Global activity in organ transplantation
Estimations 2018

<table>
<thead>
<tr>
<th></th>
<th>Kidney</th>
<th>Liver</th>
<th>Heart</th>
<th>Lung</th>
<th>Pancreas</th>
<th>S. bowel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>95 479</td>
<td>34 074</td>
<td>8 311</td>
<td>6 475</td>
<td>2 338</td>
<td>163</td>
</tr>
</tbody>
</table>

≈ 146 840 solid organ transplants reported
≈ 6 % increase vs 2017
≤ 10% of global needs
36 % living kidney transplants
19 % living liver transplants
39 357 deceased donors reported

Information of 86 Member States on organ transplantation activities (75% of the global population)
DECEASED DONATION ACTIVITY
Actual deceased organ donors 2018*

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*Data from the Global Observatory on Donation and Transplantation

Data Source: Global Observatory on Donation and Transplantation
Map Production: Information Evidence and Research (IER) World Health Organization
Actual deceased organ donors according to donor type pmp
2018

Deceased donation activities reported in 74/86 countries

DBD: 30,422
DCD: 8,935
HDI versus deceased donation pmp 2018

WHO Regions:
- African Region (AFR)
- Region of the Americas (AMR)
- Eastern Mediterranean Region (EMR)
- European Region (EUR)
- South-East Region (SEAR)
- Western Pacific Region (WPR)
Actual deceased donors pmp by age 2018

- ≤ 60 years
- > 60 years
Actual deceased donors according to age groups (%) 2018
Actual donors after the circulatory determination of death 2018

8,931 DCD donors were reported in 2018 (22.7% of total actual deceased organ donors).

(N = 22 countries)

*1,705 DBCD donors
Actual donors after the circulatory determination of death in Europe 2018
absolute number (pmp)

<table>
<thead>
<tr>
<th>Country</th>
<th>Donors</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 3 PMP</td>
<td>629 (13.6)</td>
<td></td>
</tr>
<tr>
<td>1-3 PMP</td>
<td>164 (9.6)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>138 (2.1)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>619 (9.3)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>103 (9.0)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>32 (3.8)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>15 (1.7)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>57 (1.0)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>10 (1.0)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>37 (0.3)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>4 (0.8)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>103 (9.0)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>164 (9.6)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>10 (1.0)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>37 (0.3)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>1 (0.5)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>4 (0.1)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>13 (1.2)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>32 (3.8)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>15 (1.7)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>57 (1.0)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>10 (1.0)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>37 (0.3)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>1 (0.5)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>4 (0.1)</td>
<td></td>
</tr>
<tr>
<td>&lt; 1 PMP</td>
<td>13 (1.2)</td>
<td></td>
</tr>
</tbody>
</table>
GLOBAL ORGAN TRANSPLANT ACTIVITY
Global transplantation activities of solid organs 2018

Number of organs transplanted per million population

- ≥0.3-2.4
- 2.5-9.9
- 10.0-24.9
- 25.0-49.9
- 50.0-74.9
- 75.0-99.9
- ≥100.0

No transplant activity
Data not available
Not Applicable

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

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Solid organ transplants reported in 84/86 countries

Transplant activity per type of organ (pmp) 2018

- Kidney pmp
- Liver pmp
- Heart pmp
- Lung pmp
- Pancreas pmp
- Small Bowell pmp

Solid organ transplants reported in 84/86 countries
Kidney transplants per million population (pmp). 2018

✓ 95,479 kidney transplants
✓ 6% increase vs 2017
✓ 36% from living donors

84/86 countries reported kidney transplant activities (living or deceased) in 2018

Kidney tx from DD (pmp)
Kidney tx from LD (pmp)
Total Kidney tx (pmp)
Kidney transplants by WHO regions 2018

Absolute number (pmp); % kidney tx from deceased donors

Rates (pmp) are calculated by applying the population of the responding countries
Liver transplantation activities 2018*

Number of liver transplants per million population

- 0.01-2.49
- 2.50-4.99
- 5.00-9.99
- 10.00-14.99
- 15.00-19.99
- No transplant activity
- 20.00-24.99
- Data not available
- ≥25.00
- Not Applicable

*Data from the Global Observatory on Donation and Transplantation

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Liver Transplants form deceased and living donors
per million population (pmp). 2018

- 34 074 liver transplants
- 5% increase vs 2017
- 19% from living donors

70/86 countries reported liver transplant activities (living or deceased) in 2018
Liver transplants by WHO Regions 2018

