



GLOBAL OBSERVATORY ON DONATION AND TRANSPLANTATION

Organ donation and transplantation: Activities, laws and organization 2010



Background and Methods

Comparative international data concerning donation and transplantation activities are essential to monitor important global trends in demand for transplantation and donor organ availability.

Following Resolution WHA57.18 on Human organ and tissue transplantation⁽¹⁾, an agreement was signed between WHO and the Government of Spain with the main objective of creating a global database on donation and transplantation. This database was created through a worldwide network of health authorities and officially designated individuals (focal points).

A standard questionnaire was designed to collect information concerning local organizational structures, legislative systems and activities related to organ donation and transplantation activities. This questionnaire was distributed to the identified network of health authorities and focal points contributing to the global database. The information collected forms the basis of this report.

The United Nations Population Fund 2008 report (UNFPA)⁽²⁾ was used as the data source for estimates of population size, unless a more up-to-date figure was available from an official source. Figures for Human Development Index (HDI) were obtained from the United Nations Development Programme (UNDP)⁽³⁾. Data were analyzed using descriptive statistics. Statistical analysis was performed with SPSS software (version 15.0).

This database represents the most comprehensive source to date of international data concerning activities in organ donation and transplantation derived from official sources. All data are available through the Global Observatory on Donation and Transplantation (GODT) Website ⁽⁴⁾.

The intention of this report is to present an overview of the current international picture with respect organ donation and transplantation activities, and to compare the extent of organizational structures and legal frameworks overseeing these activities.

Results

A total of 104 out of 193 Member States were included for the activity data analysis.

Organizational structures

98 countries reported detailed information on organizational structures and were included in this analysis.

Table 2 (Annex), shows the proportion of countries within each WHO region with an official body responsible for overseeing donation and transplantation at the national level, a specific body responsible for national coordination of donation and transplantation activities, or alternatively neither or both of these structures.

Of the 98 countries providing information on organizational structures, 84.7 % (n= 83) reported having a national structure supervising or coordinating donation and transplantation. The proportion of countries with a national structure overseeing donation and transplantation was lowest for the AFR region (20.0%), and highest for the AMR and EUR regions (94.7% and 92.3% respectively).

A total of 75 (76.5%) countries have an official body responsible for overseeing donation and transplantation at national level, while 66 98 (67.3%) have a specific organization for national coordination.

Table 3 (Annex) shows the proportion of countries with systems for the collection and analysis of data related to donation and transplantation activities (77.6%), and also shows the proportion with existing mechanisms to ensure donor safety and follow up (70.4%). These proportions increased to 86.7% and 74.7% respectively when the analysis was limited to countries reporting the existence of national structures for the supervision or coordination of transplants. SEAR had the lowest proportion of countries with systems for data collection (16.7%) or follow-up of donors (50.0%).

Surveillance systems to monitor adverse events in transplant recipients and complications in live donors were present in less than half of the countries for which information was available. Outcomes of transplant recipients were tracked more often than outcomes of live donors (45.9% versus 37.8%). Surveillance systems for complications in live donors were found in only 5.6% of countries in the AMR region.

Surveillance systems were centralized at different levels in each country. Among the 45 countries with systems to follow adverse events in transplant recipients, surveillance systems operated at a national level in 32 countries (71.1%), whereas two (4.4%) conducted surveillance at provincial/state level and nine (20%) at local level (data not shown).

Of the 37 countries with systems tracking complications in live organ donors, 22 (59.5%) had national surveillance systems for this purpose, while one (2.7%) conducted surveillance at provincial/state level and 13 (35.1%) at local level (data not shown).

Legal frameworks

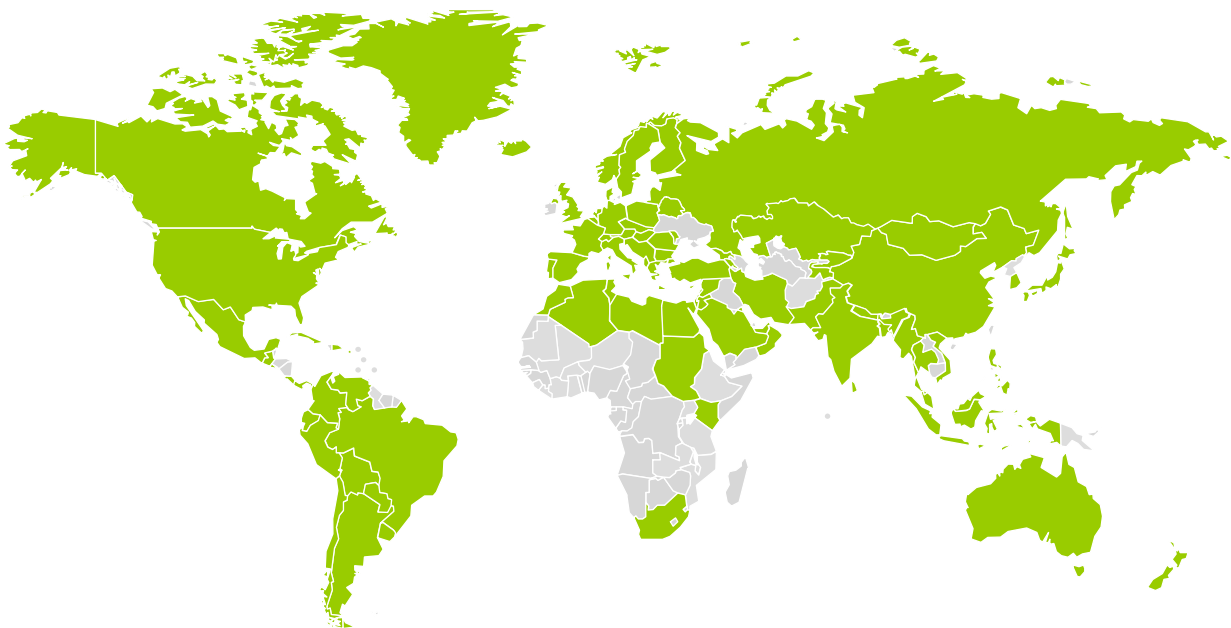
Figure 1 shows the global distribution of countries with legal frameworks on transplantation. It represents the best global picture to our knowledge, including 99 countries responding to our questionnaire, plus six additional countries known to have legislation in place. Of the 99 countries for which information on legal frameworks could be obtained, 90 have specific legislation for organ procurement and transplantation (91%). The distribution of these countries among WHO regions is as follows: 3 from AFR, 19 AMR, 13 EMR, 38 EUR, 7 SEAR and 10 WPR.

