

THE GLOBAL KIDNEY HEALTH ATLAS

<Congress title>

Date

www.theisn.org/global-atlas

Overview



- Aim
- Methods
- Key Results
- Implications

Aim of the Global Kidney Health Atlas



To understand, compare and monitor how different countries around the world detect, treat, monitor and advocate for people with kidney disease (AKI or CKD)

Key focus on availability, accessibility, affordability and quality of ESKD care

Global Kidney Health Atlas survey



Design and scope

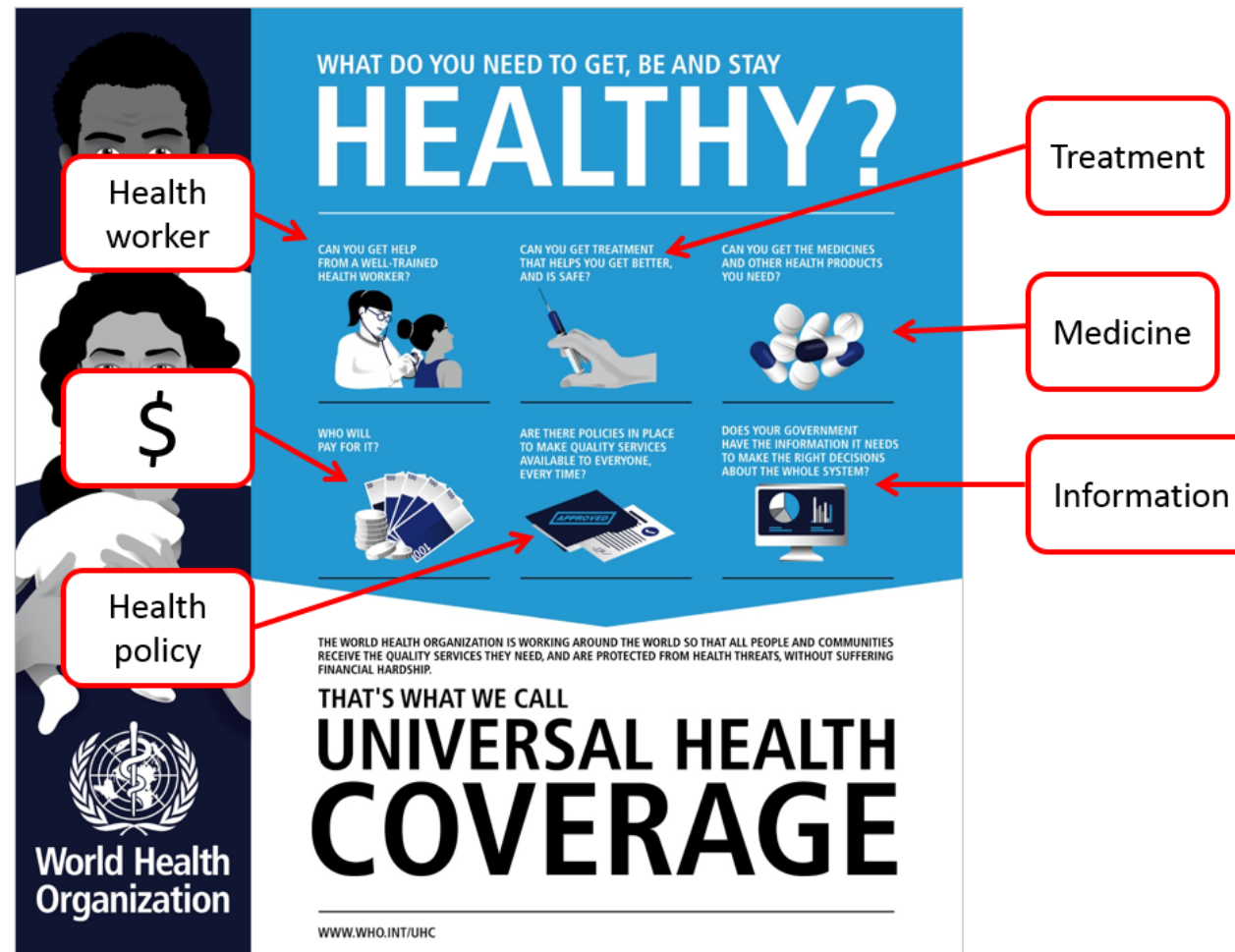
Desk research (across countries and regions)

- Published and grey literature review
- Systematic review ESKD burden and outcomes
- Data extraction from major renal registries (USRDS, ERA-EDTA) and relevant national registries where available
- Scoping review of KRT cost estimates

Online questionnaire-based survey July – September 2018

- 3 languages (English, French, Spanish)
- Across 182 countries
- ≥3 stakeholders per country
 - National nephrology society leadership
 - Healthcare policymakers
 - Patients / patient advocacy groups
- Discrepancies resolved by follow-up conferences with regional and country nephrology leaders

Overall survey components



Overall GKHA response

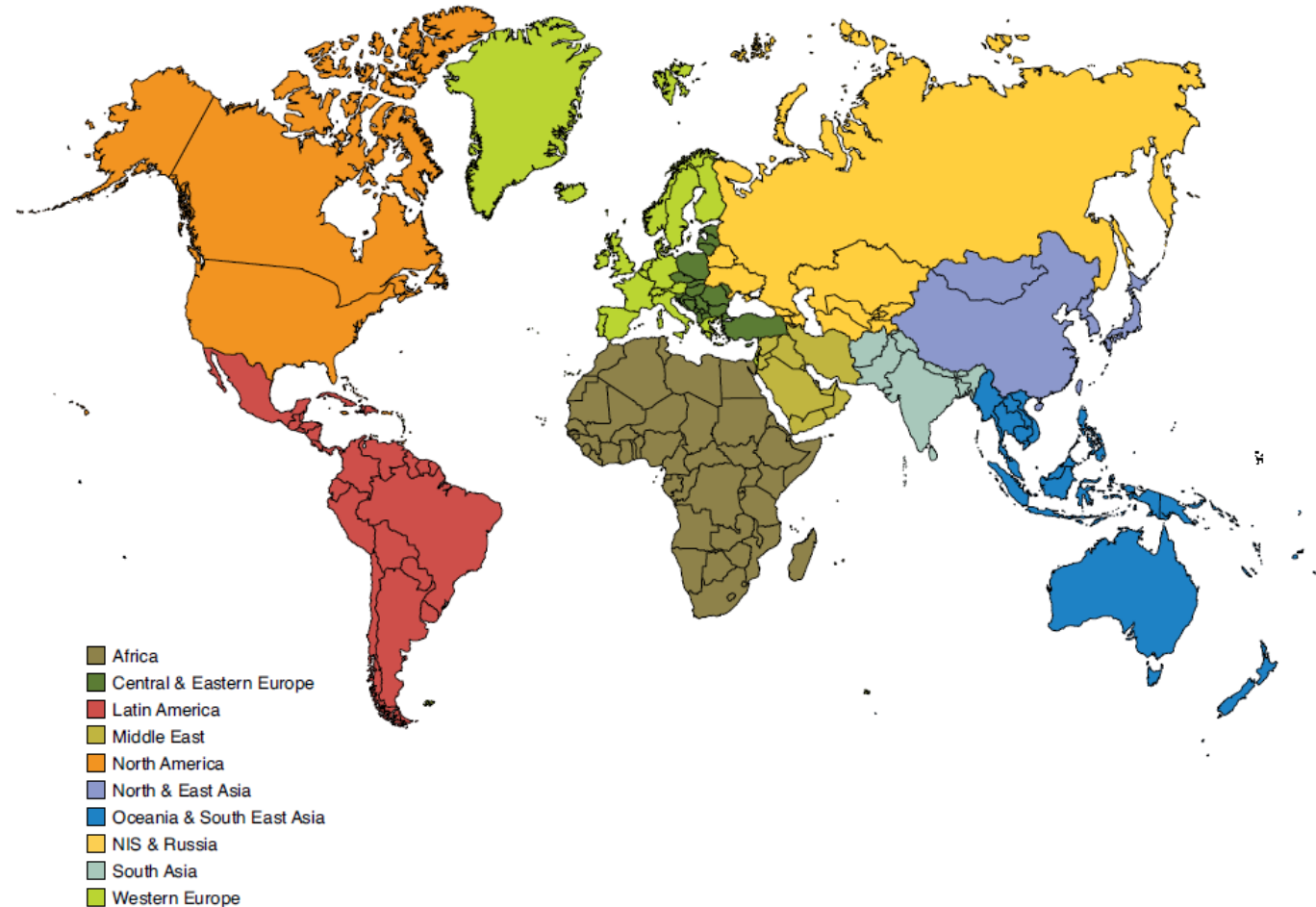
■ Participated in survey ■ Did not participate in survey