Absolute numbers and % per donor type

<table>
<thead>
<tr>
<th>Region</th>
<th>DOMINO</th>
<th>LD</th>
<th>DD</th>
<th>TOTAL LIVER TX (pmp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFR</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>74 (0.2)</td>
</tr>
<tr>
<td>AMR</td>
<td>21</td>
<td>755</td>
<td>15</td>
<td>11364 (12.4)</td>
</tr>
<tr>
<td>EMR</td>
<td>79</td>
<td>507</td>
<td>1</td>
<td>8911 (1.6)</td>
</tr>
<tr>
<td>EUR</td>
<td>31</td>
<td>1578</td>
<td>31</td>
<td>10 520 (13.3)</td>
</tr>
<tr>
<td>SEAR</td>
<td>1</td>
<td>1344</td>
<td>1</td>
<td>2 058 (1.4)</td>
</tr>
<tr>
<td>WPR</td>
<td>1</td>
<td>2295</td>
<td>1</td>
<td>8 593 (5.1)</td>
</tr>
</tbody>
</table>

*Rates (pmp) are calculated by applying the population of the responding countries*
Heart transplants per million population (pmp).

2018

- 8311 heart transplants
- 5% increase vs 2017

57/86 countries reported heart transplant activities in 2018
## Heart transplants by WHO Regions 2018

<table>
<thead>
<tr>
<th>WHO Region</th>
<th>Number of Heart Transplants (pmp)</th>
<th>Number of Paediatric Heart Transplants (pmp) (&lt;18 years)</th>
<th>Number of countries with any activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFR</td>
<td>42 (0.1)</td>
<td>4 (0.0)</td>
<td>1</td>
</tr>
<tr>
<td>AMR</td>
<td>4 273 (4.3)</td>
<td>556 (0.6)</td>
<td>12</td>
</tr>
<tr>
<td>EMR</td>
<td>34 (0.1)</td>
<td>6 (0.0)</td>
<td>4</td>
</tr>
<tr>
<td>EUR</td>
<td>2 819 (3.6)</td>
<td>266 (0.3)</td>
<td>31</td>
</tr>
<tr>
<td>SEAR</td>
<td>267 (0.2)</td>
<td>18 (0.0)</td>
<td>2</td>
</tr>
<tr>
<td>WPR</td>
<td>876 (0.5)</td>
<td>32 (0.0)</td>
<td>7</td>
</tr>
</tbody>
</table>

*Rates (pmp) are calculated by applying the population of the responding countries*
Lung transplantation activities 2018*

Number of lung transplants per million population:
- 0.02-0.49
- 0.5-2.9
- 3.0-5.9
- 6.0-8.9
- ≥9.0
- No transplant activity
- Data not available
- Not Applicable

*Data from the Global Observatory on Donation and Transplantation

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

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Lung transplants per million population (pmp). 2018

- 6,475 lung transplants
- 6% increase vs 2017

46/86 countries reported lung transplant activities in 2018.
# Lung transplants by WHO regions 2018

<table>
<thead>
<tr>
<th>WHO Region</th>
<th>Number of Lung Transplants (pmp)</th>
<th>Number of Paediatric Lung Transplants (pmp) (&lt;18 years)</th>
<th>Number of countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFR</td>
<td>23 (0.0)</td>
<td>0 (0.0)</td>
<td>1</td>
</tr>
<tr>
<td>AMR</td>
<td>3 133 (3.2)</td>
<td>62 (0.1)</td>
<td>11</td>
</tr>
<tr>
<td>EMR</td>
<td>38 (0.1)</td>
<td>3 (0.0)</td>
<td>3</td>
</tr>
<tr>
<td>EUR</td>
<td>2 272 (2.9)</td>
<td>65 (0.1)</td>
<td>24</td>
</tr>
<tr>
<td>SEAR</td>
<td>191 (0.1)</td>
<td>4 (0.0)</td>
<td>1</td>
</tr>
<tr>
<td>WPR</td>
<td>818 (0.5)</td>
<td>21 (0.0)</td>
<td>6</td>
</tr>
</tbody>
</table>

*Rates (pmp) are calculated by applying the population of the responding countries*
Pancreas transplants by WHO regions

<table>
<thead>
<tr>
<th>WHO Region</th>
<th>N. of Pancreas Tx (pmp)*</th>
<th>N. of countries with any activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFR</td>
<td>8 (0.0)</td>
<td>1</td>
</tr>
<tr>
<td>AMR</td>
<td>1,343 (1.4)</td>
<td>8</td>
</tr>
<tr>
<td>EMR</td>
<td>8 (0.0)</td>
<td>1</td>
</tr>
<tr>
<td>EUR</td>
<td>801 (1.0)</td>
<td>25</td>
</tr>
<tr>
<td>SEAR</td>
<td>29 (0.0)</td>
<td>2</td>
</tr>
<tr>
<td>WPR</td>
<td>149 (0.1)</td>
<td>4</td>
</tr>
</tbody>
</table>

