

# **Capacity for the management of kidney failure in the International Society of Nephrology Western Europe region: Report from the 2023 ISN Global Kidney Health Atlas (ISN-GKHA)**

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**Figure S1.** Country-level scorecard on the availability of KRT, CKM, funding for medications, registry, advocacy group, nephrologists and nephrology trainees in the ISN Western Europe region in 2019 and 2023.

**Table S1.** Workforce (specialist physician, doctors, and nurse) prevalences in the ISN Western Europe region\*\*46

	Specialist physician prevalence (per 1000 population)			Medical doctor prevalence (per 1000 population)				Nurse prevalence (per 1000 population)			
	N	Median	[Interquartile range]	N	Median	[Interquartile range]	N	Median	[Interquartile range]		
Overall	161	1.95	[0.42 - 3.00]	159	17.74	[3.81 - 32.77]	159	36.20	[14.40 - 66.61]		
Western Europe	21	3.87	[3.27 - 4.25]	21	42.25	[34.90 - 50.47]	21	117.80	[88.53 - 167.80]		

Data are presented as median (interquartile range).

Abbreviations: ISN, International Society of Nephrology

\*; prevalence shown per 1,000 population

**Table S2.** Healthcare system funding structure for kidney replacement therapy, overall and in the ISN Western Europe region [n (%)].

	Publicly funded by government and free at the point of delivery	Publicly funded by government but with some fees at the point of delivery	A mix of publicly funded (whether or not publicly funded component is free at point of delivery) and private systems	Solely private and out-of-pocket	Solely private through health insurance providers	Multiple systems - programs provided by government, NGOs, and communities	Other	N/A	Total
Overall	74 (45)	32 (19)	38 (23)	7 (4)	2 (1)	9 (5)	3 (2)	1 (1)	166
Western Europe	19 (86)	0 (0)	1 (5)	0 (0)	1 (5)	1 (5)	0 (0)	0 (0)	22

Abbreviations: ISN, International Society of Nephrology; NGOs, non-governmental organizations

**Table S3.** Availability of in-center hemodialysis, home hemodialysis, and peritoneal dialysis in the ISN Western Europe region [n (%)].

	In-center Hemodialysis			Home Hemodialysis			Peritoneal Dialysis overall			Type of Peritoneal Dialysis available			
	No	Yes	Total	No	Yes	Total	No	Yes	Total	Acute PD only	Acute and chronic PD	Chronic PD only	Total
Overall	3 (2)	162 (98)	165	116 (70)	49 (30)	165	35 (21)	130 (79)	165	4 (3)	86 (66)	40 (31)	130
Western Europe	0 (0)	22 (100)	22	4 (18)	18 (82)	22	0 (0)	22 (100)	22	0 (0)	15 (68)	7 (32)	22

Abbreviations: ISN, International Society of Nephrology; PD, peritoneal dialysis

**Table S4.** Availability of choice-restricted conservative kidney management\* in the ISN Western Europe region [n (%)].

	Generally available	Generally not available	N/A (not available)	Unknown	Total
Overall	66 (40)	57 (35)	26 (16)	16 (10)	165
Western Europe	9 (41)	0 (0)	4 (18)	9 (41)	22

Abbreviations: ISN, International Society of Nephrology

\* This means where there are no resource constraints to prevent or limit access to kidney replacement therapy.

**Table S5.** Barriers to optimal kidney care, overall and in the ISN Western Europe region [n (%)].

	Geography (distance from care or prolonged travel time)	Physician (availability, access, knowledge, attitude)	Patient (knowledge, attitude)	Nephrologist (availability)	Healthcare system (availability, access, capability)	Lack of political will and enabling policies	Economic factors (limited funding, poor reimbursement mechanisms)	Other	Total
Overall	98 (59)	118 (71)	125 (75)	112 (67)	102 (61)	88 (53)	99 (59)	4 (2)	167
Western Europe	9 (41)	11 (50)	12 (55)	13 (59)	7 (32)	10 (45)	4 (18)	1 (5)	22

Abbreviations: ISN, International Society of Nephrology

**Table S6.** National health strategies for non-communicable diseases and CKD-specific policies in the ISN Western Europe region [n (%)].

	Non-communicable diseases				National Strategy for improving CKD care					Availability of CKD-specific policies			
	No	Yes, in place	Under development but not yet being implemented	Unknown	Total	No	Yes, a national CKD-specific strategy exists	Yes, but the CKD strategy is incorporated into an NCD strategy that includes other diseases.	Unknown	No	Yes	Unknown	Total
Overall	29 (18)	91 (56)	19 (12)	23 (14)	162	61 (38)	41 (25)	47 (29)	13 (8)	91 (56)	60 (37)	11 (7)	162
Western Europe	3 (14)	14 (64)	1 (5)	4 (18)	22	10 (45)	5 (23)	5 (23)	2 (9)	11 (50)	7 (32)	4 (18)	22

Abbreviations: ISN, International Society of Nephrology; CKD, chronic kidney failure; NCD, non-communicable diseases

**Table S7.** Commonest causes of death among people receiving hemodialysis in the ISN Western Europe region [n (%)].

	Cardiovascular disease (ischemic heart disease, arrhythmia, cerebrovascular disease)	Infection (access-related infection, infected AVF/AVG, catheter-related bacteremia)	Infection (other sources, pneumonia, gangrene of limbs, etc.)	Malignancy	Dialysis withdrawal (due to social reasons)	Dialysis withdrawal (due to cost of care)	Others	Unknown	Total
Overall	123 (77)	17 (11)	1 (1)	0 (0)	0 (0)	6 (4)	1 (1)	11 (7)	159
Western Europe	21 (95)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (5)	22

Abbreviations: ISN, International Society of Nephrology; CKD, chronic kidney failure; AVF, arteriovenous fistula; AVG, arteriovenous graft

**Table S8.** Commonest causes of death among people receiving peritoneal dialysis in the ISN Western Europe region [n (%)].

