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ORIGINAL ARTICLE

The ERA-EDTA Registry Annual Report 2017: a summary

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ABSTRACT

Background. This article presents a summary of the 2017 Annual Report of the European Renal Association–European Dialysis and Transplant Association (ERA-EDTA) Registry and describes the epidemiology of renal replacement therapy (RRT) for end-stage renal disease (ESRD) in 37 countries.

Methods. The ERA-EDTA Registry received individual patient data on patients undergoing RRT for ESRD in 2017 from 32 national or regional renal registries and aggregated data from 21 registries. The incidence and prevalence of RRT, kidney transplantation activity and survival probabilities of these patients were calculated.

Results. In 2017, the ERA-EDTA Registry covered a general population of 694 million people. The incidence of RRT for ESRD was 127 per million population (pmp), ranging from 37 pmp in Ukraine to 252 pmp in Greece. A total of 62% of patients were men, 52% were ≥65 years of age and 23% had diabetes mellitus as the primary renal disease. The treatment modality at the onset of RRT was haemodialysis for 85% of patients. On 31 December 2017, the prevalence of RRT was 854 pmp, ranging from 210 pmp in Ukraine to 1965 pmp in Portugal. The transplant rate in 2017 was 33 pmp, ranging from 3 pmp in Ukraine to 103 pmp in the Spanish region of Catalonia. For patients commencing RRT during 2008–12, the unadjusted 5-year patient survival probability for all RRT modalities combined was 50.8%.

Keywords: dialysis, end-stage renal disease, epidemiology, kidney transplantation, survival analysis

Table 1. Incidence of RRT in 2017 at Day 1, by country/region, presented as count (*n*) and unadjusted rate pmp, the mean and median age at the start of RRT and the number and rate of patients with types 1 and 2 DM as primary renal disease

		Incidence of RRT in 2017, at Day 1					
Country/region	General population covered by the registry in thousands	All (*n*)	All (pmp)	Mean age (years)	Median age (years)	DM (*n*)	DM (pmp)
Albania	2847	255	90	51.2	52.1	51	18
Austria	8773	1134	129	65.7	68.8	308	35
Belarus	9492	952	100			216	23
Belgium, Dutch-speaking[a]	6543	1194	182	70.6	73.4	255	39
Belgium, French-speaking[a]	4832	941	195	68.3	70.7	231	48
Bosnia and Herzegovina	3531	381	108	61.9	63.5	114	32
Bulgaria	7050	1195	170			322	46
Croatia	3713	710	191	67.6	69.0	204	55
Cyprus	864	204	236	68.0	69.0	78	90
Czech Republic[b]	9920	2301	232				
Denmark	5821	761	131	63.8	67.5	198	34
Estonia	1317	87	66	57.0	60.3	16	12
Finland	5508	549	100	60.9	64.9	182	33
France	66 865	11 571	173	67.7	70.5	2678	40
Georgia	3726	782	210	60.9	63.3	194	52
Greece	10 755	2712	252	71.3	74.0	675	63
Iceland	343	49	143	62.2	66.3	4	12
Israel	8713	1683	193	65.6	68.4	779	89
Italy (8 of 20 regions)	26 298	3722	140	68.9	71.8	675	25
Kosovo	1688	321	190	62.9	65.0	104	62
Latvia	1547	177	114	60.9	62.0	29	19
Lithuania	2848	341	120	61.7	62.7	50	18
North Macedonia	2022	365	181	62.7	63.0	100	49
Norway	5277	584	111	63.5	66.9	104	20
Poland[b]	38 430	6550	170			1470	38
Portugal	10 310	2372	230			753	73
Romania	19 000	3559	187	62.3	64.3	456	24
Russia[b]	142 473	9495	67	55.8	58.0	1680	12
Serbia	6810	678	100	57.4	62.4	200	29
Slovakia[b]	5437	927	170	62.0	65.0	344	63
Spain (all regions)	46 572	6567	141	63.5	68.1	1572	34
Spain, Andalusia	8409	1107	132	63.6	66.5	270	32
Spain, Aragon	1315	168	128	64.5	68.6	45	34
Spain, Asturias	1034	161	156	67.0	71.1	41	40
Spain, Basque Country	2169	249	115	63.7	67.2	72	33
Spain, Canary Islands	2166	346	160	63.8	66.1	124	57
Spain, Cantabria[a]	581	65	112	64.7	67.5	13	22
Spain, Castile and León[a]	2427	296	122	67.3	68.9	75	31
Spain, Castile-La Mancha[a]	2037	265	130	66.2	68.5	74	36
Spain, Catalonia	7556	1250	165	66.7	70.3	257	34
Spain, Community of Madrid	6507	865	133	65.0	68.0	228	35
Spain, Extremadura	1080	119	110	63.3	65.3	29	27
Spain, Galicia	2707	416	154	65.2	68.0	97	36
Spain, Murcia	1470	202	137	64.9	67.7	49	33
Spain, Navarre[a]	642	79	123	65.1	68.4	18	28
Sweden	10 058	1165	116	63.8	67.7	284	28
Switzerland	8452	824	97	65.5	68.8	160	19
The Netherlands	15 932	1839	115	64.5	68.1	370	23
Tunisia, Sfax region[b]	990	239	242	62.3	64.0	66	67
Turkey[c]	80 811	11 837	146			703	9
UK, England[a,d]	55 619	6649	120	61.9	63.9	1656	30
UK, Northern Ireland[a]	1871	212	113	63.7	67.7	50	27
UK, Scotland	5425	639	118	59.3	61.9	172	32
UK, Wales[a]	3125	379	121	62.9	66.3	105	34
Ukraine	42 415	1551	37	52.2	55.0	327	8
All countries	694 024	88 453	127	63.4	66.2	17 935	29

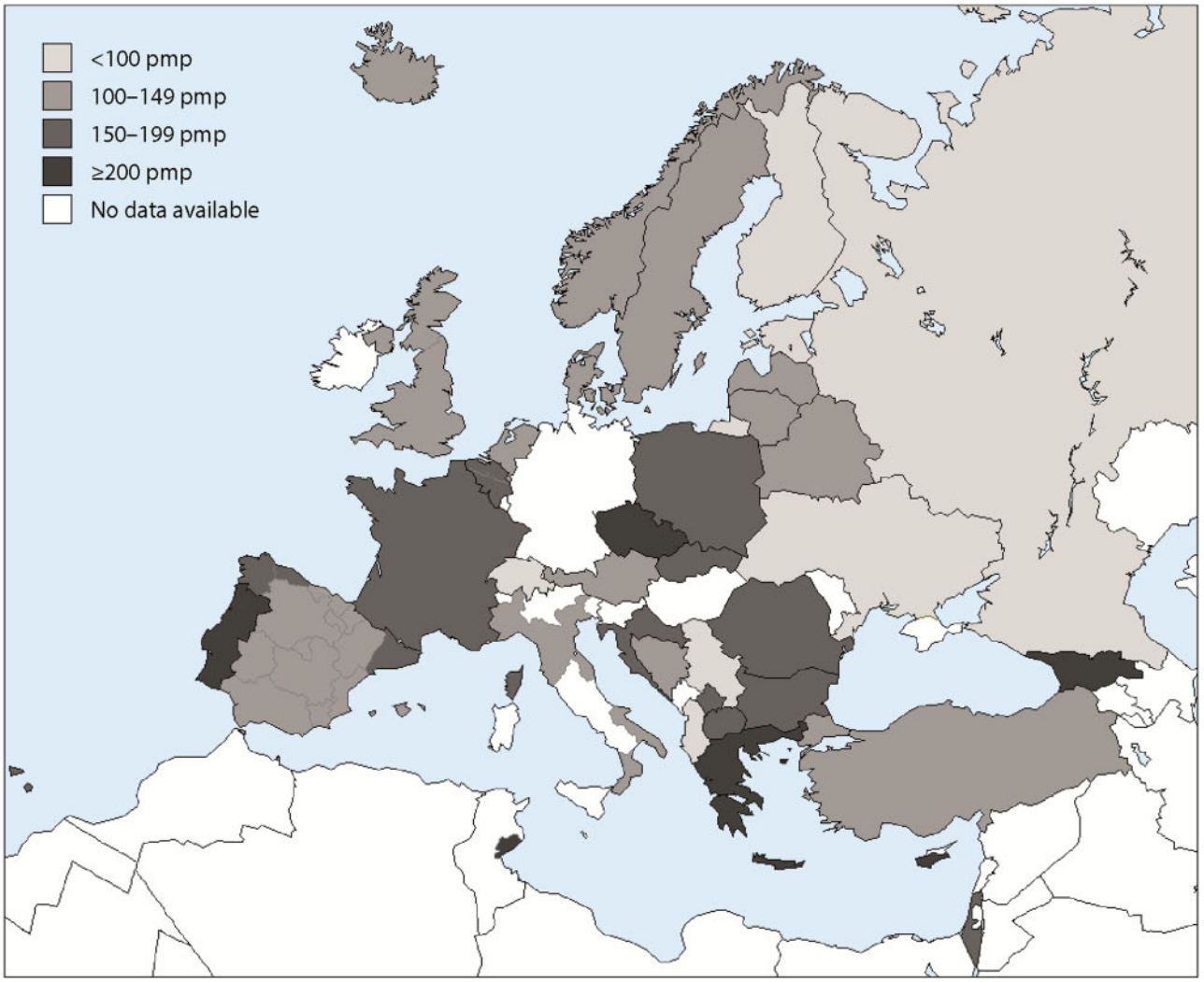
When cells are left empty, the data were unavailable and could not be used for the calculation of the summary data.

