

# NEWSLETTER TRANSPLANT

International figures  
on donation and  
transplantation  
2017



**EDQM**  
Volume 23  
2018



# INTERNATIONAL FIGURES ON ORGAN, TISSUE & HEMATOPOIETIC STEM CELL DONATION & TRANSPLANTATION ACTIVITIES. DOCUMENTS PRODUCED BY THE COUNCIL OF EUROPE EUROPEAN COMMITTEE (PARTIAL AGREEMENT) ON ORGAN TRANSPLANTATION (CD-P-TO). YEAR 2017.

**Editor: Beatriz Domínguez-Gil & Rafael Matesanz**

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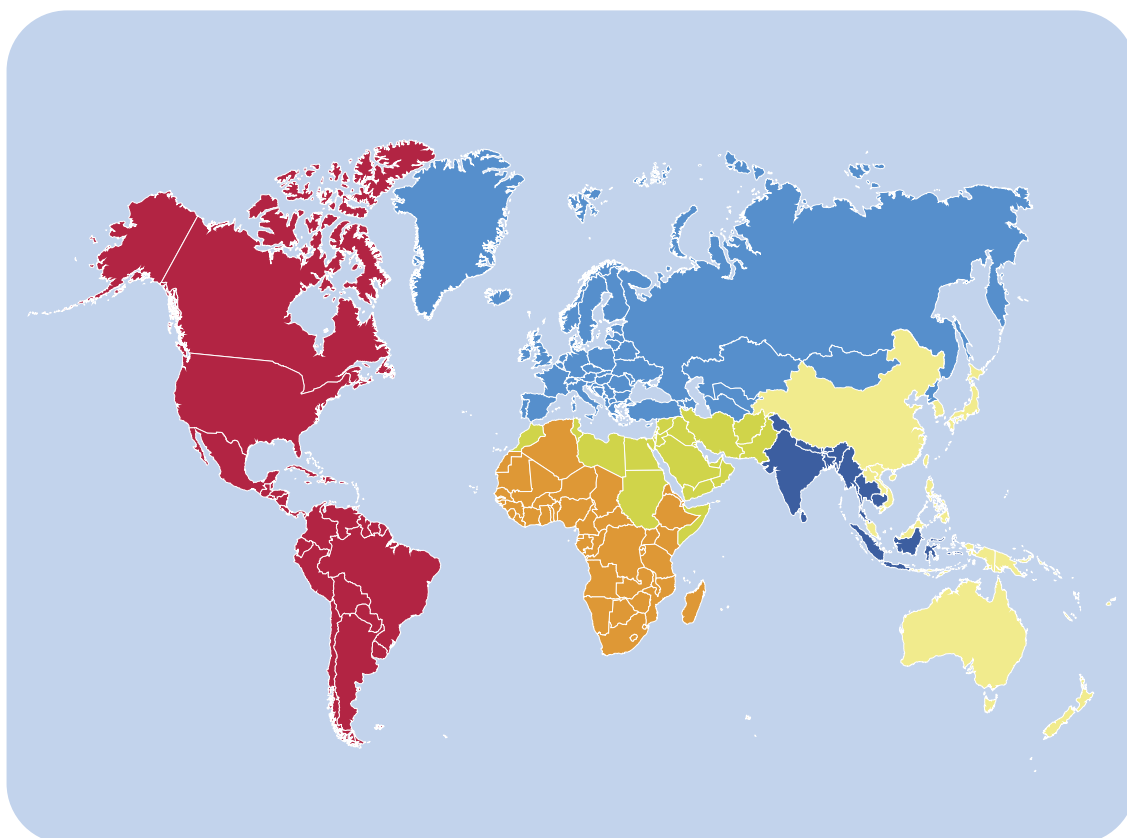
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# NEWSLETTER TRANSPLANT 2018



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## 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 than or equal to 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.

### Multiorgan donor

A multiorgan donor is an actual donor from whom at least two different types of organs have been recovered for the purpose of transplantation.

### 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 three possible relationships with the recipient:

A/ Related:

A1/ Genetically Related:

1<sup>st</sup> Degree genetic relative: parent, sibling, offspring

2<sup>nd</sup> Degree genetic relative, e.g. grandparent, grandchild, aunt, uncle, niece, nephew,

Other than 1<sup>st</sup> or 2<sup>nd</sup> degree genetically related, e.g. cousin

A2/ Emotionally Related: spouse; in-laws; adopted; friend

B/ Unrelated = Non Related: not genetically or emotionally related

### 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

For more than one organ transplanted into the same recipient: kidney-liver-heart Tx = counted as one recipient.

### Absolute number

Include all figures corresponding to all donors/patients adults and children.

### Paediatric

Includes only paediatric activity (patients aged < 15 years).

### Waiting List (WL)

**Example:** At 1/1/201X there were 200 patients active on the WL. In the course of the year, 100 patients are newly included on the WL (first row). A total of 300 patients have been ever active on the WL during the year (second row). In the course of 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 reported, but derived from previous figures).

|   |     |
|---|-----|
| Patients included on the WL for the first time in the course of 2017  | 100 |
| Total number of patients ever active on the WL during 2017            | 300 |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 50  |
| Patients who died while on the WL during 2017                         | 25  |

Due to variations in the management of data related to the waiting list across countries, differences on the way the requested information is reported can occur. As a result, figures are estimates in some instances and should be interpreted with caution.

(\*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 2017 (global data refer to 2016). The information presented relates to organ donation and transplantation activities, management of the waiting lists, rate of refusals to organ donation and transplant centres. For the very first time, data are displayed by gender for both organ donors and recipients. For obvious reasons, not all information that is collected from countries is displayed in the *Newsletter Transplant*, but additional data can be provided to end users on an *ad hoc* basis and upon request. 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, developed and maintained by the ONT on behalf of the World Health Organization. The Observatory allows users to download data and create

figures online. 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 documents produced by the CD-P-TO during the last year. First, guidance on the practical implementation of the fundamental principle that “*the human body and its parts shall not give rise, as such, to financial gain*” is presented. This document has been produced by the Committee of Bioethics of the Council of Europe (DH-BIO), with the cooperation of the CD-P-TO. The committee has also addressed a recent proposal to include donor-recipient pairs from developing countries in kidney paired exchange programmes (KEPs) in developed countries on the basis of financial incompatibility – the inability of recipients in developing countries to afford the costs of transplantation. The CD-P-TO has evaluated the proposal in detail and has raised serious ethical concerns about this initiative, recommending member states not to engage in such practices. The document summarising the position of the group is included in this new issue of the *Newsletter Transplant*. This global kidney exchange proposal must be differentiated from KEPs built on robust ethical frameworks. This issue includes a document elaborated by the CD-P-TO briefly describing European KEPs and addressing the challenges that existing programmes face to further increase their effectiveness and better serve the transplantation needs of patients.

The CD-P-TO has also contributed to the elaboration and dissemination of the Council of Europe [Convention against Trafficking in Human Organs](#) which provides clarity on the practices that must be criminalised and mechanisms to be strengthened for cooperation and

victim protection. The *Newsletter Transplant* includes the current status of signatures and ratifications, in what can be seen as an invitation for countries to consider the accession to this important legal instrument. Please also note the reference that this issue makes to the [technical guides](#) that the CD-P-TO produces in the fields of organs, tissues and cells, which serve as invaluable tools for regulators and health professionals throughout Europe and beyond.

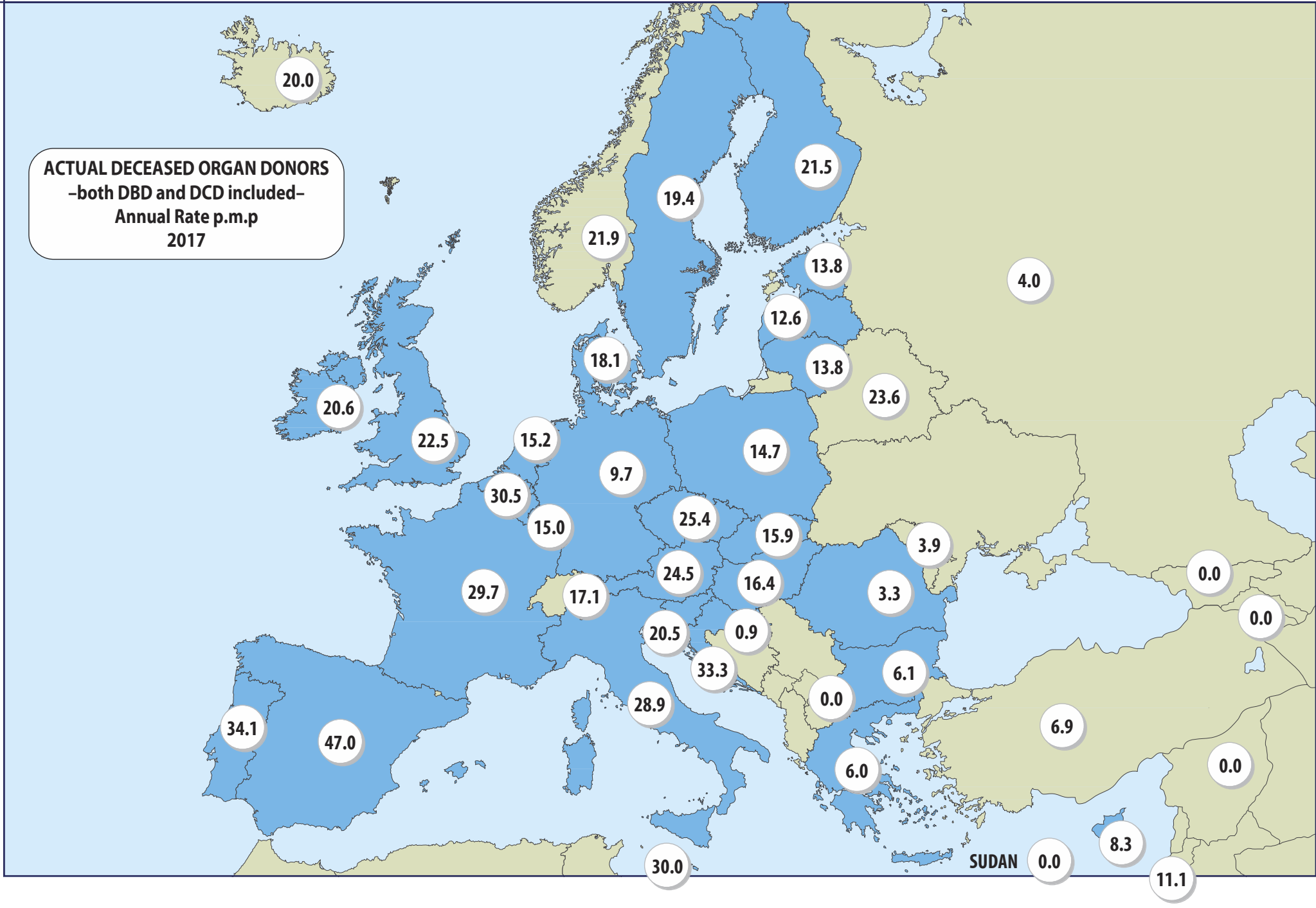
Please allow me to finish this letter by thanking all those who make the *Newsletter Transplant* possible – members of the CD-P-TO, national focal points providing data on a regular basis and the EDQM secretariat. But, mostly, let me thank the members of the ONT whose continuous work, commitment and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



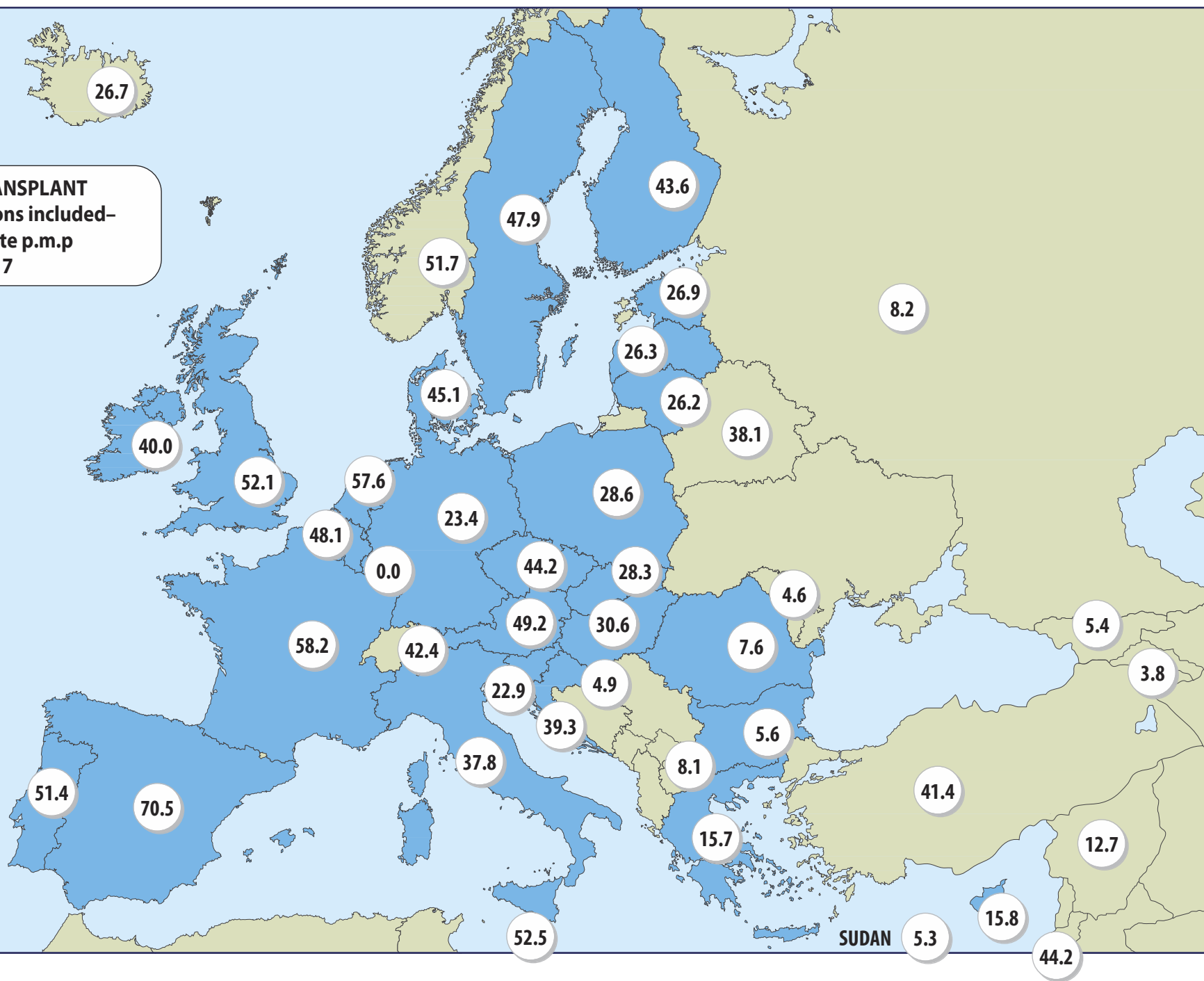
# **International Figures on Organ Donation and Transplantation Activity. Year 2017**



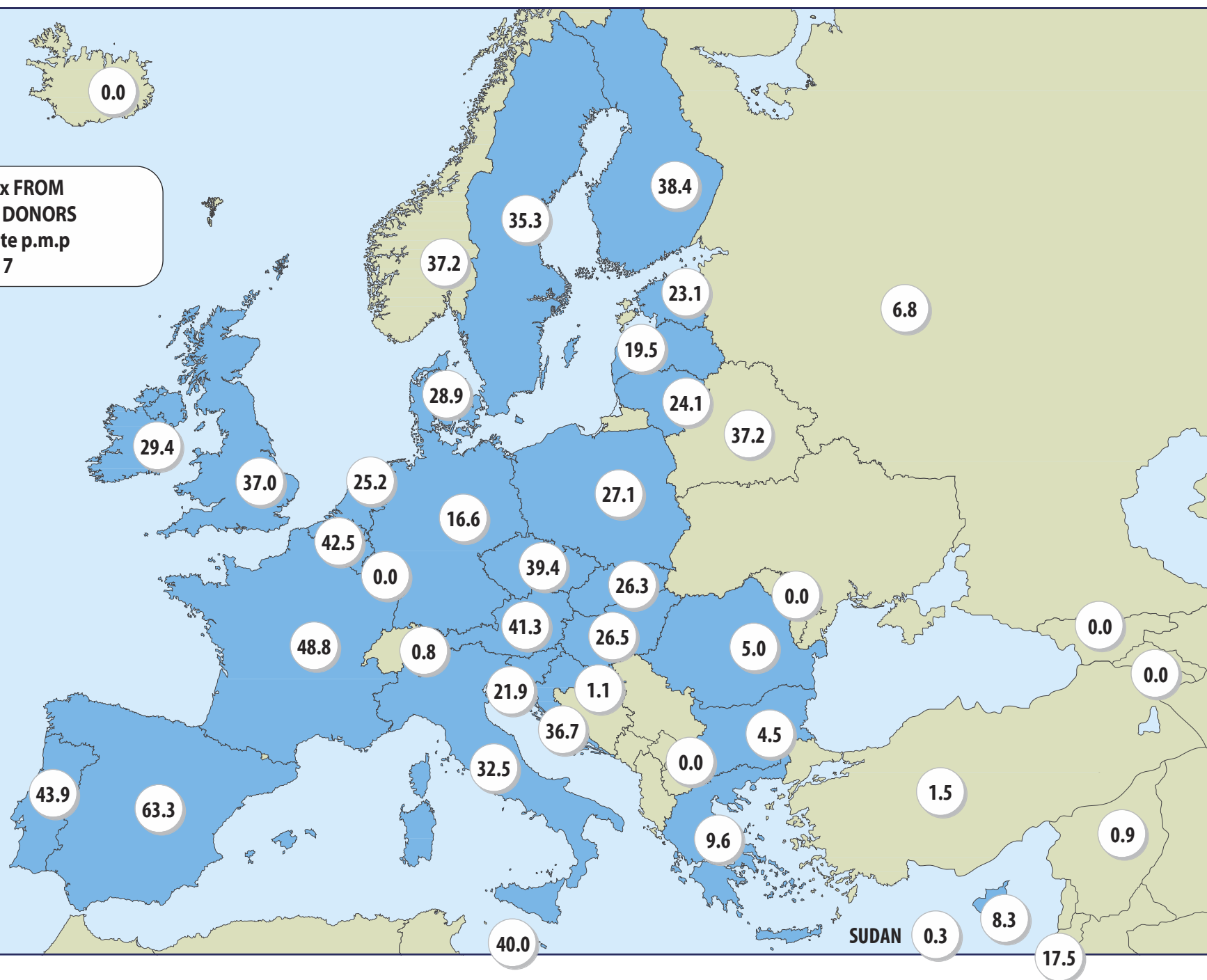




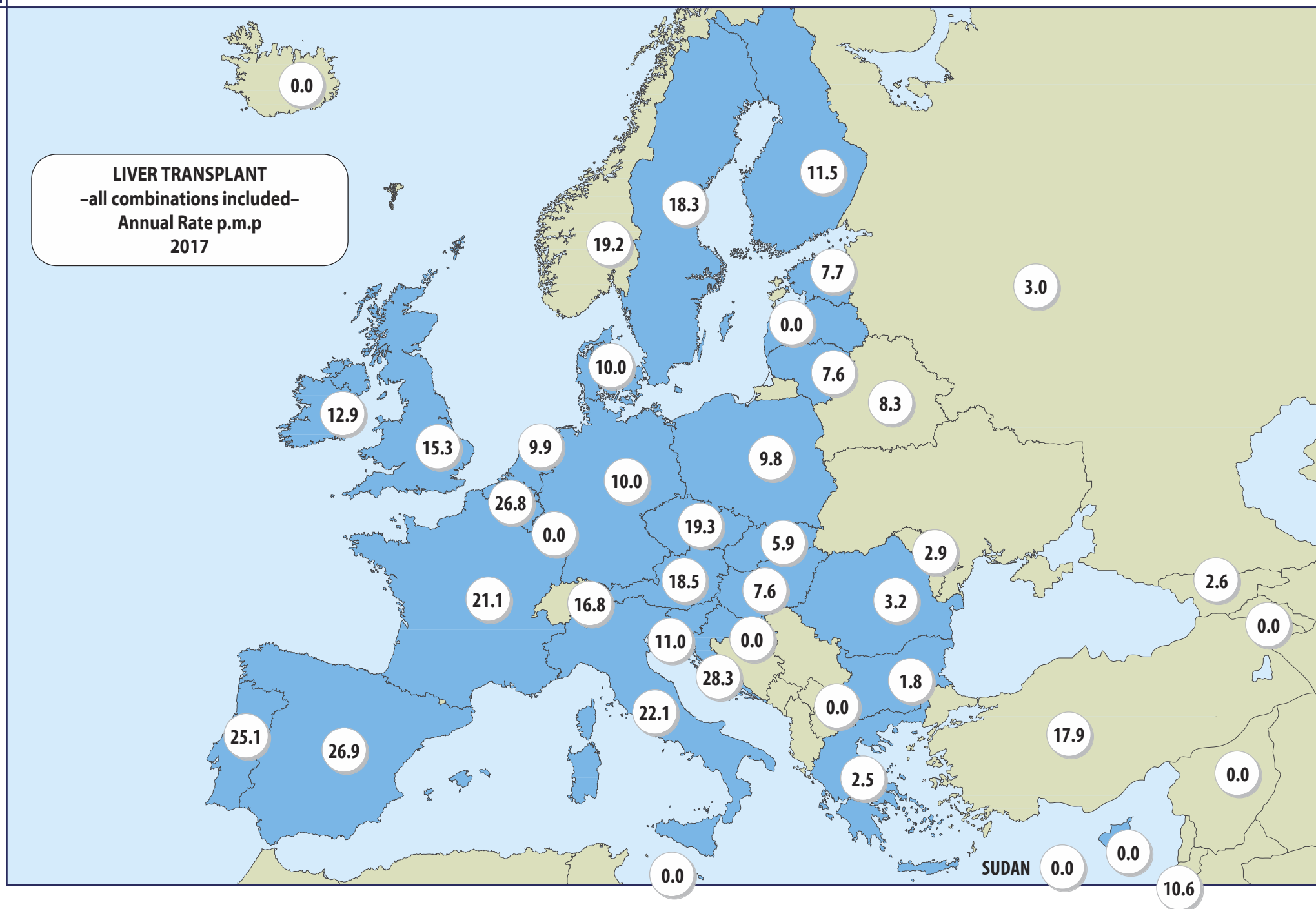
**KIDNEY TRANSPLANT**  
 -all combinations included-  
 Annual Rate p.m.p  
 2017