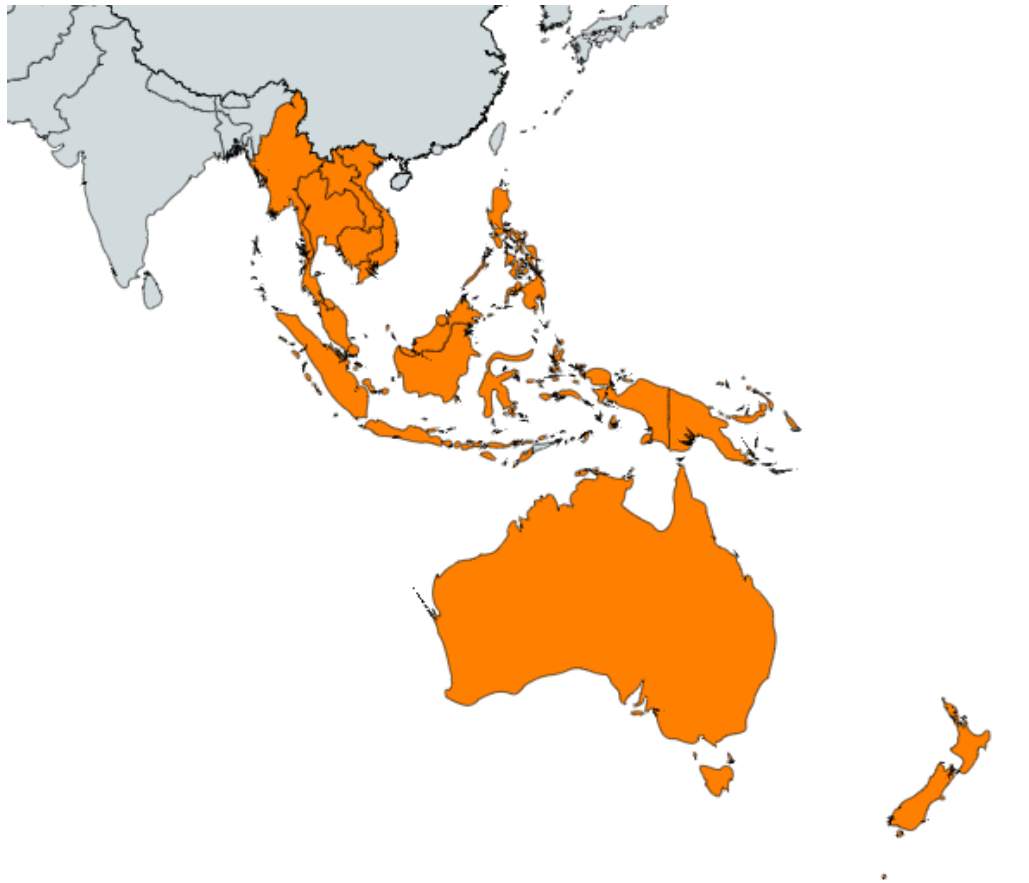
160 countries (88%)
99% world's population
317 individuals (69%) response
3 respondents/country (IQR 2-4)

113 countries participated
in both GKHA surveys

Results presented by ISN regions



ISN Region: Oceania & South East Asia



Demographics

Country	World bank ranking	Area (sq km)	Total population (2018)	GDP (PPP) (\$ billion)	Total health expenditures (% of GDP)
American Samoa	Upper middle income	224	50,826	0.658	-
Australia	High income	7,741,220	23,470,145	1248	9.3
Brunei Darussalam	High income	5,756	450,565	33.87	2.3
Cambodia	Lower middle income	181,035	16,449,519	64.21	6.1
Fiji	Upper middle income	18,274	926,276	8.629	3.6
French Polynesia	High income	4,167	290,373	5.49	-
Guam	High income	544	167,772	5.793	-
Indonesia	Lower middle income	1,904,569	262,787,403	3250	3.3
Kiribati	Lower middle income	811	109,367	0.227	11.9
Lao PDR	Lower middle income	236,800	7,234,171	49.34	2.8
Malaysia	Upper middle income	329,847	31,809,660	933.3	4.0
Marshall Islands	Upper middle income	181	75,684	0.196	23.3
Micronesia	Lower middle income	702	103,643	0.348	12.6
Myanmar	Lower middle income	676,578	55,622,506	329.8	5.1
Nauru	Upper middle income	21	9,692	0.160	11.1
New Caledonia	High income	18,575	282,754	11.11	-
New Zealand	High income	268,838	4,545,627	189	9.3
Northern Mariana Islands	High income	464	51,994	1.242	-
Palau	High income	459	21,516	0.264	11.7
Papua New Guinea	Lower middle income	462,840	7,027,332	30.19	2.0
Philippines	Lower middle income	300,000	105,893,381	877.2	4.4
Samoa	Upper middle income	2,831	201,316	1.137	5.6
Singapore	High income	697	5,995,991	528.1	4.3
Solomon Islands	Lower middle income	28,896	660,121	1.33	5.2
Thailand	Upper middle income	513,120	68,615,858	1236	3.8
Timor-Leste	Lower middle income	14,874	1,321,929	7.426	4.0
Tonga	Upper middle income	747	106,398	0.591	5.3
Tuvalu	Upper middle income	26	11,147	0.042	15.5
Vanuatu	Lower middle income	12,189	288,037	0.772	3.7
Vietnam	Lower middle income	331,210	97,040,334	648.7	5.7