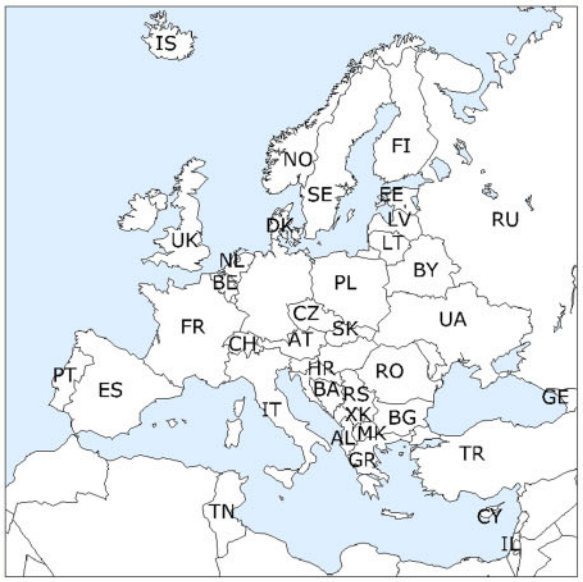
[a]Patients <20 years of age are not reported. The true incidence counts are therefore slightly higher than the counts reported here.

[b]Data include dialysis patients only.

[c]Data on primary renal disease are available for 1893 dialysis patients (16.0%; total $n = 11\,837$).

[d]The incidence is underestimated by ~2% due to one centre not submitting data since 2014.





AL	Albania	IT	Italy
AT	Austria	LT	Lithuania
BA	Bosnia and Herzegovina	LV	Latvia
BE	Belgium	MK	North Macedonia
BG	Bulgaria	NL	the Netherlands
BY	Belarus	NO	Norway
CH	Switzerland	PL	Poland
CY	Cyprus	PT	Portugal
CZ	Czech Republic	RO	Romania
DK	Denmark	RS	Serbia
EE	Estonia	RU	Russia
ES	Spain	SE	Sweden
FI	Finland	SK	Slovakia
FR	France	TN	Tunisia
GE	Georgia	TR	Turkey
GR	Greece	UA	Ukraine
HR	Croatia	UK	United Kingdom
IL	Israel	XK	Kosovo
IS	Iceland		

FIGURE 1: Incidence (pmp) of RRT in 2017, at Day 1, by country/region, unadjusted. The incidence for the Czech Republic, Poland, Russia, Slovakia and Sfax region (Tunisia) only includes patients receiving dialysis. For England (UK), the incidence is underestimated by 2% (Table 1).

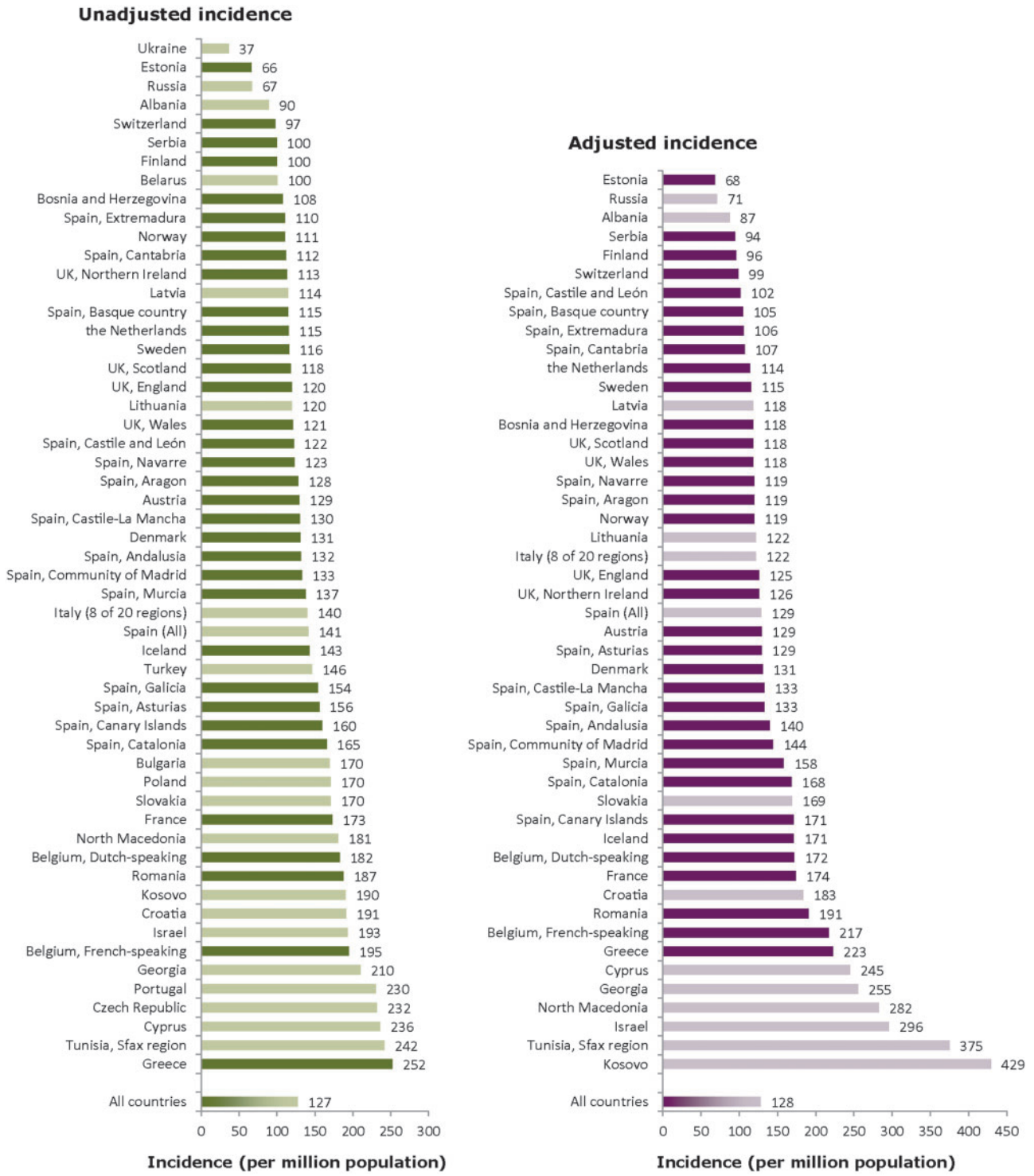


FIGURE 2: Unadjusted (left panel) and adjusted (right panel) incidence of RRT pmp in 2017, at Day 1, by country/region. Registries providing individual patient data are shown as dark bars and registries providing aggregated data as light bars. Adjustment of incidence was performed by standardizing the rates to the age and sex distribution of the 27 European Union (EU27) countries' population. The incidence for the Czech Republic, Poland, Russia, Slovakia and Sfax region (Tunisia) only includes patients receiving dialysis. For England (UK), the incidence is underestimated by 2% (Table 1).

INTRODUCTION

This article is based on the European Renal Association–European Dialysis and Transplant Association (ERA-EDTA) Registry's 2017 Annual Report and presents the most recent data on the epidemiology of renal replacement therapy (RRT) for end-stage renal disease (ESRD) in Europe. Data for the year 2017 were received from 53 national or regional renal registries

FIGURE 3: (A) Sex, (B) age and (C) primary renal disease distribution by type of data provided for incident patients accepted for RRT in 2017, at Day 1. See Appendix A1 for a list of countries and regions providing individual patient data or aggregated data.