**KIDNEY Tx FROM  
DECEASED DONORS**  
Annual Rate p.m.p  
2017

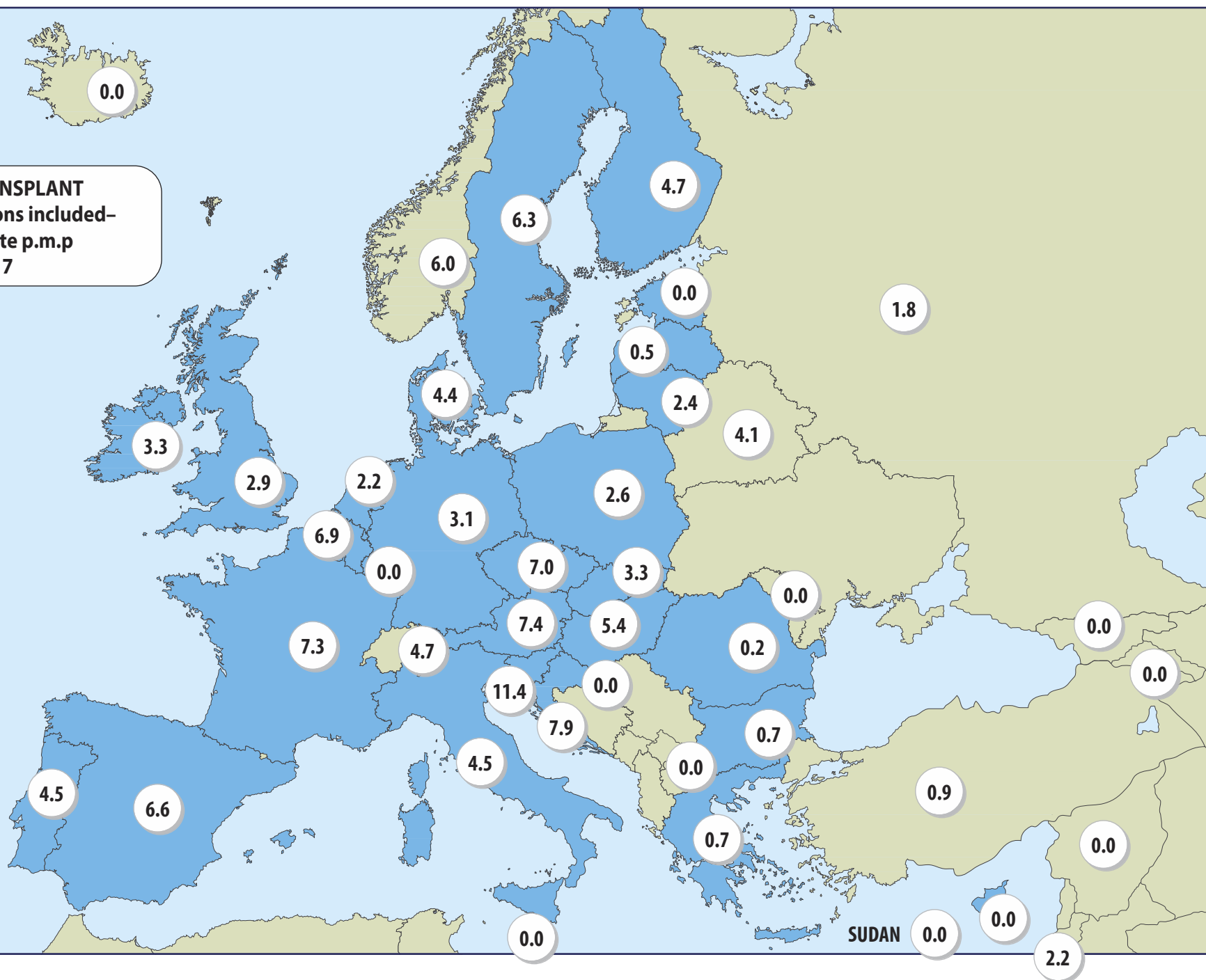


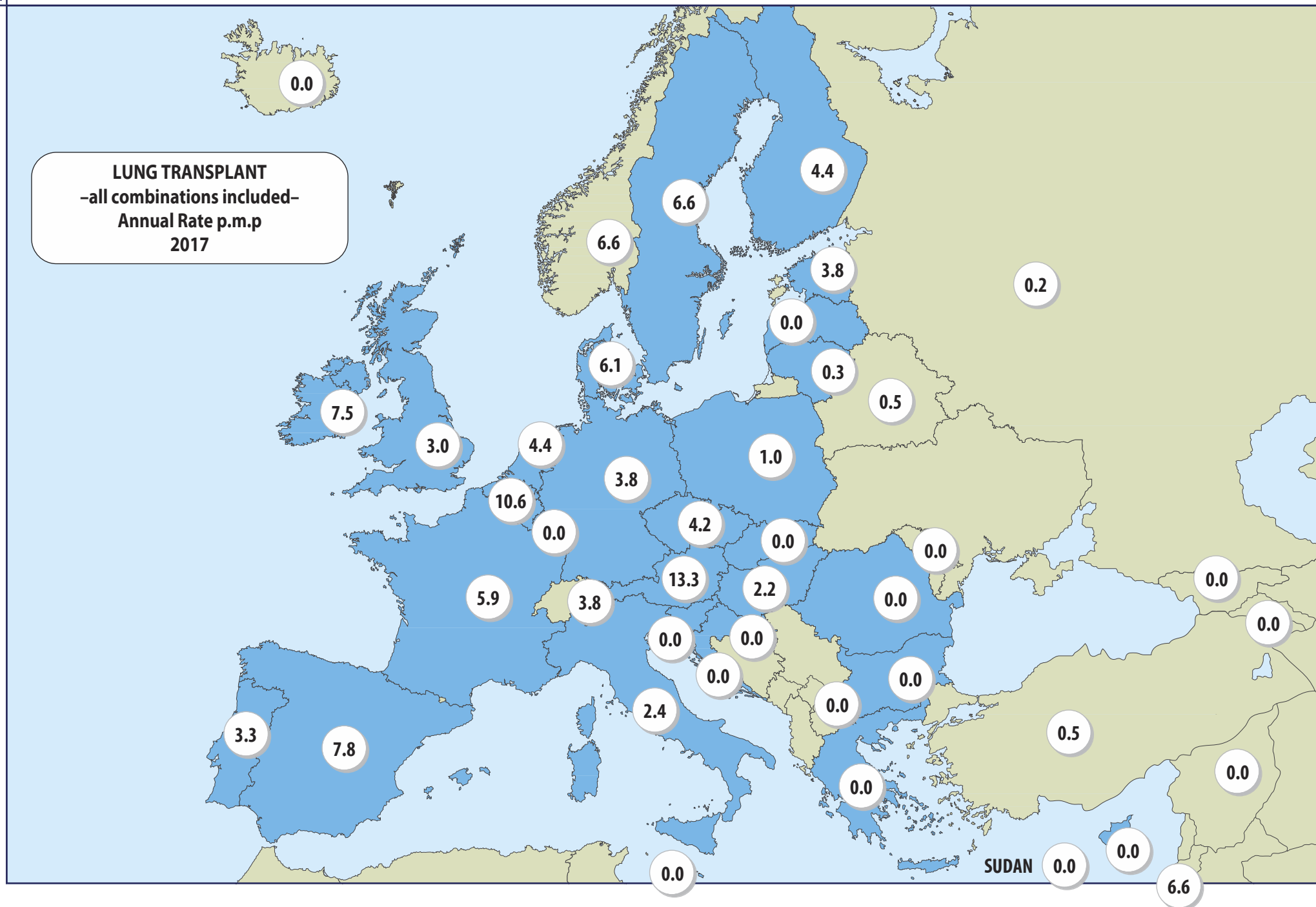


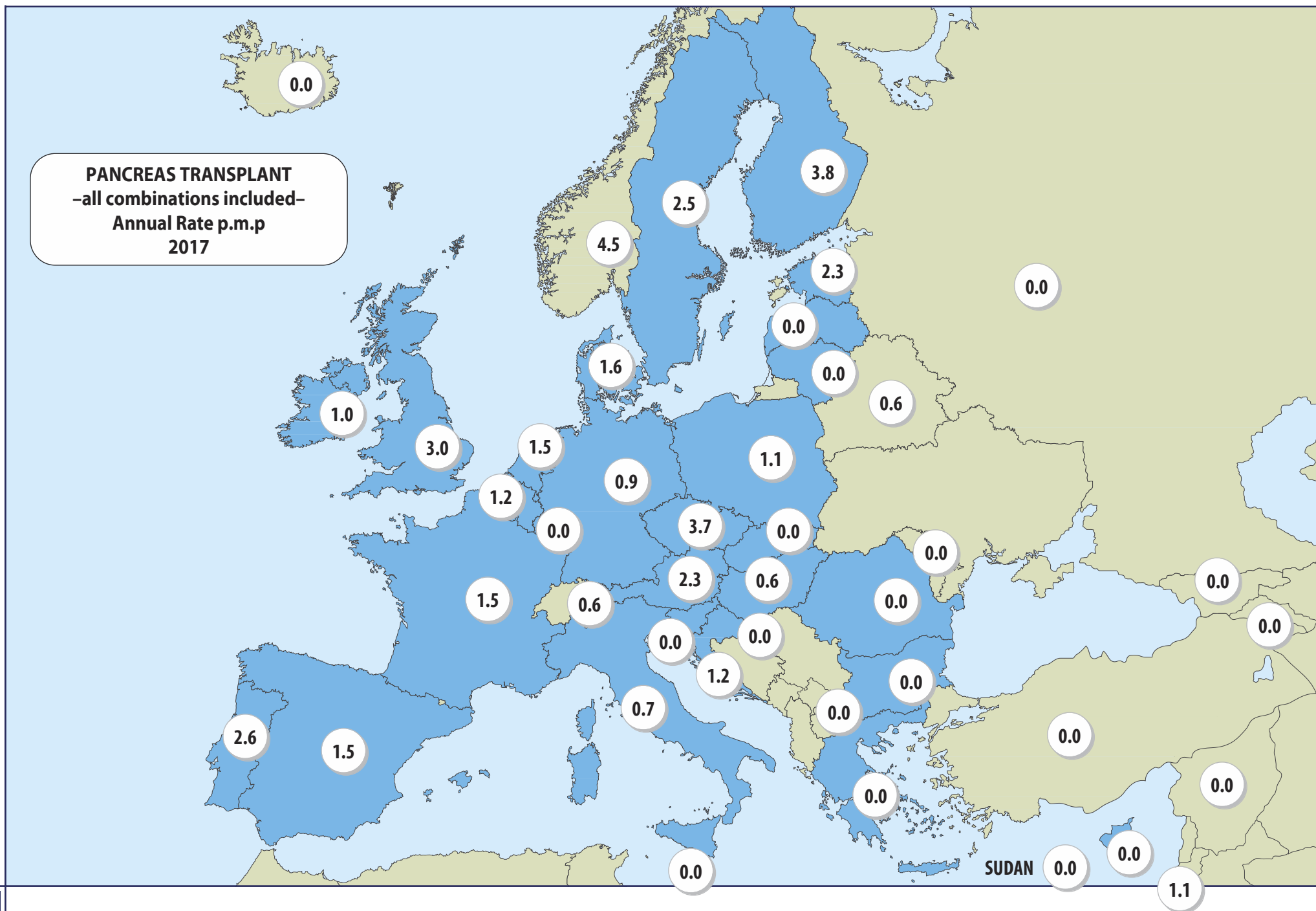


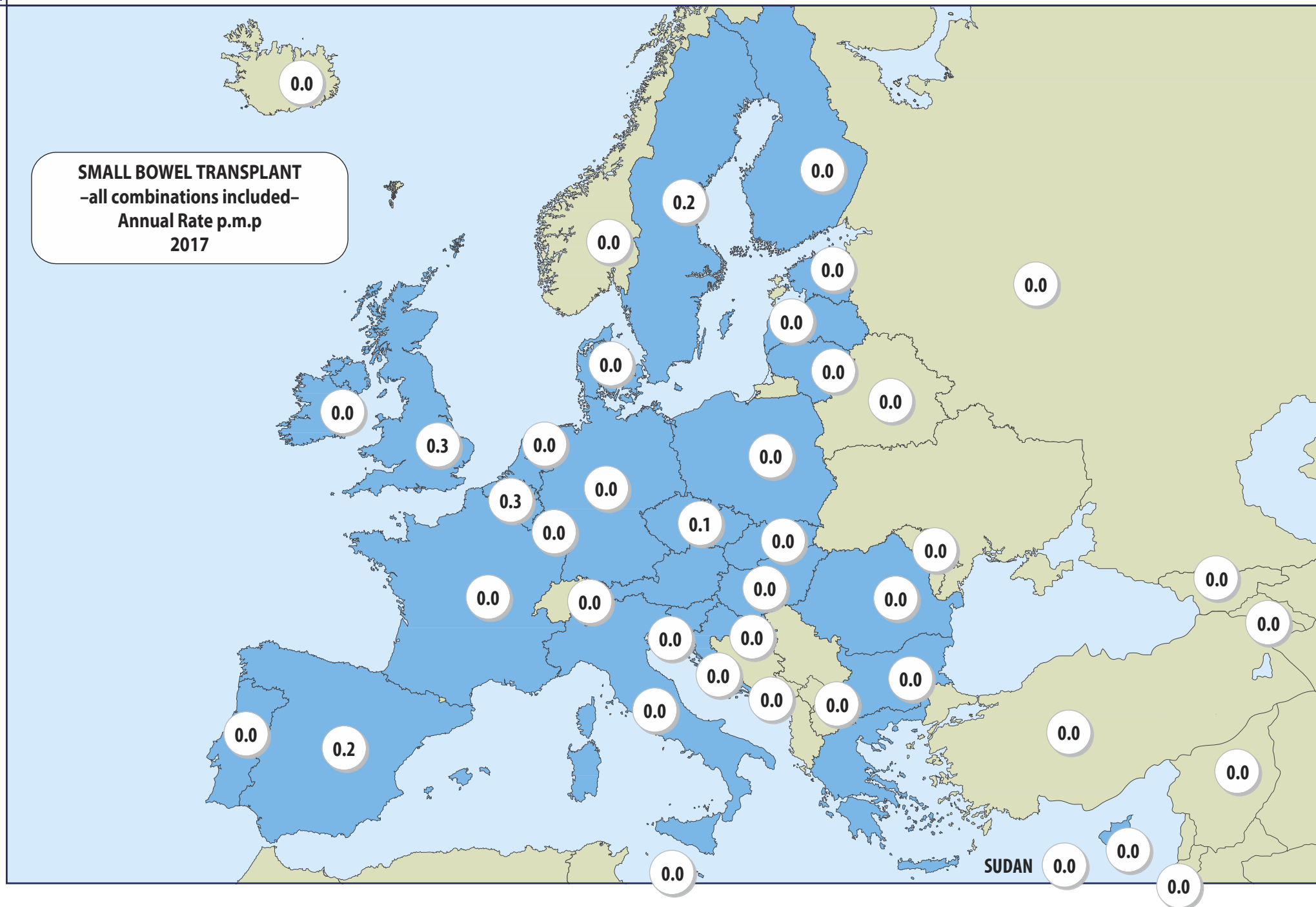


**HEART TRANSPLANT**  
 –all combinations included–  
 Annual Rate p.m.p  
 2017

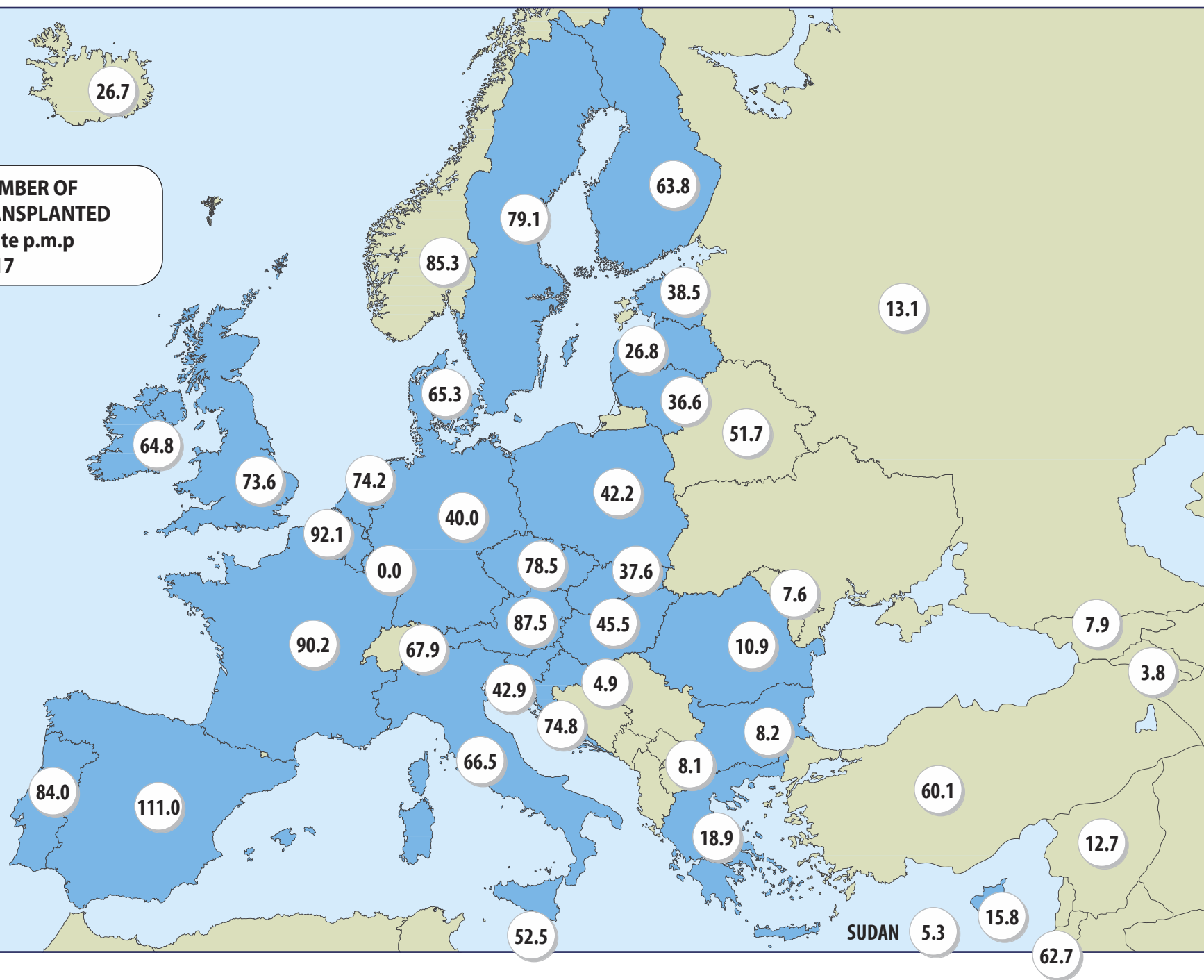






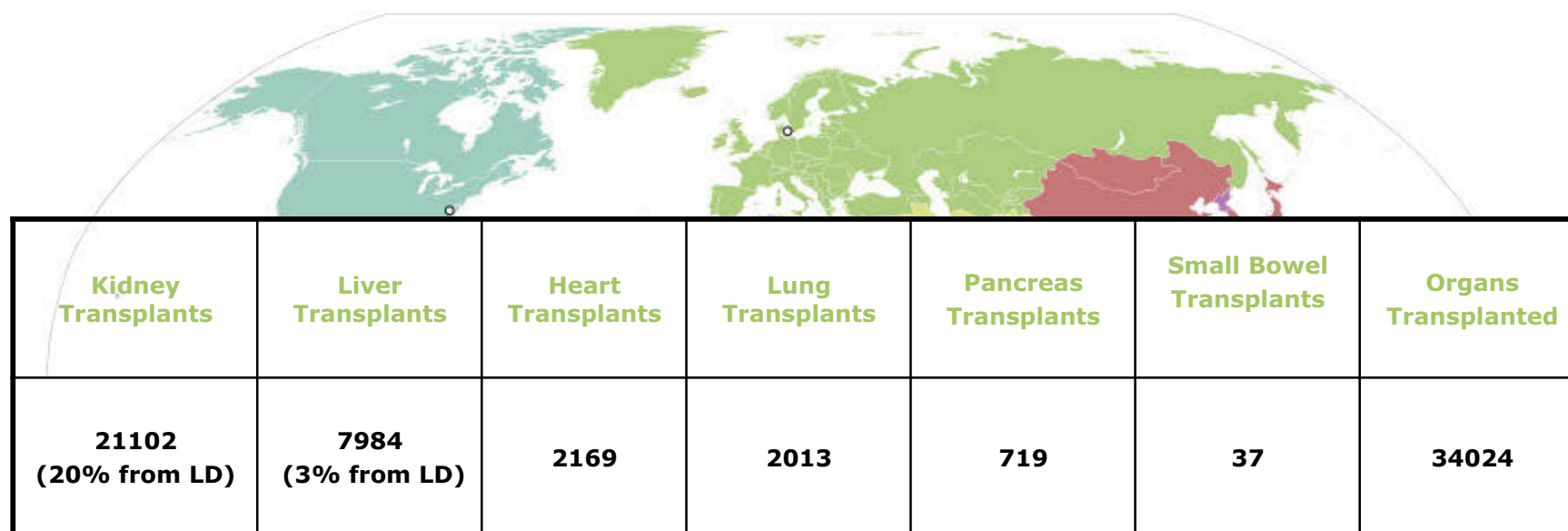


**TOTAL NUMBER OF  
PATIENTS TRANSPLANTED**  
Annual Rate p.m.p  
2017





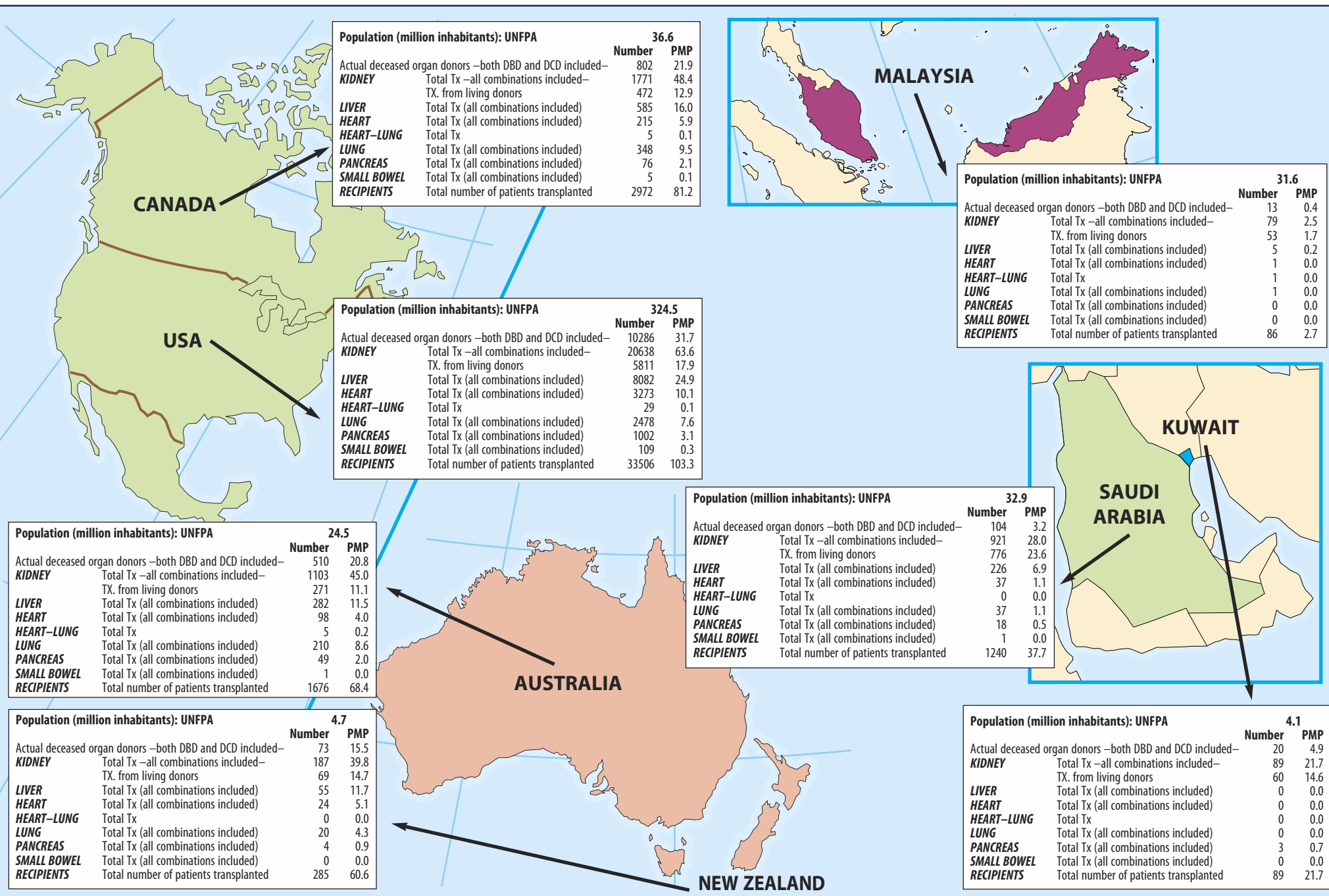
## EUROPEAN UNION COUNTRIES (2017)



| Kidney Transplants     | Liver Transplants    | Heart Transplants | Lung Transplants | Pancreas Transplants | Small Bowel Transplants | Organs Transplanted |
|------------------------|----------------------|-------------------|------------------|----------------------|-------------------------|---------------------|
| 21102<br>(20% from LD) | 7984<br>(3% from LD) | 2169              | 2013             | 719                  | 37                      | 34024               |

**11346 ACTUAL DECEASED ORGAN DONORS (9686 DBD and 1660 DCD)**

***N= 28 COUNTRIES (508.9 million inhabitants)***







**KIDNEY TRANSPLANT**  
-all combinations included-  
Annual Rate p.m.p  
2017





**KIDNEY Tx FROM  
LIVING DONORS  
Annual Rate p.m.p  
2017**



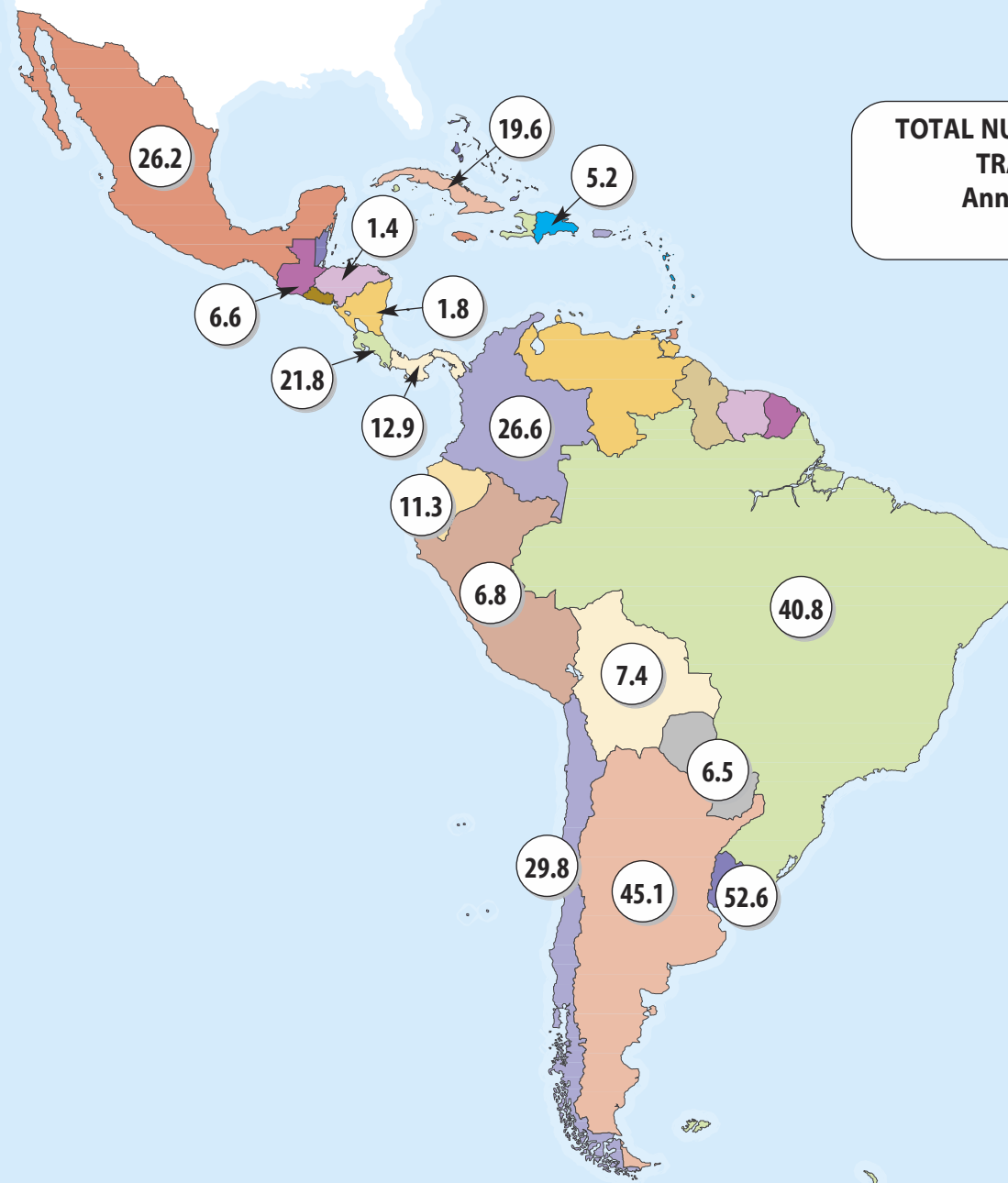








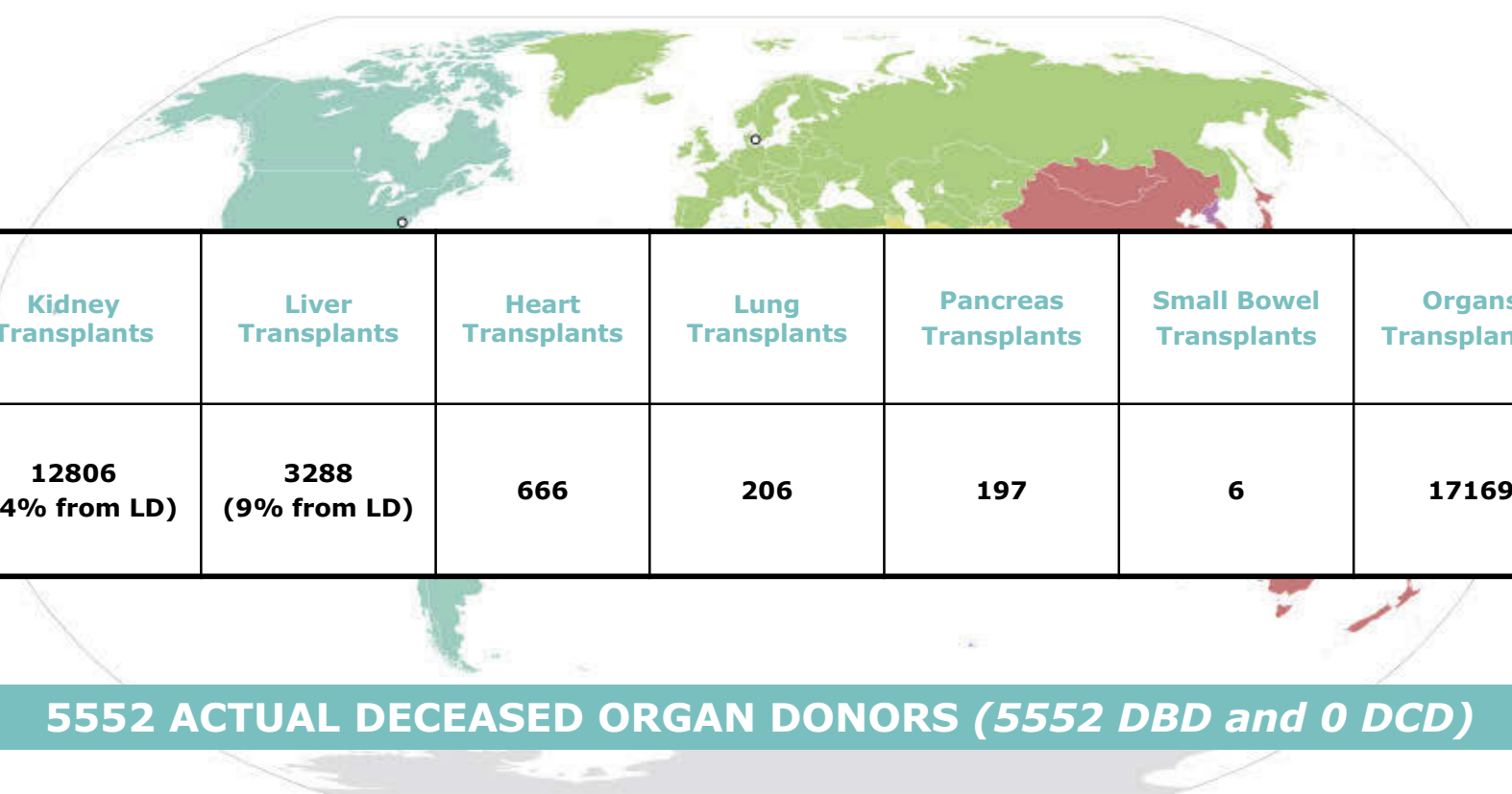




**TOTAL NUMBER OF PATIENTS  
TRANSPLANTED  
Annual Rate p.m.p  
2017**



## LATIN-AMERICAN COUNTRIES (2017)

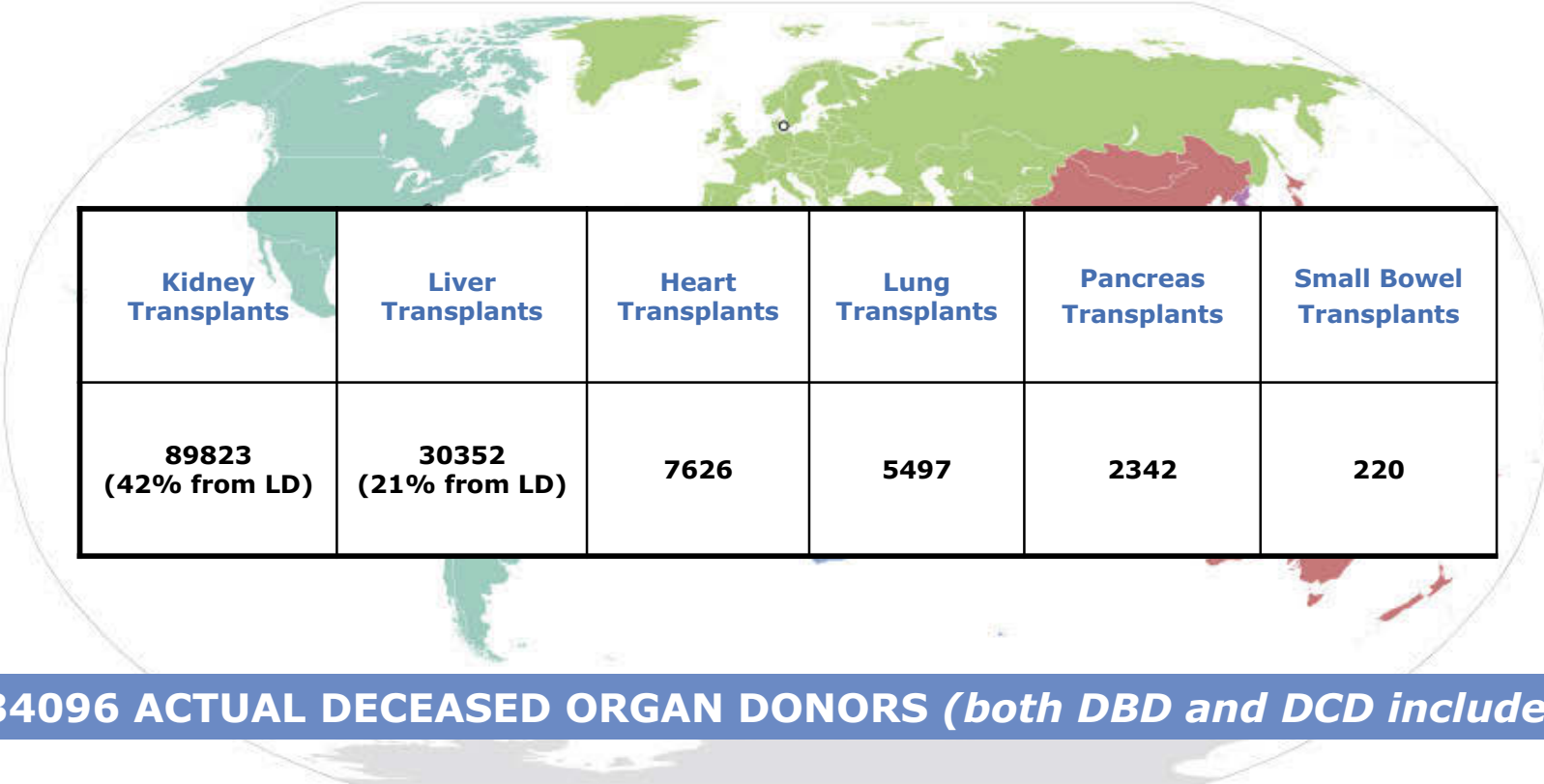


| Kidney Transplants            | Liver Transplants           | Heart Transplants | Lung Transplants | Pancreas Transplants | Small Bowel Transplants | Organs Transplanted |
|-------------------------------|-----------------------------|-------------------|------------------|----------------------|-------------------------|---------------------|
| <b>12806</b><br>(34% from LD) | <b>3288</b><br>(9% from LD) | <b>666</b>        | <b>206</b>       | <b>197</b>           | <b>6</b>                | <b>17169</b>        |

**5552 ACTUAL DECEASED ORGAN DONORS (5552 DBD and 0 DCD)**

***N= 17 COUNTRIES (583.9 million inhabitants)***

## GLOBAL ACTIVITY IN ORGAN TRANSPLANTATION (2016 ESTIMATES)

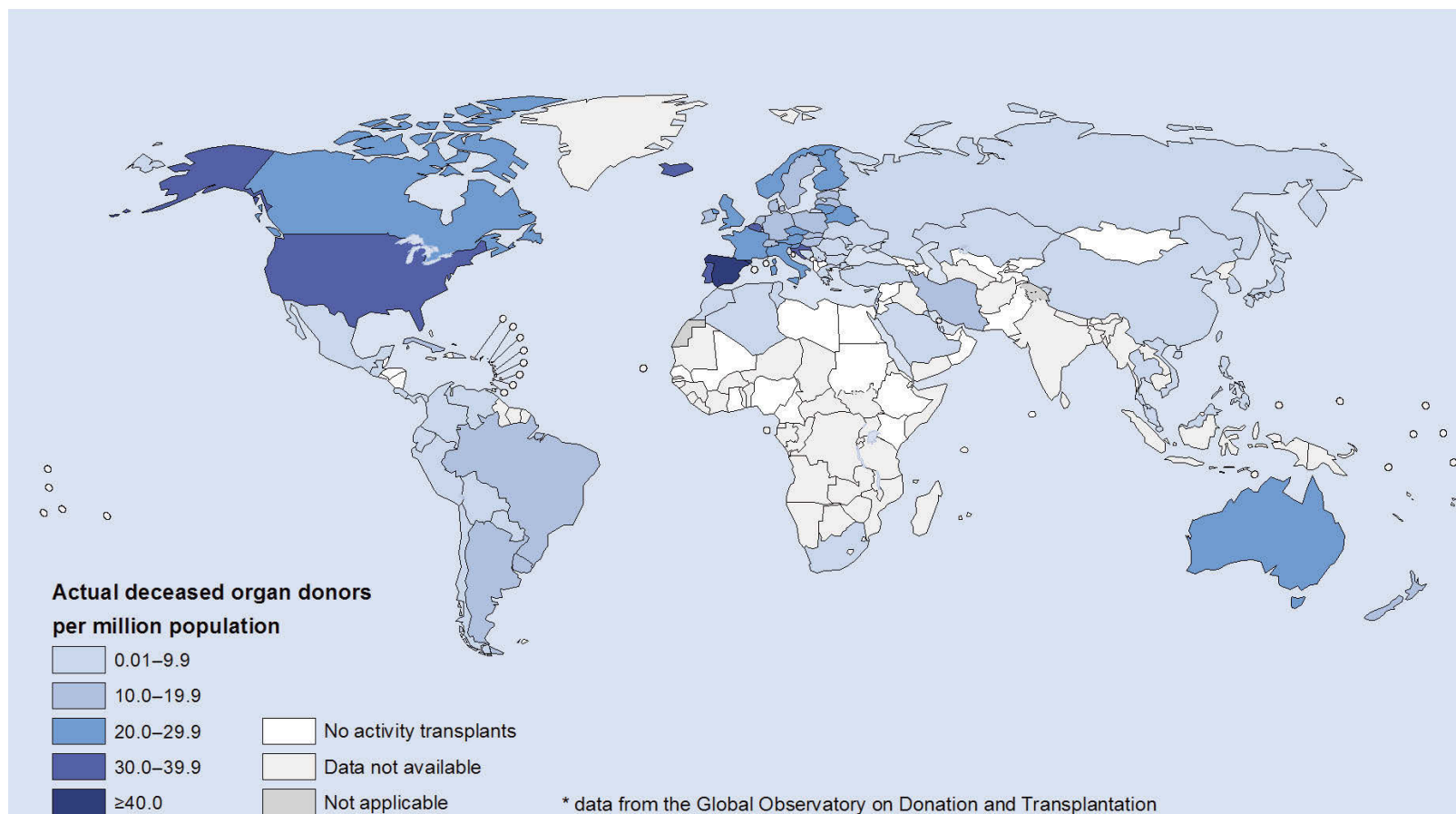


| Kidney Transplants     | Liver Transplants      | Heart Transplants | Lung Transplants | Pancreas Transplants | Small Bowel Transplants |
|------------------------|------------------------|-------------------|------------------|----------------------|-------------------------|
| 89823<br>(42% from LD) | 30352<br>(21% from LD) | 7626              | 5497             | 2342                 | 220                     |

**34096 ACTUAL DECEASED ORGAN DONORS (*both DBD and DCD included*)**

- Information of 110 Member States on organ transplantation activities is included in the GODT: 80 of 2016, 12 of 2015, 6 of 2014, 7 of 2013, 2 of 2012 and 3 of 2011.

## Actual donors from deceased persons, 2016\*



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

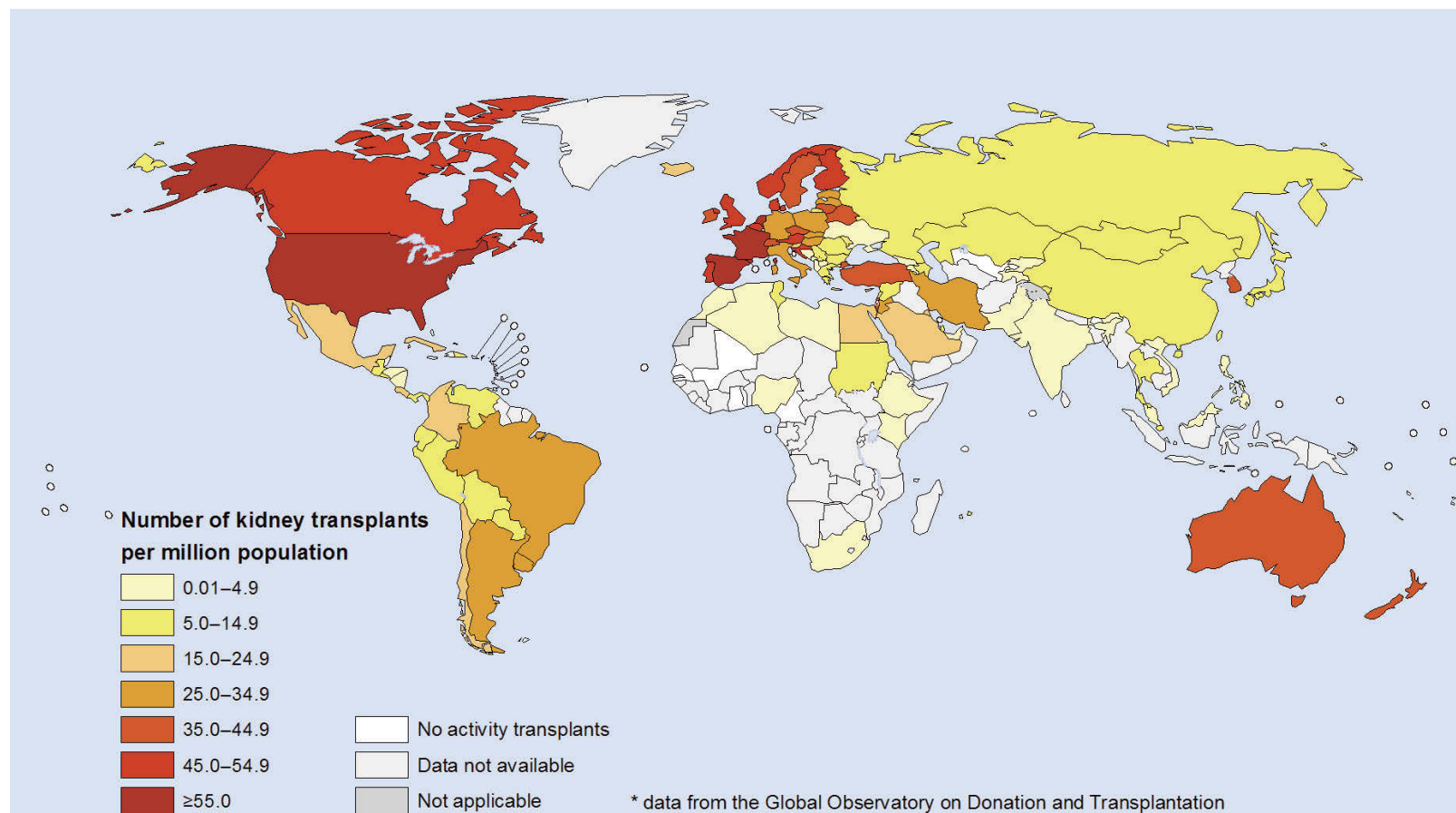
Data Source: Global Observatory on Donation & Transplantation. Map Production: Information Evidence and Research (IER)  
World Health Organization



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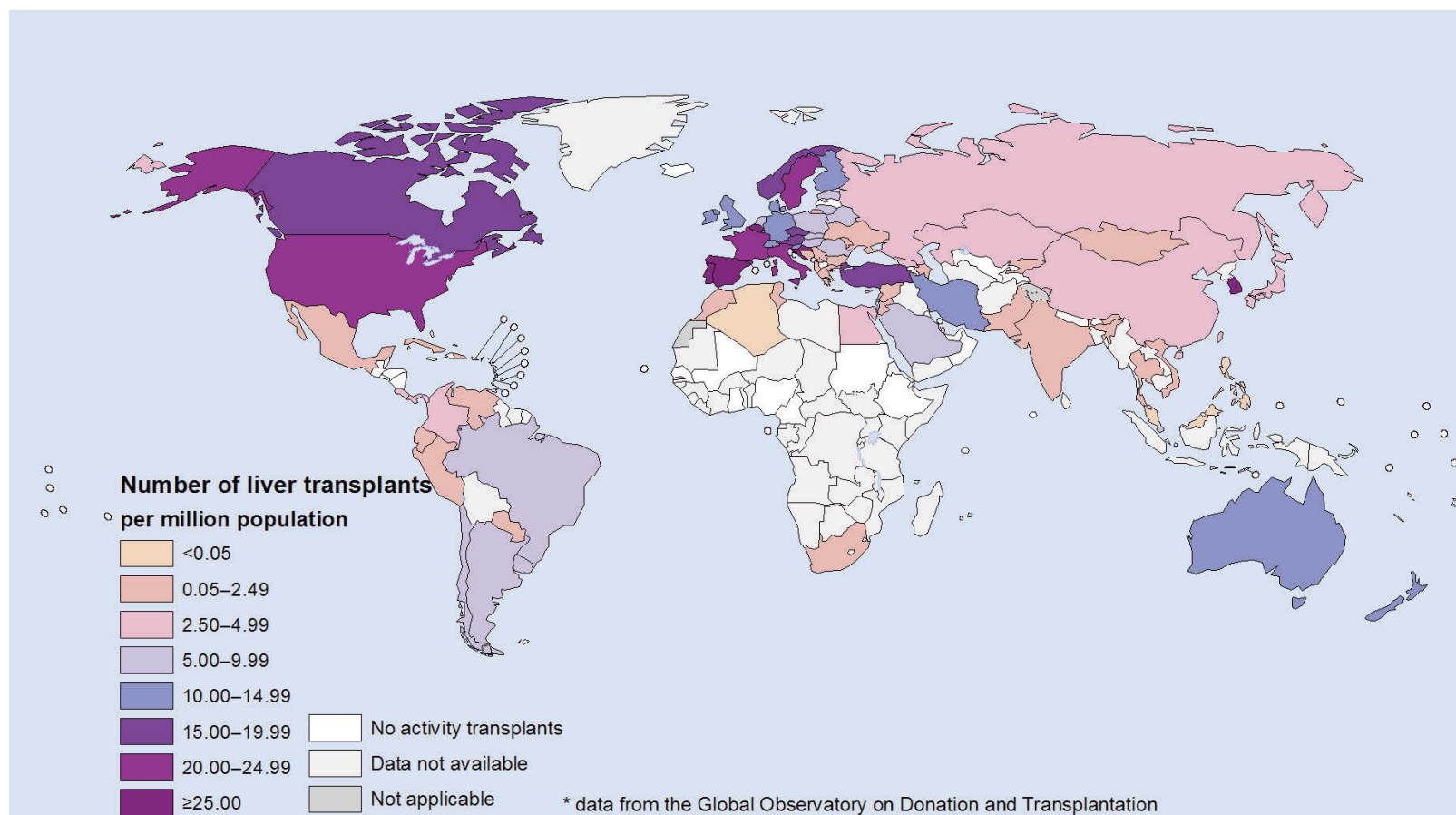
## Kidney transplantation activities, 2016\*



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Data Source: Global Observatory on Donation & Transplantation. Map Production: Information Evidence and Research (IER)  
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## Liver transplantation activities, 2016\*

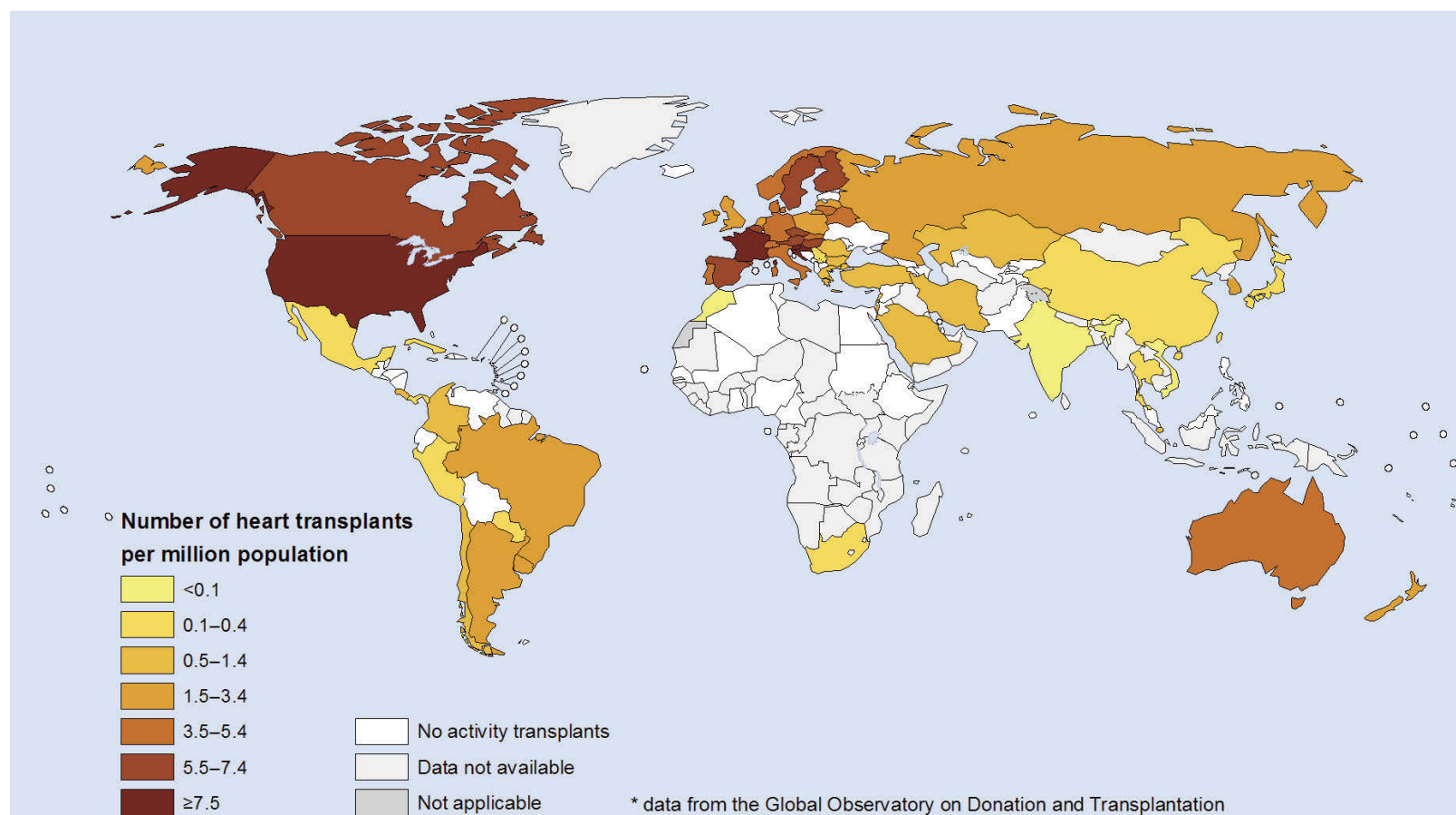


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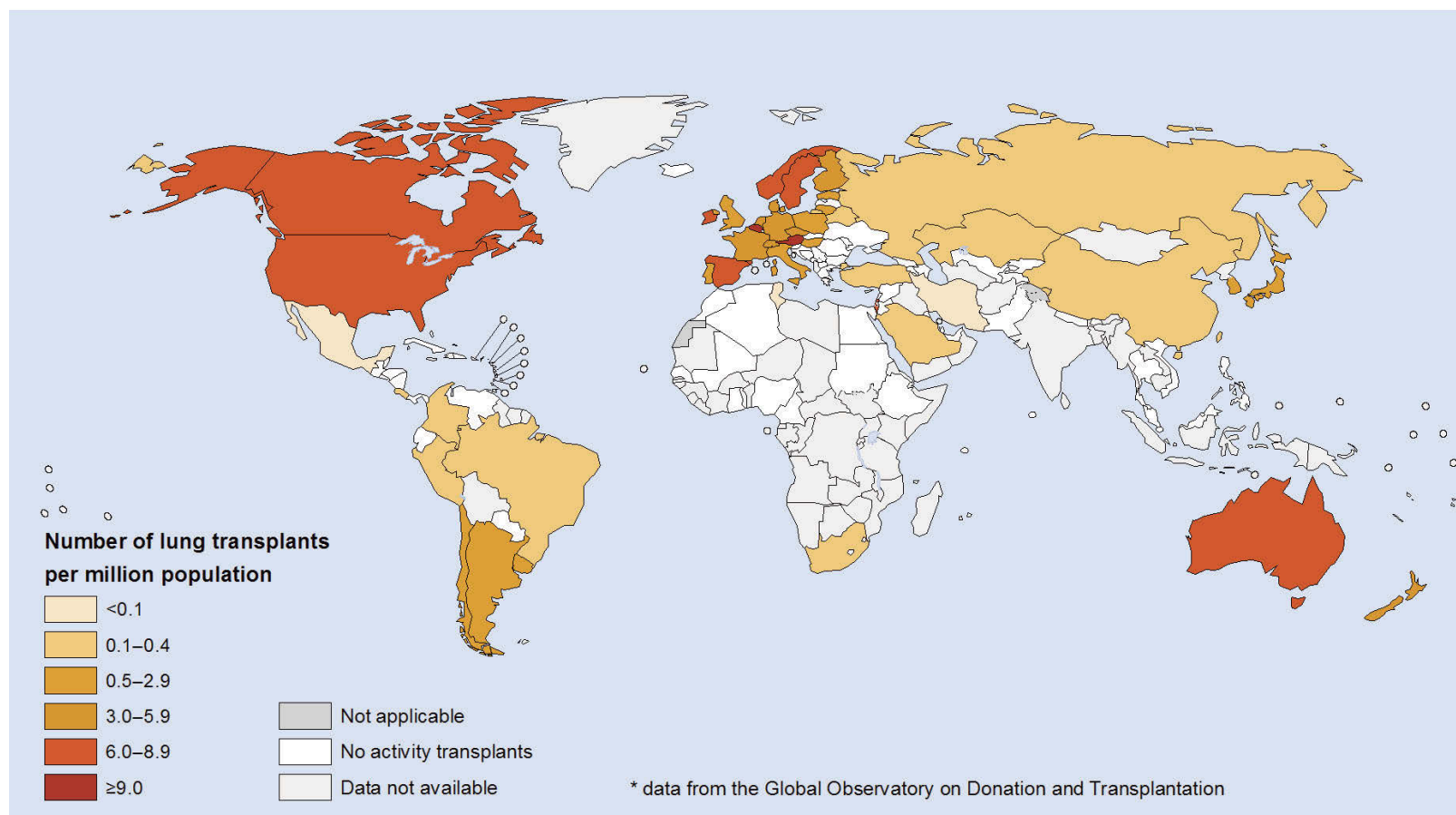
## Heart transplantation activities, 2016\*



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## Lung transplantation activities, 2016\*