Two out of the nine countries with no specific legislation on donation and transplantation have reported kidney and/or liver transplantation data.

Among the 90 countries with specific legislation concerning donation and transplantation activities, 80 (89%) have explicit prohibition of organ trafficking in the legal framework, 75 (83%) have specific legislation prohibiting the giving or receiving payment for

Figure 1

■ Countries with specific transplant legislation, with national health laws covering the removal of human material for therapeutic purposes or with documents in place with legal validity, including living and / or deceased donation.



Disclaimer: The boundaries and names shown and the designation used in 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 lines on maps represent approximate border lines for which there may not yet be full agreement.

organs, and 73 (81%) have legislation for the enforcement of penalties in the event of commercialization. Traceability of organs is a legal requirement in 42 (46.7%) of the 90 countries with legislation on donation and transplantation (11 from AMR, 2 from EMR, 25 from EUR, 1 from SEAR and 3 from WPR).

Activity data

The statistics on donation and transplantation activities collected in this database cover 90 % of the global population. Data are not all from the same year, instead the most recent available national figures were collected. The present report considers activity data from 104 countries (98 countries with data available for the year 2008, 7 with data from the year 2007, and 1 from the year 2005). Although some countries do not provide data on deceased donation, data relating to a total of 22,350 deceased donors was reported to the database.

It should be noted that some data included in the global observatory database may be modified without prior notice later on, when better estimates or figures can be provided. The global database on organ donation and transplantation is being updated on an ongoing basis.

Worldwide approximately 100,900 solid organ transplants are performed each year: 69,300 kidney transplants (46% from living donors), 20,300 liver transplants (15% from living donors), 5,330 heart transplants, 3,330 lung transplants, 2,380 pancreas transplants and 260 small bowel transplants.

Kidney transplants are performed in 86 of the 104 countries with data on transplantation activity. Living kidney transplants are carried out in 82 of these countries and transplants from deceased donors in 63.

Liver transplants are performed in 60 of the 104 countries with data on transplantation activity. Liver transplants from live donors are carried out in 39 countries and transplants from deceased donors in 54 countries.

Heart transplants are performed in 48 countries, lung transplants in 35 and pancreas transplants in 37 countries.

Table 4 (Annex) shows the distribution of transplantation activity for kidney, liver, heart, lung and pancreas transplants, both in terms of absolute numbers and rates per million population, for each of the WHO regions.

Figures 2 and 3 show rates of kidney and liver transplantation (per million population) in each WHO region. Kidney transplants were from living donors were more common than transplants from deceased donors in all regions except AMR and EUR.

Extending Figures 2 and 3, **Figures A and B** (Annex) show the relative proportion of kidney and liver transplants from living compared with deceased donors.

The table below summarises kidney and liver transplantation activity at the regional level, applying the total regional population as the denominator rather than the population of those countries that were able to provide estimates of transplantation activity alone.

WHO Region	Number of Kidney Transplants (pmp)	Number of Liver Transplants (pmp)
AFR	400 (0.48)	23 (0.028)
AMR	26521 (29.5)	8606 (9.6)
EMR	5193 (9.4)	389 (0.70)
EUR	19805 (22.3)	7436 (8.4)
SEAR	6819 (3.85)	303 (0.17)
WPR	10476 (5.9)	3523 (1.97)

Figure 2

Distribution of kidney transplant activity by WHO Regions.

Transplants from deceased donors, from living donors, and global figures.

Rates pmp.