‘ - ’ : data not reported/unavailable

CKD and its risk factors burden

Country	CKD Prevalence % (95% CI)	Death attributed to CKD % (95% CI)	DALYS attributed to CKD % (95% CI)	Obesity % (95% CI)	Increased BP % (95% CI)	Smoking % (95% CI)
American Samoa	11.89 (10.97 - 12.84)	7.17 (6.47 - 7.64)	4.52 (3.97 - 5)	-	-	19.8 (16.7 - 23.4)
Australia	11.15 (10.35 - 12.08)	2.61 (2.48 - 2.74)	1.26 (1.14 - 1.38)	30.4 (26.5 - 34.4)	15.2 (11.5 - 19.4)	14.6 (13.6 - 15.6)
Brunei Darussalam	10.26 (9.36 - 11.23)	3.75 (3.48 - 4.03)	2.45 (2.18 - 2.71)	14.7 (11.0 - 18.9)	18.9 (13.5 - 25.2)	12.7 (11.3 - 14.2)
Cambodia	8.0 (7.39 - 8.66)	1.8 (1.66 - 1.96)	1.26 (1.13 - 1.4)	3.5 (2.3 - 5.1)	26.1 (19.6 - 33.0)	15.4 (13.7 - 17.1)
Fiji	13.64 (12.56 - 14.8)	3.83 (3.53 - 4.14)	2.7 (2.44 - 2.96)	30.0 (24.4 - 35.9)	21.7 (15.6 - 28.7)	11.1 (9.5 - 12.9)
French Polynesia	-	-	-	-	-	-
Guam	13.41 (12.41 - 14.49)	4.78 (4.28 - 5.13)	3.22 (2.83 - 3.56)	-	-	18.4 (15.9 - 21.0)
Indonesia	10.84 (9.99 - 11.71)	2.16 (2.07 - 2.33)	1.71 (1.57 - 1.83)	6.9 (5.1 - 9.1)	23.8 (18.5 - 29.5)	25.6 (23.6 - 27.8)
Kiribati	9.93 (9.15 - 10.78)	2.73 (2.24 - 3.04)	1.94 (1.6 - 2.2)	45.6 (39.4 - 51.6)	21.5 (15.8 - 28.2)	33.9 (30.0 - 37.9)
Lao PDR	8.54 (7.9 - 9.22)	2.3 (1.99 - 2.54)	1.51 (1.29 - 1.72)	4.5 (3.0 - 6.4)	24.8 (18.8 - 31.1)	25.1 (21.6 - 29.2)
Malaysia	11.08 (10.12 - 12.1)	2.86 (2.65 - 3.1)	1.85 (1.67 - 2.06)	15.3 (12.3 - 18.7)	22.9 (17.9 - 28.7)	17.2 (15.2 - 19.2)
Marshall Islands	9.67 (8.88 - 10.47)	4.7 (3.99 - 5.33)	3.3 (2.79 - 3.83)	52.4 (46.2 - 58.6)	21.3 (15.2 - 28.1)	-
Micronesia	10.70 (9.88 - 11.62)	5.18 (4.25 - 5.9)	3.49 (2.71 - 4.12)	41.6 (35.5 - 47.6)	25.0 (18.9 - 32.0)	13.0 (10.7 - 15.6)
Myanmar	10.23 (9.45 - 11.03)	2.93 (2.69 - 3.3)	2.07 (1.84 - 2.32)	5.7 (4.0 - 7.8)	24.6 (18.5 - 31.1)	15.0 (13.3 - 17.0)
Nauru	-	-	-	60.7 (55.0 - 66.3)	-	-
New Caledonia	-	-	-	-	-	-
New Zealand	10.95 (10.15 - 11.87)	2.37 (2.26 - 2.48)	1.27 (1.14 - 1.4)	32.0 (28.4 - 35.6)	16.2 (12.3 - 20.8)	15.3 (14.4 - 16.2)
Northern Mariana Islands	14.69 (13.47 - 16.05)	6.86 (6.27 - 7.36)	4.16 (3.61 - 4.67)	-	-	39.7 (34.3 - 45.6)
Palau	-	-	-	54.9 (48.8 - 60.7)	22.9 (16.8 - 30.0)	-
Papua New Guinea	8.23 (7.54 - 8.94)	2.31 (1.97 - 2.62)	1.7 (1.44 - 1.95)	19.4 (14.0 - 25.3)	25.6 (18.4 - 33.5)	26.1 (22.8 - 29.7)
Philippines	9.31 (8.6 - 10.02)	5.11 (4.84 - 5.37)	3.31 (2.97 - 3.65)	6.0 (4.3 - 8.1)	22.6 (17.4 - 28.1)	20.1 (17.5 - 23.0)
Samoa	9.94 (9.19 - 10.69)	5.21 (4.56 - 5.75)	3.07 (2.63 - 3.51)	45.5 (39.8 - 51.5)	24.0 (17.9 - 30.8)	21.5 (18.5 - 24.7)
Singapore	12.43 (11.49 - 13.46)	3 (2.85 - 3.15)	1.81 (1.6 - 2.01)	6.6 (4.6 - 9.0)	14.6 (10.8 - 19.0)	12.4 (11.1 - 13.7)
Solomon Islands	8.63 (7.96 - 9.41)	3.61 (3.33 - 3.92)	2.71 (2.35 - 3.05)	20.5 (15.8 - 25.7)	22.0 (15.7 - 29.0)	17.9 (15.0 - 20.8)
Thailand	13.9 (12.75 - 15.13)	4.69 (4.15 - 5.02)	2.74 (2.45 - 3.02)	10.8 (8.0 - 14.0)	22.3 (16.9 - 28.3)	17.9 (15.8 - 20.3)
Timor-Leste	7.47 (6.94 - 8.07)	2.05 (1.72 - 2.34)	1.26 (0.97 - 1.46)	2.9 (1.9 - 4.4)	27.6 (21.4 - 34.4)	24.1 (21.6 - 26.8)
Tonga	11.81 (10.91 - 12.75)	5.48 (4.56 - 6.12)	3.45 (2.93 - 3.93)	45.9 (39.7 - 51.9)	23.7 (17.5 - 30.6)	22.3 (20.0 - 24.7)
Tuvalu	-	-	-	51.0 (44.4 - 57.3)	23.7 (17.6 - 31.2)	-
Vanuatu	9.03 (8.36 - 9.80)	2.99 (2.54 - 3.43)	2.04 (1.74 - 2.33)	23.5 (18.2 - 29.1)	24.2 (17.3 - 31.5)	15.8 (13.8 - 17.9)
Vietnam	10.72 (9.93 - 11.59)	2.87 (2.63 - 3.12)	1.89 (1.7 - 2.09)	2.1 (1.4 - 3.1)	23.4 (18.0 - 29.4)	18.8 (16.8 - 20.9)

Abbreviations:

CKD (Chronic Kidney Disease),
DALYS (disability-adjusted life years),
BP (blood pressure),
CI (confidence interval)

Data sources:

GBD study database
(<http://www.healthdata.org/gbd>),
WHO data observatory
(<https://www.who.int/gho/en/>)

‘ - ’: data not reported/unavailable

Burden of ESKD

Prevalence of treated ESKD



■ <433.0 pmp
 ■ 433.0–759.0 pmp
 ■ 759.1–1048.0 pmp
 ■ >1048.0 pmp
 ■ Data not reported

Treated ESKD: all dialysis + transplant

* pmp (per million population)

Data sources: Abu-Aisha & Elamin (Peritoneal Dialysis International) 2010, Jain et al. (JASN) 2012, Liyanage et al. (The Lancet) 2015, 2017/2018 USRDS Annual Data Report
 '–': data not reported/unavailable

Country	Treated ESKD		Chronic dialysis (HD+PD)		Chronic Hemodialysis		Chronic Peritoneal dialysis	
	Incidence	Prevalence	Incidence	Prevalence	Incidence	Prevalence	Incidence	Prevalence
American Samoa	-	-	-	-	-	-	-	-
Australia	124	1026	119	536	111.6	425.5	45.6	101.1
Brunei Darussalam	393	1673	-	1235	-	1064.6	-	170.4
Cambodia	-	-	-	-	-	-	-	-
Fiji	-	-	-	-	-	-	-	-
French Polynesia	-	-	-	-	-	-	-	-
Guam	-	-	-	-	-	-	-	-
Indonesia	135	323	-	320	-	-	-	3.3
Kiribati	-	-	-	-	-	-	-	-
Lao PDR	-	-	-	-	-	-	-	-
Malaysia	259	1352	245.7	1295	185	970	25	95
Marshall Islands	-	-	-	-	-	-	-	-
Micronesia	-	-	-	-	-	-	-	-
Myanmar	-	-	-	-	-	-	-	0
Nauru	-	-	-	-	-	-	-	-
New Caledonia	-	-	-	-	-	-	-	-
New Zealand	127	985	119	583	109.52	410.61	69.47	175.37
Northern Mariana Islands	-	-	-	-	-	-	-	-
Palau	-	-	-	-	-	-	-	-
Papua New Guinea	-	-	-	-	-	-	-	-
Philippines	172	319	-	314	-	69.2	-	10.1
Samoa	-	-	-	-	-	-	-	-
Singapore	333	2076	209.4	1248.6	-	681.9	-	158.3
Solomon Islands	-	-	-	-	-	-	-	-
Thailand	346	1515	308.57	1192.5	168.01	823.5	140.56	369
Timor-Leste	-	-	-	-	-	-	-	-
Tonga	-	-	-	-	-	-	-	-
Tuvalu	-	-	-	-	-	-	-	-
Vanuatu	-	-	-	-	-	-	-	-
Vietnam	-	-	-	53.2	-	41.7	-	11.5