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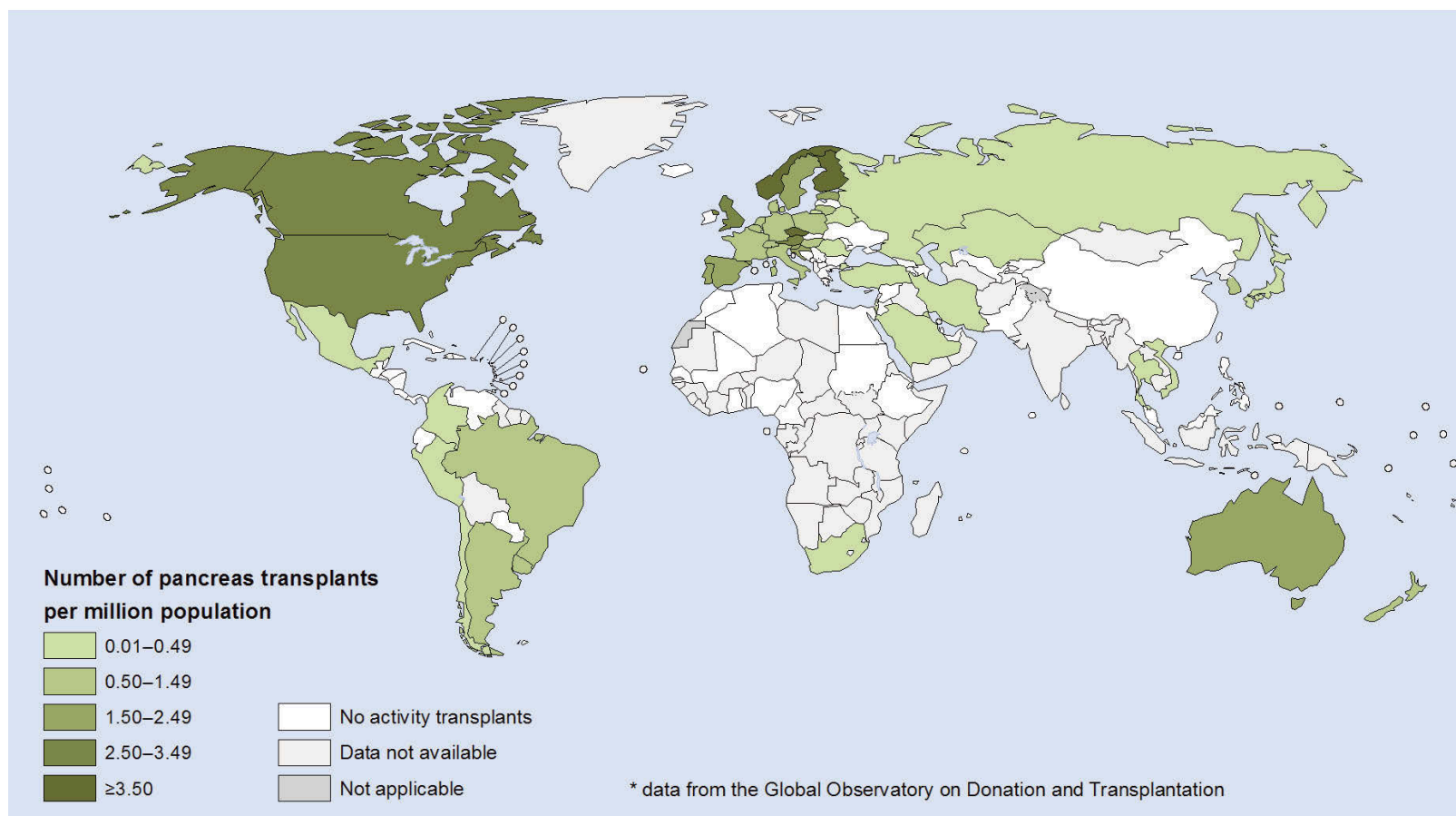


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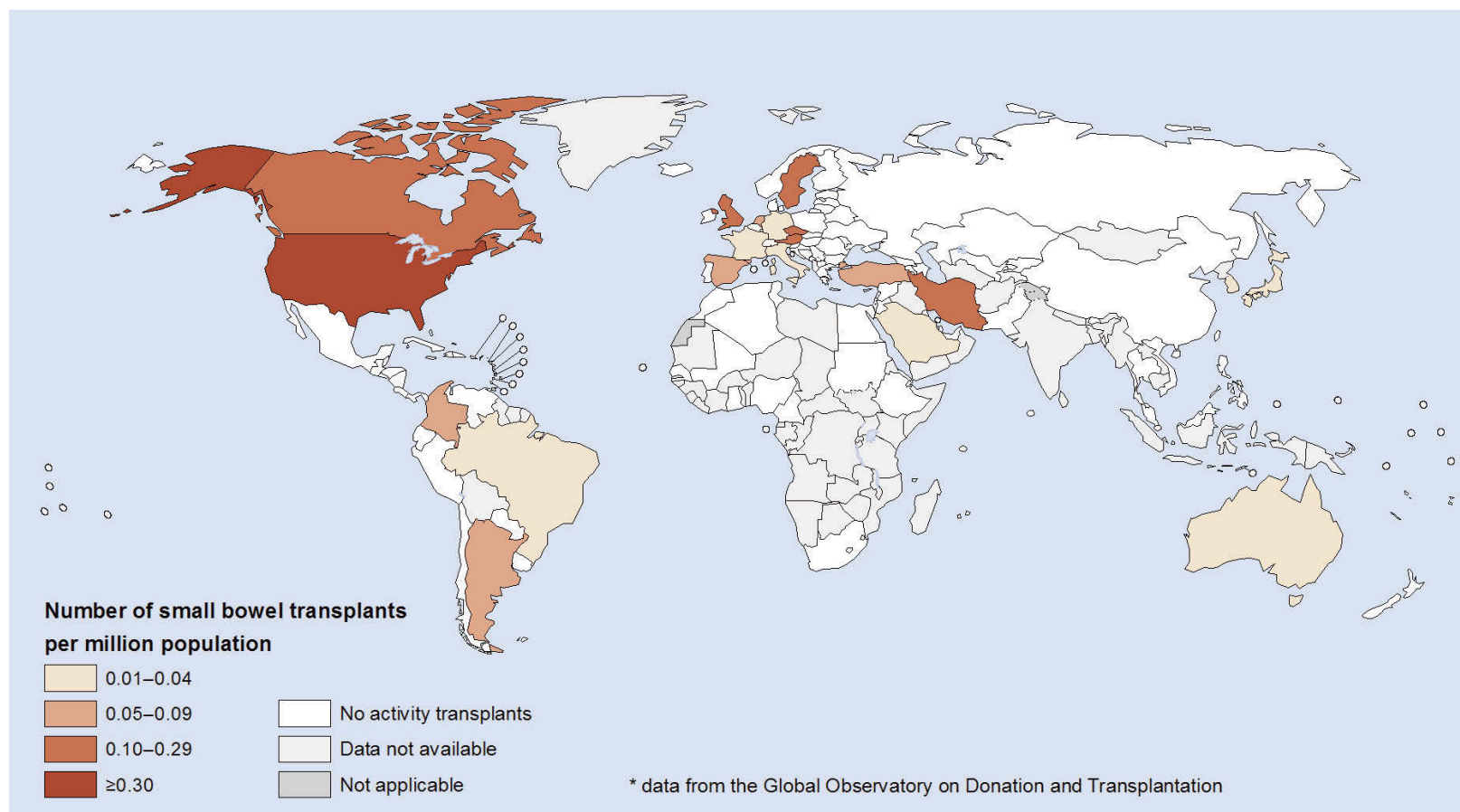
## Pancreas transplantation activities, 2016\*



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World Health Organization

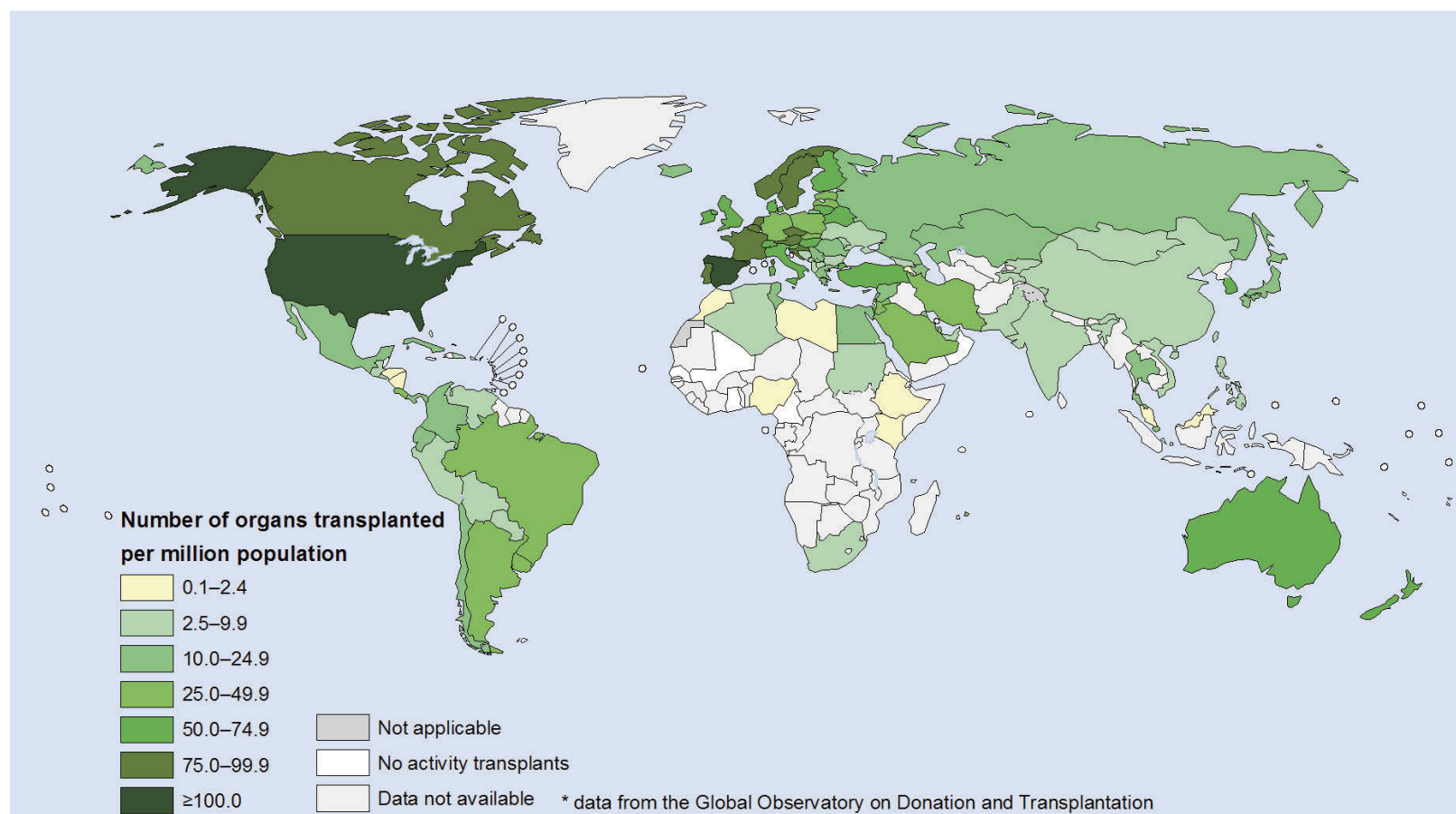
## Small bowel transplantation activities, 2016\*



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Data Source: Global Observatory on Donation & Transplantation. Map Production: Information Evidence and Research (IER)  
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## Global transplantation activities of solid organs, 2016\*



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Data Source: Global Observatory on Donation & Transplantation. Map Production: Information Evidence and Research (IER)  
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# **International Data on Organ Donation and Transplantation Activity, Waiting List and Family Refusals. Year 2017**



## DONATION AND TRANSPLANTATION ACTIVITY

## EUROPEAN UNION COUNTRIES

| COUNTRIES<br>Population (million inhabitants): UNFPA        | Austria<br>8.7 |      | Belgium<br>11.4 |      | Bulgaria<br>7.1 |     | Croatia<br>4.2 |      | Cyprus<br>1.2 |      | Czech Republic<br>10.6 |      | Denmark<br>5.7 |      | Estonia<br>1.3 |      | Finland<br>5.5 |      | France<br>65.0 |      |
|---|----------------|------|-----------------|------|-----------------|-----|----------------|------|---------------|------|------------------------|------|----------------|------|----------------|------|----------------|------|----------------|------|
| DONATION  |                |      |                 |      |                 |     |                |      |               |      |                        |      |                |      |                |      |                |      |                |      |
|   | Number         | PMP  | Number          | PMP  | Number          | PMP | Number         | PMP  | Number        | PMP  | Number                 | PMP  | Number         | PMP  | Number         | PMP  | Number         | PMP  | Number         | PMP  |
| Actual deceased organ donors<br>(both DBD and DCD included) | 213            | 24.5 | 348             | 30.5 | 43              | 6.1 | 140            | 33.3 | 10            | 8.3  | 269                    | 25.4 | 103            | 18.1 | 18             | 13.8 | 118            | 21.5 | 1933           | 29.7 |
| Actual deceased donors: Number of men                       | 123            | 14.1 |                 |      | 26              | 3.7 | 79             | 18.8 |               |      | 167                    | 15.8 | 56             | 9.8  | 14             | 10.8 | 65             | 11.8 | 1092           | 16.8 |
| Actual deceased donors: Number of DD > 60 years             | 75             | 8.6  |                 |      | 11              | 1.5 | 80             | 19.0 | 8             | 6.7  | 99                     | 9.3  | 43             | 7.5  | 4              | 3.1  | 57             | 10.4 | 933            | 14.4 |
| Actual donors after circulatory death (DCD)                 | 7              | 0.8  | 103             | 9.0  | 0               | 0.0 | 0              | 0.0  | 0             | 0.0  | 13                     | 1.2  | 0              | 0.0  | 0              | 0.0  | 0              | 0.0  | 137            | 2.1  |
| TRANSPLANTATION   |                |      |                 |      |                 |     |                |      |               |      |                        |      |                |      |                |      |                |      |                |      |
| KIDNEY  |                |      |                 |      |                 |     |                |      |               |      |                        |      |                |      |                |      |                |      |                |      |
| Total Tx (all combinations included)                        | 428            | 49.2 | 548             | 48.1 | 40              | 5.6 | 165            | 39.3 | 19            | 15.8 | 469                    | 44.2 | 257            | 45.1 | 35             | 26.9 | 240            | 43.6 | 3782           | 58.2 |
| Paediatric <15 years  | 13             | 1.5  | 16              | 1.4  | 0               | 0.0 | 2              | 0.5  | 1             | 0.8  | 5                      | 0.5  | 8              | 1.4  | 1              | 0.8  | 11             | 2.0  | 75             | 1.2  |
| Tx from deceased donors                                     | 359            | 41.3 | 485             | 42.5 | 32              | 4.5 | 154            | 36.7 | 10            | 8.3  | 418                    | 39.4 | 165            | 28.9 | 30             | 23.1 | 211            | 38.4 | 3171           | 48.8 |
| –Tx from DCD  | 31             | 3.6  | 124             | 10.9 | 0               | 0.0 | 0              | 0.0  | 0             | 0.0  | 17                     | 1.6  | 0              | 0.0  | 0              | 0.0  | 0              | 0.0  | 235            | 3.6  |
| –Single Tx  | 350            | 40.2 | 484             | 42.5 | 32              | 4.5 | 153            | 36.4 | 10            | 8.3  | 411                    | 38.8 | 163            | 28.6 | 27             | 20.8 | 211            | 38.4 | 3127           | 48.1 |
| –Double Tx  | 9              | 1.0  | 1               | 0.1  | 0               | 0.0 | 1              | 0.2  | 0             | 0.0  | 7                      | 0.7  | 2              | 0.4  | 3              | 2.3  | 0              | 0.0  | 44             | 0.7  |
| Tx from living donors                                       | 69             | 7.9  | 63              | 5.5  | 8               | 1.1 | 11             | 2.6  | 9             | 7.5  | 51                     | 4.8  | 92             | 16.1 | 5              | 3.8  | 29             | 5.3  | 611            | 9.4  |
| –Tx from related living donors                              | 65             | 7.5  | 60              | 5.3  | 8               | 1.1 | 11             | 2.6  | 9             | 7.5  | 43                     | 4.1  | 92             | 16.1 | 5              | 3.8  | 29             | 5.3  | 611            | 9.4  |
| –Tx from unrelated living donors                            | 4              | 0.5  | 3               | 0.3  | 0               | 0.0 | 0              | 0.0  | 0             | 0.0  | 8                      | 0.8  | 0              | 0.0  | 0              | 0.0  | 0              | 0.0  | 0              | 0.0  |
| LIVER   |                |      |                 |      |                 |     |                |      |               |      |                        |      |                |      |                |      |                |      |                |      |
| Total Tx (all combinations included)                        | 161            | 18.5 | 305             | 26.8 | 13              | 1.8 | 119            | 28.3 | 0             | 0.0  | 205                    | 19.3 | 57             | 10.0 | 10             | 7.7  | 63             | 11.5 | 1374           | 21.1 |
| Paediatric <15 years  | 5              | 0.6  | 39              | 3.4  | 0               | 0.0 | 3              | 0.7  | 0             | 0.0  | 19                     | 1.8  | 8              | 1.4  | 0              | 0.0  | 6              | 1.1  | 74             | 1.1  |
| Split Tx  | 4              | 0.5  | 9               | 0.8  | 0               | 0.0 | 2              | 0.5  | 0             | 0.0  | 12                     | 1.1  | 3              | 0.5  | 0              | 0.0  | 2              | 0.4  | 75             | 1.2  |
| Domino Tx   | 0              | 0.0  | 3               | 0.3  | 0               | 0.0 | 0              | 0.0  | 0             | 0.0  | 0                      | 0.0  | 0              | 0.0  | 0              | 0.0  | 0              | 0.0  | 7              | 0.1  |
| Tx from living donors                                       | 3              | 0.3  | 33              | 2.9  | 1               | 0.1 | 1              | 0.2  | 0             | 0.0  | 0                      | 0.0  | 0              | 0.0  | 0              | 0.0  | 0              | 0.0  | 18             | 0.3  |
| Tx from DCD   | 4              | 0.5  | 68              | 6.0  | 0               | 0.0 | 0              | 0.0  | 0             | 0.0  | 4                      | 0.4  | 0              | 0.0  | 0              | 0.0  | 0              | 0.0  | 47             | 0.7  |
| HEART   |                |      |                 |      |                 |     |                |      |               |      |                        |      |                |      |                |      |                |      |                |      |
| Total Tx (all combinations included)                        | 64             | 7.4  | 79              | 6.9  | 5               | 0.7 | 33             | 7.9  | 0             | 0.0  | 74                     | 7.0  | 25             | 4.4  | 0              | 0.0  | 26             | 4.7  | 473            | 7.3  |
| Paediatric <15 years  | 9              | 1.0  | 2               | 0.2  | 0               | 0.0 | 1              | 0.2  | 0             | 0.0  | 3                      | 0.3  | 1              | 0.2  | 0              | 0.0  | 3              | 0.5  | 20             | 0.3  |
| HEART – LUNG  |                |      |                 |      |                 |     |                |      |               |      |                        |      |                |      |                |      |                |      |                |      |
| Total Tx  | 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  | 6              | 0.1  |
| Paediatric <15 years  | 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  |
| LUNG  |                |      |                 |      |                 |     |                |      |               |      |                        |      |                |      |                |      |                |      |                |      |
| Total Tx (all combinations included)                        | 116            | 13.3 | 121             | 10.6 | 0               | 0.0 | 0              | 0.0  | 0             | 0.0  | 44                     | 4.2  | 35             | 6.1  | 5              | 3.8  | 24             | 4.4  | 384            | 5.9  |
| Paediatric <15 years  | 1              | 0.1  | 1               | 0.1  | 0               | 0.0 | 0              | 0.0  | 0             | 0.0  | 2                      | 0.2  | 0              | 0.0  | 1              | 0.8  | 0              | 0.0  | 5              | 0.1  |
| –Single Tx  | 4              | 0.5  | 3               | 0.3  | 0               | 0.0 | 0              | 0.0  | 0             | 0.0  | 3                      | 0.3  | 2              | 0.4  | 0              | 0.0  | 1              | 0.2  | 38             | 0.6  |
| –Double Tx (heart–lung Tx included)                         | 112            | 12.9 | 118             | 10.4 | 0               | 0.0 | 0              | 0.0  | 0             | 0.0  | 41                     | 3.9  | 33             | 5.8  | 5              | 3.8  | 23             | 4.2  | 346            | 5.3  |
| Tx from DCD (double + single)                               | 7              | 0.8  | 31              | 2.7  | 0               | 0.0 | 0              | 0.0  | 0             | 0.0  | 1                      | 0.1  | 0              | 0.0  | 0              | 0.0  | 0              | 0.0  | 9              | 0.1  |
| PANCREAS  |                |      |                 |      |                 |     |                |      |               |      |                        |      |                |      |                |      |                |      |                |      |
| Total Tx (all combinations included)                        | 20             | 2.3  | 14              | 1.2  | 0               | 0.0 | 5              | 1.2  | 0             | 0.0  | 39                     | 3.7  | 9              | 1.6  | 3              | 2.3  | 21             | 3.8  | 96             | 1.5  |
| Paediatric <15 years  | 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  | 12             | 0.2  |
| Pancreas Tx alone   | 0              | 0.0  | 5               | 0.4  | 0               | 0.0 | 0              | 0.0  | 0             | 0.0  | 5                      | 0.5  | 0              | 0.0  | 0              | 0.0  | 0              | 0.0  | 12             | 0.2  |
| Kidney – Pancreas Tx  | 20             | 2.3  | 9               | 0.8  | 0               | 0.0 | 4              | 1.0  | 0             | 0.0  | 34                     | 3.2  | 9              | 1.6  | 3              | 2.3  | 21             | 3.8  | 84             | 1.3  |
| 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  | 0              | 0.0  | 0              | 0.0  |
| SMALL BOWEL   |                |      |                 |      |                 |     |                |      |               |      |                        |      |                |      |                |      |                |      |                |      |
| Total Tx (all combinations included)                        |                |      | 3               | 0.3  | 0               | 0.0 | 0              | 0.0  | 0             | 0.0  | 1                      | 0.1  | 0              | 0.0  | 0              | 0.0  | 0              | 0.0  | 2              | 0.0  |
| Paediatric <15 years  |                |      | 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  |
| Small bowel Tx alone  |                |      | 3               | 0.3  | 0               | 0.0 | 0              | 0.0  | 0             | 0.0  | 0                      | 0.0  | 0              | 0.0  | 0              | 0.0  | 0              | 0.0  | 1              | 0.0  |
| RECIPIENTS  |                |      |                 |      |                 |     |                |      |               |      |                        |      |                |      |                |      |                |      |                |      |
| Total number of patients transplanted                       | 761            | 87.5 | 1050            | 92.1 | 58              | 8.2 | 314            | 74.8 | 19            | 15.8 | 832                    | 78.5 | 372            | 65.3 | 50             | 38.5 | 351            | 63.8 | 5860           | 90.2 |
| Paediatric <15 years  | 28             | 3.2  | 58              | 5.1  | 0               | 0.0 | 6              | 1.4  | 1             | 0.8  | 32                     | 3.0  | 17             | 3.0  | 2              | 1.5  | 20             | 3.6  | 166            | 2.6  |
| Patients transplanted from living donors                    | 72             | 8.3  | 96              | 8.4  | 9               | 1.3 | 12             | 2.9  | 9             | 7.5  | 51                     | 4.8  | 92             | 16.1 | 5              | 3.8  | 29             | 5.3  | 629            | 9.7  |
| Male recipients   | 495            | 56.9 |                 |      | 37              | 5.2 | 230            | 54.8 | 9             | 7.5  | 512                    | 48.3 | 229            | 40.2 | 30             | 23.1 | 237            | 43.1 |                |      |



# DONATION AND TRANSPLANTATION ACTIVITY

## EUROPEAN UNION COUNTRIES

| COUNTRIES<br>Population (million inhabitants): UNFPA        | Germany<br>82.1 |      | Greece<br>11.2 |      | Hungary<br>9.7 |      | Ireland<br>4.8 |      | Italy<br>59.4 |      | Latvia<br>1.9 |      | Lithuania<br>2.9 |      | Luxembourg<br>0.6 |      | Malta<br>0.4 |      |
|---|-----------------|------|----------------|------|----------------|------|----------------|------|---------------|------|---------------|------|------------------|------|-------------------|------|--------------|------|
| DONATION  |                 |      |                |      |                |      |                |      |               |      |               |      |                  |      |                   |      |              |      |
|   | Number          | PMP  | Number         | PMP  | Number         | PMP  | Number         | PMP  | Number        | PMP  | Number        | PMP  | Number           | PMP  | Number            | PMP  | Number       | PMP  |
| Actual deceased organ donors<br>(both DBD and DCD included) | 797             | 9.7  | 67             | 6.0  | 159            | 16.4 | 99             | 20.6 | 1714          | 28.9 | 24            | 12.6 | 40               | 13.8 | 9                 | 15.0 | 12           | 30.0 |
| Actual deceased donors: Number of men                       | 433             | 5.3  | 39             | 3.5  | 87             | 9.0  | 56             | 11.7 | 986           | 16.6 | 18            | 9.5  | 22               | 7.6  | 5                 | 8.3  | 8            | 20.0 |
| Actual deceased donors: Number of DD > 60 years             | 329             | 4.0  | 21             | 1.9  | 48             | 4.9  | 28             | 5.8  | 1025          | 17.3 | 7             | 3.7  | 12               | 4.1  | 5                 | 8.3  | 2            | 5.0  |
| Actual donors after circulatory death (DCD)                 | 0               | 0.0  | 0              | 0.0  | 0              | 0.0  | 8              | 1.7  | 53            | 0.9  | 2             | 1.1  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  |
| TRANSPLANTATION   |                 |      |                |      |                |      |                |      |               |      |               |      |                  |      |                   |      |              |      |
| KIDNEY  |                 |      |                |      |                |      |                |      |               |      |               |      |                  |      |                   |      |              |      |
| Total Tx (all combinations included)                        | 1921            | 23.4 | 176            | 15.7 | 297            | 30.6 | 192            | 40.0 | 2246          | 37.8 | 50            | 26.3 | 76               | 26.2 | 0                 | 0.0  | 21           | 52.5 |
| Paediatric <15 years  | 65              | 0.8  | 4              | 0.4  | 5              | 0.5  |                |      | 53            | 0.9  | 1             | 0.5  | 3                | 1.0  | 0                 | 0.0  | 0            | 0.0  |
| Tx from deceased donors                                     | 1364            | 16.6 | 108            | 9.6  | 257            | 26.5 | 141            | 29.4 | 1933          | 32.5 | 37            | 19.5 | 70               | 24.1 | 0                 | 0.0  | 16           | 40.0 |
| –Tx from DCD  | 0               | 0.0  | 0              | 0.0  | 0              | 0.0  | 15             | 3.1  | 37            | 0.6  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  |
| –Single Tx  | 1345            | 16.4 | 108            | 9.6  | 257            | 26.5 | 138            | 28.8 | 1791          | 30.2 | 35            | 18.4 |                  |      | 0                 | 0.0  | 16           | 40.0 |
| –Double Tx  | 19              | 0.2  | 0              | 0.0  | 0              | 0.0  | 3              | 0.6  | 142           | 2.4  | 2             | 1.1  |                  |      | 0                 | 0.0  | 0            | 0.0  |
| Tx from living donors                                       | 557             | 6.8  | 68             | 6.1  | 40             | 4.1  | 51             | 10.6 | 313           | 5.3  | 13            | 6.8  | 6                | 2.1  | 0                 | 0.0  | 5            | 12.5 |
| –Tx from related living donors                              | 555             | 6.8  | 64             | 5.7  | 40             | 4.1  |                |      |               |      | 13            | 6.8  | 6                | 2.1  | 0                 | 0.0  | 4            | 10.0 |
| –Tx from unrelated living donors                            | 2               | 0.0  | 4              | 0.4  | 0              | 0.0  |                |      |               |      | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 1            | 2.5  |
| LIVER   |                 |      |                |      |                |      |                |      |               |      |               |      |                  |      |                   |      |              |      |
| Total Tx (all combinations included)                        | 823             | 10.0 | 28             | 2.5  | 74             | 7.6  | 62             | 12.9 | 1311          | 22.1 | 0             | 0.0  | 22               | 7.6  | 0                 | 0.0  | 0            | 0.0  |
| Paediatric <15 years  | 104             | 1.3  | 0              | 0.0  | 3              | 0.3  |                |      | 82            | 1.4  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  |
| Split Tx  | 74              | 0.9  | 0              | 0.0  | 0              | 0.0  | 0              | 0.0  | 92            | 1.5  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  |
| Domino Tx   | 2               | 0.0  | 0              | 0.0  | 0              | 0.0  | 0              | 0.0  | 1             | 0.0  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  |
| Tx from living donors                                       | 61              | 0.7  | 0              | 0.0  | 0              | 0.0  | 0              | 0.0  | 15            | 0.3  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  |
| Tx from DCD   | 0               | 0.0  | 0              | 0.0  | 0              | 0.0  | 0              | 0.0  | 20            | 0.3  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  |
| HEART   |                 |      |                |      |                |      |                |      |               |      |               |      |                  |      |                   |      |              |      |
| Total Tx (all combinations included)                        | 257             | 3.1  | 8              | 0.7  | 52             | 5.4  | 16             | 3.3  | 265           | 4.5  | 1             | 0.5  | 7                | 2.4  | 0                 | 0.0  | 0            | 0.0  |
| Paediatric <15 years  | 25              | 0.3  | 0              | 0.0  | 2              | 0.2  |                |      | 17            | 0.3  | 0             | 0.0  | 2                | 0.7  | 0                 | 0.0  | 0            | 0.0  |
| HEART – LUNG  |                 |      |                |      |                |      |                |      |               |      |               |      |                  |      |                   |      |              |      |
| Total Tx  | 5               | 0.1  | 0              | 0.0  | 0              | 0.0  | 2              | 0.4  | 1             | 0.0  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  |
| Paediatric <15 years  | 0               | 0.0  | 0              | 0.0  | 0              | 0.0  |                |      | 0             | 0.0  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  |
| LUNG  |                 |      |                |      |                |      |                |      |               |      |               |      |                  |      |                   |      |              |      |
| Total Tx (all combinations included)                        | 309             | 3.8  | 0              | 0.0  | 21             | 2.2  | 36             | 7.5  | 144           | 2.4  | 0             | 0.0  | 1                | 0.3  | 0                 | 0.0  | 0            | 0.0  |
| Paediatric <15 years  | 7               | 0.1  | 0              | 0.0  | 0              | 0.0  |                |      | 3             | 0.1  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  |
| –Single Tx  | 31              | 0.4  | 0              | 0.0  | 0              | 0.0  | 19             | 4.0  | 14            | 0.2  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  |
| –Double Tx (heart–lung Tx included)                         | 278             | 3.4  | 0              | 0.0  | 21             | 2.2  | 17             | 3.5  | 130           | 2.2  | 0             | 0.0  | 1                | 0.3  | 0                 | 0.0  | 0            | 0.0  |
| Tx from DCD (double + single)                               | 0               | 0.0  | 0              | 0.0  | 0              | 0.0  | 1              | 0.2  | 3             | 0.1  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  |
| PANCREAS  |                 |      |                |      |                |      |                |      |               |      |               |      |                  |      |                   |      |              |      |
| Total Tx (all combinations included)                        | 72              | 0.9  | 0              | 0.0  | 6              | 0.6  | 5              | 1.0  | 39            | 0.7  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  |
| Paediatric <15 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   | 2               | 0.0  | 0              | 0.0  | 0              | 0.0  | 0              | 0.0  | 9             | 0.2  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  |
| Kidney – Pancreas Tx  | 69              | 0.8  | 0              | 0.0  | 6              | 0.6  | 5              | 1.0  | 28            | 0.5  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  |
| Tx from DCD   | 0               | 0.0  | 0              | 0.0  | 0              | 0.0  | 5              | 1.0  |               |      | 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  |
| Paediatric <15 years  | 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 alone  | 2               | 0.0  | 0              | 0.0  | 0              | 0.0  | 0              | 0.0  |               |      | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  |
| RECIPIENTS  |                 |      |                |      |                |      |                |      |               |      |               |      |                  |      |                   |      |              |      |
| Total number of patients transplanted                       | 3285            | 40.0 | 212            | 18.9 | 441            | 45.5 | 311            | 64.8 | 3952          | 66.5 | 51            | 26.8 | 106              | 36.6 | 0                 | 0.0  | 21           | 52.5 |
| Paediatric <15 years  | 198             | 2.4  | 4              | 0.4  | 10             | 1.0  |                |      | 152           | 2.6  | 1             | 0.5  | 5                | 1.7  | 0                 | 0.0  | 0            | 0.0  |
| Patients transplanted from living donors                    | 620             | 7.6  | 68             | 6.1  | 40             | 4.1  | 51             | 10.6 | 328           | 5.5  | 13            | 6.8  | 6                | 2.1  | 0                 | 0.0  | 5            | 12.5 |
| Male recipients   | 2082            | 25.4 | 143            | 12.8 | 263            | 27.1 |                |      | 2702          | 45.5 | 27            | 14.2 | 78               | 26.9 | 0                 | 0.0  | 15           | 37.5 |



## DONATION AND TRANSPLANTATION ACTIVITY

## EUROPEAN UNION COUNTRIES

| COUNTRIES<br>Population (million inhabitants): UNFPA        | Netherlands<br>17.0 |      | Poland<br>38.2 |      | Portugal<br>10.3 |      | Romania<br>19.7 |      | Slovakia<br>5.4 |      | Slovenia<br>2.1 |      | Spain<br>46.4 |       | Sweden<br>9.9 |      | United Kingdom<br>66.2 |      |
|---|---------------------|------|----------------|------|------------------|------|-----------------|------|-----------------|------|-----------------|------|---------------|-------|---------------|------|------------------------|------|
| DONATION  |                     |      |                |      |                  |      |                 |      |                 |      |                 |      |               |       |               |      |                        |      |
|   | Number              | PMP  | Number         | PMP  | Number           | PMP  | Number          | PMP  | Number          | PMP  | Number          | PMP  | Number        | PMP   | Number        | PMP  | Number                 | PMP  |
| Actual deceased organ donors<br>(both DBD and DCD included) | 258                 | 15.2 | 560            | 14.7 | 351              | 34.1 | 65              | 3.3  | 86              | 15.9 | 43              | 20.5 | 2183          | 47.0  | 192           | 19.4 | 1492                   | 22.5 |
| Actual deceased donors: Number of men                       | 141                 | 8.3  | 368            | 9.6  | 217              | 21.1 | 39              | 2.0  | 59              | 10.9 | 23              | 11.0 | 1307          | 28.2  | 105           | 10.6 | 857                    | 12.9 |
| Actual deceased donors: Number of DD > 60 years             | 107                 | 6.3  | 124            | 3.2  | 164              | 15.9 | 19              | 1.0  | 23              | 4.3  | 19              | 9.0  | 1191          | 25.7  | 96            | 9.7  | 528                    | 8.0  |
| Actual donors after circulatory death (DCD)                 | 146                 | 8.6  | 2              | 0.1  | 21               | 2.0  | 0               | 0.0  | 0               | 0.0  | 0               | 0.0  | 573           | 12.3  | 1             | 0.1  | 594                    | 9.0  |
| TRANSPLANTATION   |                     |      |                |      |                  |      |                 |      |                 |      |                 |      |               |       |               |      |                        |      |
| KIDNEY  |                     |      |                |      |                  |      |                 |      |                 |      |                 |      |               |       |               |      |                        |      |
| Total Tx (all combinations included)                        | 979                 | 57.6 | 1091           | 28.6 | 529              | 51.4 | 149             | 7.6  | 153             | 28.3 | 48              | 22.9 | 3269          | 70.5  | 474           | 47.9 | 3448                   | 52.1 |
| Paediatric <15 years  | 20                  | 1.2  | 18             | 0.5  | 10               | 1.0  | 4               | 0.2  | 0               | 0.0  | 0               | 0.0  | 49            | 1.1   | 17            | 1.7  | 78                     | 1.2  |
| Tx from deceased donors                                     | 428                 | 25.2 | 1035           | 27.1 | 452              | 43.9 | 98              | 5.0  | 142             | 26.3 | 46              | 21.9 | 2937          | 63.3  | 349           | 35.3 | 2448                   | 37.0 |
| –Tx from DCD  | 246                 | 14.5 | 3              | 0.1  | 33               | 3.2  | 0               | 0.0  | 0               | 0.0  | 0               | 0.0  | 799           | 17.2  | 0             | 0.0  | 944                    | 14.3 |
| –Single Tx  | 425                 | 25.0 | 1034           | 27.1 | 422              | 41.0 | 98              | 5.0  | 138             | 25.6 | 46              | 21.9 | 2929          | 63.1  | 345           | 34.8 | 2408                   | 36.4 |
| –Double Tx  | 3                   | 0.2  | 1              | 0.0  | 30               | 2.9  | 0               | 0.0  | 4               | 0.7  | 0               | 0.0  | 8             | 0.2   | 4             | 0.4  | 40                     | 0.6  |
| Tx from living donors                                       | 551                 | 32.4 | 56             | 1.5  | 77               | 7.5  | 51              | 2.6  | 11              | 2.0  | 2               | 1.0  | 332           | 7.2   | 125           | 12.6 | 1000                   | 15.1 |
| –Tx from related living donors                              | 438                 | 25.8 | 56             | 1.5  | 74               | 7.2  | 51              | 2.6  | 11              | 2.0  | 2               | 1.0  | 318           | 6.9   | 124           | 12.5 | 804                    | 12.1 |
| –Tx from unrelated living donors                            | 113                 | 6.6  | 0              | 0.0  | 3                | 0.3  | 0               | 0.0  | 0               | 0.0  | 0               | 0.0  | 14            | 0.3   | 1             | 0.1  | 196                    | 3.0  |
| LIVER   |                     |      |                |      |                  |      |                 |      |                 |      |                 |      |               |       |               |      |                        |      |
| Total Tx (all combinations included)                        | 169                 | 9.9  | 373            | 9.8  | 259              | 25.1 | 63              | 3.2  | 32              | 5.9  | 23              | 11.0 | 1247          | 26.9  | 181           | 18.3 | 1010                   | 15.3 |
| Paediatric <15 years  | 17                  | 1.0  | 31             | 0.8  | 11               | 1.1  | 2               | 0.1  | 0               | 0.0  | 0               | 0.0  | 41            | 0.9   | 17            | 1.7  | 97                     | 1.5  |
| Split Tx  | 5                   | 0.3  | 0              | 0.0  | 1                | 0.1  | 0               | 0.0  | 0               | 0.0  | 0               | 0.0  | 2             | 0.0   | 17            | 1.7  | 75                     | 1.1  |
| Domino Tx   | 0                   | 0.0  | 0              | 0.0  | 10               | 1.0  | 1               | 0.1  | 0               | 0.0  | 0               | 0.0  | 4             | 0.1   | 2             | 0.2  | 2                      | 0.0  |
| Tx from living donors                                       | 9                   | 0.5  | 24             | 0.6  | 2                | 0.2  | 10              | 0.5  | 0               | 0.0  | 0               | 0.0  | 17            | 0.4   | 3             | 0.3  | 34                     | 0.5  |
| Tx from DCD   | 66                  | 3.9  | 0              | 0.0  | 0                | 0.0  | 0               | 0.0  | 0               | 0.0  | 0               | 0.0  | 166           | 3.6   | 0             | 0.0  | 195                    | 2.9  |
| HEART   |                     |      |                |      |                  |      |                 |      |                 |      |                 |      |               |       |               |      |                        |      |
| Total Tx (all combinations included)                        | 38                  | 2.2  | 98             | 2.6  | 46               | 4.5  | 3               | 0.2  | 18              | 3.3  | 24              | 11.4 | 304           | 6.6   | 62            | 6.3  | 191                    | 2.9  |
| Paediatric <15 years  | 2                   | 0.1  | 4              | 0.1  | 2                | 0.2  | 0               | 0.0  | 0               | 0.0  | 0               | 0.0  | 21            | 0.5   | 4             | 0.4  | 26                     | 0.4  |
| HEART – LUNG  |                     |      |                |      |                  |      |                 |      |                 |      |                 |      |               |       |               |      |                        |      |
| Total Tx  | 0                   | 0.0  | 0              | 0.0  | 0                | 0.0  | 0               | 0.0  | 0               | 0.0  | 0               | 0.0  | 3             | 0.1   | 0             | 0.0  | 9                      | 0.1  |
| Paediatric <15 years  | 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  |
| LUNG  |                     |      |                |      |                  |      |                 |      |                 |      |                 |      |               |       |               |      |                        |      |
| Total Tx (all combinations included)                        | 74                  | 4.4  | 39             | 1.0  | 34               | 3.3  | 0               | 0.0  | 0               | 0.0  | 0               | 0.0  | 363           | 7.8   | 65            | 6.6  | 198                    | 3.0  |
| Paediatric <15 years  | 0                   | 0.0  | 0              | 0.0  | 0                | 0.0  | 0               | 0.0  | 0               | 0.0  | 0               | 0.0  | 1             | 0.0   | 0             | 0.0  | 3                      | 0.0  |
| –Single Tx  | 11                  | 0.6  | 15             | 0.4  | 11               | 1.1  | 0               | 0.0  | 0               | 0.0  | 0               | 0.0  | 120           | 2.6   | 5             | 0.5  | 25                     | 0.4  |
| –Double Tx (heart–lung Tx included)                         | 63                  | 3.7  | 24             | 0.6  | 23               | 2.2  | 0               | 0.0  | 0               | 0.0  | 0               | 0.0  | 243           | 5.2   | 60            | 6.1  | 173                    | 2.6  |
| Tx from DCD (double + single)                               | 25                  | 1.5  | 0              | 0.0  | 0                | 0.0  | 0               | 0.0  | 0               | 0.0  | 0               | 0.0  | 40            | 0.9   | 0             | 0.0  | 40                     | 0.6  |
| PANCREAS  |                     |      |                |      |                  |      |                 |      |                 |      |                 |      |               |       |               |      |                        |      |
| Total Tx (all combinations included)                        | 25                  | 1.5  | 41             | 1.1  | 27               | 2.6  | 0               | 0.0  | 0               | 0.0  | 0               | 0.0  | 70            | 1.5   | 25            | 2.5  | 198                    | 3.0  |
| Paediatric <15 years  | 0                   | 0.0  | 0              | 0.0  | 0                | 0.0  | 0               | 0.0  | 0               | 0.0  | 0               | 0.0  | 3             | 0.1   | 0             | 0.0  | 4                      | 0.1  |
| Pancreas Tx alone   | 3                   | 0.2  | 11             | 0.3  | 1                | 0.1  | 0               | 0.0  | 0               | 0.0  | 0               | 0.0  | 9             | 0.2   | 6             | 0.6  | 15                     | 0.2  |
| Kidney – Pancreas Tx  | 22                  | 1.3  | 30             | 0.8  | 26               | 2.5  | 0               | 0.0  | 0               | 0.0  | 0               | 0.0  | 55            | 1.2   | 17            | 1.7  | 172                    | 2.6  |
| Tx from DCD   |                     |      | 0              | 0.0  | 0                | 0.0  | 0               | 0.0  | 0               | 0.0  | 0               | 0.0  | 2             | 0.0   | 0             | 0.0  | 53                     | 0.8  |
| 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  | 8             | 0.2   | 2             | 0.2  | 18                     | 0.3  |
| Paediatric <15 years  | 0                   | 0.0  | 0              | 0.0  | 0                | 0.0  | 0               | 0.0  | 0               | 0.0  | 0               | 0.0  | 4             | 0.1   | 0             | 0.0  | 6                      | 0.1  |
| Small bowel Tx alone  | 0                   | 0.0  | 0              | 0.0  | 0                | 0.0  | 0               | 0.0  | 0               | 0.0  | 0               | 0.0  | 2             | 0.0   | 0             | 0.0  | 2                      | 0.0  |
| RECIPIENTS  |                     |      |                |      |                  |      |                 |      |                 |      |                 |      |               |       |               |      |                        |      |
| Total number of patients transplanted                       | 1262                | 74.2 | 1612           | 42.2 | 864              | 84.0 | 215             | 10.9 | 203             | 37.6 | 90              | 42.9 | 5152          | 111.0 | 783           | 79.1 | 4871                   | 73.6 |
| Paediatric <15 years  | 39                  | 2.3  | 53             | 1.4  | 23               | 2.2  | 6               | 0.3  | 0               | 0.0  | 0               | 0.0  | 111           | 2.4   | 37            | 3.7  | 205                    | 3.1  |
| Patients transplanted from living donors                    | 560                 | 32.9 | 80             | 2.1  | 88               | 8.5  | 61              | 3.1  | 11              | 2.0  | 2               | 1.0  | 349           | 7.5   | 128           | 12.9 | 1034                   | 15.6 |
| Male recipients   | 748                 | 44.0 | 987            | 25.8 |                  |      |                 |      | 122             | 22.6 | 65              | 31.0 | 3491          | 75.2  | 506           | 51.1 | 3004                   | 45.4 |

