

THE GLOBAL KIDNEY HEALTH ATLAS



<Congress title>

Date

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

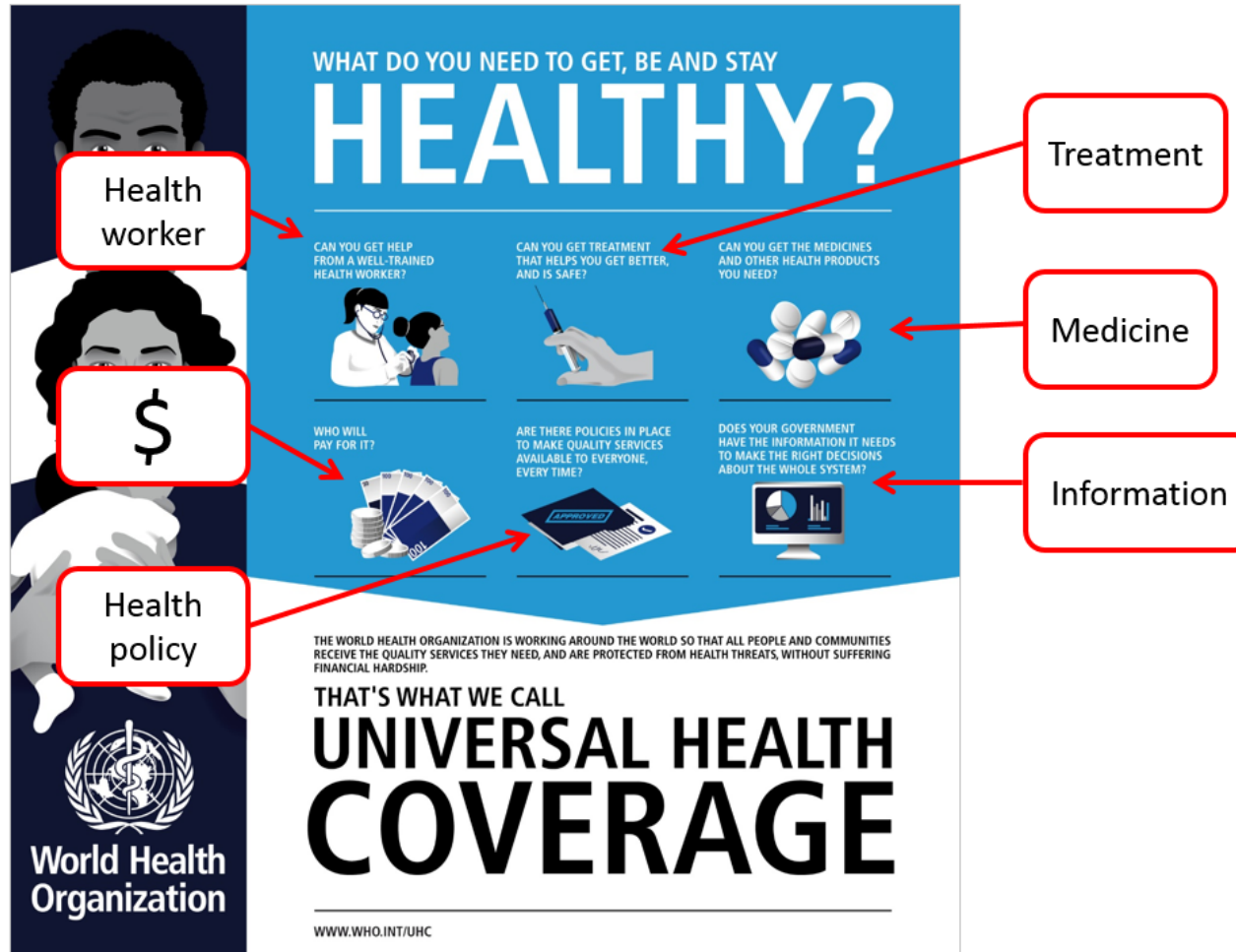
Desk research (across countries and regions)

- 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



WHAT DO YOU NEED TO GET, BE AND STAY HEALTHY?

Health worker → CAN YOU GET HELP FROM A WELL-TRAINED HEALTH WORKER?

Treatment → CAN YOU GET TREATMENT THAT HELPS YOU GET BETTER, AND IS SAFE?

Medicine → CAN YOU GET THE MEDICINES AND OTHER HEALTH PRODUCTS YOU NEED?

\$ → WHO WILL PAY FOR IT?

Health policy → ARE THERE POLICIES IN PLACE TO MAKE QUALITY SERVICES AVAILABLE TO EVERYONE, EVERY TIME?

Information → DOES YOUR GOVERNMENT HAVE THE INFORMATION IT NEEDS TO MAKE THE RIGHT DECISIONS ABOUT THE WHOLE SYSTEM?

THE WORLD HEALTH ORGANIZATION IS WORKING AROUND THE WORLD SO THAT ALL PEOPLE AND COMMUNITIES RECEIVE THE QUALITY SERVICES THEY NEED, AND ARE PROTECTED FROM HEALTH THREATS, WITHOUT SUFFERING FINANCIAL HARDSHIP.

THAT'S WHAT WE CALL
UNIVERSAL HEALTH COVERAGE

WWW.WHO.INT/UHC

Overall GKHA response

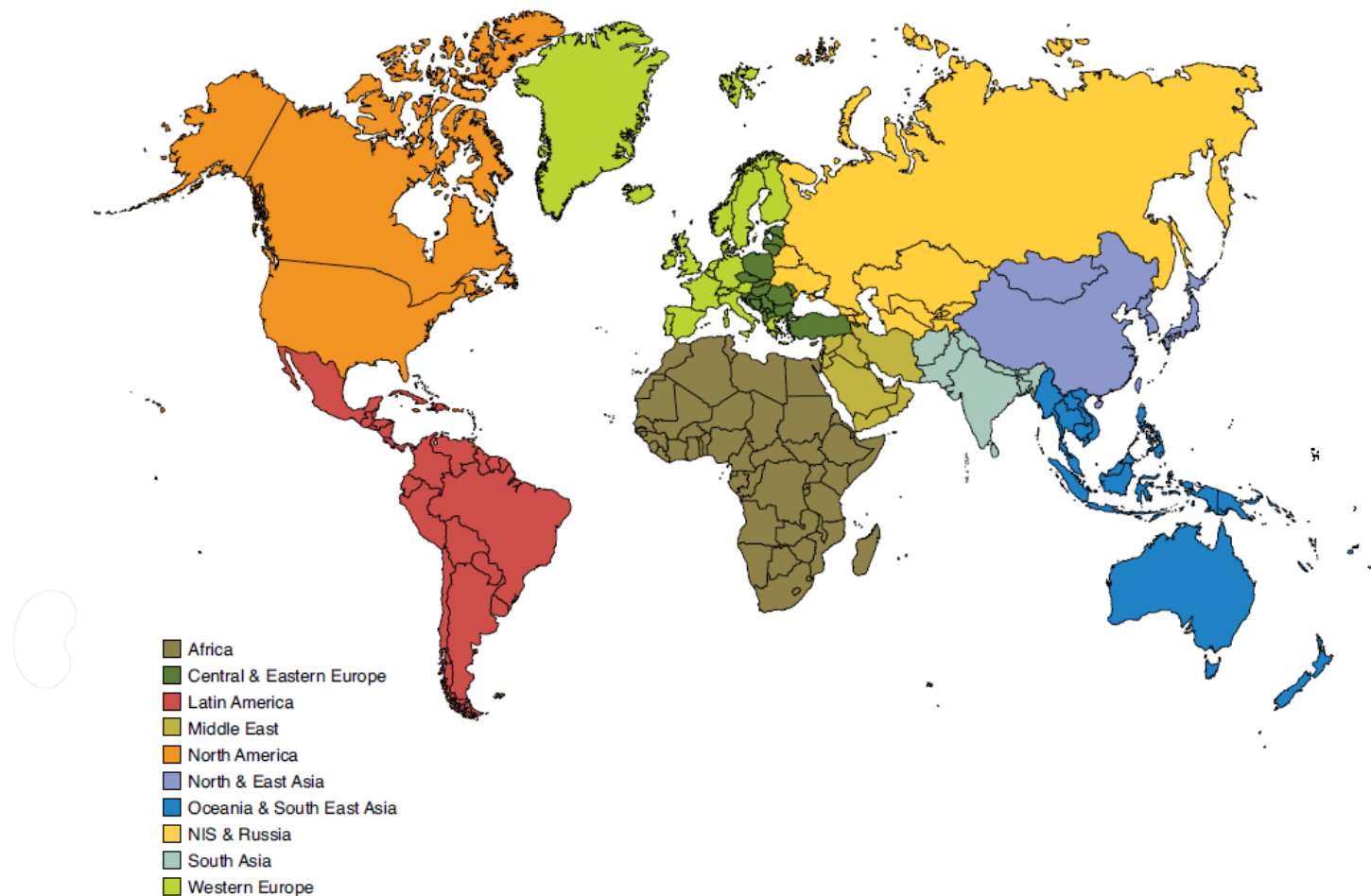
■ Participated in survey ■ Did not participate in survey