Burden of ESKD (cont'd)

Prevalence of treated ESKD



■ <5.2 pmp
 ■ 5.2–13.5 pmp
 ■ 13.6–37.8 pmp
 ■ >37.8 pmp
 ■ Data not reported

* pmp (per million population)

Data sources: GODT database

(<http://www.transplant-observatory.org/data-charts-and-tables/>)

‘ – ’: data not reported/unavailable

Country	Kidney transplantation				
	Incidence overall	Prevalence overall	Incidence of deceased donor	Incidence of living donor	Incidence of pre-emptive
American Samoa	-	-	-	-	-
Australia	46.0	490	34.0	11.1	4.5
Brunei Darussalam	-	-	-	-	-
Cambodia	-	-	-	-	-
Fiji	-	-	-	-	-
French Polynesia	-	-	-	-	-
Guam	-	-	-	-	-
Indonesia	2.0	-	0	2.0	-
Kiribati	-	-	-	-	-
Lao PDR	-	-	-	-	-
Malaysia	2.5	58	0.8	1.7	-
Marshall Islands	-	-	-	-	-
Micronesia	-	-	-	-	-
Myanmar	0.04	-	0	0.04	-
Nauru	-	-	-	-	-
New Caledonia	-	-	-	-	-
New Zealand	37.0	402	25.1	14.7	5
Northern Mariana Islands	-	-	-	-	-
Palau	-	-	-	-	-
Papua New Guinea	-	-	-	-	-
Philippines	4.7	5	0.4	4.3	-
Samoa	-	-	-	-	-
Singapore	12.6	278.2	7.0	5.6	-
Solomon Islands	-	-	-	-	-
Thailand	9.4	114.1	6.1	3.2	-
Timor-Leste	-	-	-	-	-
Tonga	-	-	-	-	-
Tuvalu	-	-	-	-	-
Vanuatu	-	-	-	-	-
Vietnam	2.9	-	0.1	2.8	-

Annual cost of kidney replacement therapy components



Country	Hemodialysis	Peritoneal dialysis	Kidney Transplant (First year)	Kidney Transplant (later years)	HD/PD cost ratio
American Samoa	-	-	-	-	-
Australia	57,183	49,099	34,894	10,269	1.16
Brunei Darussalam	20,205	23,464	-	-	0.86
Cambodia	8,760	-	-	-	-
Fiji	-	-	-	-	-
French Polynesia	-	-	-	-	-
Guam	-	-	-	-	-
Indonesia	10,140	8,134	19,743	2,956	1.25
Kiribati	-	-	-	-	-
Lao PDR	-	-	-	-	-
Malaysia	10,386	9,977	20,396	5,385	1.04
Marshall Islands	-	-	-	-	-
Micronesia	-	-	-	-	-
Myanmar	7,169	14,339	4,302	-	0.50
Nauru	-	-	-	-	-
New Caledonia	-	-	-	-	-
New Zealand	41,390	28,788	38,642	19,117	1.44
Northern Mariana Islands	-	-	-	-	-
Palau	-	-	-	-	-
Papua New Guinea	-	-	-	-	-
Philippines	-	-	-	-	-
Samoa	-	-	-	-	-
Singapore	28,532	15,547	43,901	16,479	1.84
Solomon Islands	-	-	-	-	-
Thailand	24,996	23,267	8,603	5,736	1.07
Timor-Leste	-	-	-	-	-
Tonga	-	-	-	-	-
Tuvalu	-	-	-	-	-
Vanuatu	-	-	-	-	-
Vietnam	28,559	16,479	4,575	-	1.73

*Cost is in \$US 2016

Abbreviations:

HD (hemodialysis),

PD (peritoneal dialysis)

Data sources:

Agar et al. (2005), Ashton & Marshall (2007), Bavanandan et al. (2015), Hooi et al. (2005), Howard et al. (2009), Khoe et al. (2017), Komenda et al. (2012), Li & Chow (2001), Lim et al. (1999), Morad et al. (2005), Naidas et al. (1998), Neil et al. (2009), Prodjosudjadi (2006), Tan et al. (2005), Teerawattanon et al. (2007), Van Bui (2008), van der Tol et al. (2019), Visith Sitprija (2003), Yang et al. (2016)

‘ - ’ : data not reported/unavailable

Survey response



- 15 of 30 countries in OSEA (50%) responded to the 2018 survey
- This represents 95% of the region's population

Country level scorecard

Countries	Availability of KRT and CKM				Funding for Medications		Availability and Distribution of Registry				Advocacy Group			Nephrology Workforce (PMP)	
	Chronic hemodialysis	Chronic peritoneal dialysis	Kidney transplantation	CKM	Dialysis medications	Transplant medications	CKD	Dialysis	Transplantation	AKI	CKD	AKI	ESKD/RRT	Nephrologists	Nephrologist trainees
Oceania & South East Asia															
Australia	2017													20.88	4.83
	2019													21.30	4.96
Brunei Darussalam	2017														
	2019													28.85	11.10
Cambodia	2017													1.27	0.13
	2019													0.91	0.30
Fiji	2017													1.10	1.10
	2019													1.08	1.08
Indonesia	2017													0.43	0.08
	2019													0.49	0.23
Lao PDR	2017													0.43	0.29
	2019													11.34	
Malaysia	2017													4.92	0.69
	2019													5.66	1.10
Myanmar	2017													0.37	0.24
	2019													0.49	0.31
New Caledonia	2017														
	2019													40.67	0.00
New Zealand	2017													11.27	3.27
	2019													15.40	4.51
Philippines	2017													5.45	0.79
	2019													5.67	0.85
Nephrologists density		<1.2 PMP				1.2–10.0 PMP				10.1–22.9 PMP				>22.9 PMP	
Nephrology trainees density		<0.3 PMP				0.3–1.4 PMP				1.5–3.7 PMP				>3.7 PMP	

Yes

No

N/A

Abbreviations

KRT: kidney replacement therapy
CKM: conservative kidney management
CKD: chronic kidney disease
AKI: acute kidney injury
ESKD: end stage kidney disease
RRT: renal replacement therapy

Country level scorecard (cont'd)

Countries	Availability of KRT and CKM				Funding for Medications		Availability and Distribution of Registry				Advocacy Group			Nephrology Workforce (PMP)	
	Chronic hemodialysis	Chronic peritoneal dialysis	Kidney transplantation	CKM	Dialysis medications	Transplant medications	CKD	Dialysis	Transplantation	AKI	CKD	AKI	ESKD/RRT	Nephrologists	Nephrologist trainees
Oceania & South East Asia															
Samoa	2017													0.00	5.06
	2019													4.97	0.00
Singapore	2017													9.69	2.64
	2019													16.59	3.50
Thailand	2017													8.80	0.59
	2019													11.66	1.31
Vietnam	2017													6.36	1.59
	2019													3.09	0.52
Nephrologists density		<1.2 PMP		1.2–10.0 PMP		10.1–22.9 PMP		>22.9 PMP							
Nephrology trainees density		<0.3 PMP		0.3–1.4 PMP		1.5–3.7 PMP		>3.7 PMP							