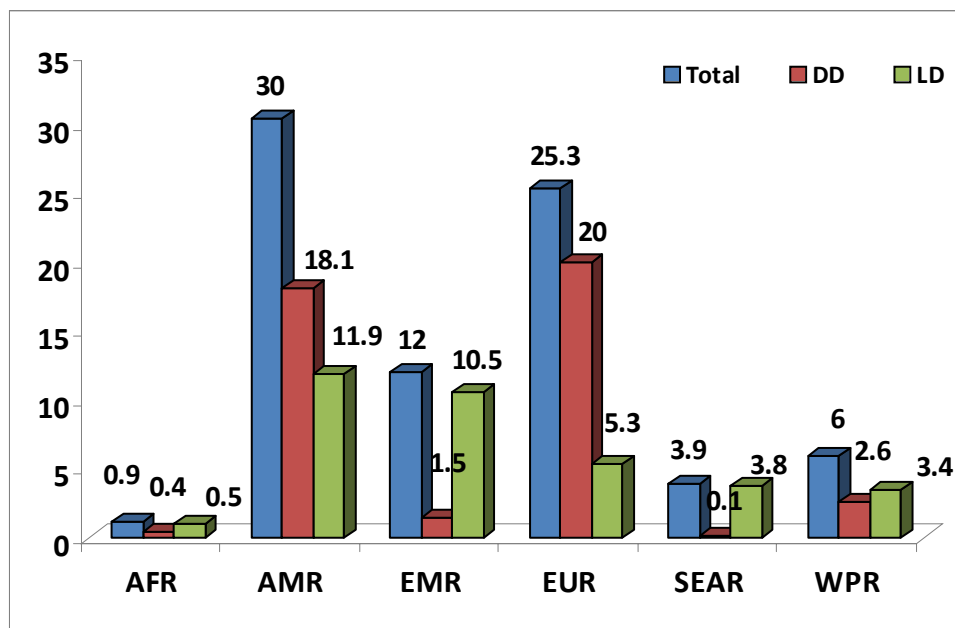
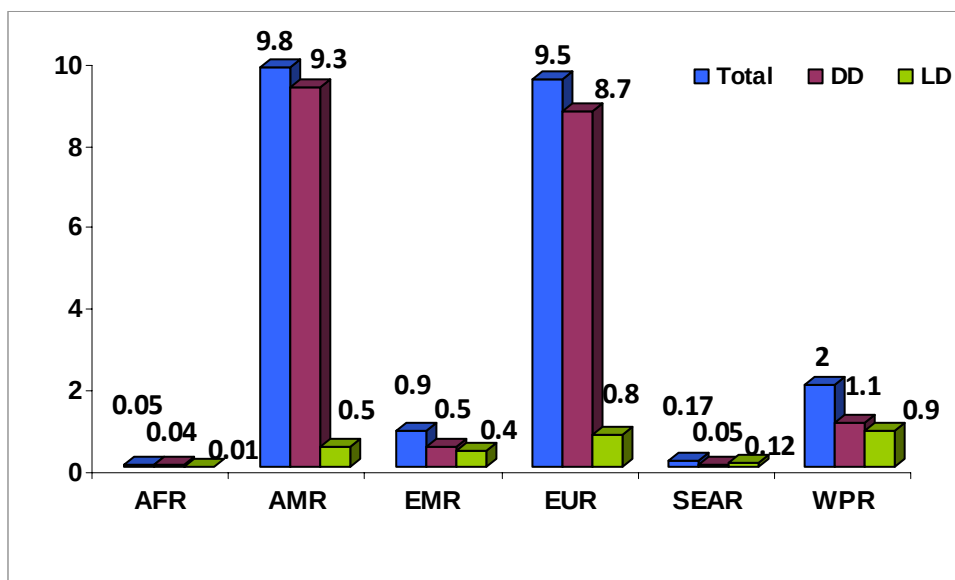


Figure 3

Distribution of liver transplant activity by WHO Regions.

Transplants from deceased donors, from living donors, and global figures.

Rates pmp.



Comparisons with level of development (HDI)

The human development index (HDI) combines three dimensions: life expectancy at birth, knowledge and education and gross domestic product. An HDI ≤ 0.5 represents low development and HDI ≥ 0.8 high development. Of the 104 countries with information of transplant activities, 56 (53.8%) had an HDI indicating a high level of development, 44 (42.4%) a medium level of development, and 4 (3.8%) an HDI reflecting low levels of development.

Low to moderate development (HDI < 0.8) n= 48; High development (HDI $\geq$ 0.8), n= 56

Kidney transplantation from living donors were more frequent than transplants from deceased donors in countries with low to medium development, whereas kidney transplants from deceased donors were more common than transplants from living donors in highly developed countries. A similar trend was observed for liver transplants, such that deceased donation was most common in countries with a high level of development.

Figure 4. Comparison of Kidney transplants from DD (pmp) depending on HDI level.

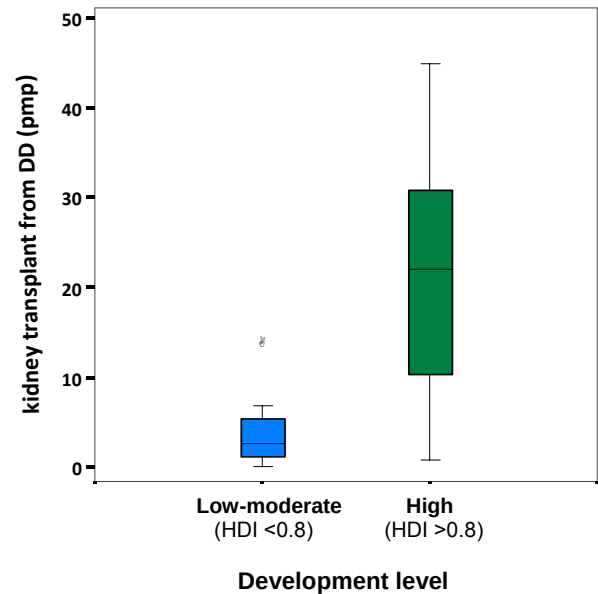


Figure 5. Comparison of Kidney transplants from LD (pmp) depending on HDI level.

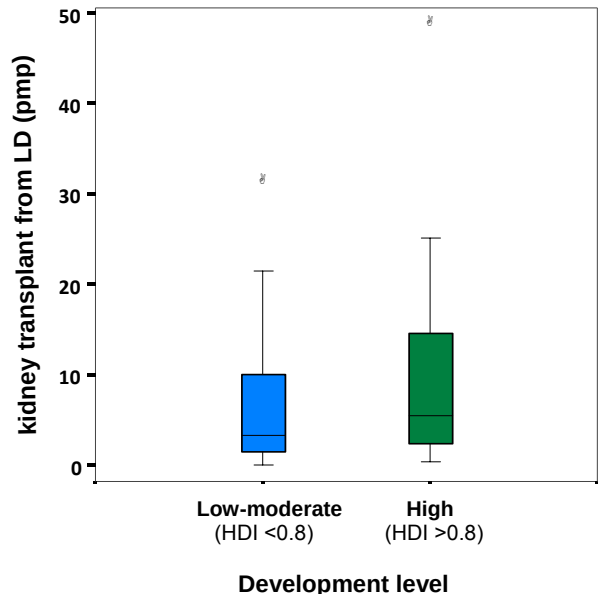


Figure 6. Comparison of liver transplants from DD (pmp) depending on HDI level.

