6 | 50 | 9.4 | 0 | 0.0 | 3 | 0.7 | 68 | 0.5 | 6 | 0.2 | | | 77 | 9.1 | | | 0 | 0.0 | 184 | 2.2 | 1335 | 4.1 |
| Utilised donors after circulatory death –DCD– | 8 | 1.7 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 35 | 0.2 | 0 | 0.0 | | | 31 | 3.6 | | | 0 | 0.0 | 0 | 0.0 | 1862 | 5.7 |
| II/ Witnessed cardiac arrest (uncontrolled) | | | | | | | | | 26 | 0.2 | | | | | 0 | 0.0 | | | | | | | 22 | 0.1 |
| III/ Withdrawal of life–sustaining therapy (controlled) | | | | | | | | | 0 | 0.0 | | | | | 31 | 3.6 | | | | | | | 1840 | 5.6 |
| IV/ Cardiac arrest while brain dead | | | | | | | | | 9 | 0.1 | | | | | 0 | 0.0 | | | | | | | 0 | 0.0 |
| **Living organ donors** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** |
| Living Kidney donors: Number of men | 30 | 8.1 | 31 | 5.8 | 13 | 4.8 | 2 | 0.5 | 65 | 0.5 | | | 135 | 3.3 | | | | | | | 1981 | 24.2 | 2358 | 7.2 |
| Living Liver donors: Number of men | 0 | 0.0 | 0 | 0.0 | 3 | 1.1 | 3 | 0.7 | 77 | 0.5 | | | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 724 | 8.8 | 180 | 0.6 |
| Living Lung donors: Number of men | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |

## DONATION ACTIVITY

### LATIN AMERICAN COUNTRIES

| Country | Argentina | | Bolivia | | Brazil | | Chile | | Colombia | | Costa Rica | | Cuba | | Dominican Republic | | Ecuador | | El Salvador | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Population (million inhabitants): UNFPA** | **44.7** | | **11.2** | | **210.9** | | **18.2** | | **49.5** | | **5.0** | | **11.5** | | **10.9** | | **16.9** | | **6.4** | |
| **DONATION** | | | | | | | | | | | | | | | | | | | | |
| **Actual deceased organ donors** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** |
| Actual deceased organ donors –both DBD and DCD included– | 701 | 15.7 | 4 | 0.4 | 3529 | 16.7 | 119 | 6.5 | 398 | 8.0 | 35 | 7.0 | 130 | 11.3 | 9 | 0.8 | 133 | 7.9 | 0 | 0.0 |
| Actual deceased donors: Number of men | 279 | 6.2 | 2 | 0.2 | 2074 | 9.8 | | | 262 | 5.3 | 23 | 4.6 | 88 | 7.7 | 7 | 0.6 | 87 | 5.1 | | |
| Actual deceased donors: Number of DD > 60 years | 131 | 2.9 | 0 | 0.0 | 415 | 2.0 | | | 36 | 0.7 | 6 | 1.2 | 16 | 1.4 | 2 | 0.2 | 12 | 0.7 | | |
| Actual donors after circulatory death –DCD– | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | |
| II/ Witnessed cardiac arrest (uncontrolled) | | | | | | | | | | | | | | | | | | | | |
| III/ Withdrawal of life–sustaining therapy (controlled) | | | | | | | | | | | | | | | | | | | | |
| IV/ Cardiac arrest while brain dead | | | | | | | | | | | | | | | | | | | | |
| **Utilised deceased organ donors** | | | | | | | | | | | | | | | | | | | | |
| Utilised deceased organ donor –both DBD and DCD included– | 643 | 14.4 | 4 | 0.4 | 3022 | 14.3 | 119 | 6.5 | 394 | 8.0 | 35 | 7.0 | 80 | 7.0 | 7 | 0.6 | 128 | 7.6 | 0 | 0.0 |
| Utilised deceased donors: Number of men | 386 | 8.6 | 2 | 0.2 | 1852 | 8.8 | | | 260 | 5.3 | 23 | 4.6 | 46 | 4.0 | 2 | 0.2 | 84 | 5.0 | | |
| Utilised deceased donors: Number of DD > 60 years | 103 | 2.3 | 0 | 0.0 | 225 | 1.1 | | | 34 | 0.7 | 6 | 1.2 | 7 | 0.6 | 1 | 0.1 | 12 | 0.7 | | |
| Utilised donors after circulatory death –DCD– | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | |
| II/ Witnessed cardiac arrest (uncontrolled) | | | | | | | | | | | | | | | | | | | | |
| III/ Withdrawal of life–sustaining therapy (controlled) | | | | | | | | | | | | | | | | | | | | |
| IV/ Cardiac arrest while brain dead | | | | | | | | | | | | | | | | | | | | |
| **Living organ donors** | | | | | | | | | | | | | | | | | | | | |
| Living Kidney donors: Number of men | 207 | 4.6 | 35 | 3.1 | | | | | 60 | 1.2 | 13 | 2.6 | 9 | 0.8 | 24 | 2.2 | 11 | 0.7 | 22 | 3.4 |
| Living Liver donors: Number of men | 16 | 0.4 | 1 | 0.1 | | | | | 25 | 0.5 | 0 | 0.0 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Living Lung donors: Number of men | 0 | 0.0 | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |

## DONATION ACTIVITY

### LATIN AMERICAN COUNTRIES

| Country | Guatemala | | Honduras | | Mexico | | Nicaragua | | Panama | | Paraguay | | Peru | | Uruguay | | Venezuela | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Population (million inhabitants): UNFPA** | **17.2** | | **9.4** | | **130.8** | | **6.3** | | **4.2** | | **6.9** | | **32.6** | | **3.5** | | **32.4** | |
| **DONATION** | | | | | | | | | | | | | | | | | | |
| **Actual deceased organ donors** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** |
| Actual deceased organ donors –both DBD and DCD included– | 5 | 0.3 | | | 534 | 4.1 | 1 | 0.2 | 27 | 6.4 | 13 | 1.9 | 65 | 2.0 | 77 | 22.0 | 0 | 0.0 |
| Actual deceased donors: Number of men | 3 | 0.2 | | | 354 | 2.7 | 1 | 0.2 | 16 | 3.8 | 5 | 0.7 | 40 | 1.2 | 44 | 12.6 | | |
| Actual deceased donors: Number of DD > 60 years | 0 | 0.0 | | | 47 | 0.4 | 0 | 0.0 | 1 | 0.2 | 0 | 0.0 | 4 | 0.1 | 10 | 2.9 | | |
| Actual donors after circulatory death –DCD– | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | |
| II/ Witnessed cardiac arrest (uncontrolled) | | | | | | | | | | | | | | | | | | |
| III/ Withdrawal of life–sustaining therapy (controlled) | | | | | | | | | | | | | | | | | | |
| IV/ Cardiac arrest while brain dead | | | | | | | | | | | | | | | | | | |
| **Utilised deceased organ donors** | | | | | | | | | | | | | | | | | | |
| Utilised deceased organ donors –both DBD and DCD included– | 5 | 0.3 | | | 518 | 4.0 | 1 | 0.2 | 27 | 6.4 | 13 | 1.9 | 62 | 1.9 | 76 | 21.7 | 0 | 0.0 |
| Utilised deceased donors: Number of men | 3 | 0.2 | | | 347 | 2.7 | 1 | 0.2 | 16 | 3.8 | 5 | 0.7 | 37 | 1.1 | 44 | 12.6 | | |
| Utilised deceased donors: Number of DD > 60 years | 0 | 0.0 | | | 39 | 0.3 | 0 | 0.0 | 1 | 0.2 | 0 | 0.0 | 4 | 0.1 | 9 | 2.6 | | |
| Utilised donors after circulatory death –DCD– | 5 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | |
| II/ Witnessed cardiac arrest (uncontrolled) | | | | | | | | | | | | | | | | | | |
| III/ Withdrawal of life–sustaining therapy (controlled) | | | | | | | | | | | | | | | | | | |
| IV/ Cardiac arrest while brain dead | | | | | | | | | | | | | | | | | | |
| **Living organ donors** | | | | | | | | | | | | | | | | | | |
| Living Kidney donors: Number of men | 61 | 3.5 | | | 1034 | 7.9 | 6 | 1.0 | 5 | 1.2 | 9 | 1.3 | 15 | 0.5 | 5 | 1.4 | | |
| Living Liver donors: Number of men | 0 | 0.0 | | | 12 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | | |
| Living Lung donors: Number of men | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | |

# TRANSPLANTATION ACTIVITY

## EUROPEAN UNION COUNTRIES

| Country<br>Population (million inhabitants): UNFPA | Austria<br>8.8 | | Belgium<br>11.5 | | Bulgaria<br>7.0 | | Croatia<br>4.2 | | Cyprus<br>1.2 | | Czech Republic<br>10.6 | | Denmark<br>5.8 | | Estonia<br>1.3 | | Finland<br>5.5 | | France<br>65.2 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TRANSPLANTATION** | | | | | | | | | | | | | | | | | | | | |
| | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** |
| ***KIDNEY*** | | | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 414 | 47.0 | 531 | 46.2 | 25 | 3.6 | 183 | 43.6 | 19 | 15.8 | 508 | 47.9 | 236 | 40.7 | 58 | 44.6 | 238 | 43.3 | 3567 | 54.7 |
| Kidney tx: Number of men | 294 | 33.4 | 341 | 29.7 | 20 | 2.9 | 0 | 0.0 | 14 | 11.7 | 348 | 32.8 | 153 | 26.4 | 34 | 26.2 | 145 | 26.4 | 2240 | 34.4 |
| Paediatric <18 years | 14 | 1.6 | 14 | 1.2 | 0 | 0.0 | | | 0 | 0.0 | 15 | 1.4 | 8 | 1.4 | 2 | 1.5 | 15 | 2.7 | 95 | 1.5 |
| Tx from DD | 344 | 39.1 | 474 | 41.2 | 20 | 2.9 | 178 | 42.4 | 4 | 3.3 | 461 | 43.5 | 159 | 27.4 | 54 | 41.5 | 206 | 37.5 | 3026 | 46.4 |
| – Tx from DCD | 35 | 4.0 | 98 | 8.5 | 0 | 0.0 | 0 | 0.0 | | | 22 | 2.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 244 | 3.7 |
| – Single Tx | 334 | 38.0 | 474 | 41.2 | 20 | 2.9 | 178 | 42.4 | | | 454 | 42.8 | 158 | 27.2 | 54 | 41.5 | 206 | 37.5 | 2988 | 45.8 |
| – Double Tx | 10 | 1.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | 7 | 0.7 | 1 | 0.2 | 0 | 0.0 | 0 | 0.0 | 38 | 0.6 |
| Tx from living donors | 70 | 8.0 | 57 | 5.0 | 5 | 0.7 | 5 | 1.2 | 15 | 12.5 | 47 | 4.4 | 77 | 13.3 | 4 | 3.1 | 32 | 5.8 | 541 | 8.3 |
| – Tx from related living donors | 68 | 7.7 | 56 | 4.9 | 5 | 0.7 | 5 | 1.2 | 15 | 12.5 | 40 | 3.8 | 76 | 13.1 | 4 | 3.1 | 32 | 5.8 | 541 | 8.3 |
| – Tx from unrelated living donors | 2 | 0.2 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 7 | 0.7 | 1 | 0.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Paired exchange or cross–over | | | | | | | | | | | | | 0 | 0.0 | | | | | | |
| Non–directed altruistic or anonymous | | | | | | | | | | | | | 1 | 0.2 | | | | | | |
| Directed altruistic | | | | | | | | | | | | | 0 | 0.0 | | | | | | |
| ***LIVER*** | | | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 182 | 20.7 | 308 | 26.8 | 13 | 1.9 | 133 | 31.7 | 0 | 0.0 | 216 | 20.4 | 43 | 7.4 | 10 | 7.7 | 66 | 12.0 | 1325 | 20.3 |
| Liver tx: Number of men | 134 | 15.2 | 217 | 18.9 | 0 | 0.0 | | | | | 125 | 11.8 | 12 | 2.1 | 7 | 5.4 | 28 | 5.1 | 934 | 14.3 |
| Paediatric <18 years | 12 | 1.4 | 42 | 3.7 | 4 | 0.6 | | | | | 13 | 1.2 | 5 | 0.9 | 0 | 0.0 | 8 | 1.5 | 82 | 1.3 |
| Split Tx | 4 | 0.5 | 9 | 0.8 | 0 | 0.0 | 0 | 0.0 | | | 11 | 1.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 75 | 1.2 |
| Domino Tx | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 6 | 0.1 |
| Tx from living donors | 7 | 0.8 | 33 | 2.9 | 2 | 0.3 | 1 | 0.2 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 14 | 0.2 |
| Tx from DCD | 8 | 0.9 | 73 | 6.3 | 0 | 0.0 | 0 | 0.0 | | | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 48 | 0.7 |
| ***HEART*** | | | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 65 | 7.4 | 76 | 6.6 | 4 | 0.6 | 37 | 8.8 | 0 | 0.0 | 74 | 7.0 | 26 | 4.5 | 0 | 0.0 | 47 | 8.5 | 459 | 7.0 |
| Heart tx: Number of men | 52 | 5.9 | | | 4 | 0.6 | | | | | 53 | 5.0 | 21 | 3.6 | | | 31 | 5.6 | 309 | 4.7 |
| Paediatric <18 years | 7 | 0.8 | 2 | 0.2 | 0 | 0.0 | | | | | 2 | 0.2 | 1 | 0.2 | | | 9 | 1.6 | 34 | 0.5 |
| ***HEART–LUNG*** | | | | | | | | | | | | | | | | | | | | |
| Total Tx | 0 | 0.0 | 2 | 0.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 9 | 0.1 |
| Paediatric <18 years | | | 0 | 0.0 | | | | | | | 0 | 0.0 | | | | | | | 1 | 0.0 |
| ***LUNG*** | | | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 117 | 13.3 | 116 | 10.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 42 | 4.0 | 25 | 4.3 | 4 | 3.1 | 18 | 3.3 | 382 | 5.9 |
| Lung Tx: Number of men | 72 | 8.2 | 0 | 0.0 | | | | | | | 24 | 2.3 | 14 | 2.4 | 2 | 1.5 | 11 | 2.0 | 213 | 3.3 |
| Paediatric <18 years | 2 | 0.2 | 0 | 0.0 | | | | | | | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 11 | 0.2 |
| Single Tx | 5 | 0.6 | 4 | 0.3 | | | | | | | 3 | 0.3 | 1 | 0.2 | 1 | 0.8 | 0 | 0.0 | 35 | 0.5 |
| Double Tx (heart–lung Tx included) | 112 | 12.7 | 112 | 9.7 | | | | | | | 39 | 3.7 | 24 | 4.1 | 3 | 2.3 | 18 | 3.3 | 347 | 5.3 |
| Tx from DCD (double + single) | 9 | 1.0 | 30 | 2.6 | | | | | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 10 | 0.2 |
| ***PANCREAS*** | | | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 20 | 2.3 | 16 | 1.4 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 43 | 4.1 | 5 | 0.9 | 2 | 1.5 | 23 | 4.2 | 78 | 1.2 |
| Pancreas Tx: Number of men | 16 | 1.8 | 57 | 5.0 | | | | | | | 24 | 2.3 | 5 | 0.9 | 0 | 0.0 | 13 | 2.4 | 44 | 0.7 |
| Paediatric <18 years | 0 | 0.0 | 0 | 0.0 | | | | | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Pancreas Tx Alone | 1 | 0.1 | 2 | 0.2 | | | | | | | 7 | 0.7 | 1 | 0.2 | 0 | 0.0 | 0 | 0.0 | 13 | 0.2 |
| Kidney – Pancreas Tx | 19 | 2.2 | 14 | 1.2 | | | | | | | 36 | 3.4 | 4 | 0.7 | 2 | 1.5 | 23 | 4.2 | 65 | 1.0 |
| Tx from DCD | 1 | 0.1 | 2 | 0.2 | | | | | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| ***SMALL BOWEL*** | | | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.0 |
| Small bowel Tx: Number of men | | | | | | | | | | | 0 | 0.0 | | | | | | | 1 | 0.0 |
| Paediatric <18 years | | | | | | | | | | | 0 | 0.0 | | | | | | | 1 | 0.0 |
| Small bowel Tx Alone | | | | | | | | | | | 0 | 0.0 | | | | | | | 1 | 0.0 |
| ***RECIPIENTS*** | | | | | | | | | | | | | | | | | | | | |
| Total number of patients transplanted | 772 | 87.7 | 1021 | 88.8 | 42 | 6.0 | 351 | 83.6 | 19 | 15.8 | 884 | 83.4 | 329 | 56.7 | 72 | 55.4 | 367 | 66.7 | 5591 | 85.8 |
| Patients transplanted: Number of men | 548 | 62.3 | 665 | 57.8 | 34 | 4.9 | | | 14 | 11.7 | 574 | 54.2 | 200 | 34.5 | 43 | 33.1 | 231 | 42.0 | | |
| Paediatric <18 years | 29 | 3.3 | 54 | 4.7 | 4 | 0.6 | | | 0 | 0.0 | 0 | 0.0 | 13 | 2.2 | 2 | 1.5 | 32 | 5.8 | 213 | 3.3 |
| Patients transplanted from living donors | 77 | 8.8 | 90 | 7.8 | 7 | 1.0 | 6 | 1.4 | 15 | 12.5 | 47 | 4.4 | 77 | 13.3 | 4 | 3.1 | 32 | 5.8 | 555 | 8.5 |

## TRANSPLANTATION ACTIVITY

### EUROPEAN UNION COUNTRIES

| Country<br>Population (million inhabitants): UNFPA | Germany<br>82.3 | | Greece<br>11.1 | | Hungary<br>9.7 | | Ireland<br>4.8 | | Italy<br>59.3 | | Latvia<br>1.9 | | Lithuania<br>2.9 | | Luxembourg<br>0.6 | | Malta<br>0.4 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TRANSPLANTATION** | | | | | | | | | | | | | | | | | | |
| | Number | PMP | Number | PMP | Number | PMP | Number | PMP | Number | PMP | Number | PMP | Number | PMP | Number | PMP | Number | PMP |
| ***KIDNEY*** | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 2291 | 27.8 | 141 | 12.7 | 335 | 34.5 | 167 | 34.8 | 2124 | 35.8 | 53 | 27.9 | 84 | 29.0 | 0 | 0.0 | 19 | 47.5 |
| Kidney tx: Number of men | 1436 | 17.4 | 100 | 9.0 | 209 | 21.5 | 116 | 24.2 | 1383 | 23.3 | 34 | 17.9 | 47 | 16.2 | | | 16 | 40.0 |
| Paediatric <18 years | 107 | 1.3 | 2 | 0.2 | 15 | 1.5 | 7 | 1.5 | 75 | 1.3 | 0 | 0.0 | 2 | 0.7 | | | 0 | 0.0 |
| Tx from DD | 1653 | 20.1 | 72 | 6.5 | 290 | 29.9 | 127 | 26.5 | 1831 | 30.9 | 39 | 20.5 | 73 | 25.2 | | | 15 | 37.5 |
| – Tx from DCD | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 6 | 1.3 | 63 | 1.1 | 1 | 0.5 | 0 | 0.0 | | | 0 | 0.0 |
| – Single Tx | 1635 | 19.9 | 72 | 6.5 | 290 | 29.9 | 120 | 25.0 | 1705 | 28.8 | 39 | 20.5 | 72 | 24.8 | | | 15 | 37.5 |
| – Double Tx | 18 | 0.2 | 0 | 0.0 | 0 | 0.0 | 1 | 0.2 | 126 | 2.1 | 0 | 0.0 | 1 | 0.3 | | | 0 | 0.0 |
| Tx from living donors | 638 | 7.8 | 69 | 6.2 | 45 | 4.6 | 40 | 8.3 | 293 | 4.9 | 14 | 7.4 | 11 | 3.8 | | | 4 | 10.0 |
| – Tx from related living donors | 629 | 7.6 | 69 | 6.2 | 45 | 4.6 | | | 275 | 4.6 | 11 | 5.8 | | | | | 4 | 10.0 |
| – Tx from unrelated living donors | 9 | 0.1 | 0 | 0.0 | 0 | 0.0 | | | 18 | 0.3 | 3 | 1.6 | | | | | 0 | 0.0 |
| Paired exchange or cross–over | | | | | | | | | 15 | 0.3 | 2 | 1.1 | | | | | | |
| Non–directed altruistic or anonymous | | | | | | | | | 3 | 0.1 | 1 | 0.5 | | | | | | |
| Directed altruistic | | | | | | | | | 0 | 0.0 | 0 | 0.0 | | | | | | |
| ***LIVER*** | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 877 | 10.7 | 23 | 2.1 | 80 | 8.2 | 56 | 11.7 | 1246 | 21.0 | 6 | 3.2 | 19 | 6.6 | 0 | 0.0 | 0 | 0.0 |
| Liver tx: Number of men | 575 | 7.0 | 16 | 1.4 | 49 | 5.1 | 32 | 6.7 | 931 | 15.7 | 6 | 3.2 | 14 | 4.8 | | | | |
| Paediatric <18 years | 102 | 1.2 | 0 | 0.0 | 5 | 0.5 | 1 | 0.2 | 91 | 1.5 | 0 | 0.0 | 0 | 0.0 | | | | |
| Split Tx | 74 | 0.9 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 64 | 1.1 | 0 | 0.0 | 0 | 0.0 | | | | |
| Domino Tx | 5 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | | |
| Tx from living donors | 52 | 0.6 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 25 | 0.4 | 6 | 3.2 | 0 | 0.0 | | | | |
| Tx from DCD | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 34 | 0.6 | 0 | 0.0 | 0 | 0.0 | | | | |
| ***HEART*** | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 318 | 3.9 | 8 | 0.7 | 62 | 6.4 | 18 | 3.8 | 233 | 3.9 | 3 | 1.6 | 10 | 3.4 | 0 | 0.0 | 0 | 0.0 |
| Heart tx: Number of men | 232 | 2.8 | 3 | 0.3 | 44 | 4.5 | 15 | 3.1 | 172 | 2.9 | 2 | 1.1 | 9 | 3.1 | | | | |
| Paediatric <18 years | 42 | 0.5 | 1 | 0.1 | 4 | 0.4 | 0 | 0.0 | 20 | 0.3 | 0 | 0.0 | 2 | 0.7 | | | | |
| ***HEART–LUNG*** | | | | | | | | | | | | | | | | | | |
| Total Tx | 2 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Paediatric <18 years | 0 | 0.0 | | | | | | | | | | | | | | | | |
| ***LUNG*** | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 375 | 4.6 | 0 | 0.0 | 23 | 2.4 | 28 | 5.8 | 144 | 2.4 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Lung Tx: Number of men | 199 | 2.4 | | | 9 | 0.9 | 21 | 4.4 | 98 | 1.7 | | | | | | | | |
| Paediatric <18 years | 14 | 0.2 | | | 1 | 0.1 | 0 | 0.0 | 10 | 0.2 | | | | | | | | |
| Single Tx | 54 | 0.7 | | | 0 | 0.0 | 16 | 3.3 | 19 | 0.3 | | | | | | | | |
| Double Tx (heart–lung Tx included) | 321 | 3.9 | | | 23 | 2.4 | 12 | 2.5 | 125 | 2.1 | | | | | | | | |
| Tx from DCD (double + single) | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 3 | 0.1 | | | | | | | | |
| ***PANCREAS*** | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 95 | 1.2 | 0 | 0.0 | 5 | 0.5 | 5 | 1.0 | 41 | 0.7 | 1 | 0.5 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Pancreas Tx: Number of men | 47 | 0.6 | | | 4 | 0.4 | 2 | 0.4 | 23 | 0.4 | 0 | 0.0 | | | | | | |
| Paediatric <18 years | 1 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | | | | |
| Pancreas Tx Alone | 6 | 0.1 | | | 0 | 0.0 | 0 | 0.0 | 9 | 0.2 | 0 | 0.0 | | | | | | |
| Kidney – Pancreas Tx | 84 | 1.0 | | | 5 | 0.5 | 5 | 1.0 | 32 | 0.5 | 1 | 0.5 | | | | | | |
| Tx from DCD | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | | | | |
| ***SMALL BOWEL*** | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 3 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Small bowel Tx: Number of men | | | | | | | | | | | | | | | | | | |
| Paediatric <18 years | 1 | 0.0 | | | | | | | | | | | | | | | | |
| Small bowel Tx Alone | 0 | 0.0 | | | | | | | | | | | | | | | | |
| ***RECIPIENTS*** | | | | | | | | | | | | | | | | | | |
| Total number of patients transplanted | 3830 | 46.5 | 172 | 15.5 | 497 | 51.2 | 269 | 56.0 | 3675 | 62.0 | 62 | 32.6 | 113 | 39.0 | 0 | 0.0 | 19 | 47.5 |
| Patients transplanted: Number of men | 2429 | 29.5 | 119 | 10.7 | 310 | 32.0 | 186 | 38.8 | 2539 | 42.8 | 42 | 22.1 | 70 | 24.1 | 0 | 0.0 | 16 | 40.0 |
| Paediatric <18 years | 260 | 3.2 | 3 | 0.3 | 25 | 2.6 | 8 | 1.7 | 186 | 3.1 | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 |
| Patients transplanted from living donors | 690 | 8.4 | 69 | 6.2 | 45 | 4.6 | 40 | 8.3 | 318 | 5.4 | 14 | 7.4 | 11 | 3.8 | 0 | 0.0 | 4 | 10.0 |