# DONATION AND TRANSPLANTATION ACTIVITY

## OTHER COUNTRIES

| COUNTRIES  | Armenia |     | Australia |      | Belarus |      | Bosnia and Herzegovina |     | Canada |      | Georgia |     | Iceland |      | Israel |      | Kuwait |      | Malaysia |     |
|--|---------|-----|-----------|------|---------|------|------------------------|-----|--------|------|---------|-----|---------|------|--------|------|--------|------|----------|-----|
| Population (million inhabitants): UNFPA                  | 2.9     |     | 24.5      |      | 9.5     |      | 3.5                    |     | 36.6   |      | 3.9     |     | 0.3     |      | 8.3    |      | 4.1    |      | 31.6     |     |
| DONATION   |         |     |           |      |         |      |                        |     |        |      |         |     |         |      |        |      |        |      |          |     |
|  | 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 | 510       | 20.8 | 224     | 23.6 | 3                      | 0.9 | 802    | 21.9 | 0       | 0.0 | 6       | 20.0 | 92     | 11.1 | 20     | 4.9  | 13       | 0.4 |
| Actual deceased donors: Number of men                    | 0       | 0.0 | 275       | 11.2 | 150     | 15.8 | 3                      | 0.9 |        |      | 0       | 0.0 | 5       | 16.7 | 57     | 6.9  | 16     | 3.9  | 12       | 0.4 |
| Actual deceased donors: Number of DD > 60 years          | 0       | 0.0 | 130       | 5.3  | 4       | 0.4  |                        |     |        |      | 0       | 0.0 | 2       | 6.7  | 36     | 4.3  | 0      | 0.0  | 3        | 0.1 |
| Actual donors after circulatory death (DCD)              | 0       | 0.0 | 151       | 6.2  | 0       | 0.0  | 0                      | 0.0 | 201    | 5.5  | 0       | 0.0 | 0       | 0.0  | 4      | 0.5  | 0      | 0.0  | 0        | 0.0 |
| TRANSPLANTATION  |         |     |           |      |         |      |                        |     |        |      |         |     |         |      |        |      |        |      |          |     |
| KIDNEY   |         |     |           |      |         |      |                        |     |        |      |         |     |         |      |        |      |        |      |          |     |
| Total Tx (all combinations included)                     | 11      | 3.8 | 1103      | 45.0 | 362     | 38.1 | 17                     | 4.9 | 1771   | 48.4 | 21      | 5.4 | 8       | 26.7 | 367    | 44.2 | 89     | 21.7 | 79       | 2.5 |
| Paediatric <15 years                                     | 3       | 1.0 | 36        | 1.5  | 19      | 2.0  |                        |     |        |      | 1       | 0.3 | 0       | 0.0  | 15     | 1.8  | 2      | 0.5  | 0        | 0.0 |
| Tx from deceased donors                                  | 0       | 0.0 | 832       | 34.0 | 353     | 37.2 | 4                      | 1.1 | 1299   | 35.5 | 0       | 0.0 | 0       | 0.0  | 145    | 17.5 | 29     | 7.1  | 26       | 0.8 |
| –Tx from DCD   | 0       | 0.0 | 237       | 9.7  | 0       | 0.0  | 0                      | 0.0 | 335    | 9.2  | 0       | 0.0 | 0       | 0.0  | 4      | 0.5  | 0      | 0.0  | 0        | 0.0 |
| –Single Tx   | 0       | 0.0 | 823       | 33.6 | 353     | 37.2 |                        |     | 1282   | 35.0 | 0       | 0.0 | 0       | 0.0  | 143    | 17.2 | 28     | 6.8  | 26       | 0.8 |
| –Double Tx   | 0       | 0.0 | 9         | 0.4  | 0       | 0.0  |                        |     | 17     | 0.5  | 0       | 0.0 | 0       | 0.0  | 2      | 0.2  | 1      | 0.2  | 0        | 0.0 |
| Tx from living donors                                    | 11      | 3.8 | 271       | 11.1 | 9       | 0.9  | 13                     | 3.7 | 472    | 12.9 | 21      | 5.4 | 8       | 26.7 | 222    | 26.7 | 60     | 14.6 | 53       | 1.7 |
| –Tx from related living donors                           | 11      | 3.8 | 222       | 9.1  | 9       | 0.9  | 13                     | 3.7 |        |      |         |     | 8       | 26.7 | 113    | 13.6 | 26     | 6.3  | 53       | 1.7 |
| –Tx from unrelated living donors                         | 0       | 0.0 | 49        | 2.0  | 0       | 0.0  | 0                      | 0.0 |        |      |         |     | 0       | 0.0  | 109    | 13.1 | 34     | 8.3  | 0        | 0.0 |
| LIVER  |         |     |           |      |         |      |                        |     |        |      |         |     |         |      |        |      |        |      |          |     |
| Total Tx (all combinations included)                     | 0       | 0.0 | 282       | 11.5 | 79      | 8.3  | 0                      | 0.0 | 585    | 16.0 | 10      | 2.6 | 0       | 0.0  | 88     | 10.6 | 0      | 0.0  | 5        | 0.2 |
| Paediatric <15 years                                     | 0       | 0.0 | 40        | 1.6  | 6       | 0.6  | 0                      | 0.0 |        |      | 0       | 0.0 | 0       | 0.0  | 14     | 1.7  | 0      | 0.0  | 1        | 0.0 |
| Split Tx   | 0       | 0.0 | 49        | 2.0  | 0       | 0.0  | 0                      | 0.0 | 9      | 0.2  | 0       | 0.0 | 0       | 0.0  | 2      | 0.2  | 0      | 0.0  | 0        | 0.0 |
| 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  | 0        | 0.0 |
| Tx from living donors                                    | 0       | 0.0 | 2         | 0.1  | 3       | 0.3  | 0                      | 0.0 | 61     | 1.7  | 10      | 2.6 | 0       | 0.0  | 13     | 1.6  | 0      | 0.0  | 3        | 0.1 |
| Tx from DCD  | 0       | 0.0 | 10        | 0.4  | 0       | 0.0  | 0                      | 0.0 | 53     | 1.4  | 0       | 0.0 | 0       | 0.0  | 0      | 0.0  | 0      | 0.0  | 0        | 0.0 |
| HEART  |         |     |           |      |         |      |                        |     |        |      |         |     |         |      |        |      |        |      |          |     |
| Total Tx (all combinations included)                     | 0       | 0.0 | 98        | 4.0  | 39      | 4.1  | 0                      | 0.0 | 215    | 5.9  | 0       | 0.0 | 0       | 0.0  | 18     | 2.2  | 0      | 0.0  | 1        | 0.0 |
| Paediatric <15 years                                     | 0       | 0.0 | 10        | 0.4  | 0       | 0.0  | 0                      | 0.0 |        |      | 0       | 0.0 | 0       | 0.0  | 0      | 0.0  | 0      | 0.0  | 0        | 0.0 |
| HEART – LUNG   |         |     |           |      |         |      |                        |     |        |      |         |     |         |      |        |      |        |      |          |     |
| Total Tx   | 0       | 0.0 | 5         | 0.2  |         |      | 0                      | 0.0 | 5      | 0.1  | 0       | 0.0 | 0       | 0.0  | 0      | 0.0  | 0      | 0.0  | 1        | 0.0 |
| Paediatric <15 years                                     | 0       | 0.0 | 0         | 0.0  |         |      | 0                      | 0.0 |        |      | 0       | 0.0 | 0       | 0.0  | 0      | 0.0  | 0      | 0.0  | 0        | 0.0 |
| LUNG   |         |     |           |      |         |      |                        |     |        |      |         |     |         |      |        |      |        |      |          |     |
| Total Tx (all combinations included)                     | 0       | 0.0 | 210       | 8.6  | 5       | 0.5  | 0                      | 0.0 | 348    | 9.5  | 0       | 0.0 | 0       | 0.0  | 55     | 6.6  | 0      | 0.0  | 1        | 0.0 |
| Paediatric <15 years                                     | 0       | 0.0 | 5         | 0.2  | 0       | 0.0  | 0                      | 0.0 |        |      | 0       | 0.0 | 0       | 0.0  | 0      | 0.0  | 0      | 0.0  | 0        | 0.0 |
| –Single Tx   | 0       | 0.0 | 18        | 0.7  | 0       | 0.0  | 0                      | 0.0 | 28     | 0.8  | 0       | 0.0 | 0       | 0.0  | 18     | 2.2  | 0      | 0.0  | 0        | 0.0 |
| –Double Tx (heart–lung Tx included)                      | 0       | 0.0 | 192       | 7.8  | 5       | 0.5  | 0                      | 0.0 | 320    | 8.7  | 0       | 0.0 | 0       | 0.0  | 37     | 4.5  | 0      | 0.0  | 1        | 0.0 |
| Tx from DCD (double + single)                            | 0       | 0.0 | 60        | 2.4  | 0       | 0.0  | 0                      | 0.0 | 57     | 1.6  | 0       | 0.0 | 0       | 0.0  | 0      | 0.0  | 0      | 0.0  | 0        | 0.0 |
| PANCREAS   |         |     |           |      |         |      |                        |     |        |      |         |     |         |      |        |      |        |      |          |     |
| Total Tx (all combinations included)                     | 0       | 0.0 | 49        | 2.0  | 6       | 0.6  | 0                      | 0.0 | 76     | 2.1  | 0       | 0.0 | 0       | 0.0  | 9      | 1.1  | 3      | 0.7  | 0        | 0.0 |
| Paediatric <15 years                                     | 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 |
| Pancreas Tx alone  | 0       | 0.0 | 1         | 0.0  | 0       | 0.0  | 0                      | 0.0 | 31     | 0.8  | 0       | 0.0 | 0       | 0.0  | 0      | 0.0  | 0      | 0.0  | 0        | 0.0 |
| Kidney – Pancreas Tx                                     | 0       | 0.0 | 47        | 1.9  | 6       | 0.6  | 0                      | 0.0 | 45     | 1.2  | 0       | 0.0 | 0       | 0.0  | 9      | 1.1  | 3      | 0.7  | 0        | 0.0 |
| Tx from DCD  | 0       | 0.0 | 2         | 0.1  | 0       | 0.0  | 0                      | 0.0 | 6      | 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 | 1         | 0.0  | 0       | 0.0  | 0                      | 0.0 | 5      | 0.1  | 0       | 0.0 | 0       | 0.0  | 0      | 0.0  | 0      | 0.0  | 0        | 0.0 |
| Paediatric <15 years                                     | 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 |
| Small bowel Tx alone                                     | 0       | 0.0 | 0         | 0.0  | 0       | 0.0  | 0                      | 0.0 | 5      | 0.1  | 0       | 0.0 | 0       | 0.0  | 0      | 0.0  | 0      | 0.0  | 0        | 0.0 |
| RECIPIENTS   |         |     |           |      |         |      |                        |     |        |      |         |     |         |      |        |      |        |      |          |     |
| Total number of patients transplanted                    | 11      | 3.8 | 1676      | 68.4 | 491     | 51.7 | 17                     | 4.9 | 2972   | 81.2 | 31      | 7.9 | 8       | 26.7 | 520    | 62.7 | 89     | 21.7 | 86       | 2.7 |
| Paediatric <15 years                                     | 3       | 1.0 | 86        | 3.5  | 25      | 2.6  |                        |     |        |      | 1       | 0.3 | 0       | 0.0  | 29     | 3.5  | 2      | 0.5  | 1        | 0.0 |
| Patients transplanted from living donors                 | 11      | 3.8 | 274       | 11.2 | 12      | 1.3  | 13                     | 3.7 | 533    | 14.6 | 31      | 7.9 | 8       | 26.7 | 235    | 28.3 | 60     | 14.6 | 56       | 1.8 |
| Male recipients  | 9       | 3.1 |           |      | 294     | 30.9 |                        |     |        |      | 26      | 6.7 | 5       | 16.7 | 345    | 41.6 | 50     | 12.2 | 58       | 1.8 |

## DONATION AND TRANSPLANTATION ACTIVITY

## OTHER COUNTRIES

| COUNTRIES  | New Zealand |      | Norway |      | Republic of Moldova |     | Russian Federation |      | Saudi Arabia |      | Sudan  |     | Switzerland |      | Syrian Arab Republic |      | The former Yugoslav Rep. of Macedonia |     | Turkey |      | United States of America |       |
|--|-------------|------|--------|------|---------------------|-----|--------------------|------|--------------|------|--------|-----|-------------|------|----------------------|------|---------------------------------------|-----|--------|------|--------------------------|-------|
| Population (million inhabitants): UNFPA                  | 4.7         |      | 5.3    |      | 4.1                 |     | 144.0              |      | 32.9         |      | 40.5   |     | 8.5         |      | 18.3                 |      | 2.1                                   |     | 80.7   |      | 324.5                    |       |
| DONATION   |             |      |        |      |                     |     |                    |      |              |      |        |     |             |      |                      |      |                                       |     |        |      |                          |       |
|  | 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) | 73          | 15.5 | 116    | 21.9 | 16                  | 3.9 | 572                | 4.0  | 104          | 3.2  | 0      | 0.0 | 145         | 17.1 | 0                    | 0.0  | 0                                     | 0.0 | 554    | 6.9  | 10286                    | 31.7  |
| Actual deceased donors: Number of men                    | 36          | 7.7  | 59     | 11.1 | 7                   | 1.7 | 387                | 2.7  | 84           | 2.6  | 0      | 0.0 | 89          | 10.5 | 0                    | 0.0  | 0                                     | 0.0 | 356    | 4.4  | 6199                     | 19.1  |
| Actual deceased donors: Number of DD > 60 years          | 15          | 3.2  | 48     | 9.1  | 8                   | 2.0 | 71                 | 0.5  | 4            | 0.1  | 0      | 0.0 | 61          | 7.2  | 0                    | 0.0  | 0                                     | 0.0 | 197    | 2.4  | 1288                     | 4.0   |
| Actual donors after circulatory death (DCD)              | 12          | 2.6  | 8      | 1.5  | 0                   | 0.0 | 52                 | 0.4  | 0            | 0.0  | 0      | 0.0 | 39          | 4.6  | 0                    | 0.0  | 0                                     | 0.0 | 0      | 0.0  | 1883                     | 5.8   |
| TRANSPLANTATION  |             |      |        |      |                     |     |                    |      |              |      |        |     |             |      |                      |      |                                       |     |        |      |                          |       |
| KIDNEY   |             |      |        |      |                     |     |                    |      |              |      |        |     |             |      |                      |      |                                       |     |        |      |                          |       |
| Total Tx (all combinations included)                     | 187         | 39.8 | 274    | 51.7 | 19                  | 4.6 | 1175               | 8.2  | 921          | 28.0 | 214    | 5.3 | 360         | 42.4 | 233                  | 12.7 | 17                                    | 8.1 | 3342   | 41.4 | 20638                    | 63.6  |
| Paediatric <15 years                                     | 5           | 1.1  | 6      | 1.1  | 0                   | 0.0 | 83                 | 0.6  | 17           | 0.5  | 12     | 0.3 | 7           | 0.8  | 17                   | 0.9  | 0                                     | 0.0 | 123    | 1.5  | 513                      | 1.6   |
| Tx from deceased donors                                  | 118         | 25.1 | 197    | 37.2 | 17                  | 4.1 | 973                | 6.8  | 145          | 4.4  | 0      | 0.0 | 232         | 27.3 | 0                    | 0.0  | 0                                     | 0.0 | 693    | 8.6  | 14827                    | 45.7  |
| –Tx from DCD   | 20          | 4.3  | 14     | 2.6  | 0                   | 0.0 | 82                 | 0.6  | 0            | 0.0  | 0      | 0.0 | 52          | 6.1  | 0                    | 0.0  | 0                                     | 0.0 | 0      | 0.0  | 2851                     | 8.8   |
| –Single Tx   | 115         | 24.5 | 197    | 37.2 | 17                  | 4.1 | 971                | 6.7  | 143          | 4.3  | 0      | 0.0 | 228         | 26.8 | 0                    | 0.0  | 0                                     | 0.0 | 684    | 8.5  | 14524                    | 44.8  |
| –Double Tx   | 3           | 0.6  | 0      | 0.0  | 0                   | 0.0 | 2                  | 0.0  | 2            | 0.1  | 0      | 0.0 | 4           | 0.5  | 0                    | 0.0  | 0                                     | 0.0 | 9      | 0.1  | 303                      | 0.9   |
| Tx from living donors                                    | 69          | 14.7 | 77     | 14.5 | 2                   | 0.5 | 202                | 1.4  | 776          | 23.6 | 214    | 5.3 | 128         | 15.1 | 233                  | 12.7 | 17                                    | 8.1 | 2649   | 32.8 | 5811                     | 17.9  |
| –Tx from related living donors                           | 61          | 13.0 | 77     | 14.5 | 2                   | 0.5 | 202                | 1.4  | 671          | 20.4 | 210    | 5.2 | 104         | 5.7  | 104                  | 5.7  | 17                                    | 8.1 | 2321   | 28.8 | 4687                     | 14.4  |
| –Tx from unrelated living donors                         | 8           | 1.7  | 0      | 0.0  | 0                   | 0.0 | 0                  | 0.0  | 105          | 3.2  | 4      | 0.1 | 129         | 7.0  | 129                  | 7.0  | 0                                     | 0.0 | 328    | 4.1  | 1124                     | 3.5   |
| LIVER  |             |      |        |      |                     |     |                    |      |              |      |        |     |             |      |                      |      |                                       |     |        |      |                          |       |
| Total Tx (all combinations included)                     | 55          | 11.7 | 102    | 19.2 | 12                  | 2.9 | 438                | 3.0  | 226          | 6.9  | 0      | 0.0 | 143         | 16.8 | 0                    | 0.0  | 0                                     | 0.0 | 1446   | 17.9 | 8082                     | 24.9  |
| Paediatric <15 years                                     | 9           | 1.9  | 8      | 1.5  | 0                   | 0.0 | 101                | 0.7  | 8            | 0.2  | 0      | 0.0 | 9           | 1.1  | 0                    | 0.0  | 0                                     | 0.0 | 222    | 2.8  | 543                      | 1.7   |
| Split Tx   | 7           | 1.5  | 15     | 2.8  | 0                   | 0.0 | 16                 | 0.1  | 10           | 0.3  | 0      | 0.0 | 10          | 1.2  | 0                    | 0.0  | 0                                     | 0.0 | 18     | 0.2  | 195                      | 0.6   |
| Domino Tx  | 0           | 0.0  | 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  | 8                        | 0.0   |
| Tx from living donors                                    | 3           | 0.6  | 0      | 0.0  | 1                   | 0.2 | 130                | 0.9  | 147          | 4.5  | 0      | 0.0 | 8           | 0.9  | 0                    | 0.0  | 0                                     | 0.0 | 1087   | 13.5 | 359                      | 1.1   |
| Tx from DCD  | 1           | 0.2  | 4      | 0.8  | 0                   | 0.0 | 0                  | 0.0  | 0            | 0.0  | 0      | 0.0 | 23          | 2.7  | 0                    | 0.0  | 0                                     | 0.0 | 0      | 0.0  | 514                      | 1.6   |
| HEART  |             |      |        |      |                     |     |                    |      |              |      |        |     |             |      |                      |      |                                       |     |        |      |                          |       |
| Total Tx (all combinations included)                     | 24          | 5.1  | 32     | 6.0  | 0                   | 0.0 | 252                | 1.8  | 37           | 1.1  | 0      | 0.0 | 40          | 4.7  | 0                    | 0.0  | 0                                     | 0.0 | 75     | 0.9  | 3273                     | 10.1  |
| Paediatric <15 years                                     | 5           | 1.1  | 3      | 0.6  | 0                   | 0.0 | 3                  | 0.0  | 8            | 0.2  | 0      | 0.0 | 2           | 0.2  | 0                    | 0.0  | 0                                     | 0.0 | 5      | 0.1  | 347                      | 1.1   |
| 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  | 0                                     | 0.0 | 0      | 0.0  | 29                       | 0.1   |
| Paediatric <15 years                                     | 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   |
| LUNG   |             |      |        |      |                     |     |                    |      |              |      |        |     |             |      |                      |      |                                       |     |        |      |                          |       |
| Total Tx (all combinations included)                     | 20          | 4.3  | 35     | 6.6  | 0                   | 0.0 | 25                 | 0.2  | 37           | 1.1  | 0      | 0.0 | 32          | 3.8  | 0                    | 0.0  | 0                                     | 0.0 | 40     | 0.5  | 2478                     | 7.6   |
| Paediatric <15 years                                     | 0           | 0.0  | 0      | 0.0  | 0                   | 0.0 | 1                  | 0.0  | 0            | 0.0  | 0      | 0.0 | 1           | 0.1  | 0                    | 0.0  | 0                                     | 0.0 | 1      | 0.0  | 22                       | 0.1   |
| –Single Tx   | 2           | 0.4  | 0      | 0.0  | 0                   | 0.0 | 4                  | 0.0  | 2            | 0.1  | 0      | 0.0 | 0           | 0.0  | 0                    | 0.0  | 0                                     | 0.0 | 0      | 0.0  | 618                      | 1.9   |
| –Double Tx (heart–lung Tx included)                      | 18          | 3.8  | 35     | 6.6  | 0                   | 0.0 | 21                 | 0.1  | 35           | 1.1  | 0      | 0.0 | 32          | 3.8  | 0                    | 0.0  | 0                                     | 0.0 | 40     | 0.5  | 1860                     | 5.7   |
| Tx from DCD (double + single)                            | 1           | 0.2  | 0      | 0.0  | 0                   | 0.0 | 0                  | 0.0  | 0            | 0.0  | 0      | 0.0 | 5           | 0.6  | 0                    | 0.0  | 0                                     | 0.0 | 0      | 0.0  | 89                       | 0.3   |
| PANCREAS   |             |      |        |      |                     |     |                    |      |              |      |        |     |             |      |                      |      |                                       |     |        |      |                          |       |
| Total Tx (all combinations included)                     | 4           | 0.9  | 24     | 4.5  | 0                   | 0.0 | 6                  | 0.0  | 18           | 0.5  | 0      | 0.0 | 5           | 0.6  | 0                    | 0.0  | 0                                     | 0.0 | 0      | 0.0  | 1002                     | 3.1   |
| Paediatric <15 years                                     | 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  | 27                       | 0.1   |
| Pancreas Tx alone  | 0           | 0.0  | 13     | 2.5  | 0                   | 0.0 | 0                  | 0.0  | 7            | 0.2  | 0      | 0.0 | 0           | 0.0  | 0                    | 0.0  | 0                                     | 0.0 | 0      | 0.0  | 154                      | 0.5   |
| Kidney – Pancreas Tx                                     | 4           | 0.9  | 11     | 2.1  | 0                   | 0.0 | 6                  | 0.0  | 11           | 0.3  | 0      | 0.0 | 5           | 0.6  | 0                    | 0.0  | 0                                     | 0.0 | 0      | 0.0  | 789                      | 2.4   |
| 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  | 0                                     | 0.0 | 0      | 0.0  | 27                       | 0.1   |
| SMALL BOWEL  |             |      |        |      |                     |     |                    |      |              |      |        |     |             |      |                      |      |                                       |     |        |      |                          |       |
| Total Tx (all combinations included)                     | 0           | 0.0  | 0      | 0.0  | 0                   | 0.0 | 0                  | 0.0  | 1            | 0.0  | 0      | 0.0 | 0           | 0.0  | 0                    | 0.0  | 0                                     | 0.0 | 2      | 0.0  | 109                      | 0.3   |
| Paediatric <15 years                                     | 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  | 43                       | 0.1   |
| Small bowel Tx alone                                     | 0           | 0.0  | 0      | 0.0  | 0                   | 0.0 | 0                  | 0.0  | 1            | 0.0  | 0      | 0.0 | 0           | 0.0  | 0                    | 0.0  | 0                                     | 0.0 | 2      | 0.0  | 48                       | 0.1   |
| RECIPIENTS   |             |      |        |      |                     |     |                    |      |              |      |        |     |             |      |                      |      |                                       |     |        |      |                          |       |
| Total number of patients transplanted                    | 285         | 60.6 | 452    | 85.3 | 31                  | 7.6 | 1890               | 13.1 | 1240         | 37.7 | 214    | 5.3 | 577         | 67.9 | 233                  | 12.7 | 17                                    | 8.1 | 4892   | 60.6 | 33506                    | 103.3 |
| Paediatric <15 years                                     | 14          | 3.0  | 16     | 3.0  | 0                   | 0.0 | 188                | 1.3  | 33           | 1.0  | 12     | 0.3 | 19          | 2.2  | 17                   | 0.9  | 0                                     | 0.0 | 340    | 4.2  | 1407                     | 4.3   |
| Patients transplanted from living donors                 | 72          | 15.3 | 77     | 14.5 | 3                   | 0.7 | 332                | 2.3  | 923          | 28.1 | 214    | 5.3 | 137         | 16.1 | 233                  | 12.7 | 17                                    | 8.1 | 3736   | 46.3 | 6173                     | 19.0  |
| Male recipients  | 167         | 35.5 | 268    | 50.6 | 22                  | 5.4 | 1134               | 7.9  | 1240         | 37.7 | 160    | 4.0 | 366         | 43.1 | 233                  | 12.7 | 12                                    | 5.7 | 3106   | 38.5 | 20879                    | 64.3  |

# DONATION AND TRANSPLANTATION ACTIVITY

## LATIN-AMERICAN COUNTRIES

| COUNTRIES<br>Population (million inhabitants): UNFPA        | Argentina<br>44.3 |      | Bolivia<br>11.1 |     | Brazil<br>209.3 |      | Chile<br>18.1 |      | Colombia<br>49.1 |      | Costa Rica<br>4.9 |      | Cuba<br>11.5 |      | Dominican Republic<br>10.8 |     |
|---|-------------------|------|-----------------|-----|-----------------|------|---------------|------|------------------|------|-------------------|------|--------------|------|----------------------------|-----|
| DONATION  |                   |      |                 |     |                 |      |               |      |                  |      |                   |      |              |      |                            |     |
|   | Number            | PMP  | Number          | PMP | Number          | PMP  | Number        | PMP  | Number           | PMP  | Number            | PMP  | Number       | PMP  | Number                     | PMP |
| Actual deceased organ donors<br>(both DBD and DCD included) | 593               | 13.4 | 10              | 0.9 | 3420            | 16.3 | 173           | 9.6  | 437              | 8.9  | 22                | 4.5  | 142          | 12.3 | 14                         | 1.3 |
| Actual deceased donors: Number of men                       | 372               | 8.4  | 5               | 0.5 | 1951            | 9.3  | 105           | 5.8  | 291              | 5.9  | 8                 | 1.6  | 94           | 8.2  | 11                         | 1.0 |
| Actual deceased donors: Number of DD > 60 years             | 113               | 2.6  |                 |     | 386             | 1.8  | 19            | 1.0  | 47               | 1.0  | 2                 | 0.4  | 14           | 1.2  | 0                          | 0.0 |
| 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 |
| TRANSPLANTATION   |                   |      |                 |     |                 |      |               |      |                  |      |                   |      |              |      |                            |     |
| <b>KIDNEY</b>   |                   |      |                 |     |                 |      |               |      |                  |      |                   |      |              |      |                            |     |
| Total Tx (all combinations included)                        | 1321              | 29.8 | 81              | 7.3 | 5946            | 28.4 | 365           | 20.2 | 936              | 19.1 | 91                | 18.6 | 203          | 17.7 | 53                         | 4.9 |
| Paediatric <15 years  | 100               | 2.3  | 4               | 0.4 | 328             | 1.6  | 24            | 1.3  | 41               | 0.8  | 5                 | 1.0  | 7            | 0.6  | 1                          | 0.1 |
| Tx from deceased donors                                     | 929               | 21.0 | 20              | 1.8 | 4807            | 23.0 | 292           | 16.1 | 798              | 16.3 | 40                | 8.2  | 174          | 15.1 | 22                         | 2.0 |
| –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  | 928               | 20.9 |                 |     | 4766            | 22.8 | 290           | 16.0 | 795              | 16.2 | 40                | 8.2  | 174          | 15.1 | 22                         | 2.0 |
| –Double Tx  | 1                 | 0.0  |                 |     | 41              | 0.2  | 2             | 0.1  | 3                | 0.1  | 0                 | 0.0  | 0            | 0.0  | 0                          | 0.0 |
| Tx from living donors                                       | 392               | 8.8  | 61              | 5.5 | 1139            | 5.4  | 73            | 4.0  | 138              | 2.8  | 51                | 10.4 | 29           | 2.5  | 31                         | 2.9 |
| –Tx from related living donors                              | 378               | 8.5  |                 |     | 1059            | 5.1  | 73            | 4.0  | 138              | 2.8  | 48                | 9.8  | 29           | 2.5  | 27                         | 2.5 |
| –Tx from unrelated living donors                            | 14                | 0.3  |                 |     | 80              | 0.4  | 0             | 0.0  | 0                | 0.0  | 3                 | 0.6  | 0            | 0.0  | 4                          | 0.4 |
| <b>LIVER</b>  |                   |      |                 |     |                 |      |               |      |                  |      |                   |      |              |      |                            |     |
| Total Tx (all combinations included)                        | 452               | 10.2 | 1               | 0.1 | 2118            | 10.1 | 113           | 6.2  | 282              | 5.7  | 12                | 2.4  | 22           | 1.9  | 2                          | 0.2 |
| Paediatric <15 years  | 78                | 1.8  | 0               | 0.0 | 209             | 1.0  | 26            | 1.4  | 51               | 1.0  | 4                 | 0.8  | 4            | 0.3  | 0                          | 0.0 |
| Split Tx  | 40                | 0.9  | 0               | 0.0 | 19              | 0.1  |               |      | 1                | 0.0  | 0                 | 0.0  | 0            | 0.0  | 0                          | 0.0 |
| Domino Tx   | 0                 | 0.0  | 0               | 0.0 |                 |      | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  | 0                          | 0.0 |
| Tx from living donors                                       | 43                | 1.0  | 0               | 0.0 | 186             | 0.9  | 10            | 0.6  | 39               | 0.8  | 2                 | 0.4  | 0            | 0.0  | 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 |
| <b>HEART</b>  |                   |      |                 |     |                 |      |               |      |                  |      |                   |      |              |      |                            |     |
| Total Tx (all combinations included)                        | 117               | 2.6  | 0               | 0.0 | 380             | 1.8  | 36            | 2.0  | 75               | 1.5  | 4                 | 0.8  | 0            | 0.0  | 0                          | 0.0 |
| Paediatric <15 years  | 10                | 0.2  | 0               | 0.0 | 41              | 0.2  | 3             | 0.2  | 5                | 0.1  | 0                 | 0.0  | 0            | 0.0  | 0                          | 0.0 |
| <b>HEART – LUNG</b>   |                   |      |                 |     |                 |      |               |      |                  |      |                   |      |              |      |                            |     |
| 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 <15 years  | 0                 | 0.0  | 0               | 0.0 | 0               | 0.0  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  | 0                          | 0.0 |
| <b>LUNG</b>   |                   |      |                 |     |                 |      |               |      |                  |      |                   |      |              |      |                            |     |
| Total Tx (all combinations included)                        | 42                | 0.9  | 0               | 0.0 | 112             | 0.5  | 17            | 0.9  | 24               | 0.5  | 0                 | 0.0  | 0            | 0.0  | 0                          | 0.0 |
| Paediatric <15 years  | 9                 | 0.2  | 0               | 0.0 | 2               | 0.0  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  | 0                          | 0.0 |
| –Single Tx  | 12                | 0.3  | 0               | 0.0 | 40              | 0.2  | 0             | 0.0  | 1                | 0.0  | 0                 | 0.0  | 0            | 0.0  | 0                          | 0.0 |
| –Double Tx (heart–lung Tx included)                         | 30                | 0.7  | 0               | 0.0 | 71              | 0.3  | 0             | 0.0  | 23               | 0.5  | 0                 | 0.0  | 0            | 0.0  | 0                          | 0.0 |
| Tx from DCD (double + single)                               | 0                 | 0.0  | 0               | 0.0 | 0               | 0.0  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  | 0                          | 0.0 |
| <b>PANCREAS</b>   |                   |      |                 |     |                 |      |               |      |                  |      |                   |      |              |      |                            |     |
| Total Tx (all combinations included)                        | 62                | 1.4  | 0               | 0.0 | 111             | 0.5  | 9             | 0.5  | 13               | 0.3  | 0                 | 0.0  | 0            | 0.0  | 1                          | 0.1 |
| Paediatric <15 years  | 0                 | 0.0  | 0               | 0.0 | 0               | 0.0  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  | 0                          | 0.0 |
| Pancreas Tx alone   | 5                 | 0.1  | 0               | 0.0 | 24              | 0.1  |               |      | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  | 0                          | 0.0 |
| Kidney – Pancreas Tx  | 57                | 1.3  | 0               | 0.0 | 87              | 0.4  |               |      | 13               | 0.3  | 0                 | 0.0  | 0            | 0.0  | 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 |
| <b>SMALL BOWEL</b>  |                   |      |                 |     |                 |      |               |      |                  |      |                   |      |              |      |                            |     |
| Total Tx (all combinations included)                        | 5                 | 0.1  | 0               | 0.0 | 1               | 0.0  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  | 0                          | 0.0 |
| Paediatric <15 years  | 5                 | 0.1  | 0               | 0.0 | 0               | 0.0  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  | 0                          | 0.0 |
| Small bowel Tx alone  | 4                 | 0.1  | 0               | 0.0 | 1               | 0.0  | 0             | 0.0  | 0                | 0.0  | 0                 | 0.0  | 0            | 0.0  | 0                          | 0.0 |
| <b>RECIPIENTS</b>   |                   |      |                 |     |                 |      |               |      |                  |      |                   |      |              |      |                            |     |
| Total number of patients transplanted                       | 1999              | 45.1 | 82              | 7.4 | 8538            | 40.8 | 540           | 29.8 | 1307             | 26.6 | 107               | 21.8 | 225          | 19.6 | 56                         | 5.2 |
| Paediatric <15 years  | 202               | 4.6  | 4               | 0.4 | 575             | 2.7  | 53            | 2.9  | 97               | 2.0  | 9                 | 1.8  | 11           | 1.0  | 1                          | 0.1 |
| Patients transplanted from living donors                    | 435               | 9.8  | 61              | 5.5 | 1323            | 6.3  | 83            | 4.6  | 177              | 3.6  | 53                | 10.8 | 29           | 2.5  | 31                         | 2.9 |
| Male recipients   | 1167              | 26.3 | 45              | 4.1 | 5449            | 26.0 |               |      | 772              | 15.7 | 67                | 13.7 | 145          | 12.6 | 32                         | 3.0 |

