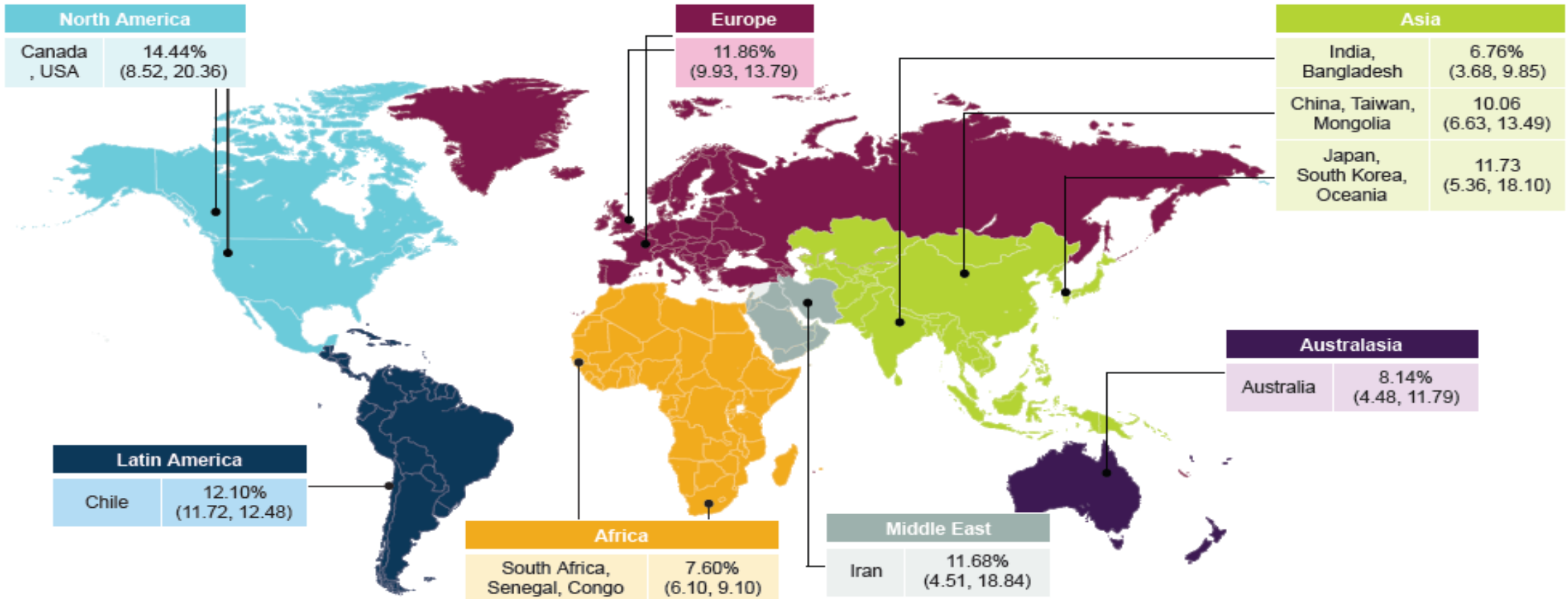
Optimizing Kidney Disease Outcomes: The Role of Rehabilitation in Patient Care

Dr. Bryan Chong Men LEONG
Consultant Nephrologist & Physician
Sunway Medical Centre Penang, Malaysia

CKD is a highly prevalent, global disease

The global prevalence of CKD is over 843 million[1]

Meta-analysis estimating the global prevalence of CKD (stages 3–5)[2]



CKD = chronic kidney disease.

1. Jager KJ et al. *Nephrol Dial Transplant.* 2019;34:1803–1805; 2. Hill NR et al. *PLoS One.* 2016;11:e0158765.

Prevalence of CKD

Thailand: 17.5%

India: 17.2%

Singapore: 15.6%

China: 10.8%

Saminathan *et al. BMC Nephrology* (2020) 21:344

Saminathan *et al. BMC Nephrology* (2020) 21:344
https://doi.org/10.1186/s12882-020-01966-8

BMC Nephrology

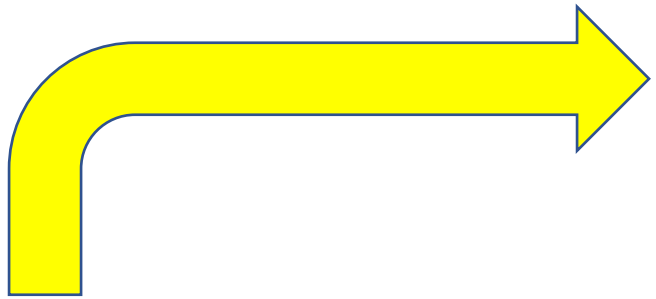
RESEARCH ARTICLE Open Access

Prevalence of chronic kidney disease and its associated factors in Malaysia; findings from a nationwide population-based cross-sectional study

