

INTERNATIONAL REPORT ON

Organ Donation and Transplantation Activities

2021

www.transplant-observatory.org

December 2022



Global activity in organ transplantation Estimations 2021

Kidney	Liver	Heart	Lung	Pancreas	S. bowel
92 532	34 694	8 409	6 470	2 025	172

≈ 144 302 solid organ transplants

≈ 11.3% increase vs 2020

≤ 10% of global needs

38 % living kidney transplants

23% living liver transplants

38 156 deceased donors (29 611 DBD and 8 545 DCD donors)



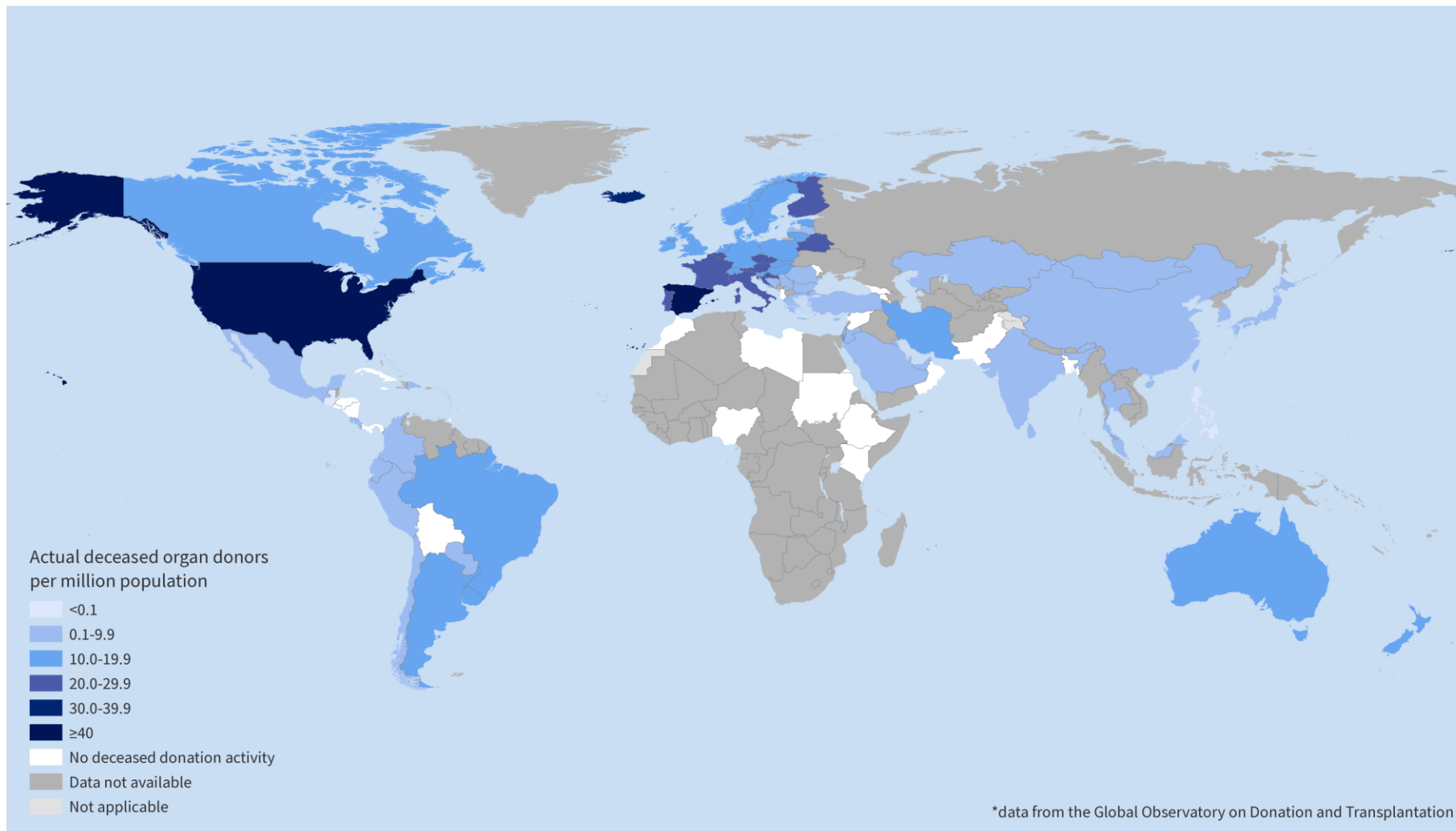
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DECEASED DONATION ACTIVITY

Actual donors from deceased persons, 2021*



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Data Source: Global Observatory on Donation and Transplantation

Map Production: WHO GIS Centre for Health, DNA/DDI

Map Creation Date: **16 December 2022**

Deceased donation pmp *in relation to* Human Development Index (HDI)

WHO Regions:

African Region (AFR)

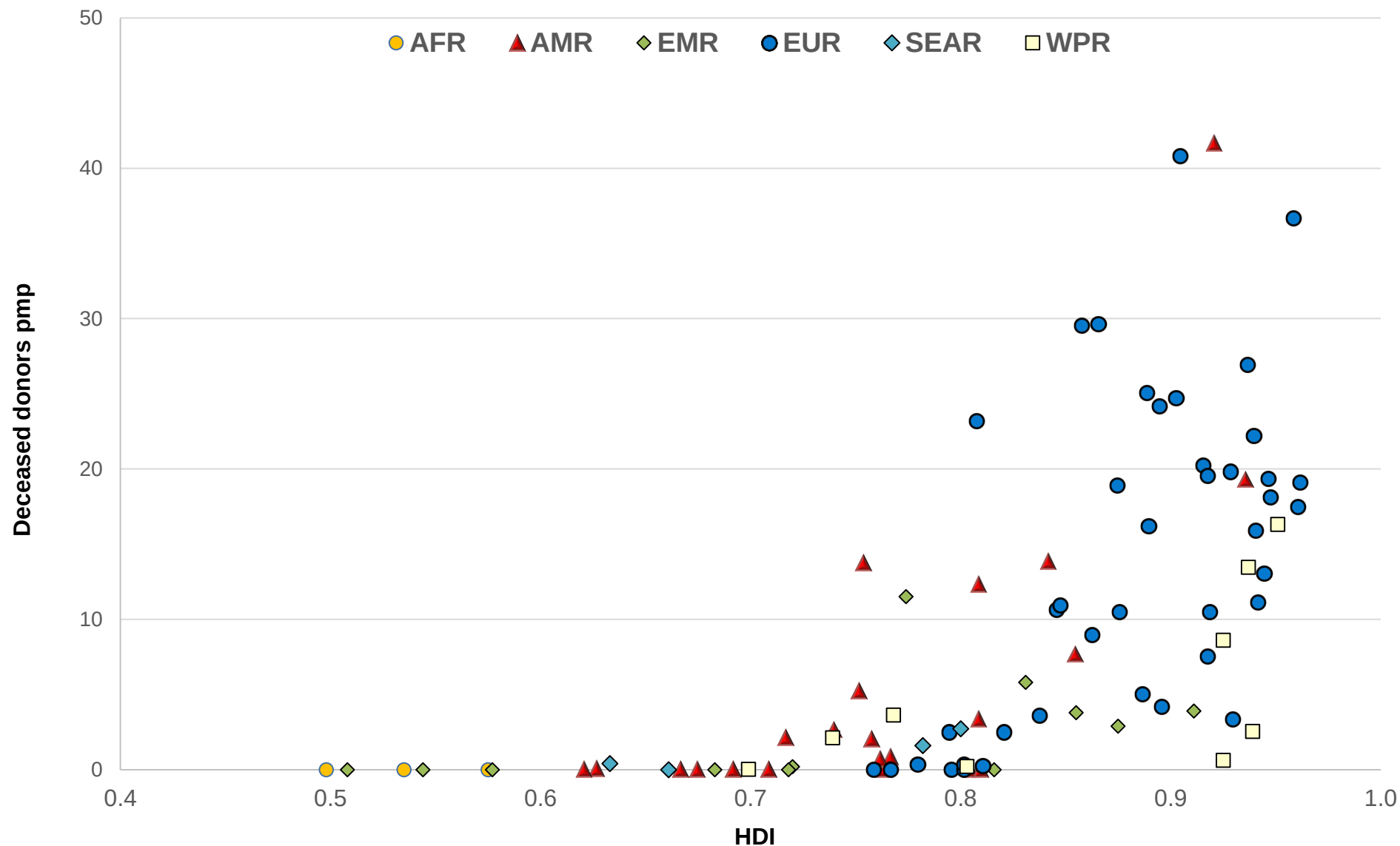
Region of the Americas (AMR)

Eastern Mediterranean Region (EMR)

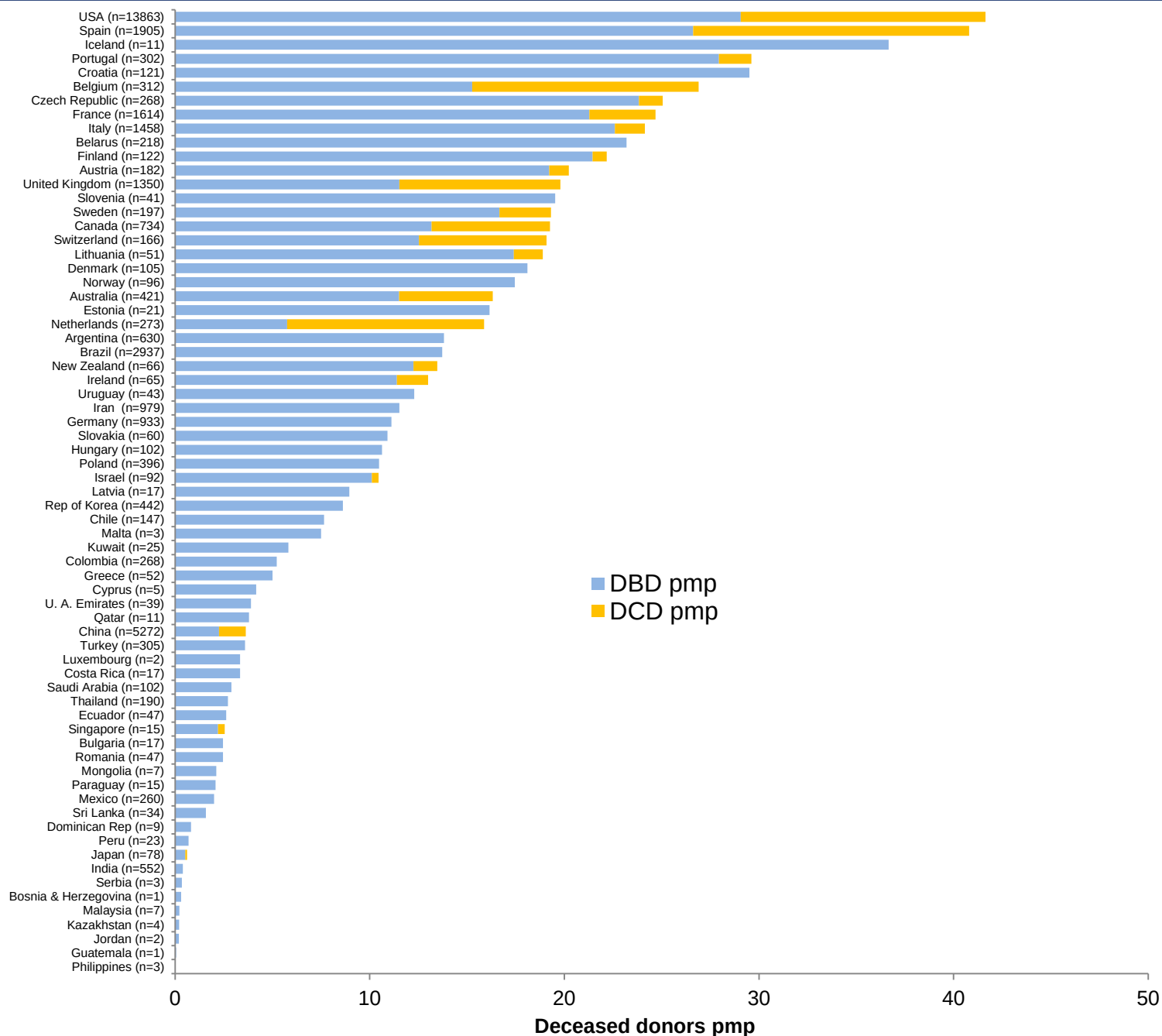
European Region (EUR)

South-East Region (SEAR)

Western Pacific Region (WPR)



Dots represent responding Member States in each WHO region



Actual deceased organ donors by donor type (pmp) 2021

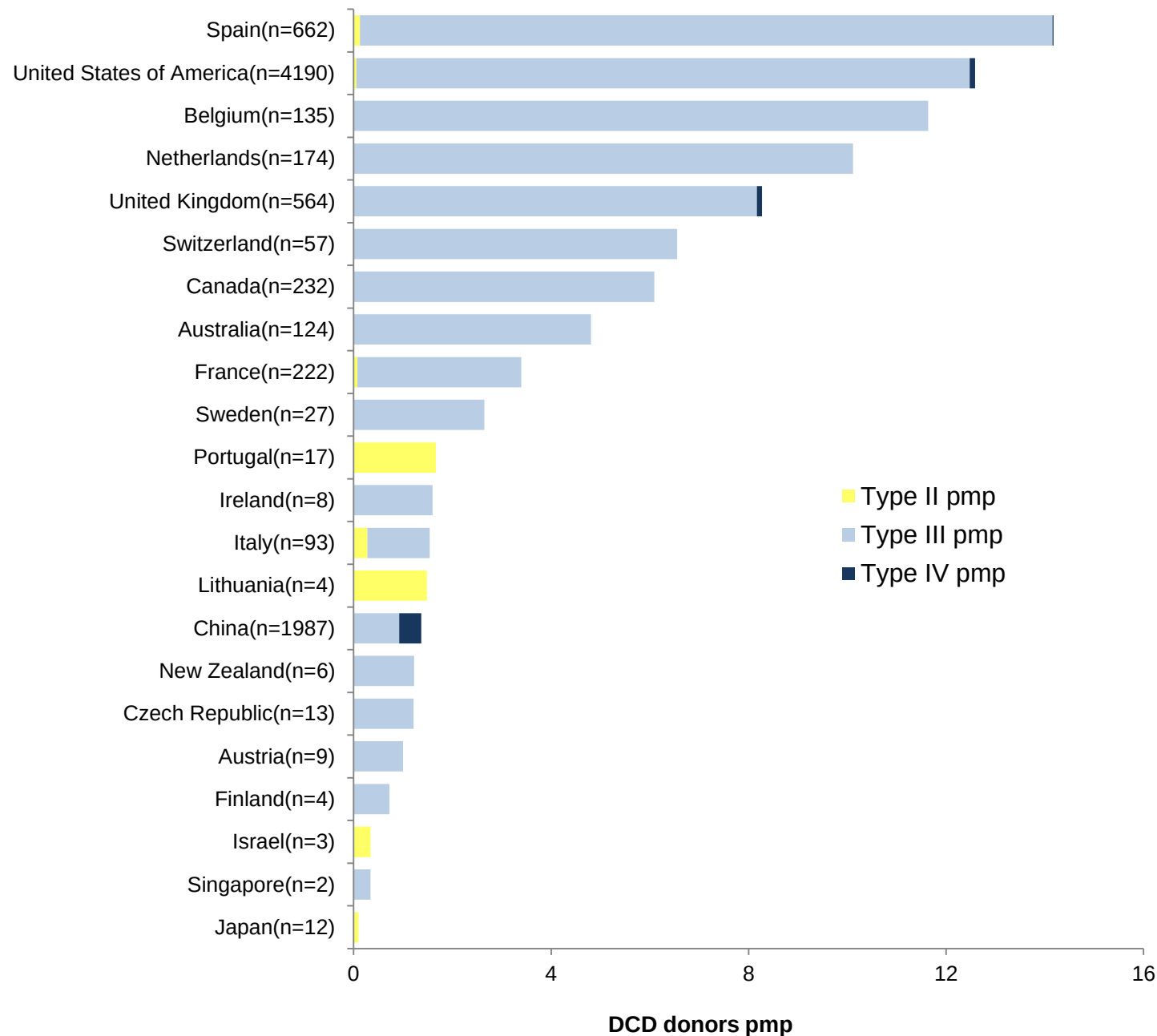
DBD donors: 29 611 (78%)
DCD donors: 8 545 (22%)

Deceased donation activities reported in 69/91 countries

≈ 5.7 % increase vs 2020

- Canada only reported utilized deceased donors

Actual donor: deceased person from whom at least one organ has been recovered for transplantation.



Actual DCD donors by Maastricht type (pmp) 2021

DCD activities reported in 22/91 countries

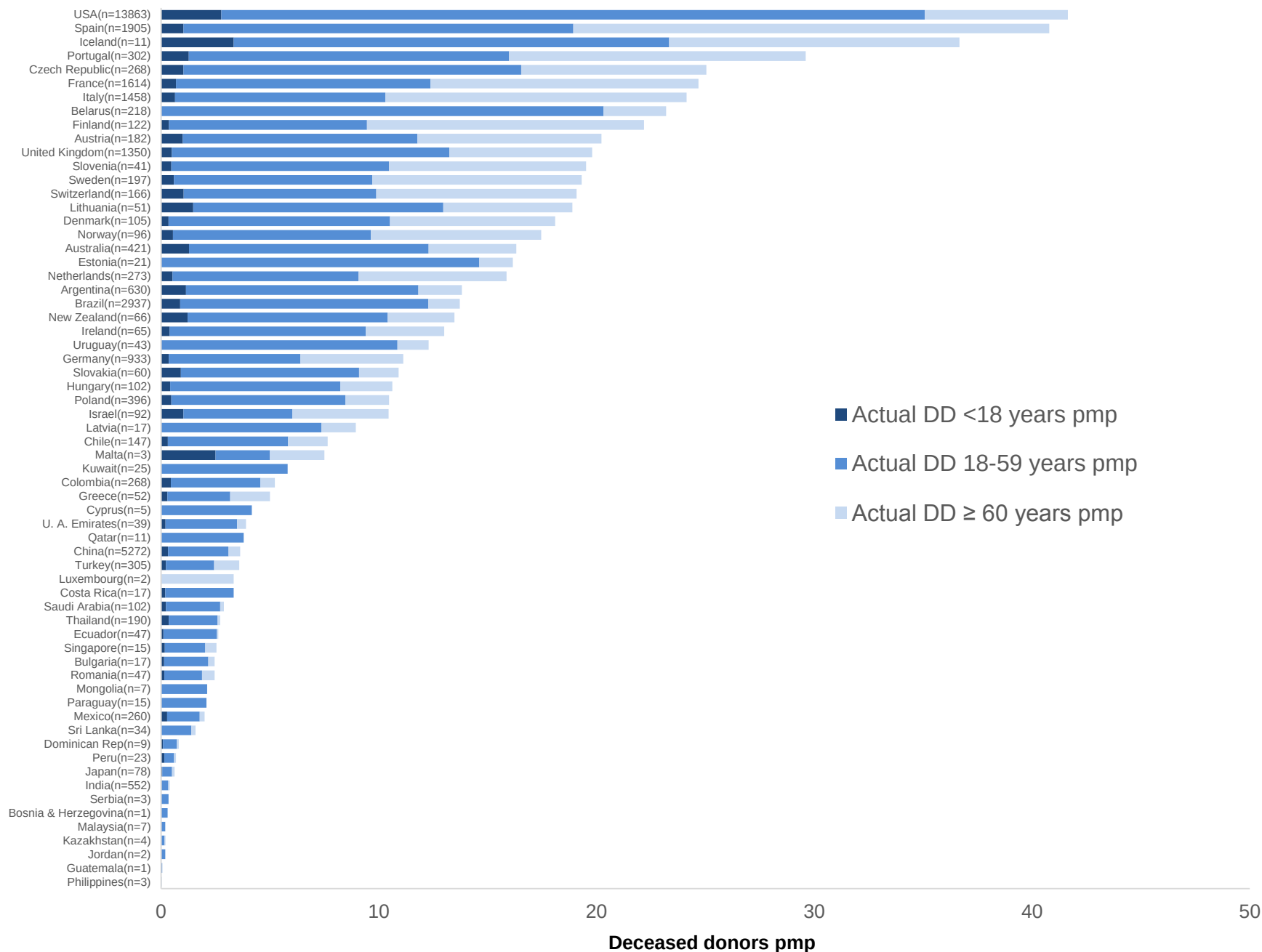
DCD donors: 8 545

Type II: 83 (1%)
Type III: 7 771 (91%)
Type IV: 691 (8%)

Type II: Sudden unexpected irreversible cardiac arrest, with unsuccessful attempt at resuscitation by a medical team.

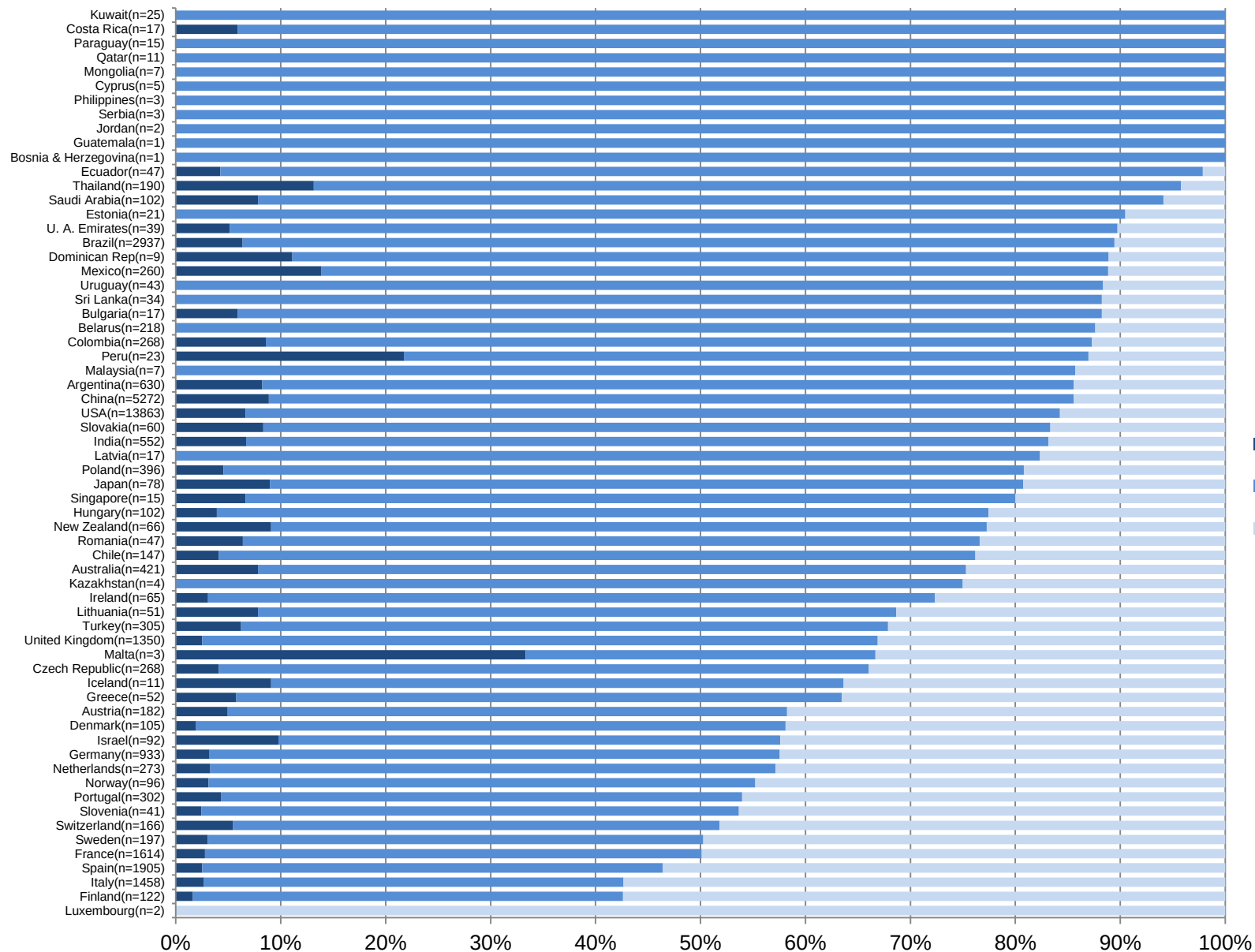
Type III: Planned withdrawal of life-sustaining therapy with an expected cardiac arrest.