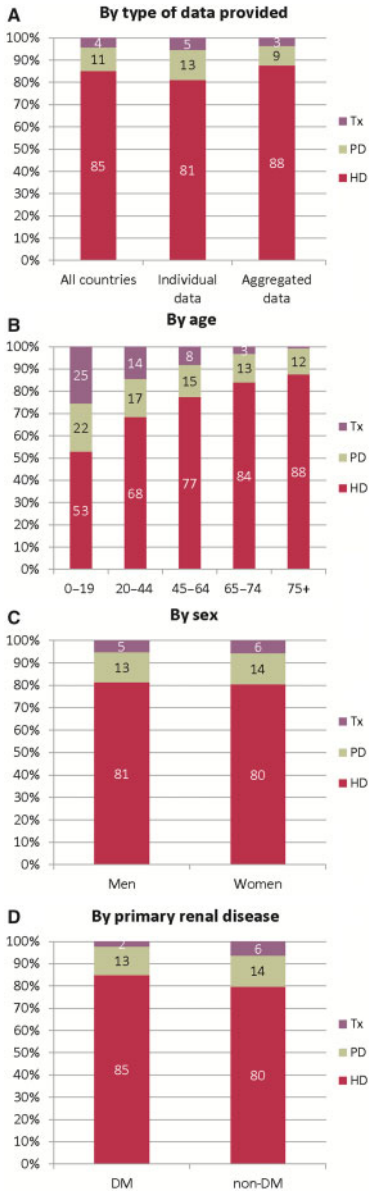


FIGURE 4: Treatment modality distribution, at Day 1, by (A) type of data provided, (B) age, (C) sex and (D) primary renal disease (DM and non-DM) for incident patients accepted for RRT in 2017. (B–D) Based on the data from registries providing individual patient data. See Appendix A1 for a list of countries and regions providing individual patient data or aggregated data. Tx, kidney transplant.

from 37 countries in Europe and countries bordering the Mediterranean Sea [1]. In total, these registries represent a general population of 694 million people. When excluding Israel and Tunisia, the remaining countries cover a general population of 684.3 million people. This represents 81.1% of the 2017 European general population, which is similar when compared with the 80.5% covered in the 2016 Aannual Rreport [2]. A total of 32 national or regional renal registries from 17 countries provided individual patient data to the ERA-EDTA Registry, whereas another 21 countries or regions provided aggregated data (Appendix 1). Compared with our 2016 Annual Report, the Canary Islands (Spain) are now included with individual patient data and Kosovo with aggregated data, whereas data for the Valencia region (Spain) could not be included this year.

This article presents the 2017 incidence and prevalence of RRT, kidney transplantation activity and both patient and graft survival. A detailed description of the methods used to analyse the data, along with the complete results, can be found in the ERA-EDTA Registry 2017 Annual Report [1].

RESULTS

Incidence of RRT

In 2017, 88 453 individuals out of a population of 694 million started RRT for ESRD, resulting in an overall unadjusted incidence of 127 per million population (pmp; Table 1). The unadjusted incidence ranged from 37, 66 and 67 pmp in Ukraine, Estonia and Russia, respectively, to 236, 242 and 252 pmp in Cyprus, the Sfax region (Tunisia) and Greece, respectively (Table 1; Figures 1 and 2). Of the patients starting RRT, 62%

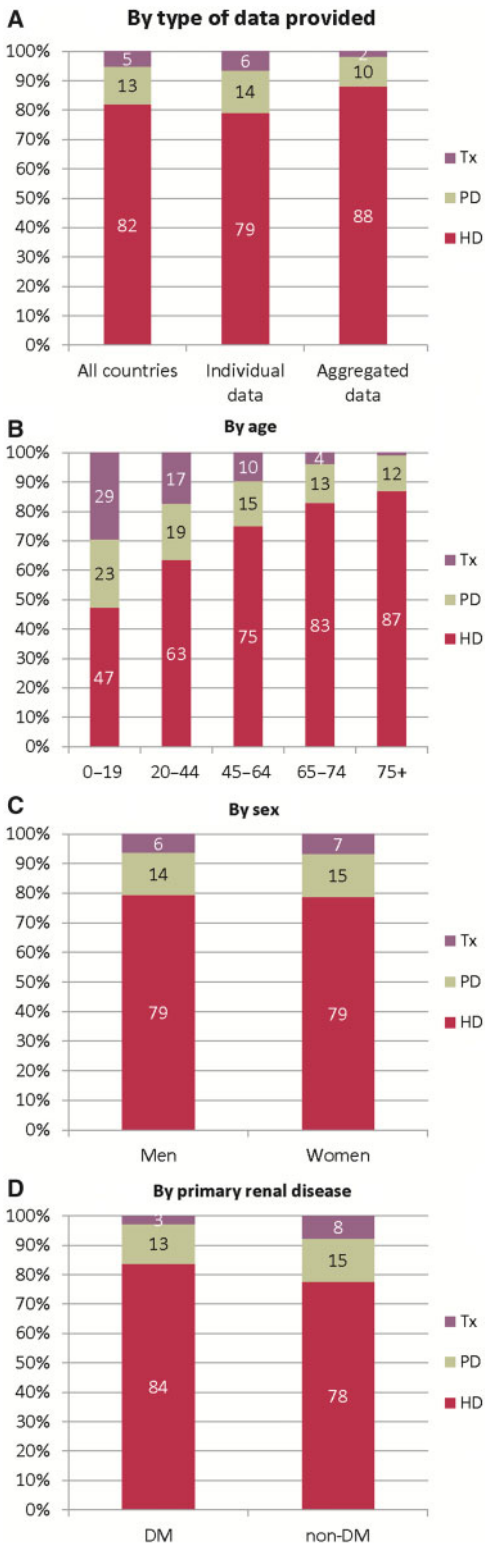


FIGURE 5: Treatment modality distribution, at Day 91, by (**A**) type of data provided, (**B**) age, (**C**) sex and (**D**) primary renal disease (DM and non-DM) for incident patients accepted for RRT in 2017. (**B–D**) Based on the data from registries providing individual patient data. See Appendix A1 for a list of countries and regions providing individual patient data or aggregated data. Tx, kidney transplant.

were men, 52% were ≥65 years of age and 23% had diabetes mellitus (DM) as their primary renal disease (Figure 3). The median age of the patients starting RRT differed by >20 years between Albania (52.1 years) and Greece (74.0 years; Table 1), whereas the median age in all countries and regions combined was 66.2 years. The vast majority (85%) of patients started RRT with haemodialysis (HD), while 11% started with peritoneal dialysis (PD) and only 4% of patients received a pre-emptive kidney transplant (Figure 4). Nevertheless, there were considerable differences in the initial treatment modality between age groups, with decreasing proportions of patients receiving either PD or a pre-emptive transplant with increasing age (Figure 4). Moreover, compared with patients without a primary renal disease of DM, those with DM more often started RRT on HD (85% versus 80%) and less frequently received a pre-emptive kidney transplant (2% versus 6%). Among the incident patients receiving RRT at Day 91 after the start of treatment, 82% were receiving HD, 13% were receiving PD and 5% were living with a functioning kidney transplant (Figure 5). When compared with Day 1, the percentage of patients receiving HD decreased, which was particularly evident in the younger age groups.

Prevalence of RRT

On 31 December 2017, 592 779 patients were receiving RRT for ESRD (Table 2), corresponding to an overall unadjusted prevalence of 854 pmp. Among the individual countries/regions, the unadjusted prevalence ranged from 210, 319 and 333 pmp in Ukraine, Kosovo and Russia, respectively, to 1400, 1427 and 1965 pmp in the Canary Island (Spain), Catalonia (Spain) and Portugal, respectively (Table 2; Figures 6 and 7). Of the prevalent patients, 60% were men, 43% were ≥65 years and 16% had DM as their primary renal disease (Figure 8). The median age of prevalent patients receiving RRT in all countries and regions combined was 62.6 years; in individual countries, it ranged from 50.5 years in Albania to 68.4 years in the Dutch-speaking part of Belgium and Israel (Table 2). Of prevalent patients, 57% were receiving HD, 37% were living with a kidney transplant and 5% were receiving PD (Figure 9). Compared with prevalent patients without DM as their primary renal disease, those with DM were less likely to be living with a functioning kidney transplant (51% versus 28%).

Kidney transplantation

In 2017, 22 902 kidney transplantations were performed, equating to an overall unadjusted transplant rate of 33 pmp (Figure 10). In the individual countries/regions, the unadjusted kidney transplant rates ranged between 3 pmp in Ukraine and 6 pmp in Bulgaria and Kosovo to 79 and 83 pmp in Cantabria (Spain) and Basque Country (Spain), respectively, and even exceeding 100 pmp in Catalonia (Spain). Overall, the unadjusted deceased donor kidney transplant rate was more than twice that of living donor transplants [23 versus 10 pmp (71% versus 29%); Figures 11 and 12]. The highest unadjusted rates of deceased donor kidney transplants were observed in several Spanish regions (>70 pmp; Figure 12), whereas the highest unadjusted rates of living donor transplants were observed in Northern Ireland (37 pmp), Turkey (33 pmp) and The Netherlands (31 pmp; Figure 12).