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: Middle East



Demographics

Country	World bank ranking	Area (sq km)	Total population (2018)	GDP (PPP) (\$ billion)	Total health expenditures (% of GDP)
Bahrain	High income	760	1,442,659	71.17	4.9
Iran, Islamic Rep.	Upper middle income	1,648,195	83,024,745	1640	7.6
Iraq	Upper middle income	438,317	40,194,216	649.3	5.5
Jordan	Upper middle income	89,342	10,458,413	89	6.9
Kuwait	High income	17,818	2,916,467	289.7	4
Lebanon	Upper middle income	10,400	6,100,075	88.25	7.4
Oman	High income	309,500	3,494,116	190.1	3.8
Qatar	High income	11,586	2,363,569	339.5	3.1
Saudi Arabia	High income	2,149,690	33,091,113	1775	5.8
Syrian Arab Republic	Low income	185,180	19,454,263	50.28	3.3
United Arab Emirates	High income	83,600	9,701,315	696	3.5
West Bank and Gaza	Lower middle income	6,220	4,635,207	21.22	-
Yemen	Low income	527,968	28,667,230	73.63	6.0

‘ - ’ : 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)
Bahrain	9.28 (8.4 - 10.12)	4 (3.59 - 4.32)	1.88 (1.64 - 2.13)	28.7 (23.5 - 34.2)	21.4 (15.7 - 27.8)
Iran, Islamic Rep.	10.57 (9.78 - 11.48)	2.67 (2.47 - 2.78)	1.5 (1.38 - 1.63)	25.5 (22.2 - 28.9)	19.7 (15.2 - 24.6)
Iraq	7.38 (6.85 - 7.99)	3.09 (2.82 - 3.31)	1.55 (1.41 - 1.69)	27.4 (22.7 - 32.4)	25.2 (19.1 - 31.6)
Jordan	7.37 (6.84 - 7.99)	4.66 (4.22 - 5.05)	2 (1.76 - 2.24)	33.4 (29.0 - 37.9)	21.0 (15.8 - 26.9)
Kuwait	8.39 (7.74 - 9.12)	2.29 (2.1 - 2.6)	1.27 (1.12 - 1.43)	37.0 (32.2 - 42.0)	23.6 (17.9 - 30.0)
Lebanon	8.31 (7.7 - 9.07)	1.77 (1.59 - 1.99)	1.14 (1.02 - 1.27)	31.3 (26.2 - 36.6)	20.7 (15.4 - 26.8)
Oman	7.42 (6.82 - 8.07)	2.26 (1.84 - 2.5)	1.29 (1.14 - 1.45)	22.9 (18.3 - 27.9)	24.8 (18.9 - 31.5)
Qatar	7.13 (6.46 - 7.79)	3.07 (2.6 - 3.33)	1.3 (1.13 - 1.48)	33.9 (27.7 - 40.5)	22.4 (16.1 - 29.8)
Saudi Arabia	7.2 (6.64 - 7.82)	4.04 (3.31 - 4.46)	2.02 (1.73 - 2.28)	35.0 (30.5 - 39.5)	23.3 (18.0 - 29.2)
Syrian Arab Republic	8.02 (7.34 - 8.73)	1.97 (1.8 - 2.36)	1.16 (1.05 - 1.29)	25.8 (20.7 - 31.3)	24.5 (18.7 - 30.8)
United Arab Emirates	7.67 (6.94 - 8.42)	3.14 (2.69 - 3.55)	1.8 (1.54 - 2.08)	29.9 (24.0 - 36.0)	21.1 (15.2 - 28.0)
West Bank and Gaza	-	-	-	-	-
Yemen	5.24 (4.85 - 5.71)	1.19 (1.08 - 1.35)	0.75 (0.68 - 0.84)	14.1 (10.8 - 17.8)	30.7 (23.3 - 38.7)

Abbreviations:

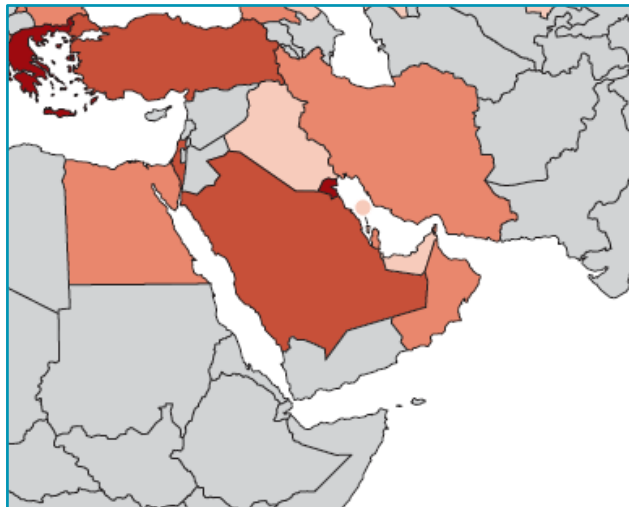
CKD (Chronic Kidney Disease),
DALYS (disability-adjusted life years),
BP (blood pressure),
CI (confidence interval)