Type IV : Sudden or planned cardiac arrest after brain death diagnosis, but before organ recovery.



Actual deceased organ donors by donor age (pmp) 2021

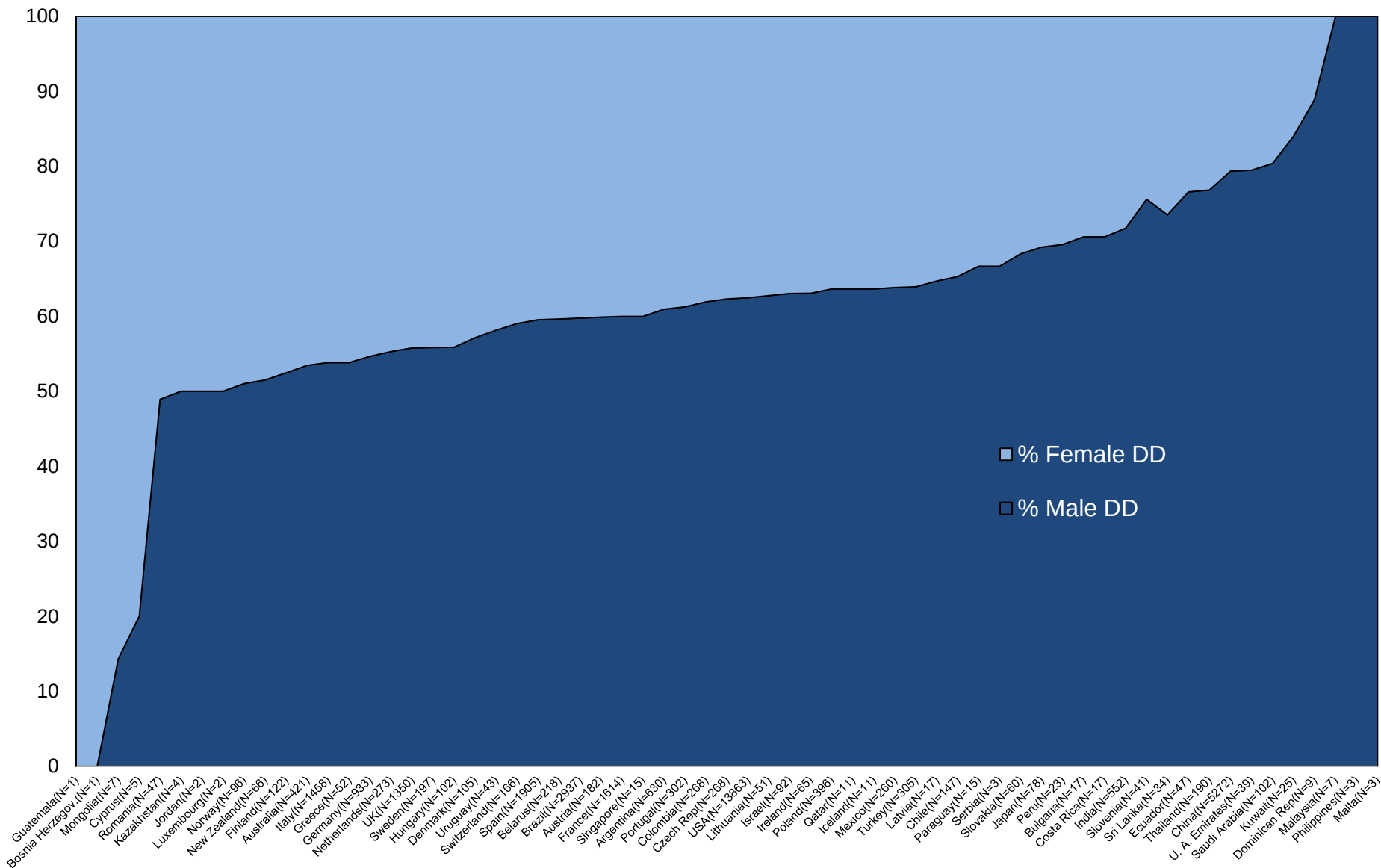
N=64 countries provided information on donor age groups



Percentage of actual deceased organ donors by age 2021

■ % < 18 years
■ % 18-59 years
■ % ≥ 60 years

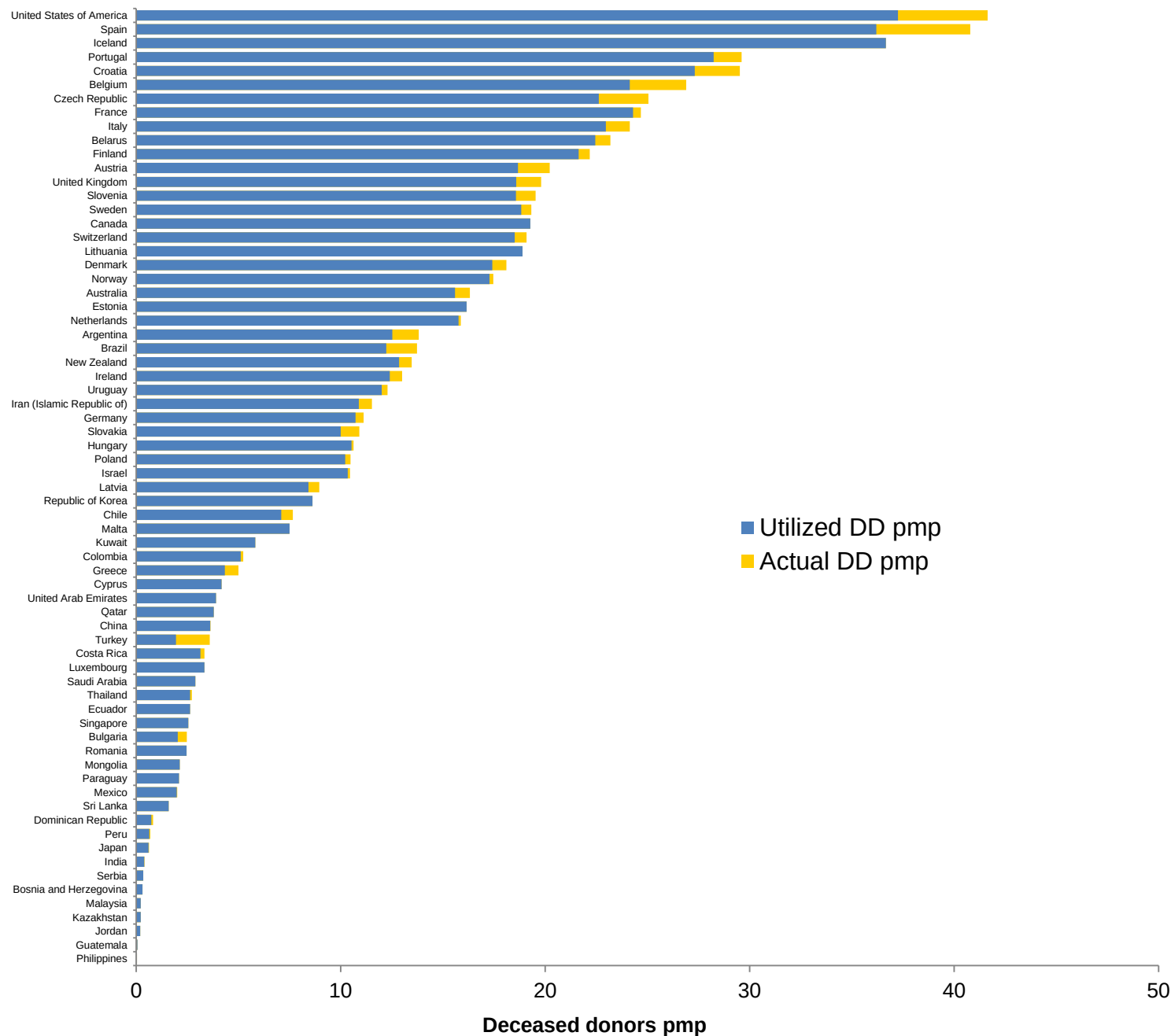
N=64 countries provided information on donor age groups



Actual deceased organ donors by donor sex (%) 2021

63 countries provided information according to donor sex

22 552 (64%) male donors
12 830 (36%) female donors



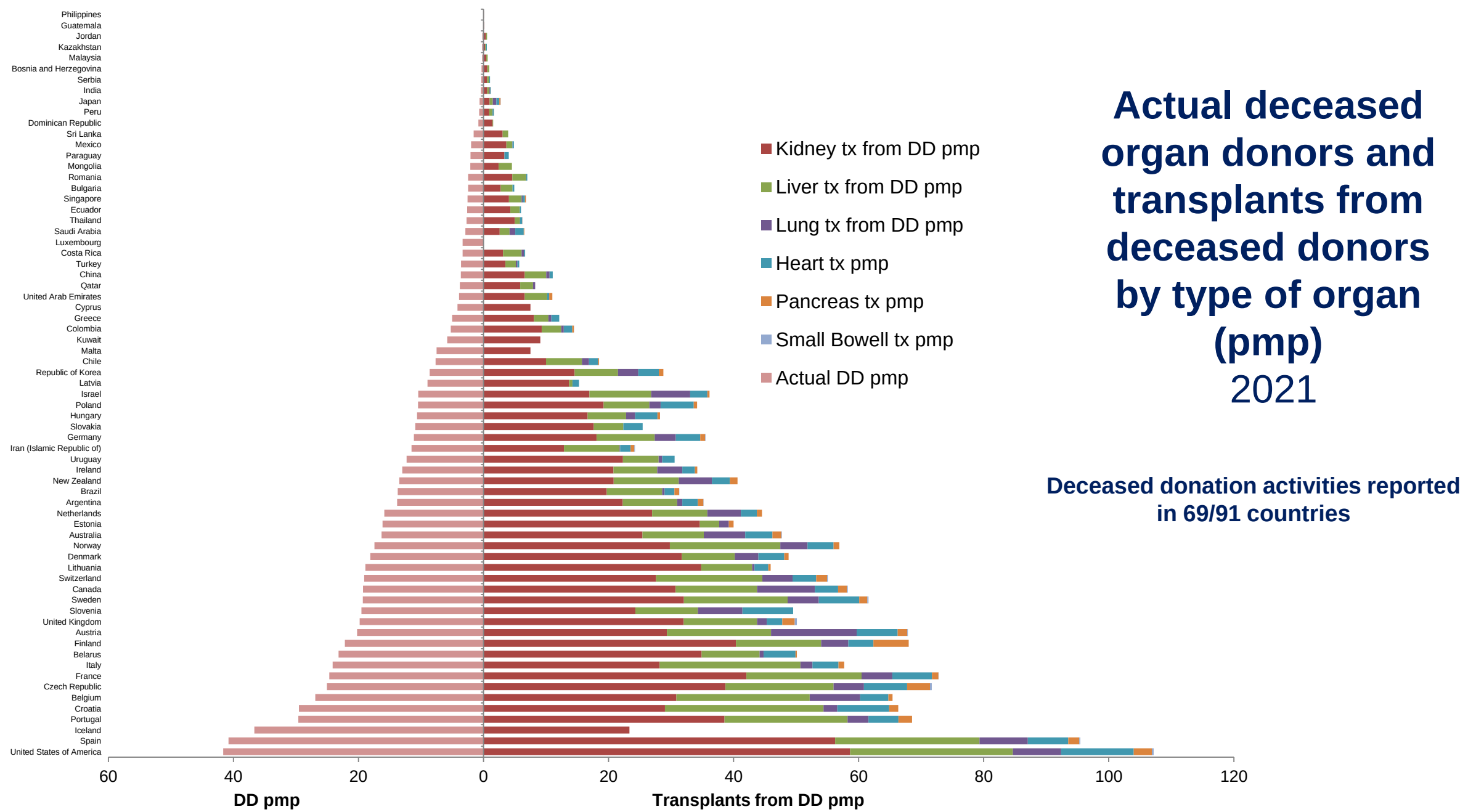
Actual and utilized deceased organ donors (pmp) 2021

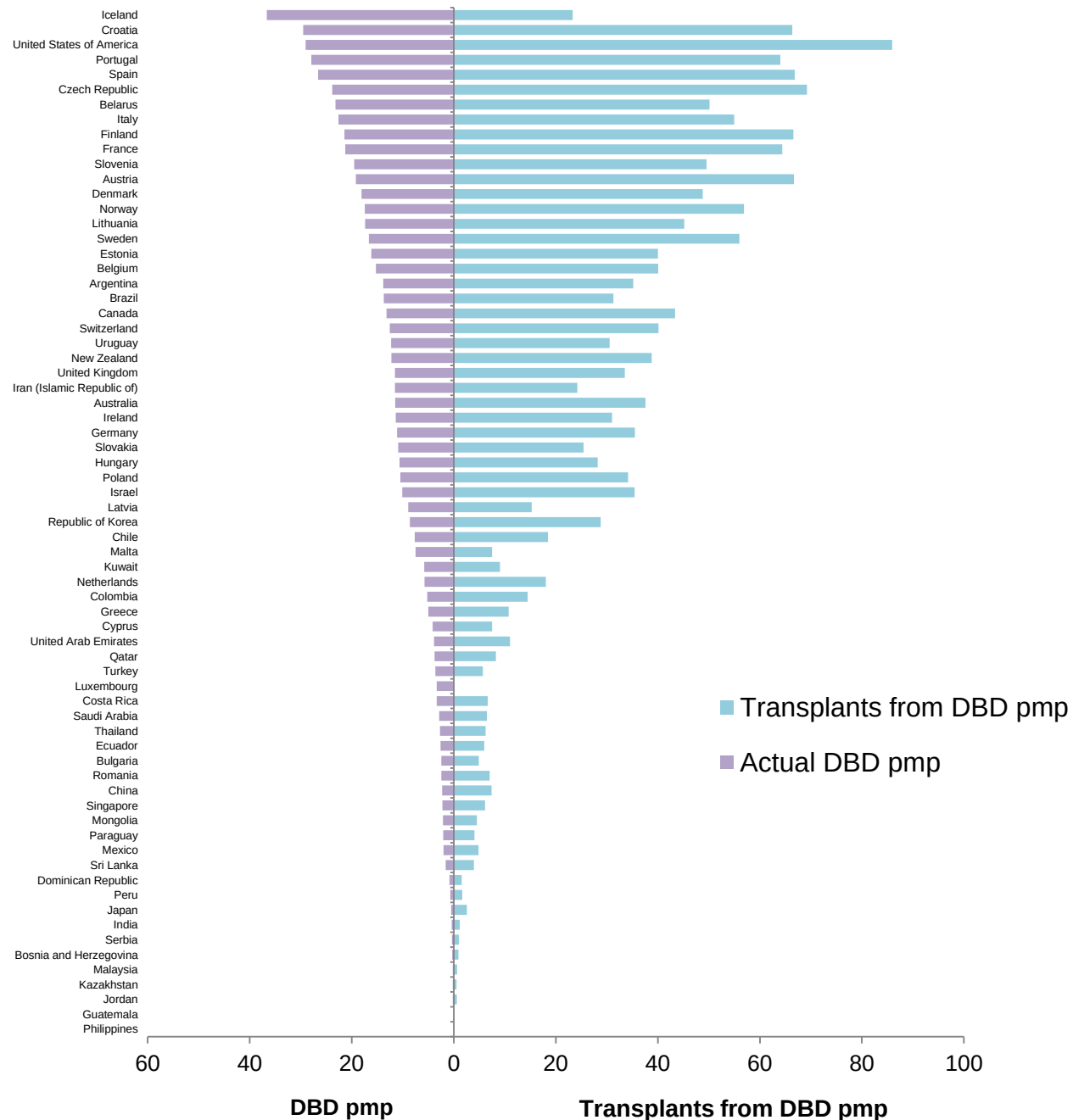
Deceased donation activities reported
in 69/91 countries

Canada only reported utilized deceased donors

Actual donor: deceased person from whom at least one organ has been
recovered for transplantation.

Utilized donor: deceased person from whom at least one organ was
transplanted.

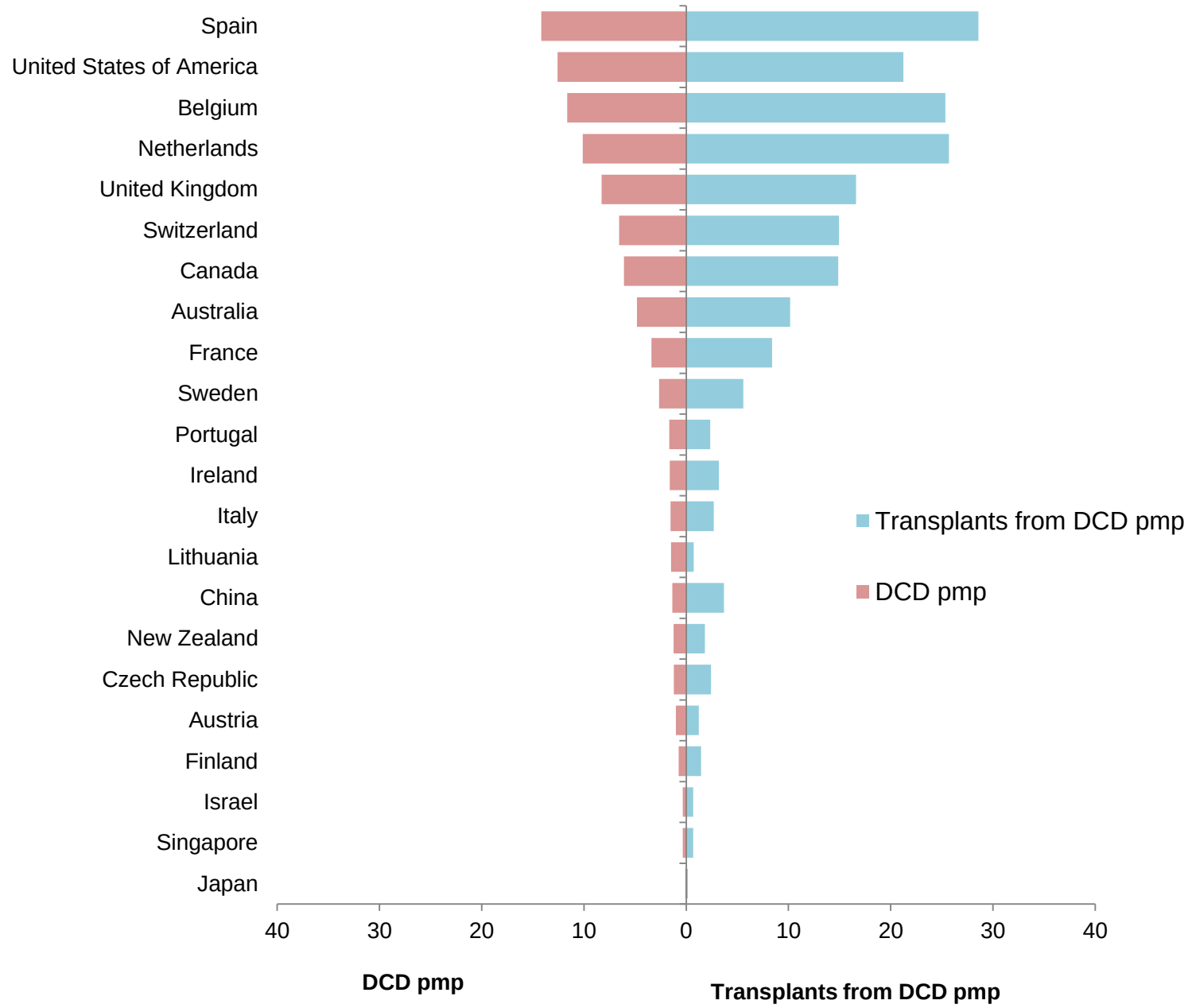




Actual DBD donors and transplants from DBD donors (pmp) 2021

DBD activities reported in 69/91
countries

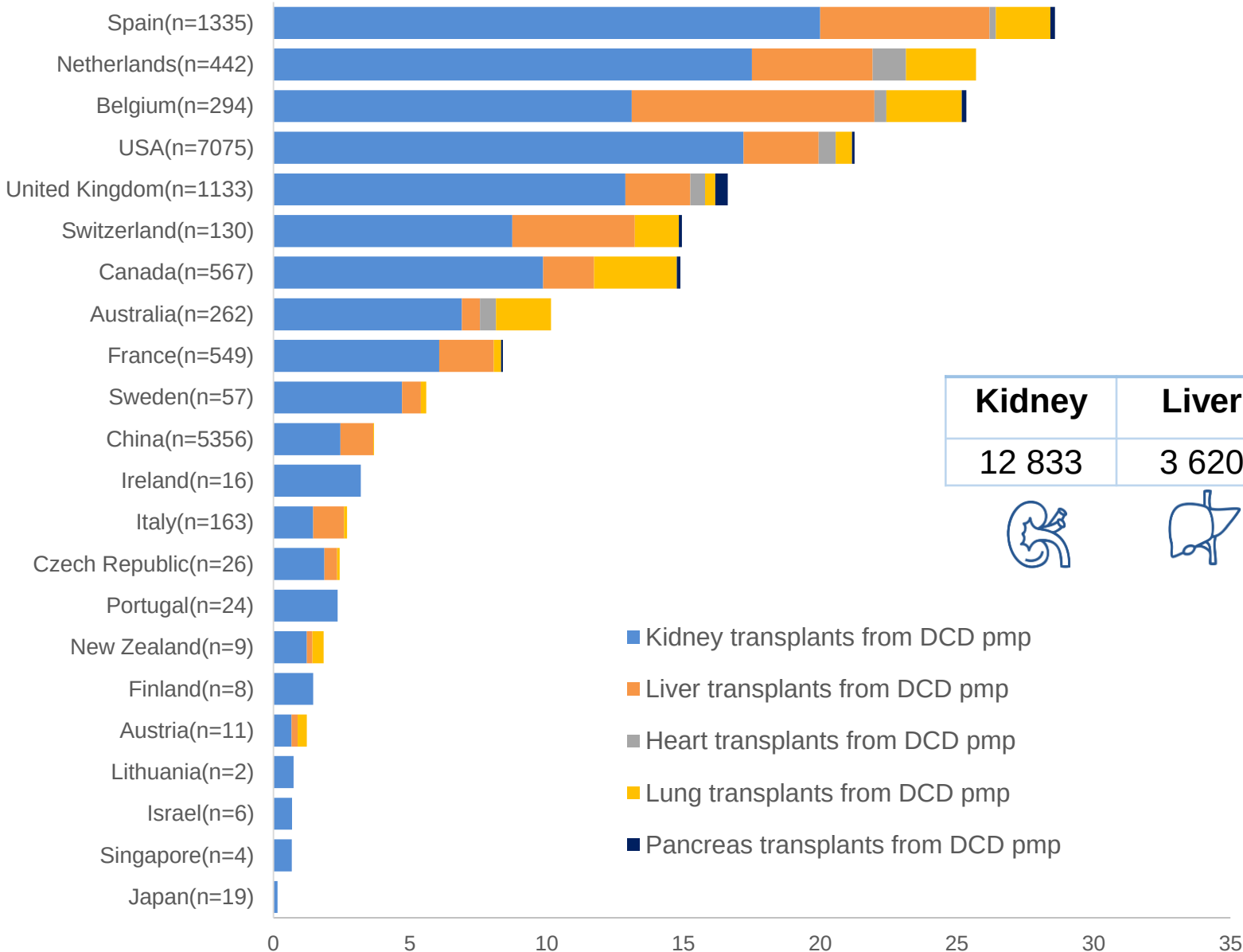
DBD donors: 29 611 (78%)



