AVATAR
Association of Vascular Access & InTerventionAl Renal Physicians

AVATAR INDIA
ASSOCIATION OF VASCULAR ACCESS AND INTERVENTIONAL RENAL PHYSICIANS OF INDIA

Current Status of CKD, RRT and the Vascular Access program in the Asia Pacific region, especially India.

Indraprastha Apollo HOSPITALS
TOUCHING LIVES

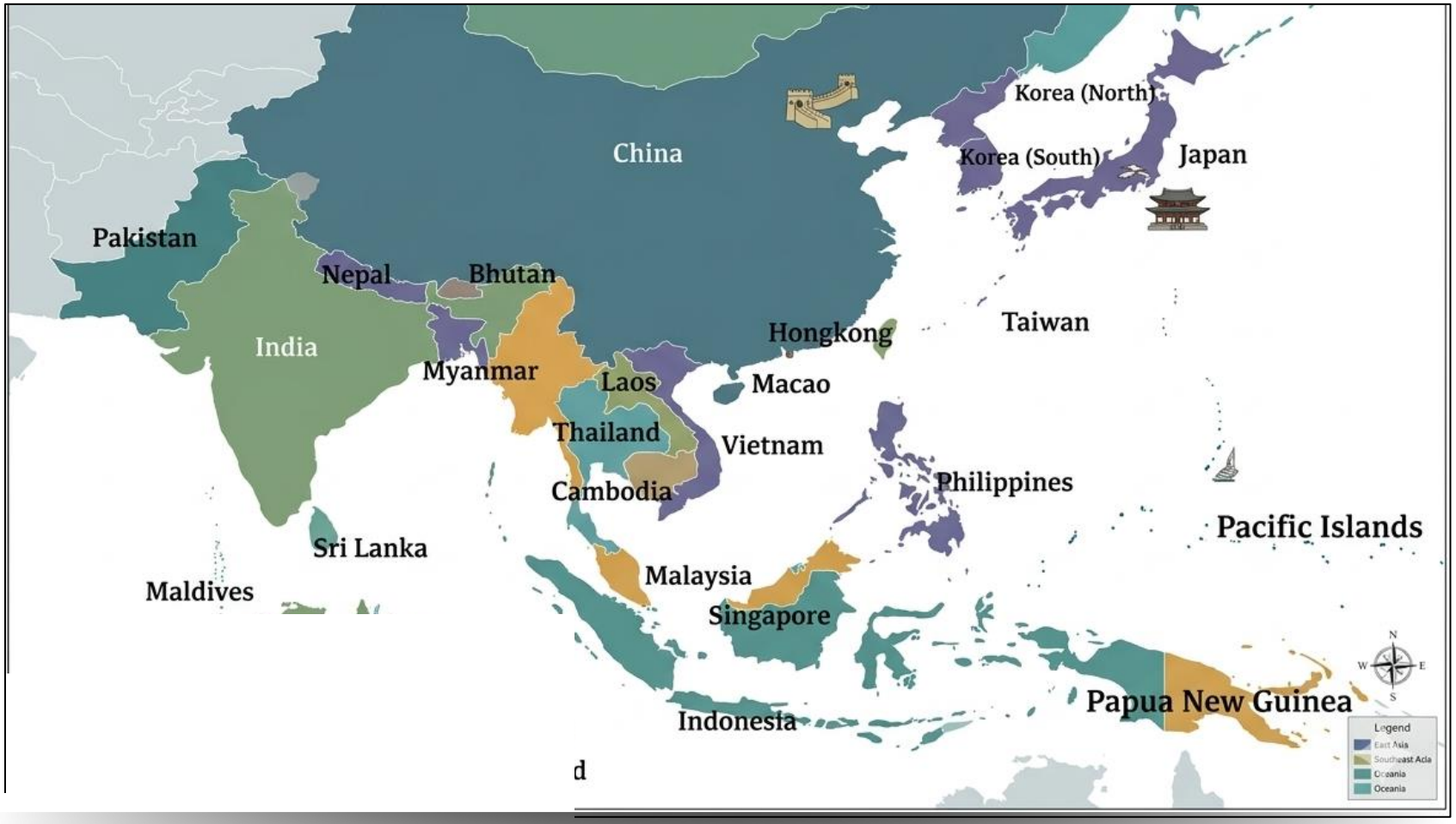


(Prof) Dr. SANJIV JASUJA
Senior Consultant Nephrologist
Indraprastha Apollo Hospital,
New Delhi, India
sanjivjasuja1008@gmail.com

FLOW OF TALK

- HEALTH ECONOMICS & IMPACT ON RRT
- REGIONAL ACCESS PRACTICES
- CHALLENGES
- CURRENT STATUS

Area Demographics

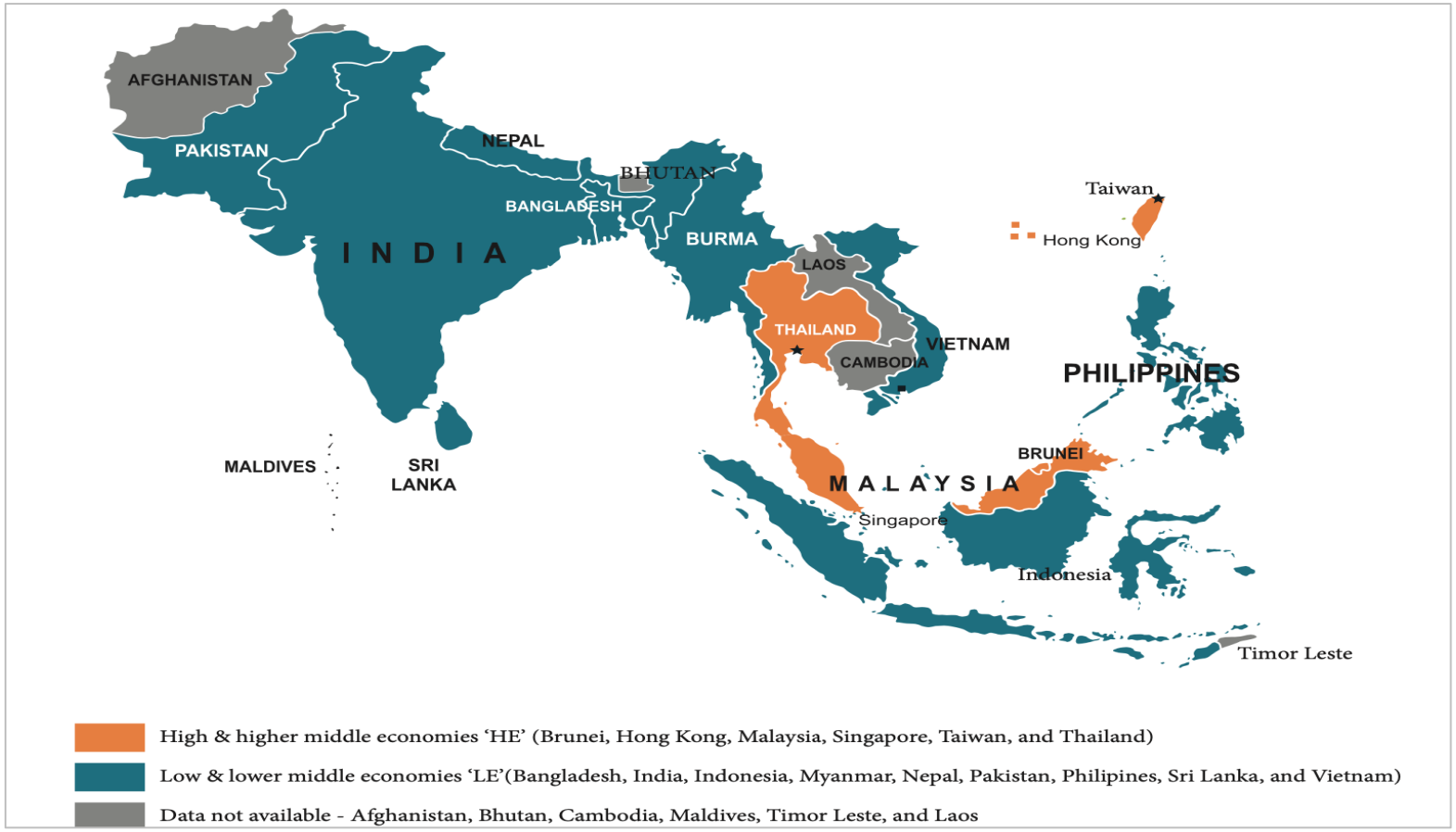




Impact of National Economy and Policies on End-Stage Kidney Care in South Asia and Southeast Asia

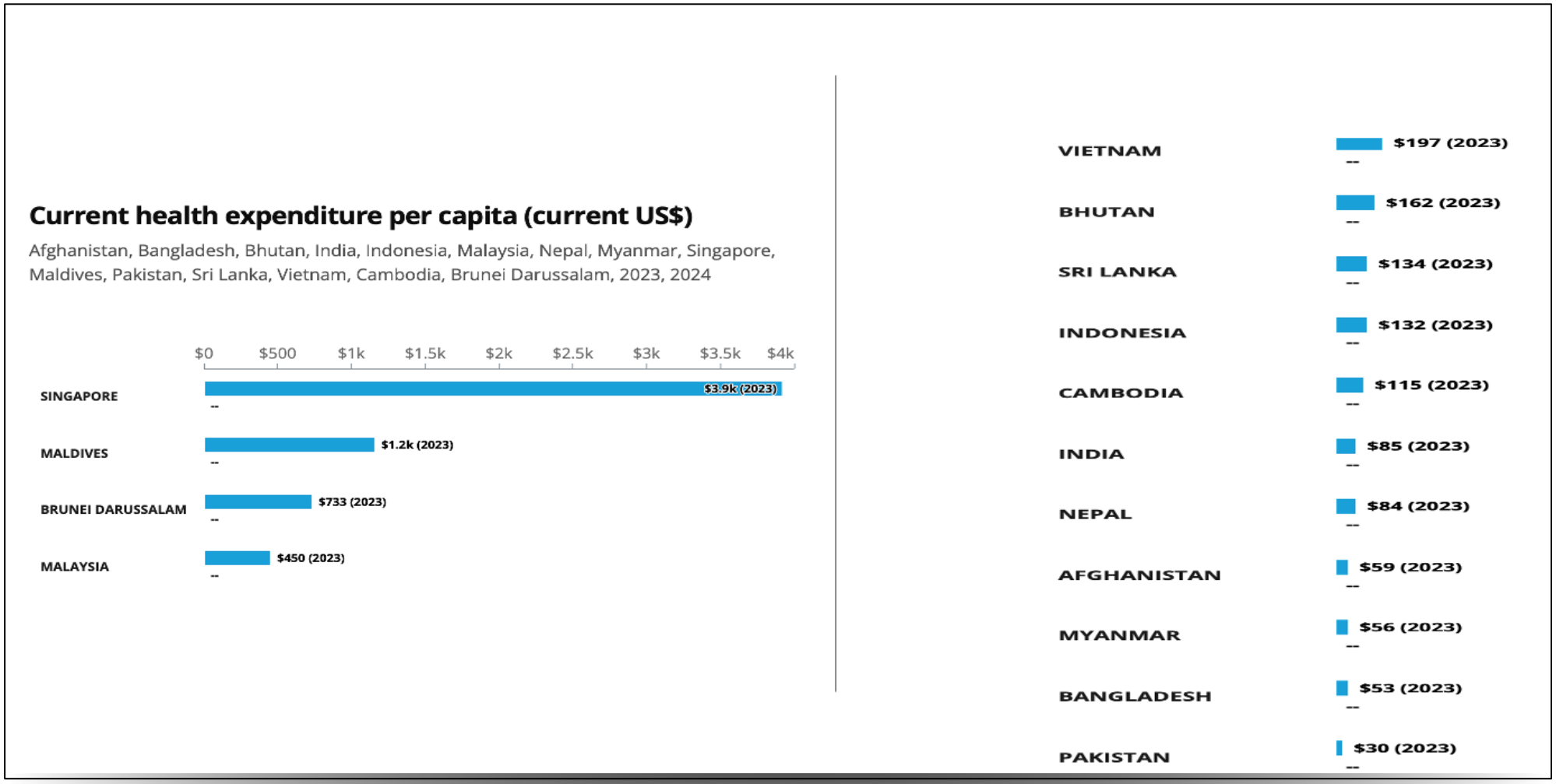
International Journal of Nephrology, vol. 2021, Article ID 6665901, 11 pages, 2021. https://doi.org/10.1155/2021/6665901