Thamil Arasu Saminathan[1*], Lai Seong Hooi[2], Muhammad Fadhli Mohd Yusoff[1], Loke Meng Ong[3], Sunita Bavanandan[4], Wan Shakira Rodzlan Hasani[1], Esther Zhao Zhi Tan[5], Irene Wong[6], Halizah Mat Rifin[1], Tania Gayle Robert[1], Hasimah Ismail[1], Norazizah Ibrahim Wong[1], Ghazali Ahmad[4], Rashidah Ambak[1], Fatimah Othman[1], Hamizatul Akmal Abd Hamid[1] and Tahir Aris[1]

Table 5 Prevalence of CKD by stages ($N = 890$)

CKD Stages	n	Estimated population	Prevalence (%)	95% CI
Total CKD	158	2,607,448	15.48	12.30, 19.31
Stage 1	42	649,069	3.85	2.51, 5.87
Stage 2	51	811,853	4.82	3.14, 7.32
Stage 3	59	1,091,582	6.48	4.41, 9.43
Stage 4–5	6	54, 944	0.33	0.14, 0.78



15.48%

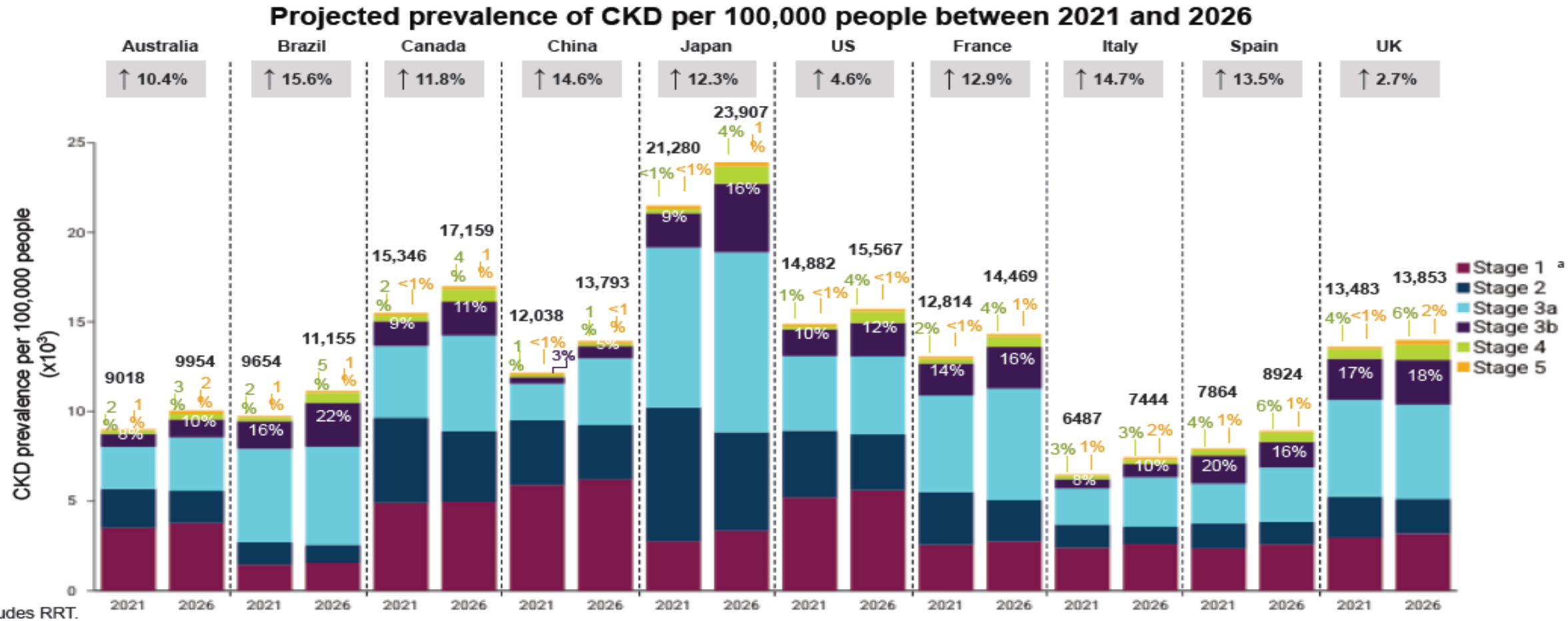
(year 2018)

9.07%

(year 2011)

Saminathan *et al. BMC Nephrology* (2020) 21:344

The prevalence of CKD is projected to increase through 2026, driven by more advanced stages of disease



[a]Includes RRT.

CKD = chronic kidney disease; RRT = renal replacement therapy; UK = United Kingdom; US = United States.