## TRANSPLANTATION ACTIVITY

### EUROPEAN UNION COUNTRIES

| Country<br>Population (million inhabitants): UNFPA | Netherlands<br>17.1 | | Poland<br>38.1 | | Portugal<br>10.3 | | Romania<br>19.6 | | Slovakia<br>5.4 | | Slovenia<br>2.1 | | Spain<br>46.4 | | Sweden<br>10.0 | | United Kingdom<br>66.6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TRANSPLANTATION** | | | | | | | | | | | | | | | | | | |
| | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** |
| ***KIDNEY*** | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 998 | 58.4 | 946 | 24.8 | 502 | 48.7 | 183 | 9.3 | 146 | 27.0 | 56 | 26.7 | 3313 | 71.4 | 448 | 44.8 | 3642 | 54.7 |
| Kidney tx: Number of men | 648 | 37.9 | 606 | 15.9 | 321 | 31.2 | | | 88 | 16.3 | 35 | 16.7 | 2130 | 45.9 | 289 | 28.9 | 2286 | 34.3 |
| Paediatric <18 years | 28 | 1.6 | 41 | 1.1 | 9 | 0.9 | 5 | 0.3 | 2 | 0.4 | 0 | 0.0 | 79 | 1.7 | 18 | 1.8 | 139 | 2.1 |
| Tx from DD | 488 | 28.5 | 906 | 23.8 | 443 | 43.0 | 119 | 6.1 | 135 | 25.0 | 54 | 25.7 | 3020 | 65.1 | 304 | 30.4 | 2608 | 39.2 |
| – Tx from DCD | 296 | 17.3 | 7 | 0.2 | 46 | 4.5 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 856 | 18.4 | 17 | 1.7 | 989 | 14.8 |
| – Single Tx | 480 | 28.1 | 906 | 23.8 | 409 | 39.7 | 119 | 6.1 | 135 | 25.0 | 54 | 25.7 | 3013 | 64.9 | 302 | 30.2 | 2579 | 38.7 |
| – Double Tx | 8 | 0.5 | 0 | 0.0 | 34 | 3.3 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 7 | 0.2 | 2 | 0.2 | 29 | 0.4 |
| Tx from living donors | 510 | 29.8 | 40 | 1.0 | 59 | 5.7 | 64 | 3.3 | 11 | 2.0 | 2 | 1.0 | 293 | 6.3 | 144 | 14.4 | 1034 | 15.5 |
| – Tx from related living donors | 421 | 24.6 | 40 | 1.0 | 53 | 5.1 | 64 | 3.3 | 11 | 2.0 | 2 | 1.0 | 275 | 5.9 | 139 | 13.9 | 820 | 12.3 |
| – Tx from unrelated living donors | 89 | 5.2 | 0 | 0.0 | 6 | 0.6 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 18 | 0.4 | 5 | 0.5 | 214 | 3.2 |
| Paired exchange or cross–over | | | | | 6 | 0.6 | | | | | | | 13 | 0.3 | 3 | 0.3 | 146 | 2.2 |
| Non–directed altruistic or anonymous | | | | | 0 | 0.0 | | | | | | | 5 | 0.1 | 2 | 0.2 | 68 | 1.0 |
| Directed altruistic | | | | | 0 | 0.0 | | | | | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| ***LIVER*** | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 195 | 11.4 | 316 | 8.3 | 232 | 22.5 | 69 | 3.5 | 37 | 6.9 | 27 | 12.9 | 1230 | 26.5 | 163 | 16.3 | 1068 | 16.0 |
| Liver tx: Number of men | 127 | 7.4 | 182 | 4.8 | 163 | 15.8 | | | 22 | 4.1 | 16 | 7.6 | 914 | 19.7 | 108 | 10.8 | 662 | 9.9 |
| Paediatric <18 years | 27 | 1.6 | 32 | 0.8 | 9 | 0.9 | 2 | 0.1 | 0 | 0.0 | 0 | 0.0 | 66 | 1.4 | 11 | 1.1 | 105 | 1.6 |
| Split Tx | 7 | 0.4 | 0 | 0.0 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 12 | 0.3 | 6 | 0.6 | 96 | 1.4 |
| Domino Tx | 0 | 0.0 | 0 | 0.0 | 12 | 1.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| Tx from living donors | 12 | 0.7 | 22 | 0.6 | 1 | 0.1 | 11 | 0.6 | 0 | 0.0 | 0 | 0.0 | 23 | 0.5 | 1 | 0.1 | 19 | 0.3 |
| Tx from DCD | 69 | 4.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 196 | 4.2 | 0 | 0.0 | 194 | 2.9 |
| ***HEART*** | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 38 | 2.2 | 147 | 3.9 | 33 | 3.2 | 7 | 0.4 | 18 | 3.3 | 23 | 11.0 | 321 | 6.9 | 66 | 6.6 | 194 | 2.9 |
| Heart tx: Number of men | 25 | 1.5 | 105 | 2.8 | 21 | 2.0 | | | 14 | 2.6 | 18 | 8.6 | 228 | 4.9 | 48 | 4.8 | 123 | 1.8 |
| Paediatric <18 years | 9 | 0.5 | 7 | 0.2 | 3 | 0.3 | 2 | 0.1 | 1 | 0.2 | 1 | 0.5 | 36 | 0.8 | 6 | 0.6 | 38 | 0.6 |
| ***HEART–LUNG*** | | | | | | | | | | | | | | | | | | |
| Total Tx | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.0 | 0 | 0.0 | 6 | 0.1 |
| Paediatric <18 years | | | | | | | | | | | | | 0 | 0.0 | | | 2 | 0.0 |
| ***LUNG*** | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 89 | 5.2 | 43 | 1.1 | 27 | 2.6 | 4 | 0.2 | 0 | 0.0 | 0 | 0.0 | 369 | 8.0 | 74 | 7.4 | 189 | 2.8 |
| Lung Tx: Number of men | 59 | 3.5 | 29 | 0.8 | 16 | 1.6 | | | | | | | 222 | 4.8 | 38 | 3.8 | 102 | 1.5 |
| Paediatric <18 years | | | 2 | 0.1 | 1 | 0.1 | 0 | 0.0 | | | | | 7 | 0.2 | 2 | 0.2 | 6 | 0.1 |
| Single Tx | 9 | 0.5 | 8 | 0.2 | 4 | 0.4 | 0 | 0.0 | | | | | 106 | 2.3 | 11 | 1.1 | 15 | 0.2 |
| Double Tx (heart–lung Tx included) | 80 | 4.7 | 35 | 0.9 | 23 | 2.2 | 4 | 0.2 | | | | | 263 | 5.7 | 63 | 6.3 | 174 | 2.6 |
| Tx from DCD (double + single) | 30 | 1.8 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | | | 64 | 1.4 | 1 | 0.1 | 38 | 0.6 |
| ***PANCREAS*** | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 36 | 2.1 | 20 | 0.5 | 35 | 3.4 | 0 | 0.0 | 0 | 0.0 | 3 | 1.4 | 82 | 1.8 | 18 | 1.8 | 217 | 3.3 |
| Pancreas Tx: Number of men | 23 | 1.3 | 12 | 0.3 | 21 | 2.0 | | | | | 0 | 0.0 | 39 | 0.8 | 12 | 1.2 | 124 | 1.9 |
| Paediatric <18 years | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 | | | | | 0 | 0.0 | 2 | 0.0 | 1 | 0.1 | 4 | 0.1 |
| Pancreas Tx Alone | 14 | 0.8 | 1 | 0.0 | 2 | 0.2 | | | | | 0 | 0.0 | 10 | 0.2 | 6 | 0.6 | 20 | 0.3 |
| Kidney – Pancreas Tx | 20 | 1.2 | 19 | 0.5 | 33 | 3.2 | | | | | 3 | 1.4 | 68 | 1.5 | 12 | 1.2 | 174 | 2.6 |
| Tx from DCD | 19 | 1.1 | 0 | 0.0 | 0 | 0.0 | | | | | 0 | 0.0 | 4 | 0.1 | 0 | 0.0 | 58 | 0.9 |
| ***SMALL BOWEL*** | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 2 | 0.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 6 | 0.1 | 2 | 0.2 | 25 | 0.4 |
| Small bowel Tx: Number of men | | | | | | | | | | | | | 2 | 0.0 | 2 | 0.2 | 16 | 0.2 |
| Paediatric <18 years | | | | | | | | | | | | | 2 | 0.0 | 1 | 0.1 | 5 | 0.1 |
| Small bowel Tx Alone | | | | | | | | | | | | | 2 | 0.0 | 0 | 0.0 | 2 | 0.0 |
| ***RECIPIENTS*** | | | | | | | | | | | | | | | | | | |
| Total number of patients transplanted | 1336 | 78.1 | 1447 | 38.0 | 783 | 76.0 | 263 | 13.4 | 201 | 37.2 | 106 | 50.5 | 5196 | 112.0 | 753 | 75.3 | 5122 | 76.9 |
| Patients transplanted: Number of men | 868 | 50.8 | 917 | 24.1 | 512 | 49.7 | | | 124 | 23.0 | 69 | 32.9 | 3462 | 74.6 | 483 | 48.3 | 3190 | 47.9 |
| Paediatric <18 years | 50 | 2.9 | 82 | 2.2 | 22 | 2.1 | 9 | 0.5 | 3 | 0.6 | 1 | 0.5 | 188 | 4.1 | 36 | 3.6 | 283 | 4.2 |
| Patients transplanted from living donors | 522 | 30.5 | 62 | 1.6 | 60 | 5.8 | 75 | 3.8 | 11 | 2.0 | 2 | 1.0 | 316 | 6.8 | 145 | 14.5 | 1053 | 15.8 |

## TRANSPLANTATION ACTIVITY

### OTHER COUNTRIES

| Country | Algeria | | Armenia | | Australia | | Belarus | | Bosnia and Herzegovina | | Canada | | Georgia | | Iceland | | India | | Israel | | Kuwait | | Malaysia | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Population (million inhabitants): UNFPA** | **42.0** | | **2.9** | | **24.8** | | **9.5** | | **3.5** | | **37.0** | | **3.9** | | **0.3** | | **1354.1** | | **8.5** | | **4.2** | | **32.0** | |
| **TRANSPLANTATION** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** |
| ***KIDNEY*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 268 | 6.4 | 12 | 4.1 | 1135 | 45.8 | 356 | 37.5 | | | 1706 | 46.1 | 17 | 4.4 | 9 | 30.0 | 7936 | 5.9 | 401 | 47.2 | 70 | 16.7 | 80 | 2.5 |
| Kidney tx: Number of men | 153 | 3.6 | 5 | 1.7 | 715 | 28.8 | 170 | 17.9 | | | | | 10 | 2.6 | 8 | 26.7 | | | 273 | 32.1 | 49 | 11.7 | 41 | 1.3 |
| Paediatric <18 years | 11 | 0.3 | 1 | 0.3 | 45 | 1.8 | 21 | 2.2 | | | 50 | 1.4 | 1 | 0.3 | 1 | 3.3 | 50 | 0.0 | 27 | 3.2 | 3 | 0.7 | 5 | 0.2 |
| Tx from DD | 0 | 0.0 | 0 | 0.0 | 897 | 36.2 | 350 | 36.8 | | | 1219 | 32.9 | 0 | 0.0 | 0 | 0.0 | 1164 | 0.9 | 170 | 20.0 | 19 | 4.5 | 12 | 0.4 |
| – Tx from DCD | 0 | 0.0 | | | 249 | 10.0 | 0 | 0.0 | | | 357 | 9.6 | 0 | 0.0 | | | 5 | 0.0 | 4 | 0.5 | 0 | 0.0 | 0 | 0.0 |
| – Single Tx | 0 | 0.0 | | | 872 | 35.2 | 350 | 36.8 | | | 1204 | 32.5 | 0 | 0.0 | | | 1111 | 0.8 | 165 | 19.4 | 19 | 4.5 | 12 | 0.4 |
| – Double Tx | 0 | 0.0 | | | 25 | 1.0 | 0 | 0.0 | | | 15 | 0.4 | 0 | 0.0 | | | 53 | 0.0 | 5 | 0.6 | 0 | 0.0 | 0 | 0.0 |
| Tx from living donors | 268 | 6.4 | 12 | 4.1 | 238 | 9.6 | 6 | 0.6 | | | 487 | 13.2 | 17 | 4.4 | 9 | 30.0 | 6772 | 5.0 | 231 | 27.2 | 51 | 12.1 | 68 | 2.1 |
| – Tx from related living donors | 268 | 6.4 | 12 | 4.1 | 192 | 7.7 | 6 | 0.6 | | | 250 | 6.8 | | | 9 | 30.0 | 5205 | 3.8 | 105 | 12.4 | 27 | 6.4 | 68 | 2.1 |
| – Tx from unrelated living donors | 0 | 0.0 | 0 | 0.0 | 46 | 1.9 | 0 | 0.0 | | | 237 | 6.4 | | | 0 | 0.0 | 1567 | 1.2 | 126 | 14.8 | 24 | 5.7 | 0 | 0.0 |
| Paired exchange or cross–over | | | | | 40 | 1.6 | | | | | | | | | | | | | 25 | 2.9 | 0 | 0.0 | | |
| Non–directed altruistic or anonymous | | | | | 6 | 0.2 | | | | | | | | | | | | | 17 | 2.0 | 0 | 0.0 | | |
| Directed altruistic | | | | | | | | | | | | | | | | | | | 84 | 9.9 | 24 | 5.7 | | |
| ***LIVER*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 7 | 0.2 | 0 | 0.0 | 320 | 12.9 | 80 | 8.4 | | | 536 | 14.5 | 13 | 3.3 | 0 | 0.0 | 1945 | 1.4 | 117 | 13.8 | 4 | 1.0 | 4 | 0.1 |
| Liver tx: Number of men | 4 | 0.1 | | | 203 | 8.2 | 47 | 4.9 | | | | | 9 | 2.3 | | | | | 73 | 8.6 | 3 | 0.7 | 1 | 0.0 |
| Paediatric <18 years | 0 | 0.0 | | | | | 7 | 0.7 | | | 42 | 1.1 | 0 | 0.0 | | | 99 | 0.1 | 20 | 2.4 | 0 | 0.0 | 0 | 0.0 |
| Split Tx | 0 | 0.0 | | | 43 | 1.7 | 0 | 0.0 | | | 8 | 0.2 | | | | | 5 | 0.0 | 4 | 0.5 | 0 | 0.0 | 0 | 0.0 |
| Domino Tx | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | | | | | 0 | 0.0 | | | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Tx from living donors | 7 | 0.2 | | | 0 | 0.0 | 6 | 0.6 | | | 69 | 1.9 | 13 | 3.3 | | | 1313 | 1.0 | 17 | 2.0 | 0 | 0.0 | 1 | 0.0 |
| Tx from DCD | 0 | 0.0 | | | 21 | 0.8 | 0 | 0.0 | | | 41 | 1.1 | | | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| ***HEART*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 0 | 0.0 | 0 | 0.0 | 128 | 5.2 | 41 | 4.3 | | | 193 | 5.2 | 0 | 0.0 | 0 | 0.0 | 241 | 0.2 | 26 | 3.1 | 0 | 0.0 | 1 | 0.0 |
| Heart tx: Number of men | | | | | 87 | 3.5 | 32 | 3.4 | | | | | | | | | | | 14 | 1.6 | | | 0 | 0.0 |
| Paediatric <18 years | | | | | 11 | 0.4 | 0 | 0.0 | | | 22 | 0.6 | | | | | 17 | 0.0 | 2 | 0.2 | | | 0 | 0.0 |
| ***HEART–LUNG*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Tx | 0 | 0.0 | | | 7 | 0.3 | 0 | 0.0 | | | | | 0 | 0.0 | | | 44 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Paediatric <18 years | | | | | 1 | 0.0 | | | | | | | | | | | 0 | 0.0 | | | | | | |
| ***LUNG*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 0 | 0.0 | 0 | 0.0 | 221 | 8.9 | 4 | 0.4 | | | 361 | 9.8 | 0 | 0.0 | 0 | 0.0 | 191 | 0.1 | 56 | 6.6 | 0 | 0.0 | 0 | 0.0 |
| Lung Tx: Number of men | | | | | 133 | 5.4 | 2 | 0.2 | | | | | | | | | | | 43 | 5.1 | | | | |
| Paediatric <18 years | | | | | 5 | 0.2 | 0 | 0.0 | | | 5 | 0.1 | | | | | 4 | 0.0 | 1 | 0.1 | | | | |
| Single Tx | | | | | 22 | 0.9 | 0 | 0.0 | | | 37 | 1.0 | | | | | 5 | 0.0 | 12 | 1.4 | | | | |
| Double Tx (heart–lung Tx included) | | | | | 199 | 8.0 | 4 | 0.4 | | | 324 | 8.8 | | | | | 186 | 0.1 | 44 | 5.2 | | | | |
| Tx from DCD (double + single) | | | | | 56 | 2.3 | 0 | 0.0 | | | 83 | 2.2 | | | | | 0 | 0.0 | 0 | 0.0 | | | | |
| ***PANCREAS*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 0 | 0.0 | 0 | 0.0 | 52 | 2.1 | 1 | 0.1 | | | 57 | 1.5 | 0 | 0.0 | 0 | 0.0 | 25 | 0.0 | 8 | 0.9 | 0 | 0.0 | 0 | 0.0 |
| Pancreas Tx: Number of men | | | | | 30 | 1.2 | 1 | 0.1 | | | | | | | | | | | 4 | 0.5 | | | | |
| Paediatric <18 years | | | | | 0 | 0.0 | 0 | 0.0 | | | 0 | 0.0 | | | | | 0 | 0.0 | 0 | 0.0 | | | | |
| Pancreas Tx Alone | | | | | 4 | 0.2 | 0 | 0.0 | | | 9 | 0.2 | | | | | 11 | 0.0 | 1 | 0.1 | | | | |
| Kidney – Pancreas Tx | | | | | 47 | 1.9 | 1 | 0.1 | | | 48 | 1.3 | | | | | 14 | 0.0 | 7 | 0.8 | | | | |
| Tx from DCD | | | | | 2 | 0.1 | 0 | 0.0 | | | 5 | 0.1 | | | | | 0 | 0.0 | 0 | 0.0 | | | | |
| ***SMALL BOWEL*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | | | | | 0 | 0.0 | 0 | 0.0 | 2 | 0.0 | 1 | 0.1 | 0 | 0.0 | 0 | 0.0 |
| Small bowel Tx: Number of men | | | | | 1 | 0.0 | | | | | | | | | | | | | 0 | 0.0 | | | | |
| Paediatric <18 years | | | | | 1 | 0.0 | | | | | | | | | | | 0 | 0.0 | 0 | 0.0 | | | | |
| Small bowel Tx Alone | | | | | 0 | 0.0 | | | | | | | | | | | 0 | 0.0 | 1 | 0.1 | | | | |
| ***RECIPIENTS*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total number of patients transplanted | 275 | 6.5 | 12 | 4.1 | 1780 | 71.8 | 482 | 50.7 | | | 2826 | 76.4 | 30 | 7.7 | 9 | 30.0 | 10282 | 7.6 | 592 | 69.6 | 74 | 17.6 | 85 | 2.7 |
| Patients transplanted: Number of men | 157 | 3.7 | 5 | 1.7 | 454 | 18.3 | 252 | 26.5 | | | | | 19 | 4.9 | 8 | 26.7 | | | 398 | 46.8 | 52 | 12.4 | 42 | 1.3 |
| Paediatric <18 years | 11 | 0.3 | 1 | 0.3 | 62 | 2.5 | 28 | 2.9 | | | 127 | 3.4 | 1 | 0.3 | 1 | 3.3 | 170 | 0.1 | 50 | 5.9 | 3 | 0.7 | 5 | 0.2 |
| Patients transplanted from living donors | 275 | 6.5 | 12 | 4.1 | 236 | 9.5 | 12 | 1.3 | | | 556 | 15.0 | 30 | 7.7 | 9 | 30.0 | 8085 | 6.0 | 248 | 29.2 | 51 | 12.1 | 69 | 2.2 |

## OTHER COUNTRIES

| Country | New Zealand | | Norway | | Qatar | | Republic of Moldova | | Russian Federation | | Saudi Arabia | | Sudan | | Switzerland | | Syrian Arab Republic | | The Rep. of North of Macedonia | | Turkey | | United States of America | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Population (million inhabitants): UNFPA** | **4.7** | | **5.4** | | **2.7** | | **4.0** | | **144.0** | | **33.6** | | **41.5** | | **8.5** | | **18.3** | | **2.1** | | **81.9** | | **326.8** | |
| **TRANSPLANTATION** | | | | | | | | | | | | | | | | | | | | | | | | |
| | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** |
| ***KIDNEY*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Tx -all combinations included- | 182 | 38.7 | 240 | 45.3 | 43 | 15.9 | 13 | 3.2 | 1361 | 9.5 | 1006 | 29.9 | 273 | 6.6 | 352 | 41.4 | 251 | 13.7 | 17 | 8.1 | 3874 | 47.3 | 22003 | 67.3 |
| Kidney tx: Number of men | 114 | 24.3 | 137 | 25.8 | 29 | 10.7 | 7 | 1.7 | 754 | 5.2 | | | 198 | 4.8 | 227 | 26.7 | | | | | 2485 | 30.3 | 1382 | 4.2 |
| Paediatric <18 years | 6 | 1.3 | 5 | 0.9 | 1 | 0.4 | 0 | 0.0 | 86 | 0.6 | 87 | 2.6 | 29 | 0.7 | 15 | 1.8 | 27 | 1.5 | | | 224 | 2.7 | 756 | 2.3 |
| Tx from DD | 98 | 20.9 | 168 | 31.7 | 11 | 4.1 | 7 | 1.7 | 1161 | 8.1 | 141 | 4.2 | 0 | 0.0 | 239 | 28.1 | 0 | 0.0 | 2 | 1.0 | 859 | 10.5 | 15561 | 47.6 |
| - Tx from DCD | 15 | 3.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 65 | 0.5 | 0 | 0.0 | 0 | 0.0 | 37 | 4.4 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3302 | 10.1 |
| - Single Tx | 97 | 20.6 | 166 | 31.3 | 10 | 3.7 | | | 1161 | 8.1 | 136 | 4.0 | 0 | 0.0 | 228 | 26.8 | 0 | 0.0 | | | 819 | 10.0 | 15245 | 46.6 |
| - Double Tx | 1 | 0.2 | 2 | 0.4 | 1 | 0.4 | | | 0 | 0.0 | 5 | 0.1 | 0 | 0.0 | 11 | 1.3 | 0 | 0.0 | | | 40 | 0.5 | 316 | 1.0 |
| Tx from living donors | 84 | 17.9 | 72 | 13.6 | 32 | 11.9 | 6 | 1.5 | 200 | 1.4 | 865 | 25.7 | 273 | 6.6 | 113 | 13.3 | 251 | 13.7 | 15 | 7.1 | 3015 | 36.8 | 6442 | 19.7 |
| - Tx from related living donors | 69 | 14.7 | 72 | 13.6 | 32 | 11.9 | 6 | 1.5 | 200 | 1.4 | 701 | 20.9 | 269 | 6.5 | | | 123 | 6.7 | 15 | 7.1 | 2550 | 31.1 | 5121 | 15.7 |
| - Tx from unrelated living donors | 15 | 3.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 164 | 4.9 | 4 | 0.1 | | | 128 | 7.0 | 0 | 0.0 | 465 | 5.7 | 1321 | 4.0 |
| Paired exchange or cross-over | | | | | | | | | | | 52 | 1.5 | 4 | 0.1 | | | 0 | 0.0 | | | 181 | 2.2 | 933 | 2.9 |
| Non-directed altruistic or anonymous | | | | | | | | | | | 5 | 0.1 | 0 | 0.0 | | | 0 | 0.0 | | | 0 | 0.0 | 382 | 1.2 |
| Directed altruistic | | | | | | | | | | | 107 | 3.2 | 0 | 0.0 | | | 128 | 7.0 | | | 0 | 0.0 | 6 | 0.0 |
| ***LIVER*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Tx -all combinations included- | 49 | 10.4 | 95 | 17.9 | 8 | 3.0 | 11 | 2.7 | 505 | 3.5 | 270 | 8.0 | 0 | 0.0 | 156 | 18.4 | 0 | 0.0 | 0 | 0.0 | 1587 | 19.4 | 8250 | 25.2 |
| Liver tx: Number of men | 27 | 5.7 | 57 | 10.8 | 5 | 1.9 | 8 | 2.0 | 247 | 1.7 | | | | | 112 | 13.2 | | | | | 1041 | 12.7 | 5278 | 16.2 |
| Paediatric <18 years | 8 | 1.7 | 13 | 2.5 | 0 | 0.0 | 5 | 1.2 | 133 | 0.9 | 102 | 3.0 | | | 12 | 1.4 | | | | | 265 | 3.2 | 563 | 1.7 |
| Split Tx | 9 | 1.9 | 6 | 1.1 | 0 | 0.0 | 0 | 0.0 | 22 | 0.2 | 12 | 0.4 | | | 10 | 1.2 | | | | | 22 | 0.3 | 199 | 0.6 |
| Domino Tx | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | | | 0 | 0.0 | | | | | 6 | 0.1 | 9 | 0.0 |
| Tx from living donors | 2 | 0.4 | 1 | 0.2 | 3 | 1.1 | 5 | 1.2 | 163 | 1.1 | 207 | 6.2 | | | 7 | 0.8 | | | | | 1143 | 14.0 | 392 | 1.2 |
| Tx from DCD | 1 | 0.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | 21 | 2.5 | | | | | 0 | 0.0 | 535 | 1.6 |
| ***HEART*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Tx -all combinations included- | 20 | 4.3 | 29 | 5.5 | 0 | 0.0 | 0 | 0.0 | 285 | 2.0 | 27 | 0.8 | 0 | 0.0 | 50 | 5.9 | 0 | 0.0 | 0 | 0.0 | 91 | 1.1 | 3440 | 10.5 |
| Heart tx: Number of men | 14 | 3.0 | 15 | 2.8 | | | | | 248 | 1.7 | 20 | 0.6 | | | 36 | 4.2 | | | | | 66 | 0.8 | 2397 | 7.3 |
| Paediatric <18 years | 2 | 0.4 | 5 | 0.9 | | | | | 9 | 0.1 | 4 | 0.1 | | | 6 | 0.7 | | | | | 17 | 0.2 | 473 | 1.4 |
| ***HEART-LUNG*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Tx | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 32 | 0.1 |
| Paediatric <18 years | | | | | | | | | 0 | 0.0 | | | | | | | | | | | | | 5 | 0.0 |
| ***LUNG*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Tx -all combinations included- | 28 | 6.0 | 30 | 5.7 | 0 | 0.0 | 0 | 0.0 | 28 | 0.2 | 35 | 1.0 | 0 | 0.0 | 42 | 4.9 | 0 | 0.0 | 0 | 0.0 | 43 | 0.5 | 2562 | 7.8 |
| Lung Tx: Number of men | 16 | 3.4 | 17 | 3.2 | | | | | 19 | 0.1 | 21 | 0.6 | | | 29 | 3.4 | | | | | 31 | 0.4 | 1531 | 4.7 |
| Paediatric <18 years | 0 | 0.0 | 1 | 0.2 | | | | | 2 | 0.0 | 3 | 0.1 | | | 1 | 0.1 | | | | | 0 | 0.0 | 40 | 0.1 |
| Single Tx | 1 | 0.2 | 0 | 0.0 | | | | | 3 | 0.0 | 2 | 0.1 | | | 2 | 0.2 | | | | | 0 | 0.0 | 640 | 2.0 |
| Double Tx (heart-lung Tx included) | 27 | 5.7 | 30 | 5.7 | | | | | 25 | 0.2 | 33 | 1.0 | | | 40 | 4.7 | | | | | 43 | 0.5 | 1922 | 5.9 |
| Tx from DCD (double + single) | 2 | 0.4 | 0 | 0.0 | | | | | 0 | 0.0 | 0 | 0.0 | | | 4 | 0.5 | | | | | 0 | 0.0 | 121 | 0.4 |
| ***PANCREAS*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Tx -all combinations included- | 6 | 1.3 | 15 | 2.8 | 0 | 0.0 | 0 | 0.0 | 17 | 0.1 | 8 | 0.2 | 0 | 0.0 | 11 | 1.3 | 0 | 0.0 | 0 | 0.0 | 4 | 0.0 | 1027 | 3.1 |
| Pancreas Tx: Number of men | 2 | 0.4 | 3 | 0.6 | | | | | 8 | 0.1 | 3 | 0.1 | | | 8 | 0.9 | | | | | 1 | 0.0 | 614 | 1.9 |
| Paediatric <18 years | 0 | 0.0 | 0 | 0.0 | | | | | 0 | 0.0 | 0 | 0.0 | | | 0 | 0.0 | | | | | 0 | 0.0 | 32 | 0.1 |
| Pancreas Tx Alone | 0 | 0.0 | 8 | 1.5 | | | | | 1 | 0.0 | 0 | 0.0 | | | 3 | 0.4 | | | | | 4 | 0.0 | 191 | 0.6 |
| Kidney – Pancreas Tx | 6 | 1.3 | 7 | 1.3 | | | | | 16 | 0.1 | 8 | 0.2 | | | 8 | 0.9 | | | | | 0 | 0.0 | 836 | 2.6 |
| Tx from DCD | 0 | 0.0 | 0 | 0.0 | | | | | 0 | 0.0 | 0 | 0.0 | | | 0 | 0.0 | | | | | 0 | 0.0 | 25 | 0.1 |
| ***SMALL BOWEL*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Tx -all combinations included- | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 0.1 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 104 | 0.3 |
| Small bowel Tx: Number of men | | | | | | | | | | | 2 | 0.1 | | | | | | | | | | | 60 | 0.2 |
| Paediatric <18 years | | | | | | | | | | | 0 | 0.0 | | | | | | | | | | | 37 | 0.1 |
| Small bowel Tx Alone | | | | | | | | | | | 4 | 0.1 | | | | | | | | | | | 37 | 0.1 |
| ***RECIPIENTS*** | | | | | | | | | | | | | | | | | | | | | | | | |
| Total number of patients transplanted | 276 | 58.7 | 400 | 75.5 | 51 | 18.9 | 24 | 5.9 | 2177 | 15.1 | 1341 | 39.9 | 273 | 6.6 | 599 | 70.5 | 251 | 13.7 | 17 | 8.1 | 5599 | 68.4 | 35274 | 107.9 |
| Patients transplanted: Number of men | | | 226 | 42.6 | 34 | 12.6 | 15 | 3.7 | 1262 | 8.8 | | | 198 | 4.8 | 402 | 47.3 | | | | | 3624 | 44.2 | 21825 | 66.8 |
| Paediatric <18 years | 16 | 3.4 | 24 | 4.5 | 1 | 0.4 | 1 | 0.2 | 230 | 1.6 | 195 | 5.8 | 29 | 0.7 | 34 | 4.0 | 27 | 1.5 | | | 506 | 6.2 | 1796 | 5.5 |
| Patients transplanted from living donors | 86 | 18.3 | 73.0 | 13.8 | 35 | 13.0 | 11 | 2.7 | 363 | 2.5 | 1072 | 31.9 | 273 | 6.6 | 120 | 14.1 | 251 | 13.7 | 15 | 7.1 | 4164 | 50.8 | 6842 | 20.9 |