Table 2. Prevalence of RRT on 31 December 2017, by country/region, presented as count (*n*) and unadjusted rate pmp, mean and median age on 31 December 2017 and the number and rate of patients with types 1 and 2 DM as primary renal disease

		Prevalent patients on RRT in 2017					
Country/region	General population covered by the registry in thousands	All (*n*)	All (Pmp)	Mean age (years)	Median age (years)	DM (*n*)	DM (Pmp)
Albania	2847	1557	547	49.5	50.5	331	116
Austria	8773	9540	1087	61.6	63.1	1874	214
Belarus	9492	4295	452			593	62
Belgium, Dutch-speaking[a]	6543	8419	1287	66.3	68.4	1441	220
Belgium, French-speaking[a]	4832	6506	1346	65.1	66.8	1177	244
Bosnia and Herzegovina	3531	2644	749	59.7	61.4	520	147
Bulgaria	7050	4421	627				
Croatia	3713	4635	1248	65.7	67.0	919	248
Cyprus	864						
Czech Republic	9920	11 666	1176				
Denmark	5821	5579	958	59.0	60.6	951	163
Estonia	1317	949	720	58.2	58.9	168	128
Finland	5508	5008	909	59.4	61.7	1270	231
France	66 865	87 989	1316	63.0	65.0	14 423	216
Georgia	3726	2972	798	59.8	61.0	590	158
Greece	10 755	14 183	1319	65.0	67.0	2676	249
Iceland	343	261	760	56.4	58.4	26	76
Israel[b]	8713	6692	768	66.3	68.3	3132	359
Italy (6 of 20 regions)	26 298	30 191	1137	62.6	64.8	3920	148
Kosovo	1688	539	319	63.2	66.0	159	94
Latvia	1547	1058	684	56.4	58.0	102	66
Lithuania	2848	2268	796				
North Macedonia	2022	1761	871	59.0	60.0	300	148
Norway	5277	5155	977	59.7	61.7	707	134
Poland	38 430	30 278	788			5200	135
Portugal	10 310	20 259	1965	67.9	68.4	3511	341
Romania	19 000	21 708	1143	61.8	63.6	2189	115
Russia	142 473	47 486	333	54.2	57.0	6696	47
Serbia	6810	4850	712	58.7	61.2	835	123
Slovakia[b]	5437	3559	655	63.6	66.0	1177	216
Spain (all regions)	46 572	59 810	1284	59.5	62.7	9714	209
Spain, Andalusia	8409	10 296	1224	60.8	62.1	1604	191
Spain, Aragon	1315	1671	1271	63.4	64.7	299	227
Spain, Asturias	1034	1375	1329	63.4	64.5	226	219
Spain, Basque Country	2169	2722	1255	62.1	63.9	318	147
Spain, Canary Islands	2166	3032	1400	61.3	62.5	340	157
Spain, Cantabria[a]	581	637	1096	62.3	63.6	92	158
Spain, Castile and León[a]	2427	3031	1249	65.3	66.1	549	226
Spain, Castile-La Mancha[a]	2037	2422	1189	62.8	63.6	393	193
Spain, Catalonia	7556	10 785	1427	63.2	65.0	1520	201
Spain, Community of Madrid	6507	7537	1158	62.1	63.5	1345	207
Spain, Extremadura	1080	1274	1180	62.0	62.7	194	180
Spain, Galicia	2707	3741	1382	62.9	64.3	627	232
Spain, Murcia	1470	1982	1348	62.4	63.3	283	192
Spain, Navarre[a]	642	860	1339	62.8	64.3	123	192
Sweden	10 058	9927	987	60.0	62.0	1776	177
Switzerland	8452	7927	938	62.2	64.1	1176	139
The Netherlands	16 617	17 246	1038	60.7	62.6	2308	139
Tunisia, Sfax region[b]	990	1007	1018	58.6	60.0	211	213
Turkey[c]	80 811	77 311	957			2366	29
UK, Englanda,[d]	55 619	54 043	972	58.9	59.4	9417	169
UK, Northern Ireland[a]	1871	1831	979	59.0	58.8	273	146
UK, Scotland	5425	5184	956	56.8	57.8	847	156
UK, Wales[a]	3125	3161	1011	59.5	60.4	520	166
Ukraine	42 415	8904	210	50.0	51.0	1358	32
All countries	694 709	592 779	854	60.7	62.6	84 853	141

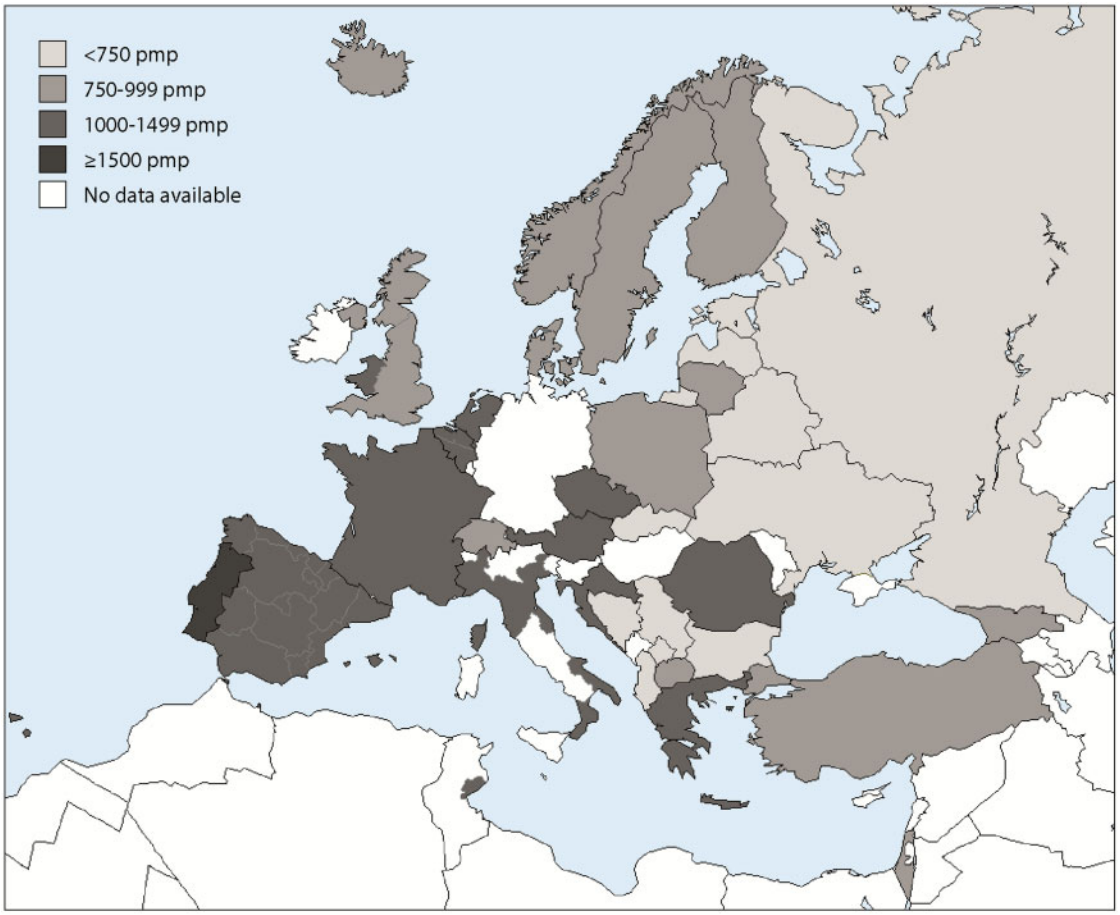
When cells are left empty, the data were unavailable and could not be used for the calculation of the summary data.

[a]Patients <20 years of age are not reported. The true prevalent counts are therefore slightly higher than the counts reported here.

[b]Data on prevalence include dialysis patients only.

[c]Data on primary renal disease (DM) is based on 6888 dialysis patients (8.9%; total $n = 77\,311$).

[d]The prevalence is underestimated by ~1% due to one centre not submitting data since 2014.