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

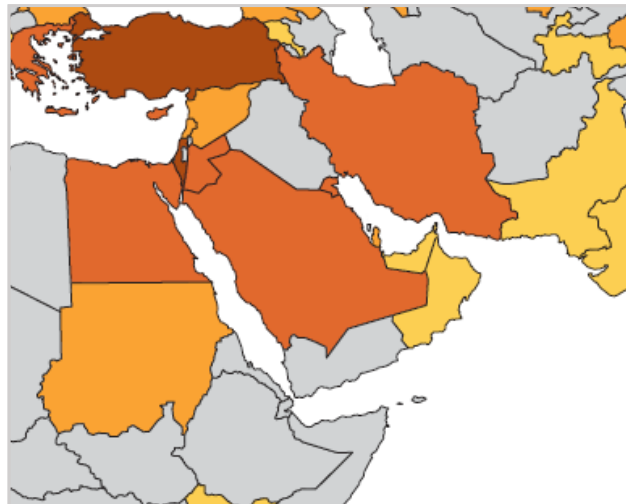
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Country	Treated ESKD		Chronic dialysis (HD+PD)		Chronic Hemodialysis		Chronic Peritoneal dialysis	
	Incidence	Prevalence	Incidence	Prevalence	Incidence	Prevalence	Incidence	Prevalence
Bahrain	207.5	339.7	-	250.2	-	-	-	-
Iran, Islamic Rep.	81	654	-	343	-	211.4	-	17.6
Iraq	-	251	-	145	-	-	-	-
Jordan	-	-	-	446.3	-	428.9	-	17.4
Kuwait	141	787	-	424	-	263.3	-	41.3
Lebanon	-	-	-	694	-	668.5	-	25.5
Oman	120	670	-	358	-	250	-	10.9
Qatar	123	618	-	341	-	296.4	-	104.5
Saudi Arabia	145	826	-	557	-	409.5	-	35
Syrian Arab Republic	-	-	-	155.1	-	149.1	-	6
United Arab Emirates	-	152	-	201.4	-	184.1	-	17.3
West Bank and Gaza	-	-	-	-	-	-	-	-
Yemen	-	-	-	108.4	-	99.1	-	9.3



Burden of ESKD (cont'd)

Incidence of kidney transplantation



■ <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
Bahrain	-	52.7	-	-	-
Iran, Islamic Rep.	30.96	311	17.49	13.48	-
Iraq	-	106	-	-	-
Jordan	25.19	-	0	25.19	-
Kuwait	21.71	363	7.07	14.63	-
Lebanon	12.88	-	1.02	11.86	-
Oman	2.22	279	0	2.22	-
Qatar	11.74	277	2.61	9.13	-
Saudi Arabia	27.99	269	4.41	23.59	-
Syrian Arab Republic	12.73	-	0	12.73	-
United Arab Emirates	3.04	-	0	3.04	-
West Bank and Gaza	-	-	-	-	-
Yemen	-	-	-	-	-

Annual cost of kidney replacement therapy components

Country	Hemodialysis	Peritoneal dialysis	Kidney Transplant (First year)	Kidney Transplant (later years)	HD/PD cost ratio
Bahrain	41,535	-	18,361	7,345	-
Iran, Islamic Rep.	13,619	13,026	11,129	-	1.05
Iraq	-	-	-	-	-
Jordan	15,860	9,855	26,839	14,058	1.61
Kuwait	-	-	-	-	-
Lebanon	19,489	20,075	-	-	0.97
Oman	-	-	-	-	-
Qatar	-	-	-	-	-
Saudi Arabia	50,739	42,444	113,935	15,272	1.20
Syrian Arab Republic	-	-	-	-	-
United Arab Emirates	41,535	-	18,361	7,345	-
West Bank and Gaza	17,259	-	17,465	3,176	-
Yemen	-	-	-	-	-

*Cost is in \$US 2016

Abbreviations:

HD (hemodialysis),

PD (peritoneal dialysis)

Data sources: Al Arrayed et al. (2000), Ali et al. (2008), Al-Jedai et al. (2012), Al Saran & Sabry (2012), Al-Shdaifat et al. (2013), Batiha et al. (2007), Mahdawi-Mazdeh et al. (2008), Najafi et al. (2010), Nourbala et al.(2007), Rizk et al. (2016), van der Tol et al. (2019), Younis et al. (2015)

‘ - ’ : data not reported/unavailable

Survey response

- 11 of 13 countries in Middle East (85%) responded to the 2018 survey
- This represents 87% 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
Middle East															
Bahrain	2017	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	5.94	13.37
	2019	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes		
Iran	2017	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	3.91	0.26
	2019	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	4.97	0.35
Iraq	2017	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	1.03	0.32
	2019	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	2.49	1.00
Jordan	2017	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	10.22	2.71
	2019	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	8.08	1.82
Kuwait	2017	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	10.76	19.72
	2019	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	10.29	24.00
Lebanon	2017	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	22.64	1.62
	2019	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	28.28	2.05
Oman	2017	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	30.42	1.22
	2019	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	20.03	2.86
Qatar	2017	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	11.39	2.73
	2019	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	15.87	2.12
Saudi Arabia	2017	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	17.66	1.80
	2019	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	8.46	15.94
Syria	2017	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	4.69	1.17
	2019	Yes	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	5.14	1.03
United Arab Emirates	2017	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	8.65	0.87
	2019	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	6.70	0.72

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)

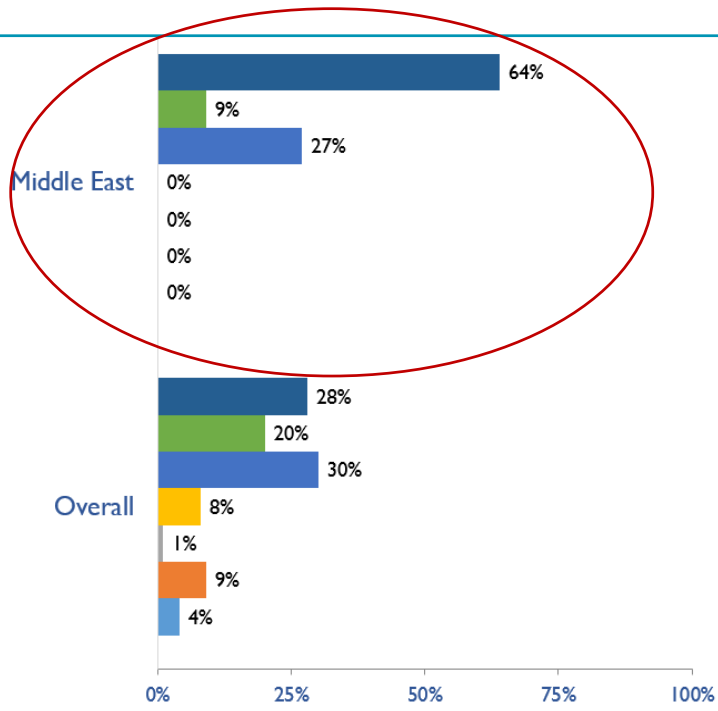
Countries	Availability of KRT and CKM				Funding for Medications		Availability and Distribution of Registry				Advocacy Group			Nephrology Workforce (PMP)	
	Chronic hemodialysis	Chronic peritoneal dialysis	Kidney transplantation	CKM	Dialysis medications	Transplant medications	CKD	Dialysis	Transplantation	AKI	CKD	AKI	ESKD/RRT	Nephrologists	Nephrologist trainees
Middle East															
West Bank & Gaza	2017	Yes	No	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	No	2.15	0.00
	2019	Yes	No	Yes	No	Yes	No	No	No	No	No	No	Yes	3.04	0.00
Yemen	2017	Yes	No	Yes	No	No	No	Yes	Yes	No	Yes	No	No	0.22	1.87
	2019	No	No	No	No	No	No	No	No	No	No	No	No		
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