# TRANSPLANTATION ACTIVITY

## LATIN AMERICAN COUNTRIES

| Country | Argentina | | Bolivia | | Brazil | | Chile | | Colombia | | Costa Rica | | Cuba | | Dominican Republic | | Ecuador | | El Salvador | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Population (million inhabitants): UNFPA** | **44.7** | | **11.2** | | **210.9** | | **18.2** | | **49.5** | | **5.0** | | **11.5** | | **10.9** | | **16.9** | | **6.4** | |
| **TRANSPLANTATION** | | | | | | | | | | | | | | | | | | | | |
| | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** |
| ***KIDNEY*** | | | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 1475 | 33.0 | 76 | 6.8 | 5975 | 28.3 | 212 | 11.6 | 864 | 17.5 | 63 | 12.6 | 173 | 15.0 | 54 | 5.0 | 249 | 14.7 | 34 | 5.3 |
| Kidney tx: Number of men | 850 | 19.0 | 36 | 3.0 | 3621 | 17.2 | | | 502 | 10.1 | 38 | 7.6 | | | 34 | 3.1 | 145 | 8.6 | 22 | 3.4 |
| Paediatric <18 years | 155 | 3.5 | 4 | 0.4 | 337 | 1.6 | | | 55 | 1.1 | 2 | 0.4 | 4 | 0.3 | 0 | 0.0 | 22 | 1.3 | 1 | 0.2 |
| Tx from DD | 1099 | 24.6 | 8 | 0.7 | 4942 | 23.4 | | | 724 | 14.6 | 42 | 8.4 | 160 | 13.9 | 13 | 1.2 | 227 | 13.4 | 0 | 0.0 |
| – Tx from DCD | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | |
| – Single Tx | 1099 | 24.6 | 8 | 0.7 | 4932 | 23.4 | | | 709 | 14.3 | | | 160 | 13.9 | 0 | 0.0 | 227 | 13.4 | | |
| – Double Tx | 0 | 0.0 | 0 | 0.0 | 10 | 0.0 | | | 15 | 0.3 | | | 0 | 0.0 | 13 | 1.2 | 0 | 0.0 | | |
| Tx from living donors | 376 | 8.4 | 68 | 6.1 | 1033 | 4.9 | | | 140 | 2.8 | 21 | 4.2 | 13 | 1.1 | 41 | 3.8 | 22 | 1.3 | 34 | 5.3 |
| – Tx from related living donors | 376 | 8.4 | 68 | 6.1 | 981 | 4.7 | | | 140 | 2.8 | | | 13 | 1.1 | 28 | 2.6 | 22 | 1.3 | | |
| – Tx from unrelated living donors | 0 | 0.0 | 0 | 0.0 | 52 | 0.2 | | | 0 | 0.0 | | | 0 | 0.0 | 13 | 1.2 | 0 | 0.0 | | |
| Paired exchange or cross–over | | | | | | | | | | | | | | | | | | | | |
| Non–directed altruistic or anonymous | | | | | | | | | | | | | | | | | | | | |
| Directed altruistic | | | | | | | | | | | | | | | | | | | | |
| ***LIVER*** | | | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 473 | 10.6 | 1 | 0.1 | 2221 | 10.5 | 87 | 4.8 | 251 | 5.1 | 27 | 5.4 | 13 | 1.1 | 3 | 0.3 | 29 | 1.7 | 0 | 0.0 |
| Liver tx: Number of men | 276 | 6.2 | 0 | 0.0 | 1491 | 7.1 | | | 132 | 2.7 | 14 | 2.8 | | | 3 | 0.3 | 20 | 1.2 | | |
| Paediatric <18 years | 97 | 2.2 | 0 | 0.0 | 239 | 1.1 | | | 71 | 1.4 | 6 | 1.2 | 1 | 0.1 | 0 | 0.0 | 2 | 0.1 | | |
| Split Tx | 55 | 1.2 | 0 | 0.0 | 6 | 0.0 | | | 0 | 0.0 | 1 | 0.2 | 0 | 0.0 | | | 0 | 0.0 | | |
| Domino Tx | 0 | 0.0 | 0 | 0.0 | 6 | 0.0 | | | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | | |
| Tx from living donors | 41 | 0.9 | 1 | 0.1 | 175 | 0.8 | | | 50 | 1.0 | 2 | 0.4 | 1 | 0.1 | 0 | 0.0 | | | | |
| Tx from DCD | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | | |
| ***HEART*** | | | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 132 | 3.0 | 0 | 0.0 | 358 | 1.7 | 30 | 1.6 | 57 | 1.2 | 8 | 1.6 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Heart tx: Number of men | 86 | 1.9 | | | 234 | 1.1 | | | 47 | 0.9 | 6 | 1.2 | | | | | | | | |
| Paediatric <18 years | 15 | 0.3 | | | 39 | 0.2 | | | 3 | 0.1 | 0 | 0.0 | | | | | | | | |
| ***HEART–LUNG*** | | | | | | | | | | | | | | | | | | | | |
| Total Tx | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | 0 | 0.0 | 2 | 0.4 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Paediatric <18 years | 0 | 0.0 | | | | | | | | | 0 | 0.0 | | | | | | | | |
| ***LUNG*** | | | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 44 | 1.0 | 0 | 0.0 | 121 | 0.6 | 13 | 0.7 | 17 | 0.3 | 2 | 0.4 | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 | 0 | 0.0 |
| Lung Tx: Number of men | 26 | 0.6 | | | 65 | 0.3 | | | 5 | 0.1 | 0 | 0.0 | | | | | 0 | 0.0 | | |
| Paediatric <18 years | 4 | 0.1 | | | 12 | 0.1 | | | 1 | 0.0 | 0 | 0.0 | | | | | 0 | 0.0 | | |
| Single Tx | 19 | 0.4 | | | 46 | 0.2 | | | 7 | 0.1 | 0 | 0.0 | | | | | 0 | 0.0 | | |
| Double Tx (heart–lung Tx included) | 25 | 0.6 | | | 73 | 0.3 | | | 10 | 0.2 | 2 | 0.4 | | | | | 1 | 0.1 | | |
| Tx from DCD (double + single) | 0 | 0.0 | | | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | | | | | 0 | 0.0 | | |
| ***PANCREAS*** | | | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 89 | 2.0 | 0 | 0.0 | 150 | 0.7 | 7 | 0.4 | 10 | 0.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Pancreas Tx: Number of men | 32 | 0.7 | | | 62 | 0.3 | | | 4 | 0.1 | | | | | | | | | | |
| Paediatric <18 years | 0 | 0.0 | | | 0 | 0.0 | | | 0 | 0.0 | | | | | | | | | | |
| Pancreas Tx Alone | 5 | 0.1 | | | 44 | 0.2 | | | 2 | 0.0 | | | | | | | | | | |
| Kidney – Pancreas Tx | 84 | 1.9 | | | 106 | 0.5 | | | 8 | 0.2 | | | | | | | | | | |
| Tx from DCD | 0 | 0.0 | | | 0 | 0.0 | | | 0 | 0.0 | | | | | | | | | | |
| ***SMALL BOWEL*** | | | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 1 | 0.0 | 0 | 0.0 | 4 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Small bowel Tx: Number of men | 0 | 0.0 | | | 4 | 0.0 | | | | | | | | | | | | | | |
| Paediatric <18 years | 1 | 0.0 | | | 1 | 0.0 | | | | | | | | | | | | | | |
| Small bowel Tx Alone | 0 | 0.0 | | | 0 | 0.0 | | | | | | | | | | | | | | |
| ***RECIPIENTS*** | | | | | | | | | | | | | | | | | | | | |
| Total number of patients transplanted | 2102 | 47.0 | 77 | 6.9 | 8642 | 41.0 | | | 1184 | 23.9 | 99 | 19.8 | 186 | 16.2 | 57 | 5.2 | 279 | 16.5 | 34 | 5.3 |
| Patients transplanted: Number of men | 1224 | 27.3 | 36 | 3.2 | 3502 | 16.6 | | | 686 | 13.9 | 58 | 11.6 | | | 34 | 3.1 | 165 | 9.8 | 22 | 3.4 |
| Paediatric <18 years | 265 | 5.9 | 4 | 0.4 | 616 | 2.9 | | | 130 | 2.6 | 8 | 1.6 | 5 | 0.4 | 0 | 0.0 | 24 | 1.4 | 1 | 0.2 |
| Patients transplanted from living donors | 417 | 9.3 | 69 | 6.2 | 1192 | 5.7 | | | 190 | 3.8 | 23 | 4.6 | 14 | 1.2 | 41 | 3.8 | 22 | 1.3 | 34 | 5.3 |

## TRANSPLANTATION ACTIVITY

### LATIN AMERICAN COUNTRIES

| Country<br>Population (million inhabitants): UNFPA | Guatemala<br>17.2 | | Honduras<br>9.4 | | Mexico<br>130.8 | | Nicaragua<br>6.3 | | Panama<br>4.2 | | Paraguay<br>6.9 | | Peru<br>32.6 | | Uruguay<br>3.5 | | Venezuela<br>32.4 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TRANSPLANTATION** | | | | | | | | | | | | | | | | | | |
| | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** | **Number** | **PMP** |
| ***KIDNEY*** | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 115 | 6.7 | | | 3081 | 23.6 | 16 | 2.5 | 46 | 11.0 | 41 | 5.9 | 157 | 4.8 | 161 | 46.0 | 40 | 1.2 |
| Kidney tx: Number of men | 67 | 3.9 | | | 1958 | 15.0 | | | 31 | 7.4 | 33 | 4.8 | 91 | 2.8 | 100 | 28.6 | | |
| Paediatric <18 years | 10 | 0.6 | | | 224 | 1.7 | 1 | 0.2 | 0 | 0.0 | 4 | 0.6 | 27 | 0.8 | 7 | 2.0 | 0 | 0.0 |
| Tx from DD | 10 | 0.6 | | | 976 | 7.5 | 1 | 0.2 | 38 | 9.0 | 25 | 3.6 | 115 | 3.5 | 148 | 42.3 | 0 | 0.0 |
| – Tx from DCD | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| – Single Tx | 10 | 0.6 | | | 966 | 7.4 | 1 | 0.2 | 38 | 9.0 | | | 115 | 3.5 | | | 0 | 0.0 |
| – Double Tx | 0 | 0.0 | | | 10 | 0.1 | 0 | 0.0 | 0 | 0.0 | | | 0 | 0.0 | | | 0 | 0.0 |
| Tx from living donors | 105 | 6.1 | | | 2105 | 16.1 | 15 | 2.4 | 8 | 1.9 | 16 | 2.3 | 42 | 1.3 | 13 | 3.7 | 40 | 1.2 |
| – Tx from related living donors | 103 | 6.0 | | | 1719 | 13.1 | 15 | 2.4 | 8 | 1.9 | 16 | 2.3 | 41 | 1.3 | 13 | 3.7 | | |
| – Tx from unrelated living donors | 2 | 0.1 | | | 386 | 3.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 | 0.0 | | |
| Paired exchange or cross–over | | | | | | | | | | | | | | | | | | |
| Non–directed altruistic or anonymous | | | | | | | | | | | | | | | | | | |
| Directed altruistic | | | | | | | | | | | | | | | | | | |
| ***LIVER*** | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 0 | 0.0 | | | 241 | 1.8 | 0 | 0.0 | 16 | 3.8 | 3 | 0.4 | 45 | 1.4 | 25 | 7.1 | 0 | 0.0 |
| Liver tx: Number of men | | | | | 138 | 1.1 | | | 11 | 2.6 | 0 | 0.0 | 26 | 0.8 | 13 | 3.7 | | |
| Paediatric <18 years | | | | | 37 | 0.3 | | | 0 | 0.0 | 0 | 0.0 | 13 | 0.4 | 3 | 0.9 | | |
| Split Tx | | | | | | | | | 0 | 0.0 | 0 | 0.0 | 3 | 0.1 | 0 | 0.0 | | |
| Domino Tx | | | | | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | |
| Tx from living donors | | | | | 17 | 0.1 | | | 0 | 0.0 | 0 | 0.0 | 5 | 0.2 | 2 | 0.6 | | |
| Tx from DCD | | | | | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | |
| ***HEART*** | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 0 | 0.0 | | | 26 | 0.2 | 0 | 0.0 | 1 | 0.2 | 2 | 0.3 | 12 | 0.4 | 14 | 4.0 | 0 | 0.0 |
| Heart tx: Number of men | | | | | 20 | 0.2 | | | 1 | 0.2 | 2 | 0.3 | 10 | 0.3 | 9 | 2.6 | | |
| Paediatric <18 years | | | | | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 3 | 0.1 | 1 | 0.3 | | |
| ***HEART–LUNG*** | | | | | | | | | | | | | | | | | | |
| Total Tx | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Paediatric <18 years | | | | | | | | | | | | | | | | | | |
| ***LUNG*** | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 0 | 0.0 | | | 3 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 0.1 | 5 | 1.4 | 0 | 0.0 |
| Lung Tx: Number of men | | | | | 3 | 0.0 | | | | | | | 2 | 0.1 | 2 | 0.6 | | |
| Paediatric <18 years | | | | | 0 | 0.0 | | | | | | | 0 | 0.0 | 0 | 0.0 | | |
| Single Tx | | | | | 2 | 0.0 | | | | | | | | | | | | |
| Double Tx (heart–lung Tx included) | | | | | 1 | 0.0 | | | | | | | | | | | | |
| Tx from DCD (double + single) | | | | | 0 | 0.0 | | | | | | | 0 | 0.0 | 0 | 0.0 | | |
| ***PANCREAS*** | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 0 | 0.0 | | | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 0.1 | 0 | 0.0 | 0 | 0.0 |
| Pancreas Tx: Number of men | | | | | 1 | 0.0 | | | | | | | 2 | 0.1 | | | | |
| Paediatric <18 years | | | | | 0 | 0.0 | | | | | | | 0 | 0.0 | | | | |
| Pancreas Tx Alone | | | | | 0 | 0.0 | | | | | | | 0 | 0.0 | | | | |
| Kidney – Pancreas Tx | | | | | 0 | 0.0 | | | | | | | 2 | 0.1 | | | | |
| Tx from DCD | | | | | 0 | 0.0 | | | | | | | 0 | 0.0 | | | | |
| ***SMALL BOWEL*** | | | | | | | | | | | | | | | | | | |
| Total Tx –all combinations included– | 0 | 0.0 | | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Small bowel Tx: Number of men | | | | | | | | | | | | | | | | | | |
| Paediatric <18 years | | | | | | | | | | | | | | | | | | |
| Small bowel Tx Alone | | | | | | | | | | | | | | | | | | |
| ***RECIPIENTS*** | | | | | | | | | | | | | | | | | | |
| Total number of patients transplanted | 115 | 6.7 | | | | | 16 | 2.5 | 63 | 15.0 | 46 | 6.7 | 216 | 6.6 | 205 | 58.6 | 40 | 1.2 |
| Patients transplanted: Number of men | 67 | 3.9 | | | | | | | 43 | 10.2 | 35 | 5.1 | 130 | 4.0 | 124 | 35.4 | | |
| Paediatric <18 years | 10 | 0.6 | | | | | 1 | 0.2 | 0 | 0.0 | 4 | 0.6 | 42 | 1.3 | 11 | 3.1 | 0 | 0.0 |
| Patients transplanted from living donors | 105 | 6.1 | | | | | 15 | 2.4 | 8 | 1.9 | 16 | 2.3 | 47 | 1.4 | 15 | 4.3 | 40 | 1.2 |

## WAITING LIST

### EUROPEAN UNION COUNTRIES

| Country<br>Population (million inhabitants): UNFPA | Austria<br>8.8 | Belgium<br>11.5 | Bulgaria<br>7.0 | Croatia<br>4.2 | Cyprus<br>1.2 | Czech Republic<br>10.6 | Denmark<br>5.2 | Estonia<br>1.3 | Finland<br>5.5 | France<br>65.2 |
|---|---|---|---|---|---|---|---|---|---|---|
| ***KIDNEY*** | | | | | | | | | | |
| **N Tx CENTRES** | 5 | 8 | 3 | 4 | 1 | 7 | 3 | 1 | 1 | 44 |
| Patients included on the WL for the first time in the course of 2018 | 508 | 607 | 148 | 171 | 12 | 480 | 276 | 46 | 273 | 5269 |
| Total number of patients ever active on the WL during 2018 | 1036 | 1456 | 1052 | | 62 | 799 | 881 | 111 | 787 | 19625 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 597 | 824 | 924 | 168 | 58 | 523 | 414 | 33 | 380 | 8065 |
| Patients who died while on the WL during 2018 | 27 | 33 | 77 | 15 | 0 | 43 | 33 | 2 | 10 | 396 |
| Patients on dialysis on 31/12/2018 | | | 877 | 2500 | | | | 410 | | |
| ***LIVER*** | | | | | | | | | | |
| **N Tx CENTRES** | 3 | 7 | 3 | 3 | 0 | 2 | 1 | 1 | 1 | 21 |
| Patients included on the WL for the first time in the course of 2018 | 231 | 375 | 22 | 161 | 0 | 242 | 48 | 11 | 64 | 1883 |
| Total number of patients ever active on the WL during 2018 | 299 | 576 | 68 | | 0 | 105 | 80 | 15 | 77 | 3306 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 87 | 189 | 24 | 114 | 0 | 76 | 25 | 4 | 7 | 737 |
| Patients who died while on the WL during 2018 | 20 | 35 | 13 | 30 | 0 | 10 | 3 | 1 | 0 | 193 |
| ***HEART*** | | | | | | | | | | |
| **N Tx CENTRES** | 3 | 7 | 2 | 2 | 0 | 2 | 2 | 0 | 1 | 24 |
| Patients included on the WL for the first time in the course of 2018 | 68 | 99 | 31 | 62 | 0 | 87 | 31 | | 42 | 626 |
| Total number of patients ever active on the WL during 2018 | 137 | 202 | 60 | | 0 | 138 | 52 | | 85 | 941 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 60 | 111 | 28 | 38 | 0 | 82 | 14 | | 27 | 256 |
| Patients who died while on the WL during 2018 | 10 | 8 | 17 | 6 | 0 | 26 | 2 | | 5 | 67 |
| ***LUNG*** | | | | | | | | | | |
| **N Tx CENTRES** | 2 | 3 | 2 | 0 | 0 | 1 | 1 | 1 | 1 | 12 |
| Patients included on the WL for the first time in the course of 2018 | 126 | 141 | 13 | 0 | 0 | 60 | 29 | 6 | 26 | 419 |
| Total number of patients ever active on the WL during 2018 | 231 | 284 | 22 | 0 | 0 | 65 | 59 | 11 | 47 | 545 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 72 | 143 | 13 | 0 | 0 | 58 | 26 | 5 | 20 | 119 |
| Patients who died while on the WL during 2018 | 9 | 6 | 7 | 0 | 0 | 15 | 3 | 0 | 6 | 14 |
| ***PANCREAS*** | | | | | | | | | | |
| **N Tx CENTRES** | 3 | 8 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 12 |
| Patients included on the WL for the first time in the course of 2018 | 21 | 34 | 0 | 7 | 0 | 50 | 8 | 4 | 28 | 103 |
| Total number of patients ever active on the WL during 2018 | 31 | 95 | 11 | | 0 | 49 | 15 | 6 | 43 | 339 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 10 | 57 | 11 | 11 | 0 | 33 | 7 | 2 | 15 | 106 |
| Patients who died while on the WL during 2018 | 2 | 2 | 0 | 4 | 0 | 1 | 2 | 0 | 0 | 6 |
| ***SMALL BOWEL*** | | | | | | | | | | |
| **N Tx CENTRES** | | 10 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 5 |
| Patients included on the WL for the first time in the course of 2018 | | | 0 | 0 | 0 | 3 | 0 | | 0 | 2 |
| Total number of patients ever active on the WL during 2018 | | | 0 | 0 | 0 | 2 | 0 | | 0 | 6 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | | 6 | 0 | 0 | 0 | 1 | 0 | | 0 | 2 |
| Patients who died while on the WL during 2018 | | | 0 | 0 | 0 | 0 | 0 | | 0 | |

## WAITING LIST

### EUROPEAN UNION COUNTRIES

| Country<br>Population (million inhabitants): UNFPA | Germany<br>82.3 | Greece<br>11.1 | Hungary<br>9.7 | Ireland<br>4.8 | Italy<br>59.3 | Latvia<br>1.9 | Lithuania<br>2.9 | Luxembourg<br>0.6 | Malta<br>0.4 |
|---|---|---|---|---|---|---|---|---|---|
| ***KIDNEY*** | | | | | | | | | |
| **N Tx CENTRES** | 38 | 5 | 4 | 1 | 40 | 1 | 2 | 0 | 1 |
| Patients included on the WL for the first time in the course of 2018 | 2348 | 220 | 393 | 178 | 2330 | 59 | 99 | 0 | 10 |
| Total number of patients ever active on the WL during 2018 | 10616 | 1354 | 1230 | 660 | 9059 | 82 | 201 | 0 | 92 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 7526 | 1246 | 818 | 429 | 6770 | 28 | 100 | 0 | |
| Patients who died while on the WL during 2018 | 453 | 35 | 53 | 17 | 167 | 1 | 7 | 0 | 6 |
| Patients on dialysis on 31/12/2018 | | 11843 | 6915 | 2124 | | 650 | 1340 | 0 | 292 |
| ***LIVER*** | | | | | | | | | |
| **N Tx CENTRES** | 21 | 2 | 1 | 1 | 22 | 1 | 2 | 0 | 0 |
| Patients included on the WL for the first time in the course of 2018 | 1177 | 70 | 81 | 63 | 1461 | 17 | 51 | 0 | 0 |
| Total number of patients ever active on the WL during 2018 | 2387 | 218 | 181 | 98 | 2434 | 9 | 97 | 0 | 0 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 851 | 159 | 72 | 32 | 961 | 6 | 38 | 0 | 0 |
| Patients who died while on the WL during 2018 | 289 | 21 | 12 | 6 | 129 | 3 | 22 | 0 | 0 |
| ***HEART*** | | | | | | | | | |
| **N Tx CENTRES** | 23 | 1 | 2 | 1 | 16 | 1 | 2 | 0 | 1 |
| Patients included on the WL for the first time in the course of 2018 | 493 | 15 | 84 | 23 | 324 | 8 | 27 | 0 | |
| Total number of patients ever active on the WL during 2018 | 1223 | 57 | 144 | 37 | 1047 | 8 | 70 | 0 | |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 719 | 38 | 60 | 10 | 711 | 5 | 38 | 0 | |
| Patients who died while on the WL during 2018 | 86 | 9 | 10 | 2 | 53 | 0 | 16 | 0 | |
| ***LUNG*** | | | | | | | | | |
| **N Tx CENTRES** | 15 | 0 | 1 | 1 | 11 | 0 | 1 | 0 | 0 |
| Patients included on the WL for the first time in the course of 2018 | 391 | | 30 | 43 | 214 | 0 | 4 | 0 | 0 |
| Total number of patients ever active on the WL during 2018 | 799 | | 42 | 85 | 562 | 0 | 14 | 0 | 0 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 314 | | 10 | 32 | 362 | 0 | 6 | 0 | 0 |
| Patients who died while on the WL during 2018 | 71 | | 4 | 16 | 39 | 0 | 6 | 0 | 0 |
| ***PANCREAS*** | | | | | | | | | |
| **N Tx CENTRES** | 28 | 0 | 2 | 1 | 16 | 1 | 1 | 0 | 0 |
| Patients included on the WL for the first time in the course of 2018 | 144 | | 17 | 10 | 62 | | 4 | 0 | 0 |
| Total number of patients ever active on the WL during 2018 | 458 | | 48 | 24 | 311 | 0 | 7 | 0 | 0 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 287 | | 40 | 19 | 253 | 0 | 0 | 0 | 0 |
| Patients who died while on the WL during 2018 | 36 | | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| ***SMALL BOWEL*** | | | | | | | | | |
| **N Tx CENTRES** | 9 | 0 | 0 | | 2 | 0 | 0 | 0 | 0 |
| Patients included on the WL for the first time in the course of 2018 | | | 0 | 0 | 0 | 0 | | 0 | 0 |
| Total number of patients ever active on the WL during 2018 | | | 0 | 0 | 12 | 0 | | 0 | 0 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 12 | | 0 | 0 | 11 | 0 | | 0 | 0 |
| Patients who died while on the WL during 2018 | | | 0 | 0 | 0 | 0 | | 0 | 0 |