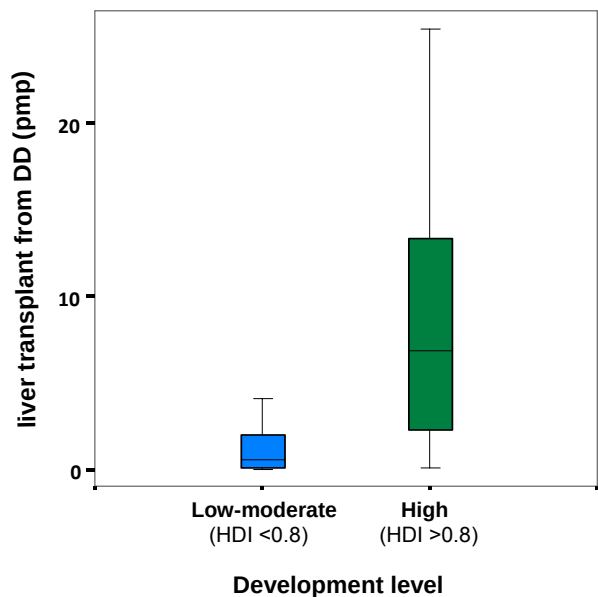
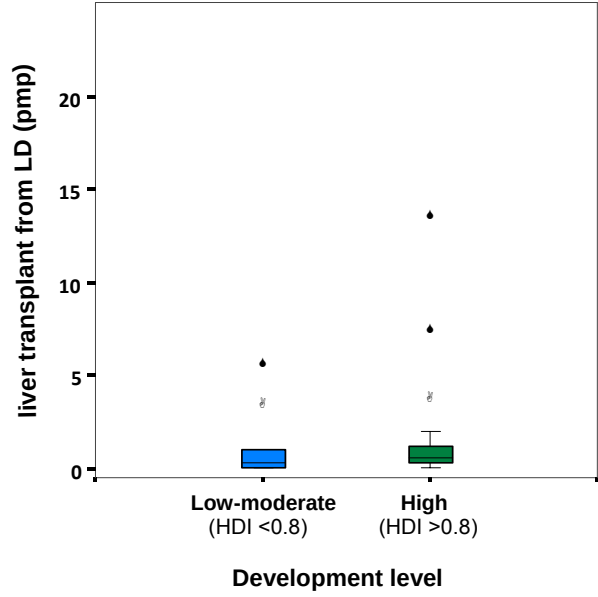


Figure 7. Comparison of liver transplant from LD (pmp) depending on HDI level.



Conclusions

This report compares three critical aspects of transplantation programs at the national level: organizational systems, legal frameworks and data on donation and transplantation activities.

This document establishes a baseline global dataset for each of these three aspects of organ donation and transplantation and provides an overview of existing structures, related legislation and activities in those countries which provided information.

General comments:

- Information was provided from each of the WHO regions. The proportion of the population from each region captured in the current database was variable however, ranging from 98.6% (EUR) to 54.4% (AFR).
- The majority of countries responding to the questionnaire (84.7%) have existing structures for the supervision or coordination of organ donation and transplants at the national level, and presence of these structures appears to influence the likelihood of having data collection systems and/or mechanisms to ensure the donor safety and follow up.
- Surveillance systems for tracking adverse events in transplant recipients are far more established than surveillance systems for tracking complications in living organ donors.
- Rates of organ donation and transplantation vary widely between WHO regions, being highest in AMR and EUR, and lowest in AFR and SEAR.
- Kidney transplantation from deceased donors is most common in EUR and AMR, compared with other regions where transplants from living donors predominate. Social, religious or cultural factors are beyond the scope of the present study, although are likely to play a role in this observation. Organizational structures and resource availability (access to hemodialysis in particular) may also underlie regional variability in rates of living versus deceased donation.
- Limitations of the questionnaire should be recognised, particularly with respect to scope of data collection concerning legal frameworks. The questionnaire will continue to be reviewed for the ongoing improvement of the global database.
- Countries with a higher level of development experience markedly higher rates of transplantation activity, and particularly elevated rates of kidney and liver transplantation from deceased donors. However, this disparity in transplantation activity between countries with low to moderate development and countries with a high level of development is significantly smaller with respect to rates of living donation.

References

- ⁽¹⁾ Resolution WHA57.18 on Human organ and tissue transplantation: http://www.who.int/transplantation/en/A57_R18-en.pdf
- ⁽²⁾ The United Nations Population Fund (UNFPA): <http://www.unfpa.org/public/>
- ⁽³⁾ United Nations Development Program (UNDP): <http://www.undp.org/>
- ⁽⁴⁾ The Global Observatory on Donation and Transplantation: <http://www.transplant-observatory.org>

Acronyms

WHO: World Health Organization
 AFR: Africa Region
 AMR: The Americas Region
 EMR: Eastern Mediterranean Region
 EUR: Europe Region
 SEAR: South– East Asia Region
 WPR: Western Pacific Region
 GODT: Global Observatory on Donation and Transplantation
 DD: Deceased Donors
 LD: Living Donors
 pmp: per million population
 HDI: Human Development Index
 LK Tx: Living kidney transplants
 DK Tx: Kidney transplants from deceased
 LL Tx: Living liver transplants
 DL Tx: Liver transplants from deceased

Annexes

Table 1. Selected indicators.

Organizational System
Number of countries with: 1) an official body responsible for overseeing donation and transplantation at national level 2) specific organization or institution responsible for national coordination 3) systems for the collection and analysis of data on donation and transplantation activities 4) surveillance system of adverse events in organ transplants recipients 5) surveillance system of donation complications in live organ donors 6) mechanisms to ensure donor safety and follow up 7) organization or institution responsible for national coordination and surveillance system of adverse events. 8) organization or institution responsible for national coordination and surveillance system of donation complications in live organ donors.
Legislative System
Number of countries with: 1) Specific legislation for donation and transplantation activities. 2) Penalties in the event of commercialization. Explicit prohibition of organ trafficking in the legal framework. 3) Traceability specified by law.
Activity data
Absolute figures and rates pmp for: 1) Organ donation activity 2) Organ transplantation activity (kidney, liver, heart, lung, pancreas, small bowel, multivisceral).