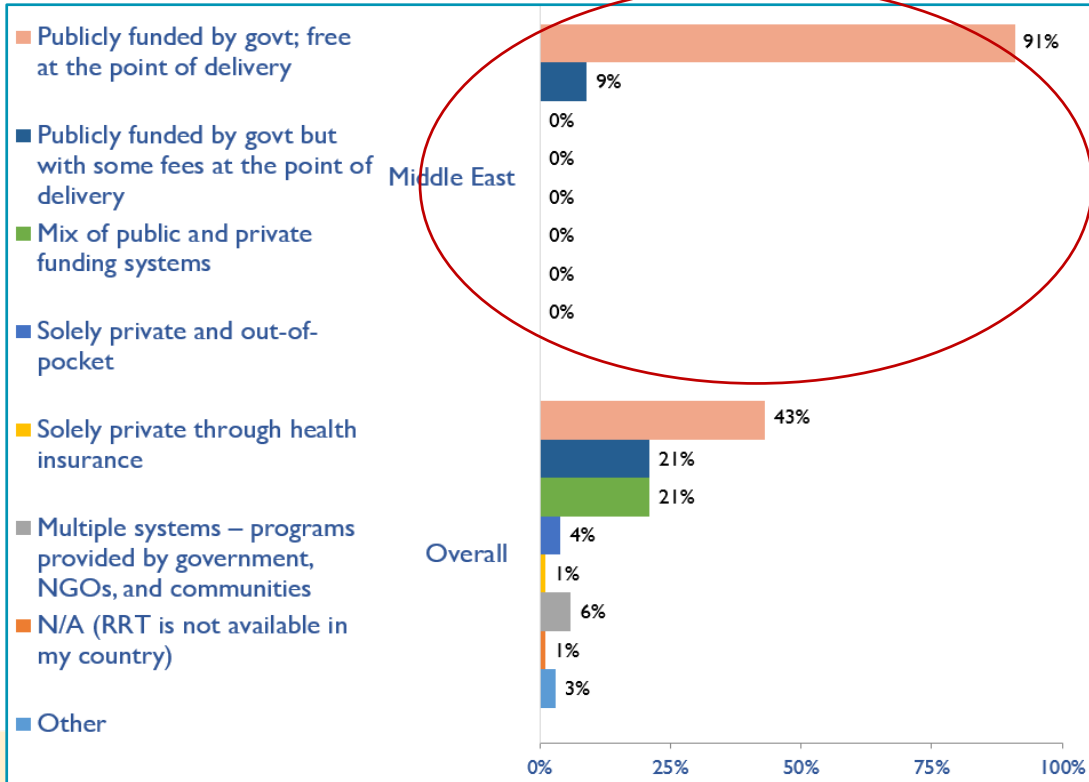
Funding for non-dialysis CKD



Country	Publicly funded by govt; free at the point of delivery	Publicly funded by govt but with some fees 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	Other
Iran, Islamic Rep.	X						
Iraq	X						
Jordan			X				
Kuwait	X						
Lebanon			X				
Oman	X						
Qatar		X					
Saudi Arabia			X				
Syrian Arab Republic	X						
United Arab Emirates	X						
West Bank and Gaza	X						

X : Yes

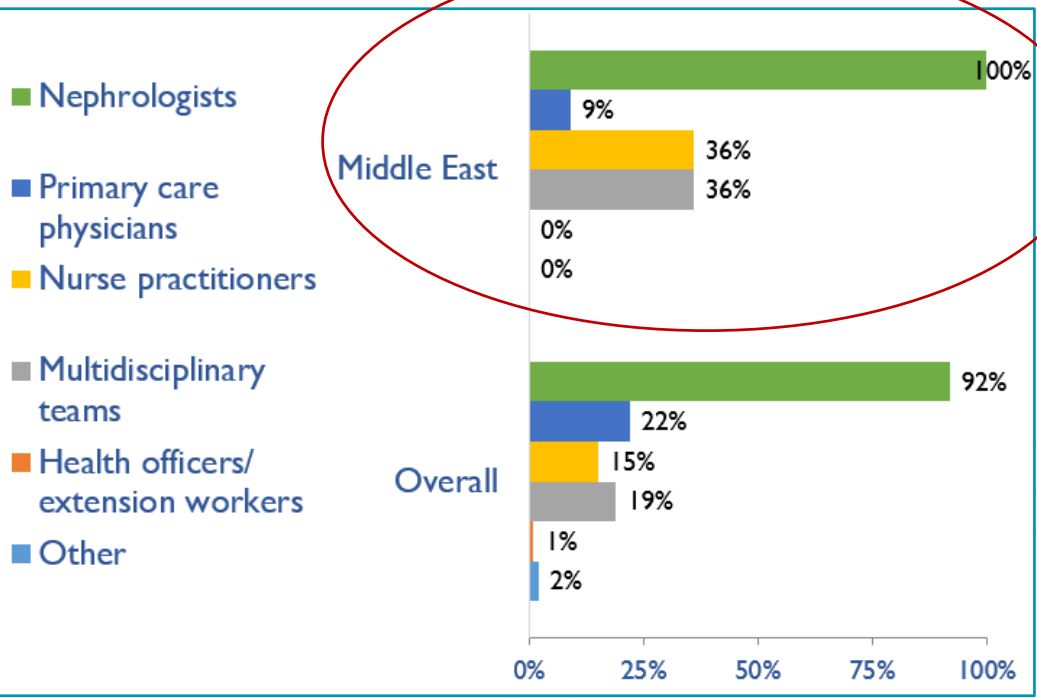
Funding for kidney replacement therapy (KRT)



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
Iran, Islamic Rep.	X							
Iraq	X							
Jordan	X							
Kuwait	X							
Lebanon	X							
Oman	X							
Qatar		X						
Saudi Arabia	X							
Syrian Arab Republic	X							
United Arab Emirates	X							
West Bank and Gaza	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
Iran, Islamic Rep.	X		X			
Iraq	X					
Jordan	X					
Kuwait	X		X			
Lebanon	X			X		
Oman	X	X	X	X		
Qatar	X		X	X		
Saudi Arabia	X					
Syrian Arab Republic	X					
United Arab Emirates	X			X		
West Bank and Gaza	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
Iran, Islamic Rep.	Shortage	No shortage	No shortage	Shortage	Shortage	Shortage	Shortage	No shortage	No shortage	Shortage	Shortage	Shortage	Shortage	No shortage
Iraq	Shortage	No shortage	No shortage	No shortage	No shortage	No shortage	No shortage	No shortage	No shortage	No shortage	No shortage	No shortage	No shortage	No shortage
Jordan	No shortage	Shortage	No shortage	No shortage	Shortage	Shortage	Shortage	No shortage	No shortage	Shortage	Shortage	Shortage	No shortage	No shortage
Kuwait	Shortage	No shortage	No shortage	No shortage	Shortage	Shortage	Shortage	No shortage	No shortage	Shortage	No shortage	No shortage	No shortage	No shortage
Lebanon	No shortage	No shortage	No shortage	No shortage	No shortage	No shortage	No shortage	No shortage	No shortage	No shortage	Shortage	No shortage	Shortage	Shortage
Oman	Shortage	Shortage	Shortage	No shortage	Shortage	Shortage	No shortage	No shortage	No shortage	Shortage	Shortage	Shortage	No shortage	No shortage
Qatar	No shortage	Shortage	No shortage	No shortage	Shortage	Shortage	No shortage	No shortage	No shortage	No shortage	Shortage	Shortage	No shortage	No shortage
Saudi Arabia	Shortage	No shortage	Shortage	Shortage	Shortage	Shortage	No shortage	No shortage	No shortage	Shortage	Shortage	No shortage	Shortage	Shortage
Syrian Arab Republic	Shortage	Shortage	No shortage	No shortage	Shortage	Shortage	Shortage	Shortage	Shortage	Shortage	Shortage	Shortage	Shortage	Shortage
United Arab Emirates	Shortage	Shortage	No shortage	No shortage	Shortage	Shortage	Shortage	No shortage	No shortage	Shortage	Shortage	Shortage	Shortage	Shortage
West Bank and Gaza	Shortage	Shortage	Shortage	No shortage	Shortage	Shortage	No shortage	No shortage	No shortage	Shortage	Shortage	Shortage	No shortage	Shortage