## WAITING LIST

### EUROPEAN UNION COUNTRIES

| Country<br>Population (million inhabitants): UNFPA | Netherlands<br>17.1 | Poland<br>38.1 | Portugal<br>10.3 | Romania<br>19.6 | Slovakia<br>5.4 | Slovenia<br>2.1 | Spain<br>46.4 | Sweden<br>10.0 | United Kingdom<br>66.6 |
|---|---|---|---|---|---|---|---|---|---|
| ***KIDNEY*** | | | | | | | | | |
| **N Tx CENTRES** | 10 | 21 | 8 | 5 | 4 | 1 | 40 | 4 | 24 |
| Patients included on the WL for the first time in the course of 2018 | 1521 | 1178 | 323 | 523 | 154 | 79 | | 408 | 2552 |
| Total number of patients ever active on the WL during 2018 | 2194 | 2745 | 2342 | 5582 | 432 | 132 | 7246 | 1173 | 9072 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 741 | 1196 | 1968 | 5255 | 296 | 73 | 3933 | 423 | 5000 |
| Patients who died while on the WL during 2018 | 66 | 73 | 41 | 13 | 29 | | | 31 | 283 |
| Patients on dialysis on 31/12/2018 | | 20000 | 13014 | 9900 | 3560 | | 27629 | | 2841 |
| ***LIVER*** | | | | | | | | | |
| **N Tx CENTRES** | 3 | 9 | 3 | 4 | 1 | 1 | 25 | 2 | 7 |
| Patients included on the WL for the first time in the course of 2018 | 239 | 393 | 238 | 138 | 38 | 36 | 1374 | 168 | 334 |
| Total number of patients ever active on the WL during 2018 | 372 | 626 | 323 | 610 | 64 | 54 | 1829 | 222 | 1692 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 127 | 158 | 113 | 573 | 22 | 19 | 386 | 42 | 407 |
| Patients who died while on the WL during 2018 | 26 | 27 | 18 | 32 | 4 | 5 | 51 | 4 | 39 |
| ***HEART*** | | | | | | | | | |
| **N Tx CENTRES** | 3 | 6 | 4 | 3 | 1 | 1 | 16 | 2 | 7 |
| Patients included on the WL for the first time in the course of 2018 | 57 | 326 | 47 | 29 | 24 | 39 | 363 | 75 | 159 |
| Total number of patients ever active on the WL during 2018 | 164 | 946 | 71 | 214 | 51 | 81 | 475 | 113 | 603 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 121 | 453 | 27 | 15 | 33 | 48 | 126 | 31 | 309 |
| Patients who died while on the WL during 2018 | 9 | 99 | 12 | 9 | 4 | 5 | 11 | 3 | 23 |
| ***LUNG*** | | | | | | | | | |
| **N Tx CENTRES** | 3 | 5 | 1 | 1 | 0 | | 8 | 2 | 6 |
| Patients included on the WL for the first time in the course of 2018 | 133 | 145 | 39 | 6 | 0 | | 411 | 60 | 175 |
| Total number of patients ever active on the WL during 2018 | 311 | 228 | 97 | 10 | 0 | | 671 | 95 | 633 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 186 | 113 | 57 | 2 | 0 | | 241 | 15 | 354 |
| Patients who died while on the WL during 2018 | 12 | 22 | 6 | 0 | 0 | | 25 | 0 | 63 |
| ***PANCREAS*** | | | | | | | | | |
| **N Tx CENTRES** | 2 | 1 | 2 | 0 | 1 | 1 | 13 | 4 | 10 |
| Patients included on the WL for the first time in the course of 2018 | 42 | 44 | 33 | 0 | 0 | 3 | 107 | 26 | 163 |
| Total number of patients ever active on the WL during 2018 | 89 | 107 | 77 | 0 | 0 | 5 | 210 | 38 | 478 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 41 | 47 | 28 | 0 | 0 | 1 | 98 | 16 | 185 |
| Patients who died while on the WL during 2018 | 1 | 2 | 1 | 0 | 0 | | 3 | 1 | 19 |
| ***SMALL BOWEL*** | | | | | | | | | |
| **N Tx CENTRES** | | | | 0 | 0 | | 3 | 1 | 4 |
| Patients included on the WL for the first time in the course of 2018 | | 1 | | 0 | 0 | | 4 | 2 | 0 |
| Total number of patients ever active on the WL during 2018 | | 2 | | 0 | 0 | | 16 | 3 | 41 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | | 1 | | 0 | 0 | | 9 | 1 | 10 |
| Patients who died while on the WL during 2018 | | 0 | | 0 | 0 | | 1 | 0 | 2 |

## WAITING LIST

### OTHER COUNTRIES

| Country | Algeria | Armenia | Australia | Belarus | Bosnia and Herzegovina | Canada | Georgia | Iceland | India | Israel | Kuwait | Malaysia |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Population (million inhabitants): UNFPA** | **42.0** | **2.9** | **24.8** | **9.5** | | **37.0** | **3.9** | **0.3** | **1354.1** | **8.5** | **4.2** | **32.0** |
| ***KIDNEY*** | | | | | | | | | | | | |
| **N Tx CENTRES** | 12 | 1 | 20 | 7 | | 25 | 3 | 1 | 443 | 6 | 1 | 6 |
| Patients included on the WL for the first time in the course of 2018 | | | 1014 | 395 | | | | | 6094 | 419 | 104 | |
| Total number of patients ever active on the WL during 2018 | | | 1979 | 721 | | | | | 12758 | | 389 | |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | | | 982 | 334 | | 2016 | | | 8158 | 813 | 131 | 5147 |
| Patients who died while on the WL during 2018 | | | 6 | 31 | | 94 | | | 192 | 47 | 6 | 459 |
| Patients on dialysis on 31/12/2018 | 23798 | | 13412 | 3741 | | | 2645 | | 11222 | 6687 | 2000 | 42350 |
| ***LIVER*** | | | | | | | | | | | | |
| **N Tx CENTRES** | 3 | 0 | 8 | 1 | | 9 | 2 | 0 | 147 | 3 | 1 | 2 |
| Patients included on the WL for the first time in the course of 2018 | | | 361 | 109 | | | | | 3017 | 171 | 8 | 6 |
| Total number of patients ever active on the WL during 2018 | | | 508 | 216 | | | | | 4173 | | 8 | 9 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | | | 136 | 124 | | 377 | | | 1700 | 101 | 3 | 4 |
| Patients who died while on the WL during 2018 | | | 6 | 12 | | 81 | | | 456 | 32 | 1 | 1 |
| ***HEART*** | | | | | | | | | | | | |
| **N Tx CENTRES** | 0 | 0 | 5 | 1 | | 11 | 0 | 0 | 115 | 2 | 0 | 1 |
| Patients included on the WL for the first time in the course of 2018 | | | 159 | 52 | | | | | 302 | 63 | 0 | 2 |
| Total number of patients ever active on the WL during 2018 | | | 223 | 116 | | | | | 425 | | 0 | 9 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | | | 74 | 67 | | 109 | | | 155 | 85 | 0 | 7 |
| Patients who died while on the WL during 2018 | | | 8 | 8 | | 9 | | | 22 | 14 | 0 | 1 |
| ***LUNG*** | | | | | | | | | | | | |
| **N Tx CENTRES** | 0 | 0 | 5 | 2 | | 6 | 0 | 0 | 59 | 1 | 0 | 1 |
| Patients included on the WL for the first time in the course of 2018 | | | 258 | 5 | | | | | 57 | 106 | 0 | 4 |
| Total number of patients ever active on the WL during 2018 | | | 345 | 41 | | | | | 75 | | 0 | 7 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | | | 97 | 35 | | 221 | | | 16 | 109 | 0 | 3 |
| Patients who died while on the WL during 2018 | | | 14 | 2 | | 28 | | | 3 | 30 | 0 | 4 |
| ***PANCREAS*** | | | | | | | | | | | | |
| **N Tx CENTRES** | 0 | 0 | 2 | 1 | | 8 | 0 | 0 | 40 | 2 | 1 | 0 |
| Patients included on the WL for the first time in the course of 2018 | | | 32 | 14 | | | | | 36 | | 8 | |
| Total number of patients ever active on the WL during 2018 | | | 103 | 77 | | | | | 48 | | 5 | |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | | | 39 | 74 | | 81 | | | 18 | 10 | 5 | |
| Patients who died while on the WL during 2018 | | | 3 | 2 | | | | | 11 | | 0 | |
| ***SMALL BOWEL*** | | | | | | | | | | | | |
| **N Tx CENTRES** | 0 | 0 | 1 | 1 | | 3 | 0 | 0 | 18 | 1 | 0 | 0 |
| Patients included on the WL for the first time in the course of 2018 | | | 0 | 0 | | | | | 1 | | 0 | |
| Total number of patients ever active on the WL during 2018 | | | 3 | 0 | | | | | 6 | | 0 | |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | | | 1 | 0 | | 0 | | | 0 | | 0 | |
| Patients who died while on the WL during 2018 | | | 0 | 0 | | 0 | | | 0 | | 0 | |

## WAITING LIST

### OTHER COUNTRIES

| Country | New Zealand | Norway | Qatar | Republic of Moldova | Russian Federation | Saudi Arabia | Sudan | Switzerland | Syrian Arab Republic | The Rep. of North Macedonia | Turkey | United States of America |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Population (million inhabitants): UNFPA** | **4.7** | **5.4** | **2.7** | **4.0** | | **33.6** | **41.5** | **8.5** | **18.3** | **2.1** | **81.9** | **326.8** |
| ***KIDNEY*** | | | | | | | | | | | | |
| **N Tx CENTRES** | 4 | 1 | 1 | 1 | 49 | 18 | 7 | 6 | 6 | 1 | 78 | 237 |
| Patients included on the WL for the first time in the course of 2018 | | 258 | 42 | 13 | 1728 | 2650 | | 394 | | | 6308 | 30726 |
| Total number of patients ever active on the WL during 2018 | | 771 | 108 | 51 | 6219 | 6750 | 216 | | | | 28145 | 88595 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | | 343 | 54 | 32 | 4815 | 4850 | 30 | 478 | | | 20877 | 60901 |
| Patients who died while on the WL during 2018 | | 16 | 1 | 1 | 57 | | | 25 | | | 1939 | 3934 |
| Patients on dialysis on 31/12/2018 | 2949 | | 905 | 660 | 45000 | 19214 | 9525 | 400 | | | 63349 | 726331 |
| ***LIVER*** | | | | | | | | | | | | |
| **N Tx CENTRES** | | 1 | 1 | 1 | 28 | 6 | | 3 | 1 | 0 | 49 | 147 |
| Patients included on the WL for the first time in the course of 2018 | | 97 | 12 | 22 | 579 | 285 | | 209 | | | 2182 | 11766 |
| Total number of patients ever active on the WL during 2018 | | 142 | 16 | 110 | 1830 | 570 | | | | | 3424 | 23695 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | | 32 | 6 | 91 | 1171 | 300 | | 88 | | | 1774 | 10666 |
| Patients who died while on the WL during 2018 | | 6 | 2 | 8 | 154 | | | 29 | | | 380 | 1164 |
| ***HEART*** | | | | | | | | | | | | |
| **N Tx CENTRES** | | 1 | 0 | 0 | 18 | 2 | | 3 | 0 | 0 | 15 | 140 |
| Patients included on the WL for the first time in the course of 2018 | | 32 | | 0 | 397 | 81 | | 60 | | | 475 | 4293 |
| Total number of patients ever active on the WL during 2018 | | 48 | | 3 | 823 | 120 | | | | | 1156 | 7648 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | | 11 | | 3 | 490 | 93 | | 46 | | | 946 | 2891 |
| Patients who died while on the WL during 2018 | | 0 | | 0 | 48 | | | 12 | | | 199 | 316 |
| ***LUNG*** | | | | | | | | | | | | |
| **N Tx CENTRES** | | 1 | 0 | 0 | 3 | 2 | | 2 | 0 | 0 | 5 | 71 |
| Patients included on the WL for the first time in the course of 2018 | | 37 | | | 35 | 50 | | 43 | | | 81 | 3016 |
| Total number of patients ever active on the WL during 2018 | | 80 | | | 77 | 75 | | | | | 84 | 4363 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | | 41 | | | 34 | 37 | | 24 | | | 48 | 1230 |
| Patients who died while on the WL during 2018 | | 7 | | | 15 | | | 4 | | | 36 | 213 |
| ***PANCREAS*** | | | | | | | | | | | | |
| **N Tx CENTRES** | | 1 | 0 | 0 | 6 | 2 | | 2 | 0 | 0 | 8 | 135 |
| Patients included on the WL for the first time in the course of 2018 | | 9 | | | 33 | 18 | | 18 | | | 23 | 1308 |
| Total number of patients ever active on the WL during 2018 | | 37 | | | 153 | 35 | | | | | 170 | 2432 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | | 13 | | | 132 | 27 | | 19 | | | 166 | 1041 |
| Patients who died while on the WL during 2018 | | 0 | | | 4 | | | 6 | | | 2 | 112 |
| ***SMALL BOWEL*** | | | | | | | | | | | | |
| **N Tx CENTRES** | | 0 | 0 | 0 | 0 | 1 | | 2 | 0 | 0 | 5 | 20 |
| Patients included on the WL for the first time in the course of 2018 | | 0 | | | 0 | 2 | | 0 | | | 4 | 115 |
| Total number of patients ever active on the WL during 2018 | | 0 | | | 0 | 4 | | 0 | | | 4 | 263 |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | | 0 | | | 0 | 2 | | 0 | | | 1 | 159 |
| Patients who died while on the WL during 2018 | | 0 | | | 0 | | | 0 | | | 3 | 14 |

## WAITING LIST

### LATIN AMERICAN COUNTRIES

| Country<br>Population (million inhabitants): UNFPA | Argentina<br>44.7 | Bolivia<br>11.2 | Brazil<br>210.9 | Chile<br>18.2 | Colombia<br>49.5 | Costa Rica<br>5.0 | Cuba<br>11.5 | Dominican Republic<br>10.9 | Ecuador<br>16.9 | El Salvador<br>6.4 |
|---|---|---|---|---|---|---|---|---|---|---|
| ***KIDNEY*** | | | | | | | | | | |
| **N Tx CENTRES** | 58 | 10 | 191 | | 25 | 7 | 9 | 8 | 8 | |
| Patients included on the WL for the first time in the course of 2018 | 2177 | | 12631 | | 1484 | 50 | 100 | 53 | 420 | |
| Total number of patients ever active on the WL during 2018 | 8310 | | 33201 | | 5166 | | 450 | 255 | 592 | |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 5834 | | 22736 | | 2576 | 250 | 382 | 207 | 400 | |
| Patients who died while on the WL during 2018 | 514 | | 1402 | | 93 | 32 | | 4 | 14 | |
| Patients on dialysls on 31/12/2018 | 30053 | | 108468 | | 26952 | 226 | 3200 | 4197 | 12367 | |
| ***LIVER*** | | | | | | | | | | |
| **N Tx CENTRES** | 37 | 1 | 85 | | 11 | 4 | 3 | 1 | 2 | |
| Patients included on the WL for the first time in the course of 2018 | 834 | | 3847 | | 307 | 20 | 10 | 13 | 55 | |
| Total number of patients ever active on the WL during 2018 | 2101 | | 5112 | | 726 | | 32 | 42 | 58 | |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 1195 | | 1112 | | 138 | 21 | 30 | 33 | 15 | |
| Patients who died while on the WL during 2018 | 192 | | 814 | | 24 | 10 | | 8 | 11 | |
| ***HEART*** | | | | | | | | | | |
| **N Tx CENTRES** | 25 | 0 | 64 | | 7 | 1 | 1 | 2 | 1 | |
| Patients included on the WL for the first time in the course of 2018 | 204 | | 566 | | 85 | 10 | 3 | 0 | 0 | |
| Total number of patients ever active on the WL during 2018 | 330 | | 843 | | 179 | | 5 | 0 | 0 | |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 120 | | 270 | | 22 | 0 | 4 | 0 | 0 | |
| Patients who died while on the WL during 2018 | 40 | | 110 | | 9 | | | 0 | 0 | |
| ***LUNG*** | | | | | | | | | | |
| **N Tx CENTRES** | 8 | 0 | 9 | | 4 | 1 | 0 | 0 | 1 | |
| Patients included on the WL for the first time in the course of 2018 | 137 | | 177 | | 46 | 4 | 0 | 0 | 1 | |
| Total number of patients ever active on the WL during 2018 | 336 | | 366 | | 102 | 4 | 0 | 0 | 1 | |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 233 | | 175 | | 32 | 2 | 0 | 0 | 1 | |
| Patients who died while on the WL during 2018 | 38 | | 36 | | 7 | | 0 | 0 | 0 | |
| ***PANCREAS*** | | | | | | | | | | |
| **N Tx CENTRES** | 16 | 0 | 22 | | 5 | 1 | 0 | 1 | 0 | |
| Patients included on the WL for the first time in the course of 2018 | 9 | | 312 | | 4 | | 0 | 0 | 0 | |
| Total number of patients ever active on the WL during 2018 | 14 | | 855 | | 5 | | 0 | 0 | 0 | |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 11 | | 438 | | 3 | | 0 | 0 | 0 | |
| Patients who died while on the WL during 2018 | 0 | | 63 | | 0 | | 0 | 0 | 0 | |
| ***SMALL BOWEL*** | | | | | | | | | | |
| **N Tx CENTRES** | 2 | 0 | 3 | | 4 | 1 | 0 | 0 | 0 | |
| Patients included on the WL for the first time in the course of 2018 | 1 | | 7 | | 2 | | 0 | 0 | 0 | |
| Total number of patients ever active on the WL during 2018 | 11 | | 9 | | 2 | | 0 | 0 | 0 | |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 9 | | 7 | | 1 | | 0 | 0 | 0 | |
| Patients who died while on the WL during 2018 | 0 | | 0 | | 0 | | 0 | 0 | 0 | |

## WAITING LIST

### LATIN AMERICAN COUNTRIES

| Country<br>Population (million inhabitants): UNFPA | Guatemala<br>17.2 | Honduras | Mexico<br>130.8 | Nicaragua | Panama<br>4.2 | Paraguay<br>6.9 | Peru<br>326.0 | Uruguay<br>3.5 | Venezuela<br>32.4 |
|---|---|---|---|---|---|---|---|---|---|
| ***KIDNEY*** | | | | | | | | | |
| **N Tx CENTRES** | 4 | | 265 | | 2 | 6 | 13 | 3 | 11 |
| Patients included on the WL for the first time in the course of 2018 | | | 6017 | | 35 | 84 | 28 | 193 | |
| Total number of patients ever active on the WL during 2018 | | | 19316 | | 134 | 175 | 998 | 615 | |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | | | 14912 | | 81 | 88 | 841 | 389 | |
| Patients who died while on the WL during 2018 | | | 159 | | 5 | 0 | 0 | 24 | |
| Patients on dialysis on 31/12/2018 | | | | | 2801 | 1400 | 12773 | 3329 | |
| ***LIVER*** | | | | | | | | | |
| **N Tx CENTRES** | 0 | | 77 | | 1 | 1 | 4 | 1 | 3 |
| Patients included on the WL for the first time in the course of 2018 | 0 | | 370 | | 10 | 5 | 30 | 31 | |
| Total number of patients ever active on the WL during 2018 | 0 | | 694 | | 20 | 13 | 70 | 65 | |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 0 | | 323 | | 3 | 7 | 22 | 33 | |
| Patients who died while on the WL during 2018 | 0 | | 60 | | 1 | 3 | 3 | 5 | |
| ***HEART*** | | | | | | | | | |
| **N Tx CENTRES** | 0 | | 56 | | 1 | 4 | 3 | 3 | 0 |
| Patients included on the WL for the first time in the course of 2018 | 0 | | 34 | | 1 | 8 | 14 | 20 | |
| Total number of patients ever active on the WL during 2018 | 0 | | 72 | | 1 | 16 | 20 | 55 | |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 0 | | 32 | | 0 | 8 | 7 | 32 | |
| Patients who died while on the WL during 2018 | 0 | | 4 | | 0 | 3 | 1 | 4 | |
| ***LUNG*** | | | | | | | | | |
| **N Tx CENTRES** | 0 | | 11 | | 0 | 0 | 2 | 1 | 0 |
| Patients included on the WL for the first time in the course of 2018 | 0 | | 7 | | 0 | 0 | 4 | 10 | |
| Total number of patients ever active on the WL during 2018 | 0 | | 8 | | 0 | 0 | 6 | 27 | |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 0 | | 2 | | 0 | 0 | 2 | 19 | |
| Patients who died while on the WL during 2018 | 0 | | 1 | | 0 | 0 | 0 | 0 | |
| ***PANCREAS*** | | | | | | | | | |
| **N Tx CENTRES** | 0 | | 22 | | 0 | 0 | 2 | 0 | 0 |
| Patients included on the WL for the first time in the course of 2018 | 0 | | 2 | | 0 | 0 | 2 | | |
| Total number of patients ever active on the WL during 2018 | 0 | | 15 | | 0 | 0 | 2 | | |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 0 | | 8 | | 0 | 0 | 0 | | |
| Patients who died while on the WL during 2018 | 0 | | 0 | | 0 | 0 | 0 | | |
| ***SMALL BOWEL*** | | | | | | | | | |
| **N Tx CENTRES** | 0 | | 3 | | 0 | 0 | 0 | 0 | 0 |
| Patients included on the WL for the first time in the course of 2018 | 0 | | 0 | | 0 | 0 | 0 | | |
| Total number of patients ever active on the WL during 2018 | 0 | | 0 | | 0 | 0 | 0 | | |
| Patients awaiting for a transplant (only active candidates) on 31/12/2018 | 0 | | 0 | | 0 | 0 | 0 | | |
| Patients who died while on the WL during 2018 | 0 | | 0 | | 0 | 0 | 0 | | |

# International Data on Tissues and Haematopoietic Stem Cell Donation and Transplantation Activity. Year 2018

## Data provided by National Competent Authorities:

**EUROPE**

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Yordan Peev

**Cyprus**

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**Denmark**

**Estonia**
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Bibiana Ramos
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**Finland**
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**France**
Katia Bruneau

**Greece**

**Croatia**
Milena Ivanković

**Hungary**
János Sajtos

**Ireland**

**Italy**
Fiorenza Bariani
Letizia Lombardini
Liliam Santilli

**Lithuania**
Justina Davainytė

**Luxembourg**
Martine Debacker

**Latvia**
Ieva Bekere

**The Republic of Moldova**
Igor Codreanu
Tatiana Timbalari

**The Rep. of North Macedonia**

**Malta**
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**Netherlands**
Frank van Linden

**Norway**

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**Sweden**
Nina Lundmark
Tobiasregistret

**Slovenia**

**Slovakia**
Magdaléna Krátka
Daniel Kuba

**Switzerland**
Barbara Schärer

**Turkey**

**United Kingdom**
Rita Barallon
Robert Watson

**LATIN AMERICA**

**Argentina**
Sergio Madera

**Bolivia**

**Brazil**
Daniela Ferreira Salomao
Thais Lucena de Oliveira

**Chile**
Juan E. Sánchez

**Colombia**
Edwin A. Cárdenas
Adriana Segura
Yazmin R. Arias

**Costa Rica**
César A. Gamboa
Martha Romero
Roselyn Serrano

**Cuba**
M. Antonio Enamorado

**Dominican Republic**
Fernando R. Morales
Alexander Altman

**Ecuador**
Mauricio Heredia

**El Salvador**
Raúl Palomo

**Guatemala**
Salvador López
Rudolf García-Gallont

**Honduras**

**Mexico**
J. Salvador Aburto
José André Madrigal

**Nicaragua**
Mabel I. Sandoval

**Panama**
Cesar J. Cuero
Camilo Chong

**Paraguay**
Gustavo A. Melgarejo
Marcelo Martínez

**Peru**
Juan A. Almeyda

**Uruguay**
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**Venezuela**
Evelyn Alonzo

**Data recorded & prepared by: EUROCET - European Network of Competent Authorities for Tissues and Cells -Team (www.eurocet.org)**

# Glossary (Tissues)

## A

**Adipose tissue:** Connective tissue in which fat is stored and which has the cells distended by droplets of fat.

**Amniotic membrane**: The innermost layer of the placental membrane; it surrounds the foetus during pregnancy.

**Autologous:** Refers to tissues or cells removed from and applied in the same individual.

## B

**Blood vessels:** A tube in the body carrying blood to (veins) or from (arteries) the heart.

**Bone:** The hard, rigid, mineralised form of connective tissue constituting most of the skeleton of vertebrates and composed primarily of calcium salts. There are two types of osseous tissue that form bones: cortical bone (the compact bone of the shaft of a bone that surrounds the marrow cavity) and cancellous or trabecular bone (typically occurs at the ends of long bones, proximal to joints and within the interior of vertebrae). Cancellous bone is highly vascular and frequently contains bone marrow.

**Bone filling material:** Cancellous (spongy type of bone with a very high surface area found at the ends of long bones) or Corticocancellous bone which has been chopped, shaped or ground to chips, cubes, granules or powder.

## C

**Cancellous bone chips**: Spongy (cancellous) bone cut in pieces, chopped or shaped to chips or cubes of various sizes.

**Cardiovascular:** Relating to the heart or vessels carrying blood.

**Competent authority** (or health authority/regulatory authority/regulatory agency): the body which has been delegated with the responsibility for ensuring that tissue and cell donation, banking and human application are appropriately promoted, regulated and monitored in the interests of donor and patient safety and public transparency on a national or regional basis by their government.

**Cornea:** The transparent anterior part of the outer fibrous coat of the eye. A collagenous tissue bounded by an outer stratified epithelium and an inner monolayer of endothelial cells. The major refractive component of the eye.

**Cortical strut:** A small shaped piece of compact bone mainly from the femur or tibia used in structural grafting, such as rings, pins etc.

**Cortico cancellous bone chips:** Bone containing both compact and spongy part cut into pieces, chopped or shaped to chips or cubes of varying sizes.

**Craniectomy:** The surgical removal of a portion of the skull.

## D

**Deceased donor:** A person declared to be dead according to established medical criteria and from whom cells, tissues or organs have been recovered for the purpose of human application.

**Deceased heart-beating donor (DBD) (Donor after Brain Death):** A donor who is declared dead based on the irreversible loss of neurological functions. Also known as heart-beating donor.

**Deceased non-heart beating donor (DCD) (Donor after Cardiac Death):** A donor who is declared dead and diagnosed by means of cardiopulmonary criteria.

**Distribution**: Transportation and delivery of cells or tissues intended for human application.

**Donation**: Donating human tissues or cells intended for human applications.

**Donor**: Every human source, whether living or deceased of human cells or tissues.

## E

**Export**: Act of transporting a tissue or cell intended for human application to another country where it is to be processed further or used directly.

## F

**Fascia**: A layer of fibrous connective tissue that surrounds muscles, groups of muscles, blood vessels and nerves, which binds some structures together while permitting others to slide smoothly over each other.

**Femoral arteries superficial:** The section of femoral artery from the bifurcation of the common femoral artery with the profunda femoris artery to the popliteral artery.