Table 2. (Indicators 1, 2 and combinations). Countries with an official body responsible for overseeing donation and transplantation at national level **(a)**; and countries with specific organizations or institutions responsible for national coordination **(b)**.

WHO Region	N. of countries	Countries with organizational information	Countries with an official body (a)	Countries with specific organization for national coordination (b)	Number of countries with both national structures (a and b)	a yes, b no	a no, b yes	a no, b no	a or b yes
	N	N (%) ¹	N (%) ²	N (%) ²	N (%) ²	N (%) ²	N (%) ²	N (%) ²	N (%) ²
AFR	46	5 (10.9%)	1 (20%)	0 (0%)	0 (0%)	1 (20%)	0 (0%)	4 (80.0%)	1 (20.0%)
AMR	36	19 (52.8%)	18 (94.7%)	15 (78.9%)	15 (78.9%)	3 (15.8%)	0 (0%)	1 (5.3%)	18 (94.7%)
EMR	20	13 (65%)	10 (76.7%)	9 (69.2%)	8 (61.5%)	2 (15.4%)	1 (7.7%)	2 (15.4%)	11 (84.6%)
EUR	53	39 (73.6%)	30 (76.9%)	31 (79.5%)	25 (64.1%)	4 (10.2%)	6 (15.4%)	3 (7.5%)	36 (92.3%)
SEAR	11	9 (81.8%)	5 (55.6%)	3 (33.3%)	2 (22.2%)	3 (33.3%)	1 (11.1%)	3 (33.3%)	6 (66.7%)
WPR	27	13 (48.1%)	11 (84.6%)	8 (61.5%)	8 (61.5%)	2 (15.4%)	0 (0%)	2 (15.4%)	11 (84.6%)
TTAL	193	98 (50.8%)	75 (76.5%)	66 (67.3%)	58 (59.2%)	15 (15.3%)	8 (8.1%)	15 (15.3%)	83 (84.7%)

N (%)¹: Based on number of region countries. N (%)²: based on number of countries with organizational information available.

Table 3. Indicators 3-8, **depending on whether countries have a or b**: Countries with an official body responsible for overseeing donation and transplantation at national level **(a)**; or countries with specific organization or institution responsible for national coordination **(b)**.

WHO Region	Countries with a or b	Countries with systems for collection of data on donation and transplantation activities	Countries with mechanisms to ensure donor safety and follow up	Countries with surveillance system of adverse events in organ transplant recipients	Countries with surveillance system of donation complications in live organ donors
AFR	1	N(*) [*] 1 (100%)	N(*) [*] -	N(*) [*] -	N(*) [*] -
AMR	18	17 (94.4%)	14 (77.8%)	6 (33.3%)	1 (5.6%)
EMR	11	9 (81.8%)	9 (81.8%)	7 (63.6%)	8 (72.7%)
EUR	36	34 (94.4%)	27 (75%)	23 (63.9%)	21 (58.3%)
SEAR	6	1 (16.7%)	3 (50%)	3 (50%)	2 (33.3%)
WPR	11	10 (90.9%)	9 (81.8%)	4 (36.4%)	3 (27.3%)
SUBTOTAL	83	72 (86.7%)	62 (74.7%)	43 (51.8%)	35 (42.2%)
WHO Region	Countries neither a or b	Countries with systems for collection of data on donation and transplantation activities	Countries with mechanisms to ensure donor safety and follow up	Countries with surveillance system of adverse events in organ transplant recipients	Countries with surveillance system of donation complications in live organ donors
AFR	4	N(*) [*] -	N(*) [*] 1 (25%)	N(*) [*] 1 (25%)	N(*) [*] 1 (25%)
AMR	1	1 (100%)	1 (100%)	-	-
EMR	2	1 (50%)	1 (50%)	1 (50%)	1 (50%)
EUR	3	2 (66.7%)	3 (100%)	-	-
SEAR	3	-	1 (66.7%)	-	-
WPR	2	-	-	-	-
SUBTOTAL	15	4 (26.7%)	7 (46.7%)	2 (13.3%)	2 (13.3%)
TOTAL	98	76 (77.6%)	69 (70.4%)	45 (45.9%)	37 (37.8%)

N(*)^{*}: Based on the number of countries with organizational information available

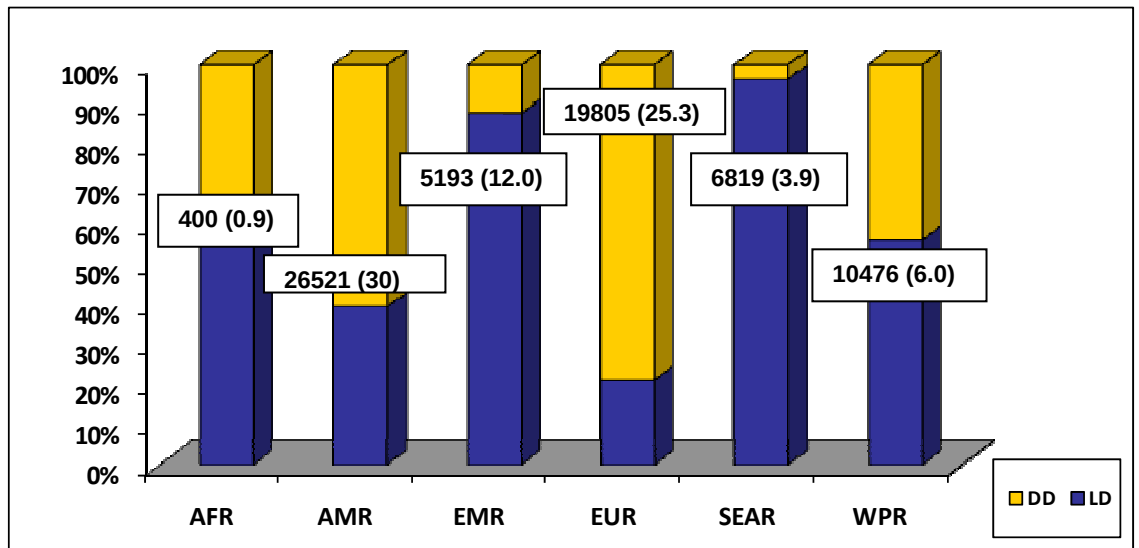
Table 4. Distribution of transplantation activities