Suceena Alexander [1], **Sanjiv Jasuja** [2], Maurizio Gallieni [3], Manisha Sahay



Health economics of South-East Asia region & India

THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP

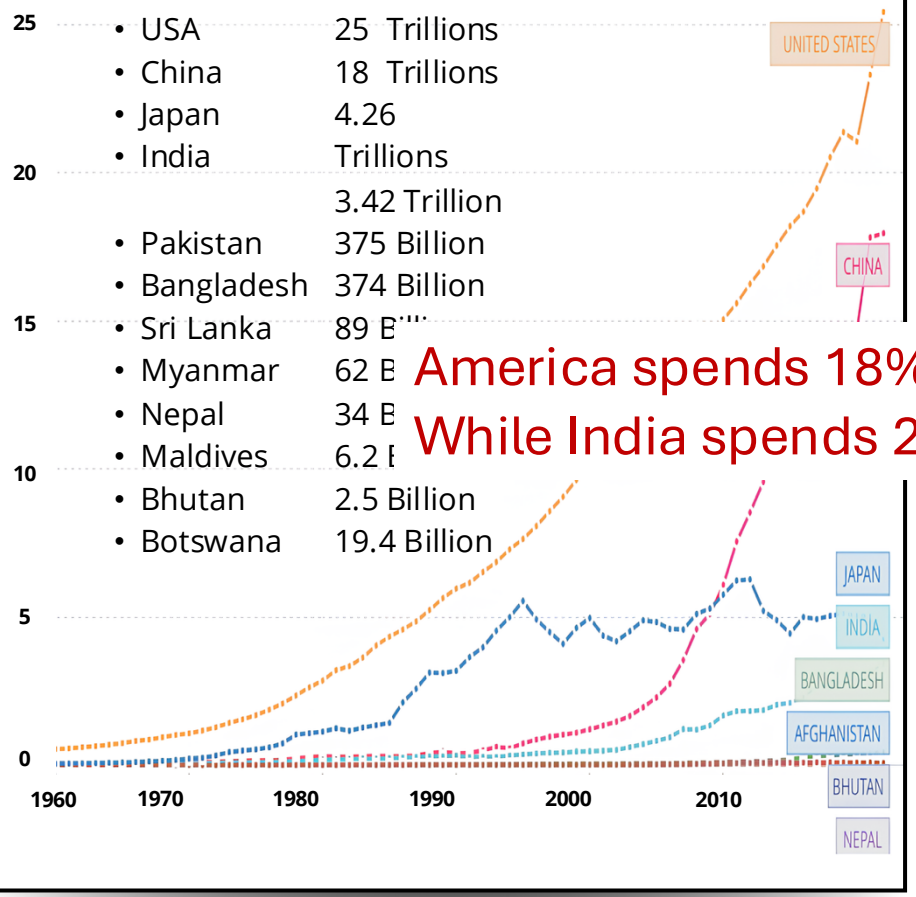


Current health expenditure in Southeast Asia & India

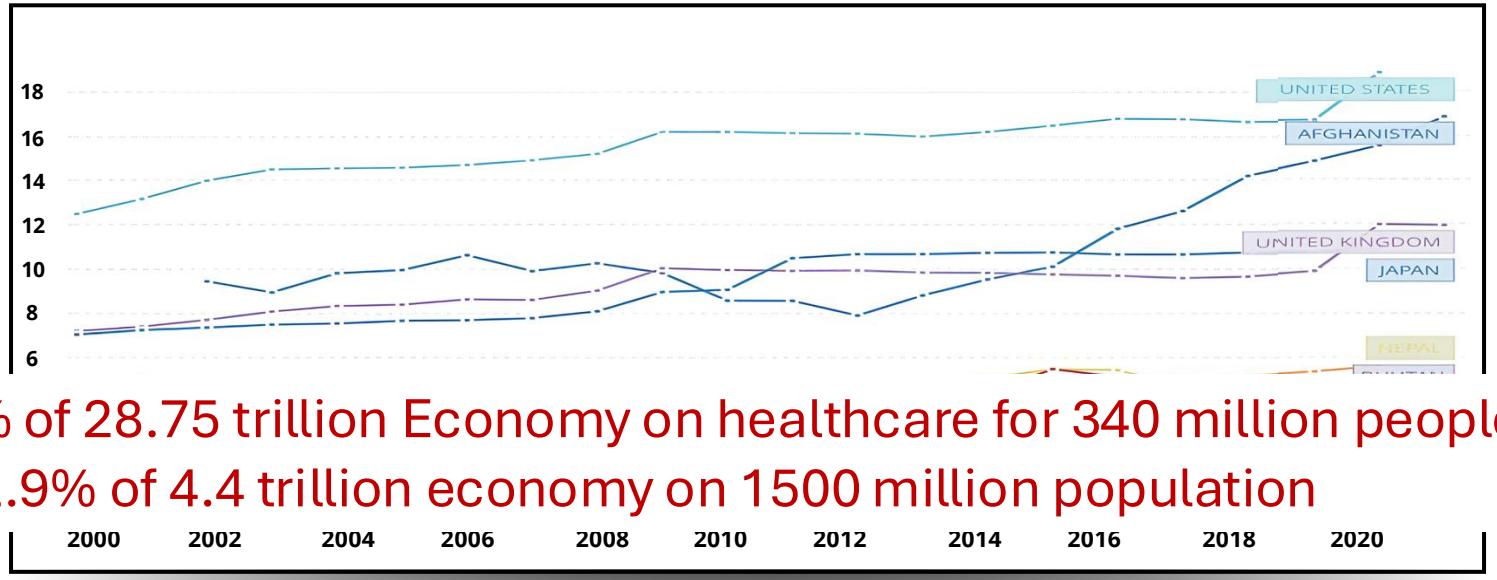
GDP

(current US$)

- USA 25 Trillions
- China 18 Trillions
- Japan 4.26 Trillions
- India 3.42 Trillion
- Pakistan 375 Billion
- Bangladesh 374 Billion
- Sri Lanka 89 B
- Myanmar 62 B
- Nepal 34 B
- Maldives 6.2 B
- Bhutan 2.5 Billion
- Botswana 19.4 Billion



(% of GDP)



America spends 18% of 28.75 trillion Economy on healthcare for 340 million people

While India spends 2.9% of 4.4 trillion economy on 1500 million population

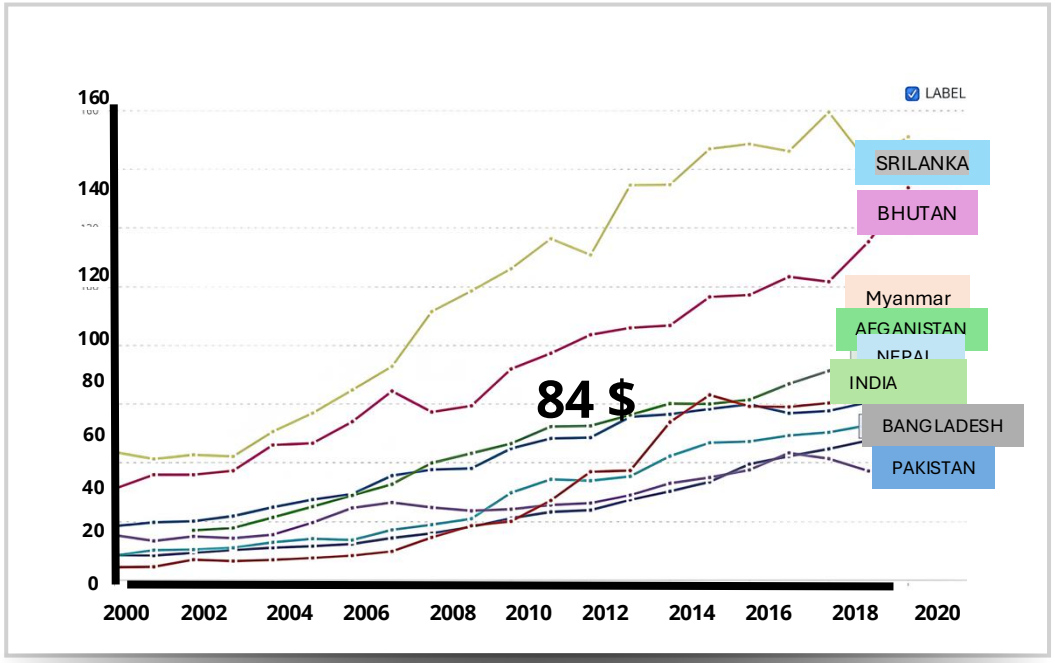
Bangladesh	2.63	Afghanistan	15.53
Pakistan	2.95	UK	11.98
India	2.96	Japan	10.9
Bhutan	4.37	China	5.59
Nepal	5.17	USA	18.82

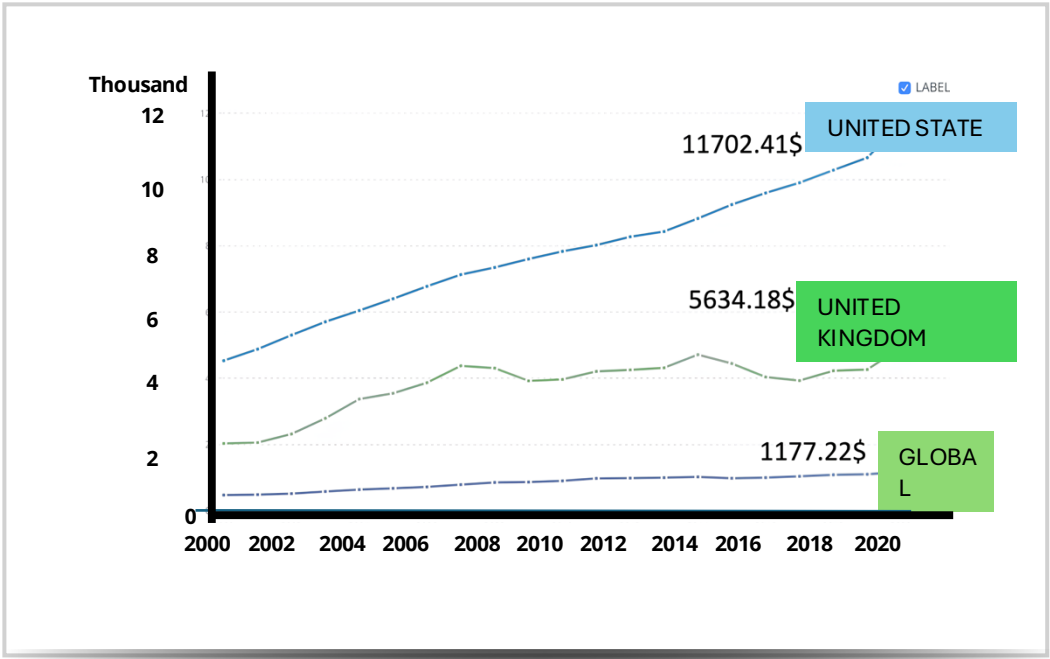
Health economics of South East Asia region & India

South Asia-India, Afghanistan, Bangladesh, Bhutan, Nepal, Pakistan, Sri Lanka, Myanmar

Current health expenditure per capita (current US$)

THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP



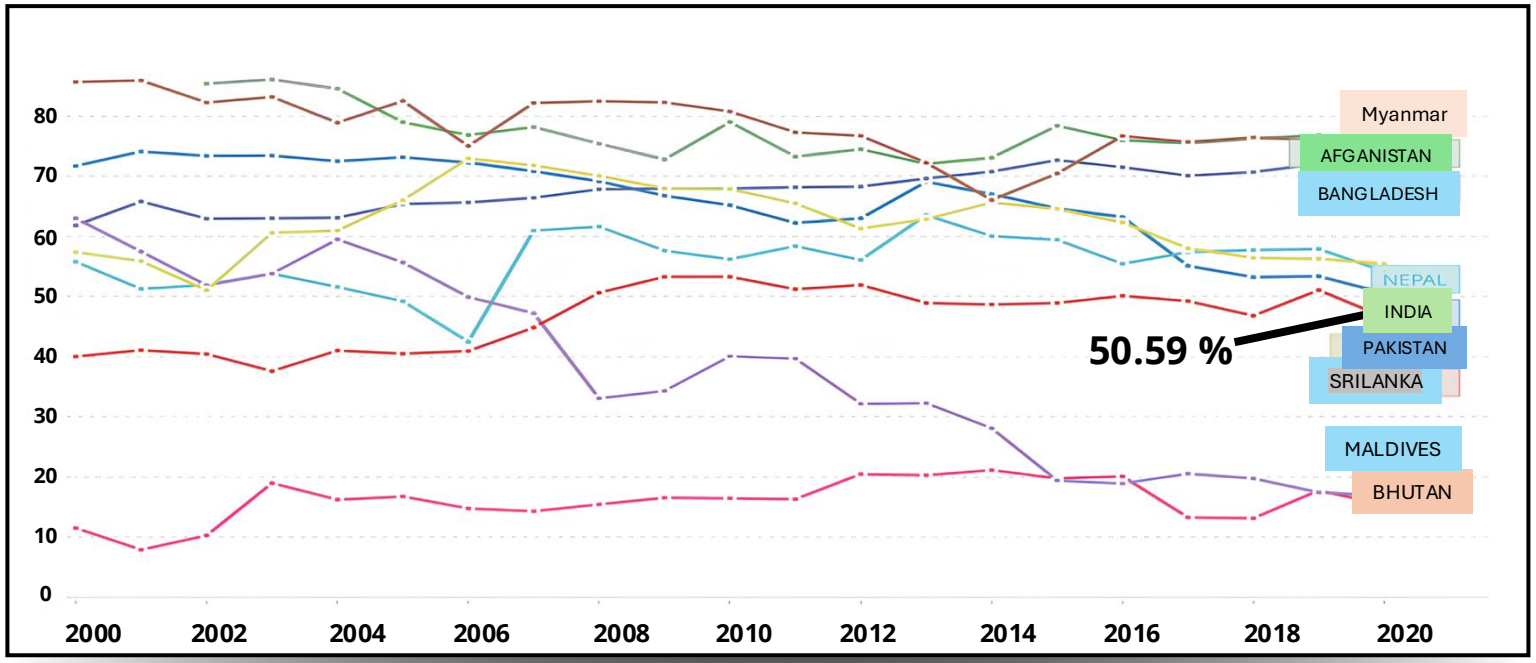


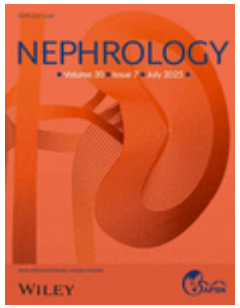
Health economics of South Asia region

South Asia-India, Afghanistan, Bangladesh, Bhutan, Nepal, Pakistan, Sri Lanka, Myanmar

Out-of-pocket expenditure

(% of current health expenditure)





Received: 23 June 2020 | Revised: 11 October 2020 | Accepted: 16 October 2020
DOI: 10.1111/nep.13825

ORIGINAL ARTICLE

NEPHROLOGY WILEY

Aetiology, practice patterns and burden of end-stage kidney disease in South Asia and South-East Asia: A questionnaire-based survey

Manisha Sahay[1] | Sanjiv Jasuja[2] | Sydney Chi Wai Tang[3] |

ESKD POPULATION DISTRIBUTION BASED ON ECONOMIES

- More than 90 % population lives in Low & Lower middle-income countries
- Per capita income in Low & Lower middle-income countries is 1/10th
- Mean age of ESKD patients in lower economies is less by decade

TABLE 1 ESKD statistics in SA&SEA region

	Overall						Group 1 Higher | Higher middle-Income countries						Group 2 Low | Lower middle-Income countries				
Estimated per capita national income (USD)	14	16953.4	24986.9	4782.5	292.8	83250	6	35657.6	29470.8	28128.5	5960	83250	8	2925.3	3788.5	1710.2	292.8	11970
ESKD population (million)																		
Incidence/million	14	226.9	100.9	190.5	100	455	6	305.8	102.9	286.8	171	455	8	167.75	45	163	100	250
Prevalence/million	12	1053	355.1	940.8	172	3219	5	1778.6	837.1	1306	1268	3219	7	534.8	348.2	321	172	1046.5
Age of ESKD patient																		
Male (years)	15	52.9	8.5	51.3	35	65	6	59.3	4.4	60	51.3	64.7	9	48.6	8	48	35	65
Female (years)	15	51.9	8.5	51.3	35	68.2	6	59.6	5.5	60	51.3	68.2	9	46.8	5.9	47	35	55

Note: Group 1, high-income|higher-middle income countries; Group 2, low-income|lower-middle-income countries,
Abbreviations: ESKD, end-stage kidney disease; GDP, gross domestic product; PPP, purchasing power parity, HD, haemodialysis; PD peritoneal dialysis.



Impact of National Economy and Policies on End-Stage Kidney Care in South Asia and Southeast Asia

International Journal of Nephrology, vol. 2021, Article ID 6665901, 11 pages, 2021. https://doi.org/10.1155/2021/6665901

Suceena Alexander [1], **Sanjiv Jasuja** [2], Maurizio Gallieni [3], Manisha Sahay

Modality & Resource distribution

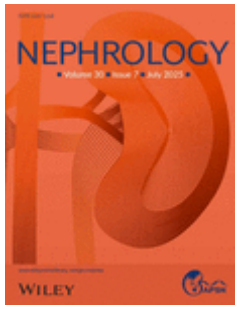
Table 2: ESKD treatment demographics in SA and SEA.

Variables	Overall						Higher economies (HE)/lower economies (LE)				
	N	Mean	SD	Median	Min	Max	N	Mean	SD	Median	Min	Max
Modality-wise distribution												
HD (%)	15	64.9	28.1	70	10	95	6/9	67.6/63.2	78.7/67.3	27.9/29.8	15/10	87.1/95
PD (%)	15	10.1	12.2	7	0.5	46	6/9	19.1/4	10.1/3.4	15.5/3.1	8.8/0.5	46/10
KT (%)	15	9.2	10	5	0.8	39	6/9	13.4/6.4	7.4/5	13.7/6	4/0.8	39/21
Cs (%)	15	16.3	26.4	0	0	84.5	6/9	0.2/27	0/20	0.4/29.9	0/0	1/84.5

Variable.	Over all						HE/LE
Dialysis centres/million population	14	8.5	9.7	2.2	0.6	27.8	6/8	17/2.1
Dialysis machines/dialysis unit	15	16.7	12.2	15	5	40	6/9	26.7/10
Nephrologists/million	15	9.2	15.3	1.72	0.04	59.8	6/9	20.8/1.5
Dialysis units/million	14	7.2	8.7	2.22	0.6	27.8	6/8	15.2/2.1

Dropout rate												
Yearly dropout rate	11	34.7	28.6	15.3	10	90	5/6	12.3/53.4	1.9/26.6	12/57.5	10/15	15.3/90
Due to death	10	68.7	34.1	86	15.3	99.5	5/5	93.6/43.8	7/31.8	98/43.2	88/15.3	99.5/95.5
Due to KT	10	13.3	15.8	5	0.5	46.3	5/5	5.64/20.6	5.8/19.7	2/10	0.5/4.5	12/46.3
Due to financial reasons	10	18.2	25.7	2	0	70	5/5	0.8/27.1	1.3/27.1	0/38.4	0/0	3/70

ESKD, end-stage kidney disease; PD, peritoneal dialysis; HD, hemodialysis; KT, kidney transplant; CS, conservative.



Received: 23 June 2020 | Revised: 11 October 2020 | Accepted: 16 October 2020
DOI: 10.1111/nep.13825

ORIGINAL ARTICLE

NEPHROLOGY WILEY

Aetiology, practice patterns and burden of end-stage kidney disease in South Asia and South-East Asia: A questionnaire-based survey

Manisha Sahay[1] | Sanjiv Jasuja[2] | Sydney Chi Wai Tang[3] |

Something Unique to the area

Cost matters

Countries	Group As per economic status	World Bank Ranking[a] 2017	National population[b] (in million)	GDP as total national health expenditure (%)[c]	Estimated per capita national income (USD)[d]	Mean age (years)		% Distribution of RRT options in prevalent patients			
						Male	Female	PD (%)	HD (%)	Renal transpla (%)	Conservative management (%)
Singapore	Group 1 countries	3	5.639	4.9	56,957	61	61	10.1	71.6	18.3	–
Brunei		4	0.429	2.6	83,250	51.3	51.3	10	86	4	–
Hong Kong		9	7.451	5.5	32,927	59	57	46	15	39	–
Taiwan		15	23.726	6.3	23,330	64.7	68.2	8.8	87.1	4.1	<1
Malaysia		43	31.529	4.21	11,521.45	60	60	9.5	85.7	4.7	–
Thailand											–
Sri Lanka											10
Indonesia		95	267.663	3	3,605	50	50	3	94	3	–
Philippines		113	106.652	4.5	2989	65	55	3.4	94.1	2.5	–
India		120	1352.617	4	2,134	44.4	42.9	0.5	67.3	5	27.2
Vietnam		124	95.54	7.07	1770.3	50	50	10	40	10	40
Myanmar		127	53.708	5.9	1,299	35	35	2	36	0.8	61.2
Pakistan		132	212.215	2.8	1547.9	45	45	0.5	10	5	84.5
Bangladesh		138	161.356	3.5	1,650	53	52	5	70	5	20
Nepal		156	28.089	5.8	681	47	47	5	95	0	0

Conservative treatment option after ESKD diagnosis

AVATAR
Association of Vascular Access & InTerventionAl Renal Physicians

Conservative Medical Treatment of ESKD/CKD5

Indraprastha Apollo HOSPITALS
TOUCHING LIVES

Received: 23 June 2020 | Revised: 11 October 2020 | Accepted: 16 October 2020
DOI: 10.1111/nep.13825

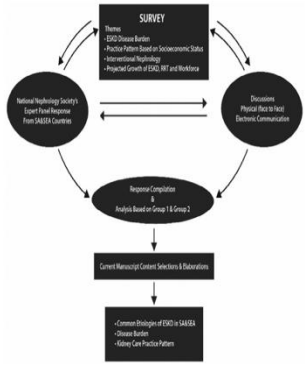
ORIGINAL ARTICLE

NEPHROLOGY WILEY

Aetiology, practice patterns and burden of end-stage kidney disease in South Asia and South-East Asia: A questionnaire-based survey

Manisha Sahay[1] | Sanjiv Jasuja[2] | Sydney Chi Wai Tang[3] |

Correspondence
Dr. Sanjiv Jasuja, AVATAR FOUNDATION, 29, LGF, Pocket 2, Jasola, New Delhi, 110025.
Email: sanjivjasuja@yahoo.com