**Femoral head:** Ball shaped proximal head of the femur (thigh bone) forming ball and socket joint with the os coxae (hip bone)

## H

**Heart valve:** One of the four structures within the heart that prevent backflow of blood by opening and closing with each heartbeat. They include two

semilunar valves (aortic and pulmonary), the mitral (or bicuspid) valve, and the tricuspid valve. They permit blood flow in only one direction.

**Human application:** The use of tissues or cells on or in a human recipient.

**Human tissues and cells for human application**: Material containing or consisting of human tissues and/or cells intended for implantation, transplantation, infusion, or transfer into a human recipient.

## I

**Import:** The act of bringing tissues or cells into one country from another for the purpose of human application or further processing.

**Importing tissue establishment:** A tissue bank or a unit of a hospital or another body established within the EU which is a party to a contractual agreement with a third country supplier for the import into the EU of tissues and cells coming from a third country and intended for human application.

## L

**Ligament:** A tough band of fibrous connective tissue that connects bone to bone.

**Living donor:** A living person from whom cells or tissues have been removed for the purpose of human application.

## M

**Menisci:** The cartilage cushions found in the knee joint between the femur and tibia.

**Musculoskeletal:** Tissues that are part of the skeleton and muscular system, including muscles, bones, cartilage, tendons and ligaments, which function in the support and movement of the body.

## N

**Number of tissues discarded:** The number of tissues and/or cells that have been discarded.

**Number of tissues distributed**: the total number transported or delivered to a clinical unit (as Article 3 (k) of Directive 2004/23/EC defines: Distribution "means transportation and delivery of tissues or cells intended for human applications" (Article 3 (k) Directive 2004/23/EC), whereas 'human application' is defined in the same article as follows: "means the use of tissues or cells on or in a human recipient and extracorporeal applications'.)

**Number of tissues processed**: Article 3(g) of Directive 2004/23/EC defines processing as 'all operations involved in the preparation, manipulation, preservation and packaging of tissues or cells intended for human applications'. This term refers to tissues and cells processed in TEs but not necessarily distributed.

**Number of tissue procured:** The number of donated tissue made available through the process of procurement.

**Number of recipients for each type of tissue:** The total number of patients who had at least one unit of tissues or cells applied during the year concerned in a given country. It is acknowledged that not all Member States currently collect data on the total number of patients treated with each type of tissue or cells.

## O

**Ocular tissue:** Corneas and Scleras.

**Other tissue:** All human tissues for human application that does not have a dedicated row on the form.

## P

**Pancreas:** A large lobulated gland that in humans lies in front of the upper lumbar vertebrae and behind the stomach and is somewhat hammer-shaped and firmly attached anteriorly to the curve of the duodenum with which it communicates through one or more pancreatic ducts.

**Pancreatic islets:** Any of the groups of small slightly granular endocrine cells that form anastomosing trabeculae among the tubules and alveoli of the pancreas and secrete insulin and glucagon.

**Parathyroid:** Any of the usually four small endocrine glands that are adjacent to or embedded in the thyroid gland, are composed of irregularly arranged secretory epithelial cells lying in a stroma rich in capillaries, and produce parathyroid hormone.

**Placenta:** An organ that connects the developing foetus to the uterine wall to allow nutrient uptake, waste elimination and gas exchange via the mother's blood supply.

**Processing:** All operations involved in the preparation, manipulation, preservation, storage and packaging of tissues or cells intended for human application.

## R

**Recipient:** Person to whom human tissues, cells or reproductive cells and embryos are applied.

**Retrieval or Recovery:** See Number of tissue procured.

## S

**Sclera:** Fibrous white outer coat of the eye.

**Skin:** Thin layer of tissue forming the natural outer covering of the human body. Skin is composed of two primary

layers: the epidermis and dermis. These layers are separated by a thin sheet of fibres, the 'basement membrane'. Keratinocytes constitute 95% of the epidermis. The dermis provides tensile strength and elasticity to the skin through an extracellular matrix composed of collagen fibrils, microfibrils, and elastic fibres, embedded in proteoglycans.

**Skin – meshed:** Strips of skin graft less than 1mm in depth cut into a lattice structure to increase surface area.

**Storage:** Means maintaining the product under appropriate controlled conditions until distribution.

## T

**Tendon**: A tough band of fibrous connective tissue that usually connects muscle to bone and which can withstand tension.

**Tissue**: All constituent parts of the human body formed by cells.

**Tissue establishment:** A tissue bank or a unit of a hospital or another body where activities of processing, preservation, storage or distribution of human tissues and cells are undertaken. It may also be responsible for procurement and/or testing of tissues and cells.

**Tissue donation (effective):** When tissue intended for human application is retrieved from a human body.

**Transplantation/implantation/grafting:** Transfer (engraftment) of human tissues or cells from a donor to a recipient with the aim of restoring function(s) in the body.

## U

**Unique donation number:** The unique number attributed to a specific donation of tissues and cells in line with the system in place in each Member State for allocating such numbers, as further specified in Annex VII to Commission Directive (EU) 2015/565.

## W

**Whole bone:** Whole or pieces of bone which remain as a piece rather than being ground down.

# Glossary (Haematopoietic Stem Cells)

## A

**Allogeneic use:** Cells removed from one person and applied to another.

**Autologous use**: Cells removed from and applied in the same person.

## B

**Banking:** Processing, preservation, storage and distribution of cells for human application or other purposes, including research and training.

**Bone marrow:** Tissue at the centre of large bones. It is the place where new blood cells are produced. Bone marrow contains two types of stem cell: haematopoietic (which can produce blood cells) and stromal (which can produce fat, cartilage and bone). In this collection: as a source of haematopoietic stem cells or mesenchymal stem cells.

## C

**Cells**: Means individual human cells or a collection of human cells when not bound by any form of connective tissue.

**Collection:** Any procedure for procuring a cellular therapy product regardless of technique or source (synonym: harvest).

**Competent authority** (or health authority/regulatory authority/regulatory agency): the body which has been delegated with the responsibility for ensuring that tissue and cell donation, banking and human application are appropriately promoted, regulated and monitored in the interests of donor and patient safety and public transparency on a national or regional basis by their government.

**Cord blood:** Blood collected from placental vessels and umbilical cord blood vessels after the umbilical cord is clamped and/or severed as a source of haematopoietic progenitor cells.

**Cord blood bank:** An organisation responsible for donor management and the collection, processing, testing, cryopreservation, storage, listing, reservation, release, and distribution of cord blood units.

**Cryopreservation:** Preservation and storage of viable tissues and cells (including gametes and embryos) to preserve viability, either by freezing or vitrification, or alternatively (to extend their viable life) by low-temperature storage.

## D

**Distribution:** Transportation and delivery of tissues or cells intended for human applications.

**Donation**: Donating human tissues or cells intended for human applications.

**Donation centre:** An organisation responsible for donor recruitment, consenting, testing, management and the collection of donor personal, genetic, medical data.

**Donor**: Every human source, whether living or deceased of human cells.

**Donor registry:** An organisation responsible for coordinating the search for haematopoietic stem cells from donors (including cord blood) unrelated to the potential recipient.

## H

**HPC transplant centre:** A medical facility where a patient (recipient) receives a transplant (graft) with HSC from an unrelated donor or from an umbilical cord blood unit. The TC oversees the immediate medical treatment and provides long-term follow-up of the recipient. The search unit undertakes the search for an unrelated donor for specific patients using criteria defined and documented by the TC. This entity may be contained within a TC or may be separate from the TC. If separate, the search unit may coordinate searches for one or several TCs. In the standards, reference to a TC should be interpreted as a TC and/or a search unit as appropriate. Transplant centres/search units seeking an international donor work through the registry in their country.

**Haematopoietic progenitor cells (HPC):** Primitive haematopoietic cells capable of self-renewal as well as maturation into any of the haematopoietic lineages, including committed and lineage-restricted progenitor cells, unless otherwise specified and regardless of tissue source. Also referred to as 'haematopoietic stem cells.

**Human application:** The use of tissues or cells on or in a human recipient.

**Human tissues and cells for human application**: Material containing or consisting of human tissues and/or cells intended for implantation, transplantation, infusion, or transfer into a human recipient.

## N

**Number of cells distributed**: The total number transported or delivered to a clinical unit (as Article 3 (k) of Directive 2004/23/EC define:. Distribution "means transportation and delivery of tissues or cells intended for human applications" (Article 3 (k) Directive 2004/23/EC), whereas 'human application' is defined in the same article as follows: "means the use of tissues or cells on or in a human recipient and extracorporeal applications'.)

## O

**Organisation responsible for human application:** means a healthcare establishment or a unit of a hospital or another body which carries out human application of human tissues and cells

## P

**Peripheral blood:** In this collection: HSC haematopoietic stem cells collected in peripheral blood by apheresis.

**Potential donor:** Any person who has no medical contraindications for organ, tissue or cell donation and who meets the definition of a deceased heartbeating donor, deceased non-heartbeating donor or living donor.

**Procurement organisation:** Means a health care establishment or a unit of a hospital or another body that undertakes the procurement of human tissues and cells and that may not be accredited, designated, authorised or licensed as a tissue establishment.

## R

**Recipient:** Person to whom human tissues, cells or reproductive cells and embryos are applied.

**Related:** Existence of a genetic relationship between donor and recipient.

## S

**Search performed:** Number of searches for compatibility performed in the marrow registry.

## T

**Transplantation/implantation/grafting:** Transfer (engraftment) of human tissues or cells from a donor to a recipient with the aim of restoring function(s) in the body.

**Transplant centre:** See Organisation responsible for human application.

## U

**Unique donation number:** The unique number attributed to a specific donation of tissues and cells in line with the system in place in each Member State for allocating such numbers, as further specified in Annex VII to Commission Directive (EU) 2015/565.

**Unrelated:** Where there exists no genetic relationship between donor and recipient.

## PRELIMINARY DATA ON TISSUES - YEAR 2018

### EUROPEAN UNION COUNTRIES

| *Country* | | Austria | Belgium | Bulgaria | Croatia | Cyprus | Czech Republic | Denmark | Estonia | Finland | France | Germany | Greece | Hungary | Ireland | Italy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Population (Source: eurostat)* | | 8.822.267 | 11.398.589 | 7.050.034 | 4.105.493 | 864.236 | 10.610.055 | 5.781.190 | 1.319.133 | 5.513.130 | 66.926.166 | 82.792.351 | 10.741.165 | 9.778.371 | 4.830.392 | 60.483.973 |
| TYPE OF TISSUE | TYPE OF DATA | NO DATA | NO DATA | | | NO DATA | | NO DATA | | | | | NO DATA | | NO DATA | |
| CORNEA | N of tissue donations | | | 68 | 273 | | 517 | | 23 | 218 | 5.599 | NA | | NA | | 8.765 |
| | Tissue donation PMP | | | 9,6 | 66,5 | | 48,7 | | 17,4 | 39,5 | 83,7 | NA | | NA | | 144,9 |
| | N of tissue retrieved | | | 133 | 540 | | 1.059 | | 46 | 340 | 11.145 | 11.824 | | 317 | | 17.385 |
| | N tissue processed (units) | | | 0 | 546 | | 330 | | 56 | 340 | 5.897 | 11.510 | | 317 | | |
| | N tissue distributed nationally (units) | | | 119 | 340 | | 590 | | 54 | 273 | 5.448 | 7.995 | | 255 | | 6.808 |
| | N tissue imported (units) | | | 3 | 13 | | 0 | | 0 | 46 | 24 | 848 | | 0 | | |
| | N tissue exported (units) | | | 0 | 0 | | 101 | | 0 | 2 | 158 | 64 | | 0 | | 619 |
| | N of tissues transplanted | | | 119 | 353 | | 724 | | NA | 273 | 4.812 | NA | | 262 | | |
| | N of patients transplanted | | | 111 | 338 | | 724 | | 58 | NA | 4.437 | NA | | 249 | | |
| | N of transplant procedures | | | 119 | 353 | | 724 | | NA | NA | UK | NA | | 262 | | 5.945 |
| SKIN | N of tissue donations | | | 79 | 1 | | 91 | | 8 | 23 | 323 | NA | | NA | | 348 |
| | Tissue donation PMP | | | 11,2 | 0,2 | | 8,6 | | 6,1 | 4,2 | 4,8 | 0,0 | | NA | | 5,8 |
| | N of tissue retrieved ($cm^2$) | | | 125.425 | 42 | | 127.960 | | NE | 138.402 | 640.496 | 26.009 | | 50 | | 915.311 |
| | N tissue processed (units) | | | 14 | 15 | | 1.303 | | 43 | 1.189 | 1.247 | 120.255 | | 210 | | |
| | N tissue distributed nationally (units) | | | 0 | 21 | | 136 | | 22 | 1.230 | 900 | 260.456 | | 210 | | 3.814 |
| | N tissue imported (units) | | | 0 | 13 | | 0 | | 0 | NE | 0 | 83.000 | | 0 | | |
| | N tissue exported (units) | | | 0 | 0 | | 0 | | 0 | NE | 35.735 | 8.134 | | 0 | | |
| | N of tissues transplanted | | | 0 | 28 | | 1.343 | | NA | 1.230 | 360.003 | NA | | 210 | | |
| | N of patients transplanted | | | 0 | 5 | | 432 | | 4 | 17 | 205 | NA | | 210 | | |
| | N of transplant procedures | | | 0 | 14 | | 1.343 | | NA | NA | UK | NA | | 210 | | 1.717 |
| HEART VALVE | N of tissue donations | | | 0 | 5 | | 103 | | NE | 42 | 333 | NA | | NA | | 230 |
| | Tissue donation PMP | | | 0,0 | 1,2 | | 9,7 | | NE | 7,6 | 5,0 | 0,0 | | NA | | 3,8 |
| | N of tissue retrieved | | | 0 | 8 | | 182 | | NE | 95 | 762 | 708 | | 27 | | 494 |
| | N tissue processed (units) | | | 0 | 8 | | 182 | | NE | 95 | 174 | 386 | | 27 | | |
| | N tissue distributed nationally (units) | | | 0 | 8 | | 136 | | NE | 111 | 230 | 152 | | 21 | | 208 |
| | N tissue imported (units) | | | 0 | 0 | | 0 | | NE | NE | 57 | 1 | | 0 | | 1 |
| | N tissue exported (units) | | | 0 | 0 | | 0 | | NE | NE | 67 | 37 | | 0 | | |
| | N of tissues transplanted | | | 0 | 7 | | 127 | | NA | 111 | 230 | NA | | 21 | | |
| | N of patients transplanted | | | 0 | 8 | | 125 | | NE | NA | 230 | NA | | 21 | | |
| | N of transplant procedures | | | 0 | 8 | | 127 | | NA | NA | UK | NA | | 21 | | |
| BLOOD VESSEL | N of tissue donations | | | 0 | 6 | | 12 | | 28 | 17 | 11.015 | NA | | NA | | 425 |
| | Tissue donation PMP | | | 0,0 | 1,5 | | 1,1 | | 21,2 | 3,1 | 164,6 | 0,0 | | NA | | 7,0 |
| | N of tissue retrieved | | | 0 | 14 | | 21 | | 39 | 48 | 11.688 | 198 | | 136 | | 691 |
| | N tissue processed (units) | | | 0 | 14 | | 16 | | 70 | 43 | 3.400 | 218 | | 136 | | |
| | N tissue distributed nationally (units) | | | 0 | 4 | | 13 | | 37 | 29 | 3.389 | 74 | | 107 | | 393 |
| | N tissue imported (units) | | | 0 | 0 | | 0 | | 0 | NE | 50 | 1 | | 0 | | |
| | N tissue exported (units) | | | 0 | 0 | | 0 | | 0 | NE | 39 | 0 | | 0 | | |
| | N of tissues transplanted | | | 0 | 5 | | 13 | | NA | 29 | 3.389 | NA | | 242 | | |
| | N of patients transplanted | | | 0 | 3 | | 12 | | 35 | NA | 1.994 | NA | | 137 | | |
| | N of transplant procedures | | | 0 | 3 | | 12 | | NA | NA | UK | NA | | 137 | | 226 |
| MUSCULOSKELETAL | N of tissue donations | | | 2.788 | 173 | | 1.520 | | 95 | 816 | 27.434 | NA | | NA | | 3.597 |
| | Tissue donation PMP | | | 395,5 | 42,1 | | 143,3 | | 72,0 | 148,0 | 409,9 | 0,0 | | NA | | 59,5 |
| | N of tissue retrieved | | | 5.700 | 251 | | 5.145 | | 105 | 1.210 | 27.868 | 21.688 | | 1.672 | | 7278 |
| | N tissue processed (units) | | | 203 | 251 | | 3.439 | | 471 | 1.210 | 24.002 | 55.541 | | 6.920 | | |
| | N tissue distributed nationally (units) | | | 250 | 184 | | 1.958 | | 274 | NA | 66.461 | 71.235 | | 6.769 | | 116.558 |
| | N tissue imported (units) | | | 0 | 7 | | 96 | | 51 | NE | 774 | 4.599 | | 0 | | |
| | N tissue exported (units) | | | 0 | 0 | | 2.268 | | 51 | NE | 8.190 | 17.340 | | 0 | | 38 |
| | N of tissues transplanted | | | 176 | 181 | | 3.437 | | NA | NA | 66.461 | NA | | 161 | | |
| | N of patients transplanted | | | 146 | 142 | | 3.391 | | 186 | NA | 47.772 | NA | | 158 | | |
| | N of transplant procedures | | | 152 | 147 | | 3.409 | | NA | NA | UK | NA | | 159 | | 7.583 |

## PRELIMINARY DATA ON TISSUES - YEAR 2018

### EUROPEAN UNION COUNTRIES

| *Country* | | Austria | Belgium | Bulgaria | Croatia | Cyprus | Czech Republic | Denmark | Estonia | Finland | France | Germany | Greece | Hungary | Ireland | Italy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Population (Source: eurostat)*** | | **8.822.267** | **11.398.589** | **7.050.034** | **4.105.493** | **864.236** | **10.610.055** | **5.781.190** | **1.319.133** | **5.513.130** | **66.926.166** | **82.792.351** | **10.741.165** | **9.778.371** | **4.830.392** | **60.483.973** |
| TYPE OF TISSUE | TYPE OF DATA | NO DATA | NO DATA | | | NO DATA | | NO DATA | | | | | NO DATA | | NO DATA | |
| PLACENTA/AMNIOTIC MEMBRANES | N of tissue donations | | | 16 | 2 | | 704 | | 4 | 6 | 241 | NA | | NA | | 317 |
| | Tissue donation PMP | | | 2,3 | 0,5 | | 66,4 | | 3,0 | 1,1 | 3,6 | 0,0 | | NA | | 5,2 |
| | N of tissue retrieved | | | 16 | 2 | | 704 | | 4 | 6 | 241 | 188 | | 0 | | 317 |
| | N tissue processed (units) | | | 45 | 106 | | 8.378 | | 157 | 251 | 2.834 | 6.845 | | 155 | | |
| | N tissue distributed nationally (units) | | | 39 | 133 | | 780 | | 65 | 216 | 3.182 | 4.052 | | 126 | | 4.383 |
| | N tissue imported (units) | | | 0 | 0 | | 0 | | 0 | 138 | 0 | 9 | | 0 | | |
| | N tissue exported (units) | | | 0 | 0 | | 601 | | 0 | 14 | 172 | 114 | | 0 | | |
| | N of tissues transplanted | | | 310 | 134 | | 1.420 | | NA | NA | 3.182 | NA | | 119 | | |
| | N of patients transplanted | | | 202 | 109 | | 224 | | 45 | NA | 2.744 | NA | | 66 | | |
| | N of transplant procedures | | | 307 | 134 | | 1.420 | | NA | NA | UK | NA | | 75 | | 855 |
| PANCREAS/PANCREATIC ISLETS | N of tissue donations | | | 0 | 0 | | 10 | | NE | 0 | 51 | NA | | NA | | 59 |
| | Tissue donation PMP | | | 0,0 | 0,0 | | 0,9 | | NE | 0,0 | 0,8 | 0,0 | | NA | | 1,0 |
| | N of tissue retrieved | | | 0 | 0 | | 10 | | 3 | 0 | 51 | 0 | | 0 | | 59 |
| | N tissue processed (units) | | | 0 | 0 | | 10 | | NE | 0 | UK | 0 | | 0 | | 59 |
| | N tissue distributed nationally (units) | | | 0 | 0 | | 10 | | NE | 0 | UK | 0 | | 0 | | 14 |
| | N tissue imported (units) | | | 0 | 0 | | 0 | | NE | NE | UK | 0 | | 0 | | |
| | N tissue exported (units) | | | 0 | 0 | | 0 | | NE | NE | UK | 0 | | 0 | | |
| | N of tissues transplanted | | | 0 | 0 | | 10 | | NA | 0 | UK | NA | | 0 | | |
| | N of patients transplanted | | | 0 | 0 | | 10 | | NE | 0 | UK | NA | | 0 | | |
| | N of transplant procedures | | | 0 | 0 | | 10 | | NA | 0 | UK | NA | | 0 | | 11 |
| ADIPOSE TISSUE | N of tissue donations | | | 2 | 0 | | 27 | | NE | 1 | NA | NA | | NA | | NA |
| | Tissue donation PMP | | | 0,3 | 0,0 | | 2,5 | | NE | 0,2 | NA | 0,0 | | NA | | NA |
| | N of tissue retrieved | | | 2 | 0 | | 27 | | NE | 1 | UK | 0 | | 0 | | NA |
| | N tissue processed (units) | | | 0 | 0 | | 21 | | NE | 1 | UK | 0 | | 0 | | NA |
| | N tissue distributed nationally (units) | | | 0 | 0 | | 21 | | NE | NA | UK | 0 | | 0 | | NA |
| | N tissue imported (units) | | | 0 | 0 | | 0 | | NE | NE | UK | 0 | | 0 | | |
| | N tissue exported (units) | | | 0 | 0 | | 0 | | NE | NE | UK | 0 | | 0 | | |
| | N of tissues transplanted | | | 0 | 0 | | 18 | | NA | NA | UK | NA | | 0 | | |
| | N of patients transplanted | | | 0 | 0 | | 18 | | NE | NA | UK | NA | | 0 | | |
| | N of transplant procedures | | | 0 | 0 | | 18 | | NA | NA | UK | NA | | 0 | | NA |
| PARATHYROID | N of tissue donations | | | 0 | 0 | | 0 | | NE | NE | NA | NA | | NA | | 13 |
| | Tissue donation PMP | | | 0,0 | 0,0 | | 0,0 | | NE | NE | NA | 0,0 | | NA | | 0,2 |
| | N of tissue retrieved | | | 0 | 0 | | 0 | | NE | NE | 0 | 0 | | 0 | | 13 |
| | N tissue processed (units) | | | 0 | 0 | | 0 | | NE | NE | 0 | 0 | | 0 | | 13 |
| | N tissue distributed nationally (units) | | | 0 | 0 | | 0 | | NE | NE | 0 | 0 | | 0 | | 0 |
| | N tissue imported (units) | | | 0 | 0 | | 0 | | NE | NE | 0 | 0 | | 0 | | |
| | N tissue exported (units) | | | 0 | 0 | | 0 | | NE | NE | 0 | 0 | | 0 | | |
| | N of tissues transplanted | | | 0 | 0 | | 0 | | NA | 0 | 0 | NA | | 0 | | |
| | N of patients transplanted | | | 0 | 0 | | 0 | | NE | 0 | 0 | NA | | 0 | | |
| | N of transplant procedures | | | 0 | 0 | | 0 | | NA | 0 | UK | NA | | 0 | | |
| AUTOLOGOUS CRANIECTOMY PIECES | N of tissue retrieved | | | 0 | 0 | | 95 | | NE | 9 | 338 | 0 | | 0 | | 664 |
| OTHER TISSUE | N of tissue donations | | | 31 | 0 | | 410 | | NE | NE | NA | NA | | NA | | NA |
| | Tissue donation PMP | | | 4,4 | 0,0 | | 38,6 | | NE | NE | NA | 0,0 | | NA | | NA |
| | N of tissue retrieved | | | 31 | 0 | | 413 | | NE | NE | UK | 3.735 | | 14 | | NA |
| | N tissue processed (units) | | | 0 | 0 | | 324 | | NE | NE | UK | 4.613 | | 14 | | NA |
| | N tissue distributed nationally (units) | | | 0 | 5 | | 142 | | NE | NE | UK | 2.230 | | 9 | | NA |
| | N tissue imported (units) | | | 0 | 0 | | 128 | | NE | 22 | UK | 11 | | 0 | | |
| | N tissue exported (units) | | | 0 | 0 | | 0 | | NE | NE | UK | 4 | | 0 | | |
| | N of tissues transplanted | | | 0 | 4 | | 18 | | NA | NA | UK | NA | | 26 | | |
| | N of patients transplanted | | | 0 | 2 | | 18 | | NE | NA | UK | NA | | 26 | | |
| | N of transplant procedures | | | 0 | 3 | | 18 | | NA | NA | UK | NA | | 26 | | NA |