**Actual DCD donors
and transplants from
DCD donors (pmp)
2021**

**DCD activities reported in 22/91
countries**

DCD donors: 8 545 (22%)

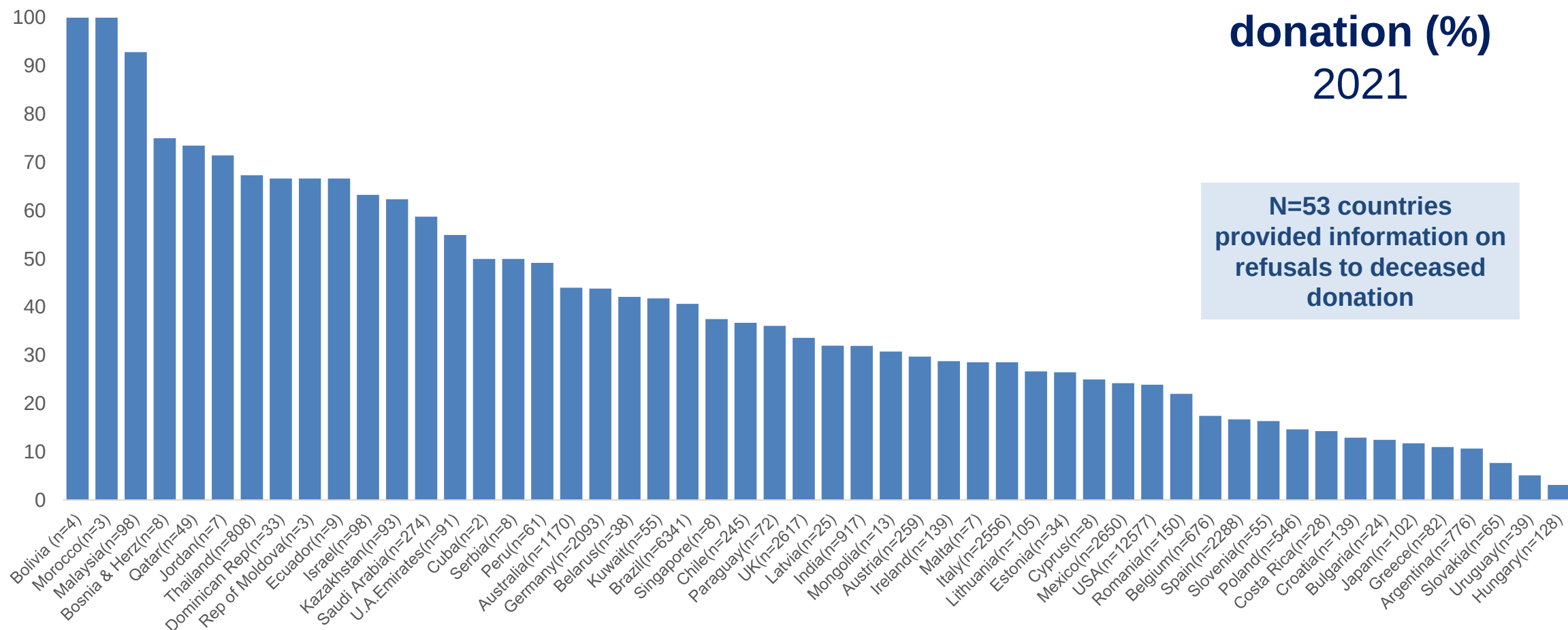


Transplants from DCD donors per type of organ (pmp) 2021

Kidney	Liver	Lung	Heart	Pancreas	Total
12 833	3 620	657	295	83	17 488
					

- Kidney transplants from DCD pmp
- Liver transplants from DCD pmp
- Heart transplants from DCD pmp
- Lung transplants from DCD pmp
- Pancreas transplants from DCD pmp

Refusals to deceased donation (%) 2021



*Number of interviews is presented in brackets.



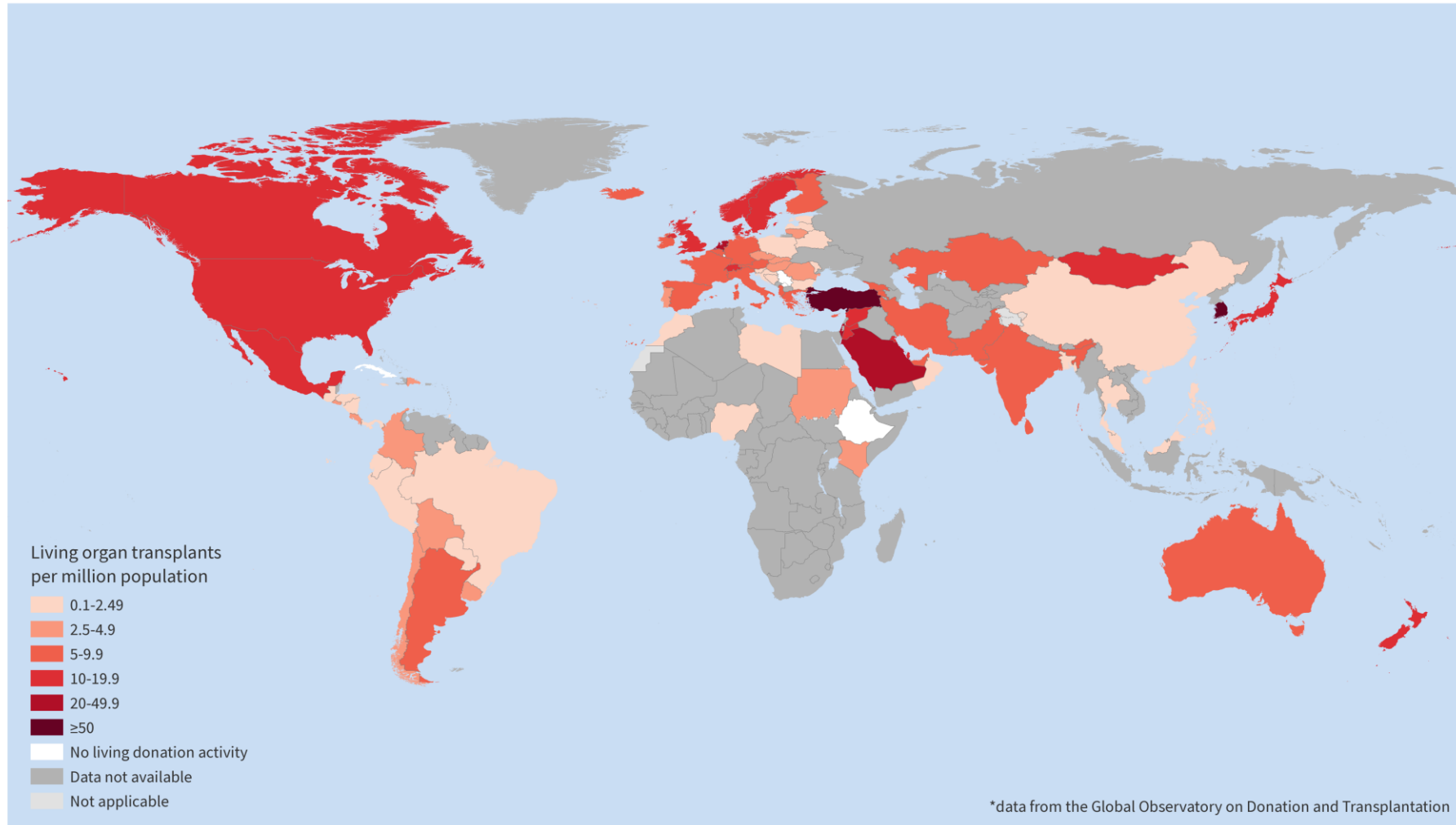
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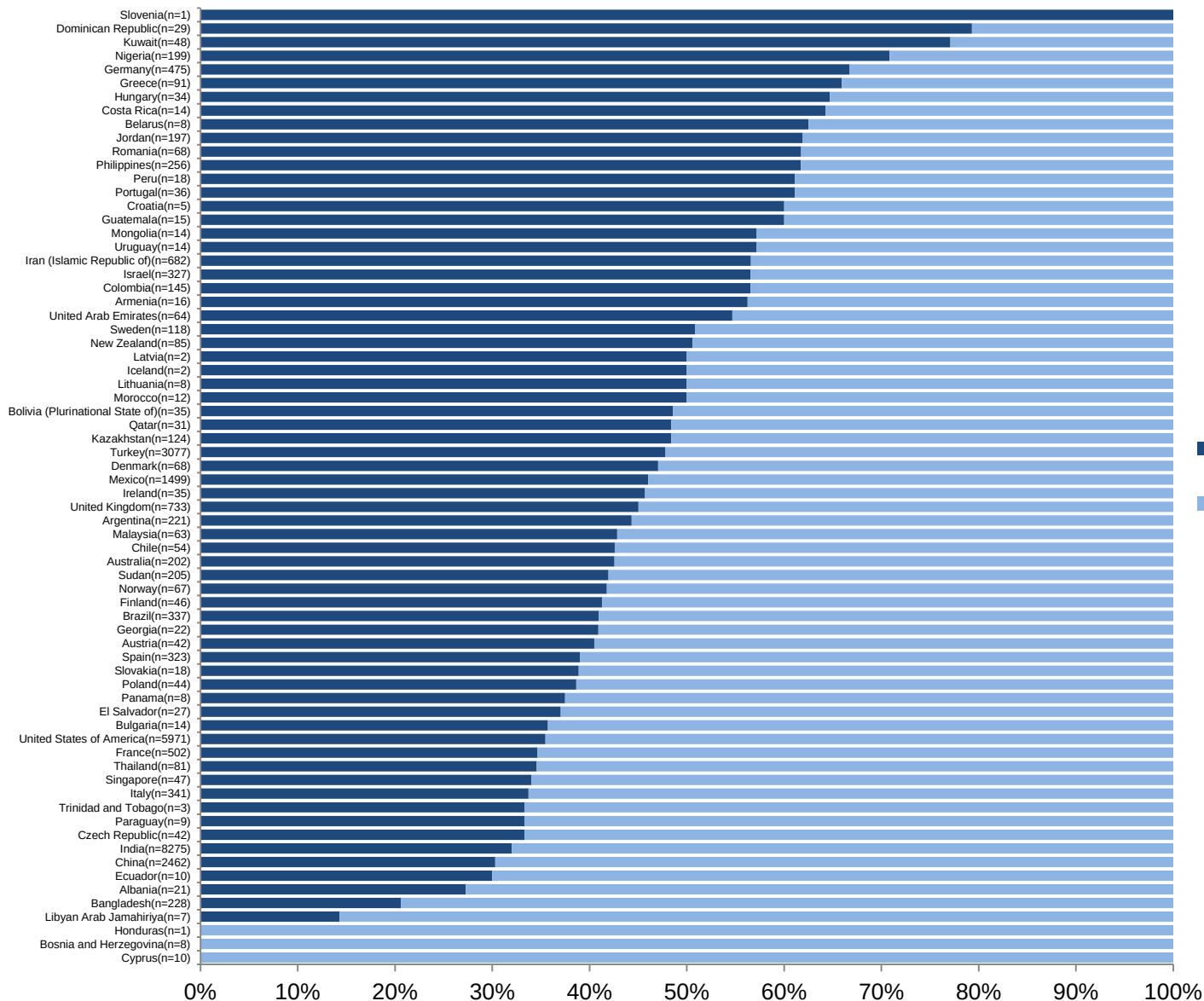
LIVING DONATION ACTIVITY

Organ transplantation from living donors, 2021*



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Map Production: WHO GIS Centre for Health, DNA/DDI
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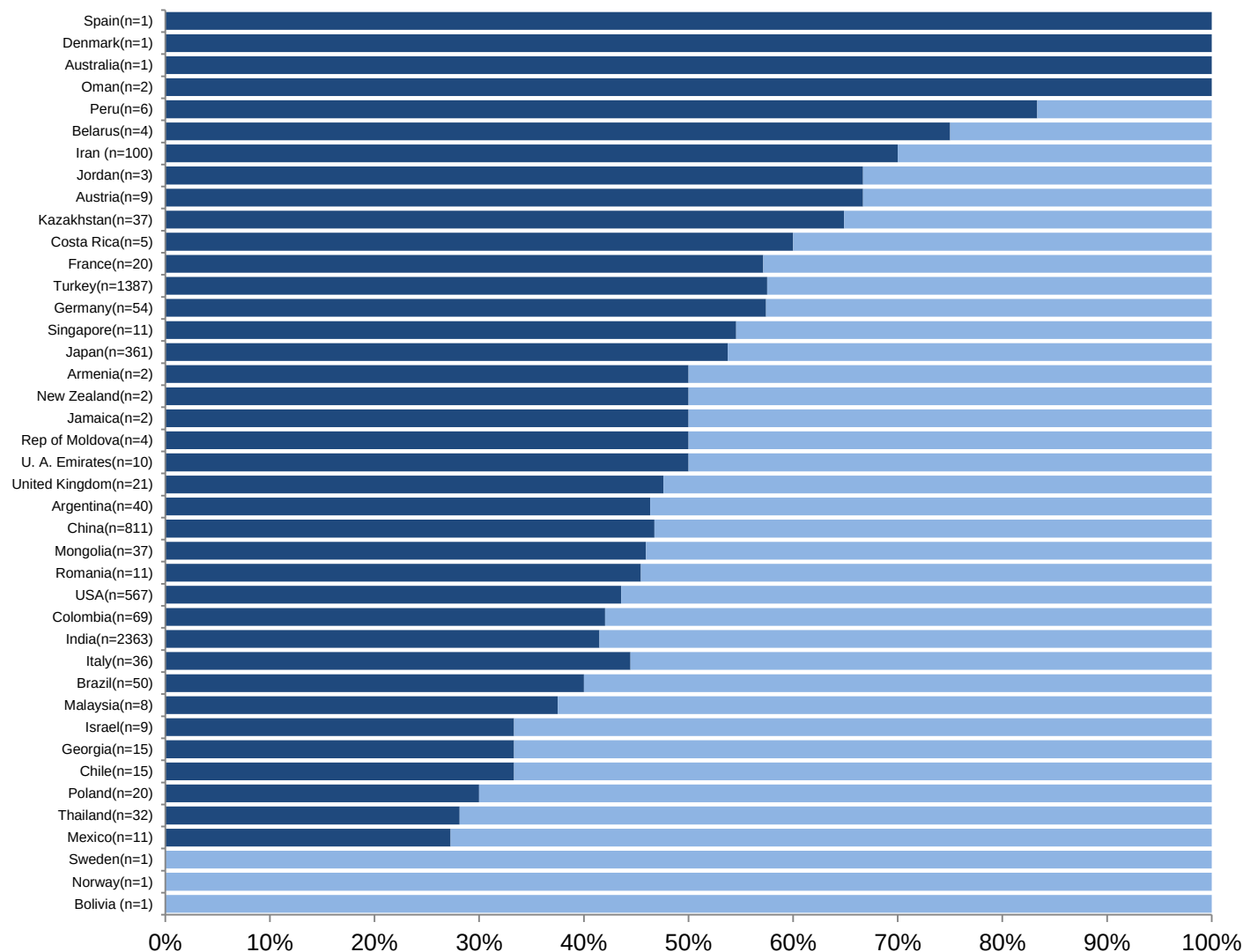
Living kidney donors by donor sex (%) 2021



■ % Male Kidney LD
■ % Female Kidney LD

N= 70 countries provided information on donor sex

10 460 (38%) male kidney living donors
16 960 (62%) female kidney living donors



Living liver donors by donor sex (%) 2021

■ % Male Liver LD
■ % Female Liver LD



**N= 41 countries provided information on
donor sex**

**2 930 (48%) male living liver donors
3 218 (52%) female living liver donors**



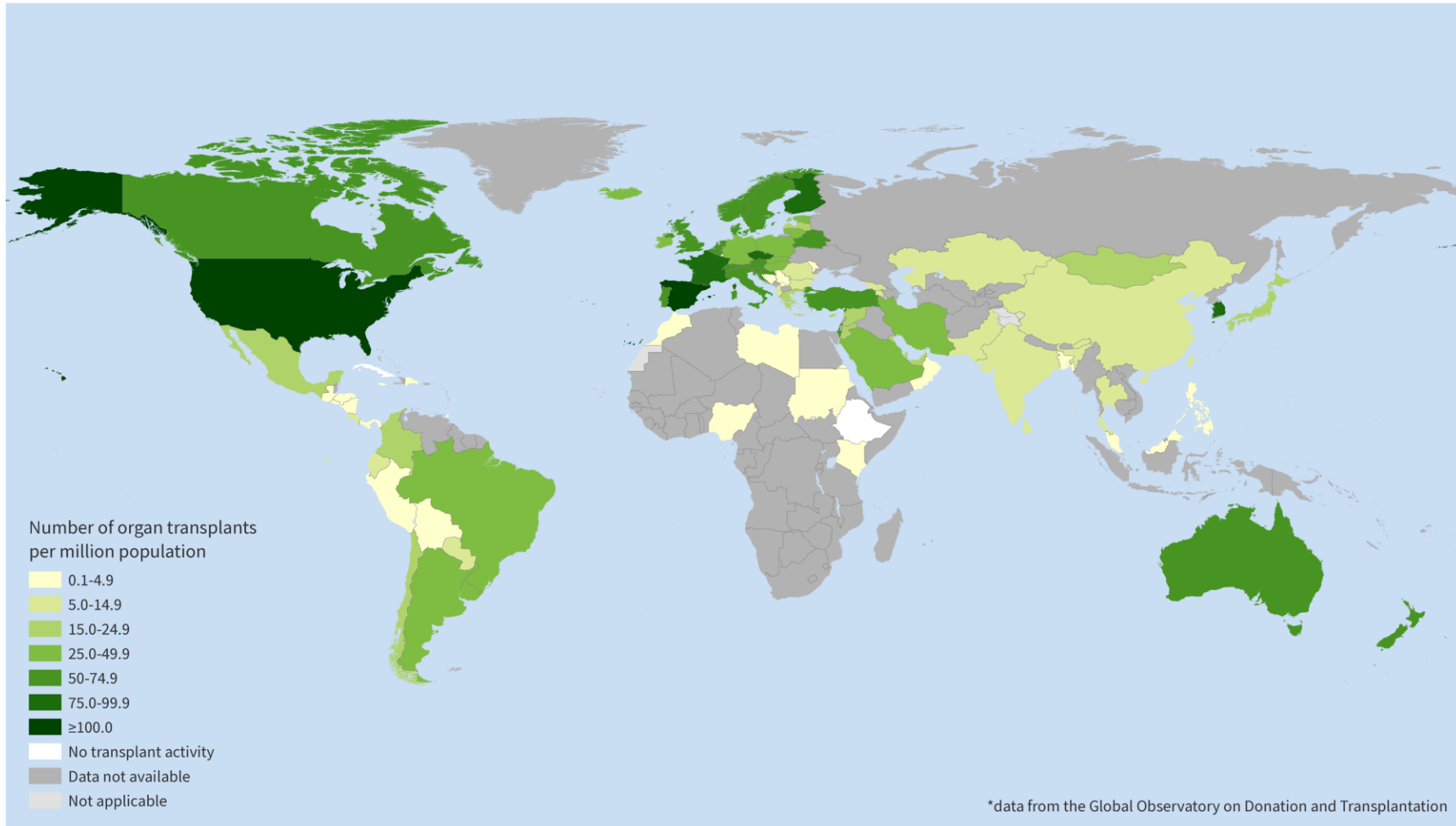
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GLOBAL ORGAN TRANSPLANT ACTIVITY