	Cardiovascular disease (ischemic heart disease, arrhythmia, cerebrovascular disease)	Infection (access-related infection, infected AVF/AVG, catheter-related bacteremia)	Infection (other sources, pneumonia, gangrene of limbs, etc.)	Malignancy	Dialysis withdrawal (due to social reasons)	Dialysis withdrawal (due to cost of care)	Others	Unknown	Total
Overall	85 (66)	19 (15)	4 (3)	0 (0)	1 (1)	3 (2)	1 (1)	15 (12)	128
Western Europe	19 (86)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (14)	22

Abbreviations: ISN, International Society of Nephrology; AVF, arteriovenous fistula; AVG, arteriovenous graft;

**Table S9.** Commonest causes of hospitalization amongst people receiving hemodialysis in the ISN Western Europe region [n (%)].

	Cardiovascular disease (ischemic heart disease, arrhythmia, cerebrovascular disease)	Access malfunction (malfunction AVF/AVG, or blocked central venous catheter)	Access-related infection (infected AVF/AVG, CVC catheter-related bacteremia)	Infection (other sources, pneumonia, gangrene of limbs, etc.)	Others	Unknown	Total
Overall	48 (30)	28 (18)	51 (32)	15 (9)	2 (1)	15 (9)	159
Western Europe	13 (59)	3 (14)	0 (0)	2 (9)	0 (0)	4 (18)	22

Abbreviations: ISN, International Society of Nephrology; AVF, arteriovenous fistula; AVG, arteriovenous graft; CVC, central venous catheter

**Table S10.** Commonest causes of hospitalization amongst people receiving peritoneal dialysis in the ISN Western Europe region [n (%)].

	Cardiovascular disease (ischemic heart disease, arrhythmia, cerebrovascular disease)		Access malfunction (PD catheter block, catheter tip migration)		PD-related infection (peritonitis, exit-site or tunnel tract infection)		Infection (other sources, pneumonia, gangrene of limbs, etc.)		Others	Unknown		Total
Overall	27	(21)	17	(13)	65	(51)	5	(4)	0 (0)	14	(11)	128
Western Europe	7	(32)	3	(14)	5	(23)	3	(14)	0 (0)	4	(18)	22

Abbreviations: ISN, International Society of Nephrology; PD, peritoneal dialysis

**Figure S1:** Country-level scorecard on the availability of KRT, CKM, funding for medications, registry, advocacy group, nephrologists and nephrology trainees in the ISN Western Europe region in 2019 and 2023.

Country		Availability of KRT			Availability of CKM		Funding for Medications			Availability of Distribution of Registry				Advocacy Group			Nephrology Workforce (PMP)	
		HD	PD	KT	Shared decision	Choice restricted (limited)	CKD	Dialysis	KT	CKD	Dialysis	KT	AKI	CKD	AKI	Kidney failure / KRT	Nephrologist	Nephrologist trainees
Andorra	2019																	
	2023																0.00	0.00
Austria	2019																34.12	5.69
	2023																33.66	5.61
Belgium	2019																	
	2023																21.10	4.22
Denmark	2019																25.82	4.48
	2023																25.33	4.05
Finland	2019																14.45	1.81
	2023																19.64	8.93
France	2019																20.04	5.05
	2023																17.57	5.86
Germany	2019																18.64	3.73
	2023																27.01	0.59
Greece	2019																55.75	7.43
	2023																36.07	9.49
Iceland	2019																29.11	
	2023																30.76	0.00
Ireland	2019																9.47	5.92
	2023																11.75	9.48
Israel	2019																29.67	2.37
	2023																24.68	3.93
Italy	2019																48.20	8.03
	2023																	49.10
Liechtenstein	2019																51.88	0.00
	2023																100.73	0.00
Luxembourg	2019																21.46	
	2023																12.30	6.15
Malta	2019																13.36	22.27
	2023																	17.23
Netherlands	2019																17.49	2.33
	2023																15.17	2.30
Norway	2019																27.92	18.61
	2023																27.37	9.00
Portugal	2019																27.52	9.66
	2023																34.17	14.65
Spain	2019																20.27	7.30
	2023																53.01	10.60
Sweden	2019																22.91	8.96
	2023																23.85	6.68
Switzerland	2019																30.15	5.12
	2023																41.13	5.88
United Kingdom	2019																9.78	6.14
	2023																12.13	6.15

Abbreviations: ISN, International Society of Nephrology; KRT, kidney replacement therapy; CKM, conservative kidney management; CKD, chronic kidney disease; AKI, acute kidney injury; KF, kidney failure; KT, kidney transplantation; pmp: per million population

Funding for medications refers to 100% publicly funded by the government (free at the point of delivery).

Yes					
No	Nephrologist prevalence	<1.2 PMP	1.2–10.0 PMP	10.1–22.9 PMP	>22.9 PMP
N/A	Nephrology trainees prevalence	<0.3 PMP	0.3–1.4 PMP	1.5–3.7 PMP	>3.7 PMP