## PRELIMINARY DATA ON TISSUES - YEAR 2018

### EUROPEAN UNION COUNTRIES

### OTHER COUNTRIES

| *Country* | | Latvia | Lithuania | Luxembourg | Malta | Netherlands | Poland | Portugal | Romania | Slovakia | Slovenia | Spain | Sweden | United Kingdom | Norway | Republic Of Moldova | Switzerland |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Population (Source: eurostat)*** | | **1.934.379** | **2.808.901** | **602.005** | **475.701** | **17.181.084** | **37.976.687** | **10.291.027** | **19.530.631** | **5.443.120** | **2.066.880** | **46.658.447** | **10.120.242** | **66.273.576** | **5.295.619** | **3.547.539** | **8.484.130** |
| TYPE OF TISSUE | TYPE OF DATA | | | | | | NO DATA | | NO DATA | | NO DATA | | | | NO DATA | | |
| CORNEA | N of tissue donations | 20 | 29 | NA | 6 | 2.203 | | 546 | | 119 | | 3.574 | 579 | 6.212 | | 15 | 869 |
| | Tissue donation PMP | 10,3 | 10,3 | NA | 12,6 | 128,2 | | 53,1 | | 21,9 | | 76,6 | 57,2 | 93,7 | | 4,2 | 102,4 |
| | N of tissue retrieved | 40 | 58 | NA | 6 | 4.405 | | 1.035 | | 235 | | 7.240 | 1.125 | 6.212 | | 27 | 869 |
| | N tissue processed (units) | 40 | 50 | NA | 0 | 4.405 | | 1.039 | | 236 | | 6.620 | 1.374 | 6.798 | | 27 | 759 |
| | N tissue distributed nationally (units) | 54 | 45 | NA | 0 | 1.720 | | 969 | | 169 | | 4.402 | 1.050 | 4.752 | | 27 | 290 |
| | N tissue imported (units) | 14 | 0 | NA | 0 | 69 | | 239 | | 14 | | 32 | NA | 409 | | NE | 481 |
| | N tissue exported (units) | 0 | 0 | NA | 0 | 605 | | 0 | | NA | | 228 | 9 | 0 | | NE | 0 |
| | N of tissues transplanted | NA | 43 | NA | 0 | 1.410 | | 943 | | 181 | | 4.469 | 1.059 | 5.682 | | 27 | 909 |
| | N of patients transplanted | NA | 45 | NA | 0 | 1.396 | | 923 | | 181 | | 4.454 | 978 | NA | | 24 | 872 |
| | N of transplant procedures | NA | 45 | NA | 0 | 1.410 | | 943 | | 181 | | NA | 1.006 | NA | | 24 | 909 |
| SKIN | N of tissue donations | NE | UK | NA | 0 | 367 | | 0 | | 0 | | 257 | 66 | 512 | | 6 | NE |
| | Tissue donation PMP | NE | UK | NA | 0,0 | 21,4 | | 0,0 | | 0,0 | | 5,5 | 6,5 | 7,7 | | 1,7 | 0,0 |
| | N of tissue retrieved ($cm^2$) | NE | UK | NA | 0 | 1.549.474 | | 0 | | 0 | | 566.691 | 66 | 512 | | 18.278 | NE |
| | N tissue processed (units) | NE | UK | NA | 0 | 15.495 | | 0 | | 0 | | 437.812 | 88 | 467 | | 122 | NE |
| | N tissue distributed nationally (units) | NE | UK | NA | 0 | 1.626 | | 25 | | 60 | | 366.582 | 177 | 4.164 | | 129 | NE |
| | N tissue imported (units) | NE | UK | 74 | 0 | 1 | | 25 | | NA | | 25.387 | 1 | 3.496 | | NE | NE |
| | N tissue exported (units) | NE | UK | 74 | 0 | 13.678 | | 0 | | NA | | 75.470 | NA | 18.912 | | NE | NE |
| | N of tissues transplanted | NE | UK | NA | 0 | 160.095 | | 20 | | 60 | | 247.321 | 66 | 4.752 | | 0 | NE |
| | N of patients transplanted | NE | UK | NA | 0 | 87 | | 8 | | 30 | | 43 | 28 | NA | | 0 | NE |
| | N of transplant procedures | NE | UK | NA | 0 | 160.095 | | 10 | | 43 | | NA | 63 | NA | | 0 | NE |
| HEART VALVE | N of tissue donations | NE | NE | NA | 0 | 217 | | 23 | | 4 | | 228 | 161 | 630 | | 0 | 11 |
| | Tissue donation PMP | NE | NE | NA | 0,0 | 12,6 | | 2,2 | | 0,7 | | 4,9 | 15,9 | 9,5 | | 0,0 | 1,3 |
| | N of tissue retrieved | NE | NE | NA | 0 | 229 | | 46 | | 5 | | 441 | 245 | 630 | | 0 | 11 |
| | N tissue processed (units) | NE | NE | NA | 0 | 434 | | 46 | | 5 | | 441 | 327 | 704 | | 0 | 0 |
| | N tissue distributed nationally (units) | NE | NE | NA | 0 | 89 | | 5 | | 2 | | 197 | 75 | 529 | | 0 | 0 |
| | N tissue imported (units) | NE | NE | NA | 0 | 25 | | 0 | | NA | | 1 | 1 | 129 | | NE | 26 |
| | N tissue exported (units) | NE | NE | NA | 0 | 25 | | 0 | | NA | | 111 | 70 | 100 | | NE | 6 |
| | N of tissues transplanted | NE | NE | NA | 0 | 114 | | 5 | | 2 | | 65 | 207 | 788 | | 0 | 25 |
| | N of patients transplanted | NE | NE | NA | 0 | 114 | | 5 | | 2 | | 61 | 198 | NA | | 0 | 25 |
| | N of transplant procedures | NE | NE | NA | 0 | 114 | | 5 | | 2 | | NA | 198 | NA | | 0 | 25 |
| BLOOD VESSEL | N of tissue donations | NE | NE | NA | 0 | 16 | | 0 | | 0 | | 184 | 93 | 353 | | 5 | 7 |
| | Tissue donation PMP | NE | NE | NA | 0,0 | 0,9 | | 0,0 | | 0,0 | | 3,9 | 9,2 | 5,3 | | 1,4 | 0,8 |
| | N of tissue retrieved | NE | NE | NA | 0 | 5 | | 0 | | 0 | | 337 | 229 | 353 | | 22 | 7 |
| | N tissue processed (units) | NE | NE | NA | 0 | 16 | | 0 | | 0 | | 19.855 | 229 | 414 | | 0 | 0 |
| | N tissue distributed nationally (units) | NE | NE | 11 | 0 | 42 | | 0 | | 0 | | 24.877 | 12 | 96 | | 0 | 0 |
| | N tissue imported (units) | NE | NE | 11 | 0 | 3 | | 0 | | NA | | 140 | NA | 17 | | NE | 55 |
| | N tissue exported (units) | NE | NE | NA | 0 | 20 | | 0 | | NA | | 291 | NA | 7 | | NE | 7 |
| | N of tissues transplanted | NE | NE | NA | 0 | 43 | | 0 | | 0 | | 180 | 12 | 174 | | 0 | 55 |
| | N of patients transplanted | NE | NE | NA | 0 | 42 | | 0 | | 0 | | 131 | 10 | NA | | 0 | 55 |
| | N of transplant procedures | NE | NE | NA | 0 | 43 | | 0 | | 0 | | NA | 10 | NA | | 0 | 55 |
| MUSCULOSKELETAL | N of tissue donations | 20 | 90 | NA | 0 | 167 | | 54 | | 441 | | 2.430 | 1.575 | 6.076 | | 32 | 296 |
| | Tissue donation PMP | 10,3 | 32,0 | NA | 0,0 | 9,7 | | 5,2 | | 81,0 | | 52,1 | 155,6 | 91,7 | | 9,0 | 34,9 |
| | N of tissue retrieved | 40 | 40 | NA | 0 | 1.967 | | 255 | | 1.783 | | 21.847 | 1.754 | 6.044 | | 72 | 299 |
| | N tissue processed (units) | 95 | 90 | NA | 0 | 6.372 | | 446 | | 2.138 | | 2.666 | 2.029 | 3.108 | | 355 | 93 |
| | N tissue distributed nationally (units) | 43 | 30 | 553 | 0 | 10.291 | | 446 | | 582 | | 1.911 | 1.054 | 27.599 | | 475 | NA |
| | N tissue imported (units) | 0 | 0 | 4.912 | 0 | 673 | | 31 | | 2 | | 0 | 166 | 30.902 | | NE | 43 |
| | N tissue exported (units) | 0 | 0 | 4.359 | 0 | 37.449 | | 0 | | 212 | | 361 | 0 | 43.752 | | NE | 0 |
| | N of tissues transplanted | NA | 32 | NA | 0 | 5.613 | | 400 | | 517 | | 24.761 | 1.017 | 28.890 | | 419 | 245 |
| | N of patients transplanted | NA | 30 | NA | 0 | 5.288 | | 270 | | 319 | | 19.142 | 1.021 | NA | | 129 | 237 |
| | N of transplant procedures | NA | 30 | NA | 0 | 5.613 | | 365 | | 343 | | NA | 1.002 | NA | | 129 | 237 |

## PRELIMINARY DATA ON TISSUES - YEAR 2018

### EUROPEAN UNION COUNTRIES

| *Country* | | Latvia | Lithuania | Luxembourg | Malta | Netherlands | Poland | Portugal | Romania | Slovakia | Slovenia | Spain | Sweden | United Kingdom |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Population (Source: eurostat)* | | 1.934.379 | 2.808.901 | 602.005 | 475.701 | 17.181.084 | 37.976.687 | 10.291.027 | 19.530.631 | 5.443.120 | 2.066.880 | 46.658.447 | 10.120.242 | 66.273.576 |
| TYPE OF TISSUE | TYPE OF DATA | | | | | | NO DATA | | NO DATA | | NO DATA | | | |
| PLACENTA/AMNIOTIC MEMBRANES | N of tissue donations | 8 | 2 | NA | 0 | 1 | | 17 | | 64 | | 92 | 3 | 0 |
| | Tissue donation PMP | 4,1 | 0,7 | NA | 0,0 | 0,1 | | 1,7 | | 11,8 | | 2,0 | 0,3 | 0,0 |
| | N of tissue retrieved | 8 | 2 | NA | 0 | 1 | | 17 | | 64 | | 2.459 | 379 | 0 |
| | N tissue processed (units) | NE | UK | NA | 0 | 1 | | 261 | | 304 | | NA | 424 | 98 |
| | N tissue distributed nationally (units) | NE | UK | NA | 0 | 200 | | 228 | | 377 | | NA | 312 | 2.096 |
| | N tissue imported (units) | NE | 0 | NA | 0 | 0 | | 0 | | NA | | NA | NA | 266 |
| | N tissue exported (units) | NE | 0 | NA | 0 | 702 | | 0 | | NA | | NA | NA | 772 |
| | N of tissues transplanted | NE | 2 | NA | 0 | 118 | | 230 | | 378 | | NA | 317 | 2.224 |
| | N of patients transplanted | NE | 33 | NA | 0 | 114 | | 183 | | 261 | | NA | 299 | NA |
| | N of transplant procedures | NE | 33 | NA | 0 | 118 | | 210 | | 309 | | NA | 304 | NA |
| PANCREAS/PANCREATIC ISLETS | N of tissue donations | NE | NE | NA | 0 | 279 | | NA | | 0 | | NA | 46 | NA |
| | Tissue donation PMP | NE | NE | NA | 0,0 | 16,2 | | NA | | 0,0 | | NA | 4,5 | NE |
| | N of tissue retrieved | NE | NE | NA | 0 | 47 | | NA | | 0 | | NA | 46 | NA |
| | N tissue processed (units) | NE | NE | NA | 0 | 47 | | NA | | 0 | | NA | 46 | 122 |
| | N tissue distributed nationally (units) | NE | NE | NA | 0 | 13 | | NA | | 0 | | NA | 21 | 43 |
| | N tissue imported (units) | NE | NE | NA | 0 | 0 | | NA | | NA | | NA | NA | 0 |
| | N tissue exported (units) | NE | NE | NA | 0 | 0 | | NA | | NA | | NA | 2 | 0 |
| | N of tissues transplanted | NE | NE | NA | 0 | 12 | | NA | | 0 | | NA | 23 | 34 |
| | N of patients transplanted | NE | NE | NA | 0 | 9 | | NA | | 0 | | NA | 3 | NA |
| | N of transplant procedures | NE | NE | NA | 0 | 12 | | NA | | 0 | | NA | 23 | NA |
| ADIPOSE TISSUE | N of tissue donations | NE | 33 | NA | 0 | 0 | | NA | | 89 | | NA | NE | 529 |
| | Tissue donation PMP | NE | 117,5 | NA | 0,0 | 0,0 | | NA | | 163,5 | | NA | NE | 79,8 |
| | N of tissue retrieved | NE | 33 | NA | 0 | 0 | | NA | | 89 | | NA | NE | 529 |
| | N tissue processed (units) | NE | 33 | NA | 0 | 0 | | NA | | 87 | | NA | NE | 63 |
| | N tissue distributed nationally (units) | NE | 32 | NA | 0 | 0 | | NA | | 84 | | NA | NE | 221 |
| | N tissue imported (units) | NE | 0 | NA | 0 | 0 | | NA | | NA | | NA | NE | 2 |
| | N tissue exported (units) | NE | 0 | NA | 0 | 0 | | NA | | NA | | NA | NE | 2 |
| | N of tissues transplanted | NA | 32 | NA | 0 | 0 | | NA | | 84 | | NA | NE | 294 |
| | N of patients transplanted | NA | 19 | NA | 0 | 0 | | NA | | 84 | | NA | NE | NA |
| | N of transplant procedures | NA | 133 | NA | 0 | 0 | | NA | | 84 | | NA | NE | NA |
| PARATHYROID | N of tissue donations | NE | NE | NA | 0 | 0 | | NA | | 0 | | NA | NE | NA |
| | Tissue donation PMP | NE | NE | NA | 0,0 | 0,0 | | NA | | 0,0 | | NA | NE | NA |
| | N of tissue retrieved | NE | NE | NA | 0 | 0 | | NA | | 0 | | NA | NE | 0 |
| | N tissue processed (units) | NE | NE | NA | 0 | 0 | | NA | | 0 | | NA | NE | NA |
| | N tissue distributed nationally (units) | NE | NE | NA | 0 | 0 | | NA | | 0 | | NA | NE | NA |
| | N tissue imported (units) | NE | NE | NA | 0 | 0 | | NA | | NA | | NA | NE | NA |
| | N tissue exported (units) | NE | NE | NA | 0 | 0 | | NA | | NA | | NA | NE | NA |
| | N of tissues transplanted | NE | NE | NA | 0 | 0 | | NA | | 0 | | NA | NE | NA |
| | N of patients transplanted | NE | NE | NA | 0 | 0 | | NA | | 0 | | NA | NE | NA |
| | N of transplant procedures | NE | NE | NA | 0 | 0 | | NA | | 0 | | NA | NE | NA |
| AUTOLOGOUS CRANIECTOMY PIECES | N of tissue retrieved | NE | 50 | NA | 0 | 82 | | NA | | 162 | | NA | 215 | 32 |
| OTHER TISSUE | N of tissue donations | 197 | NE | NA | 0 | 5 | | 0 | | 1.644 | | NA | 0 | 2.749 |
| | Tissue donation PMP | 101,8 | NE | NA | 0,0 | 0,3 | | 0,0 | | 302,0 | | NA | 0,0 | 41,5 |
| | N of tissue retrieved | 197 | NE | NA | 0 | 0 | | 0 | | 1.644 | | NA | 0 | 2.749 |
| | N tissue processed (units) | 8 | NE | NA | 0 | 80 | | | | 1.545 | | NA | 0 | 13.428 |
| | N tissue distributed nationally (units) | 0 | NE | NA | 0 | 1.236 | | 0 | | 209 | | NA | 0 | 15.698 |
| | N tissue imported (units) | 0 | NE | NA | 0 | 12 | | 0 | | 678 | | NA | 0 | 13.264 |
| | N tissue exported (units) | 0 | NE | NA | 0 | 0 | | 0 | | 116 | | NA | 0 | 34.739 |
| | N of tissues transplanted | NA | NE | NA | 0 | 41 | | 0 | | 214 | | NA | 0 | 1.124 |
| | N of patients transplanted | NA | NE | NA | 0 | 41 | | 0 | | 148 | | NA | 0 | NA |
| | N of transplant procedures | NA | NE | NA | 0 | 41 | | 0 | | 200 | | NA | 0 | NA |

### OTHER COUNTRIES

| *Country* | | Norway | Republic Of Moldova | Switzerland |
|---|---|---|---|---|
| *Population (Source: eurostat)* | | 5.295.619 | 3.547.539 | 8.484.130 |
| TYPE OF TISSUE | TYPE OF DATA | NO DATA | | |
| PLACENTA/AMNIOTIC MEMBRANES | N of tissue donations | | 10 | 10 |
| | Tissue donation PMP | | 2,8 | 1,2 |
| | N of tissue retrieved | | 10 | 10 |
| | N tissue processed (units) | | 102 | 129 |
| | N tissue distributed nationally (units) | | 74 | 22 |
| | N tissue imported (units) | | NE | 27 |
| | N tissue exported (units) | | NE | 0 |
| | N of tissues transplanted | | 74 | 134 |
| | N of patients transplanted | | 50 | 115 |
| | N of transplant procedures | | 68 | 115 |
| PANCREAS/PANCREATIC ISLETS | N of tissue donations | | NE | 5 |
| | Tissue donation PMP | | NE | 0,6 |
| | N of tissue retrieved | | NE | 5 |
| | N tissue processed (units) | | NE | 39 |
| | N tissue distributed nationally (units) | | NE | NA |
| | N tissue imported (units) | | NE | 29 |
| | N tissue exported (units) | | NE | 23 |
| | N of tissues transplanted | | NE | 6 |
| | N of patients transplanted | | NE | 6 |
| | N of transplant procedures | | NE | 6 |
| ADIPOSE TISSUE | N of tissue donations | | 0 | NE |
| | Tissue donation PMP | | 0,0 | 0,0 |
| | N of tissue retrieved | | 0 | NE |
| | N tissue processed (units) | | 0 | NE |
| | N tissue distributed nationally (units) | | 0 | NE |
| | N tissue imported (units) | | NE | NE |
| | N tissue exported (units) | | NE | NE |
| | N of tissues transplanted | | 0 | NE |
| | N of patients transplanted | | 0 | NE |
| | N of transplant procedures | | 0 | NE |
| PARATHYROID | N of tissue donations | | NE | NE |
| | Tissue donation PMP | | NE | 0,0 |
| | N of tissue retrieved | | NE | NE |
| | N tissue processed (units) | | NE | NE |
| | N tissue distributed nationally (units) | | NE | NE |
| | N tissue imported (units) | | NE | NE |
| | N tissue exported (units) | | NE | NE |
| | N of tissues transplanted | | NE | NE |
| | N of patients transplanted | | NE | NE |
| | N of transplant procedures | | NE | NE |
| AUTOLOGOUS CRANIECTOMY PIECES | N of tissue retrieved | | 4 | NE |
| OTHER TISSUE | N of tissue donations | | 1 | NE |
| | Tissue donation PMP | | 0,3 | 0,0 |
| | N of tissue retrieved | | 3 | NE |
| | N tissue processed (units) | | 0 | NE |
| | N tissue distributed nationally (units) | | 0 | NE |
| | N tissue imported (units) | | NE | NE |
| | N tissue exported (units) | | NE | NE |
| | N of tissues transplanted | | 0 | NE |
| | N of patients transplanted | | 0 | NE |
| | N of transplant procedures | | 0 | NE |

## PRELIMINARY DATA ON TISSUES - YEAR 2018

### LATIN AMERICAN COUNTRIES

| Country | | Argentina | Brazil | Chile | Colombia | Costa Rica | Cuba | Dominican R. | Ecuador | El Salvador | Guatemala | Mexico | Nicaragua | Panama | Paraguay | Peru | Uruguay | Venezuela |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Population (Source: UNFPA, state of world population, 2018 - Million)* | | 44,7 | 210,9 | 18,2 | 49,5 | 5,0 | 11,5 | 10,9 | 16,9 | 6,4 | 17,2 | 130,8 | 6,3 | 4,2 | 6,9 | 32,6 | 3,5 | 32,4 |
| TYPE OF TISSUE | TYPE OF DATA | NO DATA | | NO DATA | | | NO DATA | | | NO DATA | | | NO DATA | | | NO DATA | | NO DATA |
| CORNEA | N of tissue donations | | 34.447 | | 1.388 | 149 | | 0 | 320 | | 208 | 4.546 | | 2 | 126 | | 88 | |
| | Tissue donation PMP | | 163,3 | | 28,0 | 29,8 | | 0,0 | 18,9 | | 12,1 | 34,8 | | 0,5 | 18,3 | | 25,1 | |
| | N of tissue retrieved | | 30.735 | | 2.831 | 206 | | 0 | 292 | | 208 | 4.544 | | 2 | 116 | | 201 | |
| | N of tissues transplanted | | 14.788 | | 2.672 | 206 | | 0 | | | 183 | 4.311 | | 2 | 116 | | | |
| | N of patients transplanted | | | | | | | 0 | | | 183 | 4.311 | | 2 | 116 | | 187 | |
| | N of transplant procedures | | 14.788 | | | 206 | | 0 | 286 | | 183 | 4.311 | | 2 | 116 | | 201 | |
| BLOOD VESSEL | N of tissue donations | | 0 | | 8 | 5 | | 0 | 7 | | 0 | 0 | | 0 | 0 | | 22 | |
| | Tissue donation PMP | | 0,0 | | 0,2 | 1,0 | | 0,0 | 0,4 | | 0,0 | 0,0 | | 0,0 | 0,0 | | 6,3 | |
| | N of tissue retrieved | | 0 | | 10 | 18 | | 0 | 6 | | 0 | 0 | | 0 | 0 | | 22 | |
| | N of tissues transplanted | | | | 37 | 18 | | 0 | | | 0 | | | 0 | 0 | | | |
| | N of patients transplanted | | | | | 18 | | 0 | | | 0 | | | 0 | 0 | | 17 | |
| | N of transplant procedures | | | | | | | 0 | 0 | | 0 | | | 0 | 0 | | 22 | |
| HEART VALVE | N of tissue donations | | 239 | | 34 | 5 | | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | |
| | Tissue donation PMP | | 1,1 | | 0,7 | 1,0 | | 0,0 | 0,0 | | 0,0 | 0,0 | | 0,0 | 0,0 | | 0,0 | |
| | N of tissue retrieved | | 429 | | 33 | 17 | | 0 | 0 | | 0 | 32 | | 0 | 0 | | 0 | |
| | N of tissues transplanted | | 163 | | 37 | 17 | | 0 | | | 0 | 4 | | 0 | 0 | | 0 | |
| | N of patients transplanted | | | | | | | 0 | | | 0 | 4 | | 0 | 0 | | 0 | |
| | N of transplant procedures | | 163 | | | 17 | | 0 | 0 | | 0 | 4 | | 0 | 0 | | 0 | |
| MUSCULOSKELETAL | N of tissue donations | | 1.105 | | 881 | 57 | | 0 | 350 | | 0 | 459 | | 0 | 0 | | 36 | |
| | Tissue donation PMP | | 5,2 | | 17,8 | 11,4 | | 0,0 | 20,7 | | 0,0 | 3,5 | | 0,0 | 0,0 | | 10,3 | |
| | N of tissue retrieved | | 17.676 | | 1.297 | 147 | | 0 | 326 | | 0 | 477 | | 0 | 0 | | 36 | |
| | N of tissues transplanted | | 12.848 | | 16.020 | 147 | | 0 | | | 0 | | | 0 | 0 | | | |
| | N of patients transplanted | | | | | | | 0 | | | 0 | | | 0 | 0 | | 120 | |
| | N of transplant procedures | | 12.848 | | | 147 | | 0 | 292 | | 0 | | | 0 | 0 | | 412 | |
| PLACENTA/AMNIOTIC MEMBRANE | N of tissue donations | | 0 | | 84 | 32 | | 0 | 7 | | 0 | | | 0 | 0 | | 91 | |
| | Tissue donation PMP | | 0,0 | | 1,7 | 6,4 | | 0,0 | 0,4 | | 0,0 | 0,0 | | 0,0 | 0,0 | | 26,0 | |
| | N of tissue retrieved | | 0 | | 83 | 54 | | 0 | 251 | | 0 | | | 0 | 0 | | 91 | |
| | N of tissues transplanted | | 0 | | 465 | | | 0 | | | 0 | | | 0 | 0 | | | |
| | N of patients transplanted | | 0 | | | | | 0 | | | 0 | | | 0 | 0 | | 51 | |
| | N of transplant procedures | | 0 | | | 54 | | 0 | 263 | | 0 | | | 0 | 0 | | 266 | |
| SKIN | N of tissue donations | | 627 | | 84 | 8 | | 0 | 7 | | 0 | 0 | | 0 | 0 | | 17 | |
| | Tissue donation PMP | | 3,0 | | 1,7 | 1,6 | | 0,0 | 0,4 | | 0,0 | 0,0 | | 0,0 | 0,0 | | 4,9 | |
| | N of tissue retrieved | | 121.176 | | 498 | 0 | | 0 | 161 | | 0 | 0 | | 0 | 0 | | 33.000 | |
| | N of tissues transplanted | | 83.559 | | 564 | 31 | | 0 | | | 0 | | | 0 | 0 | | | |
| | N of patients transplanted | | | | | | | 0 | | | 0 | | | 0 | 0 | | 24 | |
| | N of transplant procedures | | 83.559 | | | 31 | | 0 | 179 | | 0 | | | 0 | 0 | | 772 | |
| OTHERS | N of tissue donations | | 0 | | 0 | 0 | | 0 | 6 | | 0 | 0 | | 0 | 0 | | 0 | |
| | Tissue donation PMP | | 0,0 | | 0,0 | 0,0 | | 0,0 | 0,4 | | 0,0 | 0,0 | | 0,0 | 0,0 | | 0,0 | |
| | N of tissue retrieved | | 0 | | 9 | 0 | | 0 | 4 | | 0 | 0 | | 0 | 0 | | 0 | |
| | N of tissues transplanted | | 0 | | 9 | | | 0 | | | 0 | | | 0 | 0 | | | |
| | N of patients transplanted | | 0 | | | | | 0 | | | 0 | | | 0 | 0 | | | |
| | N of transplant procedures | | 0 | | | NA | | 0 | 7 | | 0 | | | 0 | 0 | | | |

## PRELIMINARY DATA ON HPC CELLS - YEAR 2018

### EUROPEAN UNION COUNTRIES

| Country | | Austria | Belgium | Bulgaria | Croatia | Cyprus | Czech Republic | Denmark | Estonia | Finland | France | Germany | Greece | Hungary | Ireland | Italy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Population (Source: eurostat)*** | | **8.822.267** | **11.398.589** | **7.050.034** | **4.105.493** | **864.236** | **10.610.055** | **5.781.190** | **1.319.133** | **5.513.130** | **66.926.166** | **82.792.351** | **10.741.165** | **9.778.371** | **4.830.392** | **60.483.973** |
| CATEGORY OF <DATA | TYPE OF DATA | NO DATA | NO DATA | | | NO DATA | | NO DATA | | | | | NO DATA | | NO DATA | |
| POTENTIAL DONATIONS AND SEARCHING IN THE NATIONAL REGISTRIES | N of potential donors at 31.12 | | | NA | 56.201 | | 115.997 | | NA | 48.141 | 290.342 | UK | | NA | | 416.852 |
| | N of cord blood units at 31.12 | | | NA | 3.502 | | 6.707 | | 0 | NA | 36.651 | UK | | NA | | 36.370 |
| | N of searches requested | | | NA | 505 | | 48.991 | | NA | NA | 28.472 | UK | | NA | | 3.055 |
| | N of unrelated donations | | | NA | 50 | | 201 | | NA | NA | 1.145 | NA | | NA | | 897 |
| DONATIONS | N of donations - Autologous | | | 2.519 | 570 | | 1.100 | | 57 | NA | 3.576 | 4.530 | | 539 | | 4.618 |
| | N of donations - Allogenic | | | 122 | 1.086 | | 290 | | 3 | 505 | 1.266 | 8.418 | | 123 | | 12.590 |
| | N of donations - Allogenic, related | | | 42 | 49 | | 103 | | 3 | NA | 988 | 1.037 | | 122 | | 1.328 |
| | N of donations - Allogenic, unrelated | | | 80 | 1.037 | | 187 | | 0 | NA | 278 | 7.381 | | 1 | | 11.262 |
| BANKING OF CORD BLOOD | N of unrelated cord blood unitss collected | | | 80 | 1.014 | | 15 | | 0 | 0 | 615 | 733 | | 0 | | 10.661 |
| | N of unrelated cord blood unitss distributed | | | 0 | 0 | | 4 | | 0 | 4 | 119 | 0 | | 0 | | 38 |
| | N of related cord blood unitss collected | | | 2.421 | 11 | | 585 | | 0 | NE | NA | 25 | | 4.373 | | 150 |
| | N of related cord blood unitss distributed | | | 0 | 0 | | 0 | | 0 | NE | NA | 0 | | 2 | | 4 |
| TRANSPLANT | N of transplants - Autologous | | | 98 | 190 | | 463 | | 55 | NA | 3.316 | 4.540 | | 307 | | 3.310 |
| | N of patients transplanted - Autologous | | | 93 | 131 | | 364 | | NA | 245 | 3.183 | 3.757 | | 232 | | 2.628 |
| | N of transplants - Allogenic | | | 64 | 80 | | 266 | | 23 | NA | 1.946 | 3.450 | | 172 | | 1.881 |
| | N of patients transplanted - Allogenic | | | 64 | 74 | | 248 | | NA | 131 | 1.905 | 3.267 | | 158 | | 1.796 |
| | N of transplants - Allogenic, related | | | 42 | 34 | | 90 | | 3 | NA | 991 | 1.017 | | 80 | | 1.020 |
| | N of patients transplanted - Allogenic, related | | | 42 | 31 | | 83 | | NA | NA | NA | 943 | | 73 | | 948 |
| | N of transplants - Allogenic, unrelated | | | 22 | 46 | | 176 | | 20 | NA | 955 | 2.433 | | 92 | | 861 |
| | N of patients transplanted - Allogenic, unrelated | | | 22 | 43 | | 165 | | NA | NA | NA | 2.324 | | 85 | | 848 |