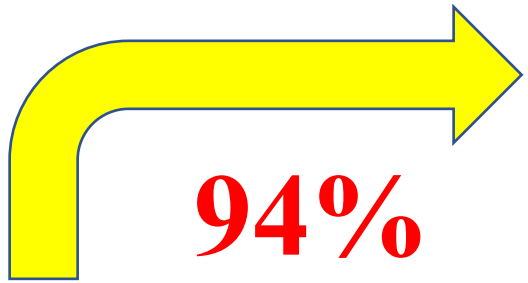
1. Tangri N et al. Poster presented at: WCN; April 16-19, 2021; Virtual. Poster #0668; 2. Power A et al. Poster presented at: WCN; April 16-19, 2021; Virtual. Poster #0657.

KI REPORTS
KIReports.org
CLINICAL RESEARCH

Economic Burden of ESRD to the Malaysian Health Care System

Hirman Ismail[1,2], Mohd Rizal Abdul Manaf[2], Abdul Halim Abdul Gafor[3], Zaki Morad Mohamad Zaher[4] and Adriana Irawati Nur Ibrahim[5]

[1]Ministry of Health Malaysia, Putrajaya, Malaysia; [2]Department of Community Health, Faculty of Medicine, Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Kuala Lumpur, Malaysia; [3]Department of Medicine (Nephrology), Faculty of Medicine, Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Kuala Lumpur Malaysia; [4]KPJ Ampang Puteri Specialist Hospital, Ampang, Selangor, Malaysia; and [5]Institute of Mathematical Sciences, Faculty of Science, University of Malaya, Kuala Lumpur, Malaysia