Yes

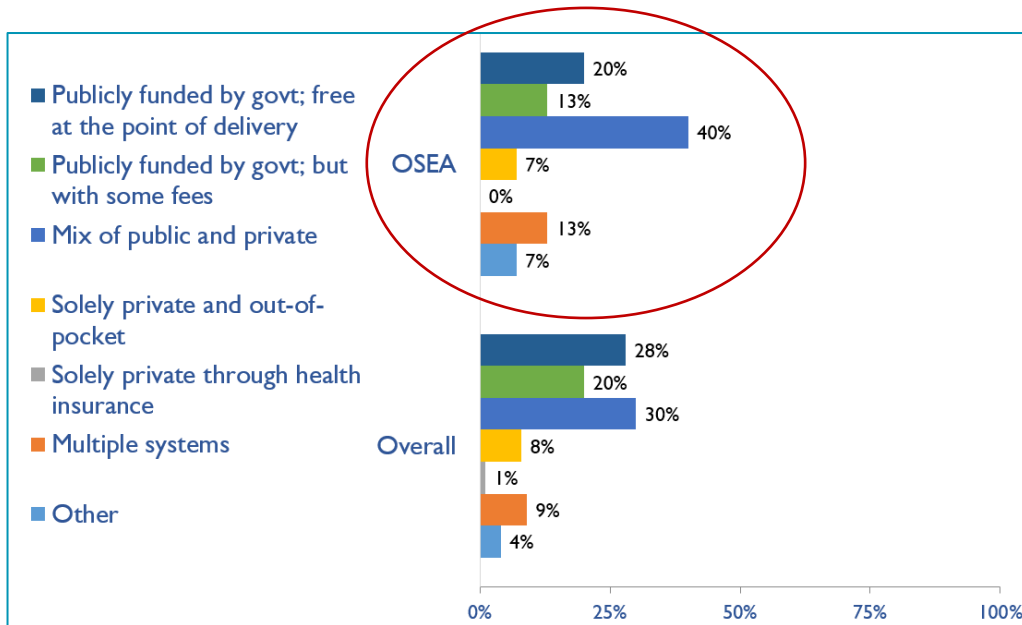
No

N/A

Abbreviations

KRT: kidney replacement therapy
CKM: conservative kidney management
CKD: chronic kidney disease
AKI: acute kidney injury
ESKD: end stage kidney disease
RRT: renal replacement therapy

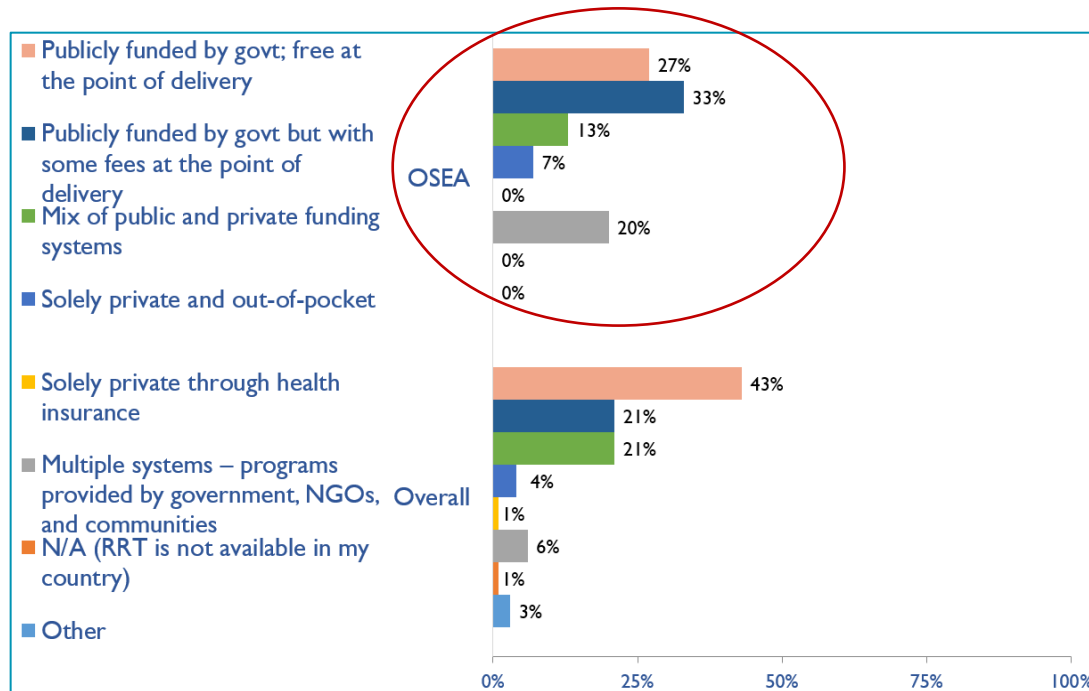
Funding for non-dialysis CKD



Country	Publicly funded by govt; free at the point of delivery	Publicly funded by govt but with some fees	Mix of public and private	Solely private and out-of-pocket	Solely private through health insurance	Multiple systems	Other
Australia	X						
Brunei Darussalam	X						
Cambodia				X			
Fiji						X	
Indonesia		X					
Lao PDR						X	
Malaysia			X				
Myanmar			X				
New Caledonia	X						
New Zealand		X					
Philippines							X
Samoa			X				
Singapore			X				
Thailand			X				
Vietnam			X				

X : Yes

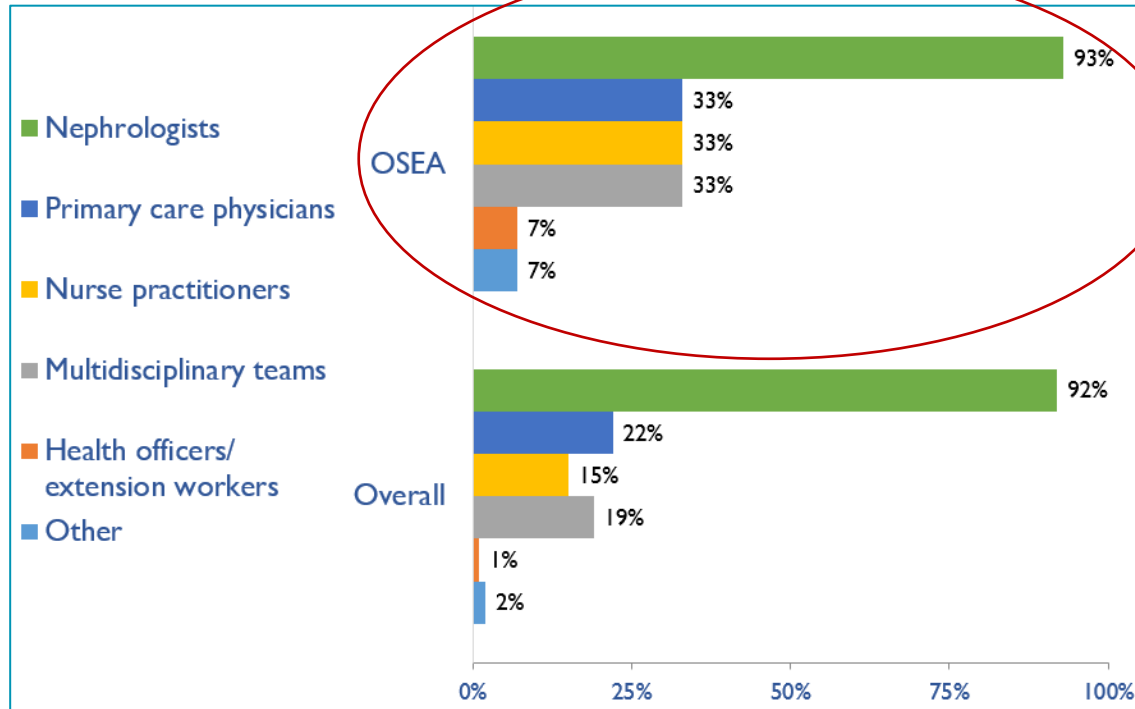
Funding for kidney replacement therapy (KRT)