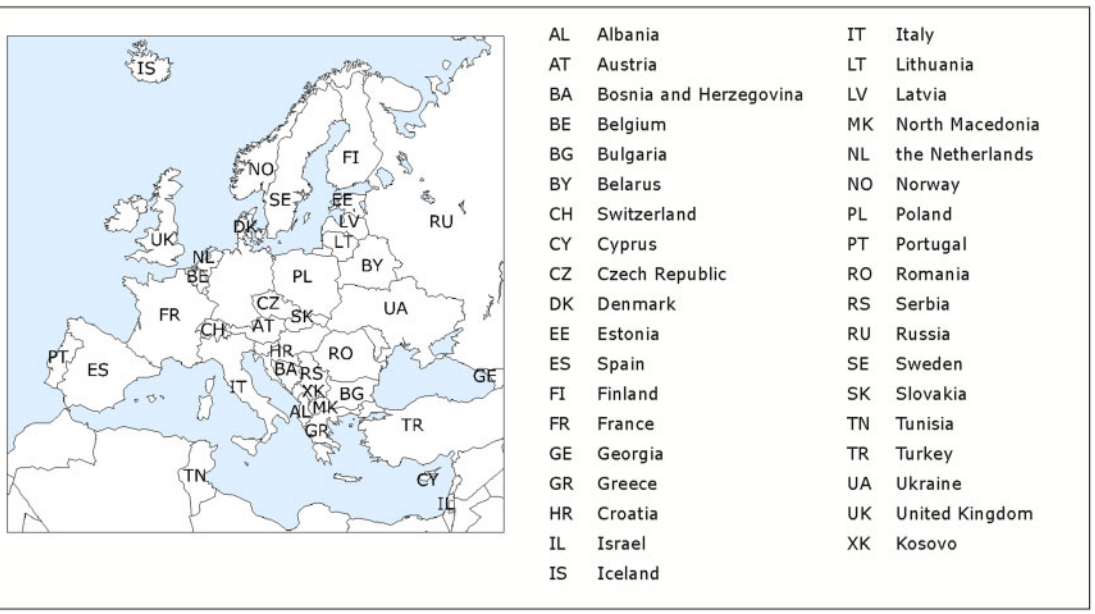


FIGURE 6: Prevalence (pmp) of RRT on 31 December 2017 by country/region. The prevalence of Israel, Slovakia and Sfax region (Tunisia) only includes patients receiving dialysis. For England (UK), the prevalence is underestimated by 1% (Table 2).

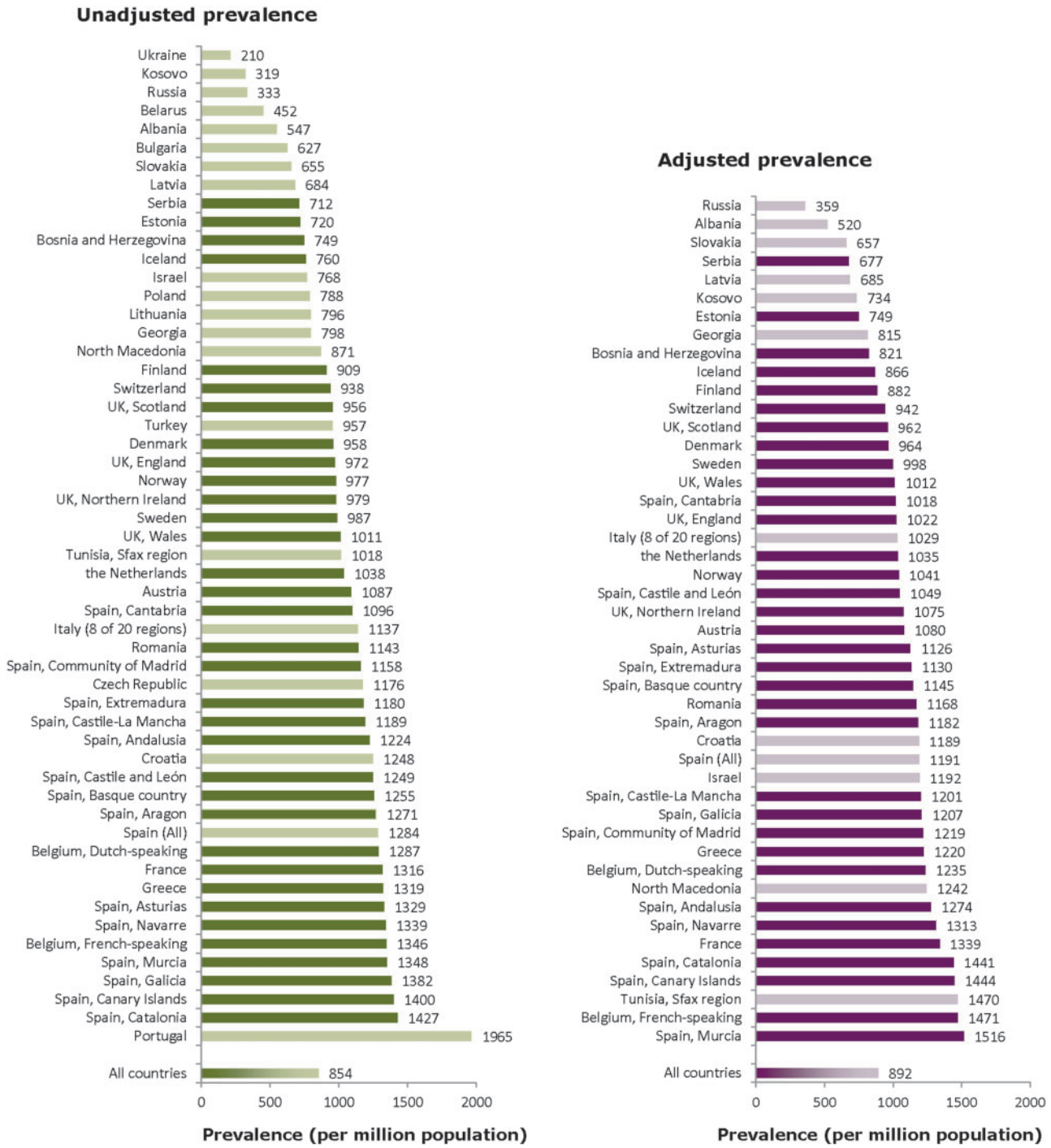


FIGURE 7: Unadjusted (left panel) and adjusted (right panel) prevalence (pmp) of RRT on 31 December 2017 by country/region. Registries providing individual patient data are shown as dark bars and registries providing aggregated data as light bars. Adjustment of the prevalence was performed by standardizing the prevalence to the age and sex distribution of the EU27 population. The prevalence of Israel only includes patients receiving dialysis. For England (UK), the prevalence is underestimated by 1% (Table 2).

FIGURE 8: (**A**) Sex, (**B**) age and (**C**) primary renal disease distribution by type of data provided for prevalent patients on RRT on 31 December 2017. See Appendix A1 for a list of countries and regions providing individual patient data or aggregated data.

Survival of patients receiving RRT

For patients commencing RRT in the period 2008–12, the 5-year unadjusted patient survival probability for all RRT modalities combined was 50.8% [95% confidence interval (CI) 50.7–51.0]. For patients starting RRT with dialysis in this period, the unadjusted 5-year patient survival probability was 42.2% (95% CI 42.1–42.4). Adjusted analyses for patient survival on HD and PD revealed higher survival probabilities in the first 3 years for those receiving PD (Figure 13). For patients receiving a kidney transplant in the period 2008–12, living donor transplant recipients experienced a higher adjusted 5-year patient survival than recipients of deceased donor transplants [94.6% (95% CI 94.2–95.1) versus 92.1% (95% CI 91.8–92.4)], as well as a higher adjusted 5-year graft survival [86.7% (95% CI 86.0–87.4) versus 81.4% (95% CI 80.9–81.9)]. See Table 3 for a description of the adjustments made and the countries/regions included in these analyses.