Abstract

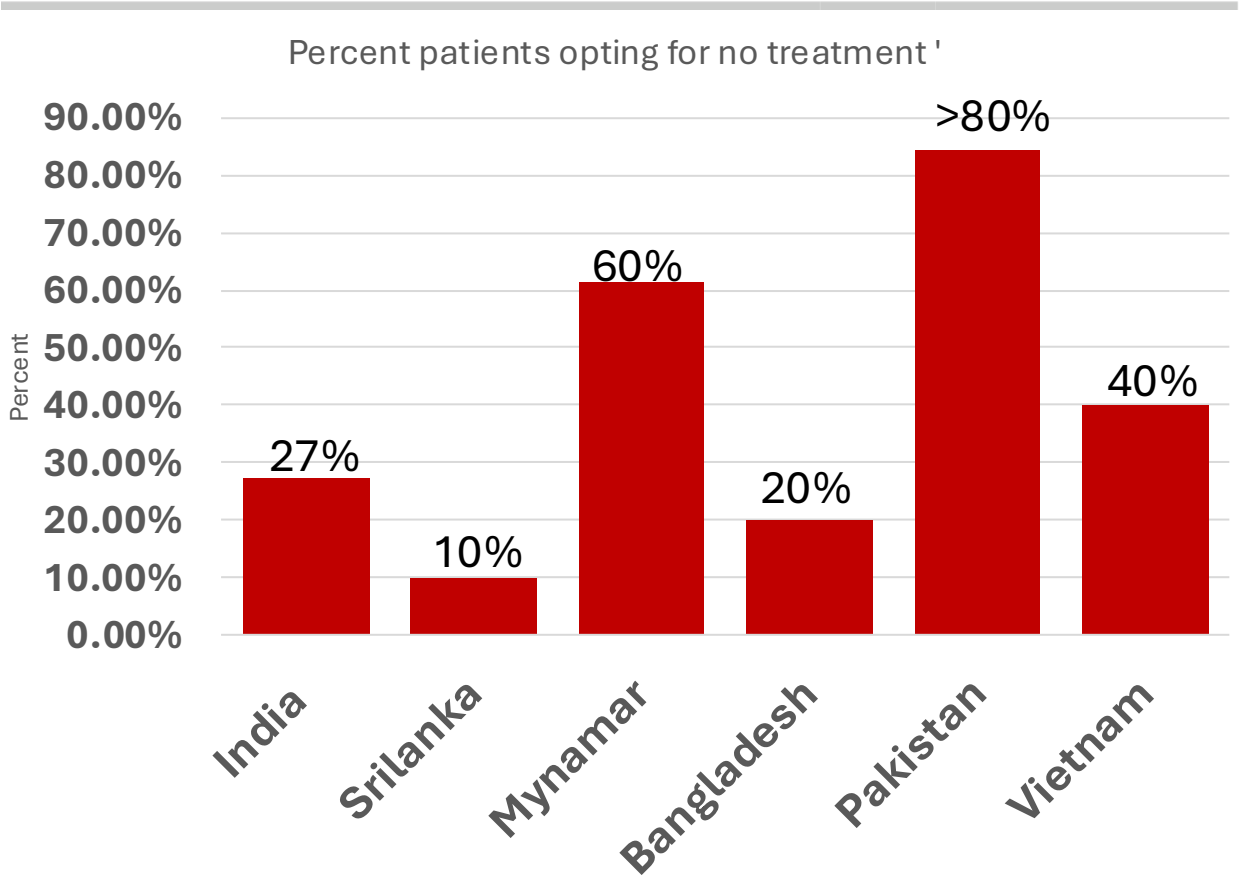
Aim: There is paucity of data on the epidemiology of end-stage kidney disease (ESKD) from South Asia and South-East Asia. The objective of this study was to assess the aetiology, practice patterns and disease burden and growth of ESKD in the region comparing the economies.

Methods: The national nephrology societies of the region; responded to the questionnaire; based on latest registries, acceptable community-based studies and society perceptions. The countries in the region were classified into Group 1 (High|higher-middle-income) and Group 2 (lower|lowermiddle income). Student *t*-test, Mann-Whitney *U* test and Fisher's exact test were used for comparison.

Results: Fifteen countries provided the data. The average incidence of ESKD was estimated at 226.7 per million population (pmp), (Group 1 vs. Group 2, 305.8 vs. 167.8 pmp) and average prevalence at 940.8 pmp (Group 1 vs. Group 2, 1306 vs. 321 pmp). Group 1 countries had a higher incidence and prevalence of ESKD. Diabetes, hypertension and chronic glomerulonephritis were most common causes. The mean age in Group 2 was lower by a decade (Group 1 vs. Group 2—59.45 vs 47.7 years).

Conclusion: Haemodialysis was the most common kidney replacement therapy in both groups and conservative management of ESKD was the second commonest available treatment option within Group 2. The disease burden was expected to grow >20% in 50% of Group 1 countries and 78% of Group 2 countries along with the parallel growth in haemodialysis and peritoneal dialysis.

KEYWORDS
end-stage kidney disease, disease burden, growth of end-stage kidney disease burden, South Asia and South East Asia, renal replacement therapy



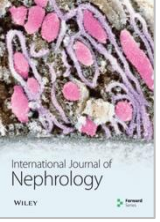
Abbreviations: GDP, gross domestic product; HD, haemodialysis; PD, peritoneal dialysis.

[a]Historical GDP by country/statistics from the World Bank 1960-2018. Available from https://knoema.com/mhrzolg/historical-gdp-by-country-statistics-from-the-world-bank-1960-2018?country=Hong%20Kong%20SAR%2C%20China.

[b]The Power of Choice. Reproductive rights and demographic transition. UNFPA. The state of World Population 2018. Available from https://www.unfpa.org/sites/default/files/pub-pdf/UNFPA_PUB_2018_EN_SWP.pdf.

[c]World Bank data. Available from https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS?locations=SG-LK-BN-HK-PH-IN-ID-MY-MM-NP-VN-TH-PK-BD.

[d]World development indicators. https://databank.worldbank.org/reports.aspx?source=2&type=metadata&series=NY.GDP.PCAP.CD.



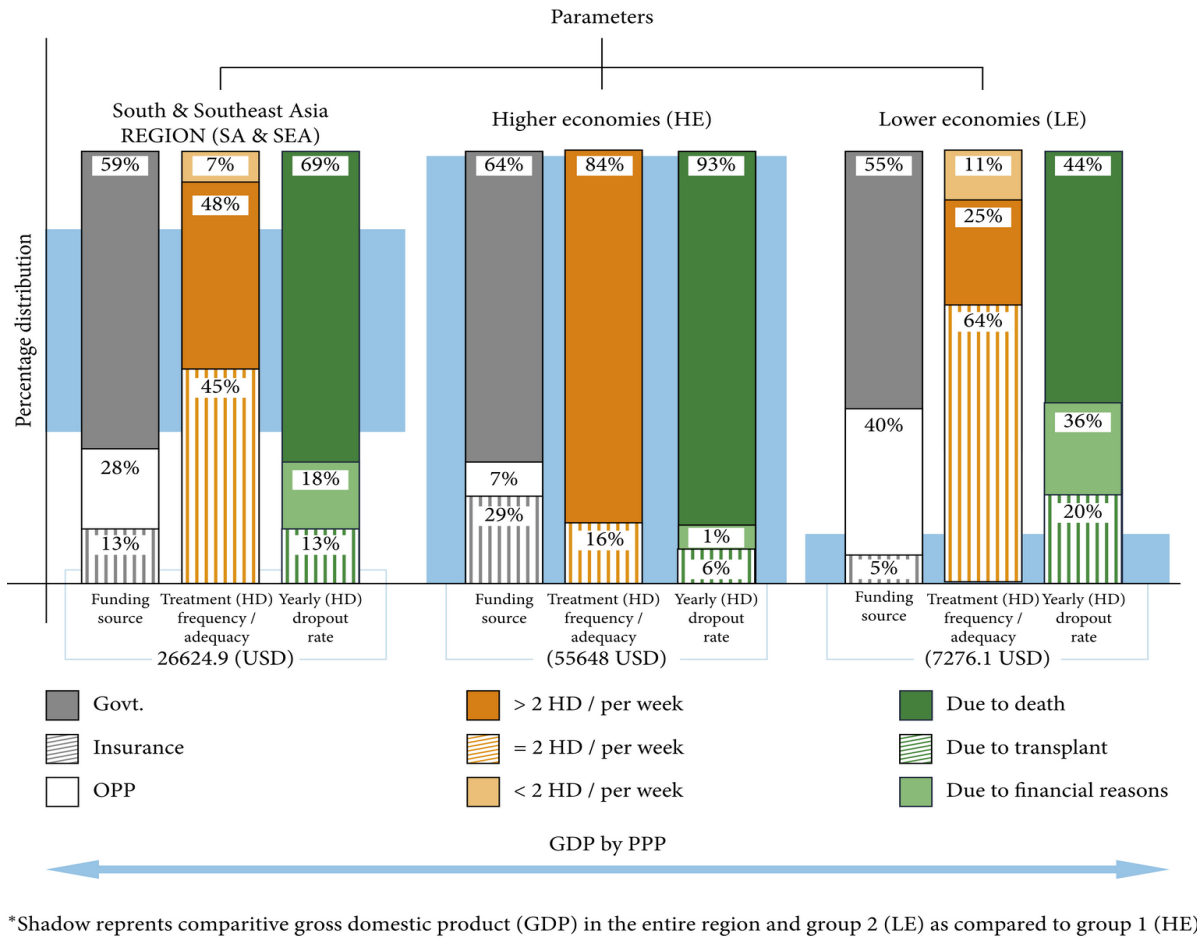
Impact of National Economy and Policies on End-Stage Kidney Care in South Asia and Southeast Asia

Suceena Alexander [1], **Sanjiv Jasuja** [2], Maurizio Gallieni [3], Manisha Sahay

International Journal of Nephrology, vol. 2021, Article ID 6665901, 11 pages, 2021.
https://doi.org/10.1155/2021/6665901

- Funding source
- Adequacy of dialysis
- Reasons For Drop Out / Exit from dialysis

Impact of GDP on funding source, treatment adequacy, and yearly dropout.

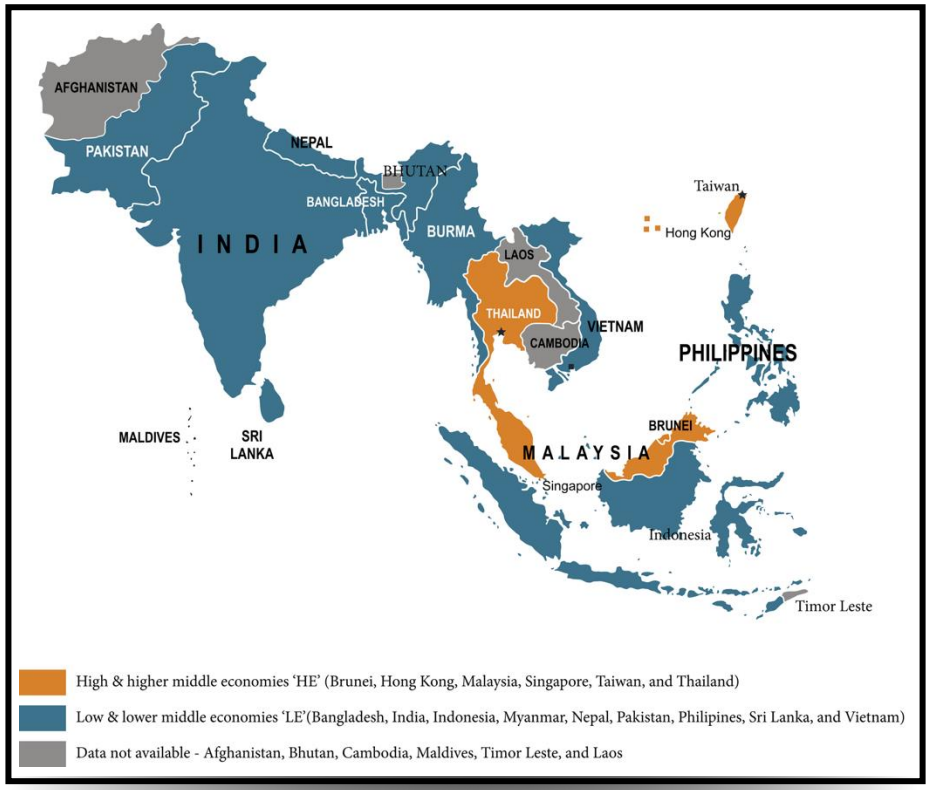


*Shadow reprents comparitive gross domestic product (GDP) in the entire region and group 2 (LE) as compared to group 1 (HE)

Impact of National Economy and Policies on End-Stage Kidney Care in South Asia and Southeast Asia

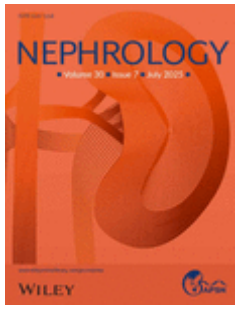
Suceena Alexander [1], Sanjiv Jasuja [2], Maurizio Gallieni [3], Manisha Sahay

International Journal of Nephrology, vol. 2021, Article ID 6665901, 11 pages, 2021.
https://doi.org/10.1155/2021/6665901



Countries	Total dropout rate at 1 year (%)	Dropout rate: Percentage distribution of total dropouts			Percentage growth projections over the next five years (2023)		
		Due to death (%)	Due to KT	Due to finances	ESKD growth	HD growth	PD growth
Singapore	11.96	99.5	0.5	0	>20	>20	10 to 20
Brunei	15.3	98	2	0	>20	>20	>20
Hong Kong	DNA	DNA	DNA	DNA	10 to 20	10 to 20	10 to 20
Taiwan	12	98.3	1.7	0	<10	<10	<10
Malaysia	12	87	12	1	>20	10 to 20	>20
Thailand	10	85	12	3	10 to 20	10 to 20	10 to 20
Sri Lanka	65	15.3	46.3	38.4	>20	>20	10 to 20
Indonesia	33.5	95.5	4.5	0	10 to 20	DNA	DNA
Philippines	DNA	DNA	DNA	DNA	10 to 20	<10	<10
India	67	43.2	37.3	19.4	10 to 20	>20	10 to 20
Vietnam	15	DNA	DNA	DNA	10 to 20	<10	<10
Myanmar	DNA	DNA	DNA	DNA	10 to 20	10 to 20	<10
Pakistan	90	45	5	50	10 to 20	<10	No growth
Bangladesh	50	20	10	70	<10	10 to 20	10 to 20
Nepal	DNA	DNA	DNA	DNA	>20	>20	>20

ESKD, end-stage kidney disease; PD, peritoneal dialysis; HD, hemodialysis; KT, kidney transplant; CS, conservative; DNA, data not available.