Country	Publicly funded by govt; free at the point of delivery	Publicly funded by govt but with some fees at the point of delivery	Mix of public and private funding systems	Solely private and out-of-pocket	Solely private through health insurance	Multiple systems	N/A (RRT is not available in my country)	Other
Australia	X							
Brunei Darussalam	X							
Cambodia				X				
Fiji			X					
Indonesia		X						
Lao PDR						X		
Malaysia			X					
Myanmar						X		
New Caledonia	X							
New Zealand	X							
Philippines		X						
Samoa		X						
Singapore						X		
Thailand		X						
Vietnam		X						

X : Yes

Providers primarily responsible for ESKD care



Country	Nephrologists	Primary care physicians	Nurse practitioners or specialized nurses	Multidisciplinary teams	Health officers/extension workers	Other
Australia	X					
Brunei Darussalam	X		X			
Cambodia	X	X	X			
Fiji	X					X
Indonesia	X	X				
Lao PDR					X	
Malaysia	X					
Myanmar	X	X				
New Caledonia	X					
New Zealand	X		X	X		
Philippines	X		X	X		
Samoa	X	X		X		
Singapore	X					
Thailand	X		X	X		
Vietnam	X	X		X		

X : Yes

Shortage of ESKD care providers

Country	Nephrologists	Transplant surgeons	Surgeons (HD access)	Surgeons (PD access)	Interventional radiologists (HD access)	Interventional radiologists (PD access)	Laboratory technicians	Dietitians	Radiologists (ultrasound)	Vascular access coordinators	Counsellors/psychologists	Transplant coordinators	Dialysis nurses	Dialysis technicians
Australia														
Brunei Darussalam														
Cambodia														
Fiji														
Indonesia														
Lao PDR														
Malaysia														
Myanmar														
New Caledonia														
New Zealand														
Philippines														
Samoa														
Singapore														
Thailand														
Vietnam														

No shortage

Shortage

Prevalence of nephrologists and trainees

Nephrologists



■ <1.2 pmp
 ■ 1.2–10.0 pmp
 ■ 10.1–22.9 pmp
 ■ >22.9 pmp
 ■ Data not reported

Nephrology trainees



■ <0.3 pmp
 ■ 0.3–1.4 pmp
 ■ 1.5–3.7 pmp
 ■ >3.7 pmp
 ■ Data not reported

Country	Nephrologists PMP	Nephrology trainees PMP
Australia	21.3	4.96
Brunei Darussalam	28.85	11.10
Cambodia	0.91	0.3
Fiji	1.08	1.08
Indonesia	0.49	0.23
Lao PDR	-	11.34
Malaysia	5.66	1.1
Myanmar	0.49	0.31
New Caledonia	40.67	0
New Zealand	15.4	4.51
Philippines	5.67	0.85
Samoa	4.97	0
Singapore	16.59	3.5
Thailand	11.66	1.31
Vietnam	3.09	0.52

'-': data not reported/unavailable

Capacity for chronic dialysis (HD)

Chronic HD centers



■ <1.2 pmp ■ 1.2–4.5 pmp ■ 4.6–9.9 pmp ■ >9.9 pmp ■ Data not reported

- Chronic HD services are available in all countries of the region
- The OSEA average of HD treatment centers is 5.67 pmp

Country	Chronic HD Centres (PMP)
Australia	4.26
Brunei Darussalam	14.43
Cambodia	0.61
Fiji	6.48
Indonesia	2.5
Lao PDR	1.24
Malaysia	23.58
Myanmar	1.49
New Caledonia	47.74
New Zealand	2.42
Philippines	5.67
Samoa	9.93
Singapore	19.43
Thailand	10.74
Vietnam	1.34

‘ – ’ : data not reported/unavailable

Capacity for chronic dialysis (PD)

Chronic PD centers



□ Chronic PD not provided □ <0.4 pmp □ 0.4–1.3 pmp □ 1.4–2.5 pmp □ >2.5 pmp □ Data not reported

- Chronic HD services are available in all countries of the region
- The OSEA average of HD treatment centers is 5.67 pmp

Country	Chronic PD Centres (PMP)
Australia	4.26
Brunei Darussalam	3.33
Cambodia	-
Fiji	2.16
Indonesia	0.17
Lao PDR	-
Malaysia	1.41
Myanmar	0.07
New Caledonia	26.52
New Zealand	2.42
Philippines	-
Samoa	-
Singapore	0.92
Thailand	3.21
Vietnam	0.57

‘ – ’ : data not reported/unavailable

Capacity for kidney transplantation

Kidney transplantation centers



■ <1.2 pmp
 ■ 1.2–4.5 pmp
 ■ 4.6–9.9 pmp
 ■ >9.9 pmp
 ■ Data not reported

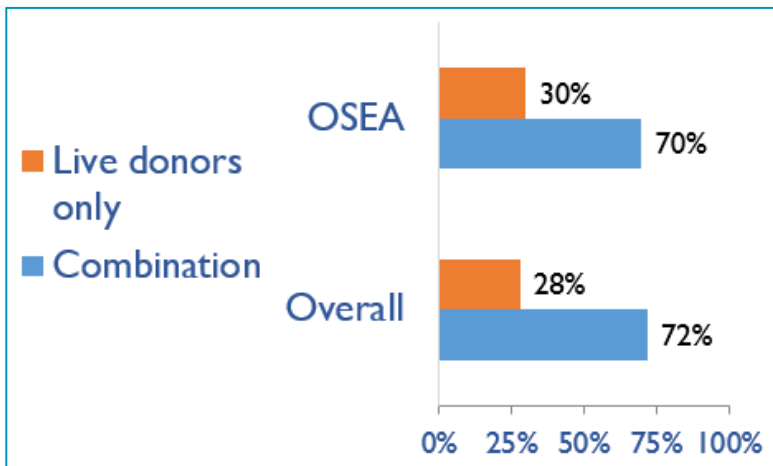
- Kidney transplantation services are available in 10 (67%) countries of the region
- The OSEA average of Kidney transplantation centers is 0.36 pmp

Country	Kidney Transplantation Availability	Transplant Centers (PMP)
Australia	X	0.85
Brunei Darussalam	X	2.22
Cambodia		-
Fiji		-
Indonesia	X	0.02
Lao PDR		-
Malaysia	X	0.13
Myanmar	X	0.08
New Caledonia		-
New Zealand	X	0.66
Philippines	X	0.3
Samoa		-
Singapore	X	0.42
Thailand	X	0.41
Vietnam	X	0.16