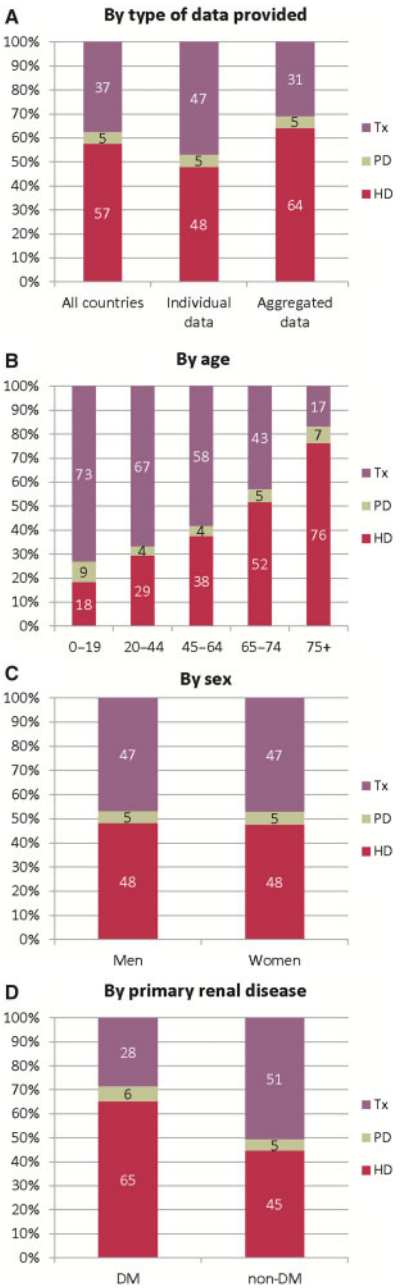
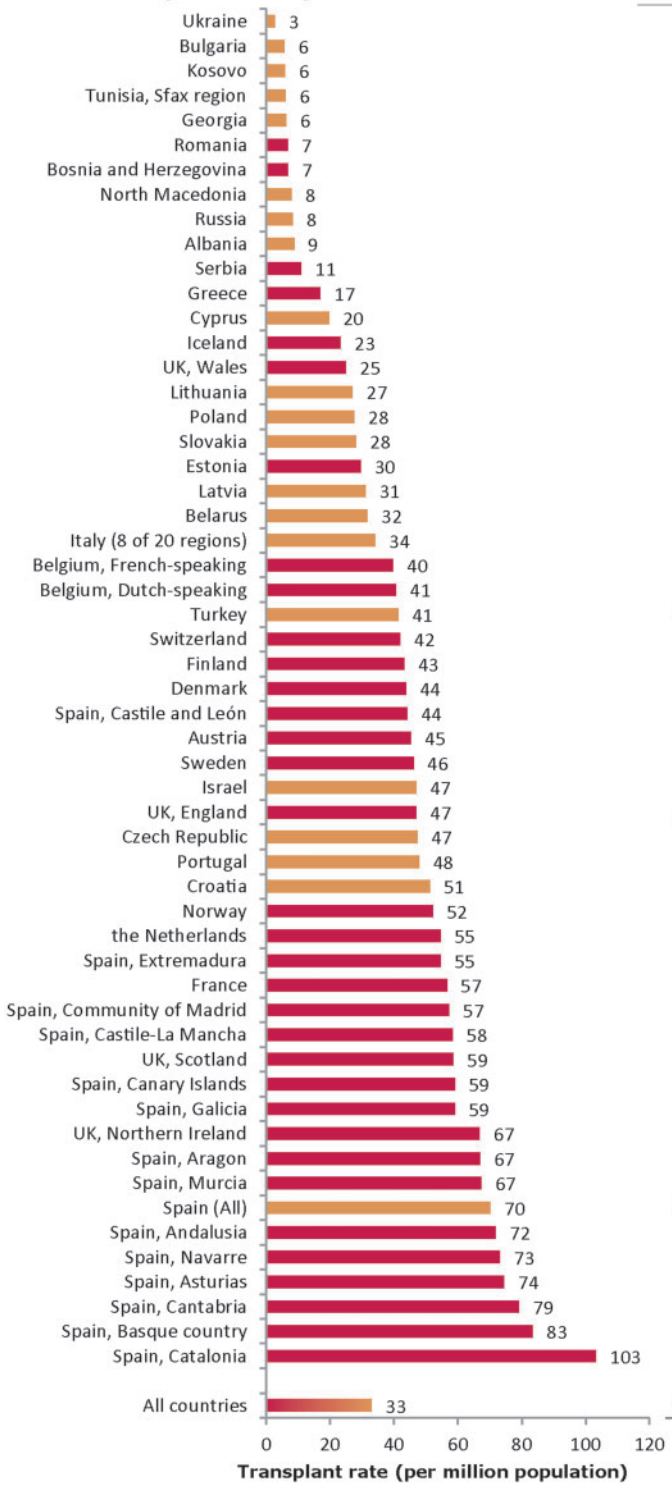


FIGURE 9: Treatment modality distribution by (**A**) type of data provided, (**B**) age, (**C**) sex and (**D**) primary renal disease (DM and non-DM) for prevalent patients on RRT on 31 December 2017. (**B–D**) Based on the data from registries providing individual patient data. See Appendix A1 for a list of countries and regions providing individual patient data or aggregated data. Tx, kidney transplant.

Expected remaining lifetime

There was a substantial difference in the expected remaining lifetime between patients receiving dialysis between 2013 and 2017 and the general population (Figure 14). Although patients living with a functioning kidney transplant have a longer life expectancy than those receiving dialysis, it is still lower than that of the age-matched general population. With the advancing age of kidney transplant recipients, the relative difference in the expected remaining lifetime compared with the age-matched general population increases, although the absolute difference decreases.



	All N	% Deceased donor	% Living donor	% Unknown donor type
Ukraine	112	35	65	0
Bulgaria	40	80	20	0
Kosovo	10	0	100	0
Tunisia, Sfax region	6	0	100	0
Georgia	23	13	87	0
Romania	128	52	47	2
Bosnia and Herzegovina	24	17	83	0
North Macedonia	16	0	100	0
Russia	1175	83	17	0
Albania	25	0	100	0
Serbia	75	69	29	1
Greece	182	63	37	0
Cyprus	17	47	53	0
Iceland	8	0	100	0
UK, Wales	78	67	33	0
Lithuania	77	92	8	0
Poland	1060	95	5	0
Slovakia	153	93	7	0
Estonia	39	69	31	0
Latvia	48	75	25	0
Belarus	301	98	2	0
Italy (8 of 20 regions)	907	91	9	0
Belgium, French-speaking	192	88	11	2
Belgium, Dutch-speaking	266	89	11	0
Turkey	3342	21	79	0
Switzerland	355	64	36	0
Finland	238	87	12	2
Denmark	255	65	35	0
Spain, Castile and León	107	7	6	87
Austria	423	85	15	0
Sweden	464	73	27	0
Israel	409	35	54	11
UK, England	2615	73	26	1
Czech Republic	469	89	11	0
Portugal	493	84	16	0
Croatia	190	97	3	0
Norway	275	72	28	0
the Netherlands	916	44	56	0
Spain, Extremadura	59	81	2	17
France	3784	84	16	0
Spain, Community of Madrid	373	94	6	0
Spain, Castile-La Mancha	119	93	3	3
UK, Scotland	318	69	30	1
Spain, Canary Islands	128	0	5	95
Spain, Galicia	160	81	19	0
UK, Northern Ireland	125	45	55	0
Spain, Aragon	88	88	13	0
Spain, Murcia	99	90	10	0
Spain (All)	3269	90	10	0
Spain, Andalusia	604	92	8	0
Spain, Navarre	47	98	2	0
Spain, Asturias	77	88	12	0
Spain, Cantabria	46	96	4	0
Spain, Basque country	181	90	10	0
Spain, Catalonia	780	83	17	0
All countries	22902	71	29	0

FIGURE 10: Kidney transplants performed in 2017, presented as counts and pmp (unadjusted) by country/region. Registries providing individual patient data are shown as red bars and registries providing aggregated data as orange bars. The total count for Austria is based on residents and non-residents. For Romania, Serbia and England (UK), the overall kidney transplant rate is underestimated by 30, 15 and 7%, respectively.

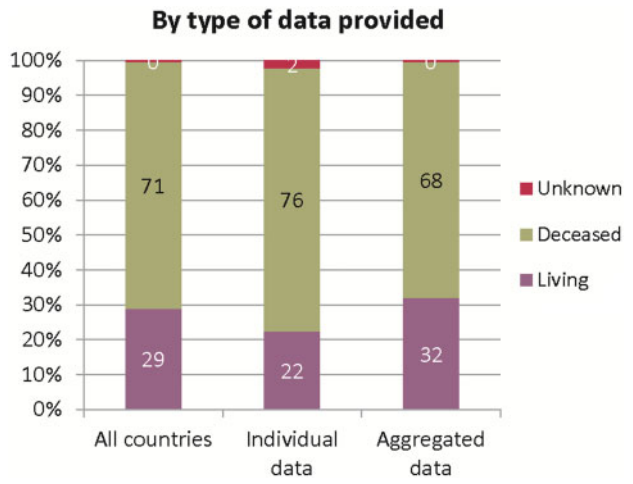


FIGURE 11: Donor-type distribution for kidney transplants performed in 2017, by type of data provided. See Appendix A1 for a list of countries and regions providing individual patient data or aggregated data.