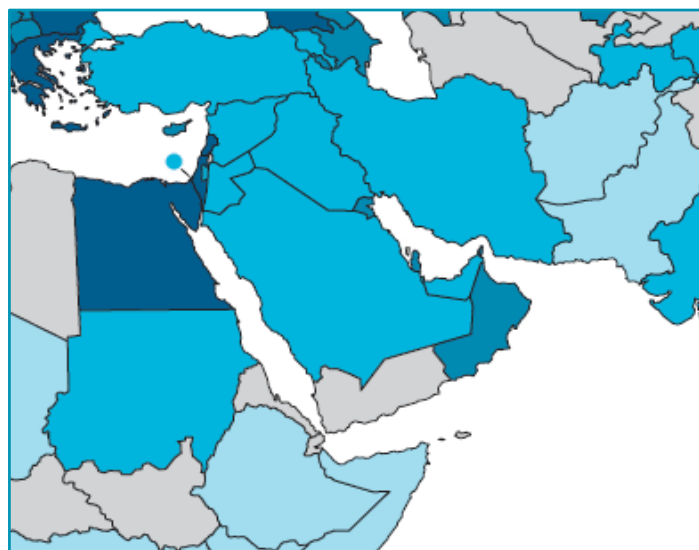
No shortage

Shortage



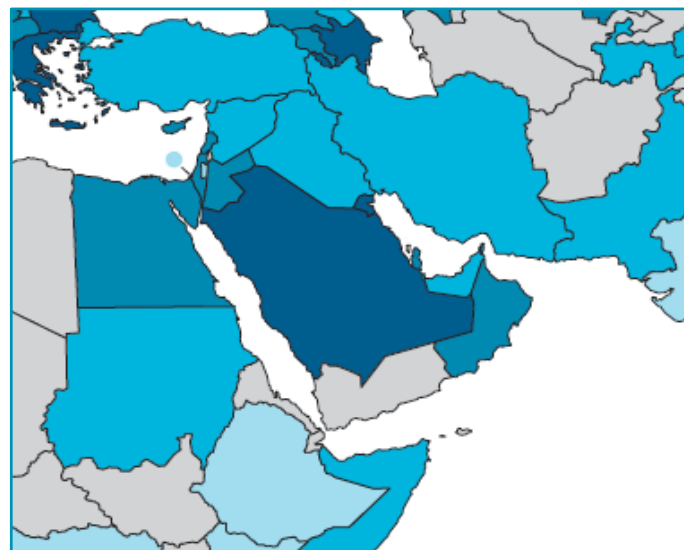
Prevalence of nephrologists and trainees

Nephrologists



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

Nephrology trainees



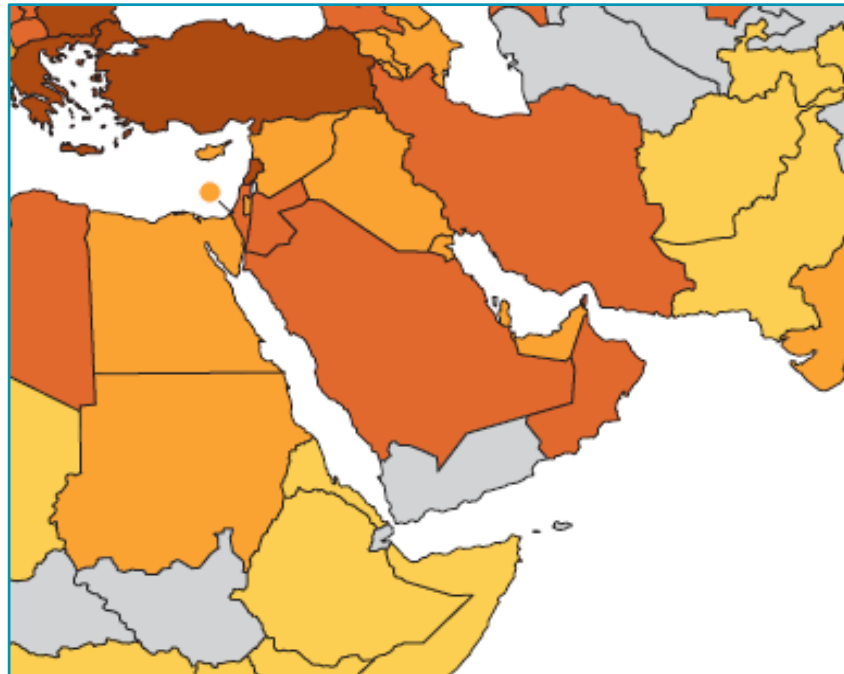
■ <0.3 pmp
 ■ 0.3–1.4 pmp
 ■ 1.5–3.7 pmp
 ■ >3.7 pmp
 ■ Data not reported

Country	Nephrologists PMP	Nephrology trainees PMP
Iran, Islamic Rep.	4.97	0.35
Iraq	2.49	1.00
Jordan	8.08	1.82
Kuwait	10.29	24.00
Lebanon	28.28	2.05
Oman	20.03	2.86
Qatar	15.87	2.12
Saudi Arabia	8.46	15.94
Syrian Arab Republic	5.14	1.03
United Arab Emirates	6.70	0.72
West Bank and Gaza	3.04	0.00

'-': 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

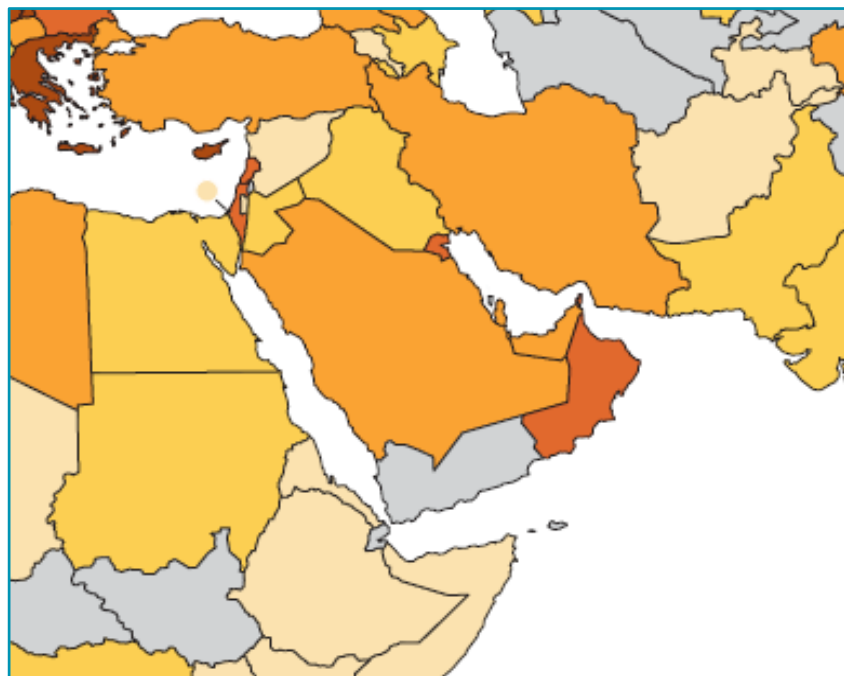
- Chronic HD services are available in all countries of the region
- The Middle East average of HD treatment centers is 3.75 pmp