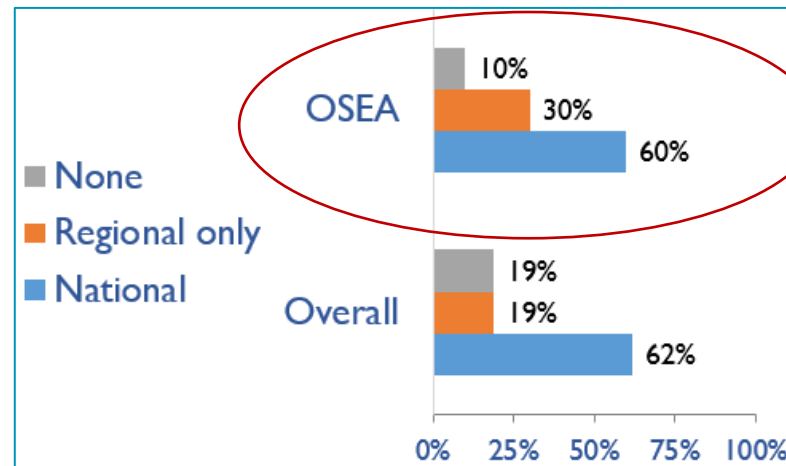
X : Yes

Capacity for kidney transplantation (cont'd)

Transplant donor type



Transplant waitlist

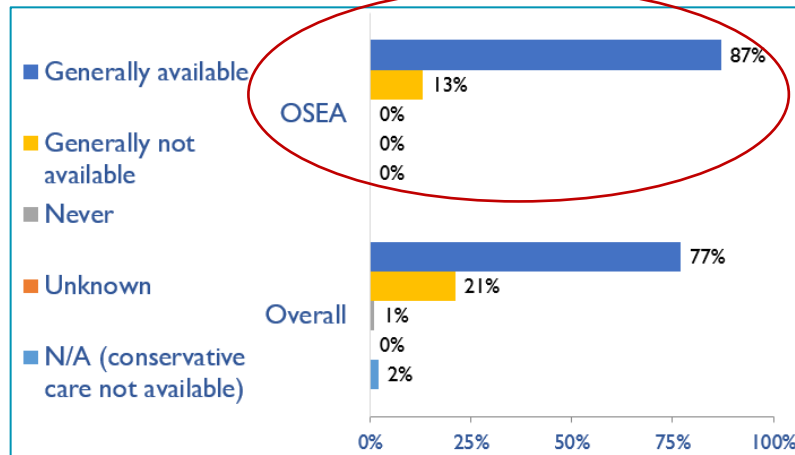


Country	Donor Type		Transplant waitlist		
	Live donors only	Combination	National	Regional only	None
Australia		X	X		
Brunei Darussalam	X		X		
Cambodia					
Fiji					
Indonesia	X			X	
Lao PDR					
Malaysia		X	X		
Myanmar	X			X	
New Caledonia					
New Zealand		X	X		
Philippines		X			X
Samoa					
Singapore		X	X		
Thailand		X	X		
Vietnam		X		X	

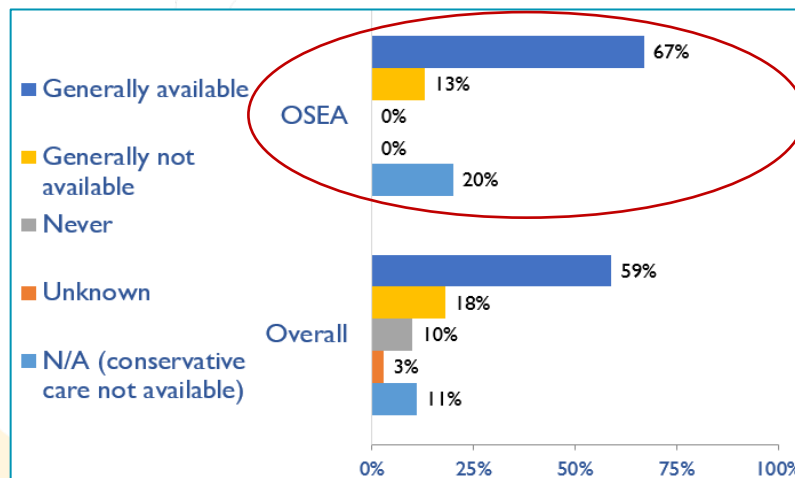
X : Yes

Availability of services within dialysis care

HD frequency



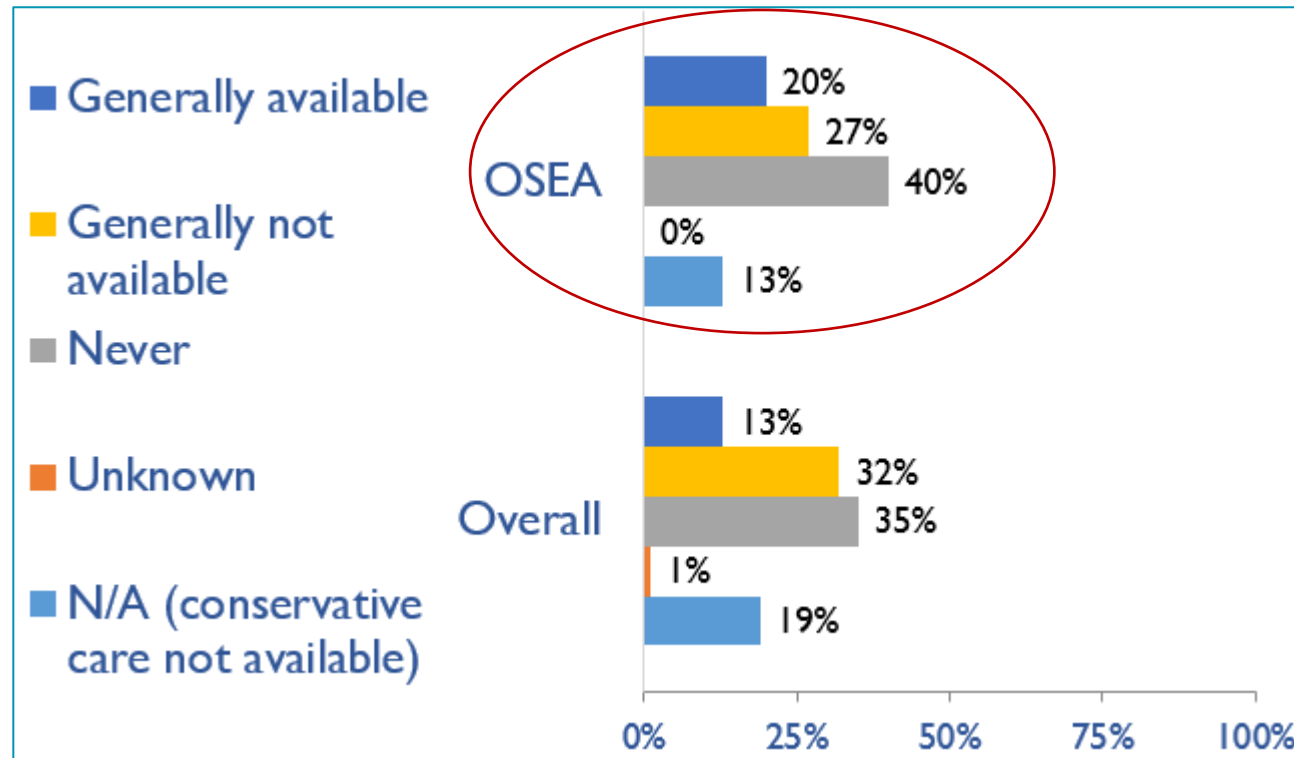
PD frequency



Country	HD frequency a center-based service that involves treatment 3x week/3-4x hours					PD frequency ability to do adequate exchanges 3-4x day (or equivalent cycles on automated PD)				
	Generally available	Generally not available	Never	Unknown	N/A (dialysis not provided)	Generally available	Generally not available	Never	Unknown	N/A (dialysis not provided)
Australia	X					X				
Brunei Darussalam	X					X				
Cambodia		X								X
Fiji	X					X				
Indonesia	X					X				
Lao PDR	X									X
Malaysia	X					X				
Myanmar		X					X			
New Caledonia	X					X				
New Zealand	X					X				
Philippines	X						X			
Samoa	X									X
Singapore	X					X				
Thailand	X					X				
Vietnam	X					X				