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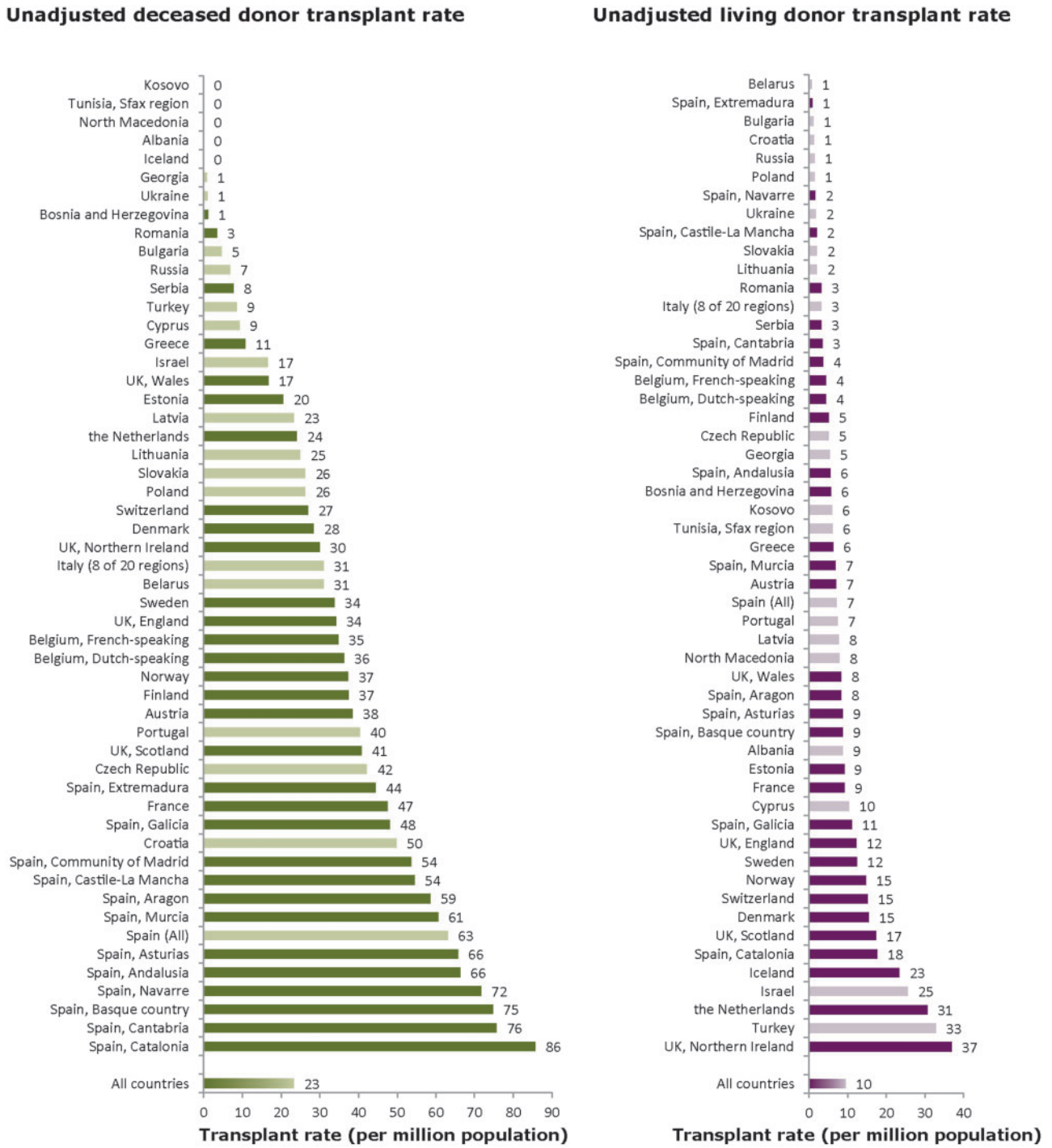

FIGURE 12: Deceased donor (left panel) and living donor (right panel) kidney transplants performed in 2017 pmp, by country/region, unadjusted. Registries providing individual patient data are shown as dark bars and registries providing aggregated data as light bars. The total count for Austria is based on residents and non-residents. For Romania and England (UK), the kidney transplant rate is underestimated by 30 and 7%, respectively. For Serbia, the transplant rate is underestimated by 16% for deceased donor transplants and by 12% for living donor transplants.

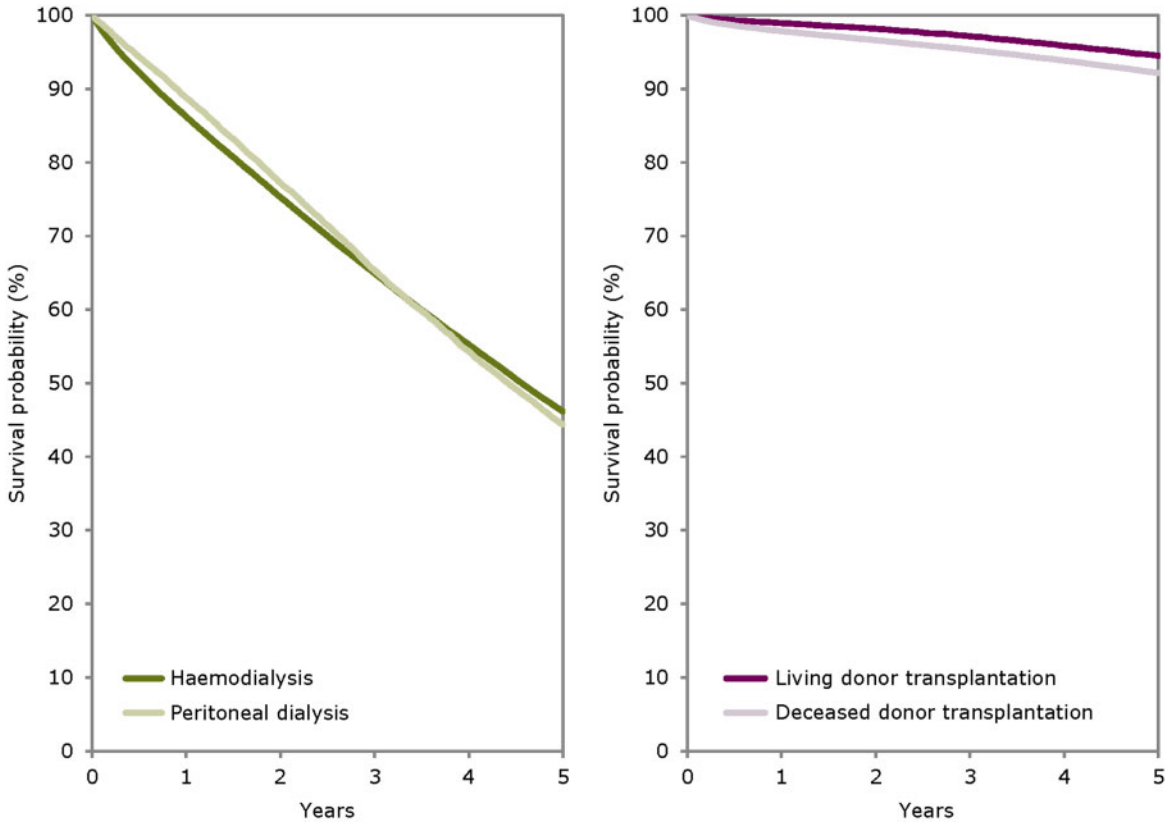

FIGURE 13: Survival of patients starting HD and PD between 2008 and 2012 from Day 91 (left panel) and patients receiving a first kidney transplant from a living or deceased donor between 2008 and 2012 (right panel). Survival on dialysis was censored for kidney transplantation and adjusted using fixed values for age (67 years), sex (63% men) and primary renal disease (24% DM, 19% hypertension/renal vascular disease, 11% glomerulonephritis and 46% other causes). Survival after kidney transplantation was adjusted using fixed values for age (50 years), sex (63% men) and primary renal disease (14% DM, 10% hypertension/renal vascular disease, 23% glomerulonephritis and 53% other causes). These figures are based on data from the following registries providing individual patient data: Austria, Belgium (Dutch-speaking), Belgium (French-speaking), Denmark, Finland, France, Greece, Iceland, Norway, Spain (Andalusia), Spain (Aragon), Spain (Asturias), Spain (Basque Country), Spain (Cantabria), Spain (Castile and León), Spain (Castile-La Mancha), Spain (Catalonia), Spain (Extremadura), Spain (Galicia), Spain (Community of Madrid), Sweden, The Netherlands, UK (England, Northern Ireland, Wales) and UK (Scotland).