WHO Region (n)*	Kidney n(pmp)**	Liver n(pmp)**	Heart n(pmp)**	Lung n(pmp)**	Pancreas n(pmp)**	Total n(pmp)**
AFR (10)	LD: 240 (0.5) DD: 160 (0.4)	LD: 3 (0.007) DD: 20 (0.04)	25 (0.06)	5 (0.01)	5 (0.01)	458 (1.0)
AMR (21)	LD: 10541 (11.9) DD: 15980 (18.1)	LD: 365 (0.5) DD: 8241 (9.3)	2762 (3.1)	1726 (1.9)	1488 (1.7)	41103 (46.6)
EMR (12)	LD: 4564 (10.5) DD: 629 (1.5)	LD: 178 (0.4) DD: 211 (0.5)	71 (0.16)	1 (0.002)	15 (0.03)	5669 (13.1)
EUR (40)	LD: 4170 (5.3) DD: 15635 (20)	LD: 616 (0.8) DD: 6820 (8.7)	2170 (2.8)	1411 (1.8)	806 (1.03)	31628 (40.5)
SEAR (9)	LD: 6570 (3.8) DD: 249 (0.1)	LD: 217 (0.12) DD: 86 (0.05)	10 (0.006)	-	-	7132 (4.1)
WPR (12)	LD: 5902 (3.4) DD: 4574 (2.6)	LD: 1655 (0.9) DD: 1868 (1.1)	289 (0.16)	186 (0.11)	64 (0.04)	14538 (8.3)
TOTAL (104)	69214 (11.5) LD: 31987 (5.3) DD: 37227 (6.2)	20280 (3.4) LD: 3034 (0.5) DD: 17246 (2.9)	5327 (0.9)	3329 (0.6)	2378 (0.4)	100528 (16.6)

*Number of countries included in the analysis. n (pmp)**: absolute number (rate pmp- based on the population from the countries with transplantation activity data).

Figure A. Kidney transplants per region

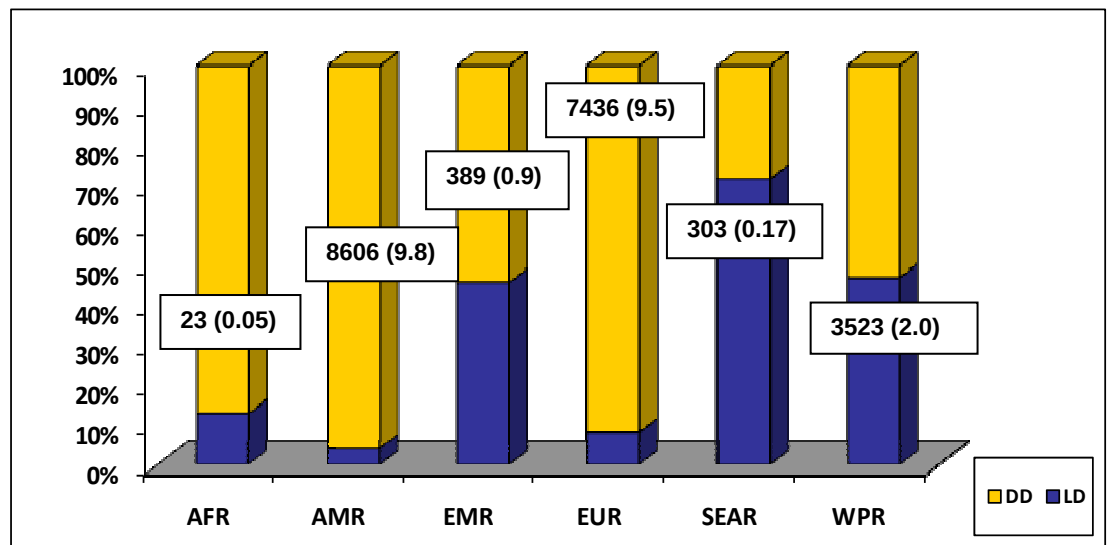
Distribution among WHO regions of kidney transplant activity (proportions between transplants from deceased and living donors)



*Global absolute number (rate pmp). Bars shows the % of kidney transplants from living (LD) vs deceased donors (DD)

Figure B. Liver transplants per region

Distribution among WHO regions of liver transplant activity (proportions between transplants from deceased and living donors)



*Global absolute number (rate pmp). Bars shows the % of liver transplants from living (LD) vs deceased donors (DD)

Activity transplant data. (Most up-to-date figures collected in the database. 96 countries from 2008, 7 from 2007* and 1 from 2005**).