## DONATION AND TRANSPLANTATION ACTIVITY

## LATIN-AMERICAN COUNTRIES

| COUNTRIES<br>Population (million inhabitants): UNFPA        | Ecuador<br>16.6 |      | Guatemala<br>16.9 |     | Honduras<br>9.3 |     | Mexico<br>129.2 |      | Nicaragua<br>6.2 |     | Panama<br>4.1 |      | Paraguay<br>6.8 |     | Peru<br>32.2 |     | Uruguay<br>3.5 |      |
|---|-----------------|------|-------------------|-----|-----------------|-----|-----------------|------|------------------|-----|---------------|------|-----------------|-----|--------------|-----|----------------|------|
| DONATION  |                 |      |                   |     |                 |     |                 |      |                  |     |               |      |                 |     |              |     |                |      |
|   | Number          | PMP  | Number            | PMP | Number          | PMP | Number          | PMP  | Number           | PMP | Number        | PMP  | Number          | PMP | Number       | PMP | Number         | PMP  |
| Actual deceased organ donors<br>(both DBD and DCD included) | 83              | 5.0  | 2                 | 0.1 | 0               | 0.0 | 509             | 3.9  | 1                | 0.2 | 17            | 4.1  | 11              | 1.6 | 52           | 1.6 | 66             | 18.9 |
| Actual deceased donors: Number of men                       | 60              | 3.6  | 2                 | 0.1 |                 |     | 330             | 2.6  | 0                | 0.0 | 9             | 2.2  | 6               | 0.9 | 31           | 1.0 | 42             | 12.0 |
| Actual deceased donors: Number of DD > 60 years             | 6               | 0.4  | 0                 | 0.0 | 0               | 0.0 | 30              | 0.2  | 0                | 0.0 | 2             | 0.5  | 0               | 0.0 | 8            | 0.2 | 11             | 3.1  |
| 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 | 0              | 0.0  |
| TRANSPLANTATION   |                 |      |                   |     |                 |     |                 |      |                  |     |               |      |                 |     |              |     |                |      |
| <b>KIDNEY</b>   |                 |      |                   |     |                 |     |                 |      |                  |     |               |      |                 |     |              |     |                |      |
| Total Tx (all combinations included)                        | 150             | 9.0  | 112               | 6.6 | 13              | 1.4 | 3166            | 24.5 | 11               | 1.8 | 43            | 10.5 | 39              | 5.7 | 129          | 4.0 | 147            | 42.0 |
| Paediatric <15 years  | 19              | 1.1  | 14                | 0.8 | 3               | 0.3 | 146             | 1.1  | 1                | 0.2 | 0             | 0.0  | 4               | 0.6 | 11           | 0.3 | 1              | 0.3  |
| Tx from deceased donors                                     | 141             | 8.5  | 4                 | 0.2 | 0               | 0.0 | 932             | 7.2  | 1                | 0.2 | 28            | 6.8  | 20              | 2.9 | 85           | 2.6 | 128            | 36.6 |
| –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 | 0              | 0.0  |
| –Single Tx  | 141             | 8.5  | 4                 | 0.2 | 0               | 0.0 | 922             | 7.1  |                  |     | 28            | 6.8  | 20              | 2.9 | 84           | 2.6 | 128            | 36.6 |
| –Double Tx  | 0               | 0.0  | 0                 | 0.0 | 0               | 0.0 | 10              | 0.1  |                  |     | 0             | 0.0  | 0               | 0.0 | 1            | 0.0 | 0              | 0.0  |
| Tx from living donors                                       | 9               | 0.5  | 108               | 6.4 | 13              | 1.4 | 2234            | 17.3 | 10               | 1.6 | 15            | 3.7  | 19              | 2.8 | 44           | 1.4 | 19             | 5.4  |
| –Tx from related living donors                              | 9               | 0.5  | 108               | 6.4 |                 |     | 1876            | 14.5 | 10               | 1.6 | 15            | 3.7  | 19              | 2.8 | 44           | 1.4 | 19             | 5.4  |
| –Tx from unrelated living donors                            | 0               | 0.0  | 0                 | 0.0 |                 |     | 358             | 2.8  | 0                | 0.0 | 0             | 0.0  | 0               | 0.0 | 0            | 0.0 | 0              | 0.0  |
| <b>LIVER</b>  |                 |      |                   |     |                 |     |                 |      |                  |     |               |      |                 |     |              |     |                |      |
| Total Tx (all combinations included)                        | 37              | 2.2  | 0                 | 0.0 | 0               | 0.0 | 183             | 1.4  | 0                | 0.0 | 9             | 2.2  | 2               | 0.3 | 31           | 1.0 | 24             | 6.9  |
| Paediatric <15 years  | 3               | 0.2  | 0                 | 0.0 | 0               | 0.0 | 26              | 0.2  | 0                | 0.0 | 0             | 0.0  | 0               | 0.0 | 5            | 0.2 | 1              | 0.3  |
| Split Tx  | 0               | 0.0  |                   |     | 0               | 0.0 |                 |      | 0                | 0.0 | 0             | 0.0  | 0               | 0.0 | 1            | 0.0 | 0              | 0.0  |
| 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 | 0              | 0.0  |
| Tx from living donors                                       | 1               | 0.1  | 0                 | 0.0 | 0               | 0.0 | 15              | 0.1  | 0                | 0.0 | 0             | 0.0  | 0               | 0.0 | 2            | 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 | 0              | 0.0  |
| <b>HEART</b>  |                 |      |                   |     |                 |     |                 |      |                  |     |               |      |                 |     |              |     |                |      |
| Total Tx (all combinations included)                        | 0               | 0.0  | 0                 | 0.0 | 0               | 0.0 | 33              | 0.3  | 0                | 0.0 | 1             | 0.2  | 3               | 0.4 | 10           | 0.3 | 7              | 2.0  |
| Paediatric <15 years  | 0               | 0.0  | 0                 | 0.0 | 0               | 0.0 | 2               | 0.0  | 0                | 0.0 | 0             | 0.0  | 3               | 0.4 | 1            | 0.0 | 0              | 0.0  |
| <b>HEART – LUNG</b>   |                 |      |                   |     |                 |     |                 |      |                  |     |               |      |                 |     |              |     |                |      |
| 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 | 0              | 0.0  |
| Paediatric <15 years  | 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  |
| <b>LUNG</b>   |                 |      |                   |     |                 |     |                 |      |                  |     |               |      |                 |     |              |     |                |      |
| Total Tx (all combinations included)                        | 0               | 0.0  | 0                 | 0.0 | 0               | 0.0 | 4               | 0.0  | 0                | 0.0 | 0             | 0.0  | 0               | 0.0 | 1            | 0.0 | 6              | 1.7  |
| Paediatric <15 years  | 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  |
| –Single Tx  | 0               | 0.0  | 0                 | 0.0 | 0               | 0.0 | 0               | 0.0  | 0                | 0.0 | 0             | 0.0  | 0               | 0.0 | 1            | 0.0 |                |      |
| –Double Tx (heart–lung Tx included)                         | 0               | 0.0  | 0                 | 0.0 | 0               | 0.0 | 4               | 0.0  | 0                | 0.0 | 0             | 0.0  | 0               | 0.0 | 0            | 0.0 |                |      |
| Tx from DCD (double + single)                               | 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  |
| <b>PANCREAS</b>   |                 |      |                   |     |                 |     |                 |      |                  |     |               |      |                 |     |              |     |                |      |
| 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 | 1            | 0.0 | 0              | 0.0  |
| Paediatric <15 years  | 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  |
| Pancreas Tx alone   | 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  |
| Kidney – Pancreas Tx  | 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  |
| 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 | 0              | 0.0  |
| <b>SMALL BOWEL</b>  |                 |      |                   |     |                 |     |                 |      |                  |     |               |      |                 |     |              |     |                |      |
| 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 | 0              | 0.0  |
| Paediatric <15 years  | 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  |
| Small bowel Tx alone  | 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  |
| <b>RECIPIENTS</b>   |                 |      |                   |     |                 |     |                 |      |                  |     |               |      |                 |     |              |     |                |      |
| Total number of patients transplanted                       | 187             | 11.3 | 112               | 6.6 | 13              | 1.4 | 3386            | 26.2 | 11               | 1.8 | 53            | 12.9 | 44              | 6.5 | 218          | 6.8 | 184            | 52.6 |
| Paediatric <15 years  | 22              | 1.3  | 14                | 0.8 | 3               | 0.3 | 174             | 1.3  | 1                | 0.2 | 0             | 0.0  | 7               | 1.0 | 18           | 0.6 | 2              | 0.6  |
| Patients transplanted from living donors                    | 10              | 0.6  | 108               | 6.4 | 13              | 1.4 | 2249            | 17.4 | 10               | 1.6 | 15            | 3.7  | 19              | 2.8 | 46           | 1.4 | 19             | 5.4  |
| Male recipients   | 103             | 6.2  | 58                | 3.4 |                 |     | 2107            | 16.3 |                  |     | 36            | 8.8  | 32              | 4.7 | 128          | 4.0 | 104            | 29.7 |

# WAITING LIST

## EUROPEAN UNION COUNTRIES

| COUNTRIES   | Austria | Belgium | Bulgaria | Croatia | Cyprus | Czech Republic | Denmark | Estonia | Finland | France |
|---|---------|---------|----------|---------|--------|----------------|---------|---------|---------|--------|
| Population (million inhabitants): UNFPA                               | 8.7     | 11.4    | 7.1      | 4.2     | 1.2    | 10.6           | 5.7     | 1.3     | 5.5     | 65.0   |
| <b>KIDNEY</b>   |         |         |          |         |        |                |         |         |         |        |
| <b>N TX CENTRES</b>   | 7       | 7       | 3        | 4       | 1      | 7              | 3       | 1       | 1       | 44     |
| Patients included on the WL for the first time in the course of 2017  | 453     | 559     | 148      | 242     | 15     | 496            | 325     | 44      | 332     | 5280   |
| Total number of patients ever active on the WL during 2017            | 1040    | 648     | 1163     | 429     | 67     | 816            | 869     | 106     | 746     | 18793  |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 528     | 793     | 1004     | 206     | 50     | 558            | 386     | 53      | 353     | 7809   |
| Patients who died while on the WL during 2017                         | 44      | 31      | 115      | 12      | 1      | 37             | 22      | 3       | 8       | 352    |
| Patients on dialysis on 31/12/2017                                    |         |         | 856      |         |        |                |         | 388     |         |        |
| <b>LIVER</b>  |         |         |          |         |        |                |         |         |         |        |
| <b>N TX CENTRES</b>   | 3       | 6       | 3        | 4       | 0      | 2              | 1       | 1       | 1       | 21     |
| Patients included on the WL for the first time in the course of 2017  | 227     | 364     | 32       | 193     | 0      | 199            | 68      | 16      | 67      | 1899   |
| Total number of patients ever active on the WL during 2017            | 276     | 408     | 84       | 257     | 0      | 79             | 90      | 18      | 73      | 3245   |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 68      | 171     | 46       | 107     | 0      | 62             | 28      | 4       | 7       | 697    |
| Patients who died while on the WL during 2017                         | 18      | 39      | 23       | 19      | 0      | 12             | 2       | 1       | 2       | 176    |
| <b>HEART</b>  |         |         |          |         |        |                |         |         |         |        |
| <b>N TX CENTRES</b>   | 4       | 7       | 2        | 2       | 0      | 2              | 2       | 0       | 1       | 24     |
| Patients included on the WL for the first time in the course of 2017  | 93      | 94      | 24       | 50      | 0      | 108            | 29      | 0       | 40      | 545    |
| Total number of patients ever active on the WL during 2017            | 148     | 96      | 45       | 84      | 0      | 153            | 50      | 0       | 74      | 874    |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 69      | 94      | 29       | 35      | 0      | 103            | 11      | 0       | 34      | 183    |
| Patients who died while on the WL during 2017                         | 8       | 18      | 10       | 5       | 0      | 20             | 4       | 0       | 3       | 43     |
| <b>LUNG</b>   |         |         |          |         |        |                |         |         |         |        |
| <b>N TX CENTRES</b>   | 2       | 5       | 2        |         | 1      | 1              | 1       | 1       | 1       | 12     |
| Patients included on the WL for the first time in the course of 2017  | 167     | 140     | 3        | 0       | 0      | 76             | 36      | 4       | 25      | 425    |
| Total number of patients ever active on the WL during 2017            | 257     | 149     | 15       | 0       | 0      | 64             | 65      | 11      | 56      | 535    |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 105     | 105     | 9        | 0       | 0      | 58             | 25      | 5       | 19      | 112    |
| Patients who died while on the WL during 2017                         | 7       | 8       | 5        | 0       | 0      | 18             | 4       | 0       | 4       | 16     |
| <b>PANCREAS</b>   |         |         |          |         |        |                |         |         |         |        |
| <b>N TX CENTRES</b>   | 3       | 6       | 1        | 1       | 1      | 1              | 1       | 1       | 1       | 12     |
| Patients included on the WL for the first time in the course of 2017  | 26      | 20      | 1        | 12      | 0      | 43             | 5       | 4       | 31      | 130    |
| Total number of patients ever active on the WL during 2017            | 35      | 29      | 10       | 26      | 0      | 44             | 15      | 9       | 38      | 358    |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 10      | 32      | 11       | 11      | 0      | 31             | 6       | 2       | 11      | 115    |
| Patients who died while on the WL during 2017                         | 1       | 3       | 0        | 1       | 0      | 6              | 0       | 1       | 1       | 2      |
| <b>SMALL BOWEL</b>  |         |         |          |         |        |                |         |         |         |        |
| <b>N TX CENTRES</b>   |         | 6       | 1        |         | 0      | 1              | 0       | 0       | 1       | 5      |
| Patients included on the WL for the first time in the course of 2017  |         |         | 0        | 0       | 0      | 1              | 0       | 0       | 0       | 3      |
| Total number of patients ever active on the WL during 2017            |         |         | 0        | 0       | 0      | 1              | 0       | 0       | 0       | 6      |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 |         |         | 0        | 0       | 0      | 0              | 0       | 0       | 0       | 2      |
| Patients who died while on the WL during 2017                         |         |         | 0        | 0       | 0      | 0              | 0       | 0       | 0       |        |

## WAITING LIST

## EUROPEAN UNION COUNTRIES

| COUNTRIES   | Germany | Greece | Hungary | Ireland | Italy | Latvia | Lithuania | Luxembourg | Malta |
|---|---------|--------|---------|---------|-------|--------|-----------|------------|-------|
| Population (million inhabitants): UNFPA                               | 82.1    | 11.2   | 9.7     | 4.8     | 59.4  | 1.9    | 2.9       | 0.6        | 0.4   |
| <b>KIDNEY</b>   |         |        |         |         |       |        |           |            |       |
| <b>N TX CENTRES</b>   | 38      | 5      | 4       | 1       | 42    | 1      | 2         | 0          | 1     |
| Patients included on the WL for the first time in the course of 2017  | 2633    | 206    | 440     | 200     | 2164  | 70     | 97        | 0          | 25    |
| Total number of patients ever active on the WL during 2017            | 10930   | 1405   | 1188    | 685     | 9005  | 99     | 192       | 0          | 123   |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 7924    | 1200   | 837     | 419     | 6650  | 46     | 100       | 0          | 90    |
| Patients who died while on the WL during 2017                         | 419     | 34     | 54      | 15      | 170   | 0      | 10        | 0          | 8     |
| Patients on dialysis on 31/12/2017                                    |         | 11442  |         | 2074    |       | 600    | 1500      | 0          | 290   |
| <b>LIVER</b>  |         |        |         |         |       |        |           |            |       |
| <b>N TX CENTRES</b>   | 22      | 1      | 1       | 1       | 21    | 0      | 2         |            | 0     |
| Patients included on the WL for the first time in the course of 2017  | 1213    | 41     | 88      | 72      | 1456  | 0      | 59        | 0          | 0     |
| Total number of patients ever active on the WL during 2017            | 2524    | 262    | 206     | 106     | 2430  | 0      | 89        | 0          | 0     |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 1086    | 154    | 100     | 35      | 987   | 0      | 46        | 0          | 0     |
| Patients who died while on the WL during 2017                         | 310     | 28     | 21      | 9       | 89    | 0      | 16        | 0          | 0     |
| <b>HEART</b>  |         |        |         |         |       |        |           |            |       |
| <b>N TX CENTRES</b>   | 23      | 1      | 2       | 1       | 17    | 1      | 2         |            | 1     |
| Patients included on the WL for the first time in the course of 2017  | 429     | 18     | 82      | 16      | 407   | 6      | 28        | 0          | 0     |
| Total number of patients ever active on the WL during 2017            | 1165    | 62     | 130     | 37      | 1130  | 6      | 59        | 0          | 0     |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 724     | 43     | 60      | 14      | 742   | 4      | 43        | 0          | 0     |
| Patients who died while on the WL during 2017                         | 118     | 7      | 10      | 0       | 58    | 1      | 8         | 0          | 0     |
| <b>LUNG</b>   |         |        |         |         |       |        |           |            |       |
| <b>N TX CENTRES</b>   | 15      | 0      | 1       | 1       | 11    | 0      | 1         |            | 0     |
| Patients included on the WL for the first time in the course of 2017  | 403     | 0      | 29      | 48      | 212   | 0      | 6         | 0          | 0     |
| Total number of patients ever active on the WL during 2017            | 812     | 0      | 36      | 90      | 558   | 0      | 17        | 0          | 0     |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 391     | 0      | 12      | 42      | 354   | 0      | 14        | 0          | 0     |
| Patients who died while on the WL during 2017                         | 64      | 0      | 2       | 4       | 48    | 0      | 2         | 0          | 0     |
| <b>PANCREAS</b>   |         |        |         |         |       |        |           |            |       |
| <b>N TX CENTRES</b>   | 28      | 0      | 2       | 1       | 17    | 0      | 1         |            | 0     |
| Patients included on the WL for the first time in the course of 2017  | 167     | 0      | 16      | 5       | 69    | 1      | 5         | 0          | 0     |
| Total number of patients ever active on the WL during 2017            | 456     | 0      | 39      | 18      | 319   | 1      | 8         | 0          | 0     |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 296     | 0      | 31      | 14      | 262   | 1      | 5         | 0          | 0     |
| Patients who died while on the WL during 2017                         | 23      | 0      | 1       | 0       | 2     | 0      | 1         | 0          | 0     |
| <b>SMALL BOWEL</b>  |         |        |         |         |       |        |           |            |       |
| <b>N TX CENTRES</b>   | 9       | 0      | 0       | 0       | 3     | 0      | 0         |            | 0     |
| Patients included on the WL for the first time in the course of 2017  | 8       | 0      |         | 0       |       | 0      | 0         | 0          | 0     |
| Total number of patients ever active on the WL during 2017            |         | 0      |         | 0       |       | 0      | 0         | 0          | 0     |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 9       | 0      |         | 0       |       | 0      | 0         | 0          | 0     |
| Patients who died while on the WL during 2017                         | 2       | 0      |         | 0       |       | 0      | 0         | 0          | 0     |



# WAITING LIST

## EUROPEAN UNION COUNTRIES

| COUNTRIES   | Netherlands | Poland | Portugal | Romania | Slovakia | Slovenia | Spain | Sweden | United Kingdom |
|---|-------------|--------|----------|---------|----------|----------|-------|--------|----------------|
| Population (million inhabitants): UNFPA                               | 17.0        | 38.2   | 10.3     | 19.7    | 5.4      | 2.1      | 46.4  | 9.9    | 66.2           |
| <b>KIDNEY</b>   |             |        |          |         |          |          |       |        |                |
| <b>N TX CENTRES</b>   | 11          | 21     | 8        | 5       | 4        | 1        | 40    | 4      | 24             |
| Patients included on the WL for the first time in the course of 2017  | 1301        | 1202   | 399      | 516     | 173      | 38       |       | 519    | 2722           |
| Total number of patients ever active on the WL during 2017            | 1930        | 2718   | 2410     | 5083    | 451      | 85       | 7211  | 1189   | 9069           |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 673         | 1065   | 2019     | 4901    | 278      | 51       | 3942  | 431    | 5319           |
| Patients who died while on the WL during 2017                         | 83          | 67     | 22       | 33      | 26       | 0        |       | 22     | 247            |
| Patients on dialysis on 31/12/2017                                    |             | 23500  | 12741    | 9900    | 3300     | 1400     | 27118 |        | 3171           |
| <b>LIVER</b>  |             |        |          |         |          |          |       |        |                |
| <b>N TX CENTRES</b>   | 3           | 9      | 3        | 3       | 2        | 1        | 25    | 2      | 7              |
| Patients included on the WL for the first time in the course of 2017  | 230         | 417    | 188      | 101     | 45       | 31       | 1340  | 173    | 336            |
| Total number of patients ever active on the WL during 2017            | 355         | 626    | 298      | 565     | 72       | 48       | 1985  | 238    | 1730           |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 133         | 147    | 85       | 477     | 26       | 18       | 455   | 35     | 510            |
| Patients who died while on the WL during 2017                         | 14          | 30     | 15       | 25      | 6        | 4        | 60    | 6      | 65             |
| <b>HEART</b>  |             |        |          |         |          |          |       |        |                |
| <b>N TX CENTRES</b>   | 3           | 6      | 4        | 3       | 1        | 1        | 16    | 2      | 7              |
| Patients included on the WL for the first time in the course of 2017  | 67          | 260    | 58       | 40      | 30       | 31       | 326   | 73     | 204            |
| Total number of patients ever active on the WL during 2017            | 168         | 691    | 70       | 214     | 56       | 81       | 493   | 106    | 632            |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 107         | 435    | 24       | 200     | 27       | 42       | 124   | 29     | 318            |
| Patients who died while on the WL during 2017                         | 15          | 79     | 6        | 11      | 8        | 6        | 13    | 4      | 31             |
| <b>LUNG</b>   |             |        |          |         |          |          |       |        |                |
| <b>N TX CENTRES</b>   | 3           | 6      | 1        | 1       | 0        | 0        | 8     | 2      | 6              |
| Patients included on the WL for the first time in the course of 2017  | 114         | 85     | 43       | 1       | 0        | 0        | 405   | 67     | 185            |
| Total number of patients ever active on the WL during 2017            | 309         | 150    | 102      | 4       | 0        | 0        | 694   | 103    | 686            |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 178         | 83     | 58       | 4       | 0        | 0        | 260   | 22     | 384            |
| Patients who died while on the WL during 2017                         | 26          | 20     | 8        | 0       | 0        | 0        | 26    | 8      | 61             |
| <b>PANCREAS</b>   |             |        |          |         |          |          |       |        |                |
| <b>N TX CENTRES</b>   | 6           | 5      | 2        | 2       | 1        | 1        | 13    | 3      | 10             |
| Patients included on the WL for the first time in the course of 2017  | 37          | 44     | 32       | 20      | 0        | 0        | 110   | 17     | 158            |
| Total number of patients ever active on the WL during 2017            | 95          | 90     | 66       | 138     | 0        | 3        | 190   | 37     | 482            |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 47          | 41     | 44       | 132     | 0        | 2        | 103   | 7      | 199            |
| Patients who died while on the WL during 2017                         | 2           | 0      | 0        | 6       | 0        | 0        | 2     | 1      | 28             |
| <b>SMALL BOWEL</b>  |             |        |          |         |          |          |       |        |                |
| <b>N TX CENTRES</b>   | 6           | 1      | 0        | 0       | 0        | 0        | 3     | 1      | 4              |
| Patients included on the WL for the first time in the course of 2017  | 0           | 2      | 0        | 0       | 0        | 0        |       | 2      | 3              |
| Total number of patients ever active on the WL during 2017            | 0           | 3      | 0        | 0       | 0        | 0        | 6     | 4      | 35             |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 0           | 1      | 0        | 0       | 0        | 0        | 3     | 1      | 9              |
| Patients who died while on the WL during 2017                         | 0           | 1      | 0        | 0       | 0        | 0        |       | 0      | 4              |

## WAITING LIST

## OTHER COUNTRIES

| COUNTRIES   | Armenia | Australia | Belarus | Bosnia and Herzegovina | Canada | Georgia | Iceland | Israel | Kuwait | Malaysia |
|---|---------|-----------|---------|------------------------|--------|---------|---------|--------|--------|----------|
| Population (million inhabitants): UNFPA                               | 2.9     | 24.5      | 9.5     | 3.5                    | 36.6   | 3.9     | 0.3     | 8.3    | 4.1    | 31.6     |
| <b>KIDNEY</b>   |         |           |         |                        |        |         |         |        |        |          |
| <b>N TX CENTRES</b>   | 1       | 21        | 6       | 2                      | 25     | 3       | 1       | 6      | 1      | 3        |
| Patients included on the WL for the first time in the course of 2017  |         | 851       | 341     |                        |        | 0       | 0       | 324    |        | 957      |
| Total number of patients ever active on the WL during 2017            |         | 1915      | 721     |                        |        |         | 0       |        |        | 6898     |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 |         | 964       | 326     | 210                    | 2043   |         | 0       | 846    |        | 6115     |
| Patients who died while on the WL during 2017                         |         | 10        | 33      |                        | 84     |         | 0       | 38     |        | 166      |
| Patients on dialysis on 31/12/2017                                    |         | 13002     | 3862    |                        |        |         | 0       | 6676   |        | 43042    |
| <b>LIVER</b>  |         |           |         |                        |        |         |         |        |        |          |
| <b>N TX CENTRES</b>   | 0       | 8         | 1       | 1                      | 9      | 3       | 0       | 3      | 0      | 2        |
| Patients included on the WL for the first time in the course of 2017  |         | 344       | 96      |                        |        |         | 0       | 167    |        | 7        |
| Total number of patients ever active on the WL during 2017            |         | 482       | 191     |                        |        |         | 0       |        |        | 12       |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 |         | 143       | 107     | 26                     | 339    |         | 0       | 110    |        | 6        |
| Patients who died while on the WL during 2017                         |         | 11        | 5       |                        | 74     |         | 0       | 26     |        | 1        |
| <b>HEART</b>  |         |           |         |                        |        |         |         |        |        |          |
| <b>N TX CENTRES</b>   | 0       | 5         | 1       | 0                      | 11     | 0       | 0       | 3      | 0      | 1        |
| Patients included on the WL for the first time in the course of 2017  |         | 20        | 46      |                        |        | 0       | 0       | 45     |        | 3        |
| Total number of patients ever active on the WL during 2017            |         | 34        | 113     | 11                     |        | 0       | 0       |        |        | 8        |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 |         | 8         | 64      |                        | 107    | 0       | 0       | 80     |        | 7        |
| Patients who died while on the WL during 2017                         |         | 0         | 10      |                        | 22     | 0       | 0       | 10     |        | 0        |
| <b>LUNG</b>   |         |           |         |                        |        |         |         |        |        |          |
| <b>N TX CENTRES</b>   | 0       | 5         | 2       | 0                      | 6      | 0       | 0       | 2      | 0      | 1        |
| Patients included on the WL for the first time in the course of 2017  |         | 23        | 16      |                        |        | 0       | 0       | 98     |        | 13       |
| Total number of patients ever active on the WL during 2017            |         | 31        | 41      |                        |        | 0       | 0       |        |        | 18       |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 |         | 8         | 36      |                        | 202    | 0       | 0       | 102    |        | 9        |
| Patients who died while on the WL during 2017                         |         | 0         | 0       |                        | 48     | 0       | 0       | 20     |        | 4        |
| <b>PANCREAS</b>   |         |           |         |                        |        |         |         |        |        |          |
| <b>N TX CENTRES</b>   | 0       | 2         | 1       | 0                      | 8      | 0       | 0       | 2      | 1      | 0        |
| Patients included on the WL for the first time in the course of 2017  |         | 53        | 15      |                        |        | 0       | 0       | 3      |        |          |
| Total number of patients ever active on the WL during 2017            |         | 94        | 71      |                        |        | 0       | 0       |        |        |          |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 |         | 60        | 63      |                        | 81     | 0       | 0       | 6      |        |          |
| Patients who died while on the WL during 2017                         |         | 0         | 2       |                        | 5      | 0       | 0       |        |        |          |
| <b>SMALL BOWEL</b>  |         |           |         |                        |        |         |         |        |        |          |
| <b>N TX CENTRES</b>   | 0       | 1         | 1       | 0                      | 3      | 0       | 0       | 1      | 0      | 0        |
| Patients included on the WL for the first time in the course of 2017  |         | 1         | 0       |                        |        | 0       | 0       |        |        |          |
| Total number of patients ever active on the WL during 2017            |         | 5         | 0       |                        |        | 0       | 0       |        |        |          |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 |         | 3         | 0       |                        | 5      | 0       | 0       | 2      |        |          |
| Patients who died while on the WL during 2017                         |         | 1         | 0       |                        | 5      | 0       | 0       |        |        |          |

# WAITING LIST

## OTHER COUNTRIES

| COUNTRIES   | New Zealand | Norway     | Republic of Moldova | Russian Federation | Saudi Arabia | Sudan       | Switzerland | Syrian Arab Republic | The former Yugoslav Republic of Macedonia | Turkey      | United States of America |
|---|-------------|------------|---------------------|--------------------|--------------|-------------|-------------|----------------------|---|-------------|--------------------------|
| <b>Population (million inhabitants): UNFPA</b>                        | <b>4.7</b>  | <b>5.3</b> | <b>4.1</b>          | <b>144.0</b>       | <b>32.9</b>  | <b>40.5</b> | <b>8.5</b>  | <b>18.3</b>          | <b>2.1</b>                                | <b>80.7</b> | <b>324.5</b>             |
| <b>KIDNEY</b>   |             |            |                     |                    |              |             |             |                      |   |             |                          |
| <b>N TX CENTRES</b>   | 4           | 1          | 1                   | 41                 | 11           | 7           | 6           | 8                    | 2   | 72          | 240                      |
| Patients included on the WL for the first time in the course of 2017  |             | 349        | 31                  | 1925               | 2892         |             | 428         |                      | 10  | 6064        | 28191                    |
| Total number of patients ever active on the WL during 2017            |             | 795        | 68                  | 5531               | 6502         |             |             |                      | 125                                       | 27921       | 96766                    |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 |             | 346        | 38                  | 4278               | 4650         |             | 491         |                      | 43  | 21837       | 60596                    |
| Patients who died while on the WL during 2017                         |             | 8          | 0                   | 78                 | 161          |             | 26          |                      | 27  | 1545        | 4021                     |
| Patients on dialysis on 31/12/2017                                    |             |            | 610                 | 40000              | 18270        | 10000       | 384         |                      | 1435                                      | 61392       | 737182                   |
| <b>LIVER</b>  |             |            |                     |                    |              |             |             |                      |   |             |                          |
| <b>N TX CENTRES</b>   | 2           | 1          | 1                   | 24                 | 4            |             | 3           | 1                    | 0   | 37          | 144                      |
| Patients included on the WL for the first time in the course of 2017  |             | 123        | 32                  | 767                | 316          |             | 193         |                      | 0   | 2016        | 11422                    |
| Total number of patients ever active on the WL during 2017            |             | 240        | 106                 | 1666               | 658          |             |             |                      | 0   | 4222        | 24178                    |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 |             | 26         | 88                  | 1087               | 432          |             | 116         |                      | 0   | 2094        | 11087                    |
| Patients who died while on the WL during 2017                         |             | 3          | 6                   | 141                |              |             | 30          |                      | 0   | 444         | 1306                     |
| <b>HEART</b>  |             |            |                     |                    |              |             |             |                      |   |             |                          |
| <b>N TX CENTRES</b>   | 1           | 1          | 0                   | 16                 | 2            |             | 3           |                      | 0   | 13          | 138                      |
| Patients included on the WL for the first time in the course of 2017  |             | 35         | 0                   | 405                | 74           |             | 58          |                      | 0   | 521         | 4118                     |
| Total number of patients ever active on the WL during 2017            |             | 54         | 3                   | 645                | 126          |             |             |                      | 0   | 1282        | 7707                     |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 |             | 13         | 3                   | 351                | 90           |             | 52          |                      | 0   | 957         | 2994                     |
| Patients who died while on the WL during 2017                         |             | 4          | 0                   | 42                 |              |             | 16          |                      | 0   | 214         | 359                      |
| <b>LUNG</b>   |             |            |                     |                    |              |             |             |                      |   |             |                          |
| <b>N TX CENTRES</b>   | 1           | 1          | 0                   | 4                  | 1            |             | 2           |                      | 0   | 4           | 71                       |
| Patients included on the WL for the first time in the course of 2017  |             | 37         | 0                   | 49                 | 40           |             | 47          |                      | 0   | 101         | 2772                     |
| Total number of patients ever active on the WL during 2017            |             | 85         | 0                   | 94                 | 70           |             |             |                      | 0   | 152         | 4169                     |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 |             | 38         | 0                   | 56                 | 30           |             | 30          |                      | 0   | 67          | 1155                     |
| Patients who died while on the WL during 2017                         |             | 6          | 0                   | 13                 |              |             | 4           |                      | 0   | 29          | 219                      |
| <b>PANCREAS</b>   |             |            |                     |                    |              |             |             |                      |   |             |                          |
| <b>N TX CENTRES</b>   | 1           | 1          | 0                   | 3                  | 2            |             | 2           |                      | 0   | 6           | 135                      |
| Patients included on the WL for the first time in the course of 2017  |             | 21         | 0                   | 23                 | 25           |             | 18          |                      | 0   | 22          | 1312                     |
| Total number of patients ever active on the WL during 2017            |             | 41         | 0                   | 160                | 43           |             |             |                      | 0   | 296         | 2647                     |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 |             | 20         | 0                   | 154                | 25           |             | 11          |                      | 0   | 279         | 1084                     |
| Patients who died while on the WL during 2017                         |             | 0          | 0                   | 0                  |              |             | 0           |                      | 0   | 17          | 102                      |
| <b>SMALL BOWEL</b>  |             |            |                     |                    |              |             |             |                      |   |             |                          |
| <b>N TX CENTRES</b>   | 0           | 0          | 0                   | 0                  | 1            |             | 2           |                      | 0   | 2           | 40                       |
| Patients included on the WL for the first time in the course of 2017  |             | 0          | 0                   | 0                  | 1            |             | 0           |                      | 0   | 8           | 126                      |
| Total number of patients ever active on the WL during 2017            |             | 0          | 0                   | 0                  | 4            |             | 0           |                      | 0   | 10          | 360                      |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 |             | 0          | 0                   | 0                  | 2            |             | 0           |                      | 0   | 5           | 199                      |
| Patients who died while on the WL during 2017                         |             | 0          | 0                   | 0                  |              |             | 0           |                      | 0   | 2           | 14                       |

## WAITING LIST

## LATIN-AMERICAN COUNTRIES

| COUNTRIES   | Argentina | Bolivia | Brazil | Chile | Colombia | Costa Rica | Cuba | Dominican Republic |
|---|-----------|---------|--------|-------|----------|------------|------|--------------------|
| Population (million inhabitants): UNFPA                               | 44.3      | 11.1    | 209.3  | 18.1  | 49.1     | 4.9        | 11.5 | 10.8               |
| <b>KIDNEY</b>   |           |         |        |       |          |            |      |                    |
| <b>N TX CENTRES</b>   | 53        | 10      | 140    | 22    | 22       | 7          | 9    | 8                  |
| Patients included on the WL for the first time in the course of 2017  | 1450      | 56      | 12768  | 553   | 1278     | 75         | 200  | 58                 |
| Total number of patients ever active on the WL during 2017            | 7695      |         | 32695  | 1824  | 3339     | 186        | 400  | 260                |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 6133      | 71      | 20570  | 1221  | 2315     | 192        | 325  | 215                |
| Patients who died while on the WL during 2017                         | 492       |         | 1423   | 19    | 88       |            |      | 3                  |
| Patients on dialysis on 31/12/2017                                    | 29300     | 3825    | 107682 |       | 32101    | 168        | 3200 | 4188               |
| <b>LIVER</b>  |           |         |        |       |          |            |      |                    |
| <b>N TX CENTRES</b>   | 29        | 1       | 67     | 9     | 9        | 4          | 3    | 1                  |
| Patients included on the WL for the first time in the course of 2017  | 357       |         | 3599   | 171   | 270      | 13         | 15   | 11                 |
| Total number of patients ever active on the WL during 2017            | 1625      |         | 4829   | 268   | 451      | 20         | 30   | 41                 |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 1268      |         | 1265   | 97    | 145      | 20         | 25   | 32                 |
| Patients who died while on the WL during 2017                         | 203       |         | 755    | 31    | 24       | 5          |      | 7                  |
| <b>HEART</b>  |           |         |        |       |          |            |      |                    |
| <b>N TX CENTRES</b>   | 22        | 0       | 44     | 8     | 8        | 1          | 1    | 2                  |
| Patients included on the WL for the first time in the course of 2017  | 32        |         | 556    | 49    | 75       | 4          | 8    | 0                  |
| Total number of patients ever active on the WL during 2017            | 180       |         | 827    | 69    | 96       | 6          | 5    | 0                  |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 126       |         | 277    | 29    | 17       | 6          | 3    | 0                  |
| Patients who died while on the WL during 2017                         | 50        |         | 95     | 1     | 4        | 1          |      | 0                  |
| <b>LUNG</b>   |           |         |        |       |          |            |      |                    |
| <b>N TX CENTRES</b>   | 4         | 0       | 8      | 5     | 4        | 1          | 0    | 0                  |
| Patients included on the WL for the first time in the course of 2017  | 62        |         | 179    | 29    | 27       | 1          | 0    | 0                  |
| Total number of patients ever active on the WL during 2017            | 253       |         | 354    | 69    | 50       | 2          | 0    | 0                  |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 199       |         | 189    | 26    | 24       |            | 0    | 0                  |
| Patients who died while on the WL during 2017                         | 27        |         | 32     | 7     | 2        |            | 0    | 0                  |
| <b>PANCREAS</b>   |           |         |        |       |          |            |      |                    |
| <b>N TX CENTRES</b>   | 17        | 0       | 17     | 3     | 5        | 1          | 0    | 1                  |
| Patients included on the WL for the first time in the course of 2017  | 2         |         | 269    | 5     | 1        | 0          | 0    | 1                  |
| Total number of patients ever active on the WL during 2017            | 12        |         | 765    | 28    | 14       | 0          | 0    | 0                  |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 11        |         | 543    | 17    | 1        | 0          | 0    | 0                  |
| Patients who died while on the WL during 2017                         | 0         |         | 60     | 0     | 0        | 0          | 0    | 0                  |
| <b>SMALL BOWEL</b>  |           |         |        |       |          |            |      |                    |
| <b>N TX CENTRES</b>   | 2         | 0       | 2      | 2     | 4        | 1          | 0    | 0                  |
| Patients included on the WL for the first time in the course of 2017  | 5         |         | 2      | 0     | 4        | 0          | 0    | 0                  |
| Total number of patients ever active on the WL during 2017            | 15        |         | 2      | 1     | 5        | 0          | 0    | 0                  |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 10        |         | 1      | 1     | 5        | 0          | 0    | 0                  |
| Patients who died while on the WL during 2017                         | 0         |         | 0      | 0     | 0        | 0          | 0    | 0                  |

## WAITING LIST

### LATIN-AMERICAN COUNTRIES

| COUNTRIES   | Ecuador | Guatemala | Honduras | Mexico | Nicaragua | Panama | Paraguay | Peru  | Uruguay |
|---|---------|-----------|----------|--------|-----------|--------|----------|-------|---------|
| Population (million inhabitants): UNFPA                               | 16.6    | 16.9      | 9.3      | 129.2  | 6.2       | 4.1    | 6.8      | 32.2  | 3.5     |
| <b>KIDNEY</b>   |         |           |          |        |           |        |          |       |         |
| <b>N TX CENTRES</b>   | 8       | 4         | 3        | 255    | 3         | 2      | 4        | 10    | 3       |
| Patients included on the WL for the first time in the course of 2017  | 96      |           |          | 5467   |           | 40     | 57       | 35    | 114     |
| Total number of patients ever active on the WL during 2017            | 334     |           |          | 17944  |           | 145    | 123      | 729   | 560     |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 430     |           |          | 13228  |           |        | 82       | 600   | 399     |
| Patients who died while on the WL during 2017                         | 32      |           |          | 134    |           | 7      | 1        | 0     | 19      |
| Patients on dialysis on 31/12/2017                                    | 11500   |           |          | 187738 | 1850      | 2700   | 1400     | 12773 | 3038    |
| <b>LIVER</b>  |         |           |          |        |           |        |          |       |         |
| <b>N TX CENTRES</b>   | 2       | 0         | 0        | 73     | 0         | 1      | 1        | 4     | 1       |
| Patients included on the WL for the first time in the course of 2017  | 33      |           | 0        | 250    | 0         | 8      | 7        | 50    | 38      |
| Total number of patients ever active on the WL during 2017            | 91      |           | 0        | 627    | 0         | 8      | 9        | 61    | 60      |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 | 12      |           | 0        | 323    | 0         |        | 6        | 32    | 28      |
| Patients who died while on the WL during 2017                         | 6       |           | 0        | 44     | 0         | 1      | 1        | 4     | 6       |
| <b>HEART</b>  |         |           |          |        |           |        |          |       |         |
| <b>N TX CENTRES</b>   | 1       | 0         | 0        | 51     | 0         | 1      | 3        | 1     | 3       |
| Patients included on the WL for the first time in the course of 2017  |         |           | 0        | 50     | 0         | 1      | 11       | 7     | 17      |
| Total number of patients ever active on the WL during 2017            |         |           | 0        | 99     | 0         | 1      | 20       | 15    | 46      |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 |         |           | 0        | 38     | 0         | 0      | 8        | 5     | 30      |
| Patients who died while on the WL during 2017                         |         |           | 0        | 9      | 0         | 0      | 3        | 0     | 6       |
| <b>LUNG</b>   |         |           |          |        |           |        |          |       |         |
| <b>N TX CENTRES</b>   | 1       | 0         | 0        | 10     | 0         | 0      | 0        | 1     | 1       |
| Patients included on the WL for the first time in the course of 2017  |         |           | 0        | 5      | 0         |        | 0        | 0     | 6       |
| Total number of patients ever active on the WL during 2017            |         |           | 0        | 5      | 0         |        | 0        | 2     | 24      |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 |         |           | 0        | 1      | 0         |        | 0        | 0     | 14      |
| Patients who died while on the WL during 2017                         |         |           | 0        | 0      | 0         |        | 0        | 1     | 2       |
| <b>PANCREAS</b>   |         |           |          |        |           |        |          |       |         |
| <b>N TX CENTRES</b>   | 0       | 0         | 0        | 22     | 0         | 0      | 0        | 0     | 1       |
| Patients included on the WL for the first time in the course of 2017  |         |           | 0        | 5      | 0         |        | 0        | 0     |         |
| Total number of patients ever active on the WL during 2017            |         |           | 0        | 16     | 0         |        | 0        | 2     |         |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 |         |           | 0        | 13     | 0         |        | 0        | 0     |         |
| Patients who died while on the WL during 2017                         |         |           | 0        | 0      | 0         |        | 0        | 1     |         |
| <b>SMALL BOWEL</b>  |         |           |          |        |           |        |          |       |         |
| <b>N TX CENTRES</b>   | 0       | 0         | 0        | 3      | 0         | 0      | 0        | 0     | 0       |
| Patients included on the WL for the first time in the course of 2017  |         |           | 0        | 0      | 0         |        | 0        | 0     |         |
| Total number of patients ever active on the WL during 2017            |         |           | 0        | 0      | 0         |        | 0        | 0     |         |
| Patients awaiting a transplant (only active candidates) on 31/12/2017 |         |           | 0        | 0      | 0         |        | 0        | 0     |         |
| Patients who died while on the WL during 2017                         |         |           | 0        | 0      | 0         |        | 0        | 0     |         |

## FAMILY REFUSALS

## EUROPEAN UNION COUNTRIES

| COUNTRIES<br>Population (million inhabitants): UNFPA | Austria<br>8.7      | Belgium<br>11.4 | Bulgaria<br>7.1  | Croatia<br>4.2  | Cyprus<br>1.2   | Czech Republic<br>10.6 | Denmark<br>5.7   | Estonia<br>1.3    | Finland<br>5.5         | France<br>65.0 |
|--|---------------------|-----------------|------------------|-----------------|-----------------|------------------------|------------------|-------------------|------------------------|----------------|
| Number of interviews asking for consent to donation  |                     | 461             | 43               |                 | 16              |                        |                  | 28                |                        |                |
| Number of family refusals (%)                        |                     | 113 (24.5)      | 13 (30.2)        |                 | 5 (31.3)        |                        |                  | 8 (28.6)          |                        |                |
| COUNTRIES<br>Population (million inhabitants): UNFPA | Germany<br>82.1     | Greece<br>11.2  | Hungary<br>9.7   | Ireland<br>4.8  | Italy<br>59.4   | Latvia<br>1.9          | Lithuania<br>2.9 | Luxembourg<br>0.6 | Malta<br>0.4           |                |
| Number of interviews asking for consent to donation  |                     | 124             | 218              | 184             | 2738            | 46                     | 84               | 0                 | 17                     |                |
| Number of family refusals (%)                        |                     | 31 (25.0)       | 20 (9.2)         | 35 (19.0)       | 787 (28.7)      | 21 (45.7)              | 28 (33.3)        | 0                 | 1 (5.9)                |                |
| COUNTRIES<br>Population (million inhabitants): UNFPA | Netherlands<br>17.0 | Poland<br>38.2  | Portugal<br>10.3 | Romania<br>19.7 | Slovakia<br>5.4 | Slovenia<br>2.1        | Spain<br>46.4    | Sweden<br>8.5     | United Kingdom<br>66.2 |                |
| Number of interviews asking for consent to donation  |                     | 720             |                  | 193             | 131             | 57                     | 2509             |                   | 3265                   |                |
| Number of family refusals (%)                        |                     | 95 (13.2)       |                  | 57 (29.5)       | 16 (12.2)       | 9 (15.8)               | 326 (13.0)       |                   | 1148 (35.2)            |                |

## OTHER COUNTRIES

| COUNTRIES   | Armenia     | Australia  | Belarus             | Bosnia and Herzegovina | Canada       | Georgia | Iceland     | Israel               | Kuwait                                    | Malaysia    |                          |
|---|-------------|------------|---------------------|------------------------|--------------|---------|-------------|----------------------|---|-------------|--------------------------|
| Population (million inhabitants): UNFPA             | 2.9         | 4.5        | 9.5                 | 0.0                    | 36.6         | 3.9     | 0.3         | 8.3                  | 4.1                                       | 31.6        |                          |
| Number of interviews asking for consent to donation |             | 1093       | 34                  | 7                      |              |         |             | 156                  |   | 334         |                          |
| Number of family refusals (%)                       |             | 451 (41.3) | 22 (64.7)           | 4 (57.1)               |              |         |             | 60 (38.5)            |   | 283 (84.7)  |                          |
| COUNTRIES   | New Zealand | Norway     | Republic of Moldova | Russian Federation     | Saudi Arabia | Sudan   | Switzerland | Syrian Arab Republic | The former Yugoslav Republic of Macedonia | Turkey      | United States of America |
| Population (million inhabitants): UNFPA             | 4.7         | 5.3        | 4.1                 | 144.0                  | 32.9         | 40.5    | 8.5         | 18.3                 | 2.1                                       | 80.7        | 324.5                    |
| Number of interviews asking for consent to donation | 271         |            | 24                  |                        | 329          | 48      |             |                      |   | 2046        |                          |
| Number of family refusals (%)                       |             |            | 7 (29.2)            |                        | 205 (62.3)   |         |             |                      |   | 1492 (72.9) |                          |

## LATIN-AMERICAN COUNTRIES

| COUNTRIES<br>Population (million inhabitants): UNFPA | Argentina<br>44.3 | Bolivia<br>11.1   | Brazil<br>209.3 | Chile<br>18.1   | Colombia<br>49.1 | Costa Rica<br>4.9 | Cuba<br>11.5    | Dominican Republic<br>10.8 |                |  |
|--|-------------------|-------------------|-----------------|-----------------|------------------|-------------------|-----------------|----------------------------|----------------|--|
| Number of interviews asking for consent to donation  | 1264              |                   | 6472            | 322             | 724              | 33                | 164             | 55                         |                |  |
| Number of family refusals (%)                        | 433 (34.3)        |                   | 2740 (42.3)     | 149 (46.3)      | 203 (28.0)       | 4 (12.1)          | 22 (13.4)       | 32 (58.2)                  |                |  |
| COUNTRIES<br>Population (million inhabitants): UNFPA | Ecuador<br>16.6   | Guatemala<br>16.9 | Honduras<br>9.3 | Mexico<br>129.2 | Nicaragua<br>6.2 | Panama<br>4.1     | Paraguay<br>6.8 | Peru<br>32.2               | Uruguay<br>3.5 |  |
| Number of interviews asking for consent to donation  |                   | 12                | 0               | 946             | 30               | 34                | 20              | 219                        |                |  |
| Number of family refusals (%)                        | 11                | 8 (66.7)          | 0               | 259 (27.4)      | 28 (93.3)        | 17 (50.0)         | 9 (45.0)        | 167 (76.3)                 | 3              |  |

# **International Data on Tissues and Haematopoietic Stem Cell Donation and Transplantation Activity. Year 2017**





**Data provided by National Competent Authorities:**

**EUROPE**

**Austria**

**Belgium**

**Bulgaria**

Viara Atanasova  
Yordan Peev

**Cyprus**

Carolina Stylianou

**Czech Republic**

Eva Křemenová

**Germany**

Ralf Tönjes

**Denmark**

**Estonia**

Pille Säälük

**Spain**

Marina Álvarez

**Finland**

Anne Tammirousu

**France**

Samuel Arrabal

**Greece**

**Croatia**

Milena Ivanković

**Hungary**

János Sajtos

**Ireland**

**Italy**

Fiorenza Bariani  
Letizia Lombardini  
Liliana Santilli

**Lithuania**

Justina Davainytė

**Luxembourg**

Martine Debacker

**Latvia**

Ieva Bekere

**Republic of Moldova**

Igor Codreanu  
Tatiana Timbalari

**Macedonia**

**Malta**

Patricia Galea

**Netherlands**

Frank van Linden

**Norway**

**Poland**

**Portugal**

Paulo Severino

**Romania**

**Sweden**

Mona Hansson

**Slovenia**

**Slovakia**

Magdaléna Krátka  
Daniel Kuba

**Switzerland**

Barbara Schärer

**Turkey**

**United Kingdom**

Rita Barallon

**LATIN AMERICA**

**Argentina**

M<sup>a</sup> del Carmen Bacqué

**Bolivia**

Adolfo Zarate Cabello

**Brazil**

Rosana Reis Nothen

**Chile**

Jose Luis Rojas

**Colombia**

Edwin Cárdenas  
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Yazmin R. Arias Murillo

**Costa Rica**

César Gamboa P.  
Martha Romero P.  
Roselyn Serrano V.