Country	Chronic HD Centres PMP
Iran, Islamic Rep.	6.89
Iraq	1.24
Jordan	5.16
Kuwait	2.06
Lebanon	11.89
Oman	5.72
Qatar	2.54
Saudi Arabia	5.29
Syrian Arab Republic	3.60
United Arab Emirates	2.06
West Bank and Gaza	3.75

'-': data not reported/unavailable

Capacity for chronic dialysis (PD)

Chronic PD centers



- Chronic PD services are available in 9 (82%) countries of the region
- The Middle East average of PD treatment centers is 0.77 pmp

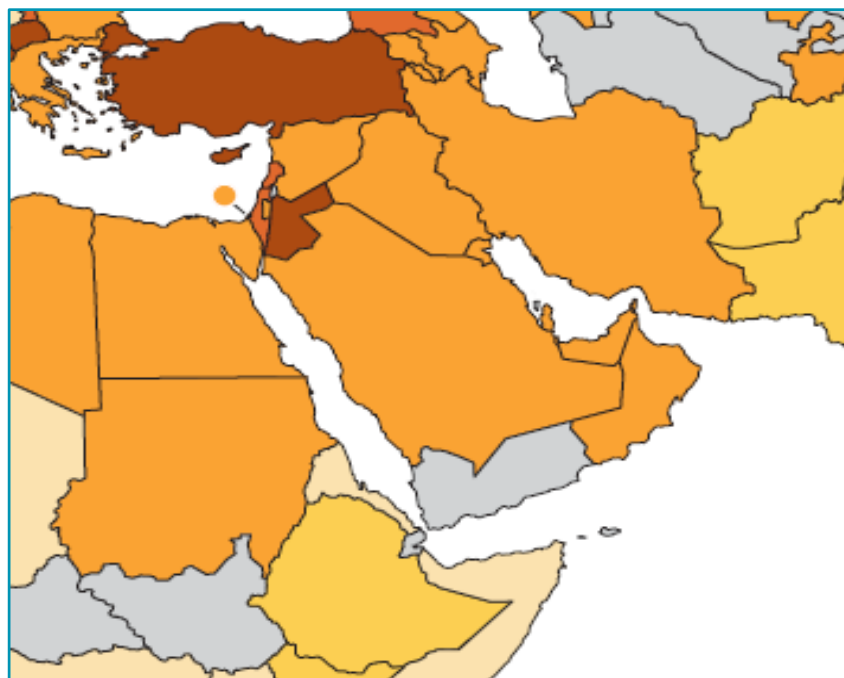
Chronic PD not provided
 <0.4 pmp
 0.4–1.3 pmp
 1.4–2.5 pmp
 >2.5 pmp
 Data not reported

Country	Chronic PD Centres PMP
Iran, Islamic Rep.	0.77
Iraq	0.20
Jordan	0.29
Kuwait	2.06
Lebanon	1.48
Oman	2.15
Qatar	1.27
Saudi Arabia	0.57
Syrian Arab Republic	-
United Arab Emirates	0.41
West Bank and Gaza	-

'-': data not reported/unavailable

Capacity for kidney transplantation

Kidney transplantation centers



- Kidney transplantation services are available in all countries of the region
- The Middle East average of Kidney transplantation centers is 0.41 pmp

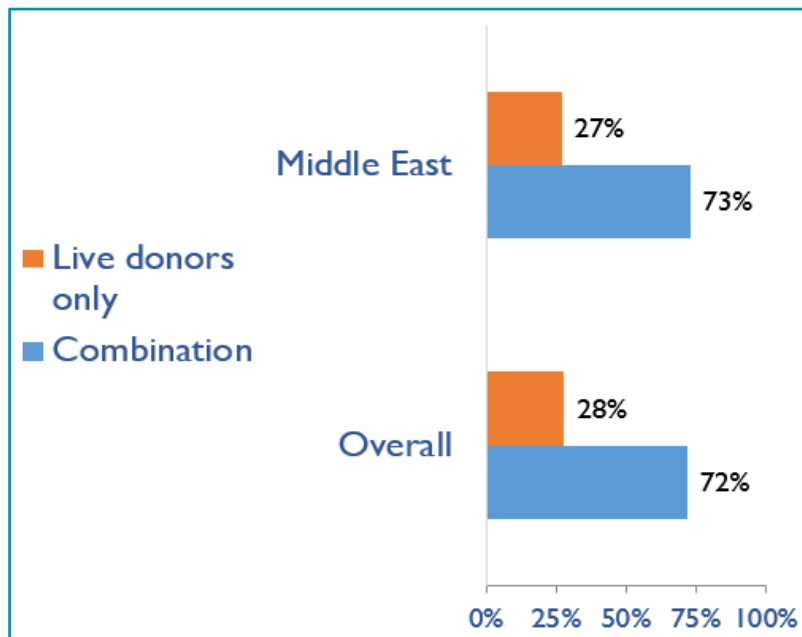
Country	Kidney Transplantation availability	Transplant centers PMP
Iran, Islamic Rep.	X	0.36
Iraq	X	0.15
Jordan	X	1.00
Kuwait	X	0.34
Lebanon	X	0.74
Oman	X	0.43
Qatar	X	0.42
Saudi Arabia	X	0.41
Syrian Arab Republic	X	0.31
United Arab Emirates	X	0.41
West Bank and Gaza	X	0.36

X : Yes

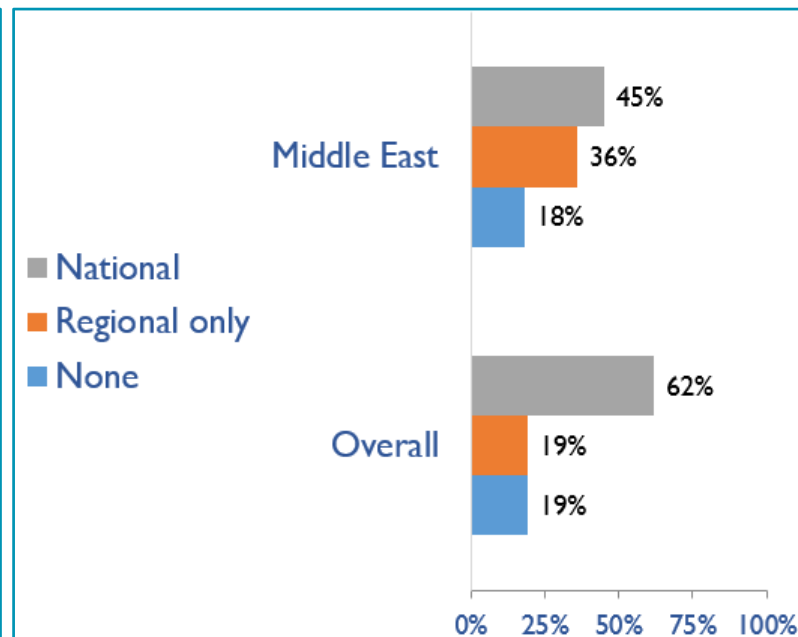
Kidney transplantation not provided
 <0.2 pmp
 0.2-0.4 pmp
 0.5-0.7 pmp
 >0.7 pmp
 Data not reported