Country	Region	Population	DD	DD pmp	LK Tx	LK Tx pmp	DK Tx	DK Tx pmp	LL Tx	LL Tx pmp	DL Tx	DL Tx pmp	Heart	Heart pmp	Lung	Lung pmp
Algeria	AFR	34.40	-	-	112	3.26	-	-	3	0.09	-	-	-	-	-	-
Argentina	AMR	39.70	519	13.07	207	5.21	753	18.97	33	0.83	247	6.22	100	2.52	32	0.81
Armenia	EUR	3.00	-	-	8	2.67	-	-	-	-	-	-	-	-	-	-
Australia	WPR	21.40	259	12.10	352	16.45	424	19.81	3	0.14	192	8.97	85	3.97	115	5.37
Austria	EUR	8.30	172	20.72	58	6.99	303	36.51	4	0.48	112	13.49	62	7.47	119	14.34
Bangladesh	SEAR	161.30	-	-	28	0.17	-	-	-	-	-	-	-	-	-	-
Belgium	EUR	10.70	274	25.61	45	4.21	442	41.31	13	1.21	217	20.28	75	7.01	82	7.66
Bhutan	SEAR	0.70	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brazil	AMR	184.80	1,331	7.20	1,747	9.45	2,033	11.00	-	-	1,053	5.70	200	1.08	53	0.29
Brunei D.	WPR	0.39	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bulgaria	EUR	7.00	8	1.14	11	1.57	8	1.14	4	0.57	5	0.71	3	0.43	-	-
Cameroon	AFR	18.90	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Canada	AMR	33.30	486	14.59	474	14.23	730	21.92	67	2.01	478	14.35	168	5.05	135	4.05
Chile	AMR	16.80	119	7.08	-	-	206	12.26	-	-	74	4.40	19	1.13	9	0.54
China	WPR	1,336.30	-	-	2,600	1.95	3,500	2.62	490	0.37	1,500	1.12	130	0.10	35	0.03
Colombia	AMR	48.20	436	9.05	64	1.33	641	13.30	-	-	198	4.11	83	1.72	14	0.29
Costa Rica	AMR	4.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Côte d'Ivoire	AFR	19.60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Croatia	EUR	4.40	83	18.86	9	2.05	149	33.86	1	0.23	64	14.55	20	4.55	-	-
Cuba	AMR	11.20	186	16.61	8	0.71	136	12.14	-	-	28	2.50	3	0.27	-	-
Cyprus	EUR	0.70	13	18.57	34	48.57	24	34.29	-	-	-	-	-	-	-	-
Czech Republic	EUR	10.40	198	19.04	29	2.79	305	29.33	-	-	97	9.33	59	5.67	20	1.92
Denmark	EUR	5.50	65	11.82	74	13.45	122	22.18	-	-	44	8.00	20	3.64	18	3.27
Dominican Republic	AMR	9.50	102	10.74	95	10.00	7	0.74	-	-	1	0.11	-	-	-	-
Ecuador	AMR	13.60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Egypt	EMR	76.80	-	-	1,200	15.63	-	-	80	1.04	-	-	-	-	-	-
El Salvador	AMR	5.70	-	-	29	5.09	-	-	-	-	-	-	-	-	-	-
Estonia	EUR	1.30	31	23.85	3	2.31	54	41.54	-	-	2	1.54	-	-	-	-
Ethiopia	AFR	85.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fiji	WPR	0.84	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Finland	EUR	5.30	81	15.28	9	1.70	141	26.60	-	-	47	8.87	21	3.96	12	2.26

Country	Region	Population	DD	DD pmp	LK Tx	LK Tx pmp	DK Tx	LL Tx	LL Tx pmp	DL Tx	Heart	Heart pmp	Lung	Lung pmp
France	EUR	63.60	1,610	25.31	222	3.49	2,663	10	0.16	1,001	379	5.96	215	3.38
Georgia	EUR	4.50	-	-	7	1.56	-	-	-	-	-	-	-	-
Germany	EUR	82.20	1,199	14.59	565	6.87	2,188	55	0.67	1,067	382	4.65	270	3.28
Ghana	AFR	23.90	-	-	1	0.04	-	-	-	-	-	-	-	-
Greece	EUR	11.00	98	8.91	51	4.64	186	-	-	58	16	1.45	3	0.27
Guatemala	AMR	13.50	7	0.52	71	5.26	14	-	-	-	-	-	-	-
Honduras	AMR	7.50	-	-	-	-	-	-	-	-	-	-	-	-
Hungary	EUR	10.10	148	14.65	24	2.38	235	-	-	36	22	2.18	-	-
Iceland	EUR	0.30	2	6.67	5	16.67	-	-	-	-	-	-	-	-
India	SEAR	1,186.20	-	-	5,500	4.64	100	210	0.18	40	5	0.00	-	-
Indonesia	SEAR	234.30	-	-	494	2.11	-	2	0.01	-	-	-	-	-
Iran	EMR	72.20	203	2.81	1,545	21.40	381	38	0.53	147	52	0.72	-	-
Ireland	EUR	4.40	81	18.41	10	2.27	136	-	-	58	4	0.91	-	-
Israel	EUR	7.30	72	9.86	56	7.67	86	2	0.27	54	20	2.74	51	6.99
Italy	EUR	56.90	1,201	21.11	123	2.16	1,533	19	0.33	996	326	5.73	94	1.65
Japan	WPR	127.90	109	0.85	991	7.75	210	463	3.62	13	11	0.09	14	0.11
Jordan	EMR	6.10	-	-	190	31.15	-	20	3.28	-	-	-	-	-
Kenya	AFR	38.60	-	-	23	0.6	-	-	-	-	-	-	-	-
Kuwait	EMR	2.90	13	4.48	50	17.24	26	-	-	1	-	-	-	-
Kyrgyzstan	EUR	5.40	-	-	-	-	-	-	-	-	-	-	-	-
Latvia	EUR	2.30	30	13.04	1	0.43	53	-	-	-	-	-	-	-
Lebanon*	EMR	4.10	-	-	80	19.51	28	-	-	-	-	-	-	-
Libya	EMR	6.30	-	-	55	8.73	-	2	0.32	-	-	-	-	-
Lithuania	EUR	3.40	33	9.71	5	1.47	46	-	-	6	5	1.47	2	0.59
Luxembourg	EUR	0.50	9	18.00	-	-	3	-	-	-	-	-	-	-
Malaysia	WPR	27.00	13	0.48	25	0.93	22	1	0.04	4	-	-	-	-
Maldives	SEAR	0.31	-	-	-	-	-	-	-	-	-	-	-	-
Mali	AFR	12.70	-	-	-	-	-	-	-	-	-	-	-	-
Malta	EUR	0.40	-	-	-	-	-	-	-	-	-	-	-	-
Mexico	AMR	106.70	332	3.11	1,698	15.91	562	8	0.07	88	14	0.13	1	0.01
Mongolia**	WPR	2.70	-	-	4	1.48	-	-	-	-	-	-	-	-
Myanmar*	SEAR	49.20	1	0.02	38	0.77	-	-	-	1	-	-	-	-
Nepal	SEAR	28.80	-	-	21	0.73	-	-	-	-	-	-	-	-
Netherlands	EUR	16.40	210	12.80	411	25.06	352	2	0.12	129	32	1.95	56	3.41
New Zealand	WPR	4.30	31	7.21	68	15.81	53	7	1.63	17	10	2.33	14	3.26