**Cuba**

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**Dominican Republic**

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**Ecuador**

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**Guatemala**

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**Honduras**

Rubén Galeas

**Mexico**

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José André Madrigal

**Nicaragua**

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**Panama**

Cesar J. Cuero  
Camilo Chong

**Paraguay**

Gustavo Melgarejo  
Marcelo Martínez

**Peru**

Yeny Guerra Salas

**Uruguay**

Milka Bengochea

# PRELIMINARY DATA ON TISSUES - YEAR 2017

## EUROPEAN UNION COUNTRIES

| Country                       |  | Austria | Belgium | Bulgaria | Croatia | Cyprus<br>Republic | Czech   | Denmark | Estonia | Finland   | France  | Germany | Greece  | Hungary | Ireland | Italy     |
|-------------------------------|--|---------|---------|----------|---------|--------------------|---------|---------|---------|-----------|---------|---------|---------|---------|---------|-----------|
| Population (Source: Eurostat) |  | 8.8     | 11.4    | 7.1      | 4.2     | 0.9                | 10.6    | 5.7     | 1.3     | 5.5       | 67.0    | 82.5    | 10.8    | 9.8     | 4.8     | 60.6      |
| TYPE OF TISSUE                | TYPE OF DATA                                 | NO DATA | NO DATA |          |         |                    | NO DATA | NO DATA |         |           |         |         | NO DATA |         | NO DATA | NO DATA   |
| CORNEAS                       | N. of tissue donations                       |         |         | 88       | 282     | 0                  | 697     |         | 14      | 232       | 5,738   | NA      |         | NA      |         | 8,926     |
|                               | Tissue donation PMP                          |         |         | 12.4     | 67.9    | 0.0                | 65.9    |         | 10.6    | 42.2      | 85.7    | NA      |         | NA      |         | 147.3     |
|                               | N. of tissues retrieved                      |         |         | 158      | 558     | 0                  | 917     |         | 28      | 461       | 11,422  | 4,911   |         | 493     |         | 17,599    |
|                               | N. of tissues processed (units)              |         |         | 0        | 577     | 0                  | 917     |         | 36      | 461       | 11,422  | 5,855   |         | 493     |         | NA        |
|                               | N. of tissues distributed nationally (units) |         |         | 141      | 336     | 0                  | 176     |         | 36      | 338       | 5,481   | 4,566   |         | 449     |         | 7,231     |
|                               | N. of tissues imported (units)               |         |         | 6        | 36      | 46                 | 0       |         | 0       | 41        | 0       | 984     |         | 0       |         | 0         |
|                               | N. of tissues exported (units)               |         |         | 0        | 0       | 0                  | 102     |         | 0       | NE        | 256     | 80      |         | 62      |         | 652       |
|                               | N. of tissues transplanted                   |         |         | 137      | 344     | 46                 | 419     |         | NA      | NA        | 4,928   | NA      |         | 431     |         | NA        |
|                               | N. of patients transplanted                  |         |         | 124      | 341     | 46                 | 418     |         | 45      | NA        | 4,582   | NA      |         | 416     |         | NA        |
|                               | N. of transplant procedures                  |         |         | 137      | 345     | 46                 | 709     |         | NA      | NA        | UK      | NA      |         | 431     |         | 5,898     |
|                               |  |         |         |          |         |                    |         |         |         |           |         |         |         |         |         |           |
| SKIN                          | N. of tissue donations                       |         |         | 75       | 7       | NA                 | 38      |         | 6       | 23        | 262     | NA      |         | NA      |         | 412       |
|                               | Tissue donation PMP                          |         |         | 10.6     | 1.7     | NA                 | 3.6     |         | 4.6     | 4.2       | 3.9     | NA      |         | NA      |         | 6.8       |
|                               | N. of tissues retrieved (cm <sup>2</sup> )   |         |         | 107,044  | 100.25  | NA                 | 93,540  |         | NA      | 138,030.3 | 522,312 | 87,485  |         | 250     |         | 1,126,446 |
|                               | N. of tissues processed (units)              |         |         | 37       | 121     | NA                 | 865     |         | 24      | 1,173     | 522,312 | 87,485  |         | 443     |         | NA        |
|                               | N. of tissues distributed nationally (units) |         |         | 0        | 196     | NA                 | 0       |         | 12      | 861       | 490,593 | 289,012 |         | 443     |         | 3,856     |
|                               | N. of tissues imported (units)               |         |         | 0        | 79      | NA                 | 0       |         | 0       | NE        | 0       | 175,761 |         | 0       |         | 0         |
|                               | N. of tissues exported (units)               |         |         | 70       | 0       | NA                 | 802     |         | 0       | NE        | 10,345  | 246,880 |         | 0       |         | 0         |
|                               | N. of tissues transplanted                   |         |         | 3        | 196     | NA                 | UK      |         | NA      | 861       | 490,593 | NA      |         | 104     |         | NA        |
|                               | N. of patients transplanted                  |         |         | 1        | 10      | NA                 | UK      |         | 4       | 24        | 232     | NA      |         | 104     |         | NA        |
|                               | N. of transplant procedures                  |         |         | 1        | 28      | NA                 | 802     |         | NA      | NA        | UK      | NA      |         | 104     |         | 5,898     |
|                               |  |         |         |          |         |                    |         |         |         |           |         |         |         |         |         |           |
| HEART VALVES                  | N. of tissue donations                       |         |         | 0        | 5       | NA                 | 168     |         | NE      | 52        | 319     | NA      |         | NA      |         | 251       |
|                               | Tissue donation PMP                          |         |         | 0.0      | 1.2     | NA                 | 15.9    |         | NE      | 9.4       | 4.8     | NA      |         | NA      |         | 4.1       |
|                               | N. of tissues retrieved                      |         |         | 0        | 6       | NA                 | 168     |         | NE      | 135       | 719     | 237     |         | 50      |         | 466       |
|                               | N. of tissues processed (units)              |         |         | 0        | 6       | NA                 | 168     |         | NE      | 135       | 719     | 434     |         | 46      |         | NA        |
|                               | N. of tissues distributed nationally (units) |         |         | 0        | 9       | NA                 | 114     |         | NE      | 88        | 240     | 141     |         | 32      |         | 149       |
|                               | N. of tissues imported (units)               |         |         | 0        | 0       | NA                 | 0       |         | NE      | NE        | 55      | 140     |         | 0       |         | 2         |
|                               | N. of tissues exported (units)               |         |         | 0        | 0       | NA                 | 0       |         | NE      | NE        | 62      | 73      |         | 0       |         | 7         |
|                               | N. of tissues transplanted                   |         |         | 0        | 7       | NA                 | 110     |         | NE      | 88        | 240     | NA      |         | 13      |         | NA        |
|                               | N. of patients transplanted                  |         |         | 0        | 8       | NA                 | 111     |         | NE      | NA        | 236     | NA      |         | 11      |         | NA        |
|                               | N. of transplant procedures                  |         |         | 0        | 8       | NA                 | 114     |         | NE      | NA        | UK      | NA      |         | 11      |         | 144       |
|                               |  |         |         |          |         |                    |         |         |         |           |         |         |         |         |         |           |
| BLOOD VESSELS                 | N. of tissue donations                       |         |         | 0        | 4       | NA                 | 10      |         | 21      | 7         | 9,395   | NA      |         | NA      |         | 570       |
|                               | Tissue donation PMP                          |         |         | 0.0      | 1.0     | NA                 | 0.9     |         | 16.0    | 1.3       | 140.2   | NA      |         | NA      |         | 9.4       |
|                               | N. of tissues retrieved                      |         |         | 0        | 8       | NA                 | 10      |         | 42      | 23        | 10,033  | 171     |         | 45      |         | 884       |
|                               | N. of tissues processed (units)              |         |         | 0        | 8       | NA                 | 6       |         | 48      | 23        | 10,033  | 303     |         | 161     |         |           |
|                               | N. of tissues distributed nationally (units) |         |         | 0        | 3       | NA                 | 6       |         | 30      | 13        | 2,933   | 101     |         | 160     |         | 453       |
|                               | N. of tissues imported (units)               |         |         | 0        | 0       | NA                 | 0       |         | 0       | NE        | 33      | 1       |         | 0       |         | 2         |
|                               | N. of tissues exported (units)               |         |         | 0        | 0       | NA                 | 0       |         | 0       | NE        | 28      | 4       |         | 0       |         | 0         |
|                               | N. of tissues transplanted                   |         |         | 0        | 4       | NA                 | 6       |         | NA      | 13        | 2,933   | NA      |         | 150     |         | NA        |
|                               | N. of patients transplanted                  |         |         | 0        | 2       | NA                 | 6       |         | 28      | NA        | 1,711   | NA      |         | 135     |         | NA        |
|                               | N. of transplant procedures                  |         |         | 0        | 3       | NA                 | 6       |         | NA      | NA        | UK      | NA      |         | 142     |         | 257       |
|                               |  |         |         |          |         |                    |         |         |         |           |         |         |         |         |         |           |
| MUSCULOSKELETAL               | N. of tissue donations                       |         |         | 2,631    | 168     | NA                 | 1,641   |         | 106     | 748       | 26,582  | NA      |         | NA      |         | 4,263     |
|                               | Tissue donation PMP                          |         |         | 370.5    | 40.4    | NA                 | 155.1   |         | 80.6    | 135.9     | 396.8   | NA      |         | NA      |         | 70.4      |
|                               | N. of tissues retrieved                      |         |         | 5,990    | 244     | NA                 | 3,877   |         | 130     | 1,195     | 26,991  | 13,810  |         | 1,747   |         | 9,347     |
|                               | N. of tissues processed (units)              |         |         | 269      | 244     | NA                 | 3,125   |         | 248     | 1,195     | 26,991  | 29,459  |         | 7,277   |         | NA        |
|                               | N. of tissues distributed nationally (units) |         |         | 369      | 160     | NA                 | 1,459   |         | 200     | NA        | 56,678  | 69,478  |         | 7,304   |         | 0         |
|                               | N. of tissues imported (units)               |         |         | 0        | 32      | NA                 | 0       |         | 18      | NE        | 649     | 10,875  |         | 0       |         | 0         |
|                               | N. of tissues exported (units)               |         |         | 0        | 0       | NA                 | 1,488   |         | 0       | NE        | 7,036   | 46,564  |         | 0       |         | 49        |
|                               | N. of tissues transplanted                   |         |         | 144      | 160     | NA                 | 725     |         | NA      | NA        | 56,678  | NA      |         | 461     |         | NA        |
|                               | N. of patients transplanted                  |         |         | 120      | 118     | NA                 | 643     |         | 170     | NA        | 42,515  | NA      |         | 369     |         | NA        |
|                               | N. of transplant procedures                  |         |         | 125      | 118     | NA                 | 3,279   |         | NA      | NA        | UK      | NA      |         | 461     |         | 7,786     |
|                               |  |         |         |          |         |                    |         |         |         |           |         |         |         |         |         |           |

## PRELIMINARY DATA ON TISSUES - YEAR 2017

## EUROPEAN UNION COUNTRIES

| Country                       |  | Austria | Belgium | Bulgaria | Croatia | Cyprus Republic | Czech   | Denmark | Estonia | Finland | France | Germany | Greece  | Hungary | Ireland | Italy   |
|-------------------------------|--|---------|---------|----------|---------|-----------------|---------|---------|---------|---------|--------|---------|---------|---------|---------|---------|
| Population (Source: Eurostat) |  | 8.8     | 11.4    | 7.1      | 4.2     | 0.9             | 10.6    | 5.7     | 1.3     | 5.5     | 67.0   | 82.5    | 10.8    | 9.8     | 4.8     | 60.6    |
| TYPE OF TISSUE                | TYPE OF DATA                                 | NO DATA | NO DATA |          |         |                 | NO DATA | NO DATA |         |         |        |         | NO DATA |         | NO DATA | NO DATA |
| PLACENTA/AMNIOTIC MEMBRANES   | N. of tissue donations                       |         |         | 8        | 1       | NA              | 269     |         | 19      | 10      | 224    | NA      |         | NA      |         | 273     |
|                               | Tissue donation PMP                          |         |         | 1.1      | 0.2     | NA              | 25.4    |         | 14.4    | 1.8     | 3.3    | NA      |         | NA      |         | 4.5     |
|                               | N. of tissues retrieved                      |         |         | 7        | 1       | NA              | 270     |         | 19      | 10      | 224    | 205     |         | 0       |         | 276     |
|                               | N. of tissues processed (units)              |         |         | 700      | 64      | NA              | 2,064   |         | 110     | 255     | 3,887  | 1,893   |         | 113     |         | NA      |
|                               | N. of tissues distributed nationally (units) |         |         | 400      | 133     | NA              | 293     |         | 88      | NA      | 3,088  | 1,951   |         | 101     |         | 1,651   |
|                               | N. of tissues imported (units)               |         |         | 0        | 0       | NA              | 0       |         | 0       | NE      | 0      | 0       |         | 0       |         | 0       |
|                               | N. of tissues exported (units)               |         |         | 0        | 0       | NA              | 139     |         | 0       | 17      | 19     | 74      |         | 0       |         | 0       |
|                               | N. of tissues transplanted                   |         |         | 254      | 133     | NA              | 509     |         | NA      | NA      | 3,088  | NA      |         | 110     |         | NA      |
|                               | N. of patients transplanted                  |         |         | 162      | 114     | NA              | 76      |         | 74      | NA      | 2,612  | NA      |         | 77      |         | NA      |
|                               | N. of transplant procedures                  |         |         | 246      | 133     | NA              | 77      |         | NA      | NA      | UK     | NA      |         | 84      |         | 851     |
| PANCREAS/PANCREATIC ISLETS    | N. of tissue donations                       |         |         | 0        | 0       | NA              | 34      |         | NE      | NE      | 64     | NA      |         | NA      |         | 93      |
|                               | Tissue donation PMP                          |         |         | 0.0      | 0.0     | NA              | 3.2     |         | NE      | NE      | 1.0    | NA      |         | NA      |         | 1.5     |
|                               | N. of tissues retrieved                      |         |         | 0        | 0       | NA              | 5       |         | NE      | NE      | 0      | 0       |         | 0       |         | 93      |
|                               | N. of tissues processed (units)              |         |         | 0        | 0       | NA              | 5       |         | NE      | NE      | UK     | 0       |         | 0       |         | 92      |
|                               | N. of tissues distributed nationally (units) |         |         | 0        | 0       | NA              | 0       |         | NE      | NE      | UK     | 0       |         | 0       |         | 33      |
|                               | N. of tissues imported (units)               |         |         | 0        | 0       | NA              | 0       |         | NE      | NE      | UK     | 0       |         | 0       |         | 0       |
|                               | N. of tissues exported (units)               |         |         | 0        | 0       | NA              | 5       |         | NE      | NE      | UK     | 0       |         | 0       |         | 0       |
|                               | N. of tissues transplanted                   |         |         | 0        | 0       | NA              | 5       |         | NE      | NE      | UK     | NA      |         | 0       |         | NA      |
|                               | N. of patients transplanted                  |         |         | 0        | 0       | NA              | 5       |         | NE      | NE      | 8      | NA      |         | 0       |         | NA      |
|                               | N. of transplant procedures                  |         |         | 0        | 0       | NA              | 5       |         | NE      | NE      | 33     | NA      |         | 0       |         | 33      |
| ADIPOSE                       | N. of tissue donations                       |         |         | 7        | 0       | NA              | UK      |         | NE      | NE      | 0      | NA      |         | NA      |         | NA      |
|                               | Tissue donation PMP                          |         |         | 1.0      | 0.0     | NA              | UK      |         | NE      | NE      | 0.0    | NA      |         | NA      |         | NA      |
|                               | N. of tissues retrieved                      |         |         | 8        | 0       | NA              | UK      |         | NE      | NE      | UK     | 0       |         | 0       |         | NA      |
|                               | N. of tissues processed (units)              |         |         | 0        | 0       | NA              | 0       |         | NE      | NE      | UK     | 0       |         | 0       |         | NA      |
|                               | N. of tissues distributed nationally (units) |         |         | 0        | 0       | NA              | 0       |         | NE      | NE      | UK     | 0       |         | 0       |         | NA      |
|                               | N. of tissues imported (units)               |         |         | 0        | 0       | NA              | 0       |         | NE      | NE      | UK     | 0       |         | 0       |         | NA      |
|                               | N. of tissues exported (units)               |         |         | 0        | 0       | NA              | 0       |         | NE      | NE      | UK     | 0       |         | 0       |         | NA      |
|                               | N. of tissues transplanted                   |         |         | 0        | 0       | NA              | UK      |         | NE      | NE      | UK     | NA      |         | 0       |         | NA      |
|                               | N. of patients transplanted                  |         |         | 0        | 0       | NA              | UK      |         | NE      | NE      | UK     | NA      |         | 0       |         | NA      |
|                               | N. of transplant procedures                  |         |         | 0        | 0       | NA              | UK      |         | NE      | NE      | UK     | NA      |         | 0       |         | NA      |
| PARATHYROID                   | N. of tissue donations                       |         |         | 0        | 0       | NA              | UK      |         | NE      | NE      | 0      | NA      |         | NA      |         | 11      |
|                               | Tissue donation PMP                          |         |         | 0.0      | 0.0     | NA              | UK      |         | NE      | NE      | 0.0    | NA      |         | NA      |         | 0.2     |
|                               | N. of tissues retrieved                      |         |         | 0        | 0       | NA              | UK      |         | NE      | NE      | 0      | 0       |         | 0       |         | 11      |
|                               | N. of tissues processed (units)              |         |         | 0        | 0       | NA              | 0       |         | NE      | NE      | 0      | 0       |         | 0       |         | NA      |
|                               | N. of tissues distributed nationally (units) |         |         | 0        | 0       | NA              | 0       |         | NE      | NE      | 0      | 0       |         | 0       |         | 1       |
|                               | N. of tissues imported (units)               |         |         | 0        | 0       | NA              | 0       |         | NE      | NE      | 0      | 0       |         | 0       |         | 0       |
|                               | N. of tissues exported (units)               |         |         | 0        | 0       | NA              | 0       |         | NE      | NE      | 0      | 0       |         | 0       |         | 0       |
|                               | N. of tissues transplanted                   |         |         | 0        | 0       | NA              | UK      |         | NE      | NE      | 0      | NA      |         | 0       |         | NA      |
|                               | N. of patients transplanted                  |         |         | 0        | 0       | NA              | UK      |         | NE      | NE      | UK     | NA      |         | 0       |         | NA      |
|                               | N. of transplant procedures                  |         |         | 0        | 0       | NA              | UK      |         | NE      | NE      | UK     | NA      |         | 0       |         | 1       |
| AUTOLOGOUS CRANIECTOMY PIECES | N. of tissues retrieved                      |         |         | 0        | 0       | NA              | 4       |         | NE      | NE      | 407    | 0       |         | 0       |         | 0       |
| OTHER TISSUES                 | N. of tissue donations                       |         |         | 191      | 1       | NA              | 107     |         | NE      | NE      | 0      | NA      |         | NA      |         | NA      |
|                               | Tissue donation PMP                          |         |         | 26.9     | 0.2     | NA              | 10.1    |         | NE      | NE      | 0.0    | NA      |         | NA      |         | NA      |
|                               | N. of tissues retrieved                      |         |         | 191      | 1       | NA              | 107     |         | NE      | UK      | 0      | 132     |         | 38      |         | NA      |
|                               | N. of tissues processed (units)              |         |         | 0        | 1       | NA              | 53      |         | NE      | NE      | UK     | 341     |         | 23      |         | NA      |
|                               | N. of tissues distributed nationally (units) |         |         | 0        | 1       | NA              | 24      |         | NE      | NE      | UK     | 632     |         | 17      |         | NA      |
|                               | N. of tissues imported (units)               |         |         | 0        | 0       | NA              | 0       |         | NE      | 19      | UK     | 72      |         | 0       |         | NA      |
|                               | N. of tissues exported (units)               |         |         | 0        | 0       | NA              | 1       |         | NE      | NE      | UK     | 98      |         | 0       |         | NA      |
|                               | N. of tissues transplanted                   |         |         | 0        | 1       | NA              | 24      |         | NE      | NE      | UK     | NA      |         | 17      |         | NA      |
|                               | N. of patients transplanted                  |         |         | 0        | 1       | NA              | 24      |         | NE      | NE      | UK     | NA      |         | 12      |         | NA      |
|                               | N. of transplant procedures                  |         |         | 0        | 1       | NA              | 24      |         | NE      | NE      | UK     | NA      |         | 17      |         | NA      |

# PRELIMINARY DATA ON TISSUES - YEAR 2017

| PRELIMINARY DATA ON TISSUES - YEAR 2017 |   |           |            |       |             |           |          |         |          |          |         |        |                |                     |        |             |
|---|---|-----------|------------|-------|-------------|-----------|----------|---------|----------|----------|---------|--------|----------------|---------------------|--------|-------------|
| EUROPEAN UNION COUNTRIES                |   |           |            |       |             |           |          |         |          |          |         |        |                | OTHER COUNTRIES     |        |             |
| Country                                 | Latvia                                      | Lithuania | Luxembourg | Malta | Netherlands | Poland    | Portugal | Romania | Slovakia | Slovenia | Spain   | Sweden | United Kingdom | Republic of Moldova | Norway | Switzerland |
| Population (Source: Eurostat)           | 2.0   | 2.8       | 0.6        | 0.5   | 17.1        | 38.0      | 10.3     | 19.6    | 5.4      | 2.1      | 46.5    | 10.0   | 65.8           | 3.6                 | 5.3    | 8.1         |
| TYPE OF TISSUE                          | TYPE OF DATA                                |           |            |       | NO DATA     |           |          | NO DATA |          |          | NO DATA |        |                | NO DATA             |        |             |
| CORNEAS                                 | N. of tissue donations                      | 7         | 18         | NA    | 22          | 1,358     | 517      |         | 116      |          | 3,687   | 612    | 5,854          | 18                  |        | 817         |
|   | Tissue donation PMP                         | 3.6       | 6.3        | NA    | 47.8        | 79.5      | 50.1     |         | 21.3     |          | 79.2    | 61.2   | 89.0           | 5.1                 |        | 100.3       |
|   | N. of tissues retrieved                     | 14        | 34         | NA    | 22          | 2,720     | 1,011    |         | 217      |          | 7,268   | 1,265  | 5,854          | 35                  |        | 817         |
|   | N. of tissue processed (units)              | 14        | 34         | NA    | 22          | 2,717     | 996      |         | 217      |          | 6,880   | 1,530  | 6,203          | 35                  |        | NA          |
|   | N. of tissue distributed nationally (units) | 20        | 34         | NA    | 21          | 1,453     | 922      |         | 156      |          | 3,847   | 1,075  | 5,355          | 36                  |        | NA          |
|   | N. of tissue imported (units)               | 6         | 0          | NA    | 0           | 16        | 263      |         | 47       |          | 41      | 0      | 748            | NE                  |        | 446         |
|   | N. of tissue exported (units)               | 0         | 0          | NA    | 0           | 217       | 0        |         | 0        |          | 176     | 1      | 119            | NE                  |        | 0           |
|   | N. of tissues transplanted                  | NA        | 34         | NA    | 21          | 1,466     | 941      |         | 203      |          | 3,454   | 1,075  | 3,878          | 36                  |        | 917         |
|   | N. of patients transplanted                 | NA        | 32         | NA    | 21          | 1,448     | 933      |         | 186      |          | NA      | 717    | NA             | 34                  |        | NA          |
|   | N. of transplant procedures                 | NA        | 34         | NA    | 21          | 1,466     | 944      |         | 202      |          | 3,456   | 739    | NA             | 36                  |        | NA          |
|   |   |           |            |       |             |           |          |         |          |          |         |        |                |                     |        |             |
| SKIN                                    | N. of tissue donations                      | NE        | NE         | NA    | 0           | 362       | 0        |         | 2        |          | 338     | 69     | 22             | 9                   |        | NE          |
|   | Tissue donation PMP                         | NE        | NE         | NA    | 0           | 21.2      | 0.0      |         | 0.4      |          | 7.3     | 6.9    | 0.3            | 2.5                 |        | NE          |
|   | N. of tissues retrieved (cm²)               | NE        | NE         | NA    | 0           | 1,527,400 | 0        |         | 8,850    |          | 709,477 | 87     | 22             | 26,017              |        | NE          |
|   | N. of tissue processed (units)              | NE        | NA         | NA    | 0           | 15,274    | 0        |         | 21       |          | 401,387 | 76     | 343            | 183                 |        | NE          |
|   | N. of tissue distributed nationally (units) | NE        | NA         | NA    | 0           | 1,732     | 44       |         | 47       |          | 421,871 | 72     | 3,885          | 143                 |        | NE          |
|   | N. of tissue imported (units)               | NE        | NA         | 93    | 0           | 11        | 44       |         | 0        |          | 50,774  | 14     | 3,636          | NE                  |        | NE          |
|   | N. of tissue exported (units)               | NE        | NA         | 93    | 0           | 13,542    | 0        |         | 0        |          | 95,288  | 0      | 6,453          | NE                  |        | NE          |
|   | N. of tissues transplanted                  | NE        | NA         | NA    | 0           | 1,192     | 44       |         | 47       |          | 343,616 | 87     | 9,374          | 143                 |        | NE          |
|   | N. of patients transplanted                 | NE        | NA         | NA    | 0           | 64        | 10       |         | 40       |          | NA      | 37     | NA             | 18                  |        | NE          |
|   | N. of transplant procedures                 | NE        | NA         | NA    | 0           | NA        | 15       |         | 40       |          | 46      | 63     | NA             | 20                  |        | NE          |
|   |   |           |            |       |             |           |          |         |          |          |         |        |                |                     |        |             |
| HEART VALVES                            | N. of tissue donations                      | NE        | NE         | NA    | 0           | 161       | 33       |         | 2        |          | 250     | 53     | 227            | 0                   |        | 16          |
|   | Tissue donation PMP                         | NE        | NE         | NA    | 0           | 9.4       | 3.2      |         | 0.4      |          | 5.4     | 5.3    | 3.4            | 0.0                 |        | 2.0         |
|   | N. of tissues retrieved                     | NE        | NE         | NA    | 0           | 159       | 79       |         | 2        |          | 474     | 278    | 227            | 0                   |        | 16          |
|   | N. of tissue processed (units)              | NE        | NE         | NA    | 0           | 120       | 62       |         | 2        |          | 472     | 278    | 169            | 0                   |        | NA          |
|   | N. of tissue distributed nationally (units) | NE        | NE         | NA    | 0           | 107       | 10       |         | 4        |          | 168     | 87     | 375            | 0                   |        | NA          |
|   | N. of tissue imported (units)               | NE        | NE         | NA    | 0           | 26        | 0        |         | 0        |          | 0       | 0      | 110            | NE                  |        | 18          |
|   | N. of tissue exported (units)               | NE        | NE         | NA    | 0           | 13        | 0        |         | 0        |          | 100     | 67     | 271            | NE                  |        | 16          |
|   | N. of tissues transplanted                  | NE        | NE         | NA    | 0           | 133       | 10       |         | 4        |          | 60      | 129    | 424            | 0                   |        | 16          |
|   | N. of patients transplanted                 | NE        | NE         | NA    | 0           | 133       | 10       |         | 4        |          | NA      | 48     | NA             | 0                   |        | NA          |
|   | N. of transplant procedures                 | NE        | NE         | NA    | 0           | 133       | 10       |         | 4        |          | 60      | 49     | NA             | 0                   |        | NA          |
|   |   |           |            |       |             |           |          |         |          |          |         |        |                |                     |        |             |
| BLOOD VESSELS                           | N. of tissue donations                      | NE        | NE         | NA    | 0           | 18        | 0        |         | 0        |          | 153     | 116    | 389            | 8                   |        | 4           |
|   | Tissue donation PMP                         | NE        | NE         | NA    | 0           | 1.1       | 0.0      |         | 0.0      |          | 3.3     | 11.6   | 5.9            | 2.3                 |        | 0.5         |
|   | N. of tissues retrieved                     | NE        | NE         | NA    | 0           | 83        | 0        |         | 0        |          | 329     | 336    | 389            | 31                  |        | 4           |
|   | N. of tissue processed (units)              | NE        | NE         | NA    | 0           | 83        | 0        |         | 0        |          | 367     | 336    | 429            | 0                   |        | NA          |
|   | N. of tissue distributed nationally (units) | NE        | NE         | NA    | 0           | 29        | 0        |         | 0        |          | 263     | 42     | 815            | 0                   |        | NA          |
|   | N. of tissue imported (units)               | NE        | NE         | NA    | 0           | 25        | 0        |         | 0        |          | 0       | 0      | 0              | NE                  |        | 32          |
|   | N. of tissue exported (units)               | NE        | NE         | NA    | 0           | 13        | 0        |         | 0        |          | 38      | 20     | 0              | NE                  |        | 4           |
|   | N. of tissues transplanted                  | NE        | NE         | NA    | 0           | 54        | 0        |         | 0        |          | 164     | 27     | 167            | 0                   |        | 32          |
|   | N. of patients transplanted                 | NE        | NE         | NA    | 0           | 54        | 0        |         | 0        |          | NA      | 12     | NA             | 0                   |        | NA          |
|   | N. of transplant procedures                 | NE        | NE         | NA    | 0           | 54        | 0        |         | 0        |          | 124     | 12     | NA             | 0                   |        | NA          |
|   |   |           |            |       |             |           |          |         |          |          |         |        |                |                     |        |             |
| MUSCULOSKELETAL                         | N. of tissue donations                      | 25        | 28         | NA    | 0           | 3,324     | 44       |         | 398      |          | 2,222   | 1,432  | 3,289          | 39                  |        | 234         |
|   | Tissue donation PMP                         | 12.8      | 9.8        | NA    | 0           | 194.6     | 4.3      |         | 73.2     |          | 47.8    | 143.3  | 50.0           | 11.0                |        | 28.7        |
|   | N. of tissues retrieved                     | 25        | 58         | NA    | 0           | 10,064    | 214      |         | 1,924    |          | 20,212  | 1,675  | 3,262          | 92                  |        | 234         |
|   | N. of tissue processed (units)              | 97        | 58         | NA    | 0           | 10,247    | 449      |         | 2,029    |          | 19,774  | 1,688  | 2,272          | 313                 |        | NA          |
|   | N. of tissue distributed nationally (units) | 65        | 11         | 627   | 0           | 3,241     | 367      |         | 628      |          | 13,341  | 1,291  | 26,413         | 335                 |        | NA          |
|   | N. of tissue imported (units)               | 0         | NE         | 4,329 | 0           | 747       | 42       |         | 0        |          | 311     | 215    | 23,383         | NE                  |        | 24          |
|   | N. of tissue exported (units)               | 0         | NE         | 3,702 | 0           | 41,090    | 0        |         | 1,154    |          | 13      | 0      | 10,813         | NE                  |        | 0           |
|   | N. of tissues transplanted                  | NA        | 11         | NA    | 0           | 6,170     | 407      |         | 566      |          | 16,977  | 1,260  | 16,616         | 303                 |        | 334         |
|   | N. of patients transplanted                 | NA        | 11         | NA    | 0           | 5,341     | 293      |         | 339      |          | NA      | 1,066  | NA             | 131                 |        | NA          |
|   | N. of transplant procedures                 | NA        | 11         | NA    | 0           | NA        | 388      |         | 345      |          | 11,856  | 1,101  | NA             | 131                 |        | NA          |
|   |   |           |            |       |             |           |          |         |          |          |         |        |                |                     |        |             |