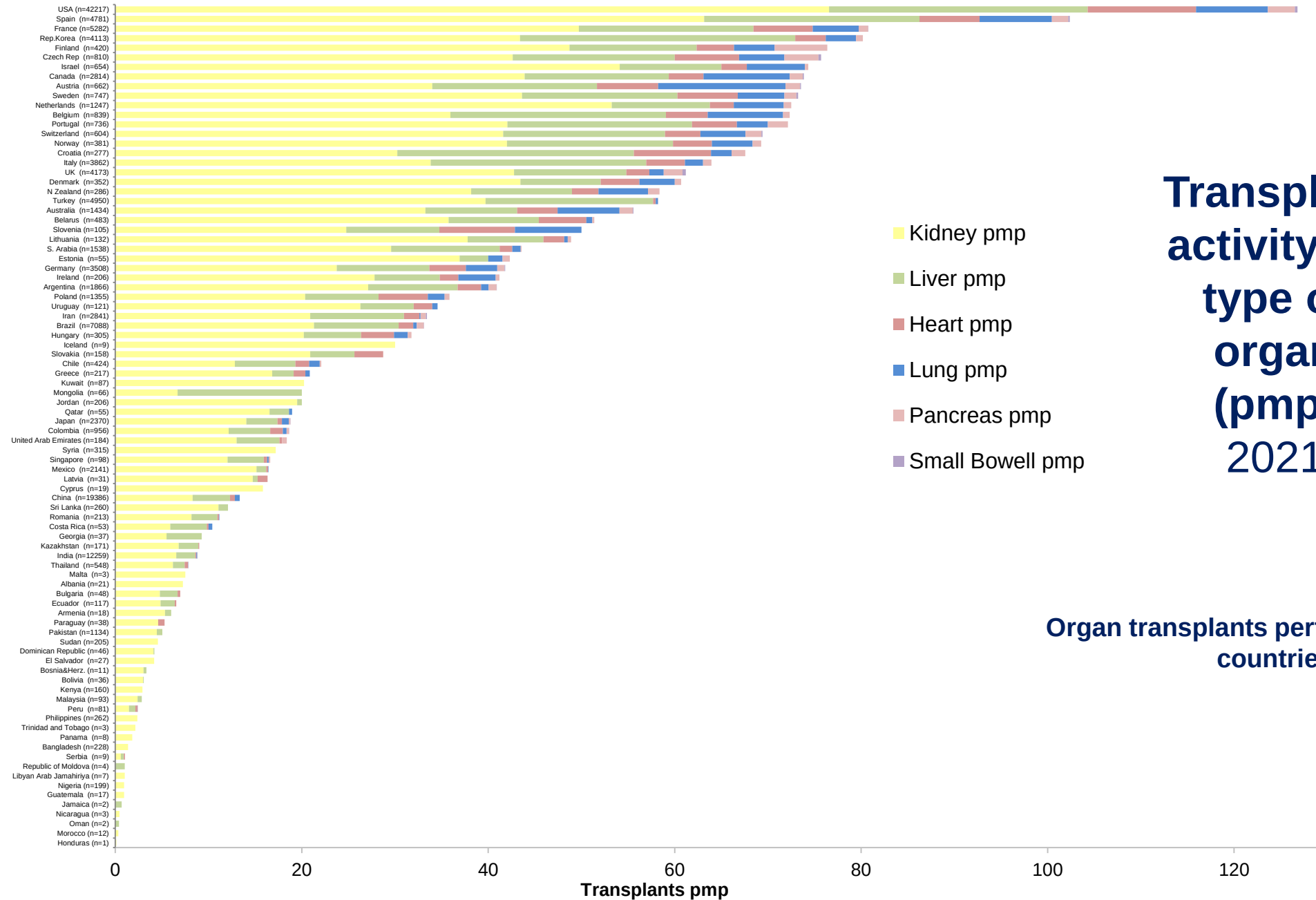
Global transplantation activities of solid organs, 2021*



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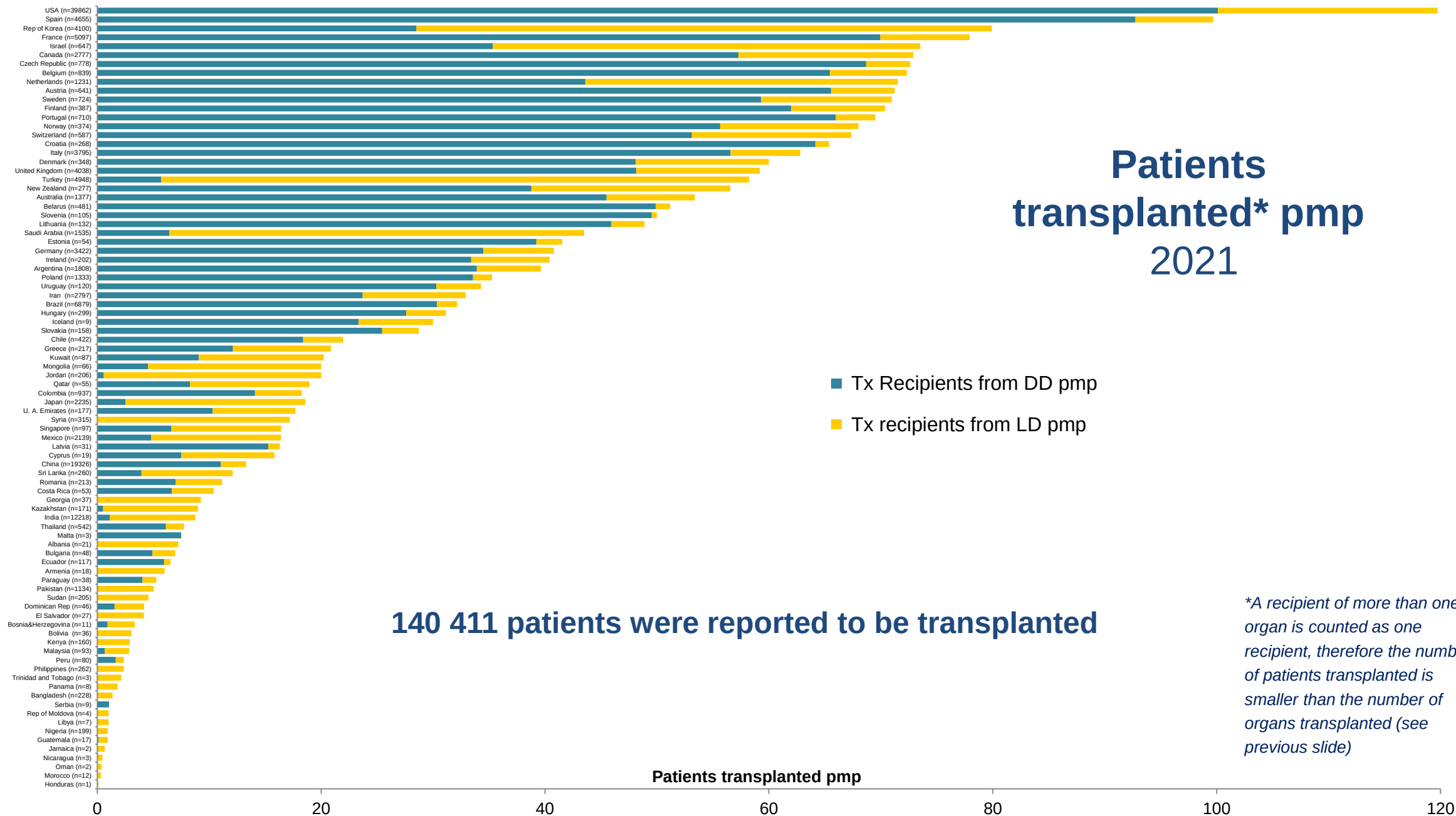
Data Source: Global Observatory on Donation and Transplantation
Map Production: WHO GIS Centre for Health, DNA/DDI

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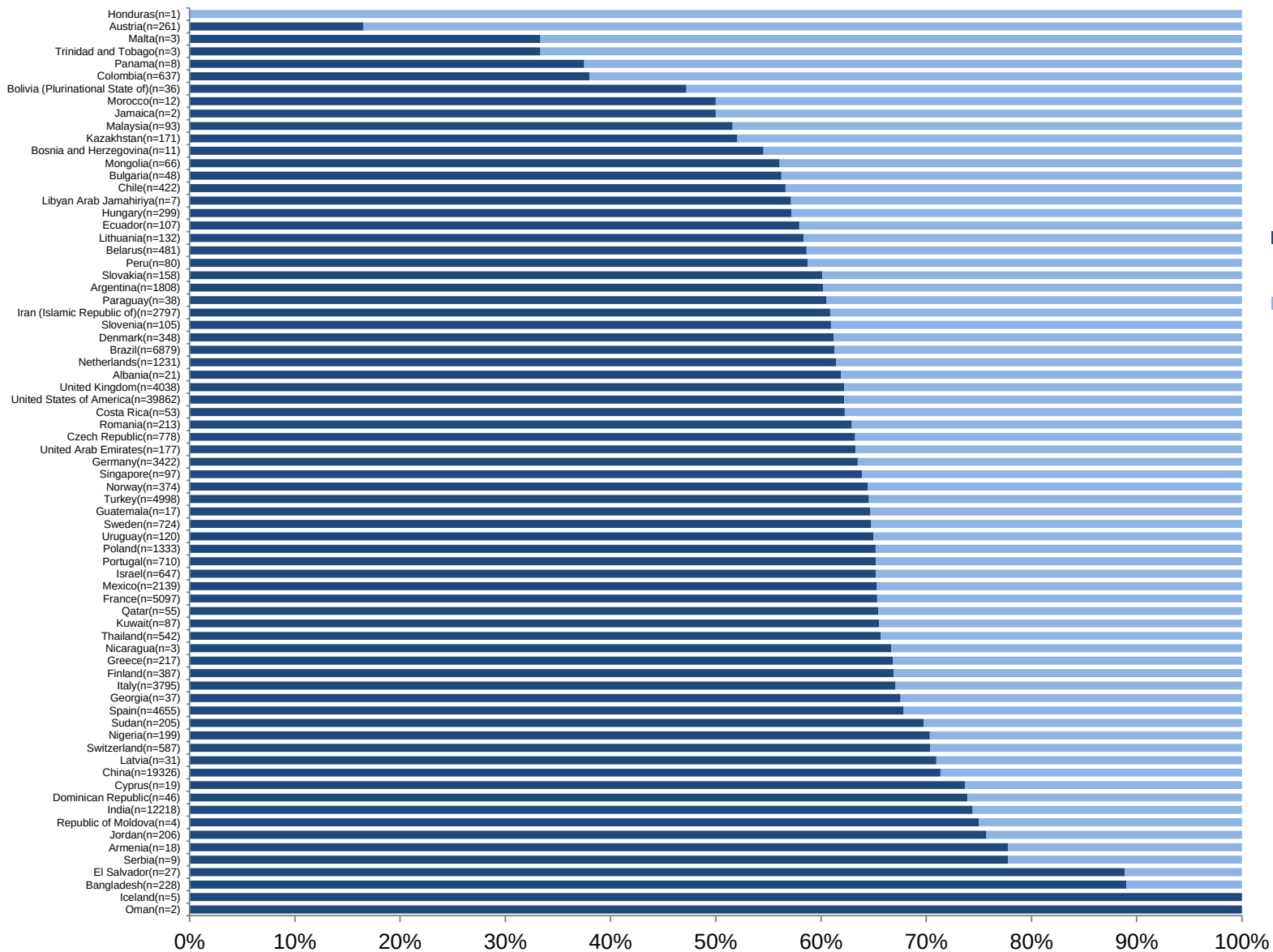


Transplant activity by type of organ (pmp) 2021

Organ transplants performed in 88/91
countries



**A recipient of more than one organ is counted as one recipient, therefore the number of patients transplanted is smaller than the number of organs transplanted (see previous slide)*

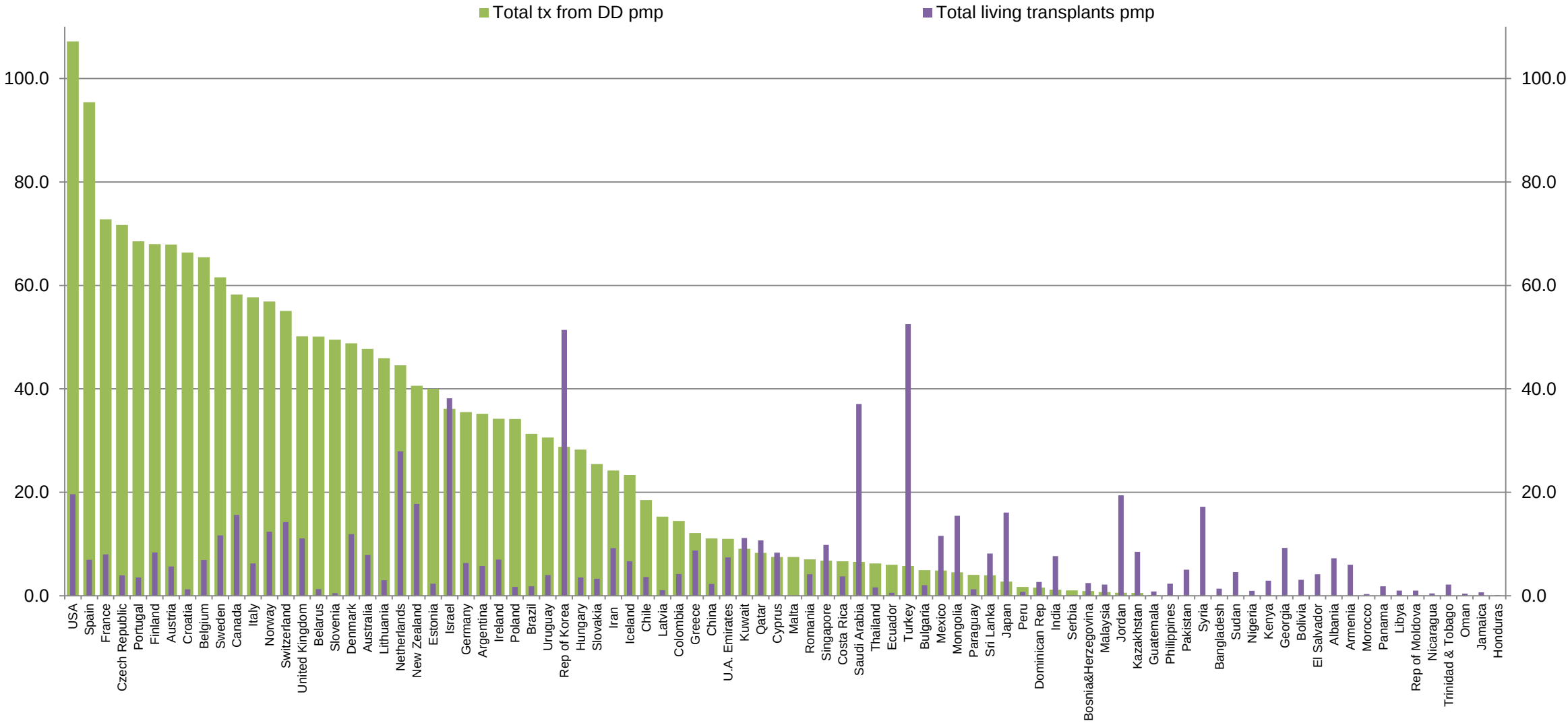


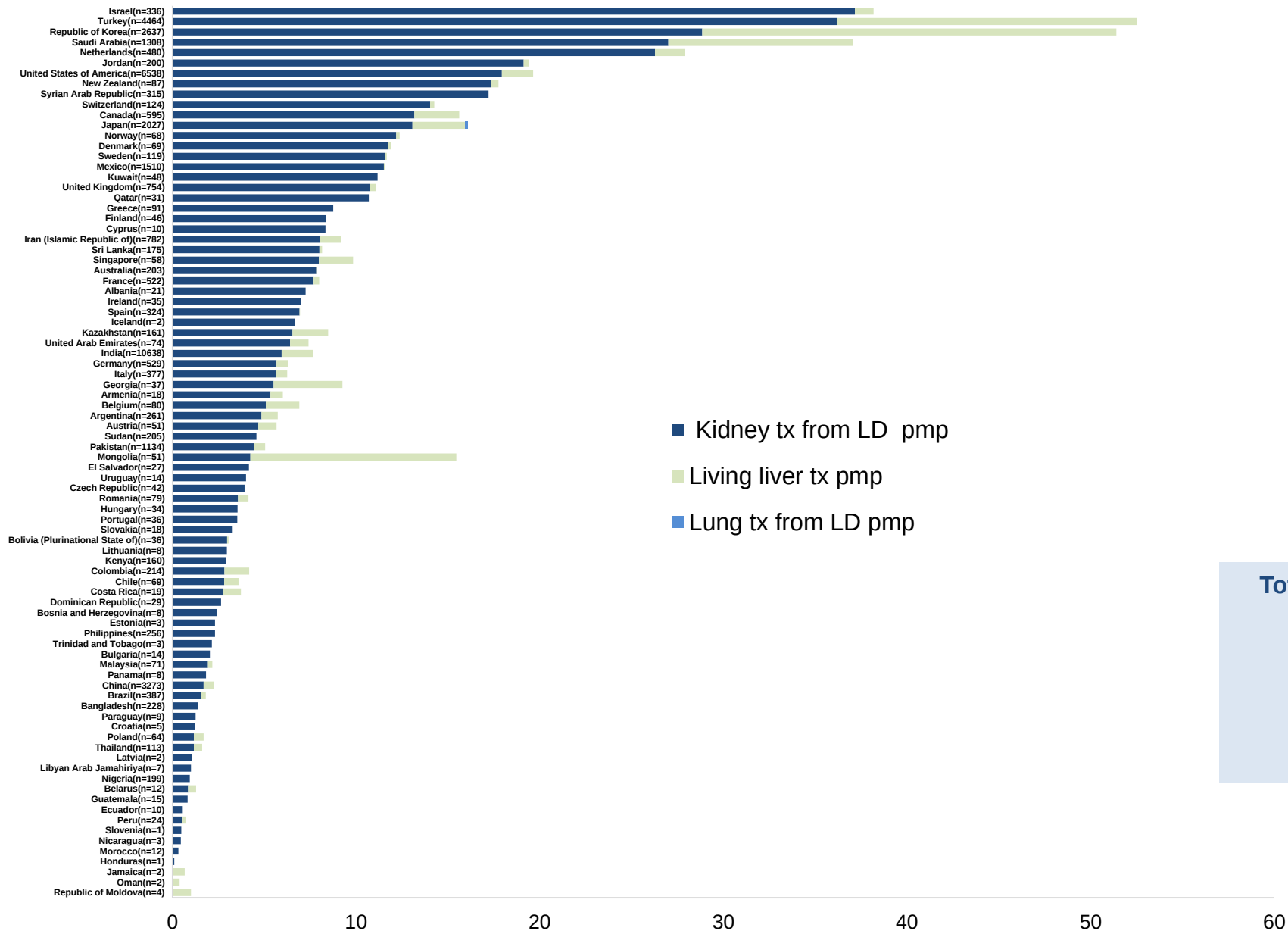
Patients transplanted by sex (%) 2021

N= 73 countries provided information
on sex of recipients

81 045 (65%) male recipients
42 927 (35%) female recipients

Transplants from deceased persons vs transplants from living persons per million population (pmp). 2021





Transplants from living donors per type of organ (pmp) 2021

Living transplants performed
in 86/91 countries

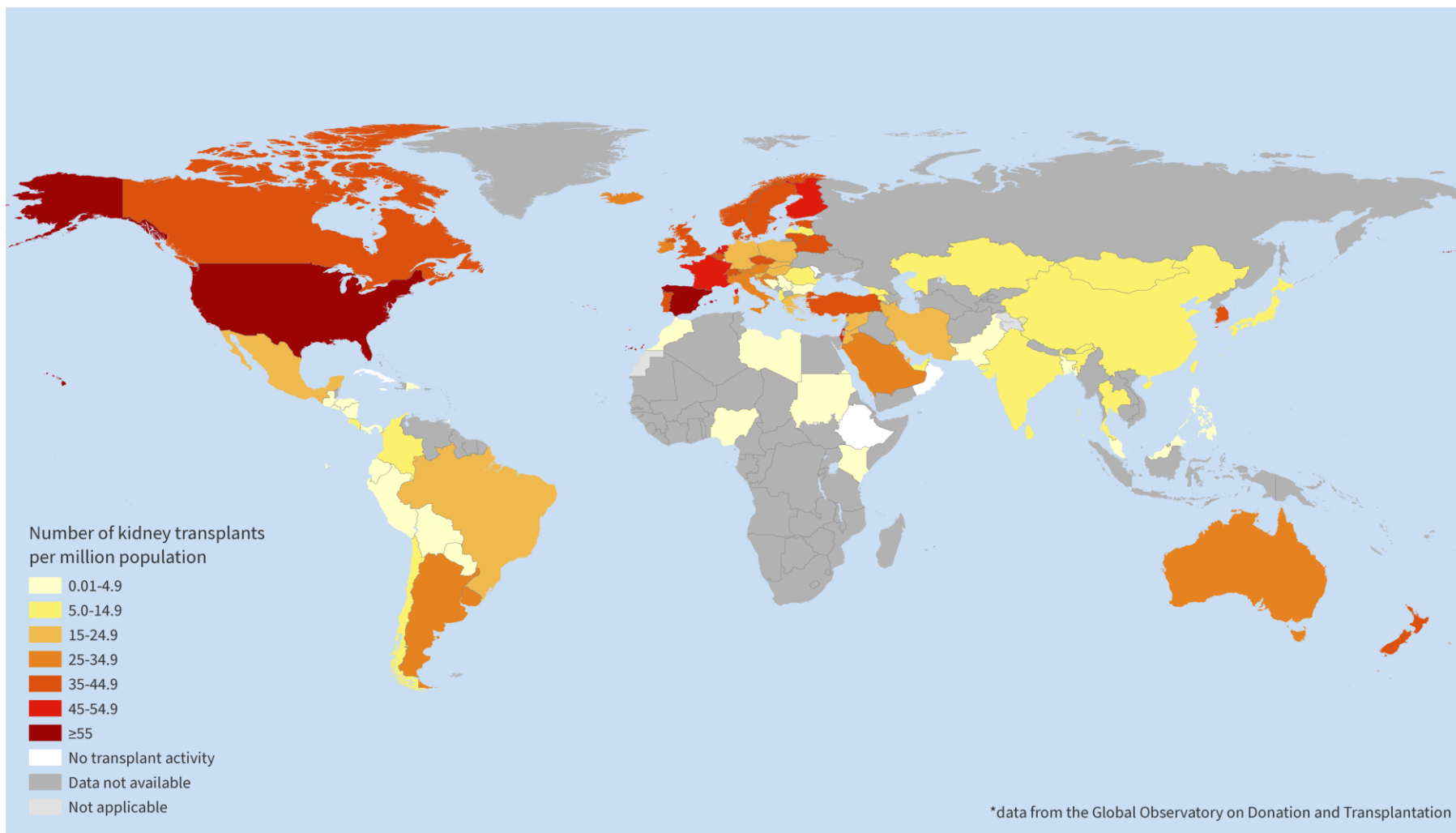
Total number of transplants from living donors:

35 167 kidney transplants

7 930 liver transplants

19 lung transplants

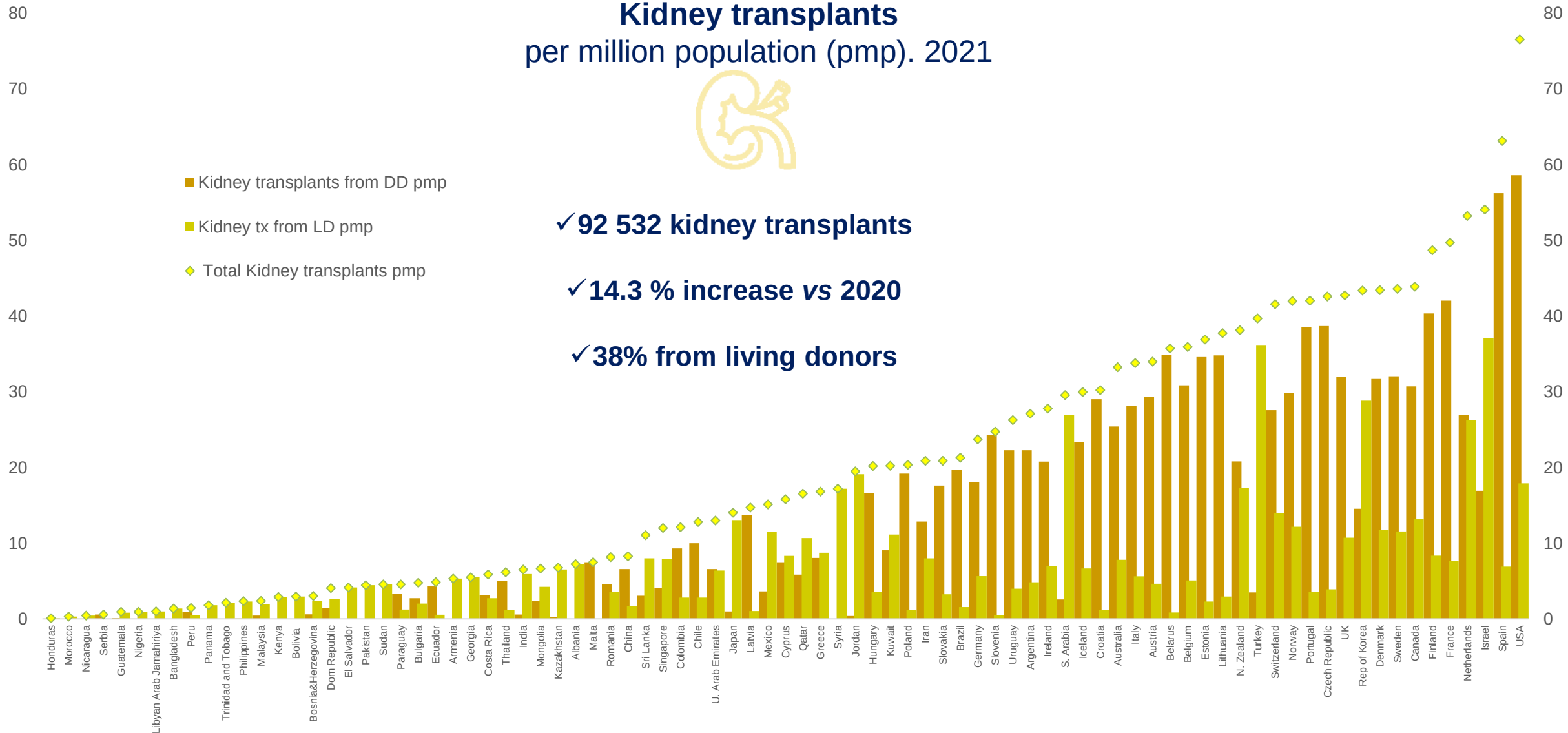
Kidney transplantation activities, 2021*



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Kidney transplants per million population (pmp). 2021

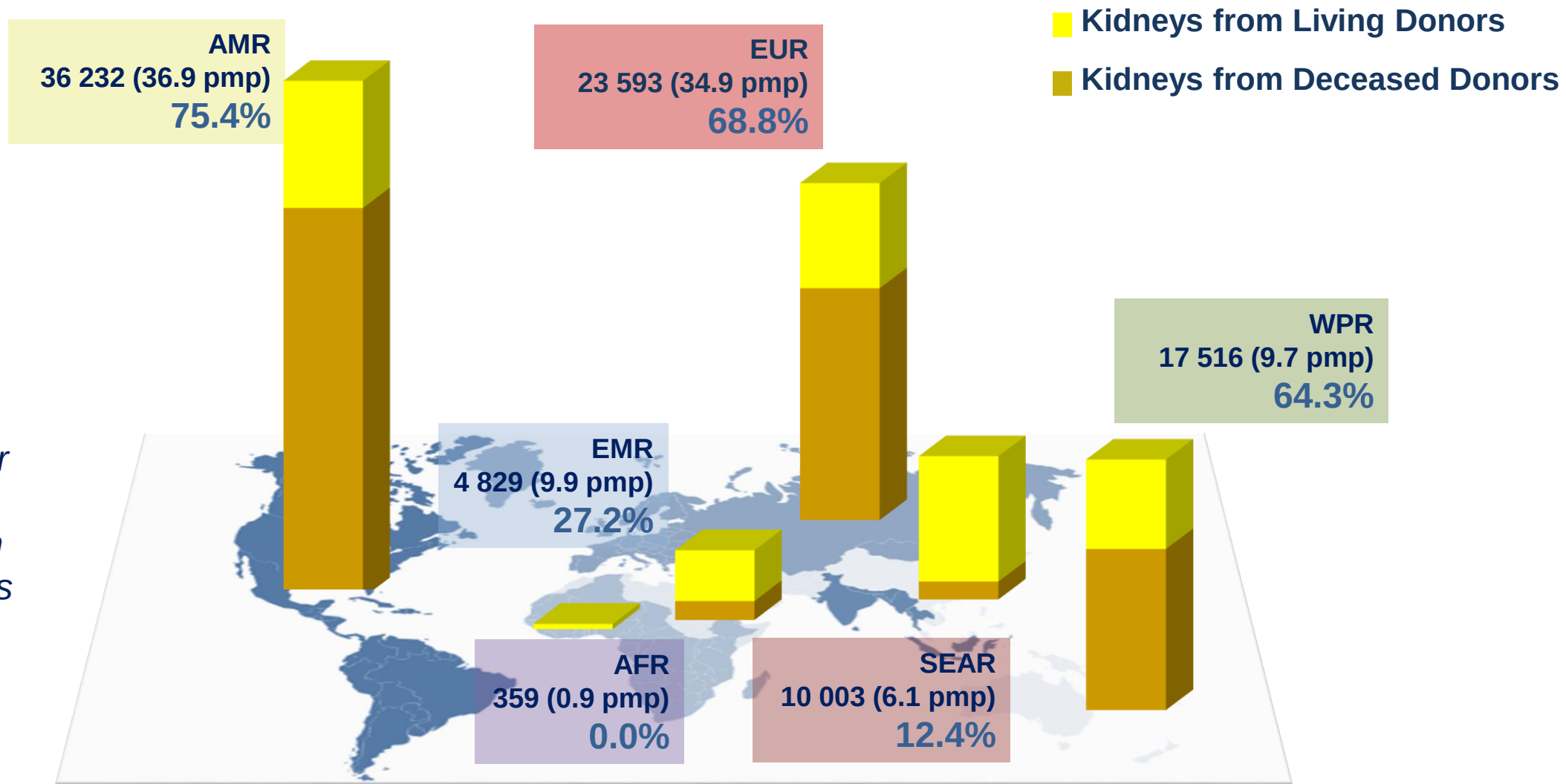


85/91 countries reported kidney transplant activities (living or deceased) in 2021



Kidney transplants by WHO regions 2021

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

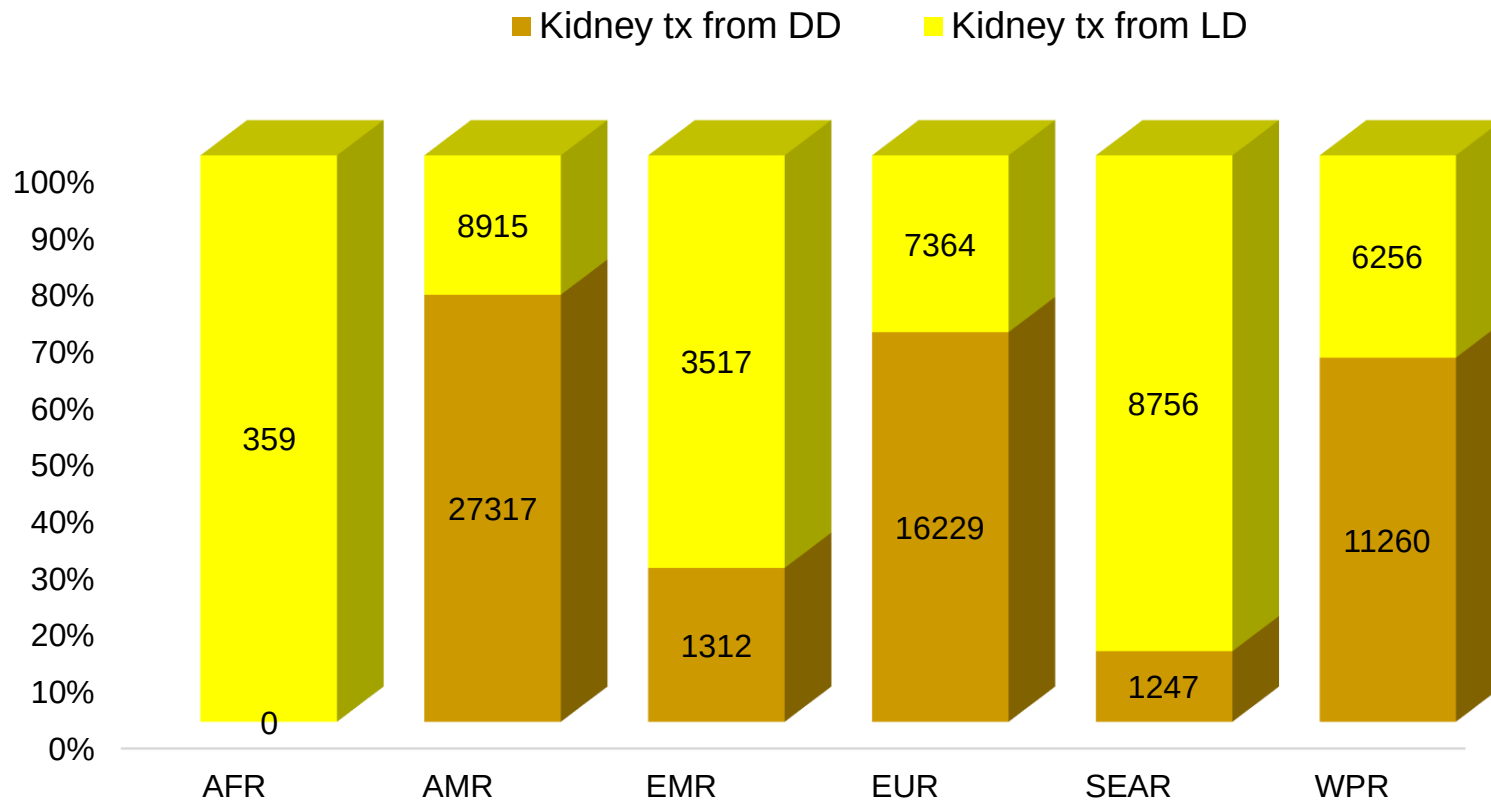


Rates (pmp) are calculated by applying the population of the **responding** countries



Kidney transplants by WHO regions 2021

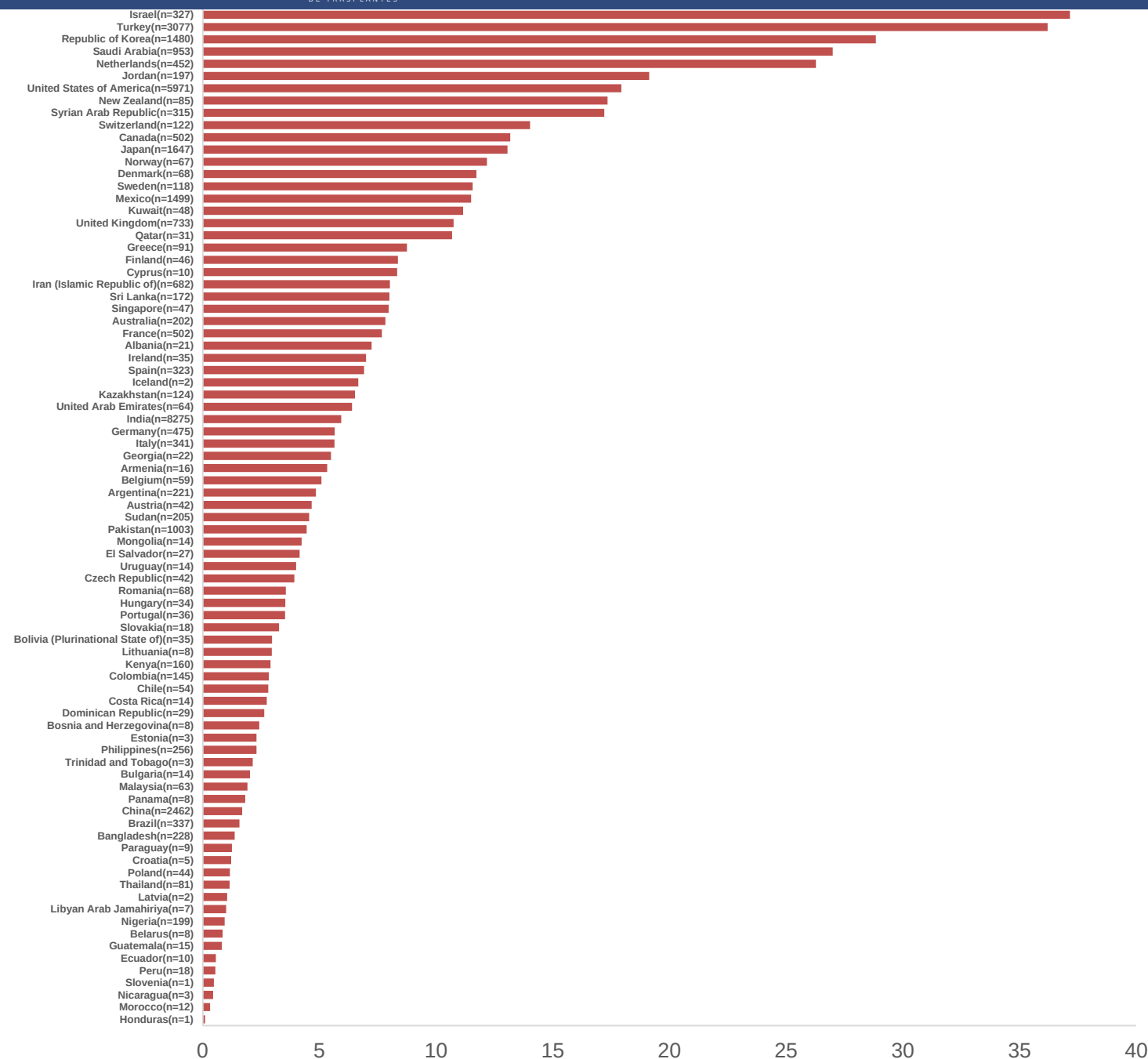
*Absolute number
(pmp); % kidney
tx from deceased
donors*



**Rates (pmp) are
calculated by applying
the population of the
responding countries*

*** Million inhabitants per
transplant centre are
calculated by applying
the population of the
responding countries*

TOTAL KIDNEY TX (pmp)*	359 (0.9)	36 232 (36.9)	4 829 (9.9)	23 593 (34.9)	10 003 (6.1)	17 516 (9.7)
% Deceased donors	0	75.4	27.2	68.8	12.4	64.3
Countries with kidney tx activity/ countries reporting to the GODT (Total countries in the region)	2/3 (46)	20/22 (35)	11/12 (22)	39/41 (53)	4/4 (11)	9/9 (27)
Kidney transplant centres (millions inhabitants / centre) **	17 (22.6)	886 (1.1)	133 (3.6)	407(1.6)	645 (2.5)	348 (5.2)



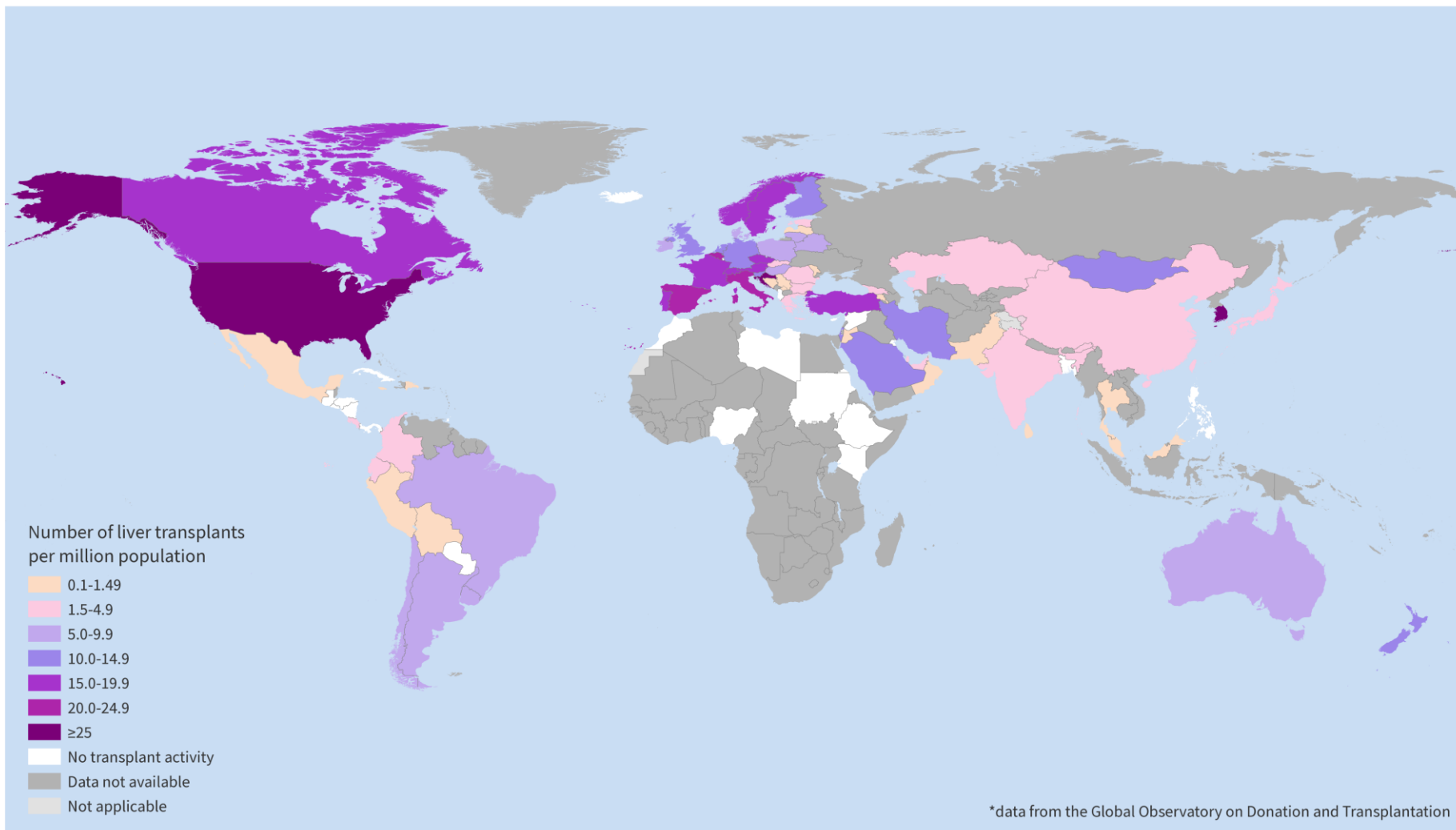
Kidney transplants from living donors (pmp) 2021



Living kidney transplants performed in
83/91 countries

35 167 living kidney transplants

Liver transplantation activities, 2021*



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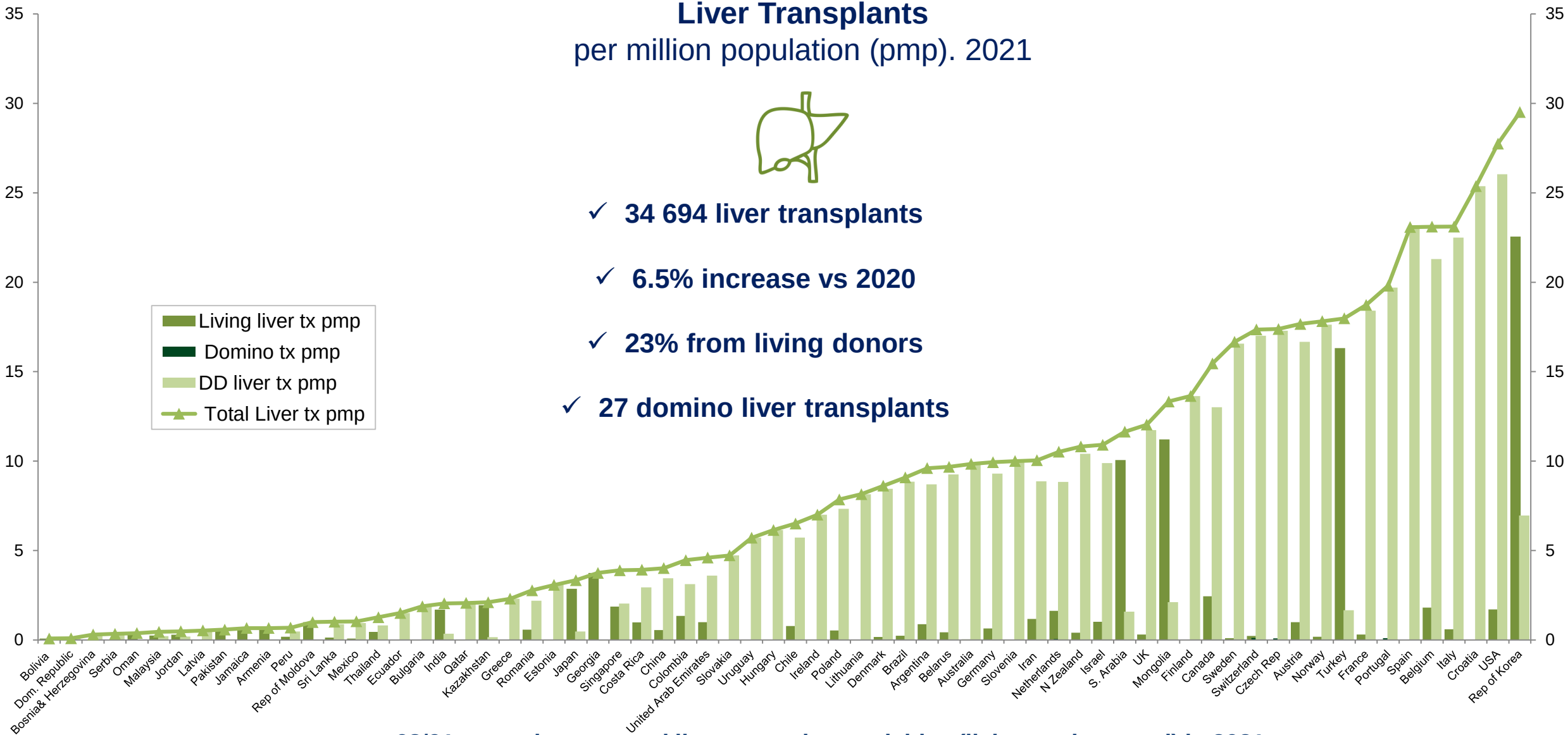
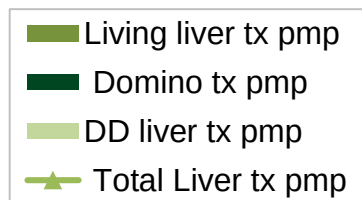
Map Production: WHO GIS Centre for Health, DNA/DDI