Country	Region	Population	DD	DD pmp	LK Tx	LK Tx pmp	DK Tx	LL Tx	LL Tx pmp	DL Tx	DL Tx pmp	Heart pmp	Lung	Lung pmp
Nicaragua	AMR	5.70	-	-	-	-	-	-	-	-	-	-	-	-
Nigeria *	AFR	151.50	-	-	14	0.09	-	-	-	-	-	-	-	-
Norway	EUR	4.80	98	20.42	98	20.42	180	37.50	-	79	16.46	39	8.13	30
Oman	EMR	2.70	-	-	15	5.56	-	-	-	-	-	-	-	-
Pakistan	EMR	167.00	-	-	775	4.64	-	-	-	-	-	-	-	-
Panama	AMR	3.30	6	1.82	12	3.64	12	3.64	-	-	-	-	-	-
Paraguay	AMR	5.20	11	2.12	21	4.04	6	1.15	-	-	-	1	0.19	-
Peru	AMR	28.80	-	-	-	-	-	-	-	-	-	-	-	-
Philippines*	WPR	89.70	-	-	1,117	12.45	30	0.33	-	-	-	-	-	-
Poland	EUR	38.10	427	11.21	20	0.52	790	20.73	21	0.55	224	61	1.60	11
Portugal	EUR	10.60	283	26.70	49	4.62	475	44.81	5	0.47	269	42	3.96	4
Rep of Korea *	WPR	48.40	148	3.06	660	13.64	289	5.97	652	13.47	125	50	1.03	8
Romania	EUR	21.00	60	2.86	112	5.33	115	5.48	8	0.38	35	6	0.29	-
Russia *	EUR	141.80	-	-	-	-	527	3.72	-	-	-	-	-	-
Saudi Arabia	EMR	25.30	105	4.15	228	9.01	166	6.56	38	1.50	59	19	0.75	1
Senegal	AFR	12.70	-	-	-	-	-	-	-	-	-	-	-	-
Singapore	WPR	4.50	27	6.00	83	18.44	46	10.22	33	7.33	17	3	0.67	-
Slovakia	EUR	5.30	77	14.53	21	3.96	145	27.36	-	12	2.26	26	4.91	-
Slovenia	EUR	2.00	37	18.50	-	-	52	26.00	-	22	11.00	6	3.00	-
SouthAfrica	AFR	48.80	80	1.64	90	1.84	160	3.28	-	20	0.41	25	0.51	5
Spain	EUR	46.20	1,577	34.13	156	3.38	2,073	44.87	28	0.61	1,080	292	6.32	192
Sri Lanka	SEAR	19.40	-	-	300	15.46	-	-	-	-	-	-	-	-
Sudan	EMR	39.40	-	-	68	1.73	-	-	-	-	-	-	-	-
Sweden	EUR	9.20	152	16.52	136	14.78	283	30.76	6	0.65	140	45	4.89	52
Switzerland	EUR	7.50	90	12.00	116	15.47	170	22.67	12	1.60	71	29	3.87	40
Syria	EMR	20.40	-	-	259	12.70	-	-	-	-	-	-	-	-
Tajikistan	EUR	6.80	-	-	-	-	-	-	-	-	-	-	-	-
Thailand	SEAR	64.30	81	1.26	189	2.94	149	2.32	5	0.08	45	5	0.08	-
Tunisia	EMR	10.40	14	1.35	99	9.52	28	2.69	-	4	0.38	-	-	-
Turkey	EUR	71.50	262	3.66	1,248	17.45	414	5.79	390	5.45	212	51	0.71	1
United Kingdom	EUR	60.20	885	14.70	454	7.54	1,382	22.96	36	0.60	683	127	2.11	139
US	AMR	303.90	7,984	26.27	5,967	19.63	10,550	34.72	249	0.82	6,069	2,163	7.12	1,478
Uruguay	AMR	3.30	63	19.09	7	2.12	114	34.55	-	3	0.91	11	3.33	4
Uzbekistan	EUR	27.80	-	-	-	-	-	-	-	-	-	-	-	-

Country	Region	Population	DD	DD pmp	LK Tx	LK Tx pmp	DK Tx	DK Tx pmp	LL Tx	LL Tx pmp	DL Tx	DL Tx pmp	Heart	Heart pmp	Lung	Lung pmp
Venezuela (Bolivarian Republic of)	AMR	27.90	93	3.33	100	3.58	178	6.38	8	0.29	2	0.07	-	-	-	-
Viet Nam *	WPR	88.50	-	-	2	0.02	-	-	6	0.07	-	-	-	-	-	-
Bolivia (Plurinational State of)	AMR	9.10	20	2.20	41	4.51	38	4.18	-	-	-	-	-	-	-	-
Republic of Moldova	EUR	3.80	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Disclaimer:

The data and information presented here are published in order to promote transparency in transplantation activities. They are the most reliable facts available to date to our knowledge. 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 above warning.

Data presented for China, South Africa and India are best estimates from official sources as health authorities are in the process of setting up comprehensive registries on organ transplantation.