## PRELIMINARY DATA ON TISSUES - YEAR 2017

| EUROPEAN UNION COUNTRIES      |   |         |           |            |       |             |        |          |         |          |          |       |        |                | OTHER COUNTRIES     |        |             |
|-------------------------------|---|---------|-----------|------------|-------|-------------|--------|----------|---------|----------|----------|-------|--------|----------------|---------------------|--------|-------------|
| Country                       |   | Latvia  | Lithuania | Luxembourg | Malta | Netherlands | Poland | Portugal | Romania | Slovakia | Slovenia | Spain | Sweden | United Kingdom | Republic of Moldova | Norway | Switzerland |
| Population (Source: Eurostat) |   | 2.0     | 2.8       | 0.6        | 0.5   | 17.1        | 38.0   | 10.3     | 19.6    | 5.4      | 2.1      | 46.5  | 10.0   | 65.8           | 3.6                 | 5.3    | 8.1         |
| TYPE OF TISSUE                | TYPE OF DATA                                | NO DATA |           |            |       | NO DATA     |        |          |         | NO DATA  |          |       |        | NO DATA        |                     |        |             |
| PLACENTA/AMNIOTIC MEMBRANES   | N. of tissue donations                      | 0       | 4         | NA         | 0     | 1           |        | 3        |         | 25       |          | 80    | 9      | NA             | NE                  |        | 256         |
|                               | Tissue donation PMP                         | 0.0     | 1.4       | NA         | 0     | 0.1         |        | 0.3      |         | 4.6      |          | 1.7   | 0.9    | 0.0            | 0.0                 |        | 31.4        |
|                               | N. of tissues retrieved                     | 0       | 4         | NA         | 0     | 5           |        | 3        |         | 25       |          | 2,066 | 9      | NA             | NE                  |        | 256         |
|                               | N. of tissue processed (units)              | NE      | 70        | NA         | 0     | 500         |        | 203      |         | 284      |          | 2,260 | 359    | 819            | 150                 |        | NA          |
|                               | N. of tissue distributed nationally (units) | NE      | 28        | NA         | 0     | 149         |        | 239      |         | 250      |          | 1,563 | 271    | 2,097          | 69                  |        | NA          |
|                               | N. of tissue imported (units)               | NE      | 0         | NA         | 0     | 0           |        | 0        |         | 0        |          | 8     | 0      | 52             | NE                  |        | 32          |
|                               | N. of tissue exported (units)               | NE      | 0         | NA         | 0     | 260         |        | 0        |         | 0        |          | 62    | 0      | 17,970         | NE                  |        | 0           |
|                               | N. of tissues transplanted                  | NE      | 54        | NA         | 0     | 85          |        | 237      |         | 251      |          | 1,714 | 271    | 19,092         | 69                  |        | 158         |
|                               | N. of patients transplanted                 | NE      | 48        | NA         | 0     | 78          |        | 169      |         | 211      |          | NA    | 143    | NA             | 57                  |        | NA          |
|                               | N. of transplant procedures                 | NE      | 54        | NA         | 0     | 78          |        | 198      |         | 237      |          | 1,612 | 164    | NA             | 62                  |        | NA          |
| PANCREAS/PANCREATIC ISLETS    | N. of tissue donations                      | NE      | NE        | NA         | 0     | 60          |        | NA       |         | NE       |          | 138   | NA     | NA             | NE                  |        | 126         |
|                               | Tissue donation PMP                         | NE      | NE        | NA         | 0     | 3.5         |        | NA       |         | NE       |          | 3.0   | 0.0    | 0.0            | 0.0                 |        | 15.5        |
|                               | N. of tissues retrieved                     | NE      | NE        | NA         | 0     | 90          |        | NA       |         | NE       |          | 70    | NA     | NA             | NE                  |        | 28          |
|                               | N. of tissue processed (units)              | NE      | NE        | NA         | 0     | 62          |        | NA       |         | NE       |          | NA    | 61     | 106            | NE                  |        | NA          |
|                               | N. of tissue distributed nationally (units) | NE      | NE        | NA         | 0     | 8           |        | NA       |         | NE       |          | NA    | 12     | 140            | NE                  |        | NA          |
|                               | N. of tissue imported (units)               | NE      | NE        | NA         | 0     | 0           |        | NA       |         | 0        |          | NA    | 0      | 0              | NE                  |        | 0           |
|                               | N. of tissue exported (units)               | NE      | NE        | NA         | 0     | 0           |        | NA       |         | NE       |          | NA    | 5      | 0              | NE                  |        | 0           |
|                               | N. of tissues transplanted                  | NE      | NE        | NA         | 0     | 8           |        | NA       |         | NE       |          | NA    | 17     | 24             | NE                  |        | 14          |
|                               | N. of patients transplanted                 | NE      | NE        | NA         | 0     | 8           |        | NA       |         | NE       |          | NA    | 3      | NA             | NE                  |        | NA          |
|                               | N. of transplant procedures                 | NE      | NE        | NA         | 0     | 8           |        | NA       |         | NE       |          | NA    | 17     | NA             | NE                  |        | NA          |
| ADIPOSE                       | N. of tissue donations                      | 0       | 41        | NA         | 0     | 0           |        | NA       |         | 3        |          | NA    | NE     | 635            | 0                   |        | NE          |
|                               | Tissue donation PMP                         | 0.0     | 14.4      | NA         | 0     | 0.0         |        | NA       |         | 0.6      |          | 0.0   | 0.0    | 9.6            | 0.0                 |        | NE          |
|                               | N. of tissues retrieved                     | 0       | 162       | NA         | 0     | 0           |        | NA       |         | 3        |          | NA    | NE     | 635            | 0                   |        | NE          |
|                               | N. of tissue processed (units)              | NE      | 162       | NA         | 0     | 0           |        | NA       |         | 3        |          | NA    | NE     | 59             | 0                   |        | NE          |
|                               | N. of tissue distributed nationally (units) | NE      | 45        | NA         | 0     | 0           |        | NA       |         | 0        |          | NA    | NE     | 252            | 0                   |        | NE          |
|                               | N. of tissue imported (units)               | NE      | 0         | NA         | 0     | 0           |        | NA       |         | 0        |          | NA    | NE     | 3              | NE                  |        | NE          |
|                               | N. of tissue exported (units)               | NE      | 0         | NA         | 0     | 0           |        | NA       |         | 0        |          | NA    | NE     | 0              | NE                  |        | NE          |
|                               | N. of tissues transplanted                  | NA      | 45        | NA         | 0     | 0           |        | NA       |         | 2        |          | NA    | NE     | 675            | 0                   |        | NE          |
|                               | N. of patients transplanted                 | NA      | 41        | NA         | 0     | 0           |        | NA       |         | 2        |          | NA    | NE     | NA             | 0                   |        | NE          |
|                               | N. of transplant procedures                 | NA      | 162       | NA         | 0     | 0           |        | NA       |         | 2        |          | NA    | NE     | NA             | 0                   |        | NE          |
| PARATHYROID                   | N. of tissue donations                      | NE      | NE        | NA         | 0     | 0           |        | NA       |         | NE       |          | NA    | 0      | NA             | NE                  |        | NE          |
|                               | Tissue donation PMP                         | NE      | NE        | NA         | 0     | 0.0         |        | NA       |         | 0.0      |          | 0.0   | 0.0    | 0.0            | 0.0                 |        | NE          |
|                               | N. of tissues retrieved                     | NE      | NE        | NA         | 0     | 0           |        | NA       |         | NE       |          | NA    | NE     | NA             | NE                  |        | NE          |
|                               | N. of tissue processed (units)              | NE      | NE        | NA         | 0     | 0           |        | NA       |         | NE       |          | NA    | NE     | NA             | NE                  |        | NE          |
|                               | N. of tissue distributed nationally (units) | NE      | NE        | NA         | 0     | 0           |        | NA       |         | NE       |          | NA    | NE     | NA             | NE                  |        | NE          |
|                               | N. of tissue imported (units)               | NE      | NE        | NA         | 0     | 0           |        | NA       |         | 0        |          | NA    | NE     | NA             | NE                  |        | NE          |
|                               | N. of tissue exported (units)               | NE      | NE        | NA         | 0     | 0           |        | NA       |         | 0        |          | NA    | NE     | NA             | NE                  |        | NE          |
|                               | N. of tissues transplanted                  | NE      | NE        | NA         | 0     | 0           |        | NA       |         | NE       |          | NA    | NE     | NA             | NE                  |        | NE          |
|                               | N. of patients transplanted                 | NE      | NE        | NA         | 0     | 0           |        | NA       |         | NE       |          | NA    | NE     | NA             | NE                  |        | NE          |
|                               | N. of transplant procedures                 | NE      | NE        | NA         | 0     | 0           |        | NA       |         | NE       |          | NA    | NE     | NA             | NE                  |        | NE          |
| AUTOLOGOUS CRANIECTOMY PIECES | N. of tissues retrieved                     | NE      | 5         | NA         | 0     | 135         |        | NA       |         | 145      |          | NA    | 79     | 27             | 3                   |        | NE          |
| OTHER TISSUES                 | N. of tissue donations                      | 123     | 0         | NA         | 0     | 22          |        | 0        |         | 138      |          | NA    | 0      | 22,638         | 0                   |        | NE          |
|                               | Tissue donation PMP                         | 63.1    | 0.0       | NA         | 0     | 1.3         |        | 0.0      |         | 25.4     |          | 0.0   | 0.0    | 344.0          | 0.0                 |        | NE          |
|                               | N. of tissues retrieved                     | 123     | 0         | NA         | 0     | 48          |        | 0        |         | 138      |          | NA    | 0      | 22,638         | 0                   |        | NE          |
|                               | N. of tissue processed (units)              | 0       | NE        | NA         | 0     | 1,352       |        | 0        |         | 62       |          | NA    | 0      | 18,497         | 0                   |        | NE          |
|                               | N. of tissue distributed nationally (units) | 0       | NE        | NA         | 0     | 88          |        | 0        |         | 35       |          | NA    | 0      | 4,231          | 0                   |        | NE          |
|                               | N. of tissue imported (units)               | 0       | NE        | 5          | 0     | 8           |        | 0        |         | 0        |          | NA    | 0      | 9,240          | NE                  |        | NE          |
|                               | N. of tissue exported (units)               | 0       | NE        | 5          | 0     | 0           |        | 0        |         | 24       |          | NA    | 0      | 18,822         | NE                  |        | NE          |
|                               | N. of tissues transplanted                  | NA      | NE        | NA         | 0     | 1           |        | 0        |         | 35       |          | NA    | 0      | 1,958          | 0                   |        | NE          |
|                               | N. of patients transplanted                 | NA      | NE        | NA         | 0     | 1           |        | 0        |         | 27       |          | NA    | 0      | NA             | 0                   |        | NE          |
|                               | N. of transplant procedures                 | NA      | NE        | NA         | 0     | 1           |        | 0        |         | 32       |          | NA    | 0      | NA             | 0                   |        | NE          |

# PRELIMINARY DATA ON TISSUES - YEAR 2017

## LATIN-AMERICAN COUNTRIES

| Country   |                             | Argentina | Bolivia | Brazil  | Chile | Colombia | Costa Rica | Cuba | Dominican Republic | Ecuador | Guatemala | Honduras | Mexico  | Nicaragua | Panama  | Paraguay | Peru | Uruguay |  |
|---|-----------------------------|-----------|---------|---------|-------|----------|------------|------|--------------------|---------|-----------|----------|---------|-----------|---------|----------|------|---------|--|
| Population (Source: UNFPA. State of World Population. 2017 - Million) |                             | 44.3      | 11.1    | 209.3   | 18.1  | 49.1     | 4.9        | 11.5 | 10.8               | 16.6    | 16.9      | 9.3      | 129.2   | 6.2       | 4.1     | 6.8      | 32.2 | 3.5     |  |
| TYPE OF TISSUE  | TYPE OF DATA                | NO DATA   |         |         |       |          |            |      | NO DATA            |         | NO DATA   |          | NO DATA |           | NO DATA |          |      |         |  |
| CORNEAS   | N. of tissue donations      | 821       | 0       | 34,787  | 86    | 1,160    | 297        |      |                    | 128     |           |          | 3,710   | 0         | 5       | 80       |      | 96      |  |
|   | Tissue donation PMP         | 18.5      | 0.0     | 166.2   | 4.8   | 23.6     | 60.6       |      |                    | 7.7     |           |          | 28.7    | 0.0       | 1.2     | 11.8     |      | 27.4    |  |
|   | N. of tissues retrieved     | 1,722     | 0       | 30,735  | 172   | 1,705    | 297        |      |                    | 128     |           |          | 3,646   | 0         | 9       | 72       |      | 223     |  |
|   | N. of tissues transplanted  | 1,104     | 43      | 15,242  | NA    | 2,214    | NA         |      |                    | NA      |           |          | 3,798   | 0         | 0       | 72       |      | NA      |  |
|   | N. of patients transplanted | 1,104     | 43      | NA      | 79    | NA       | NA         |      |                    | NA      |           |          | 3,798   | 0         | 0       | 72       |      | 190     |  |
|   | N. of transplant procedures | 1,104     | 43      | 15,242  | 75    | NA       | 297        |      |                    | 229     |           |          | 3,798   | 0         |         | 72       |      | 201     |  |
| BLOOD VESSELS   | N. of tissue donations      | 0         | 0       | 0       | 0     | 37       | 10         |      |                    | 0       |           |          | 0       | 0         | 0       | 0        |      | 14      |  |
|   | Tissue donation PMP         | 0.0       | 0.0     | 0.0     | 0.0   | 0.8      | 2.0        |      |                    | 0.0     |           |          | 0.0     | 0.0       | 0.0     | 0.0      |      | 4.0     |  |
|   | N. of tissues retrieved     | 0         | 0       | 0       | 0     | 0        | 10         |      |                    | 0       |           |          | 0       | 0         | 0       | 0        |      | 26      |  |
|   | N. of tissues transplanted  | 0         | 0       | 0       | 0     | 55       | NA         |      |                    | 0       |           |          | 0       | 0         | 0       | 0        |      | NA      |  |
|   | N. of patients transplanted | 0         | 0       | 0       | 0     | NA       | NA         |      |                    | 0       |           |          | 0       | 0         | 0       | 0        |      | 13      |  |
|   | N. of transplant procedures | 0         | 0       | 0       | 0     | NA       | 10         |      |                    | 0       |           |          | 0       | 0         | 0       | 0        |      | 14      |  |
| HEART VALVES  | N. of tissue donations      | 215       | 0       | 247     | 5     | 1        | 10         |      |                    | 0       |           |          | 7       | 0         | 0       | 0        |      | 0       |  |
|   | Tissue donation PMP         | 4.9       | 0.0     | 1.2     | 0.3   | 0.0      | 2.0        |      |                    | 0.0     |           |          | 0.1     | 0.0       | 0.0     | 0.0      |      | 0.0     |  |
|   | N. of tissues retrieved     | 772       | 0       | 480     | 5     | 2        | 10         |      |                    | 0       |           |          | 7       | 0         | 0       | 0        |      | 0       |  |
|   | N. of tissues transplanted  | 140       | 0       | 114     | NA    | 23       | NA         |      |                    | 0       |           |          | 4       | 0         | 0       | 0        |      | 0       |  |
|   | N. of patients transplanted | 140       | 0       | NA      | NA    | NA       | NA         |      |                    | 0       |           |          | 4       | 0         | 0       | 0        |      | 1       |  |
|   | N. of transplant procedures | 140       | 0       | 114     | NA    | NA       | 10         |      |                    | 0       |           |          | 4       | 0         | 0       | 0        |      | 1       |  |
| MUSCULOSKELETAL   | N. of tissue donations      | 141       | 0       | 1,522   | 1     | 826      | 32         |      |                    | 0       |           |          | 322     | 0         | 0       | 0        |      | 18      |  |
|   | Tissue donation PMP         | 3.2       | 0.0     | 7.3     | 0.1   | 16.8     | 6.5        |      |                    | 0.0     |           |          | 2.5     | 0.0       | 0.0     | 0.0      |      | 5.1     |  |
|   | N. of tissues retrieved     | 4,217     | 0       | 13,153  | 1     | 594      | 32         |      |                    | 0       |           |          | 317     | 0         | 0       | 0        |      | 25      |  |
|   | N. of tissues transplanted  | 6,473     | 0       | 14,670  | NA    | 8,574    | NA         |      |                    | 0       |           |          | 0       | 0         | 0       | 0        |      | NA      |  |
|   | N. of patients transplanted | 4,721     | 0       |         | NA    | NA       | NA         |      |                    | 0       |           |          | 0       | 0         | 0       | 0        |      | 451     |  |
|   | N. of transplant procedures | 6,473     | 0       | 14,670  | NA    | NA       | 32         |      |                    | 0       |           |          | 0       | 0         | 0       | 0        |      | 111     |  |
| PLACENTA/AMNIOTIC MEMBRANE  | N. of tissue donations      | 56        | 0       | 0       | 0     | 54       | 11         |      |                    | 0       |           |          | 0       | 0         | 0       | 0        |      | 0       |  |
|   | Tissue donation PMP         | 1.3       | 0.0     | 0.0     | 0.0   | 1.1      | 2.2        |      |                    | 0.0     |           |          | 0.0     | 0.0       | 0.0     | 0.0      |      | 0.0     |  |
|   | N. of tissues retrieved     | 56        | 0       | 0       | 0     | 54       | 11         |      |                    | 0       |           |          | 0       | 0         | 0       | 0        |      | 0       |  |
|   | N. of tissues transplanted  | 591       | 0       | 0       | NA    | 381      | NA         |      |                    | 0       |           |          | 0       | 0         | 0       | 0        |      | NA      |  |
|   | N. of patients transplanted | 515       | 0       | 0       | NA    | NA       | NA         |      |                    | 0       |           |          | 0       | 0         | 0       | 0        |      | 55      |  |
|   | N. of transplant procedures | NA        | 0       | 0       | NA    | NA       | 11         |      |                    | 0       |           |          | 0       | 0         | 0       | 0        |      | 230     |  |
| SKIN  | N. of tissue donations      | 62        | 0       | 202     | 1     | 85       | 2          |      |                    | 0       |           |          | 106     | 0         | 0       | 0        |      | 22      |  |
|   | Tissue donation PMP         | 1.4       | 0.0     | 1.0     | 0.1   | 1.7      | 0.4        |      |                    | 0.0     |           |          | 0.8     | 0.0       | 0.0     | 0.0      |      | 6.3     |  |
|   | N. of tissues retrieved     | 44,016    | 0       | 121,467 | 3,031 | 85       | 2          |      |                    | 0       |           |          | 82      | 0         | 0       | 0        |      | 44,500  |  |
|   | N. of tissues transplanted  | 452       | 0       | 87,738  | NA    | 52       | NA         |      |                    | 0       |           |          | 0       | 0         | 0       | 0        |      | NA      |  |
|   | N. of patients transplanted | 61        | 0       | NA      | NA    | NA       | NA         |      |                    | 0       |           |          | 0       | 0         | 0       | 0        |      | 18      |  |
|   | N. of transplant procedures | 61        | 0       | 87,738  | NA    | NA       | 2          |      |                    | 0       |           |          | 0       | 0         | 0       | 0        |      | 574     |  |
| OTHERS TISSUES  | N. of tissue donations      | 0         | 0       | 0       | 0     | 0        | 0          |      |                    | 64      |           |          | 0       | 0         | 0       | 0        |      | 6       |  |
|   | Tissue donation PMP         | 0.0       | 0.0     | 0.0     | 0.0   | 0.0      | 0.0        |      |                    | 3.9     |           |          | 0.0     | 0.0       | 0.0     | 0.0      |      | 1.7     |  |
|   | N. of tissues retrieved     | 0         | 0       | 0       | 0     | 0        | 0          |      |                    | 427     |           |          | 0       | 11        | 0       | 0        |      | 11      |  |
|   | N. of tissues transplanted  | 0         | 0       | 0       | NA    | UK       | 0          |      |                    | NA      |           |          | 0       | 0         | 0       | 0        |      | NA      |  |
|   | N. of patients transplanted | 0         | 0       | 0       | NA    | NA       | 0          |      |                    | NA      |           |          | 0       | 0         | 0       | 0        |      | NA      |  |
|   | N. of transplant procedures |           |         |         |       |          |            |      |                    |         |           |          |         |           |         |          |      |         |  |

## PRELIMINARY DATA ON HAEMATOPOIETIC STEM CELLS - YEAR 2017

## EUROPEAN UNION COUNTRIES

| Country  |  | Austria | Belgium | Bulgaria | Croatia | Cyprus  | Czech Republic | Denmark | Estonia | Finland | France  | Germany | Greece  | Hungary | Ireland | Italy   |
|--|--|---------|---------|----------|---------|---------|----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| <b>Population (Source: Eurostat)</b>                             |  | 8.8     | 11.4    | 7.1      | 4.2     | 0.9     | 10.6           | 5.7     | 1.3     | 5.5     | 67.0    | 82.5    | 10.8    | 9.8     | 4.8     | 60.6    |
| CATEGORY OF DATA   | TYPE OF DATA                                       | NO DATA |         | NO DATA  |         |         |                | NO DATA |         | NO DATA |         |         | NO DATA |         | NO DATA |         |
| POTENTIAL DONATION<br>AND SEARCHING<br>IN NATIONAL<br>REGISTRIES | N. of potential donors at 31.12.17                 |         |         | NA       | 49,836  | 152,794 | 105,791        |         | NA      |         | 278,125 | NA      |         | NA      |         | 392,873 |
|  | N. of cord blood units at 31.12.17                 |         |         | NA       | 3,305   | 4,055   | 4,198          |         | NE      |         | 36,191  | NA      |         | NA      |         | 35,247  |
|  | N. of searches requested                           |         |         | 0        | 635     | 83      | 64,888         |         | NA      |         | 26,740  | NA      |         | NA      |         | 3,304   |
|  | N. of unrelated donations                          |         |         | 0        | 52      | 55      | 105            |         | NA      |         | 1,217   | NA      |         | NA      |         | 888     |
| DONATION   | N. of donations - Autologous                       |         |         | 68       | 529     | 1,335   | 788            |         | 47      |         | 3,617   | 4,300   |         | 179     |         | 2,981   |
|  | N. of donations - Allogenic                        |         |         | 15       | 1,206   | 1,837   | 114            |         | 4       |         | 1,250   | 8,135   |         | 7       |         | 1,361   |
|  | N. of donations - Allogenic, related               |         |         | 15       | 50      | 11      | 62             |         | 4       |         | 903     | 970     |         | 7       |         | 1,104   |
|  | N. of donations - Allogenic, unrelated             |         |         | 0        | 1,156   | 1,826   | 52             |         | 0       |         | 347     | 7,165   |         | 0       |         | 257     |
| BANKING OF CORD BLOOD  | N. of unrelated cord blood units collected         |         |         | 62       | 1,141   | 1,777   | 358            |         | NE      |         | 1,254   | 657     |         | 0       |         | 11,735  |
|  | N. of unrelated cord blood units distributed       |         |         | 0        | 1       | 0       | 0              |         | NE      |         | 152     | 15      |         | 0       |         | 30      |
|  | N. of related cord blood units collected           |         |         | 0        | 10      | 8       | 26             |         | NE      |         | NA      | 13      |         | 4,173   |         | 161     |
|  | N. of related cord blood units distributed         |         |         | 0        | 0       | 8       | 0              |         | NE      |         | NA      | 0       |         | 1       |         | 8       |
| TRANSPLANT   | N. of transplants - Autologous                     |         |         | 51       | 164     | 26      | 489            |         | 48      |         | 3,321   | 4,201   |         | 171     |         | 2,981   |
|  | N. of patients transplanted - Autologous           |         |         | 43       | 134     | 26      | 382            |         | NA      |         | 3,197   | 3,542   |         | 170     |         | 2,458   |
|  | N. of transplants - Allogenic                      |         |         | 33       | 80      | 0       | 243            |         | 17      |         | 1,908   | 3,180   |         | 12      |         | 1,957   |
|  | N. of patients transplanted - Allogenic            |         |         | 32       | 77      | 0       | 227            |         | NA      |         | NA      | 3,005   |         | 12      |         | 1,825   |
|  | N. of transplants - Allogenic, related             |         |         | 13       | 35      | 0       | 82             |         | 4       |         | 904     | 913     |         | 7       |         | 1,104   |
|  | N. of patients transplanted - Allogenic, related   |         |         | 13       | 34      | 0       | 79             |         | NA      |         | NA      | 853     |         | 7       |         | 1,015   |
|  | N. of transplants - Allogenic, unrelated           |         |         | 20       | 45      | 0       | 161            |         | 13      |         | 998     | 2,267   |         | 5       |         | 853     |
|  | N. of patients transplanted - Allogenic, unrelated |         |         | 19       | 43      | 0       | 148            |         | NA      |         | NA      | 2,152   |         | 5       |         | 810     |



PRELIMINARY DATA ON HAEMATOPOIETIC STEM CELLS - YEAR 2017

| PRELIMINARY DATA ON HAEMATOPOIETIC STEM CELLS - YEAR 2017 |  |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
|---|--|-----------|------------|-------|-------------|--------|----------|---------|----------|----------|---------|--------|----------------|---------------------|--------|
| EUROPEAN UNION COUNTRIES                                  |  |           |            |       |             |        |          |         |          |          |         |        |                | OTHER COUNTRIES     |        |
| Country   | Latvia   | Lithuania | Luxembourg | Malta | Netherlands | Poland | Portugal | Romania | Slovakia | Slovenia | Spain   | Sweden | United Kingdom | Republic of Moldova | Norway |
| <b>Population (Font: Eurostat)</b>                        | 2.0  | 2.8       | 0.6        | 0.5   | 17.1        | 38.0   | 10.3     | 19.6    | 5.4      | 2.1      | 46.5    | 10.0   | 65.8           | 3.6                 | 5.3    |
| CATEGORY OF DATA  | TYPE OF DATA                                       |           | NO DATA    |       | NO DATA     |        | NO DATA  |         | NO DATA  |          | NO DATA |        | NO DATA        |                     |        |
| POTENTIAL DONATION AND SEARCHING IN NATIONAL REGISTRIES   | N. of potential donors at 31.12.17                 |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
|   | UK   | 11,847    |            | 0     | 190,657     |        | 397,521  |         | 15,417   |          | 322,530 | NA     | NA             | NE                  |        |
|   | N. of cord blood units at 31.12.17                 |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
|   | UK   | 1,567     |            | 0     | 4,636       |        | 9,334    |         | 1,742    |          | 65,155  | NA     | NA             | NE                  |        |
|   | N. of searches requested                           |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
| DONATION  | UK   | NA        |            | 0     | 609         |        | 2,616    |         | 23,833   |          | 926     | NA     | NA             | NE                  |        |
|   | N. of unrelated donations                          |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
|   | UK   | NA        |            | 0     | 413         |        | 131      |         | 46       |          | 689     | NA     | NA             | NE                  |        |
|   | N. of donations - Autologous                       |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
|   | UK   | 409       |            | 0     | 3,173       |        | 419      |         | 3,294    |          | 2,090   | 735    | 8,483          | 19                  |        |
| BANKING OF CORD BLOOD                                     | N. of donations - Allogenic                        |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
|   | 188  | 52        |            | 0     | 580         |        | 173      |         | 78       |          | 871     | 622    | 10,230         | NE                  |        |
|   | N. of donations - Allogenic, related               |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
|   | 188  | 28        |            | 0     | 243         |        | 76       |         | 65       |          | 767     | 99     | NA             | NE                  |        |
|   | N. of donations - Allogenic, unrelated             |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
| TRANSPLANT  | UK   | 24        |            | 0     | 337         |        | 97       |         | 13       |          | 104     | 523    | NA             | NE                  |        |
|   | N. of unrelated cord blood units collected         |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
|   | UK   | NE        |            | 0     | 251         |        | 1,578    |         | 6        |          | 1,606   | 371    | NA             | NE                  |        |
|   | N. of unrelated cord blood units distributed       |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
|   | UK   | NE        |            | 0     | 80          |        | 1        |         | 3        |          | 201     | 9      | NA             | NE                  |        |
| TRANSPLANT  | N. of related cord blood units collected           |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
|   | 188  | 113       |            | 0     | 3           |        | 10       |         | 20       |          | NA      | 1      | NA             | NE                  |        |
|   | N. of related cord blood units distributed         |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
|   | 0  | 0         |            | 0     | 1           |        | 0        |         | 0        |          | 1       | 0      | NA             | NE                  |        |
|   | N. of transplants - Autologous                     |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
| TRANSPLANT  | UK   | 165       |            | 0     | 3,723       |        | 379      |         | 149      |          | 2,090   | 482    | NA             | 18                  |        |
|   | N. of patients transplanted - Autologous           |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
|   | UK   | 109       |            | 0     | 1,055       |        | 361      |         | 118      |          | NA      | 447    | NA             | 18                  |        |
|   | N. of transplants - Allogenic                      |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
|   | UK   | 64        |            | 0     | 776         |        | 148      |         | 82       |          | 1,231   | 267    | NA             | NE                  |        |
| TRANSPLANT  | N. of patients transplanted - Allogenic            |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
|   | UK   | 58        |            | 0     | 704         |        | 146      |         | 69       |          | NA      | 257    | NA             | NE                  |        |
|   | N. of transplants - Allogenic, related             |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
|   | UK   | 16        |            | 0     | 259         |        | 63       |         | 35       |          | 767     | 80     | NA             | NE                  |        |
|   | N. of patients transplanted - Allogenic, related   |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
| TRANSPLANT  | UK   | 15        |            | 0     | 216         |        | 62       |         | 27       |          | NA      | 79     | NA             | NE                  |        |
|   | N. of transplants - Allogenic, unrelated           |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
|   | UK   | 48        |            | 0     | 517         |        | 85       |         | 47       |          | 464     | 187    | NA             | NE                  |        |
|   | N. of patients transplanted - Allogenic, unrelated |           |            |       |             |        |          |         |          |          |         |        |                |                     |        |
|   | UK   | 43        |            | 0     | 488         |        | 84       |         | 42       |          | NA      | 178    | NA             | NE                  |        |

## PRELIMINARY DATA ON HAEMATOPOIETIC STEM CELLS - YEAR 2017

## LATIN-AMERICAN COUNTRIES

| Country   |  | Argentina | Bolivia | Brazil    | Chile | Colombia | Costa Rica | Cuba    | Dominican Republic | Ecuador | Guatemala | Honduras | Mexico  | Nicaragua | Panama | Paraguay | Peru | Uruguay |
|---|--|-----------|---------|-----------|-------|----------|------------|---------|--------------------|---------|-----------|----------|---------|-----------|--------|----------|------|---------|
| Population (Source: UNFPA, State of World Population, 2017 - Million) |  | 44.3      | 11.1    | 209.3     | 18.1  | 49.1     | 4.9        | 11.5    | 10.8               | 16.6    | 16.9      | 9.3      | 129.2   | 6.2       | 4.1    | 6.8      | 32.2 | 3.5     |
| CATEGORY OF DATA  | TYPE OF DATA                                       |           |         |           |       |          |            | NO DATA | NO DATA            |         |           |          | NO DATA | NO DATA   |        |          |      |         |
| POTENTIAL DONATION AND SEARCHING IN NATIONAL REGISTRIES               | N. of potential donors at 31.12.17                 | 151,928   | 0       | 4,384,407 | NA    | 0        | 64         |         |                    | 0       |           |          | 0       | 0         | 0      | 0        |      | 1,135   |
|   | N. of cord blood units at 31.12.17                 | 3,364     | 0       | 15,030    | NA    | 0        | 0          |         |                    | 0       |           |          | 0       | 0         | 0      | 0        |      | 25      |
|   | N. of searches requested                           | 767       | 0       | 14,781    | NA    | 0        | 0          |         |                    | 0       |           |          | 0       | 0         | 0      | 0        |      | 36      |
| BANKING OF CORD BLOOD   | N. of unrelated cord blood units at 31.12.17       | 3,364     | 0       | 14,620    | 0     | 0        | 0          |         |                    | 0       |           |          | 0       | 0         | 0      | 0        |      | 0       |
|   | N. of related cord blood units at 31.12.17         | 0         | 0       | 0         | 0     | 0        | 0          |         |                    | 0       |           |          | 0       | 0         | 0      | 0        |      | 25      |
| TRANSPLANT  | N. of transplants - Autologous                     | 635       | 0       | 1,454     | 0     | 0        | 75         |         |                    | 34      |           |          | 0       | 0         | 20     | 23       |      | 101     |
|   | N. of patients transplanted - Autologous           | 625       | 0       | 0         | 0     | 0        | 0          |         |                    | 34      |           |          | 0       | 0         | 20     | 23       |      | 0       |
|   | N. of transplants - Allogenic                      | 359       | 0       | 934       | 0     | 84       | 3          |         |                    | 34      |           |          | 0       | 0         | 30     | 1        |      | 37      |
|   | N. of patients transplanted - Allogenic            | 348       | 0       | 377       | 0     | 0        | 0          |         |                    | 34      |           |          | 0       | 0         | 30     | 1        |      | 0       |
|   | N. of transplants - Allogenic, related             | 254       | 0       | 542       | 0     | 77       | 0          |         |                    | 27      |           |          | 0       | 0         | 5      | 1        |      | 32      |
|   | N. of patients transplanted - Allogenic, related   | 250       | 0       | 0         | 0     | 0        | 0          |         |                    | 27      |           |          | 0       | 0         | 5      | 1        |      | 0       |
|   | N. of transplants - Allogenic, unrelated           | 105       | 0       | 392       | 0     | 7        | 3          |         |                    | 7       |           |          | 0       | 0         | 25     | 0        |      | 5       |
|   | N. of patients transplanted - Allogenic, unrelated | 98        | 0       | 377       | 0     | 0        | 0          |         |                    | 7       |           |          | 0       | 0         | 25     | 0        |      | 0       |

# **Council of Europe Reference Documents. Year 2017**



# Guide for the Implementation of the Principle of Prohibition of Financial Gain with Respect to the Human Body and its Parts from Living or Deceased Donors

## Foreword

The drafting of this guide was initiated by the Committee on Bioethics (DH-BIO), with a view to clarifying the terms and facilitating the implementation of the principle of prohibition of financial gain laid down in Article 21 of the Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine: the Convention on Human Rights and Biomedicine (ETS No. 164; the Oviedo Convention), as well as in its Additional Protocol concerning Transplantation of Organs and Tissues of Human Origin (CETS No. 186). According to this principle, “the human body and its parts shall not, as such, give rise to financial gain”.

In February 2016, the DH-BIO set up an ad hoc working group on the prohibition of financial gain as a follow-up to the Statement on the prohibition of any form of commercialisation of human organs adopted by the DH-BIO and the European Committee on Organ Transplantation (CD-P-TO) in May 2014, and then taken up in parallel statements by the Parliamentary Assembly of the Council of Europe (PACE) Committee on Social Affairs, Health and Sustainable Development (June 2014) and by the Committee of Ministers (July 2014).

The ad hoc working group was composed of representatives of DH-BIO and experts of other relevant Council of Europe committees, namely the CD-P-TO and the European Committee on Blood Transfusion (CD-P-TS). The World Health Organization (WHO) and the European Commission also participated in the meetings of the ad hoc group. The group was initially chaired by Ms Doris Wolfslehner (Austria), from the DH-BIO Bureau, but following a change in her position at national level and departure from the DH-BIO, Ms Ritva Halila (Finland), also a DH-BIO Bureau member, took over as chair of the ad hoc group.

The preliminary draft of this guide was prepared by the ad hoc group in the course of three meetings held in 2016. The text was then forwarded to the DH-BIO, which conducted an editorial revision on it in 2017, and

subsequently adopted it on 4 December 2017. The guide was then sent to the CD-P-TO and the CD-P-TS. The CD-P-TO adopted the guide on 11 January 2018.

## Introduction

1. This document gives guidance on how to interpret the principle of the prohibition of financial gain with respect to the human body and its parts from living or deceased donors, as laid down in Article 21 of the 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 (ETS No. 164; the Oviedo Convention), in order to facilitate its implementation.

2. The principle of the prohibition of financial gain with respect to donation has the purpose of ensuring respect for:

- the dignity of living donors and recipients and for their human rights;
- the inalienability of the body of the deceased donor.

It also contributes to:

- promoting altruistic donation; and
- the safety and quality of donated human body parts, contributing thereby to maintaining a donation system in which people can trust.

3. Financial gain with respect to the human body and its parts, as such, includes payments or inducements in kind either directly to living donors, to the families of deceased donors or to another third party. It may have the effect of influencing the most vulnerable people in society, and expose them to exploitative actions.

4. The prohibition of financial gain does not prevent:

- compensation of living donors for loss of earnings and reimbursement of any other justifiable expenses

caused by the removal of organs, tissues or cells, or by the related medical examinations;

- compensation in case of undue damage resulting from the removal of organs, tissues or cells.

The donation should therefore be financially neutral for the donor.

5. Furthermore, the prohibition of financial gain does not hinder payment of a justifiable fee for medical or related technical services rendered in connection with the donation.

6. The principle applies to any donation of the human body or its parts regardless of the purpose of donation.

### **Legal instruments and professional standards referring to the principle of the prohibition of financial gain**

7. The prohibition of financial gain from the human body or its parts, as such, is set out in Article 21 of:

- the Convention on Human Rights and Biomedicine, which states that, “The human body and its parts shall not, as such, give rise to financial gain”;
- the Additional Protocol concerning Transplantation of Organs and Tissues of Human Origin (ETS No. 186), which states that, “The human body and its parts shall not, as such, give rise to financial gain or comparable advantage”.

8. The Additional Protocol to the Convention on Human Rights and Biomedicine concerning Biomedical Research (CETS No. 195) furthermore contains a reference to undue influence, including that of a financial nature, which shall not be exerted on persons to participate in research.

9. The Council of Europe Convention against Trafficking in Human Organs (CETS No. 216) refers to the notion of financial gain or comparable advantage as grounds for qualifying the illicit removal of human organs from living or deceased donors as a criminal offence.

10. The principle of the prohibition of financial gain is intrinsically linked to the prohibition of organ and tissue trafficking, laid down in Article 22 of the Additional Protocol concerning Transplantation of Organs and Tissues of Human Origin.

11. The Explanatory Report to the Additional Protocol concerning Transplantation of Organs and Tissues of Human Origin, with regard to Article 22, gives examples of why trade in organs and tissues, as such, for direct or indirect financial gain must be prohibited, namely the risk of coercion being exercised by traffickers, either in addition to, or as an alternative to, offering inducements.

These exploitative practices then lead to the undermining of people’s trust in the donation system.

12. The principle of the prohibition of financial gain has been reiterated by the Committee on Bioethics (DH-BIO) and the European Committee on Organ Transplantation (CD-P-TO) in their joint statement on the prohibition of any form of commercialisation of human organs, which was also adopted by the Committee of Ministers of the Council of Europe. The principle likewise is referred to in Recommendation No. R (95) 14 of the Committee of Ministers to member states on the protection of the health of donors and recipients in the area of blood transfusion, as well as in the CD-P-TO *Guide to the quality and safety of tissues and cells for human application* and the *Guide to the quality and safety of organs for transplantation*.

13. Furthermore, the principle of the prohibition of financial gain is also set out in Article 3(2), sub-paragraph 3, of the Charter of Fundamental Rights of the European Union (EU).

14. In addition, several EU directives refer to the notion of “voluntary unpaid donations”, in particular those concerning human blood and blood components (Directive 2002/98/EC), human tissues and cells (Directive 2004/23/EC), and human organs intended for transplantation (Directive 2010/53/EU).

15. The prohibition of financial gain is likewise reflected in the World Health Organization (WHO) Guiding Principles on Human Cell, Tissue and Organ Transplantation (Guiding Principle 5).

16. Finally, there are international professional standards which likewise reiterate the principle of the prohibition of financial gain, in particular the Declaration of Istanbul on organ trafficking and transplant tourism.

### **Reimbursement of justifiable expenses and compensation for loss of earnings for living donors**

17. The Convention on Human Rights and Biomedicine states that the reimbursement of expenses incurred and compensation for loss of earnings are acceptable. This is reiterated in the Additional Protocol concerning Transplantation of Organs and Tissues of Human Origin, which authorises compensation for loss of earnings and reimbursement of justifiable expenses.

18. The WHO Guiding Principles on Human Cell, Tissue and Organ Transplantation, endorsed by the 63rd World Health Assembly in May 2010 (Resolution WHA63.22), stipulate that “the prohibition on sale or purchase of cells, tissues and organs does not preclude reimbursing

reasonable and verifiable expenses incurred by the donor”, and thus likewise permit the reimbursement of justifiable expenses.

19. Recommendation No. R (95) 14 of the Committee of Ministers to member states on the protection of the health of donors and recipients in the area of blood transfusion contains the following definition of voluntary non-remunerated donation:

*“Donation is considered voluntary and non-remunerated if the person gives blood, plasma or cellular components of his or her own free will and receives no payment for it, either in the form of cash or in kind which could be considered a substitute for money. This would include time off work other than that reasonably needed for the donation and travel. Small tokens, refreshments and reimbursements of direct travel costs are compatible with voluntary, non-remunerated donation”.*

20. The above legal instruments therefore call for financial neutrality for the living donor, and thus permit the direct reimbursement and compensation of costs related to a donation. Following the common practice in this field, the term “reimbursement” is used in this guide in relation to expenses (such as travel and other expenses incurred as a result of donation), whereas the term “compensation” is used in relation to the loss of earnings related to the donation.

21. The condition that reimbursement should be justifiable, and therefore acceptable, can easily be met in cases in which only those costs are reimbursed for which the donor can produce receipts, leading to the reimbursement of real costs. This is usually straightforward when reimbursing the cost of travel tickets, or other receipted incidental expenses.

22. Other costs incurred as a result of donation, such as lost earnings, the cost of care for dependents, or the cost of follow-up may be less straightforward to calculate. The overarching principle should be that donors should neither lose nor gain financially as a result of donating. In order to ensure that they are correctly compensated or reimbursed, donors should provide evidence of the losses or expenses actually incurred.

23. Where compensation is provided in the form of a fixed-rate scheme, the conditions of its implementation must be provided for under national law, including the setting of an upper limit for compensation. If the upper limit is not specified by law, it should be established by an independent body set up in accordance with national law.

24. The fixed-rate compensation scheme must be transparent and must not act as an inducement to donate.

25. Measures should be in place to minimise the risk of harm to donors which may result from the donation

scheme, such as national registers or traceability systems to limit how frequently a person can donate.

26. Reimbursement and compensation of living donors are directly connected to real expenses incurred and the real loss of earnings to the donor related to the donation procedure, including at the stage of donor screening and follow-up measures, even if the potential donor is not suitable for donation.

27. Reimbursement and compensation must never be connected to the donation as such, as the latter does not have a financial value attributed to it. In practice this means that reimbursement and compensation must not vary according to their final objective, be it for therapeutic or research purposes, nor according to the quality of what has been donated, or the outcome for the recipient.

28. Reimbursement and compensation should not lead to inappropriate competition (e.g. financially-driven competition) between establishments over donor recruitment, in particular in the context of fixed-rate compensation schemes.

### ***Payment for the provision of medical or related technical services***

29. The Additional Protocol to the Convention on Human Rights and Biomedicine concerning Transplantation of Organs and Tissues of Human Origin explicitly allows for the “payment of a justifiable fee for legitimate medical or related technical services rendered in connection with transplantation”. The explanatory report specifies that this could include “the cost of retrieval, transport, preparation, preservation and storage..., which may legitimately give rise to reasonable remuneration”.

30. The explanatory report to the Convention on Human Rights and Biomedicine, with regard to Article 21, also gives examples of technical acts which can legitimately give rise to reasonable remuneration to cover costs, such as the “sampling, testing, pasteurisation, fractionation, purification, storage, culture, transport, etc.” of related items.

31. Article 21 of the Convention on Human Rights and Biomedicine does not prohibit the trade, within the existing legal framework, in medicinal products and medical devices incorporating human tissue which have been subjected to a manufacturing process, as long as the tissue which is used as the starting material is not sold as such.

32. The remuneration and bonus systems within a hospital or donation centre for medical services related to the donation of parts of the human body from living or deceased donors should be comparable to payment for other services provided by the medical team within



that hospital or centre or comparable institutions within the member state. Thus, bonus payments linked to obtaining consent or authorisation for donation from the persons concerned are not permissible.

33. The fees related to technical services linked to the donation of the human body and its parts, as such, should not exceed operational costs, and should be comparable to those of similar technical services independent of their legal status within the member state. Fees may include, among other things, the cost of procurement, testing, processing, storage, distribution, personnel and transportation, infrastructure and administration, and the need to invest in state-of-the-art processes and equipment to ensure the long-term sustainability of the services offered.

34. Providers of technical services should be obliged to be transparent in the calculation of their fees for services and in the financial management of their services in order to comply with the prohibition of financial gain, and thus support a donation system which donors and recipients can trust. This obligation of transparency applies also to parts of the human body, as such, used as starting materials for the development and/or preparation of cell-based therapies and medical devices.