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Liver Transplants per million population (pmp). 2021



- ✓ 34 694 liver transplants
- ✓ 6.5% increase vs 2020
- ✓ 23% from living donors
- ✓ 27 domino liver transplants

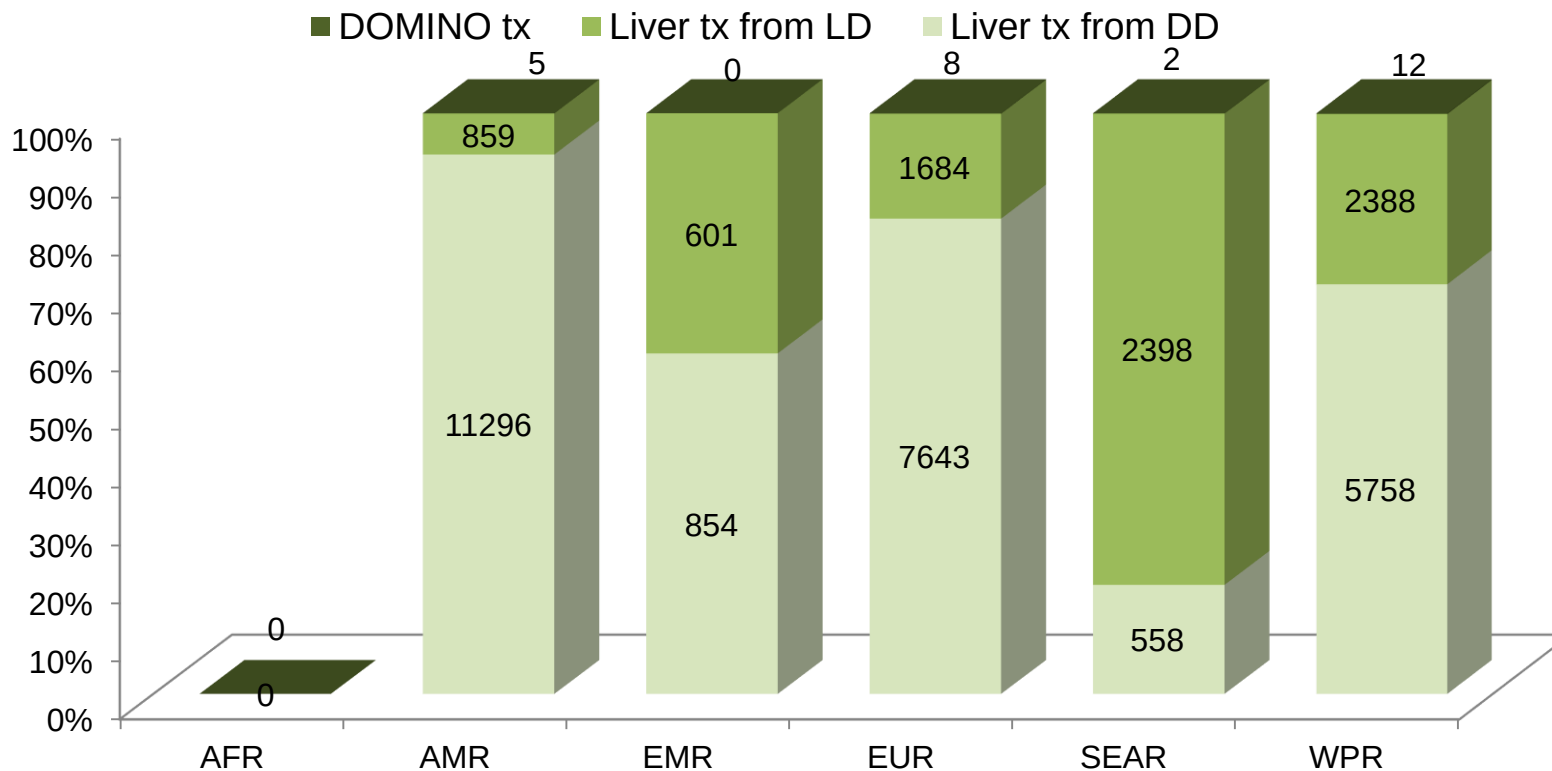


68/91 countries reported liver transplant activities (living or deceased) in 2021



Liver transplants by WHO Regions 2021

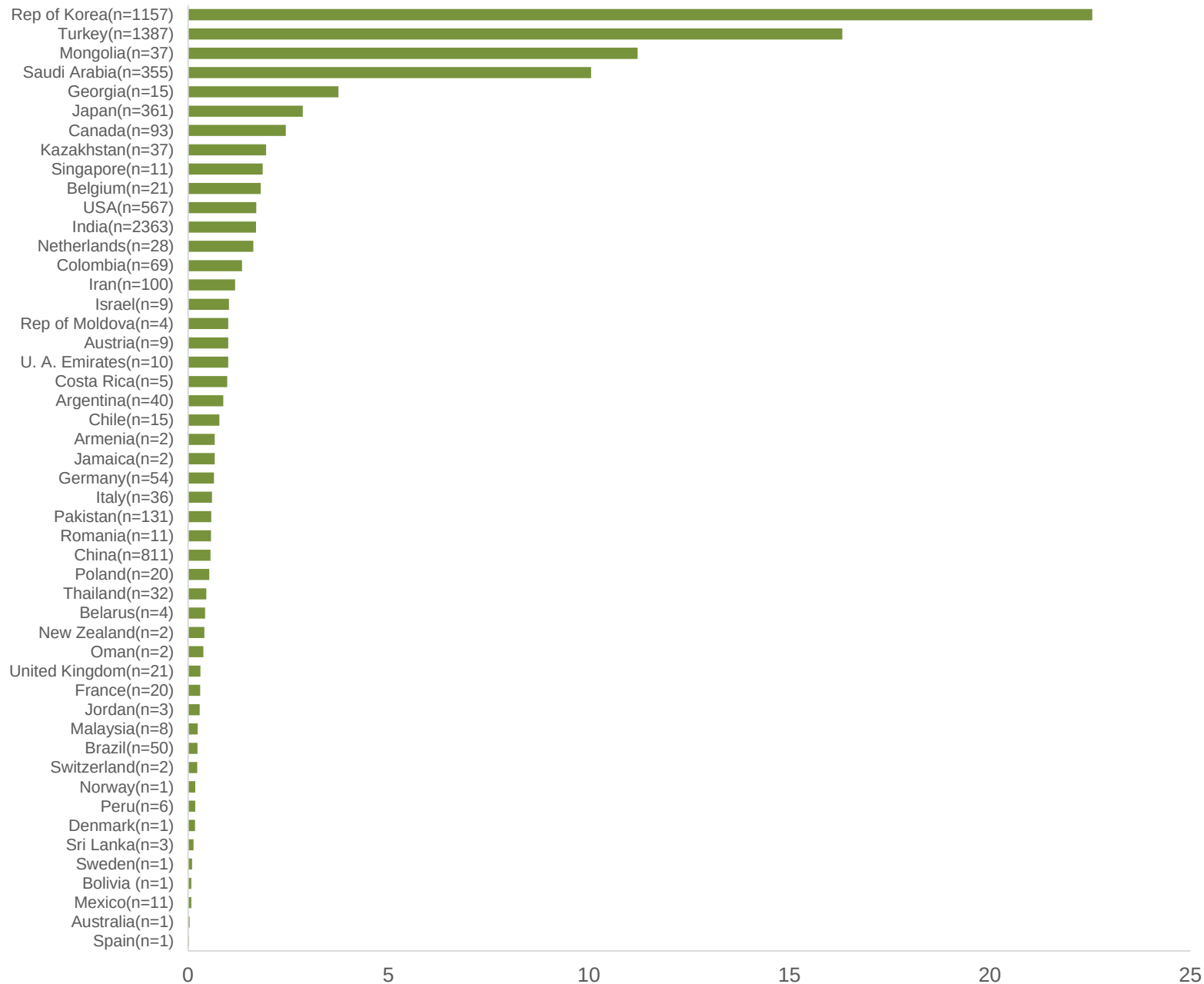
*Absolute number;
% per donor type*



TOTAL LIVER TX (pmp)	0 (0.0)	12 790 (13. 0)	1 455 (3.0)	9 333 (13.8)	2 958 (1.8)	8 158 (4.5)
% Deceased Donors	0	88	59	82	19	71
Countries with liver tx activity/ Count. reporting to the GODT (Total countries in the region)	0/3 (46)	14/22 (35)	7/12 (22)	36/41 (53)	3/4 (11)	8/9 (27)
Liver transplant centres (millions inhabitants / centre) **	0	403 (2.4)	35 (13.9)	216 (3.1)	246 (6.7)	155 (11.7)

**Rates (pmp) are
calculated by applying
the population of the
responding countries*

*** Million inhabitants per
transplant centre are
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the population of the
responding countries*



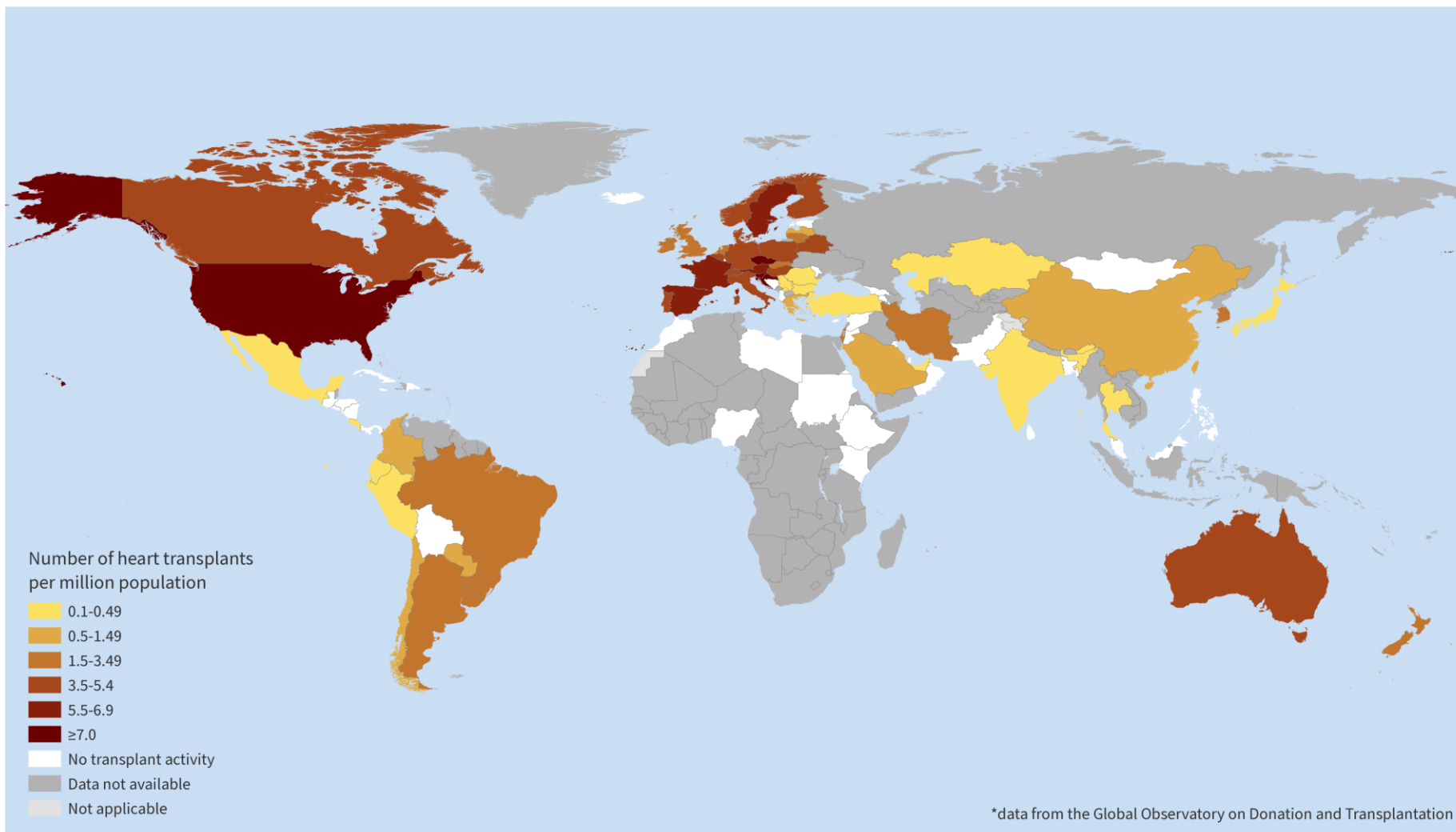
Liver transplants activities from living donors (pmp) 2021



Living Liver transplants performed in
49/91 countries

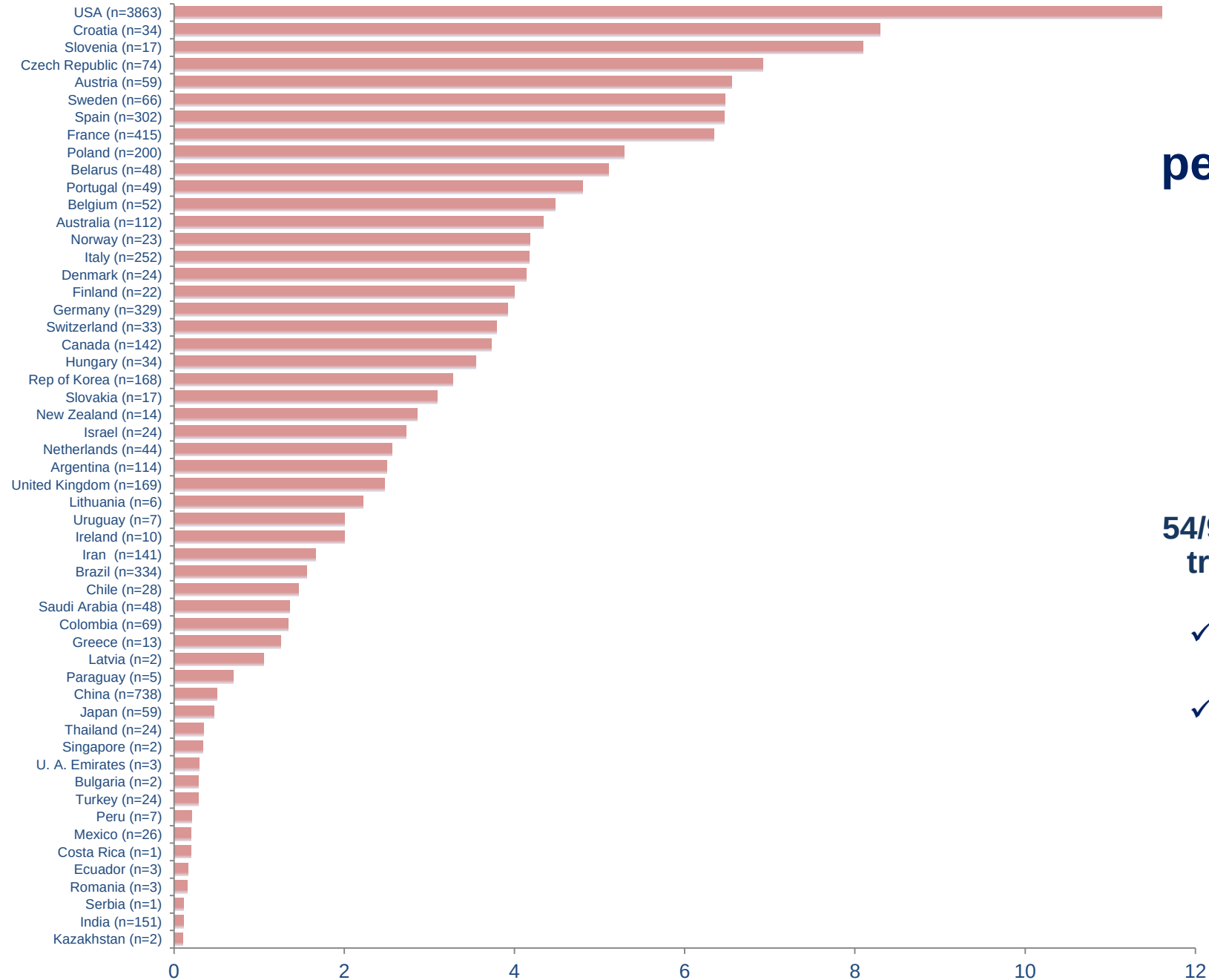
7 930 living liver transplants

Heart transplantation activities, 2021*



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Heart transplants per million population (pmp) 2021



**54/91 countries reported heart
transplant activities in 2021**

✓ **8 409 heart transplants**

✓ **3.8 % increase vs 2020**

Heart transplants by WHO Regions 2021

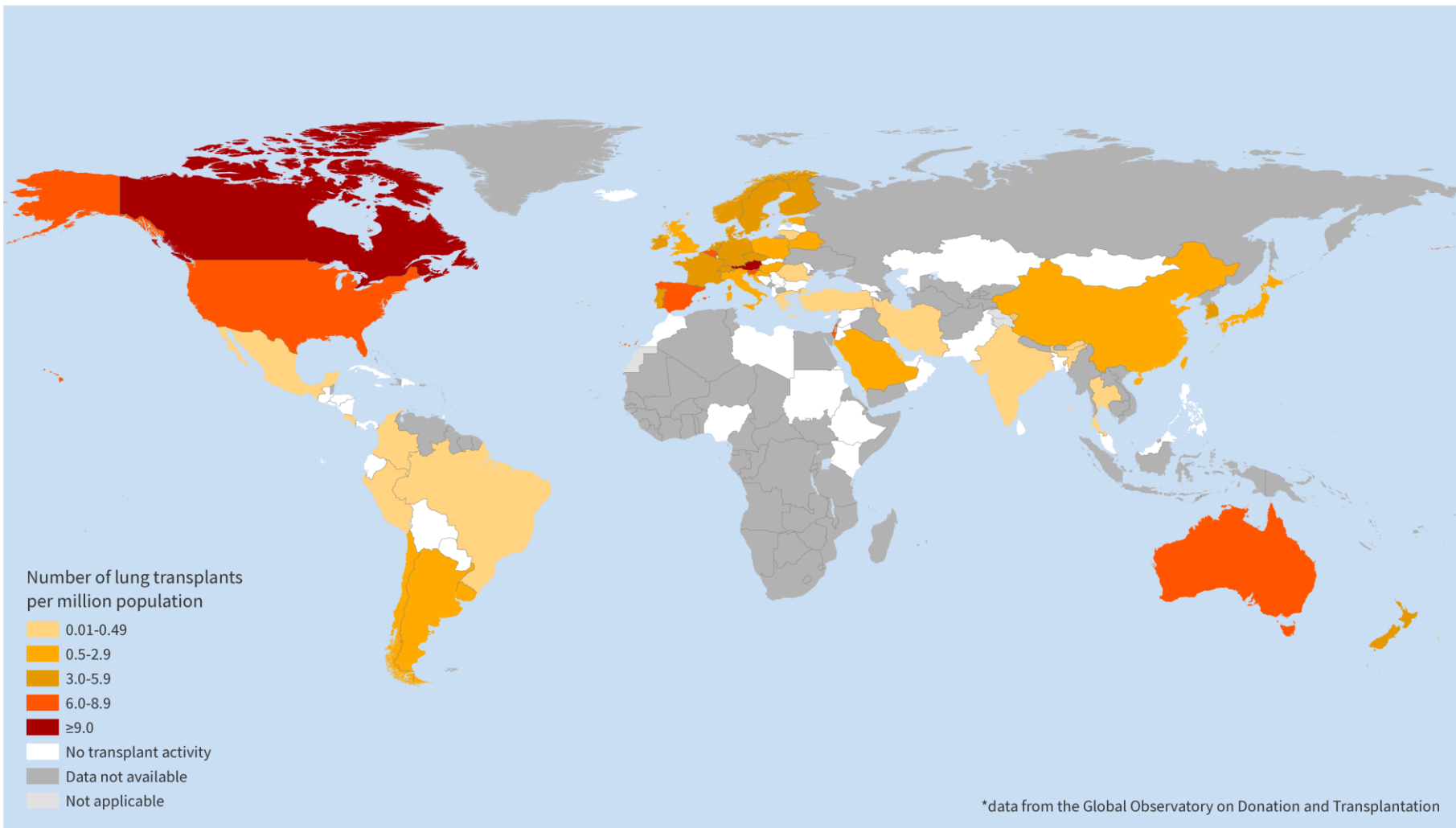


WHO Region	Number of Heart Transplants (pmp)	N. of Paediatric Heart Transplants (pmp) (<18 years)	N. of countries with any activity/ N.of reporting countries to GODT (Total countries in the region)	Number of transplant centres (million inhabitants/centre)**
AFR	0 (0.0)	0 (0.0)	0/3 (46)	0
AMR	4 599 (4.7)	576 (0.6)	12/22 (35)	339 (2.9)
EMR	192 (0.4)	56 (0.1)	3/12 (22)	20 (24.3)
EUR	2 350 (3.5)	230 (0.3)	31/41 (53)	156 (4.3)
SEAR	175 (0.1)	26 (0.0)	2/4 (11)	161 (10.3)
WPR	1 093 (0.6)	82 (0.0)	6/9 (27)	86 (21.1)