Table 3. The survival probabilities at 1, 2 and 5 years by treatment modality and cohort from Day 1 of the start of RRT/dialysis or from the day of kidney transplantation

	Survival probabilities as a percentage (95% CI)				
	Cohort: 2008–12			Cohort: 2011–15	
Survival type	1 year	2 years	5 years	1 year	2 years
Patient survival on RRT					
Unadjusted	83.9 (83.7–84.0)	73.7 (73.6–73.9)	50.8 (50.7–51.0)	84.8 (84.6–84.9)	74.8 (74.6–74.9)
Adjusted[a]	86.6 (86.4–86.7)	77.2 (77.0–77.4)	52.4 (52.1–52.7)	87.2 (87.1–87.4)	78.0 (77.8–78.2)
Patient survival on dialysis					
Unadjusted	82.8 (82.6–82.9)	71.2 (71.0–71.4)	42.2 (42.1–42.4)	83.6 (83.5–83.8)	72.1 (72.0–72.3)
Adjusted[a]	84.9 (84.8–85.1)	74.4 (74.2–74.6)	45.7 (45.4–46.1)	85.9 (85.8–86.1)	75.6 (75.4–75.9)
Patient survival after first kidney transplantation (deceased donor)					
Unadjusted	96.3 (96.1–96.5)	94.3 (94.0–94.5)	87.3 (87.0–87.6)	96.3 (96.1–96.5)	94.2 (94.0–94.5)
Adjusted[b]	97.8 (97.7–98.0)	96.6 (96.4–96.8)	92.1 (91.8–92.4)	98.0 (97.9–98.1)	96.8 (96.7–97.0)
Graft survival after first kidney transplantation (deceased donor)					
Unadjusted	91.2 (90.9–91.5)	88.3 (88.0–88.6)	78.6 (78.2–79.0)	91.4 (91.1–91.7)	88.3 (88.0–88.6)
Adjusted[b]	92.6 (92.3–92.9)	90.0 (89.7–90.4)	81.4 (80.9–81.9)	93.1 (92.9–93.4)	90.6 (90.3–91.0)
Patient survival after first kidney transplantation (living donor)					
Unadjusted	98.8 (98.6–99.0)	97.9 (97.6–98.2)	93.9 (93.5–94.4)	99.0 (98.8–99.2)	98.1 (97.8–98.3)

Table 3. (continued)

	Survival probabilities as a percentage (95% CI)				
	Cohort: 2008–12			Cohort: 2011–15	
Survival type	1 year	2 years	5 years	1 year	2 years
Adjusted[b]	99.0 (98.8–99.2)	98.2 (98.0–98.5)	94.6 (94.2–95.1)	99.2 (99.0–99.3)	98.4 (98.1–98.6)
Graft survival after first kidney transplantation (living donor)					
Unadjusted	96.3 (96.0–96.7)	94.6 (94.2–95.0)	87.5 (86.9–88.1)	96.9 (96.5–97.2)	95.1 (94.7–95.5)
Adjusted[b]	96.1 (95.7–96.5)	94.3 (93.8–94.8)	86.7 (86.0–87.4)	96.7 (96.3–97.0)	94.9 (94.5–95.3)

The findings are based on data from the following renal registries providing individual patient data: Austria, Belgium (Dutch-speaking), Belgium (French-speaking), Denmark, Finland, France, Greece, Iceland, Norway, Spain (Andalusia), Spain (Aragon), Spain (Asturias), Spain (Basque Country), Spain (Cantabria), Spain (Castile and León), Spain (Castile-La Mancha), Spain (Catalonia), Spain (Community of Madrid), Spain (Extremadura), Spain (Galicia), Sweden, The Netherlands, UK (England, Northern Ireland, Wales) and UK (Scotland).

Unadjusted survival probabilities were calculated using the Kaplan–Meier method and adjusted survival probabilities using the Cox regression model.

[a]Analyses were adjusted using fixed values: age (67 years), sex (63% men) and primary renal disease (24% DM, 19% hypertension/renal vascular disease, 11% glomerulonephritis and 46% other causes).

[b]Analyses were adjusted using fixed values: age (50 years), sex (63% men) and primary renal disease (14% DM, 10% hypertension/renal vascular disease, 23% glomerulonephritis and 53% other causes).

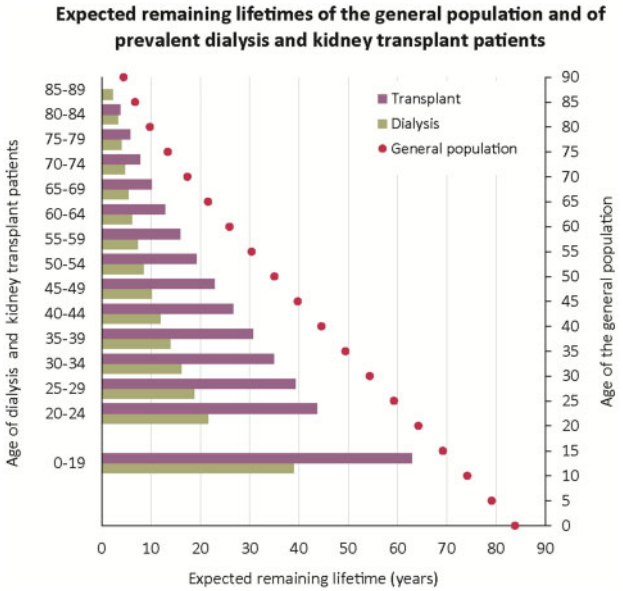

FIGURE 14: Expected remaining lifetimes of prevalent dialysis and kidney transplant patients (cohort 2013–17) and the general population (cohort 2013–17), by age. This figure is based on data from the following registries providing individual patient data: Austria, Belgium (Dutch-speaking), Belgium (French-speaking), Denmark, Finland, France, Greece, Iceland, Norway, Spain (Andalusia), Spain (Aragon), Spain (Asturias), Spain (Basque Country), Spain (Cantabria), Spain (Castile and León), Spain (Castile-La Mancha), Spain (Catalonia), Spain (Extremadura), Spain (Galicia), Spain (Community of Madrid), Sweden, The Netherlands and UK (all countries).

CONFLICT OF INTEREST STATEMENT

None declared.

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2. Kramer A, Pippias M, Noordzij M *et al.* The European Renal Association–European Dialysis and Transplant Association (ERA-EDTA) Registry Annual Report 2016: a summary. *Clin Kidney J* 2019; 12: 702–720

Appendix 1

Countries or regions providing individual patient data to the ERA-EDTA Registry: Austria; Dutch-speaking Belgium; French-speaking Belgium; Bosnia and Herzegovina; Denmark; Estonia; Finland; France; Greece; Iceland; Norway; Romania; Serbia; the Spanish regions of Andalusia, Aragon, Asturias, Basque Country, Canary Islands, Cantabria, Castile and León, Castile-La Mancha, Catalonia, Community of Madrid, Extremadura, Galicia, Murcia and Navarre; Sweden; Switzerland; The Netherlands; UK (England, Northern Ireland ,Wales and Scotland).

Countries or regions providing aggregated data to the ERA-EDTA Registry: Albania, Belarus, Bulgaria, Croatia, Cyprus, the Czech Republic, Georgia, Israel, Italy, Kosovo, Latvia, Lithuania, North Macedonia, Poland, Portugal, Russia, Slovakia, Spain, Sfax region (Tunisia), Turkey and Ukraine.

Countries not providing data to the ERA-EDTA Registry: Andorra, Armenia, Azerbaijan, Germany, Hungary, Ireland, Liechtenstein, Luxembourg, Malta, Moldova, Monaco, San Marino and Slovenia.

Appendix 2

Miscellaneous primary renal diseases: nephropathy (interstitial) due to analgesic drugs, nephropathy (interstitial) due to cis-platinum, nephropathy (interstitial) due to cyclosporin A, lead-induced nephropathy (interstitial), drug-induced nephropathy (interstitial) not mentioned above, cystic kidney disease–type unspecified, polycystic kidneys– infantile (recessive), medullary cystic disease, including nephronophthisis, cystic kidney disease – other specified type, hereditary/familial nephropathy – type unspecified, hereditary nephritis with nerve deafness (Alport's syndrome), cystinosis, primary oxalosis, Fabry's disease, hereditary nephropathy – other specified type, renal hypoplasia (congenital) – type unspecified, oligomeganephronic hypoplasia, congenital renal dysplasia with or without urinary tract malformation, syndrome of agenesis of abdominal muscles (prune belly), renal vascular disease due to polyarteritis, Wegener's granulomatosis, ischemic renal disease/cholesterol embolism, glomerulonephritis related to liver cirrhosis, cryoglobulinemic glomerulonephritis, myelomatosis/light chain deposit disease, amyloid, lupus erythematosus, Henoch–Schönlein purpura, Goodpasture's syndrome, systemic sclerosis (scleroderma), haemolytic–uraemic syndrome (including Moschcowitz syndrome), multisystem disease – other (not mentioned above), tubular necrosis (irreversible) or cortical necrosis, tuberculosis, gout, nephrocalcinosis and hypercalcemic nephropathy, Balkan nephropathy, kidney tumour, traumatic or surgical loss of kidney and other identified renal disorders.