Received: 23 June 2020 | Revised: 11 October 2020 | Accepted: 16 October 2020
DOI: 10.1111/nep.13825

ORIGINAL ARTICLE

NEPHROLOGY WILEY

Aetiology, practice patterns and burden of end-stage kidney disease in South Asia and South-East Asia: A questionnaire-based survey

Manisha Sahay[1] | Sanjiv Jasuja[2] | Sydney Chi Wai Tang[3] |

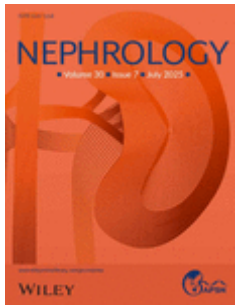
Rate of ESKD Explosion in the region

TABLE 3 Country-wise economic status, ESKD incidence, prevalence and top 3 aetiologies in the countries

Countries	Group As per economic status	ESKD incidence/ million	ESKD prevalence/ million	Expected growth of ESKD population in next 5 years (%)	Expected growth of HD units in next 5 years (%)	Expected growth of PD in next 5 years (%)
Singapore	GROUP 1 countries	256.5	DNA	>20 %	>20 %	10-20%
Brunei		387	1814	>20 %	>20 %	>20 %
Hong Kong		171	1268	10-20%	10 -20%	10 - 20%
Taiwan		455	3219	<10 %	<10 %	<10 %
Malaysia		248	1286	>20 %	10- 20%	>20 %
Thailand		317	1306	10-20%	10- 20%	10-20%
Sri Lanka	GROUP 2 countries	195	1046.5	>20 %	>20 %	10-20%
Indonesia		135	319	<10 %	NA	NA
Philippines		186	321	10-20%	<10 %	<10 %
India		151	800	10-20%	>20 %	10-20%
Vietnam		DNA	835	10- 20%	<10 %	<10 %
Myanmar		250	DNA	10-20%	10- 20%	<10 %
Pakistan		150	DNA	10- 20%	<10 %	No Growth
Bangladesh		175	250	<10 %	10-20%	10 - 20%
Nepal		100	172	>20 %	>20 %	>20 %

Note: Based on the data provided by the National Societies. Group 1, high-income|higher-middle-income countries; Group 2, low-income|lov
Abbreviations: CKD, chronic kidney disease; DNA, data not available; ESKD, end-stage kidney disease, HD, hemodialysis, PD, peritoneal dial

- Expected Growth of ESKD diagnosis and need for RRT will grow by 10-20 % every 5 yearly
- Hemodialysis growth will be outperforming PD Growth in most of SEA



Received: 23 June 2020 | Revised: 11 October 2020 | Accepted: 16 October 2020
DOI: 10.1111/nep.13825

ORIGINAL ARTICLE

NEPHROLOGY WILEY

Aetiology, practice patterns and burden of end-stage kidney disease in South Asia and South-East Asia: A questionnaire-based survey

Manisha Sahay[1] | Sanjiv Jasuja[2] | Sydney Chi Wai Tang[3] |

CKD Etiological Distribution

TABLE 4 First three commonest aetiologies of ESKD in SA&SEA (based on data from table 3)

Variables	Overall N = 15 (%)	Economic type	
		Group 1 N (%)	Group 2 N (%)
1st Commonest aetiology			
Diabetes mellitus	14 (93.3)	6 (100.0)	8 (88.9)
Glomerulonephritis	1 (6.7)	0 (0.0)	1 (11.1)
2nd commonest aetiology			
Diabetes mellitus	1(6.7)	0 (0.0)	1 (11.1)
Glomerulonephritis	5 (33.3)	4 (66.7)	1 (11.1)
Hypertension	8 (53.3)	2 (33.3)	6 (66.7)
Unknown aetiologies	1 (6.7)	0 (0.0)	1 (11.1)
3rd commonest aetiologies			
Glomerulonephritis	7 (46.7)	1 (16.7)	6 (66.7)
Hypertension	4 (26.7)	4 (66.7)	0 (0.0)
Unknown aetiologies	3 (20.0)	1 (16.7)	2 (22.2)
Urological diseases	1 (6.3)	0 (0.0)	1 (11.1)

Note: Group 1, high-income|higher-middle income countries; Group 2, low-income|lower-middle income countries; N, number to total countries participated.

- Commonest Aetiology for ESKD diagnosis is Diabetes Mellitus in entire SEA
- 2nd commonest Hypertension in Low Income and Glomerulonephritis in Higher Income countries



Interventional nephrology and vascular access practice: A perspective from South and Southeast Asia

Raja Ramachandran[1], Vinant Bhargava[2], Sanjiv Jasuja[3], Maurizio Gallieni[4], Vivekanand Jha[5], Manisha Sahay[6],

Planned vs Unplanned initiation of Dialysis

Table 2. Incident and prevalent dialysis access, cost and access operator.

	HD initiation trends	Access for incident hemodialysis patients (%)		Access for prevalent hemodialysis patients (%)			
	Pl in			AVF	AVG	TCC	Non TCC
Bangladesh		Bangladesh	40	60	90	<1	8	–
Brunei		Brunei	52.8	47.2	61	0	39	0
India	<	India	<10	>90	70	5	15	10
Indonesia		Indonesia	10	90	67	–	2	11
Malaysia		Malaysia	35	65	85	1.4	6.7	6.9
Myanmar		Myanmar	31	69	90	2	8	0
Nepal		Nepal	40	60	90	<1	1	8
Pakistan	<	Pakistan	<10	>90	18.3	1.7	5.8	74.2
Philippines		Philippines	25	75	80	15	5	0
Sri Lanka		Sri Lanka	35	65	60	4	12	24
Vietnam		Vietnam	30	70	80	10	10	0
Hong Kong		**Hong Kong**	70	30	40	30	30	0
Singapore		**Singapore**	15	85	76.4	14.8	7.6	0
Taiwan		**Taiwan**	60	40	79.4	10.6	10	0
Thailand		**Thailand**	70	30	60	20	20	0

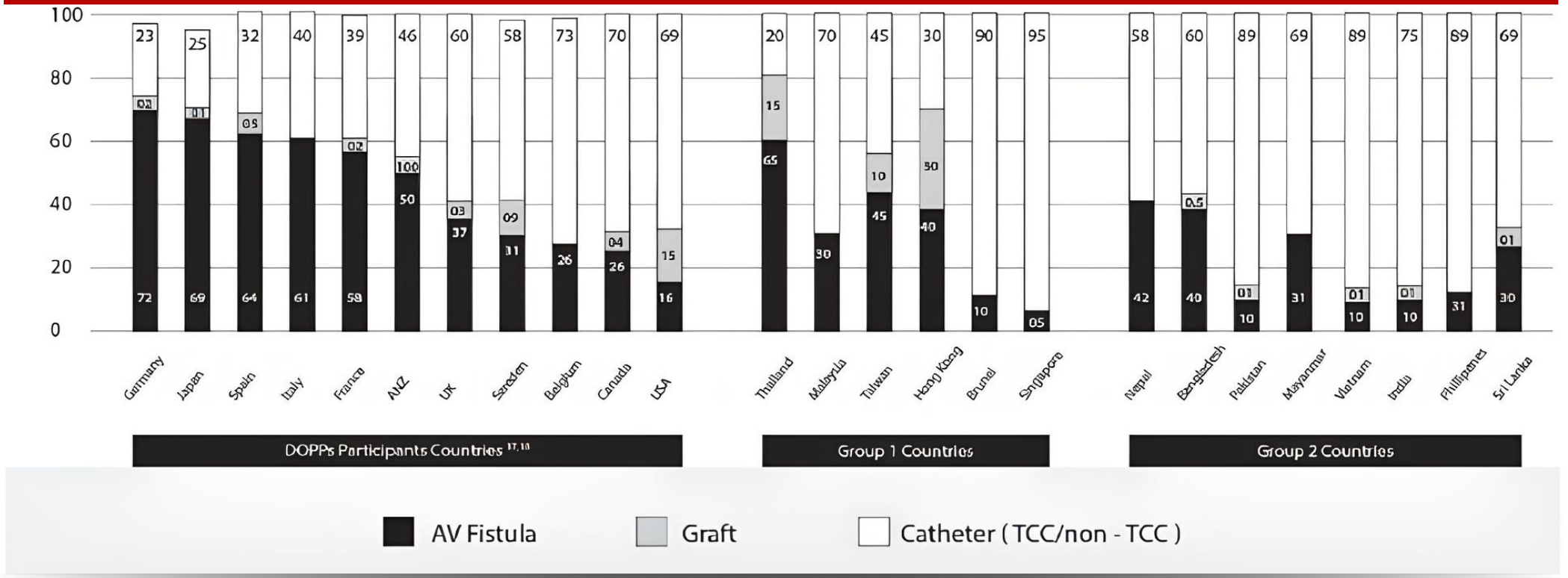
AVF: arteriovenous f
Group I countries—
*Unplanned initiation—patients starting dialysis as emergency procedure without pre-existing permanent access in patient of CK
*Average cost of access procedure is mentioned as government/private.