Capacity for Kidney transplantation (cont'd)

Transplant donor type



Transplant waitlist



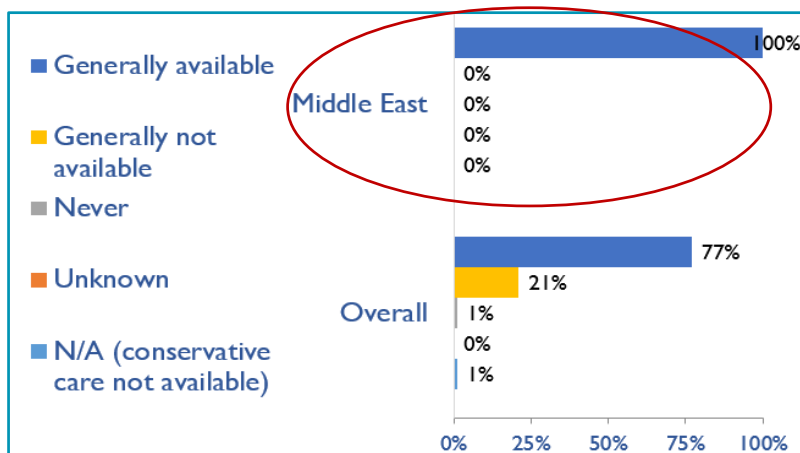
Country	Donor type		Transplant waitlist		
	Live donors only	Combination	National	Regional only	None
Iran, Islamic Rep.		X		X	
Iraq	X			X	
Jordan		X			X
Kuwait		X	X		
Lebanon		X	X		
Oman		X	X		
Qatar		X	X		
Saudi Arabia		X	X		
Syrian Arab Republic	X			X	
United Arab Emirates		X		X	
West Bank and Gaza	X				X

X : Yes

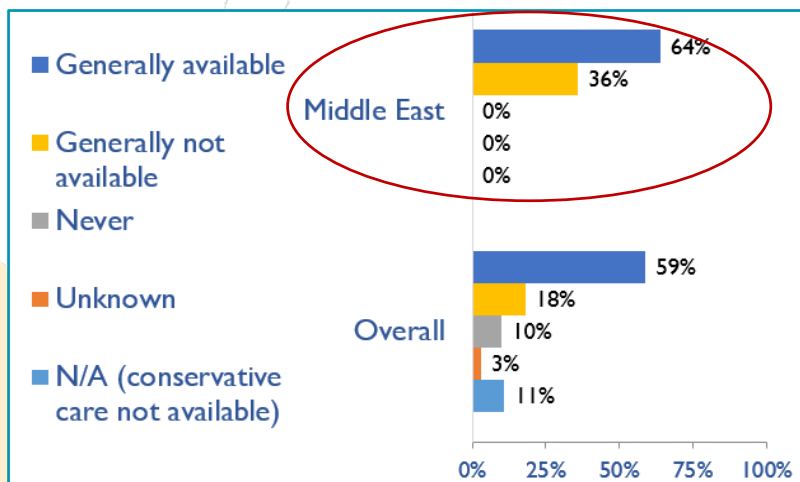


Availability of services within dialysis care

HD frequency



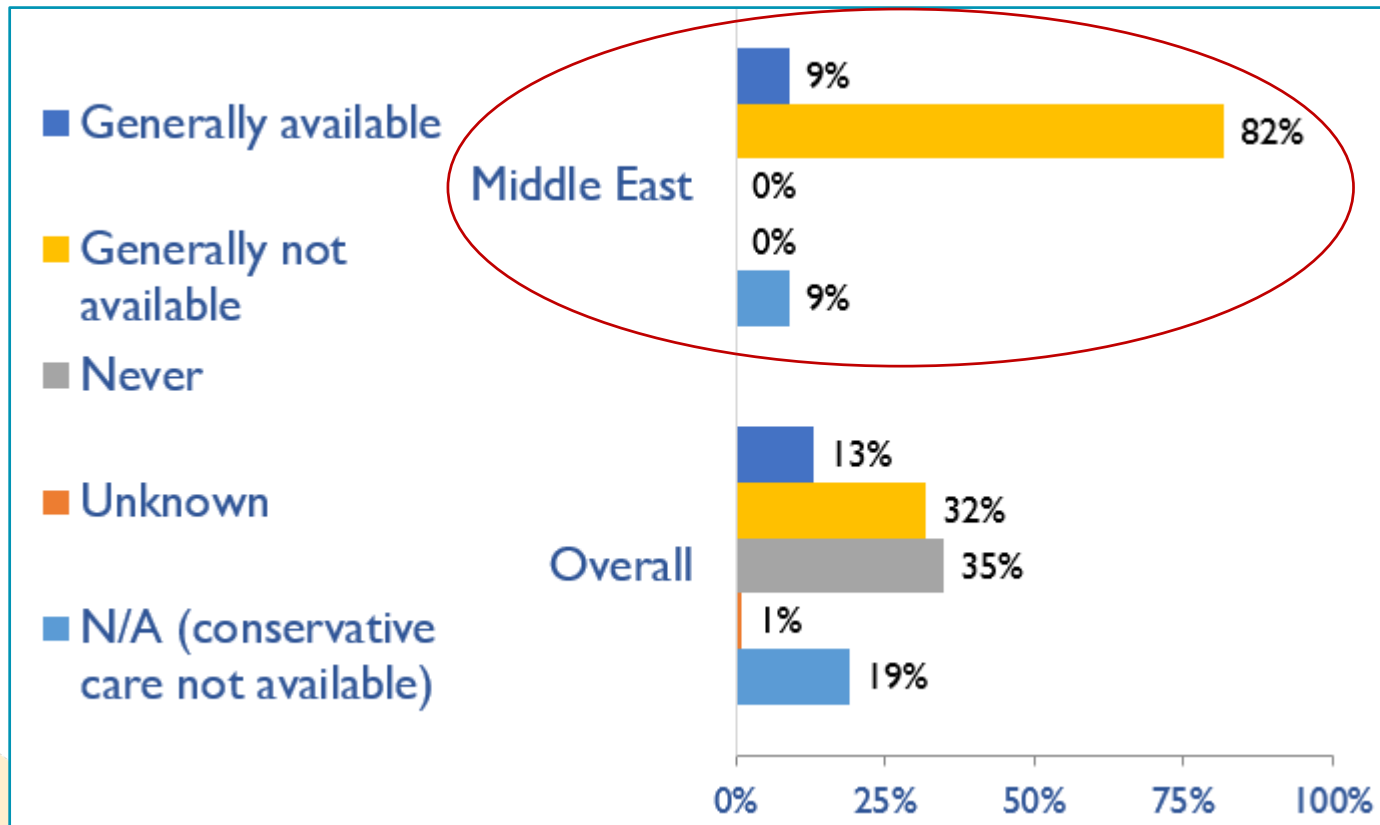
PD frequency



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)
Iran, Islamic Rep.	X						X			
Iraq	X					X				
Jordan	X						X			
Kuwait	X					X				
Lebanon	X					X				
Oman	X					X				
Qatar	X					X				
Saudi Arabia	X					X				
Syrian Arab Republic	X									X
United Arab Emirates	X					X				
West Bank and Gaza	X									X