X : Yes

Availability of home hemodialysis

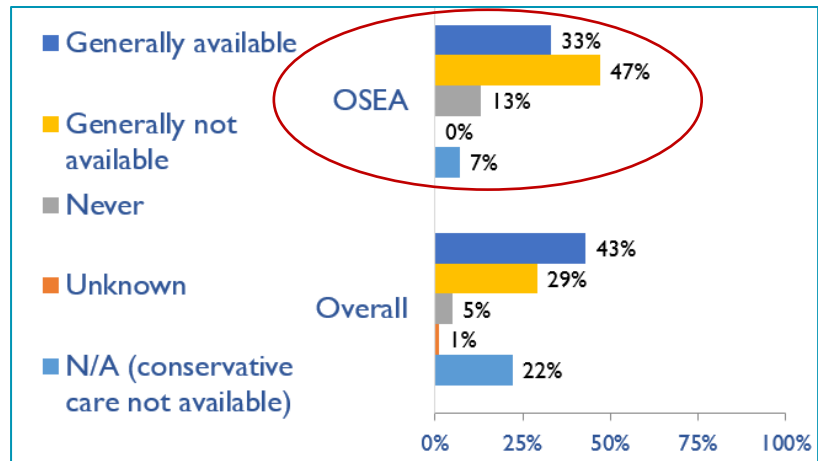


Country	Availability of Home hemodialysis				
	Generally available	Generally not available	Never	Unknown	N/A (dialysis not provided)
Australia	X				
Brunei Darussalam			X		
Cambodia			X		
Fiji			X		
Indonesia			X		
Lao PDR					X
Malaysia		X			
Myanmar		X			
New Caledonia	X				
New Zealand	X				
Philippines		X			
Samoa			X		
Singapore		X			
Thailand					X
Vietnam			X		

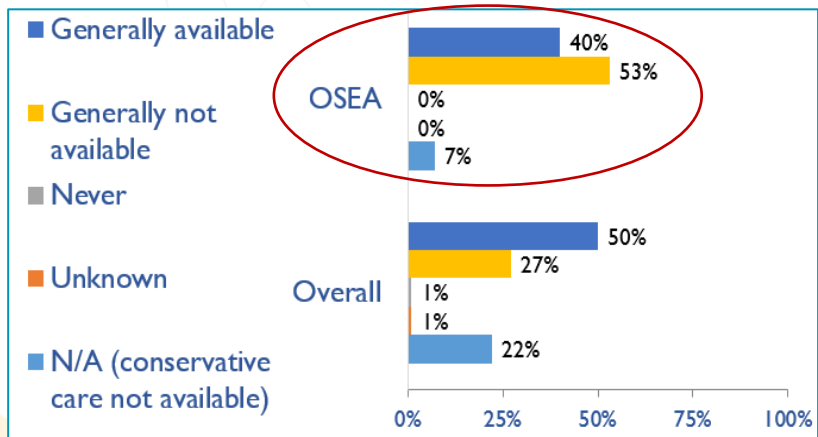
X : Yes

Capacity for conservative kidney management (CKM)

Choice-restricted CKM



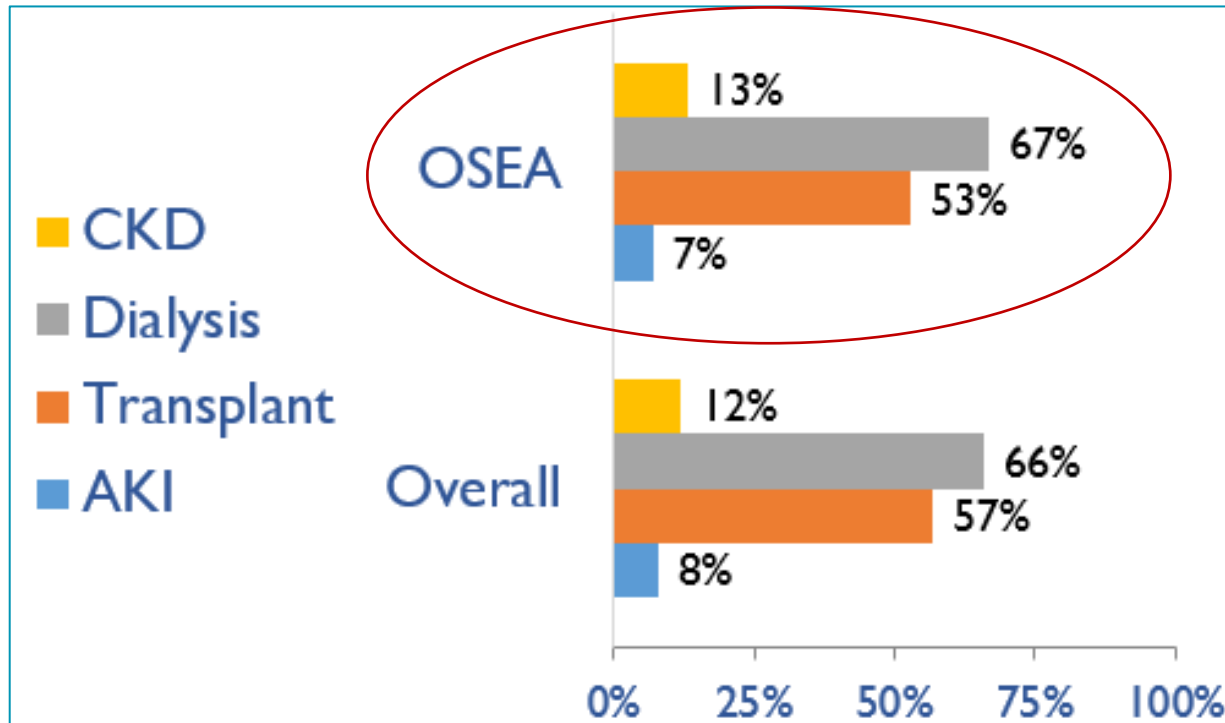
Chosen or medically advised CKM



Country	Established choice-restricted conservative care					Established conservative care that is chosen or medically advised				
	Generally available	Generally not available	Never	Unknown	N/A (conservative care not available)	Generally available	Generally not available	Never	Unknown	N/A (conservative care not available)
Australia	X					X				
Brunei Darussalam		X					X			
Cambodia					X					X
Fiji		X					X			
Indonesia	X						X			
Lao PDR			X			X				
Malaysia		X					X			
Myanmar	X						X			
New Caledonia			X			X				
New Zealand		X				X				
Philippines		X					X			
Samoa		X					X			
Singapore	X					X				
Thailand	X					X				
Vietnam		X					X			

X : Yes

Availability of official registry



Country	Official Registry			
	CKD	Dialysis	Transplant	AKI
Australia		X	X	
Brunei Darussalam	X	X	X	
Cambodia				
Fiji				
Indonesia		X		
Lao PDR	X	X		X
Malaysia		X	X	
Myanmar				
New Caledonia		X	X	
New Zealand		X	X	
Philippines		X	X	
Samoa				
Singapore		X	X	
Thailand		X	X	
Vietnam				

X : Yes

Summary of 2019 GKHA findings



- KRT availability, access, and quality is high
- Conservative kidney management is available, not often chosen or medically-advised
- Government funding for kidney care is low
- Moderate use of registries, low for AKI and CKD
- Many workforce limitations, especially nephrologists
- Little advocacy for kidney disease in OSEA

Implications



To access the Atlas report:



www.theisn.org/global-atlas