## PRELIMINARY DATA ON HPC CELLS - YEAR 2018

| | | EUROPEAN UNION COUNTRIES | | | | | | | | | | | | | OTHER COUNTRIES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Country*** | | **Latvia** | **Lithuania** | **Luxembourg** | **Malta** | **Netherlands** | **Poland** | **Portugal** | **Romania** | **Slovakia** | **Slovenia** | **Spain** | **Sweden** | **Unitsed Kingdom** | **Norway** | **Republic of Moldova** | **Switzerland** |
| ***Population (Font: Eurostat)*** | | **1.934.379** | **2.808.901** | **602.005** | **475.701** | **17.181.084** | **37.976.687** | **10.291.027** | **19.530.631** | **5.443.120** | **2.066.880** | **46.658.447** | **10.120.242** | **66.273.576** | **5.295.619** | **3.547.539** | **8.484.130** |
| CATEGORY OF DATA | TYPE OF DATA | | | NO DATA | | | NO DATA | | NO DATA | | NO DATA | | | | NO DATA | | |
| POTENTIAL DONATIONS AND SEARCHING IN THE NATIONAL REGISTRIES | N of potential donors at 31.12 | UK | 12.159 | | NE | 273.426 | | 403.832 | | 17.549 | | 373.196 | NA | NA | | NE | 129.472 |
| | N of cord blood units at 31.12 | UK | 1.664 | | NE | 4.663 | | 9.376 | | 1.798 | | 64.526 | NA | NA | | NE | 4.771 |
| | N of searches requested | UK | NA | | NE | 648 | | 2.526 | | 25.294 | | 909 | 301 | NA | | NE | 425 |
| | N of unrelated donations | UK | NA | | NE | 449 | | 136 | | 51 | | 731 | NA | NA | | NE | NA |
| DONATIONS | N of donations - Autologous | UK | NA | | NE | 3.548 | | 495 | | 3.371 | | 2.084 | 664 | 7.622 | | NE | 533 |
| | N of donations - Allogenic | 263 | NA | | NE | 339 | | 1.200 | | 196 | | 919 | 691 | 25.653 | | NE | 171 |
| | N of donations - Allogenic, related | 263 | NA | | NE | 202 | | 77 | | 64 | | 795 | 178 | 12.315 | | NE | 107 |
| | N of donations - Allogenic, unrelated | 0 | NA | | NE | 137 | | 1.123 | | 132 | | 124 | 513 | 13.338 | | NE | 64 |
| BANKING OF CORD BLOOD | N of unrelated cord blood unitss collected | 0 | NE | | NE | 111 | | 1.041 | | 117 | | 954 | 317 | 11.008 | | NE | 109 |
| | N of unrelated cord blood unitss distributed | 0 | NE | | NE | 74 | | 0 | | 6 | | 178 | 3 | NA | | NE | 3 |
| | N of related cord blood unitss collected | 265 | 95 | | 125 | 1 | | 3 | | 16 | | NA | 63 | 11.357 | | NE | NA |
| | N of related cord blood unitss distributed | 0 | 0 | | NE | 1 | | 0 | | 0 | | 0 | 0 | NA | | NE | NA |
| TRANSPLANT | N of transplants - Autologous | UK | 138 | | NE | 3.756 | | 378 | | 166 | | 2.084 | 528 | NA | | 33 | 526 |
| | N of patients transplanted - Autologous | UK | NA | | NE | 1.094 | | 361 | | 135 | | 0 | 505 | NA | | 32 | 404 |
| | N of transplants - Allogenic | UK | 74 | | NE | 827 | | 159 | | 77 | | 1.294 | 301 | NA | | NE | 256 |
| | N of patients transplanted - Allogenic | UK | NA | | NE | 758 | | 154 | | 66 | | 0 | 294 | NA | | NE | 212 |
| | N of transplants - Allogenic, related | UK | 21 | | NE | 253 | | 68 | | 30 | | 795 | 110 | NA | | NE | 114 |
| | N of patients transplanted - Allogenic, related | UK | NA | | NE | 230 | | 68 | | 24 | | 0 | 104 | NA | | NE | 142 |
| | N of transplants - Allogenic, unrelated | UK | 53 | | NE | 574 | | 91 | | 47 | | 499 | 191 | NA | | NE | 91 |
| | N of patients transplanted - Allogenic, unrelated | UK | NA | | NE | 528 | | 86 | | 42 | | 0 | 190 | NA | | NE | 121 |

## PRELIMINARY DATA ON HPC CELLS - YEAR 2018

### LATIN AMERICAN COUNTRIES

| *Country* | | Argentina | Brazil | Chile | Colombia | Costa Rica | Cuba | Dominicana | Ecuador | Guatemala | Mexico | Nicaragua | Panama | Paraguay | Peru | Uruguay | Venezuela |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Population (Source: UNFPA, state of world population, 2018 - Million)*** | | **44,7** | **210,9** | **18,2** | **49,5** | **5,0** | **11,5** | **10,9** | **16,9** | **17,2** | **130,8** | **6,3** | **4,2** | **6,9** | **32,6** | **3,5** | **32,4** |
| CATEGORY OF DATA | TYPE OF DATA | NO DATA | | NO DATA | | | NO DATA | | | | | NO DATA | | | NO DATA | | NO DATA |
| POTENTIAL DONATION AND SEARCHING IN THE NATIONAL REGISTRIES | N of potential donors at 31.12 | | 4.783.465 | | 0 | NA | | 0 | 35 | 0 | 0 | | 0 | 0 | | 1.230 | |
| | N of cord blood units at 31.12 | | 15.373 | | 0 | NA | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | |
| | N of searches requested | | 14.477 | | 0 | NA | | 0 | 0 | 0 | 0 | | 0 | 0 | | 26 | |
| BANKING OF CORD BLOOD | N of unrelated cord blood unitss at 31.12 | | 15.030 | | 0 | 0 | | 0 | 1.186 | 0 | 0 | | 0 | 0 | | 0 | |
| | N of related cord blood unitss at 31.12 | | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | |
| TRANSPLANT | N of transplants - Autologous | | 1.294 | | 471 | 15 | | 0 | 25 | 0 | 0 | | 31 | 17 | | 89 | |
| | N of patients transplanted - Autologous | | 0 | | 471 | | | 0 | 0 | 0 | 0 | | 31 | 17 | | 0 | |
| | N of transplants - Allogenic | | 1.000 | | 423 | 64 | | 0 | 10 | 0 | 0 | | 0 | 1 | | 32 | |
| | N of patients transplanted - Allogenic | | 367 | | 423 | 0 | | 0 | 0 | 0 | 0 | | 0 | 1 | | 32 | |
| | N of transplants - Allogenic, related | | 621 | | 201 | 64 | | 0 | 10 | 0 | 0 | | 0 | 1 | | 28 | |
| | N of patients transplanted - Allogenic, related | | 0 | | 201 | 0 | | 0 | 0 | 0 | 0 | | 0 | 1 | | 4 | |
| | N of transplants - Allogenic, unrelated | | 379 | | 222 | | | 0 | 0 | 0 | 0 | | 0 | 0 | | 28 | |
| | N of patients transplanted - Allogenic, unrelated | | 367 | | 222 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | | 4 | |

# Council of Europe Reference Documents. Year 2018

# Illicit and Unethical Activities with Human Tissues and Cells: Addressing the Need for the Elaboration of an International Legal Instrument to Protect Donors and Recipients

## as adopted following the 22nd meeting of the European Committee on Organ Transplantation (CD-P-TO) on 12 October 2018

*Official document* ***PA/PH/TO (17) 12 DEF***

### *1. Introduction*

Biomedical innovation has led in recent years to an increase in the use of human cells, tissues and cellor tissue-based products. Today these human substances, including musculoskeletal, cardiovascular and ocular tissues, haematopoietic progenitor cells, gametes and embryos, are routinely used for medical purposes, therapy and research. A consequence of this growth is that the processing and distribution of tissues and cells of human origin has progressively become an "industry" in some settings and donated human material treated as a commodity [1].

Despite considerable efforts by the European Commission, the number of human tissues and cells that are used for human application in the European Union (EU) healthcare setting can only be estimated. In a survey of EU competent authorities, more than 2.1 million human tissue and cell products were reported to have been distributed for medical use in 2015 [2]. It is unclear from these data whether these are only allogeneic products, or if tissues and cells for autologous use are also included in the reports from the member states (MS). Furthermore, information on the volume of tissue products imported into the EU from third countries or exported outside of the EU is not systematically collected.

From surveys of relevant professional societies in the field and estimates by the European Commission, the total number of tissues and cells used for human application can be broken down into the rough annual figures described in **Table 1**.

This burgeoning field is in some cases highly profitable. In some countries, a progressive transformation of initially not-for-profit activities into for-profit activities in the tissues and cells field (e.g. cornea [3], bone, gametes [4]) has been described, with the potential risk of not complying with the essential principle that *"the human body and its parts shall not give rise, as such, to financial*

**Table 1.** Estimated annual volume of clinical use of human tissues in the European Union[2].

| Human substance | Estimated volume* |
|---|---|
| Corneas | 35 000 |
| Heart valves/cardiovascular tissue | 5 000 |
| Haematopoietic stem cells (including cord blood) | 57 000 |
| Musculoskeletal tissue | 190 000–250 000 |
| Skin | 14 000 |
| Medically assisted reproduction (including partner donation) | 700 000–800 000 |

** In products/transplants/implants*

*gain"*. Thus, profit rather than medical need may be the motivating factor for the procurement of tissues and cells. Furthermore, the availability of donors (both living and deceased) is often a limiting factor for the procurement of tissue and cells, thus source materials are often scarce. Due to this scarcity and the potential financial profits, the risk of illicit and unethical activities involving human tissues and cells can be considered a realistic threat.

Much has been written about trafficking in human organs and human trafficking for the purpose of organ removal [5]. Reports of human exploitation for organ removal and its consequences have been widely reported in the literature [6]. Resolutions, Conventions and professional declarations and statements against these crimes have been adopted by the international community and national laws have been enacted or reinforced in many countries to not only prohibit, but also criminalise the trade in human organs. In contrast, limited attention has been paid to illicit and unethical activities associated with the procurement and clinical use of other substances of human origin, such as tissues and cells. This is perhaps because society is less familiar with tissue and cell transplantation compared with organ transplantation, although the latter happens far less frequently. Moreover, there is no international agreement on what represents illicit and unethical activities with human tissues and cells, and there is no consensus on which of these practices should be criminalised.

Various ethical and safety-related scandals have been reported, such as procurement without consent or authorisation, inadequate testing, inaccurate or false donor files, irresponsible allocation and illegal trade. Hearings, lawsuits, convictions, resignations and closures of tissue establishments have followed. Mediatised cases such as the "France Hypophyse scandal" [7], the "New York body-snatching ring" [8] and the "Alder Hey organ retention scandal" [9] drew public attention and called into question the adequacy of the regulatory framework that governed the human cell, tissue and cellularand tissue-based product industry [10].

Furthermore, there are activities that, in addition to their illicit and unethical component, could seriously jeopardise the quality and safety of tissues and cells and thus the recipient's safety. This is the case when excessive reimbursement for donation is given (e.g. in a third country) that could be an incentive for the donor not to disclose relevant information related to certain health risks, or when cell-based experimental treatments are promoted or performed without any clinically demonstrated safety and efficacy.

Regrettably, knowledge about the true extent of these illicit and unethical activities with tissues and cells remains limited [11]. Little information is available from official sources, with figures and trends mostly the result of estimates and rumours. Unsubstantiated reports often appear in the media, such as those describing the existence of undercover networks of brokers, technicians and physicians in various countries. There are probably more cases, but many may go unreported due to fear on the part of the victims/donors and silence on the part of those directly involved in these illicit but lucrative activities. Furthermore, when detected, there are significant disparities from country to country in the management of suspected activities in this context. Inspectors and enforcement officers lack specific training on how to deal with, identify and handle cases of suspected or confirmed illicit activities related to tissues and cells [12].

In view of this evidence, it becomes clear that a definition of "Trafficking in Human Tissues and Cells" should be agreed upon at international level with the involvement of all the relevant stakeholders. Furthermore, the Council of Europe could play a leading role in elaborating an international legal instrument setting out this definition and the measures to prevent such trafficking and protect the victims, as well as the criminal-law measures to punish the crime. Such initiative would follow the elaboration of the *Convention against trafficking in human organs*, which was adopted by the Committee of Ministers of the Council of Europe in July 2014, and represented the first legal document providing an internationally agreed upon definition of trafficking in human organs, and identifying activities that ratifying states must criminalise [11, 13]. During the preparation of the Convention, ad-hoc Committee of Experts on Trafficking in Human Organs, Tissues and Cells (PC-TO) acknowledged the need to develop an *Additional Protocol on Tissues and Cells* in the future. This need was further stressed by the Committee on Organ Transplantation of the Council of Europe (CD-P-TO) and the Council of Europe Committee on Social Affairs, Health and Sustainable Development of the Parliamentary Assembly [14].

## *2. Objectives*

With this paper, the CD-P-TO aims to raise awareness among Council of Europe decision-making bodies of

the necessity to explore the need for an additional protocol to define, prevent and combat illicit activities in the chain of donation to clinical application of human tissue and cells, and to protect donors and recipients.

The present document outlines the issues related to illicit and unethical activities with tissues and cells. In particular, it is intended to provide: i) a review of the existing international legal framework that regulates practices in the field of tissues and cells; ii) a compilation of the available evidence with regard to the dimension and features of illicit and unethical activities involving tissues and cells; iii) a description of the consequences of such practices from the public health and other perspectives; iv) based on the above, a discussion on the need to develop additional international legal tools against unethical practices in the field of human tissues and cells.

In summary, our intention is to use the conclusions and recommendations reached by the CD-P-TO and summarised in this project as food for thought for the Council of Europe decision-making bodies. We are convinced that this study will make us stronger in our fight against illicit activities involving tissues and cells of human origin.

## *3. International standards in the field of tissues and cells*

### 3.1 World Health Organization

The World Health Organization (WHO), through its 2010 *Guiding Principles on Human Cell, Tissue and Organ Transplantation*, sets out standards for the donation, procurement, clinical use and equitable distribution of human tissues and cells [15]. Although not legally binding, the WHO Guiding Principles have profoundly impacted upon national legislation and professional codes of practice. The fundamental principles laid down include:

- Consent requirements: the living donor must provide duly informed, specific and free consent to the removal of tissues and cells. The Guiding Principles also call for the prohibition of the removal of tissues and cells from living minors, although exceptions may be permissible under national law in the case of regenerative tissues, provided that the minor is duly protected. In the case of the deceased donor, consent for the removal of tissues and cells must be obtained as required by national law, only where there is no reason to believe that the deceased person objected to such removal. Consent may be explicit ("opt in") or presumed ("opt out") depending on the existing legal requirements within a given jurisdiction. Where explicit consent has been given and recorded, for example in a donor registry, such consent may be withdrawn at any time before the procurement. Procurement on the basis of presumed consent cannot proceed where the donor has recorded or otherwise made known an objection to deceased donation.

- Prohibition of financial gain: the principle of unpaid donation and the prohibition of financial gain from the human body and its parts is established in the WHO principles. Living donors may be reimbursed for reasonable and verifiable expenses and loss of earnings directly related to the donation, but countries should define the conditions under which such compensation is justified, always avoiding financial incentives or benefits in kind to living donors or deceased donor families. Procurement must be carried out on a non-profit basis. Similarly, WHO allows the payment of professional fees for the services rendered in connection with the donation, procurement and clinical use of human tissues and cells. The prohibition of advertising the need for, or the availability of, human tissues and cells with a view to offering or seeking financial gain or comparable advantage is also set down.

- Allocation: the allocation of tissues and cells should be guided by clinical criteria and ethical norms, not financial or other considerations. Allocation rules, defined by appropriately constituted committees, should be equitable, externally justified and transparent.

- Self-sufficiency: countries should strive to achieve self-sufficiency in human tissues for patient treatment by endorsing donation of tissues and cells and thus removing the incentive for unethical practices involving tissue and cells of human origin.

- Altruistic donation: solidarity between donors and recipients should be advocated without financial gain.

- Equal access to grafts: allocation of human tissues and access to treatment should be based on clinical need only.

- Efficacy, safety and quality: WHO sets out the need to ensure traceability and vigilance systems and to

assess the outcomes of recipients of these substances of human origin and of living donors.

### 3.2 Council of Europe

The Council of Europe *Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine: Convention on Human Rights and Biomedicine* (Oviedo convention) and its *Additional Protocol concerning Transplantation of Organs and Tissues of Human Origin* detail some of the essential principles related to the donation of organs and tissue that have been agreed upon [16, 17]. This Convention has been ratified by 29 Council of Europe MS that are hence bound by this treaty.

The fundamental principles laid down by the Oviedo Convention include:

- Organ and tissue removal from living donors: removal of organs or tissue from living persons for clinical use may only by carried out when there is no other therapeutic alternative or organ/tissue available from deceased persons. The necessary consent as provided for under Article 5 must have been given expressly and specifically either in written form or before an official body (Article 19).

- Protection of persons not able to consent: the Convention prohibits the removal of organs or tissues from persons not able to provide valid consent (Article 20).

- Prohibition of financial gain: the human body and its parts shall not, as such, give rise to financial gain (Article 21).

- Disposal of a removed part of the human body: the use of parts of the human body must be restricted to that for which specific information and consent was given (Article 22).

The above principles are complemented by those in *the Additional Protocol concerning Transplantation of Organs and Tissues of Human Origin* as follows [17]:

- Professional standards and safety: the Protocol stresses the need to conform to professional obligations and standards (Article 4) and further expands on the need to minimise disease transmission or other harm to recipients (Article 6).

- Consent requirements: an organ or tissue may be removed from a living donor only after the person concerned has given free, informed and specific consent to it either in written form or before an official body (Article 13). As regards deceased donation, it is stipulated that organs or tissues shall not be removed from the body of a deceased person unless consent or authorisation required by law has been obtained. The removal shall not be carried out if the deceased person had objected to it (Article 17).

- Prohibition of financial gain: it is stated that *"the human body and its parts shall not, as such, give rise to financial gain or comparable advantage"*. The text goes on to say that the prohibition of financial gain does not prevent: (i) compensation of living donors for loss of earnings and reimbursement of any other justifiable expenses caused by the removal or by the related medical examinations; (ii) compensation in the case of undue damage resulting from the removal of organs, tissues or cells; (iii) the payment of a justifiable fee for medical or related technical services rendered in connection with the donation (Article 21).

- Organ and tissue trafficking: organ and tissue trafficking are expressly prohibited (Article 22). It must be noted that, while the Council of Europe has developed an international definition of practices that are consistent with trafficking in human organs [13], it has not performed the same exercise in the field of human tissues and cells.

To provide guidance to MS on the implementation of the principle of the prohibition of financial gain as laid down in Article 21 of the Oviedo Convention, a guide was adopted in 2017 – *Guide for the implementation of the principle of prohibition of financial gain with respect to the human body and its parts, as such, from living or deceased donors* – which provides clarification on key notions relevant to the above-mentioned principles and examples of what are considered as "altruistic focused measures" [18].

### 3.3 European Union

The *Charter of Fundamental Rights* of the EU should be highlighted, notably the principle set out in Article 3(2)(c), which states that the prohibition on making the human body and its parts as such a source of financial gain must be respected [19]. As mentioned above, this principle is also enshrined in Article 21 of the *Convention on Human Rights and Biomedicine* [16], and in the *WHO Guiding Principles on Human Cell, Tissue and Organ Transplantation* [16].

The European Commission has issued the following EU Cell and Tissue Directives: *2004/23/EC* [20]; *2006/17/EC* [21]; *2006/86/EC* [22] and *2015/565/566/EC* [23]. These directives were designed to ensure harmonised and high standards of quality and safety for the donation, procurement, testing, processing, preservation, storage and distribution of human cells and tissues, to facilitate their cross-border movements and to ensure availability in the EU. If MS cannot achieve self-sufficiency, for example because of the scale of the issue or the effects of the potential measures, this can be done at Union level. This means that the Union is allowed to adopt measures in accordance with the principle of subsidiary as set out in Article 5 of the *Lisbon Treaty*[1].

These Directives apply to tissues and cells, including haematopoietic peripheral blood, umbilicalcord blood and bone marrow stem cells, reproductive cells (oocytes, sperm), foetal tissues and cells and adult and embryonic stem cells.

Under *Directive 2004/23/EC* [20], MS must establish an accreditation system for tissue establishments and ensure that appropriate control measures are in place for the procurement of human tissues and cells. Furthermore, MS must organise inspections and control measures, which have to be carried out by officials representing the competent authority, to ensure that tissue establishments comply with the provisions under the EU Directives. The officials involved in inspections and control measures must be appropriately qualified and receive adequate training.

The EU Directives do not, however, describe the penalties that can be imposed in cases of infringement of the national provisions adopted under the EU Directives. MS are obliged to lay down national rules on penalties with regard to breaches of compliance with the EU Directives, penalties that must be effective, proportionate and dissuasive. There is no general overview available of the penalties that the different MS have adopted to ensure compliance with the EU Directives, because of the freedom given to the MS in choosing a legal framework. However, it is known that not all MS have implemented criminal legislation for cases of infringement of the relevant legislation on the quality and safety of tissues and the protection of donors' rights.

To support MS implement a legal framework to combat illicit activities involving tissues and cells, an Inspection guide for Competent Authorities was published in 2011– *Guidance on the detection and investigation of suspected illegal and/or fraudulent activity (IFA) related to tissues and cells* [24] to provide guidance to European Union (EU) Competent Authorities for detecting / identifying, investigating, managing and communicating such activities.

### 3.4 Professional societies

The *Declaration of Helsinki: Ethical Principles for Medical Research Involving Human Subjects*, originally adopted in June 1964, is a set of ethical principles regarding human experimentation developed for the medical community by the World Medical Association (WMA). [25] It is widely regarded as the cornerstone document on human research ethics. The Declaration developed the ten principles first stated in the *Nuremberg Code* [26], and tied them to the *Declaration of Geneva* (1948), a statement of physicians' ethical duties [27]. Subsequently, in 2012, the WMA also adopted a *Statement On Organ And Tissue Donation* [28].

The *Barcelona Principles: An Agreement on the use of human donated tissue for ocular transplantation, research, and future technologies* is an international consensus document, developed by the eye bank and ophthalmic communities under the leadership of the Global Alliance of Eye Bank Associations (GAEBA), to inform on the management of altruistic and voluntary ocular tissue donations, their subsequent utility within ophthalmology and research, their retention as a public resource for the shared benefit of all, and their accessibility by waiting recipients [29]. This document is the result of global sector engagement over a 12-month period that aims at providing leadership, guidance and recommendations that inform and support sound policy, sector wide strategic planning and implementation at local, national, regional, and international levels.

## 4. Dimension and characteristics of unethical activities involving human tissues and cells

Little research has been performed to investigate the extent of illicit and unethical activities with human cells and tissues in Europe and worldwide. Most of the information comes from case reports, investigating authorities such as the police or health departments and from articles published in the press.

[1] Under the principle of subsidiarity, in areas which do not fall within its exclusive competence, the Union shall act only if and insofar as the objectives of the proposed action cannot be sufficiently achieved by the Member States, either at central level or at regional and local level, but can rather, by reason of the scale or effects of the proposed action, be better achieved at Union level.

When illicit and unethical activities involve donors, they frequently relate to recently deceased persons. Tissues may have been sold for the purpose of research or clinical use without the authorisation required in the corresponding jurisdiction, or with falsified papers. Illicitly obtained tissues from one deceased person can reach up to 90 tissue recipients.

When recipients are victims of such practices, cases involve the use of illicitly and/or unsafely procured grafts, but also unethical medical practices such as unauthorised indications or medical treatments without any evidence of efficacy that may cause harm to patients [30]. The latter, however, are primarily violations of laws on practicing medicine and professional medical standards and cannot be prevented simply by regulating the quality and safety of tissues and cells for clinical use.

For the purpose of this document, we define illicit practices in the field of human tissue and cells as any practice performed in violation of one or more legal requirements or guiding principles, as set down in international legally binding instruments (see **Section 3**) that are related to the donation and/or human application of tissue and cells of human origin (see **Table 2**).

### 4.1 Results from the SOHO V&S project

In 2011, a report on illicit activities involving tissues and cells was prepared as part of an EUfunded project entitled "Vigilance and Surveillance of Substances of Human Origin (SOHO V&S)"[2] [13]. This report aimed at providing EU MS Competent Authorities responsible for tissues and cells with guidance on detecting/identifying, investigating, managing and communicating such activities.

In order to evaluate the experience with illicit activities related to tissues and cells, a questionnaire was developed as part of this project. The questionnaire was submitted to EU Competent Authorities, as well as to several other third countries, during 2010. The scope of the questionnaire was *Directive 2004/23/EC* on tissues and cells used in transplantation and assisted reproduction.

The questionnaire elicited 26 responses from 22 EU MS, 3 European non-EU countries (at the time Croatia had not yet joined the EU) and 1 non-European country[3].

An analysis of all the responses showed that many questionnaires were incomplete due to the fact that MS had limited insight into the matter. Some findings, however, could be highlighted:

- The majority of countries had legislation in place related to illicit activities, which was applicable to human tissue and cells. Those who did not have any legislation in place indicated that they considered it necessary or were working on it.
- Twelve countries indicated having had actual experience with illicit activities over the previous 5 years. In addition, 15 countries had experienced misleading and unsubstantiated claims related to the beneficial effects of cell and tissue transplants.
- Eighteen countries had reported these incidents to other agencies and/or the general public.
- Seventeen cases of illicit were reported which dealt with gametes (sperm, oocytes, embryos), cord blood/tissue and bones/musculoskeletal tissue. Of these, nine were confirmed as constituting illicit activities and the others were still under investigation at the time the questionnaire was being completed. Most of the illicit activities had occurred during the procurement/donation stage of the process.
- Sanctions were imposed where cases of illicit activities had been identified, but it is notable that criminal and administrative sanctions are under the sovereignty of each MS and not EU institutions. Non-harmonised legislation in this regard means that an activity that is criminalised in one MS might not be so in another jurisdiction.