Interventional nephrology and vascular access practice: A perspective from South and Southeast Asia

Raja Ramachandran[1], Vinant Bhargava[2], Sanjiv Jasuja[3], Maurizio Gallieni[4], Vivekanand Jha[5], Manisha Sahay[6],

Vascular accesses among incident HD patients

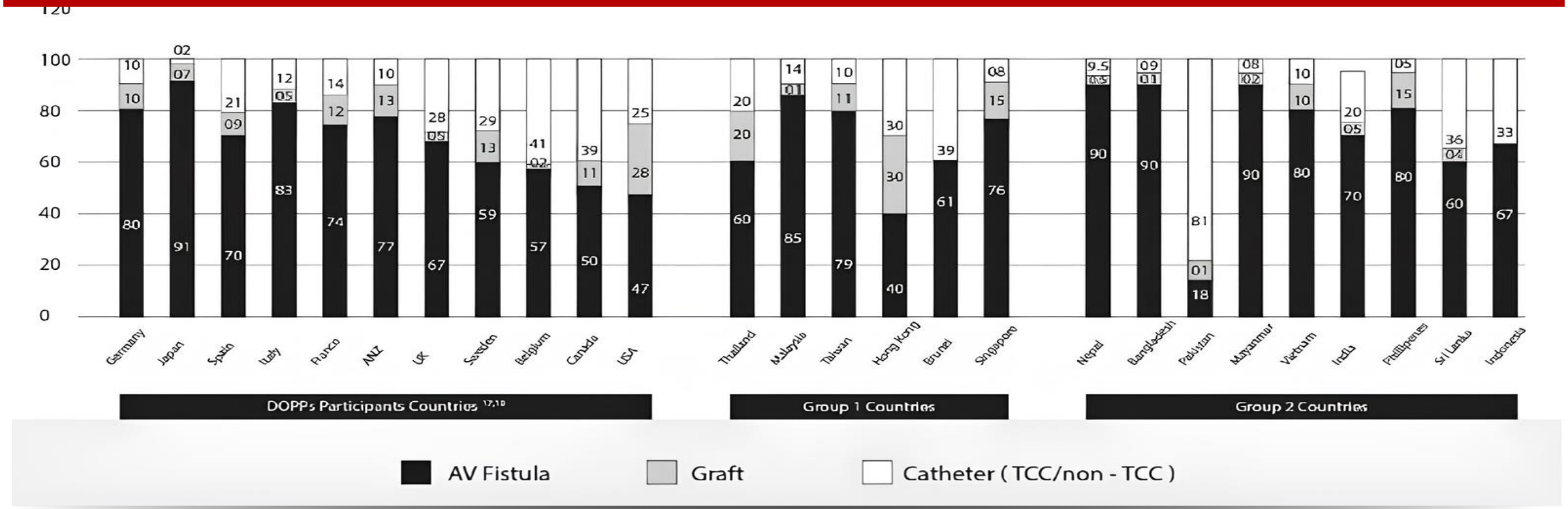




Interventional nephrology and vascular access practice: A perspective from South and Southeast Asia

Raja Ramachandran[1], Vinant Bhargava[2], Sanjiv Jasuja[3], Maurizio Gallieni[4], Vivekanand Jha[5], Manisha Sahay[6],

Vascular accesses among prevalent HD patients



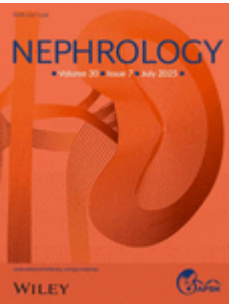


Interventional nephrology and vascular access practice: A perspective from South and Southeast Asia

Raja Ramachandran[1], Vinant Bhargava[2], Sanjiv Jasuja[3], Maurizio Gallieni[4], Vivekanand Jha[5], Manisha Sahay[6],

AV Fistula & Graft surgery

	AV fistula surgery is done by (% wise)		Who does AV graft surgery (% wise)	
	By nephrologist	By others	By nephrologist	By others
Bangladesh	5	95	0	100
Brunei	0	100	0	100
India	10	90	5	95
Indonesia	0	100	0	100
Malaysia	0	100	0	100
Myanmar	0	100	0	100
Nepal	0	100	0	100
Pakistan	5	95	0	100
Philippines	0	100	0	100
Sri Lanka	0	100	0	100
Vietnam	30	70	30	70
Hong Kong	0	100	0	100
Singapore	0	100	0	100
Taiwan	0	100	0	100
Thailand	0	100	0	100



Challenges in practice of IN in SEA

Practice of dialysis access-related interventional nephrology in the Asia-Pacific Region: Getting lay of the land.

NEPHROLOGY

Aim:	Methods:	Results:
To investigate the practice pattern of dialysis access-related interventional nephrology (IN) procedures among nephrologists from 21 countries in the Asia-Pacific region.	• Cross-sectional multinational online survey  **Participants** Council members of Asia Pacific Society of Dialysis Access (APSDA) In their individual capacity IN practicing Nephrologists from Non APSDA members countries	**In 18/21 countries (86%)** majority of nephrologists are inserting hemodialysis catheters. **Nephrologists (< 10%)** create arteriovenous fistulas and perform angioplasties in one third of countries. **Peritoneal dialysis catheter placement** was the most practiced advanced IN procedure. **Challenges in practicing IN**: lack of training and time. **Challenges in expanding IN**: finance and workforce.

CONCLUSION

Dialysis access-related IN is underdeveloped in the Asia Pacific Region. The uptake and practice of IN is hampered by lack of training, backup support, and economic constraints.

Jasuja et al., 2023

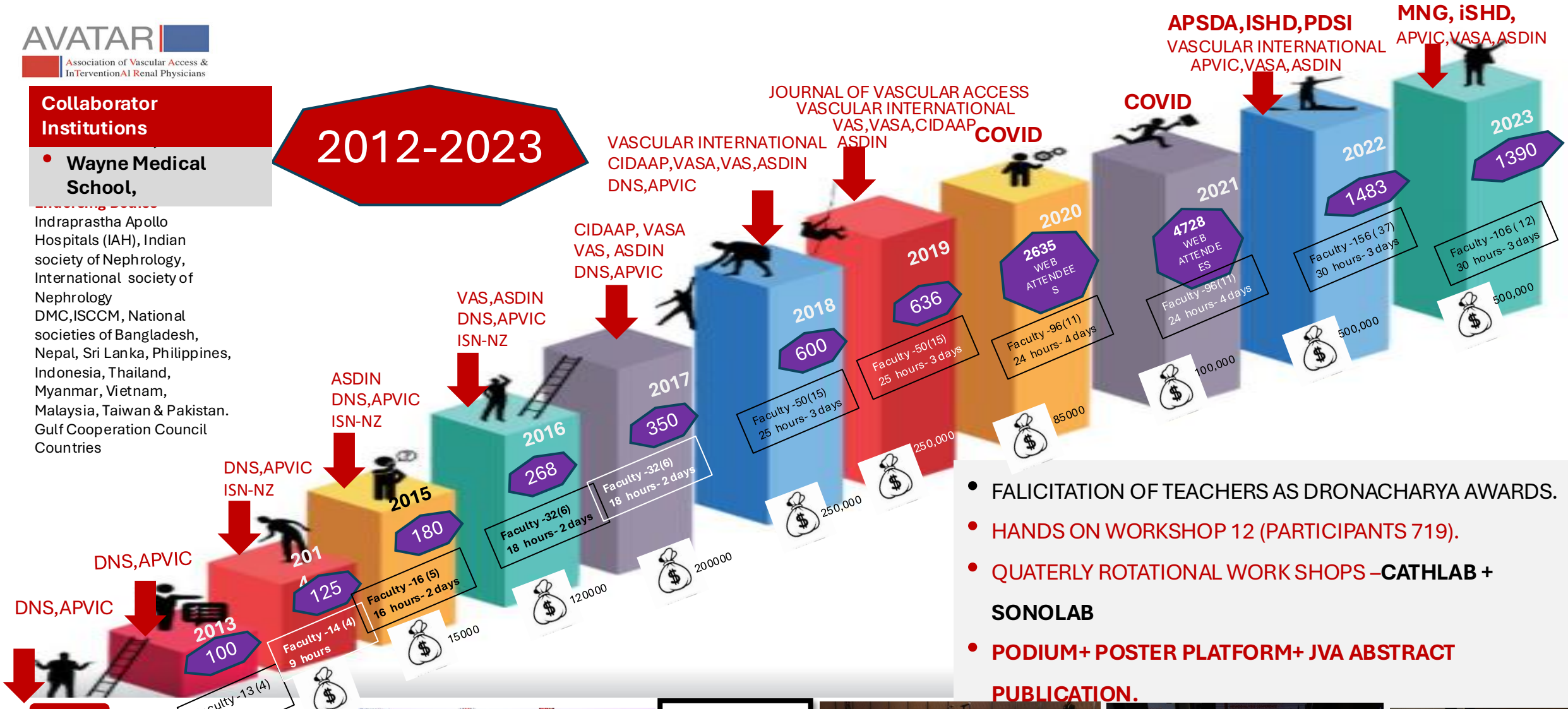
AVATAR
Association of Vascular Access & InTervention AI Renal Physicians

Collaborator Institutions

- **Wayne Medical School,**

Indraprastha Apollo Hospitals (IAH), Indian society of Nephrology, International society of Nephrology DMC,ISCCM, National societies of Bangladesh, Nepal, Sri Lanka, Philippines, Indonesia, Thailand, Myanmar, Vietnam, Malaysia, Taiwan & Pakistan. Gulf Cooperation Council Countries

2012-2023



- FALICITATION OF TEACHERS AS DRONACHARYA AWARDS.
- HANDS ON WORKSHOP 12 (PARTICIPANTS 719).
- QUATERLY ROTATIONAL WORK SHOPS –**CATHLAB + SONOLAB**
- **PODIUM+ POSTER PLATFORM+ JVA ABSTRACT PUBLICATION.**











KI REPORTS
KIReports.org
EDITORIAL

Building Interventional Nephrology Skills in India: A Decade-Long Journey by the AVATAR Foundation

Check for updates

Sanjiv Jasuja[1], Vivekananda Jha[2,3,4], Devinder S. Rana[5], Gaurav Sagar[1], Maurizio Gallieni[6], Anupam Bahl[1] and Tushar J. Vachharajani[7,8]

[1]Department of Nephrology, Indraprastha Apollo Hospital, New Delhi, India; [2]George Institute for Global Health, New Delhi, India; [3]Prasanna School of Public Health, Manipal Academy of Higher Education, Manipal, India; [4]School of Public Health, Imperial College, London, UK; [5]Department of Nephrology, Sir Ganga Ram Hospital, New Delhi, India; [6]Nephrology Unit, Department of Biomedical and Clinical Sciences, Università di Milano, Milan, Italy; [7]Department of Medicine, John D. Dingell Veterans Affairs Medical Center, Detroit, Michigan, USA; and [8]Department of Medicine, Wayne State University School of

prevalent practice pattern in India, where hemodialysis was initiated with a nontunneled catheter in 75% of patients and with an arteriovenous fistula in < 25% cases. Catheter-related sepsis was reported in at least 50% of the population. A survey of 920 nephrologists found that awareness of a multidisciplinary approach to dialysis vascular access care was < 30%.[4] A group of nephrologists interested in improving dialysis care in India recognized the neglect and fragmentated approach to dialysis ac-

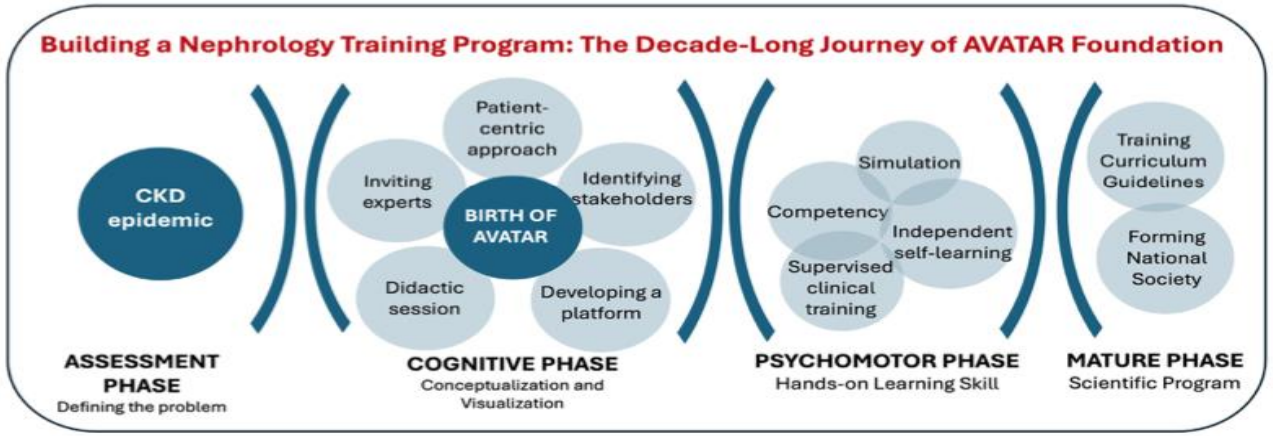


Figure 1. Building a nephrology training program: The decade-long journey of AVATAR Foundation. Phases of building a procedural training program in nephrology by AVATAR India over the last decade. AVATAR, Association of Vascular Access and Interventional Renal Physicians;