Rates (pmp) are calculated by applying the population of the responding countries

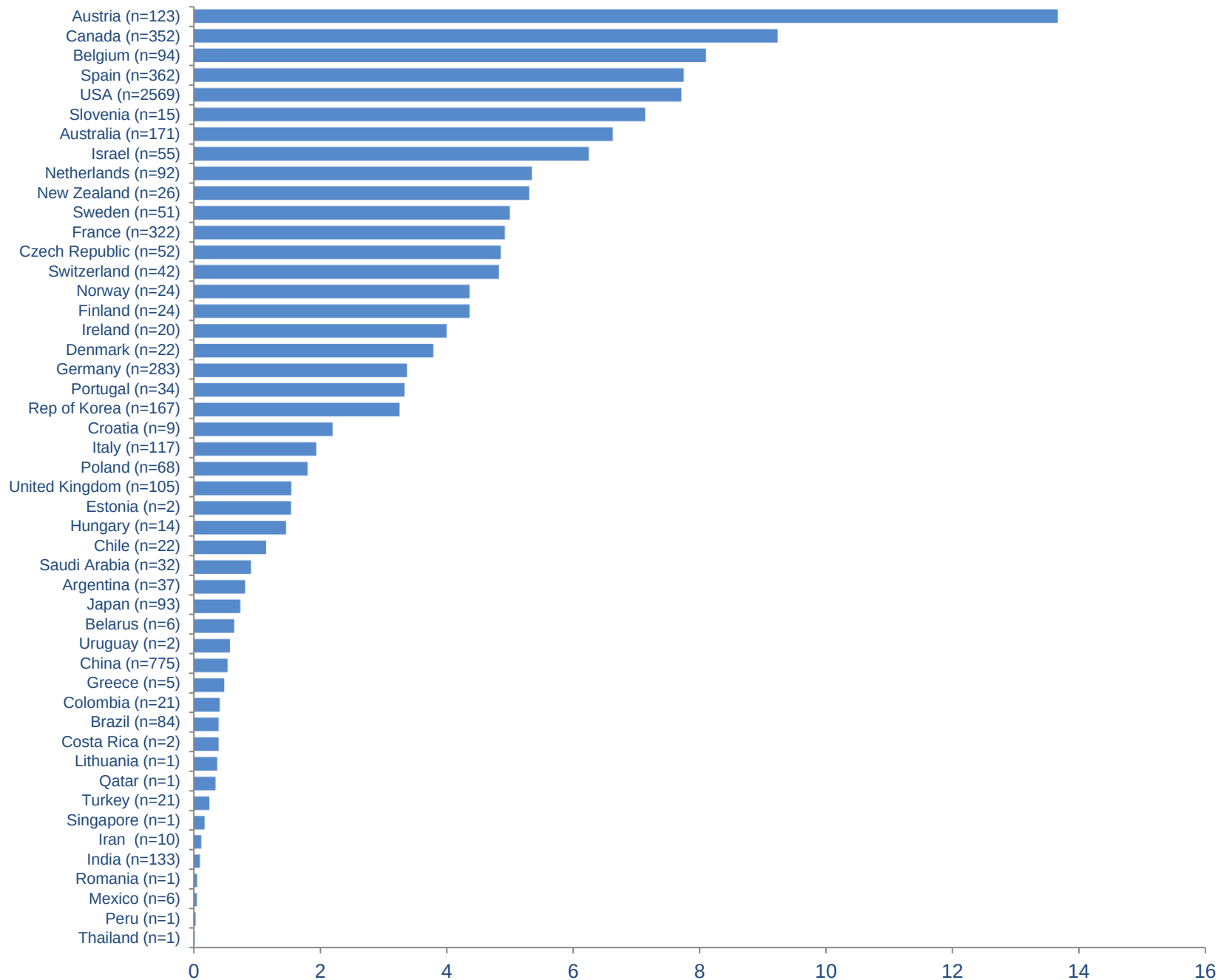
*** Million inhabitants per transplant centre are calculated by applying the population of the responding countries*

Lung transplantation activities, 2021*



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Lung transplants per million population (pmp) 2021



**48/91 countries reported lung
transplant activities in 2021**

- ✓ **6 470 lung transplants**
- ✓ **8.9 % increase vs 2020**
- ✓ **19 living lung transplants (0.3%)**

Lung transplants by WHO regions 2021

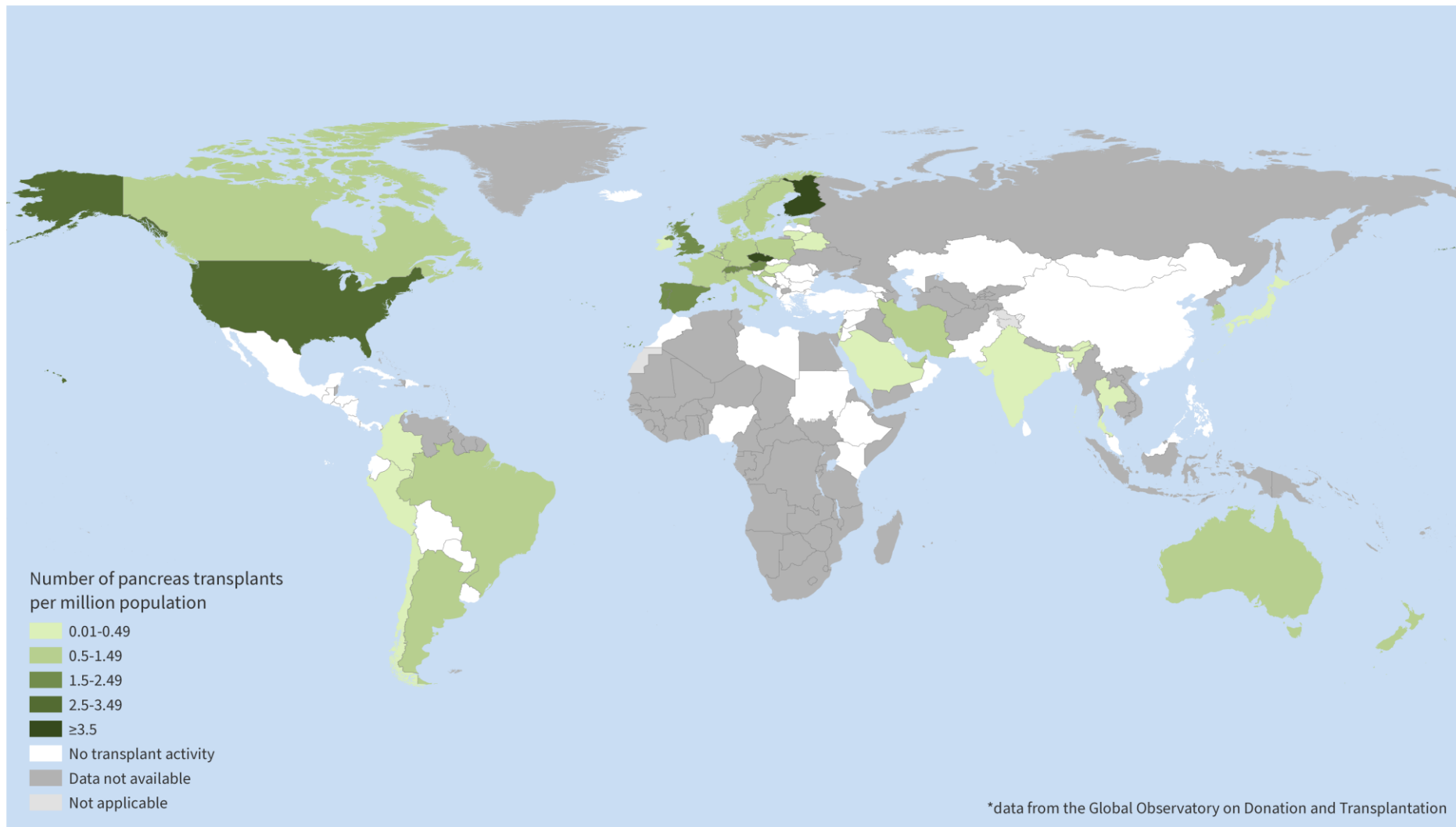


WHO Region	Number of Lung Transplants (pmp)	Number of Paediatric Lung Transplants (pmp) (<18 years)	N. of countries with any activity/ N. of countries reporting to GODT (Total countries in the region)	Number of transplant centres (million inhabitants/centre)**
AFR	0 (0.0)	0 (0.0)	0/3 (46)	0
AMR	3 096 (3.1)	39 (0.0)	10/22 (35)	126 (7.8)
EMR	43 (0.1)	2 (0.0)	3/12 (22)	8 (60.7)
EUR	1 964 (2.9)	41 (0.1)	27/41 (53)	92 (7.3)
SEAR	134 (0.1)	4 (0.0)	2/4 (11)	91 (18.1)
WPR	1 233 (0.7)	23 (0.0)	6/9 (27)	68 (26.7)

Rates (pmp) are calculated by applying the population of the responding countries

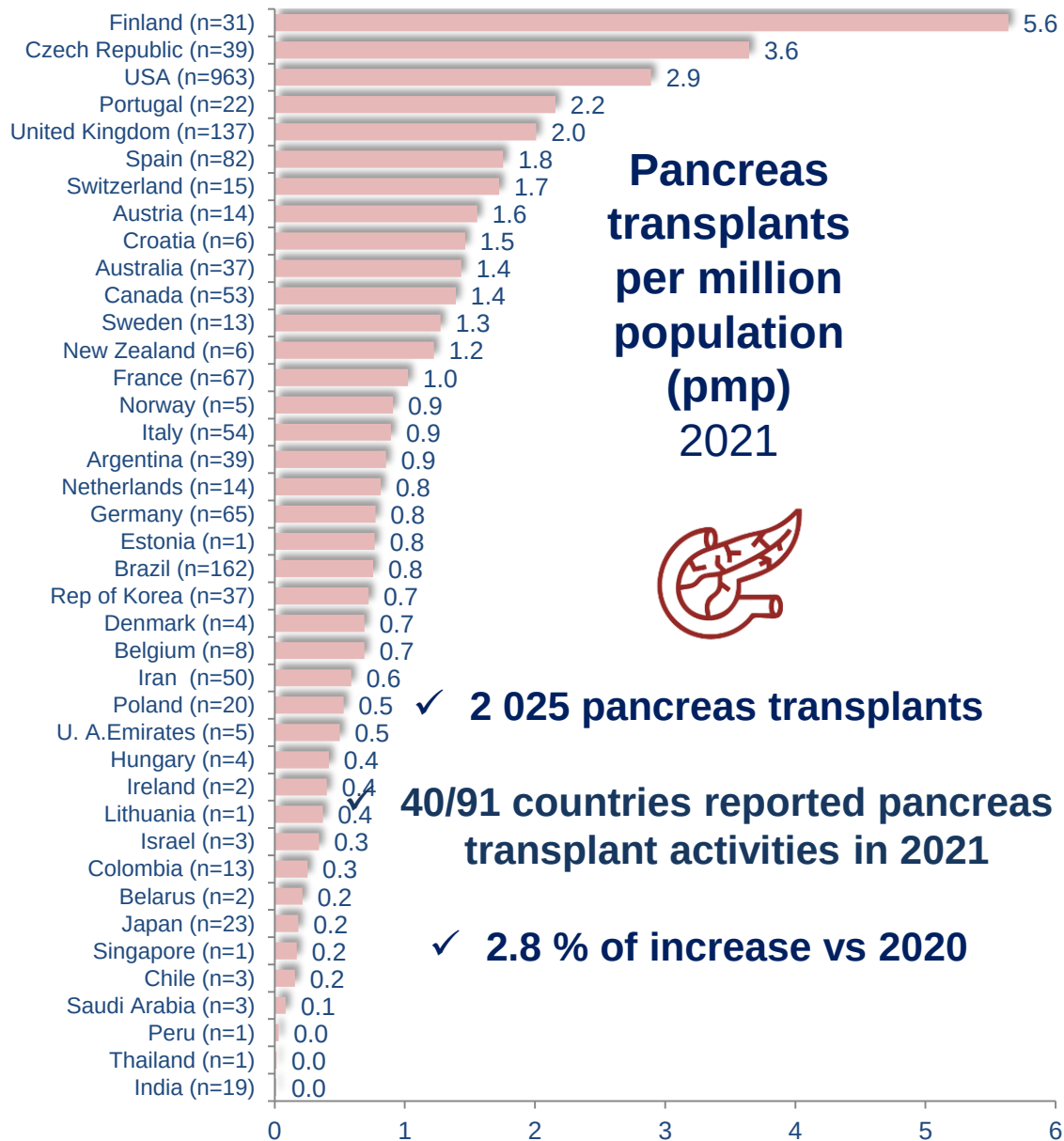
*** Million inhabitants per transplant centre are calculated by applying the population of the responding countries*

Pancreas transplantation activities, 2021*



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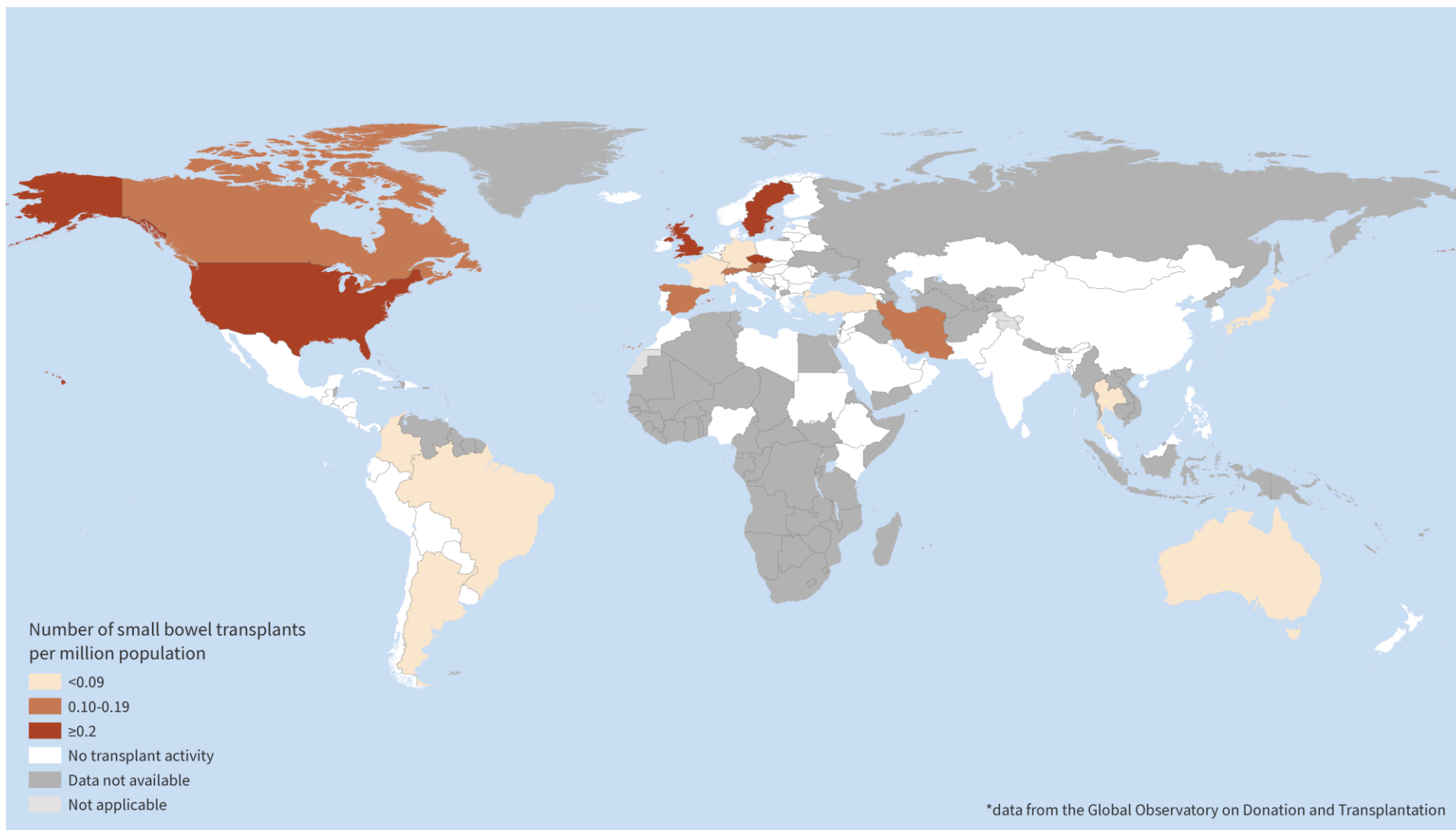
Pancreas transplants by WHO regions 2021

WHO Region	N. of Pancreas Tx (pmp)*	N. of countries with any activity/ N. of reporting countries to GODT (Total countries in the region)	N. of pancreas transplants centres (million inhabitants / centre)**
AFR	0 (0.0)	0/3 (46)	0
AMR	1 234 (1.3)	7/22 (35)	223 (4.4)
EMR	58 (0.1)	3/12 (22)	11 (44.2)
EUR	609 (0.9)	23/41 (53)	125 (5.4)
SEAR	20 (0.0)	2/4 (11)	60 (27.5)
WPR	104 (0.1)	5/9 (27)	70 (25.9)

*Rates (pmp) are calculated by applying the population of the responding countries

** Million inhabitants per transplant centre are calculated by applying the population of the responding countries

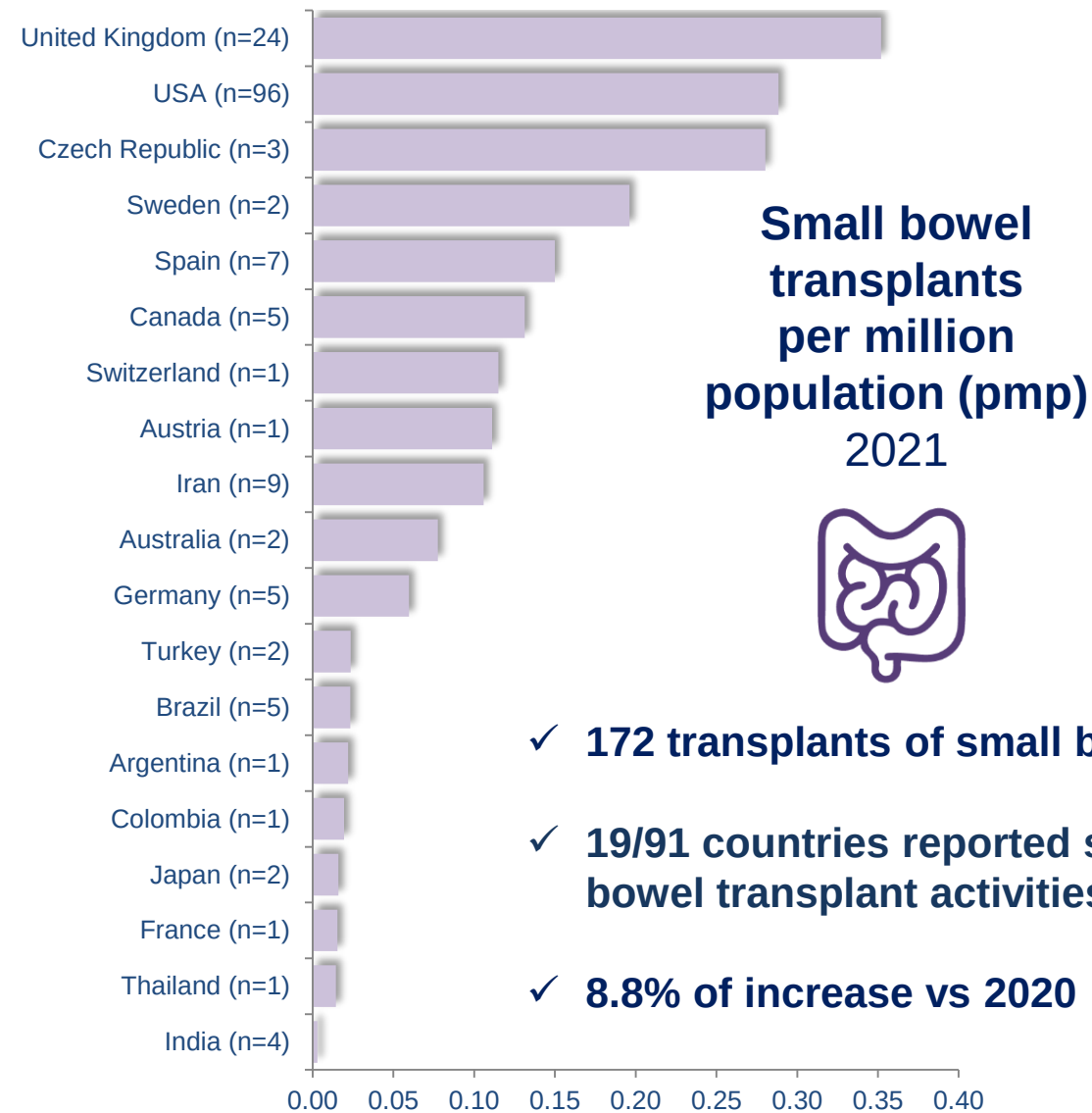
Small bowel transplantation activities, 2021*



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Map Production: WHO GIS Centre for Health, DNA/DDI

Map Creation Date: **16 December 2022**



Small bowel transplants by WHO region 2021

WHO Region	N. of S. Bowel Tx (pmp)*	N. of countries with any activity/ N.of reporting countries to GODT (Total countries in the region)	N. of S.B Transplant centres (million inhabitants/ centre)**
AFR	0 (0.0)	0/3 (46)	0
AMR	108 (0.1)	5/22 (35)	41 (24.0)
EMR	9 (0.0)	1/12 (22)	2 (242.9)
EUR	46 (0.1)	9/41 (53)	42 (16.1)
SEAR	5 (0.0)	2/4 (11)	24 (68.8)
WPR	4 (0.0)	2/9 (27)	55 (33.0)

*Rates (pmp) are calculated by applying the population of the responding countries

** Million inhabitants per transplant centre are calculated by applying the population of the responding countries



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EVOLUTION OF ACTIVITIES BY WHO REGION

Donation and transplantation activities from 2019 to 2021 and percentage of variation 2021 vs 2020