X : Yes

Availability of home hemodialysis

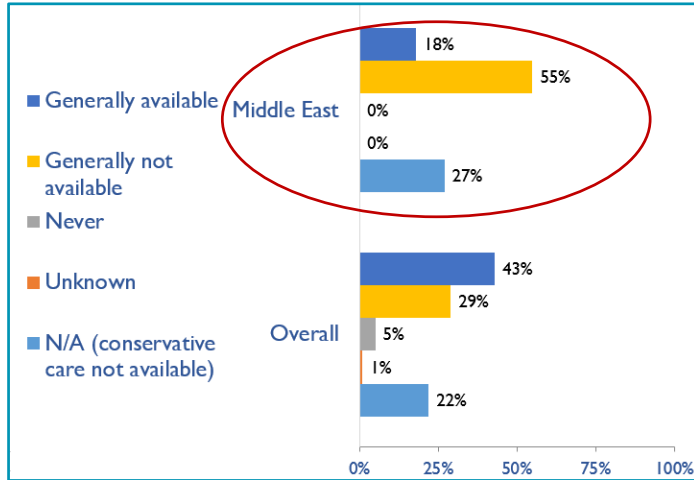


Country	Availability of Home hemodialysis				
	Generally available	Generally not available	Never	Unknown	N/A (dialysis not provided)
Iran, Islamic Rep.		X			
Iraq		X			
Jordan		X			
Kuwait		X			
Lebanon		X			
Oman			X		
Qatar	X				
Saudi Arabia		X			
Syrian Arab Republic		X			
United Arab Emirates		X			
West Bank and Gaza		X			

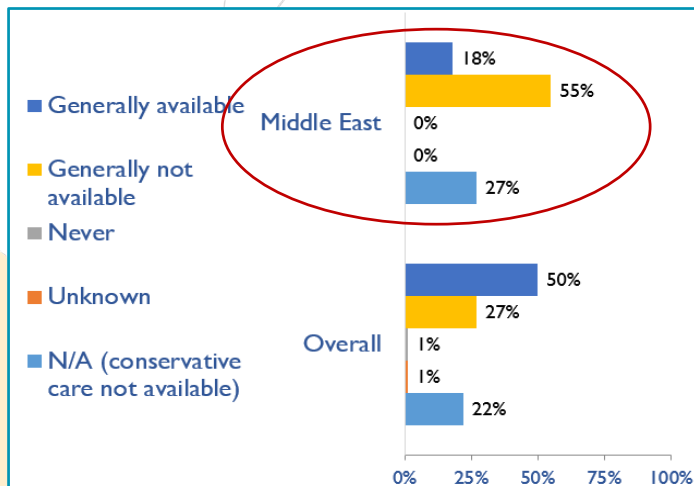
X : Yes

Capacity for conservative kidney management (CKM)

Choice-restricted CKM



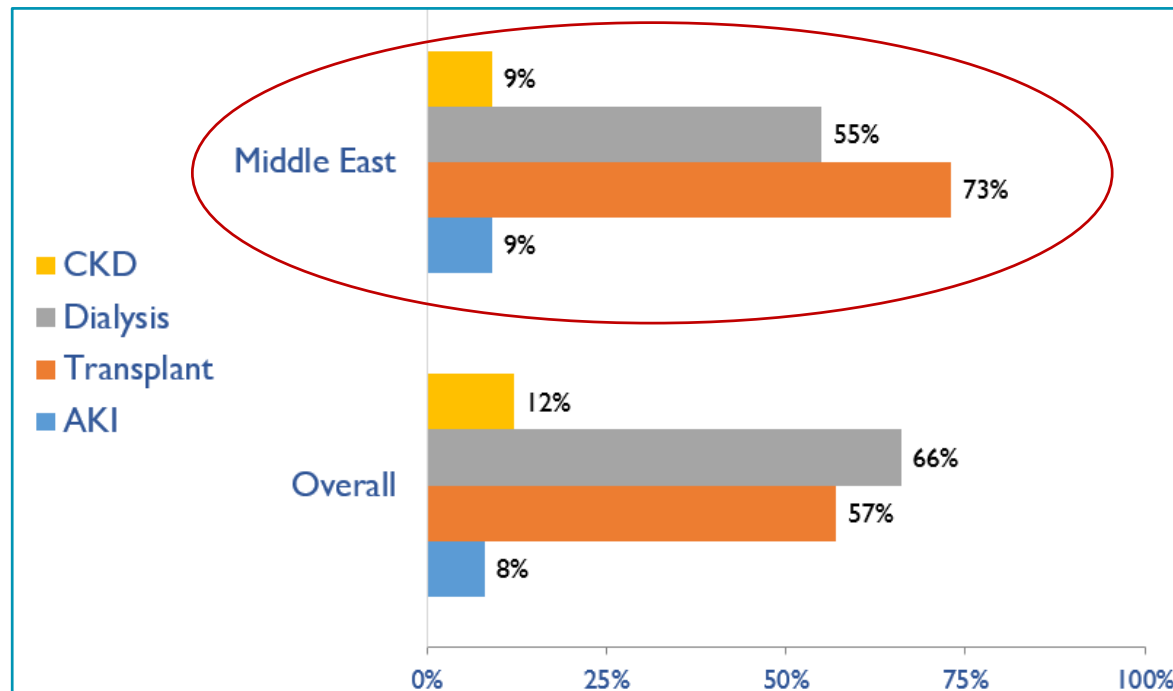
Chosen or medically advised CKM



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)
Iran, Islamic Rep.		X					X			
Iraq		X					X			
Jordan	X					X				
Kuwait		X					X			
Lebanon		X					X			
Oman	X					X				
Qatar		X							X	
Saudi Arabia		X					X			
Syrian Arab Republic					X					X
United Arab Emirates				X			X			
West Bank and Gaza					X					X

X : Yes

Availability of official registry



Country	Official Registry			
	CKD	Dialysis	Transplant	AKI
Iran, Islamic Rep.			X	
Iraq			X	
Jordan		X	X	
Kuwait		X	X	
Lebanon			X	
Oman	X	X	X	X
Qatar		X	X	
Saudi Arabia		X	X	
Syrian Arab Republic				
United Arab Emirates				
West Bank and Gaza				

X : Yes

Summary of 2019 GKHA findings

- KRT availability, access, and quality is high in the region
- Conservative kidney management is available, focus on improved services
- Government funding for kidney care is high
- High presence of registries, particularly for ESKD care
- Good supply of nephrologists but other workforce limitations present
- Little advocacy for kidney disease in the Middle East

Implications

- Increase health care financing for ESKD prevention and management
- Address workforce shortages through multidisciplinary teams and telemedicine
- Incorporate the collection and reporting of quality indicators in ESKD care
- Expand health information systems to prevent and manage ESKD
- Promote ESKD prevention and treatment by implementing policies, strategies, and advocacy, and mitigating barriers

To access the Atlas report:



www.theisn.org/global-atlas