Journey of AVATAR
Foundation to National Society

AVATAR

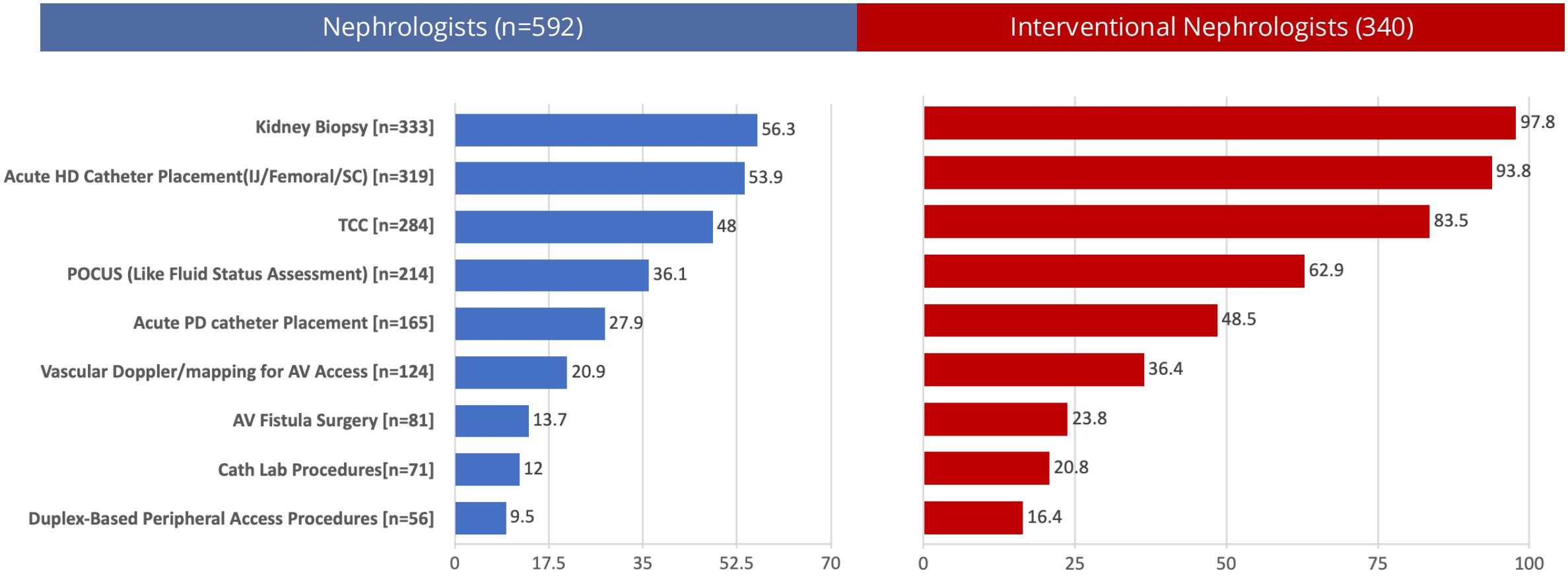
Association of Vascular Access & InTerventionAl Renal Physicians

AVATAR INDIA

ASSOCIATION OF VASCULAR ACCESS AND INTERVENTIONAL RENAL PHYSICIANS OF INDIA

Survey of Indian Nephrologists

Distribution of Intervention Nephrology Skills among Indian Nephrologists [n=592/1800]



Thanks

Survey of Indian Nephrologists

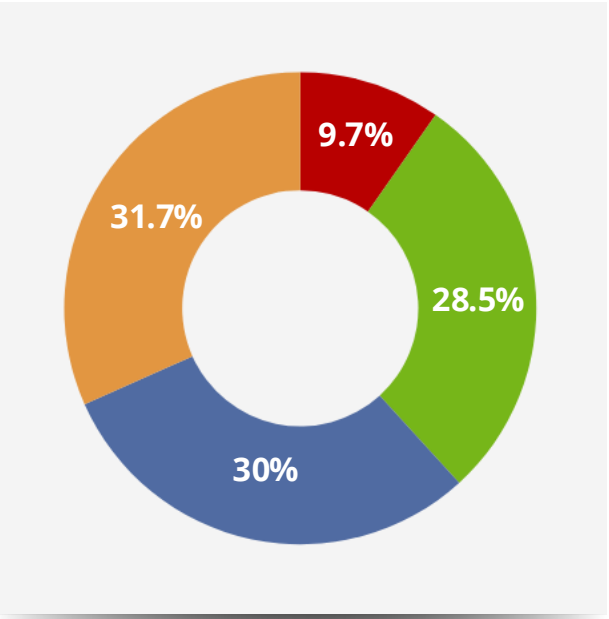
Stream of Nephrology being practised	Number	Percentage (%)
Only Interventional Nephrology	7	1.2
Only basic Basic	41	6.9
Only transplant Nephrology	7	1.2
Only Critical care Nephrology (CCN)	1	0.2
Interventional+ Basic Nephrology	8	1.4
Inerventional+Transplant Nephrology	3	0.5
Interventional+ CCN Nephrology	0	0.0
Basic+ Transplant Nephrology	26	4.4
Basic+ CCN Nephrology	61	10.3
Transplant+ CCN Nephrology	2	0.3
Interventiona+basic+transplant Nephrology	24	4.1
Interventional + Basic+ CCN Nephrology	75	12.7
Interventional+ Transplant+ CCN Nephrology	10	1.7
Basic + transplant+ CCN Nephrology	114	19.3
Interventional + Basic+ Transplant+ CCN Nephrology	213	36.0
Total	**592***	**100.0**

Survey of Indian Nephrologists

Execution of Intervention Nephrology Skills among Indian Nephrologists [n=592/1800]

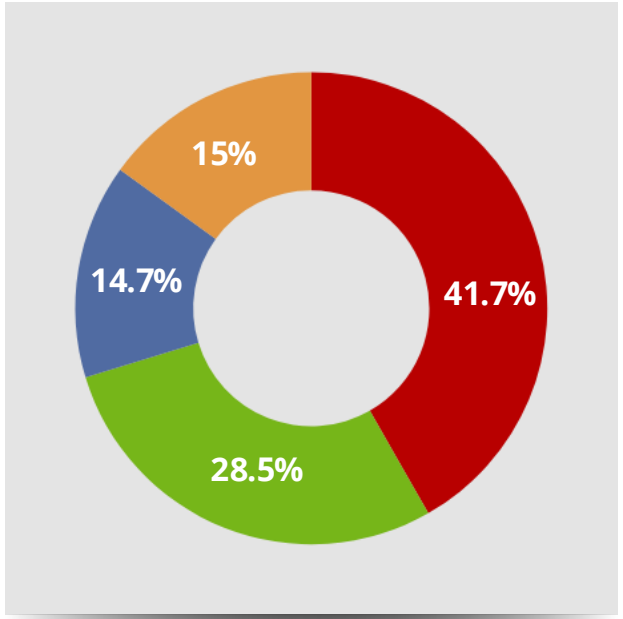
Acute HD Catheter

[n=319(53.9%)]



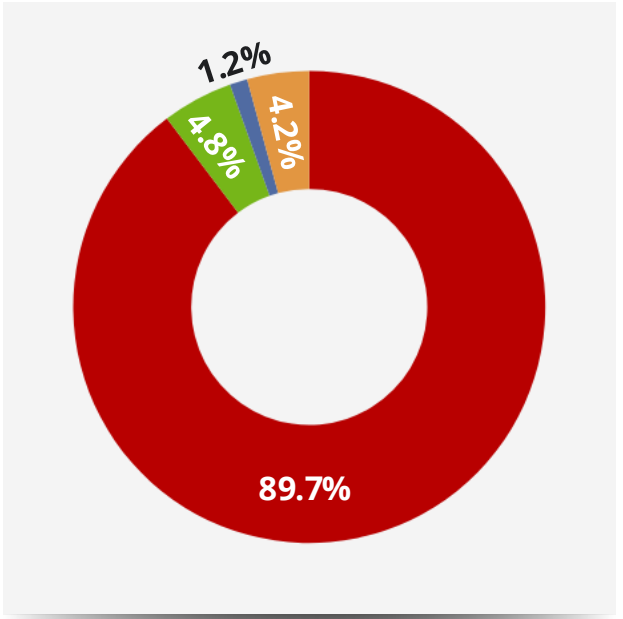
Kidney Biopsy

[n=333(56.3%)]



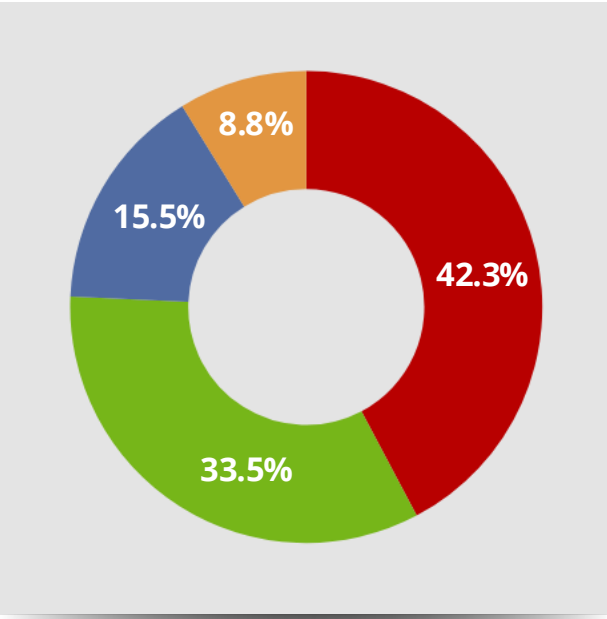
PD Catheter

[n=165(28%)]



TCC Placement

[n=284 (48%)]

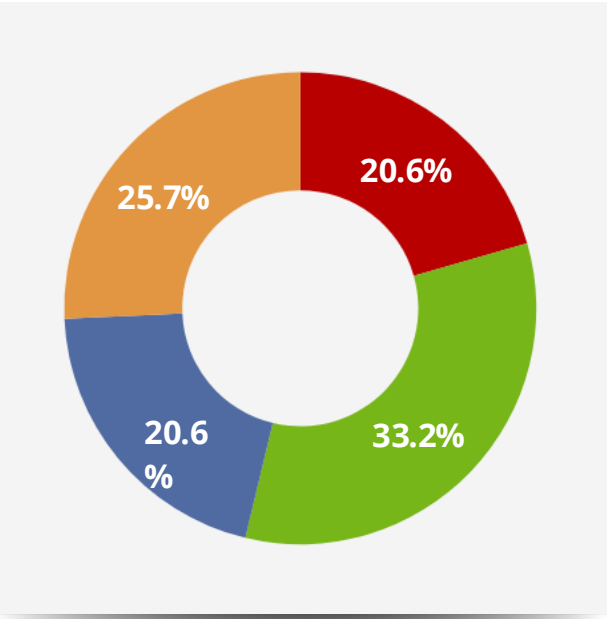




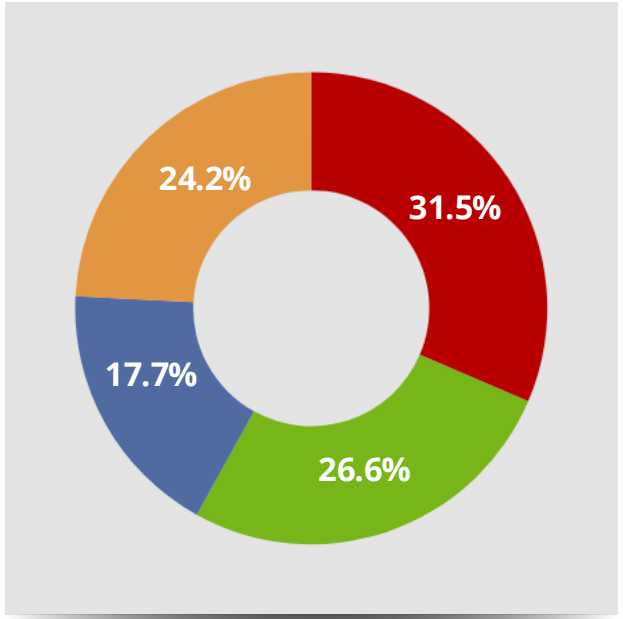
Survey of Indian Nephrologists

Distribution of Intervention Nephrology Skills among Indian Nephrologists [n=592/1800]