	Africa				America				Eastern Mediterranean				Europe				South East Asia				Western Pacific			
	2019	2020	2021	% Var.	2019	2020	2021	% Var.	2019	2020	2021	% Var.	2019	2020	2021	% Var.	2019	2020	2021	% Var.	2019	2020	2021	% Var.
Deceased donors	1 (0.0)	0 (0.0)	0 (0.0)	(-)	18 974 (19.5)	17 510 (17.8)	18 994 (19.3)	8.5	1 241 (2.8)	741 (1.6)	1 158 (2.4)	56.3	13 397 (16.5)	10 732 (12.4)	10 917 (16.2)	1.7	1 016 (0.6)	764 (0.5)	776 (0.5)	1.6	7 066 (4.0)	6 355 (3.5)	6 311 (3.5)	-0.7
DBD	1 (0.0)	0 (0.0)	0 (0.0)	(-)	16 013 (16.4)	14 090 (14.3)	14 572 (14.8)	3.4	1 241 (2.8)	741 (1.6)	1 158 (2.4)	56.3	11 242 (13.9)	9 053 (10.5)	8 925 (13.2)	-1.4	1 016 (0.6)	760 (0.5)	776 (0.5)	2.1	2 940 (1.65)	3 292 (1.8)	4 180 (2.3)	27.0
DCD	0 (0.0)	0 (0.0)	0 (0.0)	(-)	2 961 (3.0)	3 420 (3.5)	4 442 (4.5)	29.9	0 (0.0)	0 (0.0)	0 (0.0)	(-)	2 155 (2.7)	1 679 (1.9)	1 992 (3.0)	18.6	0 (0.0)	4 (0.0)	0 (0.0)	-100.0	4 126 (2.3)	3 063 (1.7)	2 131 (1.2)	-30.4
Kidney Tx	470 (1.3)	413 (0.9)	359 (0.9)	-13.1	39 515 (40.5)	32 957 (33.5)	36 232 (36.9)	9.9	5 536 (12.4)	2 520 (5.4)	4 829 (9.9)	91.6	28 189 (34.8)	22 006 (25.4)	23 593 (34.9)	7.2	10 635 (6.6)	6 661 (4.1)	10 003 (6.1)	50.2	18 194 (10.2)	16 446 (9.1)	17 516 (9.7)	6.5
DDKT	2 (0.0)	0 (0.0)	0 (0.0)	(-)	28 035 (28.8)	25 841 (26.3)	27 317 (27.8)	5.7	1 578 (3.5)	940 (2.0)	1 312 (2.7)	39.6	20 300 (25.1)	16 023 (18.5)	16 229 (24.0)	1.3	1 698 (1.1)	1 192 (0.7)	1 247 (0.8)	4.6	12 491 (7.0)	11 266 (6.2)	11 260 (6.2)	-0.1
LDKT	468 (1.3)	413 (0.9)	359 (0.9)	-13.1	11 480 (11.8)	7 116 (7.2)	8 915 (9.1)	25.3	3 958 (8.9)	1 580 (3.4)	3 517 (7.2)	122.6	7 889 (9.7)	5 983 (6.9)	7 364 (10.9)	23.1	8 937 (5.6)	5 469 (3.3)	8 756 (5.3)	60.1	5 703 (3.2)	5 180 (2.9)	6 256 (3.5)	20.8
Liver Tx	12 (0.0)	2 (0.0)	0 (0.0)	-100	13 070 (13.4)	12 335 (12.5)	12 790 (13.0)	3.7	1 612 (3.6)*	930 (2.0)**	1 455 (3.0)	56.5	10 794 (13.3)	9 257 (10.7)	9 333 (13.8)	0.8	2 708 (1.7)	1 916 (1.2)	2 958 (1.8)	54.4	8 589 (4.8)	8 175 (4.5)	8 158 (4.5)	-0.2
DDLT	1 (0.0)	0 (0.0)	0 (0.0)	(-)	12 166 (12.5)	11 467 (11.7)	11 926 (12.1)	4.0	99 (0.2)	60 (0.1)	100***	66.7	8 969 (11.1)	7 591 (8.8)	7 643 (11.3)	0.7	697 (0.4)	396 (0.2)	558 (0.3)	40.9	6 205 (3.5)	5 772 (3.2)	5 758 (3.2)	-0.2
LDLT	11 (0.0)	2 (0.0)	0 (0.0)	-100	887 (0.9)	862 (0.9)	859 (0.9)	-0.3	552 (1.2)	264 (0.6)	601 (1.2)	127.7	1 808 (2.2)	1 657 (1.9)	1 684 (2.5)	1.6	2 009 (1.25)	1 518 (0.9)	2 398 (1.5)	58.0	2 377 (1.3)	2 388 (1.3)	2 388 (1.3)	0.0
Heart Tx	0 (0.0)	0 (0.0)	0 (0.0)	(-)	4 506 (4.6)	4 419 (4.5)	4 599 (4.7)	4.1	179 (0.4)	98 (0.2)	192 (0.4)	95.9	2 862 (3.5)	2 515 (2.9)	2 350 (3.5)	-6.6	218 (0.1)	122 (0.1)	175 (0.1)	43.4	1 092 (0.6)	949 (0.5)	1 093 (0.6)	15.2
Lung Tx	0 (0.0)	0 (0.0)	0 (0.0)	(-)	3 369 (3.5)	3 048 (3.1)	3 096 (3.2)	1.6	49 (0.1)	24 (0.1)	43 (0.1)	79.2	2 331 (2.9)	1 880 (2.2)	1 964 (2.9)	4.5	114 (0.1)	68 (0.0)	134 (0.1)	97.1	948 (0.5)	922 (0.5)	1 233 (0.7)	33.7
Pancreas Tx	0 (0.0)	0 (0.0)	0 (0.0)	(-)	1 358 (1.4)	1 226 (1.2)	1 234 (1.3)	0.7	37 (0.1)	26 (0.1)	58 (0.1)	123.1	763 (0.9)	593 (0.7)	609 (0.9)	2.7	25 (0.0)	15 (0.0)	20 (0.01)	33.3	169 (0.09)	110 (0.1)	104 (0.06)	-5.5
Small bowel Tx	0 (0.0)	0 (0.0)	0 (0.0)	(-)	95 (0.1)	99 (0.1)	108 (0.1)	9.1	10 (0.0)	7 (0.0)	9 (0.02)	28.6	39 (0.05)	40 (0.05)	46 (0.07)	15.0	0 (0.0)	7 (0.0)	5 (0.0)	-28.6	2 (0.0)	5 (0.0)	4 (0.0)	-20.0
Total organ Tx	482 (1.4)	415 (0.9)	359 (0.9)	-13.5	61 913 (63.5)	54 084 (55.0)	58 059 (59.1)	7.3	7 423 (16.7)	3 605 (7.7)	6 586 (13.6)	82.7	44 978 (55.5)	36 291 (41.9)	37 895 (56.1)	4.4	13 700 (8.5)	8 789 (5.4)	13 295 (8.1)	51.3	28 994 (16.2)	26 607 (14.7)	28 108 (15.5)	5.6

• Type of donor not reported in 961 Liver Tx . ** Type of donor not reported in 606 Liver Tx
 *** 754 DD Liver transplants of Iran have not been included in 2021, for the purpose of this table.

Note: Rates (pmp) are calculated by applying the population of the responding countries

Donation and transplantation activities from 2019 to 2021

	Global			
	2019	2020	2021	% Variation 2021 vs 2020
Deceased donors	41 695 (7.0)	36 102 (5.8)	38 156 (6.4)	5.7
DBD	32 453 (5.4)	27 936 (4.5)	29 611 (4.9)	6.0
DCD	9 242 (1.6)	8 166 (1.3)	8 545 (1.4)	4.6
Kidney Tx	102 539 (17.2)	81 003 (13.0)	92 532 (15.4)	14.2
DDKT	64 104 (10.7)	55 262 (8.9)	57 365 (9.6)	3.8
LDKT	38 435 (6.4)	25 741 (4.1)	35 167 (5.9)	36.6
Liver Tx	36 785 (6.2)	32 615 (5.2)	34 694 (5.8)	6.4
DDLT	28 137 (4.7)	25 286 (4.1)	26 739 (4.5)	5.7
LDLT	7 644 (1.3)	6 691 (1.1)	7 930 (1.3)	18.5
Heart Tx	8 857 (1.5)	8 103 (1.3)	8 409 (1.4)	3.8
Lung Tx	6 811 (1.1)	5 942 (1.0)	6 470 (1.1)	8.9
Pancreas Tx	2 352 (0.4)	1 970 (0.3)	2 025 (0.3)	2.8
Small bowel Tx	146 (0.02)	158 (0.03)	172 (0.03)	8.9
Total organ Tx	157 490 (26.4)	129 791 (20.8)	144 302 (24.1)	11.2

**Rates (pmp) are calculated by applying the population of the responding countries*

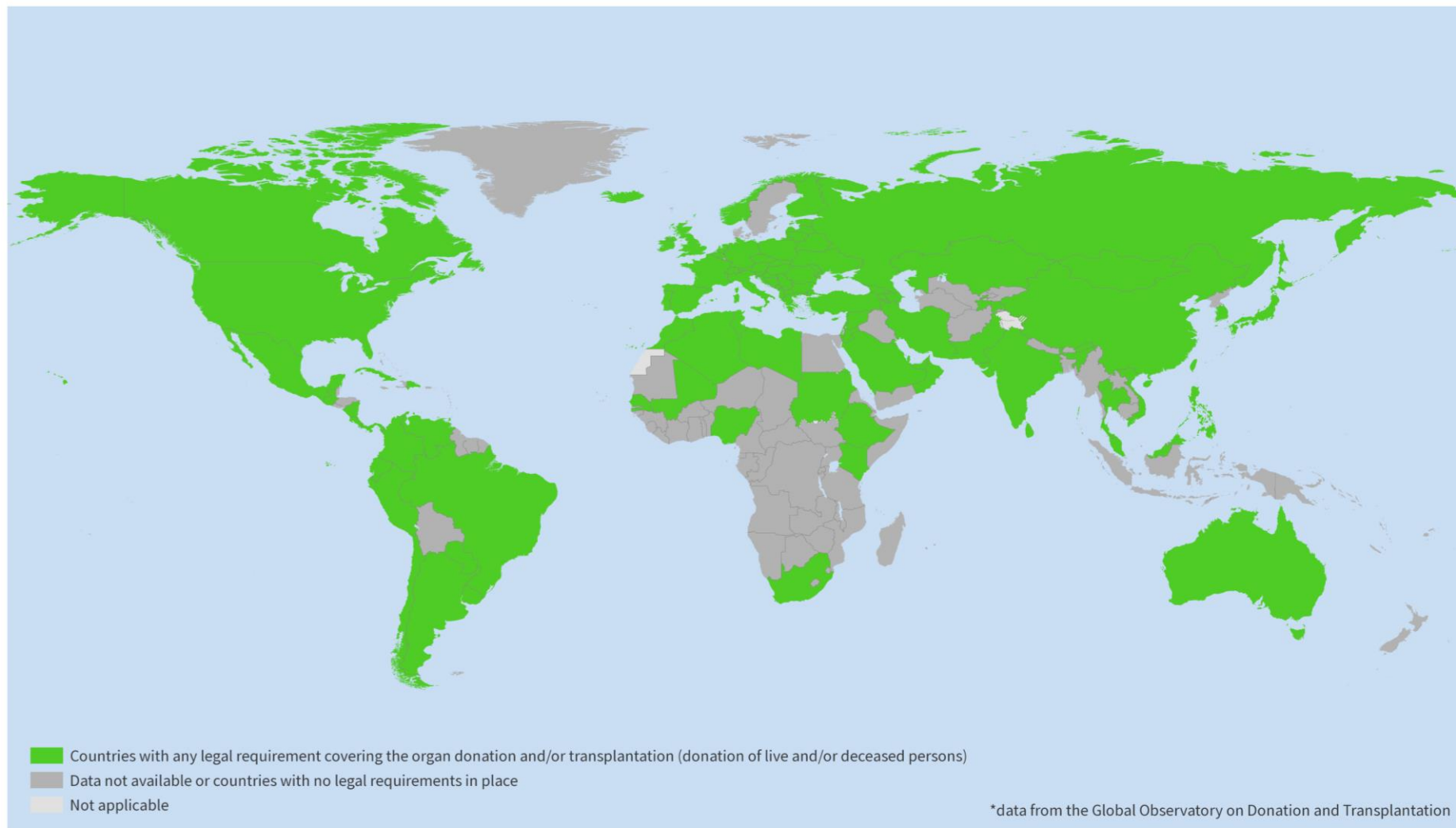


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LEGISLATION AND ORGANIZATION

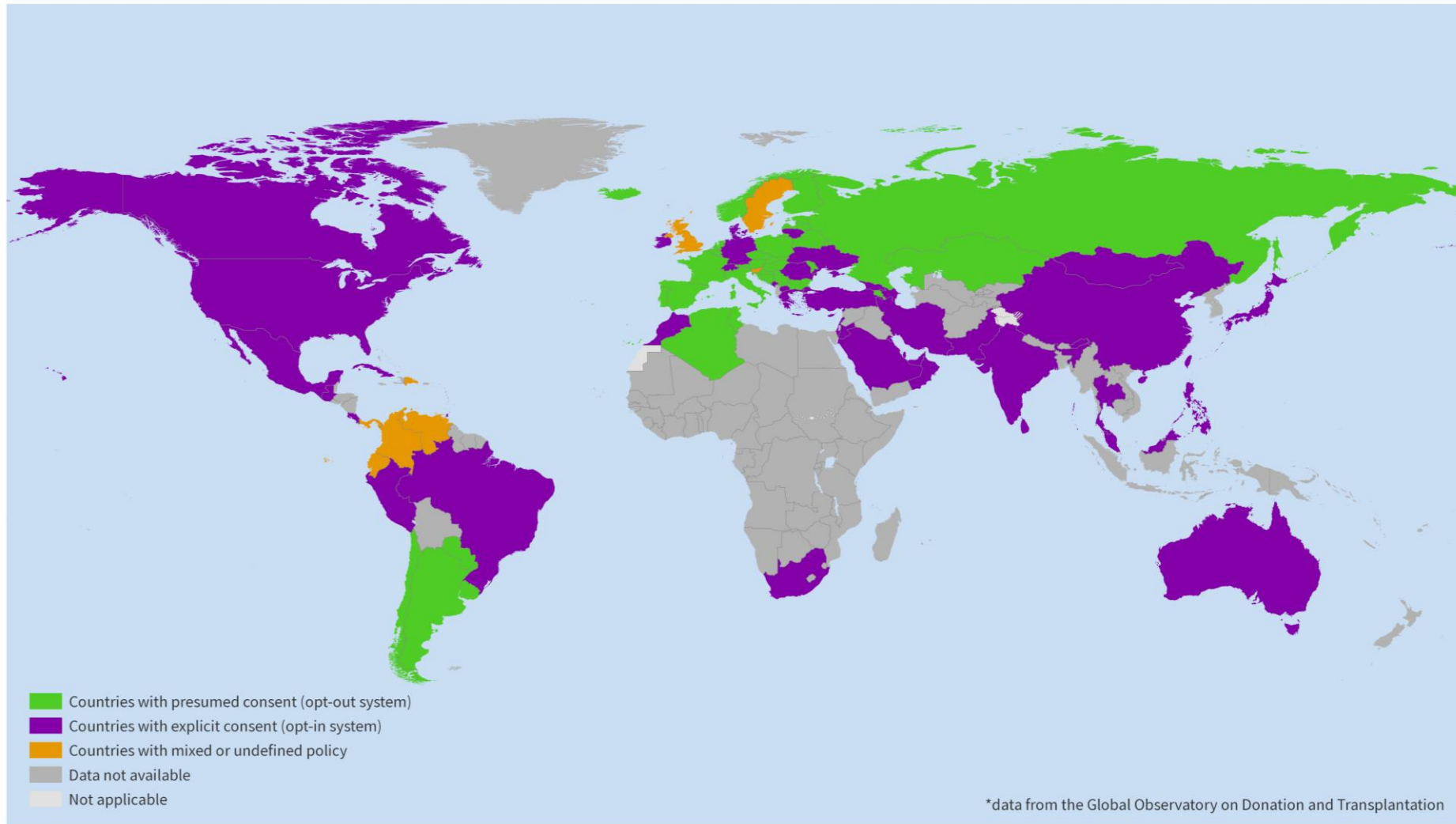
Global distribution of countries with legal frameworks for organ donation and /or transplantation*



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO 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 and Transplantation
Map Production: WHO GIS Centre for Health, DNA/DDI
Map Creation Date: **29 June 2022**

Global distribution of countries per type of consent for deceased organ donation*



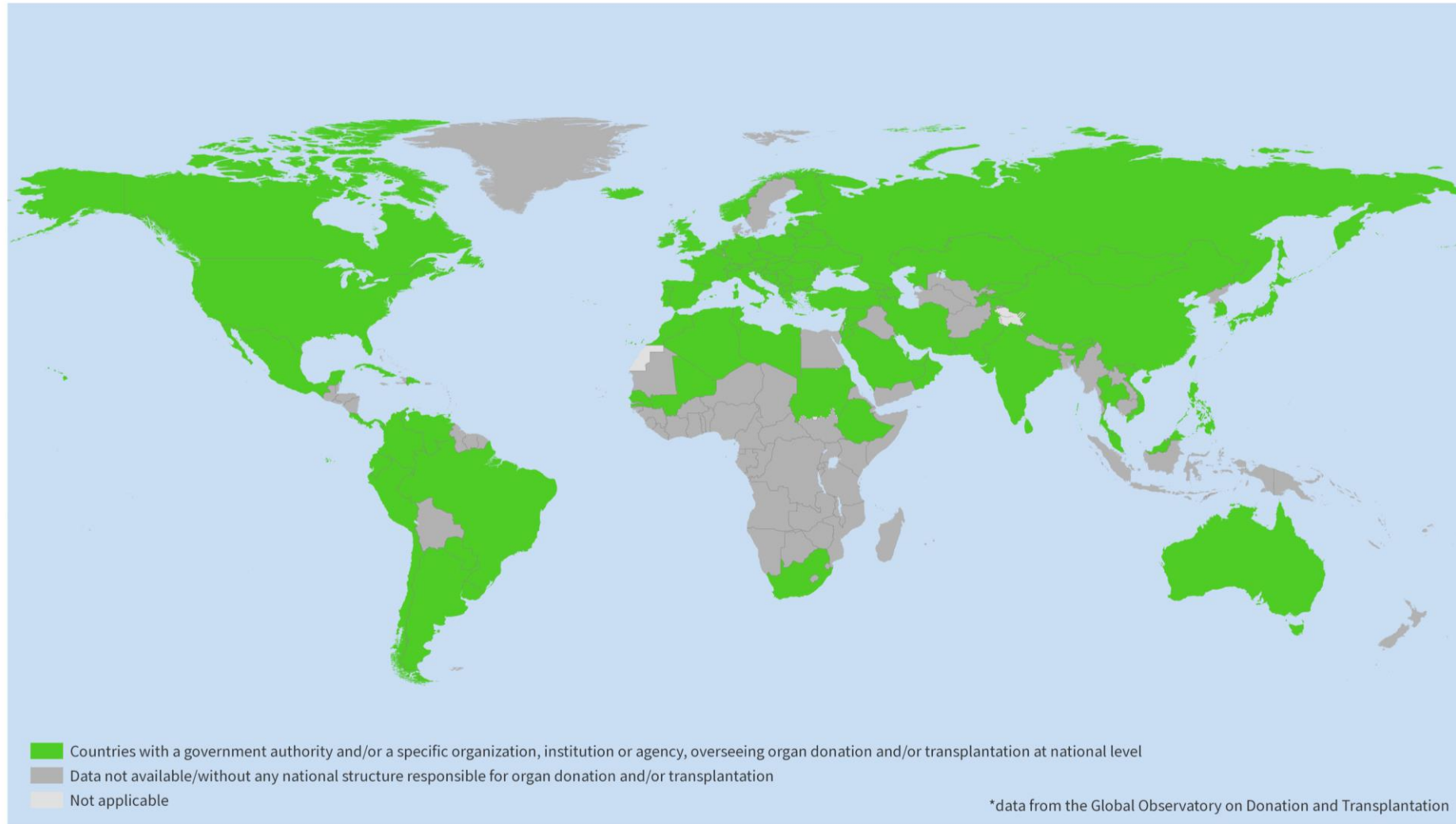
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Data Source: Global Observatory on Donation and Transplantation

Map Production: WHO GIS Centre for Health, DNA/DDI

Map Creation Date: **30 June 2022**

Distribution of countries with national oversight on donation and/or transplantation*



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Data Source: Global Observatory on Donation and Transplantation
Map Production: WHO GIS Centre for Health, DNA/DDI
Map Creation Date: **29 June 2022**

WHO-ONT Collaboration

The GODT is a collaborative effort of WHO and the ONT of Spain. It is running since 2007 and came up in response to the request of the World Health Assembly, in Resolutions WHA57.18 and WHA63.22, to collect global data on the practices, safety, quality, efficacy, epidemiology and ethical issues of allogeneic transplantation. This database collects data on global donation and transplantation practices, and it is recognized as a tool for ensuring transparency, equity and monitoring national transplant systems.

Methods and definitions

An *ad hoc* standardized questionnaire for activities related to organ donation and transplantation is annually distributed to the identified health authorities and national 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 transplantation.

DBD donor: a deceased donor whose death has been determined by neurological criteria.

DCD donor: a deceased donor whose death has been determined by circulatory criteria.

Domino Transplant: a procedure in which an organ is removed from one transplant candidate and immediately transplanted into a second patient, with the first patient receiving a new organ from a deceased donor.

HDI: A composite index measuring average achievement in three basic dimensions of human development—a long and healthy life, knowledge and a decent standard of living. See [Human Development Report 2021](#).

Transplants are counted as those performed only within the country. Counts for 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: a recipient of more than one organ is counted 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 2021. Only countries reporting data for 2021 have been included in this report.

Comparisons 2019 vs 2020 vs 2021 have been made with the most up to date data collected in the database (last accessed: December 2022).

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. Figures for Human Development Index (HDI) are obtained from the United Nations Development Programme (UNDP), [Human Development Report 2021](#).

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.

Acronyms

- ✓ **DBD:** Actual donors after the neurologic determination of death
 - ✓ **DCD:** Actual donors after the circulatory determination of death
 - ✓ **DD:** Actual deceased organ donors
 - ✓ **LD:** Living organ donors
 - ✓ **GODT:** Global Observatory on Donation and Transplantation
 - ✓ **KT:** Kidney transplants
 - ✓ **LT:** Liver transplants
-
- ✓ **ONT:** Organización Nacional de Trasplantes, Spain
 - ✓ **pmp:** per million population
 - ✓ **Tx:** Transplants
 - ✓ **WHO:** World Health Organization
 - ✓ **HDI:** Human Development Index

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 2021 Report. Global Observatory on Donation and Transplantation (GODT).

For citations of the 2021 GODT data please quote the following: Those 2021 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.

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