### 4.2 Interpol survey

At the request of the French Health Authority, a similar survey was developed by Interpol for Law Enforcement Agencies in 2012. In total, representatives from 43 countries completed this survey, most of them from policy-making agencies. One third of the respondents (14) reported cases of illicit with tissues and cells. These reports were based not only on questionnaires, but also on the Interpol database, scientific literature and other open sources. Only 50% of the respondents found legislation in their country sufficient in these matters.

[2] Grant Agreement Number: 20091110. Funded under the EU Second Programme of Community Action in the Field of Health.

[3] Belgium, Croatia, Cyprus, Czech Republic, Denmark, Germany, Estonia, Iceland, Spain, Finland, France, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovenia, Sweden, United Kingdom, United States of America..

The types of tissue and cells subjected to illicit activities in these reports were bone (including demineralised bone), tendons and ligaments, ocular tissues (corneas and sclera), skin, human placenta, cord blood for autologous use and gametes.

### 4.3 Case reports

One of the most cautionary examples of a large-scale fraud is the case of Biomedical Tissue Services Ltd (BTS), where intentional misconduct with tissue donors turned out to be highly lucrative and led to a risk of harm to

**Table 2.** Areas of potential unethical activities in the field of tissues and cells.

| Violation | Related legislation/principles |
|---|---|
| Procurement of tissue/cells without free, specific and informed consent (living donor) or without the authorisation required in a given jurisdiction, for the purpose of:<br>• Clinical use<br>• Research<br>• Further processing as innovative therapies (e.g. in the EU, following under the regulatory frameworks of medical devices or advanced therapy medicinal products)<br>Use of surgical residues without free, specific and informed consent | • Directive 2004/23/EC (Article 13)<br>• Council of Europe recommendation (2006)4<br>• Convention on Human Rights and Biomedicine and additional protocols (CETS 168,186,195,203) |
| Violation of body integrity beyond the necessity to procure tissue or cells | • Council of Europe recommendation (2016)6<br>• Convention on Human Rights and Biomedicine and additional protocols (CETS 168,186,195,203) |
| Unlicensed storage, processing, distribution, testing | • Directive 2004/23/EC (Article 6)<br>• Directive 2006/86/EC (Articles 3 and 4) |
| Breach of legal requirements for traceability, donor evaluation, testing, processing, storage and distribution | • Directive 2004/23/EC (Article 8)<br>• Directive 2015/565/EC (Article 1, sub paragraph 2) |
| Excessive reimbursement or compensation of living donors or a third party in return for the donation of human tissues or cells | • Directive 2004/23/EC (Article 12)<br>• Council of Europe Convention on Human Rights and Biomedicine (Article 21)<br>• Additional Protocol on transplantation of organs and tissues of human origin<br>• (Article 21) |
| Distribution of unauthorised tissue and cell products (e.g. from unlicensed tissue establishments, illegal imports, brokers) | • Directive 2004/23/EC (Articles 6 and 9(3))<br>• Directive 2015/566/EC (Article 3) |
| Promotion of tissueand cell-based experimental treatments without evidence of safety and/or efficacy | • WHO Guiding Principle 10<br>• Additional Protocol to the Convention on Human Rights and Biomedicine concerning Transplantation of Organs and Tissues of Human Origin (Articles 4 and 6) |

patients. Between 2002 and 2005, BTS distributed tens of thousands of illegally obtained and improperly processed tissues throughout the world. BTS acquired tissues from cooperative funeral homes in the New Jersey area without any authorisation, and produced false death certificates and infectious disease test results. The Food and Drug Administration (FDA) estimated that 13,000 patients had ultimately received tissues processed by BTS. Not all hospitals kept records of which tissues had been implanted and in which patients, so the impact on recipients' health remains largely unknown.

The FDA responded to the BTS scandal by strengthening the regulations governing tissue procurement. However, within a year, another organisation supplying improperly obtained and processed tissues, and using an almost identical *modus operandi*, was discovered to be operating in North Carolina, under the name Donor Referral Services [31].

In Europe, similar practices have been brought to the European Court of Human Rights: the removal of tissue from a deceased man's body without the knowledge or consent of his wife amounted to degrading treatment [32]. The applicant was a Latvian woman whose husband had died in a car accident. After the autopsy had taken place, it emerged that tissue had been removed from the body prior to the funeral without her knowledge or consent. Under a State-approved agreement, the tissue had been sent to a pharmaceutical company in Germany to be modified into bio implants. During the course of the investigation, it was established that in 1999 tissues had been removed from 152 people; in 2000, from 151 people; in 2001, from 127 people; and in 2002, from 65 people. In exchange for the supply of tissue to the company in Germany, the forensic centre involved had organised the purchase of various items of medical equipment, instruments, technology and computers for medical institutions in Latvia.

The Court underlined that, in the special field of organ and tissue transplantation, it had been recognised that the human body had to be treated with respect even after death. Indeed, international treaties, including the *Convention on Human Rights and Biomedicine* and its *Additional Protocol on Transplantation* [16, 17], were drafted to protect the dignity, identity and integrity of "everyone" who had been born, whether at the time living or dead. The Court stressed that respect for human dignity formed part of the very essence of the European Convention.

Between 2009 and 2012, concerns were raised about illegally obtained tissues in forensic institutes in Ukraine; these were intended for the German and US markets and processed by for-profit tissue processors in both countries [33]. Although relatives of the deceased accused the forensic institutes of falsifying consent forms and/or obtaining more tissue than originally agreed upon, the police investigation could not substantiate illegal activities according to Ukrainian law. The processors stopped acquiring human tissue from Ukraine after negative publicity.

Recently, the financial gains made by abortion clinics as a result of selling foetal waste material for research purposes have come under public scrutiny. Although these practices have been going on for decades, ownership of the remains of the foetus and the necessity for consent from the mother has not been regulated in several European countries and therefore these practices continue despite the fact that in other countries they are considered to be a violation of principles and legal requirements.

Practices at some European sperm banks have also come under scrutiny. Among them, the direct sale of sperm samples to women for home insemination. In addition, because several MS prohibit anonymous gamete donation (with the purpose of protecting the right of the child to know its parent), distribution of anonymous sperm to some countries is considered illegal.

Stem cell therapy brings a new challenge to the field because of the fraudulent practice of offering cures for almost every known disease using stem cells from different sources (autologous, embryonic, allogenic), sometimes obtained and implanted without fulfilling any legal or quality requirements, and in all cases without any evidence of efficacy of these treatments [34].

## *5. Potential and actual consequences of unethical activities from the perspectives of society and public health*

### 5.1 Risks for recipients

The most important risk for recipients of tissues or cells obtained through illicit and unethical activities is the lack of control of the quality and safety of the tissue or cell products. Risk are increased by incorrect donor histories, doubtful procurement circumstances, incomplete documentation and traceability, inadequate processing, storage and labelling and lack of vigilance and recall options. The consequences may be diverse but can potentially seriously jeopardise the clinical outcome of the patient.

As is the case with organ trafficking, and in particular due to less stringent acceptance criteria, there is an enhanced risk of viral, bacterial or fungal infections transmitted via grafts procured in the context of illicit and unethical practices. In the past, several diseases have been transmitted via tissues and human cells: bone allografts have transmitted hepatitis viruses, tuberculosis and human immunodeficiency virus (HIV-1) [35]. Corneas have transmitted rabies, herpes simplex viruses, bacteria and fungi. Heart valves have been implicated in transmitting tuberculosis and hepatitis B. HIV-1 and cytomegalovirus seroconversion have been reported in patients receiving skin from seropositive donors. Creutzfeldt-Jacob disease has been transmitted by dura and pericardium transplants and several bacteria, such as *Treponema*, have been transferred through tissue. There are also potential dangers associated with stem cell therapy, such as malignant transformation of the implanted cells [36].

When illicit and unethical practices occur in the form of financial inducement to donors (or their families), there may be a risk of potential living donors not adequately considering and evaluating the potential risks related to the donation procedure or of donors or their families not disclosing relevant medical or behavioural information that would, under normal circumstances, preclude donation. This can also motivate intermediaries to withhold information for fear of losing fees.

While it cannot be stated that these complications are more frequent or particularly severe in the context of illicit and unethical practices with tissues and cells, inappropriate donor (and recipient) selection and substandard practices applied to the procurement, processing and allocation of human tissues and cells are more likely to result in harm to patients.

Desperation may lead patients to search for alternative treatment options for a substantial number of diseases. In this context, advances in the field of stem cell therapies have been accompanied by the promotion of the clinical use of tissues and cells of human origin with no scientific evidence in terms of efficacy and safety. On occasion, patients travel outside of their country of origin in search of these "miraculous" treatments that violate fundamental ethical principles and quality and safety standards (this is the so-called stem cell tourism).

### 5.2 Consequences for donors or next of kin

The procurement of tissue and cells without consent, or with consent based on insufficient information, may cause severe psychological stress to the living donor and/or deceased donors' families. In particular, the idea that parts of the body "live on" elsewhere, or that the body of the deceased has been violated, often for financial gain, can cause trauma for donors (e.g. repeated and uncontrolled oocyte donation) and their next of kin.

Excessive damage to the deceased body, in the case of unprofessional procurement of tissue, may cause stress during the funeral and leave a permanent stain on relatives' memories of the donor. Other medical considerations include inadequate care and treatment of living donors after procurement of tissue or cells, including donation-related complications. Linked to the lack of appropriate clinical follow up, there is a possible absence of full traceability from donors to recipients and vice versa, as well as failure to record and report serious adverse events and reactions.

### 5.3 Consequences for the healthcare system

Successful tissue and cell donation and transplantation programs depend on public trust and support. The confidence of the general public in the donation system for tissue and cell products, in a context where the principle of voluntary unpaid donation is legally endorsed, is already threatened by the fact that certain human products are distributed via commercially used channels for pharmaceuticals and medical devices. Furthermore, the public has been shocked on several occasions by incidences of illicit medical practices where unfounded cures were promised by applying human materials.

Against this background, illicit and unethical practices pose an even bigger threat to public trust and support. Not only will scandals related to such practices cause a drop in confidence in all types of donor-derived products, but it will also result in a reluctance to donate bodily materials at all.

Ultimately this will affect the availability of tissue and cell grafts, and jeopardise the availability of organ and blood donors as well.

It is worth noting that desperate patients (as is the case with organ transplantation) who would like to find a solution for their disease are easy prey for illicit and unethical practices with human tissues and cells.

In the end, when financial gain plays a role, the allocation of human tissues and cells according to clinical needs no longer takes priority and this introduces inequality in access to treatment. Patients who benefit will tend

to be those who can afford to pay. In addition to financial incentives to donate, there may be coercion, fraud and abuse of donors, as well as long-term medical, social and financial harm to living donors.

Finally, the risk of transmitting infections or other diseases with tissue or cells obtained through illicit and unethical practices does not only endanger the recipients, but may also affect others that are in contact with the recipients thus constituting a serious public health threat.

## *6. Conclusions*

- The volume of tissue and cell donation and transplantation activities in Europe is substantial and the sector is developing fast, being subject to technological innovations and increasing commercial interest.

- The scarcity of donor material and the potential for financial gain from human tissues and cells for human application may encourage illicit activities. Although some cases of have come to light, the true dimension of the problem remains unknown in the absence of systematic and coordinated efforts to define and monitor these practices (last inventory in 2015).

- Illicit activities with tissue and cells may pose a risk to the individual health of both the donor and the recipient, by causing harm through unnecessary procurement procedures, facilitating the transmission of diseases (which also poses a risk to public health) or applying therapies that have not been tested in terms of safety and quality for the individual.

- Illicit activities may jeopardise public trust and willingness to altruistically donate tissue and cells and therefore limit the availability of these essential healthcare provisions for patients.

- The confidence of the general public in the donation system may be undermined by unethical but very lucrative medicinal procedures, in which treatments with tissues and cells offer unproven cures.

- The existing international legal framework provides ample provisions to ensure good practices and the quality and safety of tissues and cells, e.g. by specifying consent and authorisation requirements, prohibiting financial gain and creating the obligation of sanctions/penalties in cases of violation of such provisions. These provisions and sanctions, however, have not yet been implemented in all European countries and most of those found to be violating these requirements have not been subject to sanctions.

- Despite the existing legal framework, the interpretation of what constitutes illicit practices differs between countries; this may result in tissueand cell-related activities being acceptable in one country while illegal in a neighbouring one. Moreover, there is no international agreement on which illicit practices are of such severity – because they violate fundamental human rights and freedoms, such as that of self-determination, dignity and integrity and/or because they pose important threats to public health – that they should be subject to criminalisation and made consistent with trafficking in tissues and cells. International agreement and coordinated efforts against trafficking in human tissues and cells are imperative in this field where transnational activity is frequent.

## *7. Recommendations*

1. The principle of the prohibition of making financial gain with the human body or its parts should be the paramount consideration in relation to the donation of tissues and cells of human origin. All national legislations concerning the donation and human application of tissues and cells should conform to this principle.

2. The definition and interpretation of what constitute illicit activities, as well as the need for adequate sanctions against these practices, should be agreed at international level. In particular, international agreement should be reached on which illicit activities involving human tissue and cells are of such severity – because they imply the violation of fundamental principles and/or pose important threats to public health – that they should be criminalised.

3. Collaboration between international organisations, as well as national and international law enforcement agencies, such as Interpol and Europol, are indispensable where illicit practices are detected or suspected at an international level or where is the potential to have international consequences.

4. Cooperation among customs authorities, law enforcement agencies and Health Authorities should be strengthened, particularly during ongoing investigations. To coordinate the identification and management of suspected cases, clearly defined roles, training and education for all involved parties

and adequate resources should be set in place.

5. Donors and recipients of tissues and cells, and the general public, should be informed of donors' rights and the legal context of donating, processing and distributing human materials for medical and research purposes, including (acceptable) commercial involvement.

6. Healthcare professionals should continue to promote standards for ethical practices in the field of tissues and cells. Professional societies should have a leading role in the development and dissemination of such professional codes of ethics.

7. It is essential to start collecting reliable data on illicit activities involving human tissues and cells. There is limited knowledge of the scale of the problem since little and fragmentary information about the number of trafficked tissues and cells and victims of illicit practices is available from official sources. This hinders both the quantification of illicit practices and also their qualitative description. The data should be disaggregated by sex in order to assess whether and to what extent the processes disproportionately affect women and girls. States should make efforts in terms of data collection in relation to illicit practices and commission an international body to systematically monitor and report international data and exchange good practices for the prevention and prosecution of such activities.

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**Annex 1.** Questionnaire to compile information on experience of illegal and fraudulent activities with tissues and cells.

| | | |
|---|---|---|
| **1.** | Please provide the number of suspected IFA cases related to tissues and cells your CA/MS has been involved in the last 5 years | |
| **2.** | What, in your opinion, are the strengths and weaknesses of the IFA management system in your MS? Please summarise.<br>**strengths:**<br>**weaknesses:** | ☐ **Yes** ☐ **No** |
| **3.** | Do you have any experience in dealing with misleading advertising in the use of tissues and cells (i.e. unsubstantiated claims)?<br>If **Yes**, please summarise | ☐ **Yes** ☐ **No** |
| **4.** | Do you have procedures to communicate suspected IFA cases to other agencies/the public?<br>If **Yes**, please summarise | ☐ **Yes** ☐ **No** |
| **5.** | Have you had any experience with a "virtual" tissue establishment that is involved in import/export?<br>If **Yes**, please summarise | ☐ **Yes** ☐ **No** |

**Annex 2.** Examples of cases related to consent matters.

| Case | Year | Reason for case | Decision/settlement |
|---|---|---|---|
| Beleno v. Tex. Dept. of State Health Servs., No. SA-09-CA-188-FB, United States District Court for the Western District of Texas | 2009 | Parents sued state for use of leftover blood samples that were collected for new-born blood screening and were used in research for which parents had not given consent. | Case settled out of court. State destroyed all existing leftover specimens. |
| Adams v. King County, 192 P. 3d 891 (Wa. 2008) | 2008 | Organ donor's organs were sent to medical research institute for research. Family sued, contending that donor's consent was limited to transplantation. | Court held that family had a claim based on their interest in proper treatment of body; not a property interest. |
| Washington University v. Catalona, 490 F 3d 667 (8th Cir. 2007) | 2007 | Washington University refused to relinquish custody of tissue obtained for research purposes when one of the investigators (and some of the donors) requested that the samples be transferred to another institution. | Court held that donors made a gift of their samples and did not retain a right to direct that they be transferred elsewhere. |
| Havasupai Tribe v. Arizona State University, Case No. CV2005013190, Superior Court of Arizona, Maricopa County | 2004 | Native American tribe filed lawsuit claiming samples given to local universities for diabetes research were used for studies on inbreeding, schizophrenia, metabolic diseases, alcoholism and population migration. | Case settled out of court. The University of Arizona's Board of Regents to pay $700,000 to the tribe members, provide other forms of assistance to the impoverished Havasupai and return the blood samples. |
| Greenberg v. Miami Children's Hospital Research Institute, 264 F. Suppl. 2d, 1064 (SD Fl. 2003) | 2003 | Plaintiffs donated samples for research which led to development of new diagnostic test. Plaintiffs sued after learning that research institution was licensing the test. | Patients have no property right in tissue voluntarily donated for medical research. |
| Application nº 61243/08 by Dzintra ELBERTE v Latvia | 2001 | After the autopsy had taken place, it emerged that tissue had been removed from the body prior to the funeral without his wife knowledge or consent. More cases were discovered later. | Although relatives of the deceased accused the forensic institutes of falsifying consent forms and/or obtaining more tissue than originally agreed upon, the police investigation could not substantiate IFA according to Ukrainian law |
| Mansaw v. Midwest Organ Bank, 1998 U.S. Dist. LEXUS 10307 (W.D. Mo. 1998) | 1998 | Father sued for rights to control the removal of tissue and organs from his deceased son's body. | Court acknowledged father's property interest, but held that it was minimal. |

| **Annex 2.** Examples of cases related to consent matters. *(cont.)* | | | |
|---|---|---|---|
| **Case** | **Year** | **Reason for case** | **Decision/settlement** |
| Moore v. Regents of University of California, 793 P.2d 479 (Cal. 1990) | 1990 | Patient's cells were used for research without his knowledge or consent. Patient sued after learning that research institution had developed cell line and realised economic benefit. | Court held that patient did not have property right in excised tissue, but could pursue a breach of fiduciary duty claim. |
| York v. Jones, 717 F. Suppl. 421 (E.D. Va. 1989) | 1989 | Couple signed agreement regarding procedures for freezing their fertilised eggs, and permitting use for research if they no longer desired to initiate a pregnancy. Later the couple sought to have the prezygote transferred to another medical school for implantation. | Court ruled that the relationship was that of bailee/bailor and the couple did have property rights and could repossess the prezygote. |

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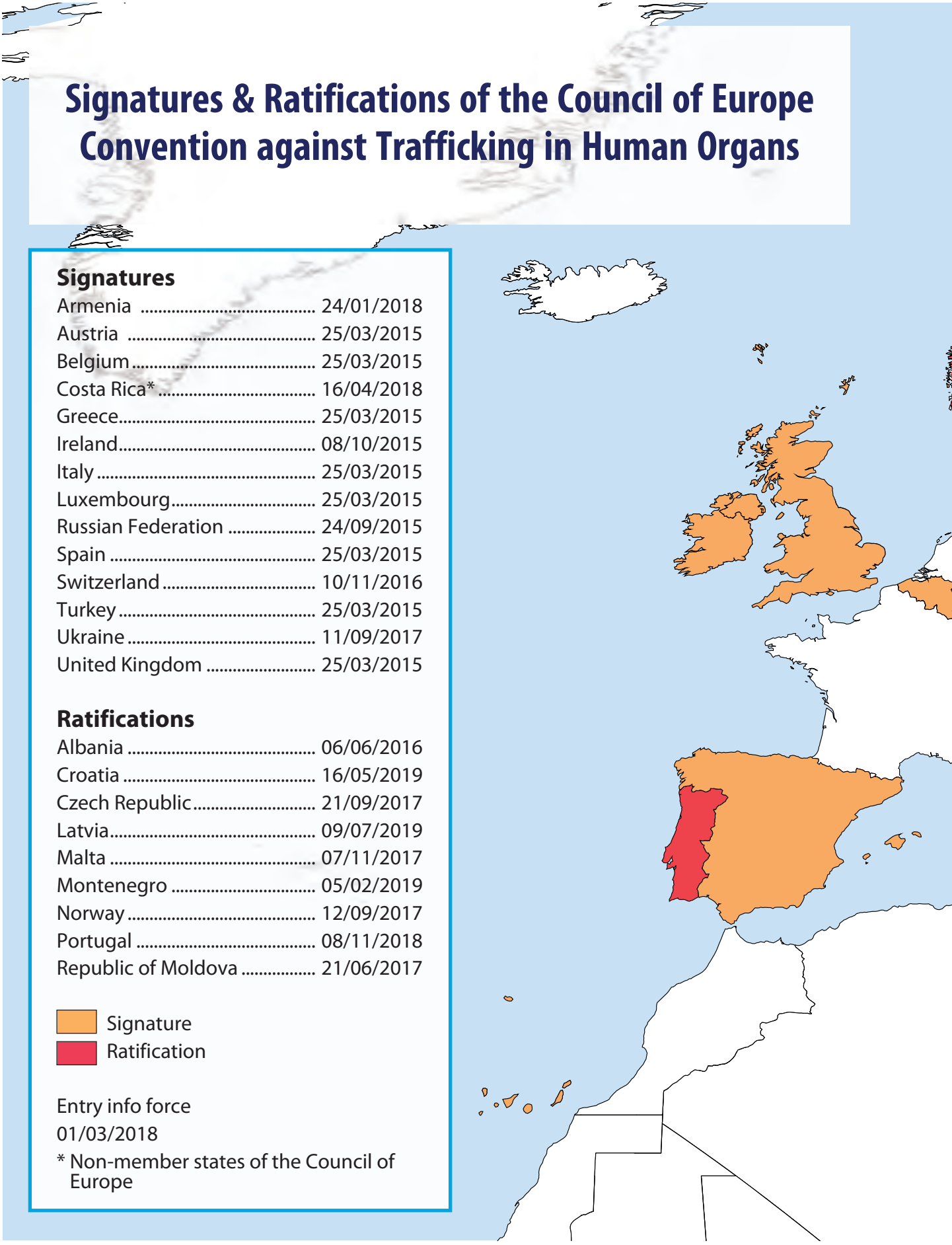

## Signatures

| | |
|---|---|
| Armenia | 24/01/2018 |
| Austria | 25/03/2015 |
| Belgium | 25/03/2015 |
| Costa Rica* | 16/04/2018 |
| Greece | 25/03/2015 |
| Ireland | 08/10/2015 |
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## Ratifications

| | |
|---|---|
| Albania | 06/06/2016 |
| Croatia | 16/05/2019 |
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| Malta | 07/11/2017 |
| Montenegro | 05/02/2019 |
| Norway | 12/09/2017 |
| Portugal | 08/11/2018 |
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Signature

Ratification

Entry info force
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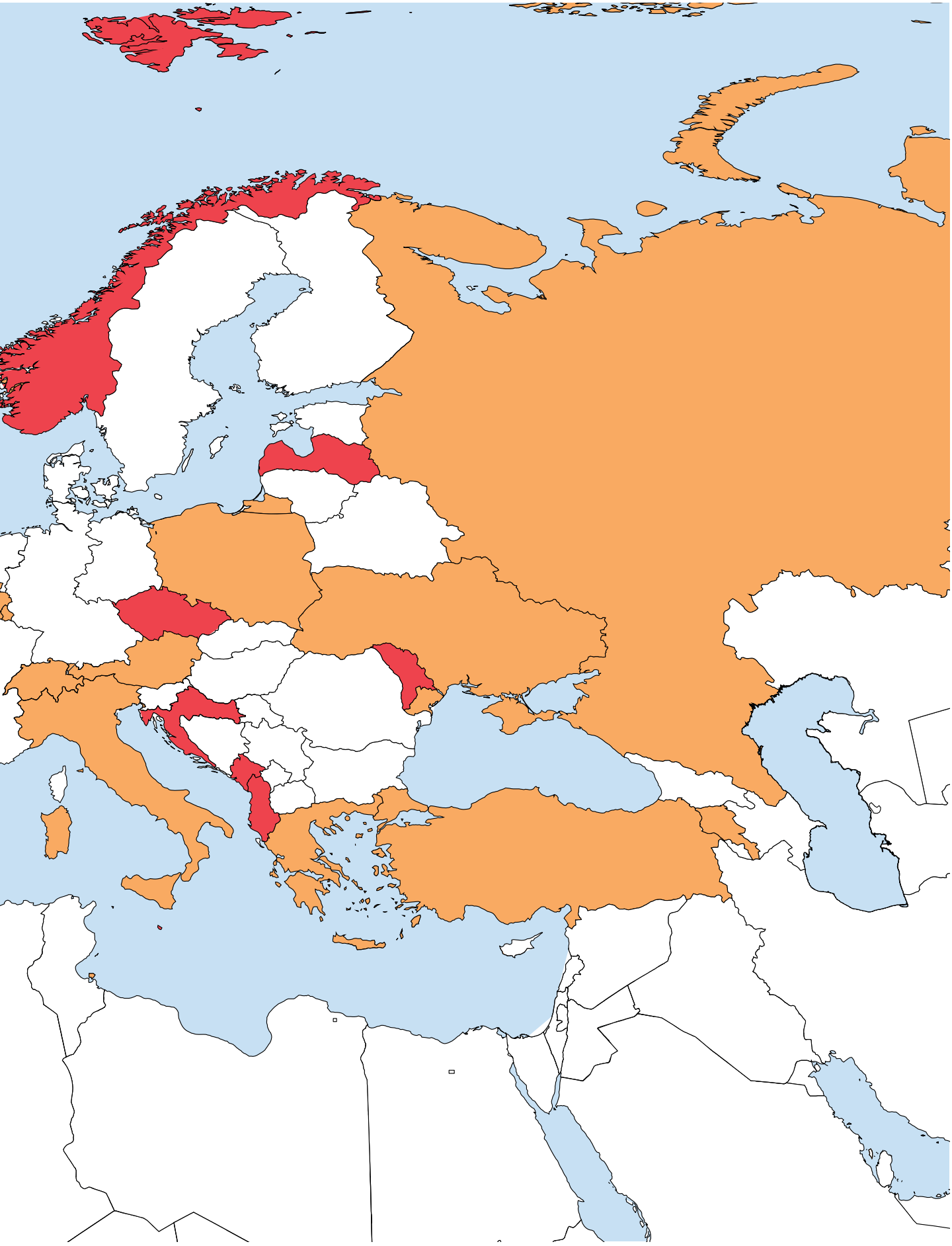
* Non-member states of the Council of Europe



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