### ***Compensation in case of undue damage resulting from the donation***

35. The Additional Protocol to the Convention on Human Rights and Biomedicine concerning Transplantation of Organs and Tissues of Human Origin allows donors to receive compensation for undue damage resulting from the removal, the occurrence of which is not a normal consequence of the related procedures. The Additional Protocol refers to “fair compensation according to the conditions and procedures prescribed by law”.

36. The assessment of undue damage resulting from the donation relies on appropriate clinical follow-up of living donors and the monitoring of adverse reactions. Article 7 of the Additional Protocol to the Convention on Human Rights and Biomedicine concerning Transplantation of Organs and Tissues of Human Origin provides for medical follow-up measures for living donors, and the explanatory report states that “the nature and duration of such follow-up should depend on the nature of the intervention and its potential impact on the individual’s health.”

37. If the donation requires clinical follow-up measures (for example in case of organ donation or, where allowed, oocyte donation) donors for whom those measures cannot be guaranteed should be excluded from donation.

### ***Acceptable measures for the promotion of donation in the light of the principle of prohibition of financial gain***

38. Article 21 of the Additional Protocol to the Convention on Human Rights and Biomedicine concerning Transplantation of Organs and Tissues of Human Origin and Article 21 of the Convention against Trafficking in Human Organs, set out restrictions on promotion activities which make it clear that any attempt to advertise the need for, or availability of, organs or tissues with a view to offering or seeking financial or comparable advantage for any party, is prohibited.

39. However, promotion activities may be acceptable if the measures involved are “altruist-focused” measures, which are compatible with the prohibition of financial gain.

40. Altruist-focused measures include:

- information about the need for the donation of human body parts for others’ treatment or for medical research, which can include all forms of promotion campaigns, such as the European Day for Organ Donation and Transplantation or the World Blood Donor Day, or information on either governmental websites or websites of donation centres;
- recognition of, and gratitude for, altruistic donation, through whatever methods are appropriate both for the form of donation and the donor concerned, such as letters of thanks to the donor’s family where permissible and with due regard to privacy, inclusion in public memorials, and certificates for donors;
- interventions to remove barriers and disincentives to donation experienced by those disposed to donate, such as reimbursement and compensation of real expenses and real loss of income or earnings related to the donation.

41 Non-altruist-focused measures which are not compatible with the prohibition of financial gain include:

- interventions offering associated benefits in kind to encourage those who would not otherwise have contemplated to consider donating;
- financial incentives that leave the donor in a better financial position as a result of donating.

### ***Reference texts***

#### **Council of Europe**

Convention on Human Rights and Biomedicine (CETS No. 164), Article 21  
[www.coe.int/en/web/conventions/full-list/-/conventions/treaty/164](http://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/164)



Additional Protocol concerning Transplantation of Organs and Tissues of Human Origin (CETS No. 186), Article 21 [www.coe.int/en/web/conventions/full-list/-/conventions/treaty/186](http://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/186)

Council of Europe Convention against Trafficking in Human Organs (CETS No. 216) [www.coe.int/en/web/conventions/full-list/-/conventions/treaty/216](http://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/216)

Statement on the prohibition of any form of commercialisation of human organs, adopted by the DH-BIO and the CD-P-TO [www.coe.int/t/dg3/healthbioethic/Activities/05\\_Organ\\_transplantation\\_en/INF\(2014\)10%20e%20declaration.pdf](http://www.coe.int/t/dg3/healthbioethic/Activities/05_Organ_transplantation_en/INF(2014)10%20e%20declaration.pdf)

Statement by the Committee of Ministers on the prohibition of any form of commercialisation of human organs <https://wcd.coe.int/ViewDoc.jsp?id=2215115&Site=COE&BackColorInternet=C3C3C3&BackColorIntranet=EDB021&BackColorLogged=F5D383>

Recommendation No. R (95) 14 of the Committee of Ministers to member states on the protection of the health of donors and recipients in the area of blood transfusion <https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=09000016804da051>

Guide of the European Committee on Transplantation of Organs (CD-P-TO) to the quality and safety of tissues and cells for human application [www.edqm.eu/en/publications-transfusion-and-transplantation](http://www.edqm.eu/en/publications-transfusion-and-transplantation)

Guide to the quality and safety of organs for transplantation, of the European Committee on Transplantation of Organs (CD-P-TO) [www.edqm.eu/en/publications-transfusion-and-transplantation](http://www.edqm.eu/en/publications-transfusion-and-transplantation)

Guide to the preparation, use and quality assurance of blood components, of the European Committee on Blood Transfusion (CD-P-TS) [www.edqm.eu/en/publications-transfusion-and-transplantation](http://www.edqm.eu/en/publications-transfusion-and-transplantation)

## European Union

Charter of Fundamental Rights, Article 3 [www.europarl.europa.eu/charter/pdf/text\\_en.pdf](http://www.europarl.europa.eu/charter/pdf/text_en.pdf)

Directive 2002/98/EC setting standards of quality and safety for the collection, testing, processing, storage and distribution of human blood and blood components <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32002L0098&from=EN>

Directive 2004/23/EC on setting standards of quality and safety for the donation, procurement, testing, processing, preservation, storage and distribution of human tissues and cells <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:102:0048:0058:en:PDF>

Directive 2010/53/UE on standards of quality and safety of human organs intended for transplantation <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM%3Aasp0008>

European Parliament resolution of 19 May 2010 on the Commission Communication: Action plan on Organ Donation and Transplantation (2009-2015): Strengthened Cooperation between member States [www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P7-TA-2010-0183+0+DOC+XML+V0//EN](http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P7-TA-2010-0183+0+DOC+XML+V0//EN)

## World Health Organization

WHO Guiding Principles on Human Cell, Tissue and Organ Transplantation [www.who.int/transplantation/Guiding\\_PrinciplesTransplantation\\_WHA63.22en.pdf](http://www.who.int/transplantation/Guiding_PrinciplesTransplantation_WHA63.22en.pdf)

Principles on the donation and management of blood, blood components and other medical products of human origin, Principle 5 (report by the Secretariat presented to the World Health Assembly on 3 April 2017) [http://apps.who.int/gb/ebwha/pdf\\_files/WHA70/A70\\_19-en.pdf](http://apps.who.int/gb/ebwha/pdf_files/WHA70/A70_19-en.pdf)

"Human Organ and Tissue Transplantation", statement of the 63rd World Health Assembly [http://apps.who.int/gb/ebwha/pdf\\_files/WHA63/A63\\_R22-en.pdf](http://apps.who.int/gb/ebwha/pdf_files/WHA63/A63_R22-en.pdf)

## Others

Nuffield Council report on "Human Bodies: Donation for Medicine and Research" <http://nuffieldbioethics.org/project/donation/>

The Declaration of Istanbul on Organ Trafficking and Transplant Tourism [www.declarationofistanbul.org/about-the-declaration/structure-and-content](http://www.declarationofistanbul.org/about-the-declaration/structure-and-content)

# Statement on the Global Kidney Exchange Concept

as adopted at the 21<sup>st</sup> meeting of the Council of Europe European Committee on Organ Transplantation (CD-P-T0) on 10 April 2018 (document PA/PH/TO (18) 3 DEF)

*With the support of the Council of Europe Committee on Bioethics (DH-BIO)*

In view of the large deficit of kidneys for transplantation compared with demand, many countries are also facilitating transplants from living donors to complement the supply of organs made available from deceased donor programmes.<sup>1</sup> Living kidney donation, based on universally accepted ethical and professional standards, is therefore assuming increasing importance.<sup>2,3,4,5</sup> Donation between a living donor and their intended recipient was originally only possible in approximately 40% of potential pairings who presented for living donor transplantation since, after initial investigation, pairings could not proceed because of blood group differences or tissue typing antibody barriers, making the pair biologically incompatible. Kidney exchange programmes have emerged as a strategy to overcome these biological incompatibilities between patients in need of a kidney transplant and their genetically or emotionally related living donors.<sup>6</sup> Kidney exchange programmes allow incompatible pairs to swap donors (kidneys) and thus form new compatible donor-recipient pairs. In such schemes each pairing has a symmetrical benefit with no imbalance, either financial or otherwise.

The concept of Global Kidney Exchange (GKE) has been recently proposed as a means to increase the number of pairs that can benefit from kidney exchange programmes in high-income countries (HIC).<sup>7</sup> First, a

potential living donor pairing must be identified in a low/middle-income country (LMIC). They may be biologically compatible, but the transplant cannot take place because the pair cannot afford the procedure under their healthcare system. GKE proponents have coined a new term for this – “financial incompatibility”. Through the GKE programmes, this pair would travel to the HIC and the recipient would be given access to a transplant, but only provided that their donor was able to facilitate a chain of transplants in patients from that HIC country. The proponents of these GKE programmes suggest the associated costs (pre-donation and pre-transplantation screening, travel, lodging, a lump sum of money for post-transplantation care costs in the LMIC, etc.) could be covered by the cost savings of transplantation as compared with dialysis in the HIC. A fixed lump sum would be made available for the care of the recipient and possibly for any problems the donor could experience once they returned to their country. However, this sum would only last for a limited time and there is no surety that it would be increased should there be any complications or recurrent problems in the pairing.

A pilot GKE programme has started in the United States, using donor-recipient pairs coming from Mexico and the Philippines.<sup>7</sup>

<sup>1</sup> Global Observatory on Organ Donation and Transplantation. Available at: <http://www.transplant-observatory.org/>. Accessed: February 2018.

<sup>2</sup> WHO Guiding Principles On Human Cell, Tissue And Organ Transplantation. Available at: [http://www.who.int/transplantation/Guiding\\_PrinciplesTransplantation\\_WHA63.22en.pdf](http://www.who.int/transplantation/Guiding_PrinciplesTransplantation_WHA63.22en.pdf) . Accessed: February 2018.

<sup>3</sup> 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. Available at: <http://conventions.coe.int/Treaty/en/Treaties/Html/164.htm> . Accessed: February 2018.

<sup>4</sup> Additional Protocol to the Convention on Human Rights and Biomedicine concerning Transplantation of Organs and Tissues of Human Origin. Available at: <http://conventions.coe.int/Treaty/en/Treaties/Html/186.htm>. Accessed: February 2018.

<sup>5</sup> Directive 2010/53/EU of the European Parliament and of the Council of 7 July 2010 on standards of quality and safety of human organs intended for transplantation. Available at: [http://europa.eu/legislation\\_summaries/public\\_health/threats\\_to\\_health/sp0008\\_en.htm](http://europa.eu/legislation_summaries/public_health/threats_to_health/sp0008_en.htm) . Accessed: February 2018.

<sup>6</sup> European Network for Collaboration on Kidney Exchange Programmes. Available at: [http://www.enckep-cost.eu/http://www.cost.eu/COST\\_Actions/ca/CA15210](http://www.enckep-cost.eu/http://www.cost.eu/COST_Actions/ca/CA15210) Accessed: February 2018.

<sup>7</sup> Rees MA, Dunn TB, Kuhr CS, Marsh CL, Rogers J, Rees SE, et al. Kidney Exchange to Overcome Financial Barriers to Kidney Transplantation. *Am J Transplant* 2017; 17(3): 782-790.

The Council of Europe Committee on Organ Transplantation (CD-P-TO) has carefully studied the GKE proposal and, with the support of the Council of Europe Committee on Bioethics (DH-BIO), concluded that:

**1. Access to kidney exchange programmes on the basis of “financial incompatibilities” is inconsistent with the fundamental principle that “the human body and its parts shall not give rise, as such, to financial gain or comparable advantage”, a principle enshrined in a number of international standards.**<sup>2,3,4,5,8</sup> In this scenario, highly vulnerable patients in LMIC are given access to transplantation services only if they are able to provide a suitable donor kidney to the pool in the HIC, i.e., in exchange for making a kidney available, they receive substantial payment in kind, in the form of the cost of a procedure and medical therapy.<sup>9,10</sup> This would seem consistent with the definition of trafficking in human organs.<sup>11</sup>

**2. GKE involves the commodification or alienation of donor-recipient pairs from LMIC.**<sup>1\*</sup> The selection and acceptance criteria into the programme is not based on humanitarian criteria, but on the usefulness of the donor from the LMIC for a recipient in the HIC, involving the minimum expense for the programme (e.g. financially incompatible pairs from HIC are not accepted in the programme as their post-transplantation costs would be higher than those of pairs in LMIC).<sup>12</sup>

**3. GKE programmes entail severe risks of exploitation of individuals in LMIC.** Patients in need of a transplant

and not able to access it due to financial and other reasons are highly vulnerable.<sup>13</sup> This position may be abused (pressuring them to accept unfavourable offers) or prompt them to exploit their potential donors (who, for many reasons, may be vulnerable themselves). Although it is accepted that the supporters of GKE wish to put in place good governance to prevent abuse of the system, in reality, that guarantee would be difficult if not impossible to deliver, especially as the number of cases increased. In addition, for several reasons, the detection of possible cases of human trafficking for the purpose of organ removal and/or trafficking in human organs may be particularly difficult when evaluating and accepting non-resident living donors.<sup>14,15</sup>

**4. GKE does not guarantee appropriate long-term care of living donors and transplant recipients in LMIC.** There is significant disparity in the long-term care provisions for the LMIC pairing and any of the HIC couples. While multiple international legal instruments and scientific recommendations emphasise the need to provide appropriate long-term follow-up of donors after the donation procedure,<sup>4,5,8,15,16</sup> GKE programmes foresee a lump sum of money to address the medical needs of the recipient from the LMIC once back in their country of origin. It is unclear whether these funds would also be made available to donors in the case of unexpected medical or psychosocial complications. Whatever the case, follow-up care is only guaranteed until this money runs out. This carries severe risks for both the recipient (who

\* The Committee of Ministers of the Council of Europe held on 9 July 2014 reiterated in the Statement by the Committee of Ministers the prohibition of any form of commercialisation of human organs. The Committee emphasised: “the fundamental importance of that established principle for the protection of human dignity, which must be strictly respected in any regulation and procedures concerning the transplantation of human organs”.

<sup>8</sup> The Declaration of Istanbul on Organ Trafficking and Transplant Tourism. Available at: <http://www.declarationofistanbul.org/>. Accessed: February 2018.

<sup>9</sup> Statement Of The Declaration Of Istanbul Custodian Group concerning ethical objections to the proposed Global Kidney Exchange program. Available at: <http://declarationofistanbul.org/resources/policy-documents/795-statement-of-the-declaration-of-istanbul-custodian-group-concerning-ethical-objections-to-the-proposed-global-kidney-exchange-program>. Accessed: February 2018.

<sup>10</sup> Posicionamiento de la Red Consejo Iberoamericano de Donación y Trasplante sobre el proyecto Global Kidney Exchange. Available at: <http://www.ont.es/publicaciones/Documents/NEWSLETTER%202014.pdf>. Accessed: February 2018.

<sup>11</sup> Council of Europe Convention against Trafficking in Human Organs. Available at: <https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/216>. Accessed: February 2018.

<sup>12</sup> Krawiec KD and Rees MA. Reverse transplant tourism. Law and Contemp Probl 2014; 77: 145-173.

<sup>13</sup> Wiseman AC and Gill JS. Financial Incompatibility and Paired Kidney Exchange: Walking a Tightrope or Blazing a Trail? Am J Transplant 2017; 17(3): 597-598.

<sup>14</sup> Delmonico FL and Ascher NL. Opposition to irresponsible global kidney exchange. Am J Transplant 2017; 17(10): 2745-2746.

<sup>15</sup> Resolution CM/Res(2017)1 on principles for the selection, evaluation, donation and follow-up of the non-resident living organ donors. Available at: [https://www.edqm.eu/sites/default/files/cmres\\_2017\\_1-on\\_principles\\_for\\_selection\\_eval\\_donation\\_and\\_follow\\_up\\_of\\_nrlid.pdf](https://www.edqm.eu/sites/default/files/cmres_2017_1-on_principles_for_selection_eval_donation_and_follow_up_of_nrlid.pdf). Accessed: February 2018.

<sup>16</sup> Delmonico F, Council of the Transplantation Society. A report of the Amsterdam Forum on the Care of the Live Kidney Donor: Data and Medical Guidelines. Transplantation 2005; 79 (6 Suppl): S53-S66.

will lose the graft in the absence of immunosuppression and appropriate follow-up) and the donor (who may end up suffering from serious medical complications and even losing their remaining kidney). GKE proponents also do not address who will be responsible or finance the treatment if either the donor or the recipient in the LMIC need a (re)transplantation. On the contrary, couples from HIC are guaranteed their long-term follow-up according to the standards of the health system of their HIC.

**5. The GKE programmes may undermine local efforts to develop ethically sound transplant programmes in both the LMIC and the HIC,** jeopardising their ability to strive for self-sufficiency in transplantation.<sup>17</sup>

Taking all these arguments into consideration, the CD-P-TO, with the support of the DH-BIO and in agreement with many others,<sup>9,10,14</sup> recommends member States of the Council of Europe, Health Authorities, hospitals and professionals not to engage in GKE as currently described, and hence not to consider the inclusion of “financially incompatible” donor-recipient pairs in any kidney exchange programme. To assist in addressing barriers to transplantation that arise from the difficulties in finding biologically compatible donors for certain recipients, member States should support the development of equitable kidney paired exchange programmes that do not exploit financial inequalities between pairs (or countries).

<sup>17</sup> The Madrid Resolution on organ donation and transplantation: national responsibility in meeting the needs of patients, guided by the WHO principles. Transplantation 2011; 91 Suppl 11: S29-31.

# Kidney Exchange Programmes in Europe

## Position Paper of the Council of Europe European Committee on Organ Transplantation (CD-P-T0)

### 1. Introduction

Approximately one in a thousand European citizens suffers from end-stage renal disease<sup>1</sup>. For suitable transplant candidates, living donor kidney transplantation (LDKT) offers better outcomes in terms of patient and graft survival, compared with deceased donor kidney transplantation. On average, around 40% of all kidney transplants worldwide are now performed using an organ from a living donor<sup>2</sup>. Living donor programmes therefore contribute substantially to the expansion of the supply of donor organs. For this reason, many countries are encouraging the development of living donor programmes to compensate the limited availability of organs from deceased donors; in some countries, living donation is the only available source of organs for kidney transplantation. This, together with the ability to plan a transplant before dialysis is necessary, means that LDKT has become increasingly accepted as the treatment of choice for patients with end-stage renal disease.

However, in many European countries the percentage of living donor transplants is still considerably low. In 2016, the annual rate of LDKT in the EU varied from 0 to 33.2 pmp<sup>1</sup>. These data suggest that by optimising the use of living kidney donors, overall kidney transplantation rates could be substantially increased in many European countries, yielding improved access to transplantation and better transplant outcomes. Another benefit is the reduction in dialysis costs.

Historically, LDKT was only an option between genetically related donor-recipient pairs (blood relatives). In the mid-1990s, evidence showed that kidneys from non-genetically related donors achieved comparable outcomes<sup>3</sup>. As a consequence, transplant programme providers started to consider a wider set of donors, with the aim of helping patients who lacked a compatible genetically related donor.

Donation between living donors and their intended recipient was originally only possible if the pairs were compatible; this occurs in approximately 60% of cases. Compatibility is defined on the basis of blood group (ABO) and human leukocyte antigen (HLA) type. Certain donor-recipient combinations of blood and HLA types will cause rejection of the transplanted organ by the recipient. In such cases, the donor-recipient pair is 'incompatible'. Hence, even when a patient finds a (genetically) related donor, incompatibility may still prevent LDKT. The introduction of kidney exchange programmes (KEPs) was an important next step to increase LDKT rates. ABO-incompatible and/or HLA-incompatible donor-recipient pairs, for whom direct donation to the intended recipient is not possible, benefit from such programmes by forming new donor-recipient combinations through a special matching programme. KEPs match donors to recipients in optimal combinations for kidney exchange within the pool of available incompatible pairs.

This paper covers three key areas: first, an overview of the development and features of KEPs – including ethical and legal conditions – is given; this is followed by a discussion of general organisational aspects and the final sections detail challenges and conclusions. Some of the information described in this paper was collected from a survey to members of the Committee of Transplantation of the Council of Europe (CD-P-T0), a further survey carried out by the European Cooperation in Science & Technology (COST) European Network for Collaboration on Kidney Exchange Programmes (ENCKEP) and from the outcomes summarised in the first ENCKEP Handbook<sup>4</sup>.

### 2. Kidney Exchange Programmes

In 2004, the first national KEP in Europe was established in the Netherlands<sup>5</sup>. Several European countries have since independently developed KEPs to address

<sup>1</sup> International figures on donation and transplantation 2016. Newsletter Transplant 2017; 22.

<sup>2</sup> WHO Global Observatory on Donation and Transplantation [Available at: <http://www.transplant-observatory.org>]

<sup>3</sup> Terasaki PI, Cecka JM, Gjertson DW, Takemoto S. High survival rates of kidney transplants from spousal and living unrelated donors. *New Engl J Med* 1995; 333(6): 333-336.

<sup>4</sup> Biro P, Burnapp L, Haase-Kromwijk BJ, Hemke A, Johnson R, van de Klundert, J, Manlove D. Kidney Exchange Practices in Europe, First Handbook of the COST Action CA15210: European Network for Collaboration on Kidney Exchange Programmes (ENCKEP) 2017 [More information available at: <http://www.enckep-cost.eu/>]

<sup>5</sup> de Klerk M, Witvliet MD, Haase-Kromwijk BJ, Claas FH, Weimar W. A highly efficient living donor kidney exchange program for both blood type and crossmatch incompatible donor-recipient combinations. *Transplantation* 2006; 82(12): 1616-1620



incompatibility issues (see **Figure 1**)<sup>6</sup>. The survey among CD-P-TO members showed that 10 European countries are currently operating KEPs (Austria, Belgium, Czech Republic, France, Italy, Poland, Portugal, Spain, The Netherlands and United Kingdom) and a further 4 countries [Greece, Slovakia, Sweden, (along with Denmark and Norway under the ScandiTRANSPLANT Kidney Exchange Program, or STEP) and Switzerland] were interested in launching programmes. This information was corroborated by a second, more extensive survey by the ENCKEP<sup>4</sup>.

Established KEPs aim to increase the possibilities for LDKT between incompatible pairs and offer an alternative to antibody removal for immunologically complex patients (i.e., HLA and/or ABO incompatible patients)<sup>5,7</sup>. While KEPs have contributed significantly to LDKT rates, they often struggle to become and stay effective in countries where the pool sizes are small and hence exchange options are limited. Small population size, legal constraints, ethical concerns and fragmentation of KEP pools within a country are the main barriers to be overcome. As a result, potential recipients may be disadvantaged.

In practice, this means that programmes differ in their organisation<sup>6</sup>. Some countries have scaled up to a national programme, while others retain a regional or single-centre approach. In most countries, the organs travel from the donor's to the recipient's centre, but in others the donor travels. Moreover, there is variation in

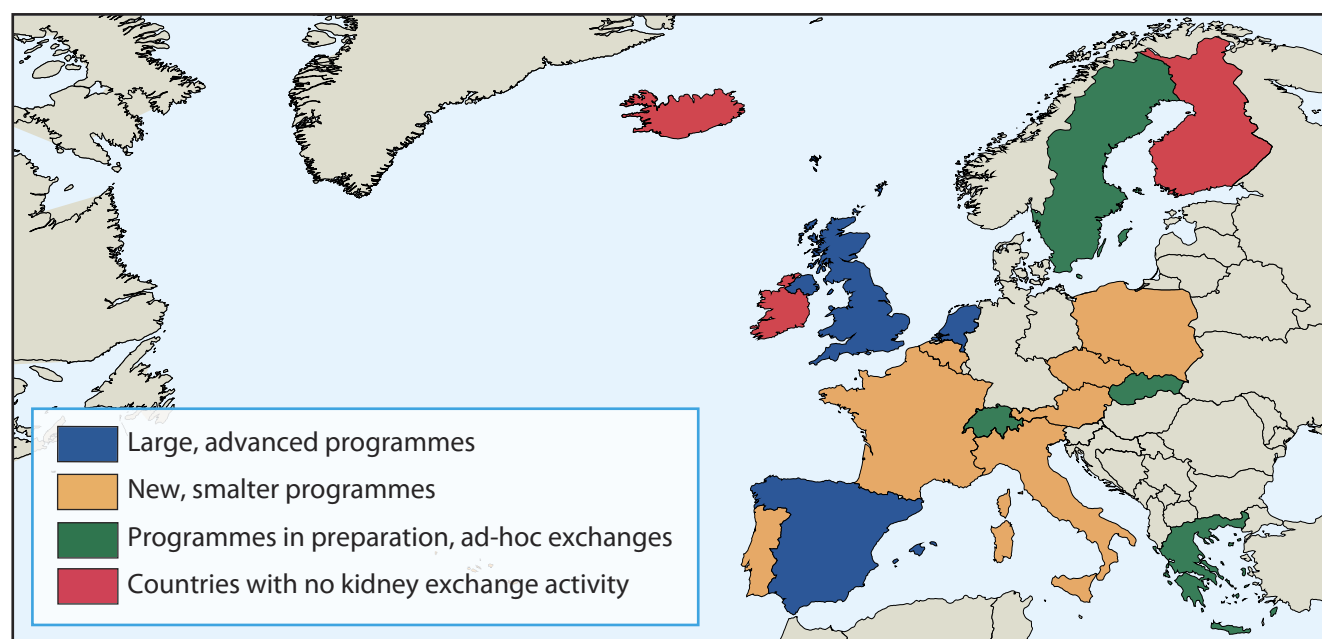
the organisation of matching with regard to selection and inclusion of donor-recipient pairs, the frequency of the matching runs and the optimisation criteria. The proportion of transplants achieved as a result of KEPs accounts for between 0 and more than 20% of overall LDKT activity *per country*.

### Legal and Ethical Considerations

As with the practice of living donation in general, safeguarding the interests of the individual who wishes to donate is a fundamental aspect of KEPs<sup>8</sup>. The risk-benefit analysis for the healthy donor and the patient in need of a transplant should take into account the direct benefit (or lack of it) to the donor compared with the potential benefit for the transplanted recipient. This includes the likely benefit for donors concerned for the wellbeing of their intended recipients derived from the close relationship between the two of them.

KEPs facilitate a form of *indirect* donation in which the relationship between donor and recipient is reciprocal, i.e. all donors donate a kidney and all of their intended recipients receive a transplant. However, the transaction is not *directly* between the donor and their intended recipient, which may be an additional barrier to success.

This process requires even more stringent donor (and recipient) assessment than direct living donation. A KEP is only possible if the national legislation allows living



**Figure 1.** Development of European Kidney Exchange Programmes by Country (source: *First Handbook of the COST Action*<sup>4</sup>).

<sup>6</sup> Biró P, Haase-Kromwijk BJ, Andersson T, Ásgeirsson EI, Baltesová T, Boletis I, et al. Building kidney exchange programmes in Europe – An overview of exchange practice and activities. *Transplantation* 2018 (in press).

<sup>7</sup> de Klerk M, Haase-Kromwijk BJ, Claas FH, Witvliet M, Weimar W. Living donor kidney exchange for both ABO-incompatible and crossmatch positive donor-recipient combinations. *Transplant Proc* 2006; 38(9): 2793-2795.

<sup>8</sup> Guide for the implementation of the principles of prohibition of financial gain with respect to the human body and its parts from living or deceased donors, DH-BIO, Council of Europe, 2018 [Available at: <https://rm.coe.int/guide-financial-gain/16807bfc9a>]

organ donation between non-blood- or emotionally related donor-recipient pairs, or if the legislation explicitly allows for cross-donation through a KEP.

LDKT offers the recipient the best chance of a successful transplant outcome. However, there is always a risk that a donor withdraws his/her consent or is unable to proceed to donation for a medical reason at a late stage – or, rarely, even on the day of surgery itself – leaving the recipient without the anticipated transplant. To reduce this risk, the majority of KEPs conduct simultaneous procedures to avoid the possibility that a recipient does not receive a kidney once his/her intended donor has already donated to the other pair.

Anonymity between recipients and their new donors is also considered essential in most European KEPs before the transplant procedure and is recommended afterwards. Anonymity between the members of the new pairs diminishes the risk of potential coercion (or the seeking of payback/profit). Furthermore, it reduces the possibility of donation refusal in cases where the donor does not like the potential exchange recipient.

In the context of KEPs, this risk is increased by involving multiple donors and recipients in any one exchange. Donor-recipient pairs may be reluctant to participate in a KEP because of emotional anxieties about the donation not being made *directly* to the intended recipient and logistical concerns (e.g. the donor travelling to another centre for surgery; impact of cold ischaemia if the kidney travels between centres; lack of confidence in the system). Policies to minimise distress (e.g. when an exchange collapses) and to give priority for transplantation to recipients who miss out during the course of an exchange (i.e. once donor and recipient surgery is underway), as well as specific informed consent for kidney paired exchange could help to motivate pairs to participate in the programme.

There is ethical consensus that donations of organs by living donors are to be voluntary and unpaid. However, the principle of non-payment does not prevent living donors from receiving reimbursement for legitimate expenses and loss of income related to the donation<sup>8</sup>.

### Conditions for a Successful Kidney Exchange Programme

Taking into account the legal and ethical principles, current practice and experience shows that there are certain prerequisites for establishing a successful KEP<sup>9</sup>.

The first condition is that there is a legal framework in place that permits non-direct donation. Subsequently, a transparent structure should be created that includes standard operational procedures. This can be achieved if KEPs are organised based on protocols, clinical standards

and operating procedures agreed by the stakeholders involved. Among these stakeholders are participating transplant centres, histocompatibility and immunogenetics laboratories, a central/regional/local coordination team and donor-recipient pairs. Central coordination to oversee identified pairs, perform matching runs, collect follow-up data and ensure mechanisms are in place to minimise the risk of identified transplants not proceeding due to the collapse of an exchange are essential. Hence, much attention has been focused on evidence-based, complete and up-to-date screening of both donors and recipients to establish their clinical, immunological and psychosocial status. Since confidence in the system is fundamental, it helps when all professional partners in the system know each other and are familiar with each other's working methods.

In contrast to direct living kidney donation, the behaviour of participating donors and recipients affects not only their individual interests but also those of other donor-recipient pairs in the KEP, especially if they decide not to proceed after an exchange has been identified. Whilst it is impossible to predict every eventuality (e.g. change of donor circumstances or unforeseen recipient illness), KEPs should aim to be able to address reasons for non-proceeding transplants that could have been foreseen by anticipating possible solutions. The impact of a high non-procedure rate may be significant: distress to donors and recipients, loss of confidence in the KEP and reduced participation.

### 3. Organisational Aspects

A KEP requires a multidisciplinary and, in most cases, a multi-centre approach. Therefore, KEPs must define a structure to coordinate and monitor all activities which can be national, regional or centre-based. The key components of effective KEPs are<sup>4</sup>:

*a) MEDICAL, PSYCHOLOGICAL, SOCIAL, LEGAL AND ETHICAL FRAMEWORKS FOR DONOR AND RECIPIENT CARE* – to ensure consistent, high quality, safe clinical practice in line with international standards and best practice guidelines. Special considerations include anonymity requirements, indirect donation and reciprocity, management of identified transplant procedures that cannot proceed, and management/listing of recipients for transplantation who may miss out within the KEP. Organisation of donor and recipient follow-up should also be carefully considered.

*b) INFORMATION FOR PATIENTS* – the options for LDKT, individual donor and recipient risks and benefits should be presented clearly and at an early stage to maximise opportunities for timely, successful transplantation/re-transplantation.

<sup>9</sup> de Klerk M, Weimar W. Ingredients for a successful living donor kidney exchange program. *Transplantation* 2008; 86(4): 511-512.



c) *TECHNICAL STANDARDS FOR LIVING KIDNEY TRANSPLANTATION* – equitable clinical and surgical expertise to ensure consistent quality of care for all donor and recipient pairs must be guaranteed.

d) *CAPACITY AND CAPABILITY* – a sufficient and appropriately trained multidisciplinary workforce should be established. In particular, clinical and scientific expertise, and central coordination are needed. Immunological testing is central to successful KEPs and must be performed by accredited histocompatibility and immunogenetics laboratories using standardised testing and reference criteria in every laboratory for every donor and recipient pair. Central coordination by dedicated living donor coordinators in nephrology and transplant centres is effective in supporting donors, recipients and family members throughout the process of donation and transplantation.

e) *FINANCIAL INFRASTRUCTURE* – LDKT is a cost-effective treatment for ESRD compared with dialysis, offering significant financial savings to the health economy. Sustainable funding through state or privately funded insurance arrangements is necessary to support national LDKT and KEPs. Clinical and personnel costs associated with the coordination and management of national programmes, together with the reimbursement of out-of-pocket expenses and loss of earnings of the living donor, are the responsibility of the respective governments in participating countries.

f) *TRUST* – Trust is fundamental to a successful KEP; trust between the partners who have to work within the framework and between the donor-recipient pairs in the system.

#### 4. Challenges for Kidney Exchange Programmes

KEPs are acknowledged as an effective solution to overcome immunological incompatibility and, in some countries, they offer opportunities to improve HLA- or age-matching between compatible donor-recipient pairs. However, the main challenges to maintaining and extending programmes are the limited pool of donor-recipient pairs at the start of a scheme, a decreasing pool in terms of quantity or diversity of pairs (e.g. increased numbers of blood group O and/or highly HLA-sensitised recipients) and the availability of other (competitive) options for incompatible pairs, such as antibody removal for both ABO and HLA incompatibility, despite poorer outcomes.

Effective KEPs increase the opportunities for patients, particularly those with immunological complexity, to receive a compatible transplant, which is almost always the preferred option. In countries with permissive legal frameworks, supportive policies and established KEPs, the patient benefits – especially for those who are very difficult to match – of the KEP can be further enhanced by the inclusion of donor-recipient compatible pairs (e.g. for improved HLA- or age-matching, or for the greater good) and unspecified (non-directed altruistic) living kidney donors to augment the pool. Experience suggests that such a strategy maximises the benefit for all donors and recipients involved, including recipients on the national transplant list with no living donor of their own. As well as utilising unspecified living donors to initiate a chain of transplants within their KEPs, a few countries are considering using deceased donor kidneys to achieve a similar outcome (as reported by national representatives in response to the COST survey). Extending the KEP pool by allowing international exchange is another very practical and obvious solution. However, this would require fine-tuning of protocols and extra attention to donor-recipient pair screening to avoid any possibility of enhancing medical tourism or even organ trafficking.

#### 5. Conclusions

Due to organ shortages, many countries are investing in living donor programmes, which are often the best option for patients in need of a kidney transplant. Since around 40% of living donors are incompatible with their intended recipient, KEPs offer an alternative to help overcome HLA- and ABO-incompatibilities. To achieve this goal, pools of donor-recipient pairs are created to generate alternative pairs of possible matches. KEPs provide an excellent opportunity to extend existing living donor programmes. However, since KEPs are a form of indirect donation, conditions to develop and maintain effective and safe programmes must be implemented. A KEP should include a sound and transparent (nation/regional) organisation which takes care of the needs of the recipient and donor, taking into account all ethical and legal considerations. The organisation of a KEP requires transparent protocols and efficient and trust-based cooperation between the multidisciplinary teams of professionals. Within Europe, the further development of KEPs should take place within the framework of the Council of Europe resolutions on living donation<sup>10,11</sup> and the EU legal framework<sup>12</sup>.

<sup>10</sup> Council of Europe Resolution CM/Res(2013)56 on the development and optimisation of live kidney donation programmes [Available at: [http://www.edqm.eu/sites/default/files/medias/fichiers/resolution\\_cmres201356\\_on\\_the\\_development\\_and\\_optimisation\\_of\\_live\\_kidney\\_donation\\_programmes.pdf](http://www.edqm.eu/sites/default/files/medias/fichiers/resolution_cmres201356_on_the_development_and_optimisation_of_live_kidney_donation_programmes.pdf)]

<sup>11</sup> Council of Europe Resolution CM/Res (2017)1 on principles for the selection, evaluation, donation and follow-up of the non-resident living organ donors [Available at: [http://edqm.eu/sites/default/files/cmres\\_2017\\_1-on\\_principles\\_for\\_selection\\_eval\\_donation\\_and\\_follow\\_up\\_of\\_nrlld.pdf](http://edqm.eu/sites/default/files/cmres_2017_1-on_principles_for_selection_eval_donation_and_follow_up_of_nrlld.pdf)]

<sup>12</sup> EU directive 2010/53/EU (art 13-14,15,20) [Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32010L0053>]

# Signatures and Ratifications of the Council of Europe Convention against Trafficking in Human Organs (September, 2018)

## Signatures

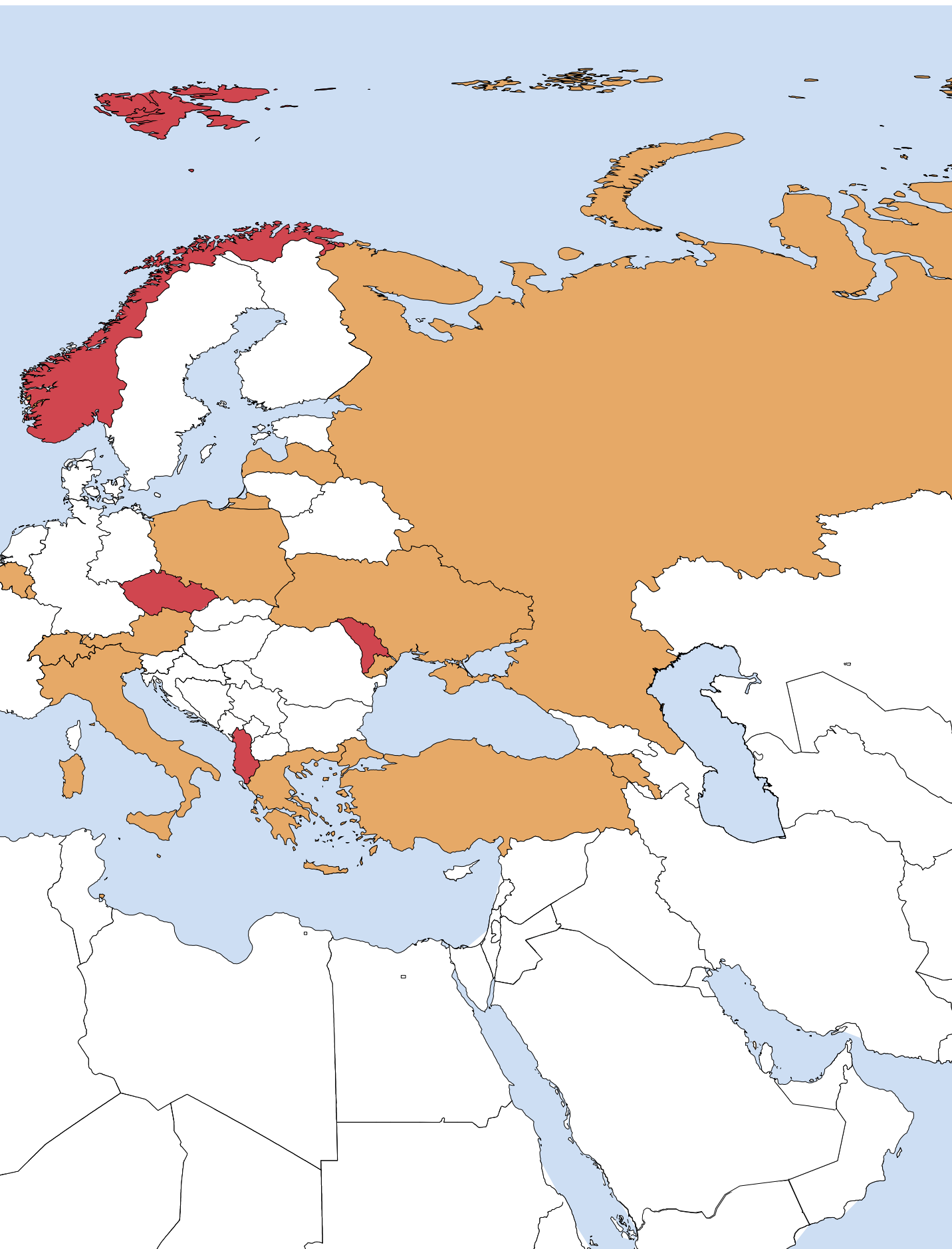
|                          |            |
|--------------------------|------------|
| Armenia .....            | 24/01/2018 |
| Austria .....            | 25/03/2015 |
| Belgium.....             | 25/03/2015 |
| Costa Rica* .....        | 16/04/2018 |
| Greece.....              | 25/03/2015 |
| Ireland.....             | 08/10/2015 |
| Italy .....              | 25/03/2015 |
| Latvia.....              | 30/03/2017 |
| Luxembourg.....          | 25/03/2015 |
| Montenegro .....         | 16/02/2018 |
| Poland.....              | 25/03/2015 |
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| Russian Federation ..... | 24/09/2015 |
| Spain .....              | 25/03/2015 |
| Switzerland.....         | 10/11/2016 |
| Turkey.....              | 25/03/2015 |
| Ukraine .....            | 11/09/2017 |
| United Kingdom .....     | 25/03/2015 |

## Ratifications

|                           |            |
|---------------------------|------------|
| Albania .....             | 06/06/2016 |
| Czech Republic.....       | 21/09/2017 |
| Malta .....               | 07/11/2017 |
| Norway .....              | 12/09/2017 |
| Republic of Moldova ..... | 21/06/2017 |

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