✓ 2,338 pancreas transplants
✓ 4% increase vs 2017

41/86 countries reported pancreas transplant activities in 2018

*Rates (pmp) are calculated by applying the population of the responding countries
Small Bowel transplantation activities
2018*

Number of small bowel transplants per million population

- 0.01-0.03
- 0.031-0.099
- 0.10-0.19
- No transplant activity
- 0.20-0.29
- Data not available
- ≥0.3
- Not applicable

*data from the Global Observatory on Donation and Transplantation

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Small bowel transplants by WHO region
2018

<table>
<thead>
<tr>
<th>WHO Region</th>
<th>N. of S. Bowel Tx (pmp)*</th>
<th>N. of countries with any activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFR</td>
<td>0 (0.0)</td>
<td>0</td>
</tr>
<tr>
<td>AMR</td>
<td>109 (0.1)</td>
<td>3</td>
</tr>
<tr>
<td>EMR</td>
<td>4 (0.0)</td>
<td>1</td>
</tr>
<tr>
<td>EUR</td>
<td>43 (0.1)</td>
<td>8</td>
</tr>
<tr>
<td>SEAR</td>
<td>2 (0.0)</td>
<td>1</td>
</tr>
<tr>
<td>WPR</td>
<td>5 (0.0)</td>
<td>3</td>
</tr>
</tbody>
</table>

✓ 163 transplants of small bowel
✓ 1% increase vs 2017

16/86 countries reported small bowel transplant activities in 2018

*Rates (pmp) are calculated by applying the population of the responding countries.
Methods and definitions

An ad hoc standard questionnaire for the activities related to organ donation and transplantation practices is annually distributed to the identified health authorities and focal points contributing to the global database.

The definitions applied for the completion of the standardized questionnaire are derived from the WHO Global Glossary on Donation and Transplantation, which is accessible at http://www.transplant-observatory.org/download/global-glossary/ or through the WHO website (http://www.who.int/transplantation/activities/en/).

Definitions and explanations about how to complete the questionnaire can be found at the Global Observatory on Donation and Transplantation website (http://www.transplant-observatory.org/).

Actual donor (=donor): a deceased person from whom at least one organ has been recovered for the purpose of organ removal.
DBD: a deceased donor whose death has been determined by neurological criteria.
DCD: a deceased donor whose death has been determined by circulatory criteria.
Transplants are counted as those performed only within the country. Counts for the multiorgan or double organ transplants are counted as follows:

- One double kidney transplant is considered as one transplant.
- One heart-lung transplant is counted as one lung transplant and one heart transplant.
- One double lung transplant is considered as one transplant.
- One Kidney-pancreas transplant is counted as one kidney transplant and one pancreas transplant.

Counts for the number of recipients transplanted: For more than one organ transplanted into the same recipient, count as one recipient.

Specific indicators have been added to the questionnaire along the years, in order to provide further information about the donation and transplantation activities performed around the globe.
The data provided correspond to the period from January 1st to December 31st 2018.

Only countries reporting data for 2018 have been included in this report.

To calculate rates per million population, the State of World Population reports, from the United Nations Population Fund (UNFPA), has been used as the source to estimate the population size.

Data were analysed using descriptive statistics. Statistical analysis was performed with SPSS software (version 25.0) and the Excel tool was used for the creation of bar charts.

The official maps are annually produced by the Information Evidence and Research (IER) Department at the WHO, derived from a datasheet of the Global Database.

**Acronyms**

- **DBD**: Actual donors after brain death
- **DCD**: Actual donors after circulatory death (DCD)
- **DD**: Actual deceased organ donors
- **LD**: Living organ donors
- **GODT**: Global Observatory on Donation and Transplantation
- **ONT**: Organización Nacional de Trasplantes, Spain
- **pmp**: per million population
- **Tx**: Transplants
- **WHO**: World Health Organization
Disclaimer

The data and information presented here are published in order to promote transparency in transplantation activities.

Whenever possible this information has been confirmed by official national sources. However, in some instances, there are still provisional estimates. It is therefore anticipated that some data presented may be modified without prior notice.

As the facts displayed here are not definitive, they cannot be reproduced or quoted unless shown with the appropriate warning and the date.

For any references to this report, the following should be quoted: Organ Donation and Transplantation Activities 2018 Report. Global Observatory on Donation and Transplantation (GODT).

For citations of the 2018 GODT data please quote the following: Those 2018 data are based on the Global Observatory on Donation and Transplantation (GODT) data, produced by the WHO-ONT collaboration.

For any references in Charts and bar chart, please quote: * Data of the WHO-ONT Global Observatory on Donation and Transplantation.
ACKNOWLEDGEMENTS

The GODT team is grateful to the identified focal points in Member States for their valuable contribution to the database, the Council of Europe for its contribution through the Newsletter Transplant and the Information Evidence and Research (IER) Department at WHO for the production of the global maps.