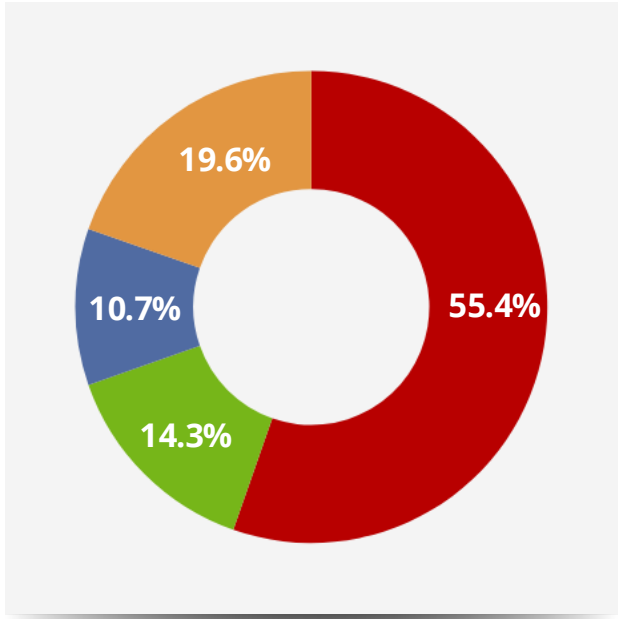
POCUS [n=214(36%)]



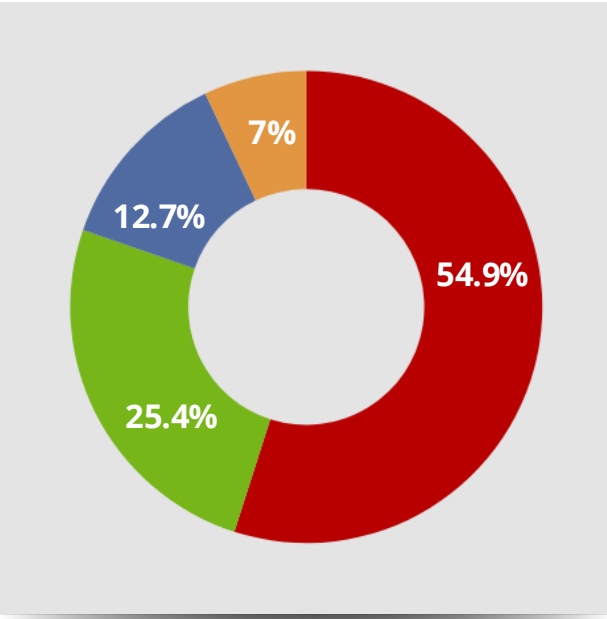
Doppler Mapping of AV Access [n=124(21%)]



Duplex-Based Peripheral Access Procedures [n=56(9.5%)]



Cath Lab Procedures [n=71(12%)]

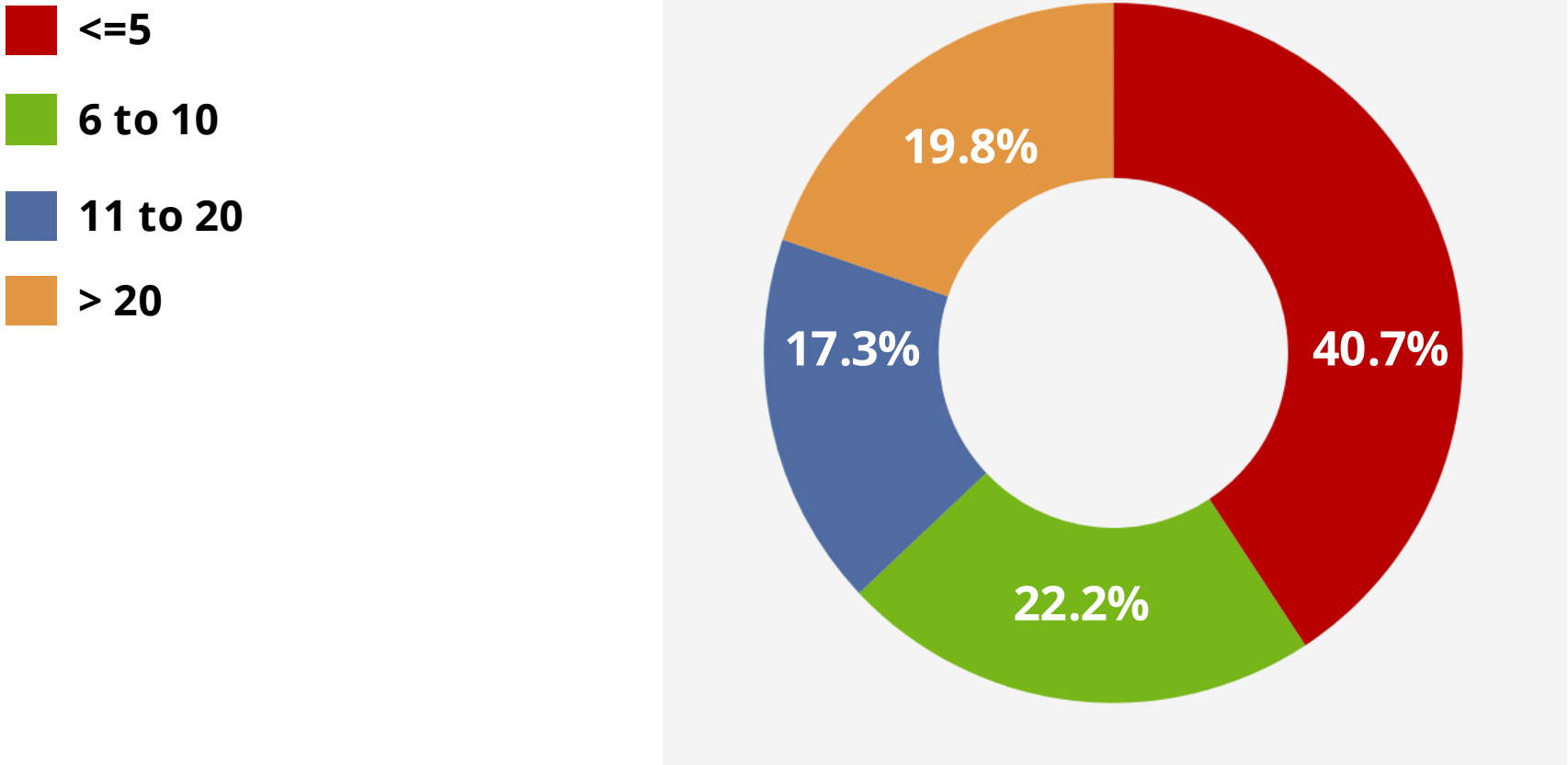




Survey of Indian Nephrologists

Distribution of Intervention Nephrology Skills among Indian Nephrologists [n=592/1800]

Av Fistula Surgery by Nephrologists [n=81(13.7%)]





Impact of National Economy and Policies on End-Stage Kidney Care in South Asia and Southeast Asia

International Journal of Nephrology, vol. 2021, Article ID 6665901, 11 pages, 2021. https://doi.org/10.1155/2021/6665901

Suceena Alexander [1], Sanjiv Jasuja [2], Maurizio Gallieni [3], Manisha Sahay

Table 3: Country-wise RRT cost and healthcare expenditure per capita in SA and SEA.

Countries	National population (millions)	Total national health expenditure (% of GDP)	PCI (USD)	Current healthcare expenditure per capita (USD)	Current healthcare expenditure per capita/PPP (USD)	% distribution of RRT options				Monthly cost (USD)
						PD (%)	HD (%)	KT (%)	CS (%)	HD/PD
Singapore	5.64	4.9	56,957	2618.71	4269.96	10.1	71.6	18.3	0	2000/1050
Brunei	0.43	2.6	83,250	671.40	1874.95	10	86	4	0	2000/2500
Hong Kong	7.45	5.5	32,927	440.83	841.11	46	15	39	0	DNA/DNA
Taiwan	23.73	6.3	23,330	NA	NA	8.8	87.1	4.1	<1	1550/1443
Malaysia	31.53	4.21	11,521.45	348.07	1138.96	9.5	85.7	4.7	0	867/815
Thailand	69.43	4.1	5,960	247.04	670.88	30	60	10	0	800/700
Sri Lanka	21.67	3.5	11,970	159.48	503.50	7	62	21	10	300/375
Indonesia	267.66	3	3,605	114.97	367.94	3	94	3	0	580/500
Philippines	106.65	4.5	2989	132.90	371.74	3.4	94.1	2.5	0	704/706
India	1352.62	4	2,134	69.29	253.32	0.5	67.3	5	27.2	350/500
Vietnam	95.54	7.07	1770.3	129.58	375.64	10	40	10	40	600/600
Myanmar	53.71	5.9	1,299	58.04	287.64	2	36	0.8	61.2	280/385
Pakistan	212.22	2.8	1547.9	44.59	160.56	0.5	10	5	84.5	400/310
Bangladesh	161.36	3.5	1,650	36.28	94.38	5	70	5	20	500/425
Nepal	28.09	5.8	681	47.92	150.07	5	95	0	0	250/300

RRT, kidney replacement therapy; WBR, World Bank Ranking; GDP, gross domestic product; USD, US dollars; PCI, per capita income; PD, peritoneal dialysis; HD, hemodialysis; KT, kidney transplant; CS, conservative; DNA, data not available.

Epidemiology & CKD Burden

- The Asia-Pacific region carries a **disproportionately high CKD burden**, driven by diabetes, hypertension, and aging populations.
- In India, CKD prevalence is estimated at **~13–16%**, with a clear upward trajectory.
- Late presentation is common, with many patients first seen at **ESKD stage**, limiting pre-emptive care and access planning.



Commentary

Prevalence of chronic kidney disease in India - Where are we heading?

With increasing life expectancy and prevalence of life style diseases, US has seen a 30% increase in prevalence of chronic kidney disease (CKD) in the last decade.[1] Unfortunately, from India there is no longitudinal study and limited data on the prevalence of CKD.

In western countries, diabetes and hypertension account for over 2/3rd of the cases of CKD.[2] In India too, diabetes and hypertension today account for 40–60% cases of CKD.[3] As per recent Indian Council of Medical Research data, prevalence of diabetes in Indian adult population has risen to 7.1%, (varying from 5.8% in Jharkhand to 13.5% in Chandigarh) and in urban population (over the age of 40 years) the prevalence is as high as 28%.[4,5] Likewise the reported prevalence of hypertension in the adult population today is 17% (14.8% from rural and 21.4% from urban belt). A similar prevalence of 17.4% has been reported by Panesar *et al*. (in the age group of 20–59 years) even from slum-resettlement colony of Delhi.[6,7] With rising prevalence of these diseases in India, prevalence of CKD is expected to rise, and obviously this is the key target population to address.

A study published in this issue is from a rural belt of Karnataka. The population had a mean age of 39.88 ± 15.87 years with 3.82% prevalence of diabetes and 33.62% of hypertension. Authors found 6.3%

https://pmc.ncbi.nlm.nih.gov/articles/PMC4446915/pdf/IJN-25-133.pdf 2015

Table 1: Prevalence of CKD- Indian Data

Authors	*n*	Mean age (in years)	DM (%)	HTN (%)	Criteria of CKD	Stage and prevalence	Limitations
Agarwal *et al.*	4712 urban	42±13	10.7	22.13	Creatinine ≥1.8 mg/dl on two occasions 8-12 weeks apart	Stage 3 and above=0.785%	Creatinine cut off 1.8 mg/dl is high Proteinuria subset not included as CKD GFR not calculated
Varma *et al.*	3398 mixed	35.65±8.72	1.53	15	Almuminuria >30 mg/L or albumin/creatinine ratio >30 and/or GFR <60 ml/min by MDRD and CKD-EPI	Stage 1-3=13%	Albuminuria done only once
Singh *et al.*	5588 urban	45.2±15.2	18.8	43.1	Dip stick proteinuria GFR <60 ml/min	Stage 1-5=17.2%, 6% stage 3 and above	Voluntary approach Large number having DM and HTN (high-risk group), population not true representative
Singh *et al.*	5252 semi-urban	-	7.3	31.2	Dip stick proteinuria and GFR <60 ml/min	Stage 3 and above=4.2%	Proteinuria not repeated

DM: Diabetes mellitus, HTN: Hypertension, CKD: Chronic kidney disease, GFR: Glomerular filtration rate, MDRD: Modification of diet in renal disease,