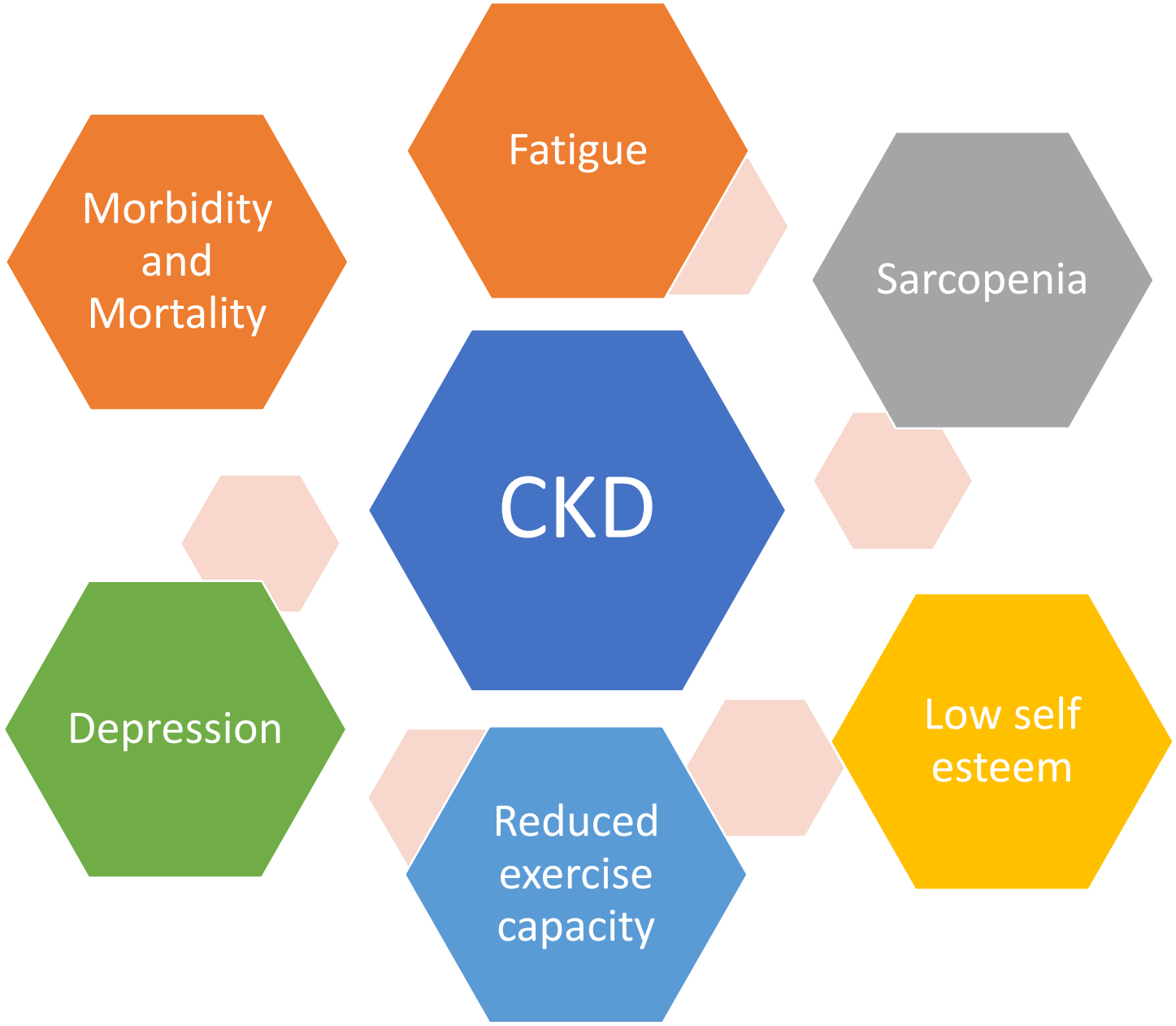
RM1.12billion

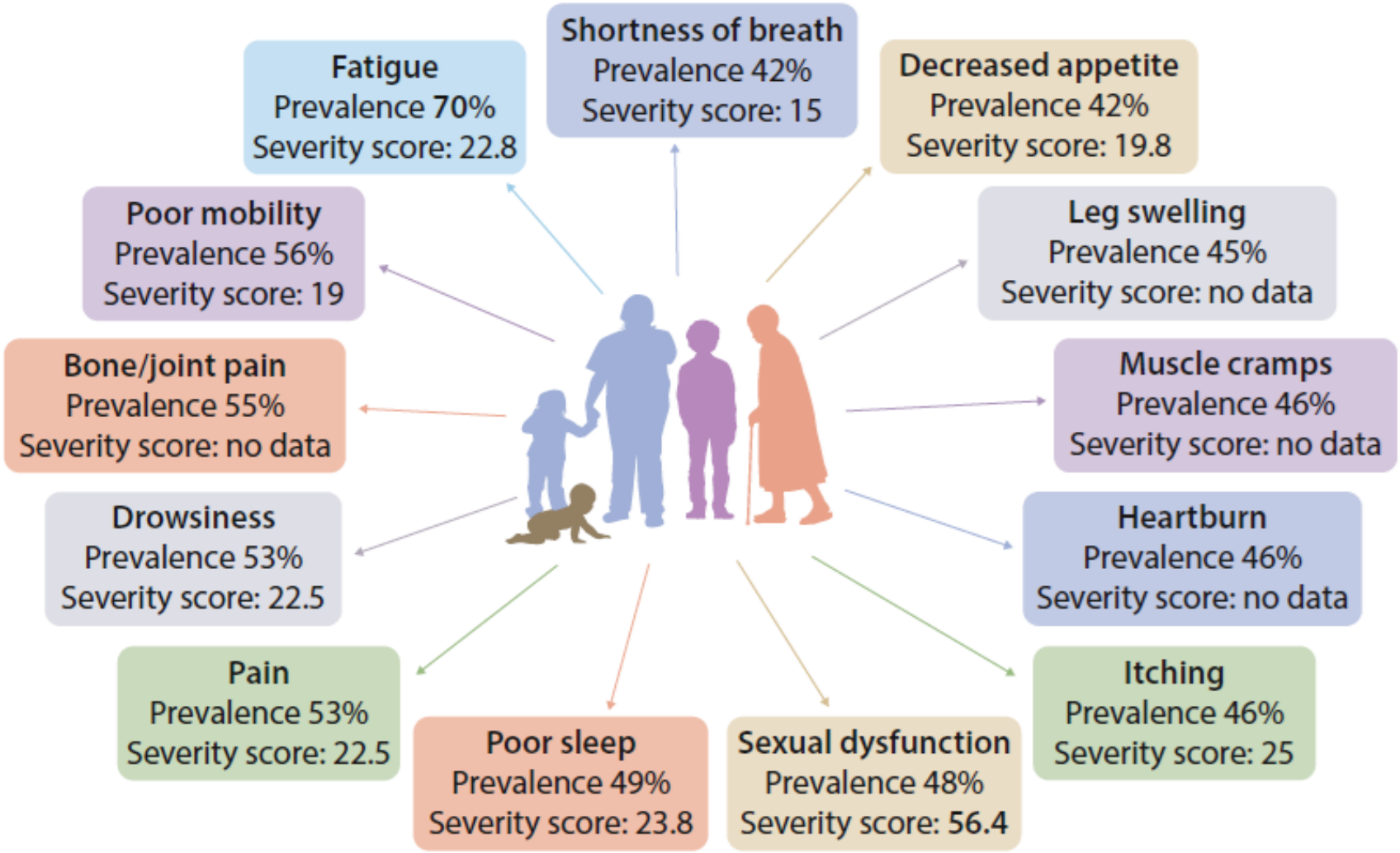
(year 2016)

RM572million

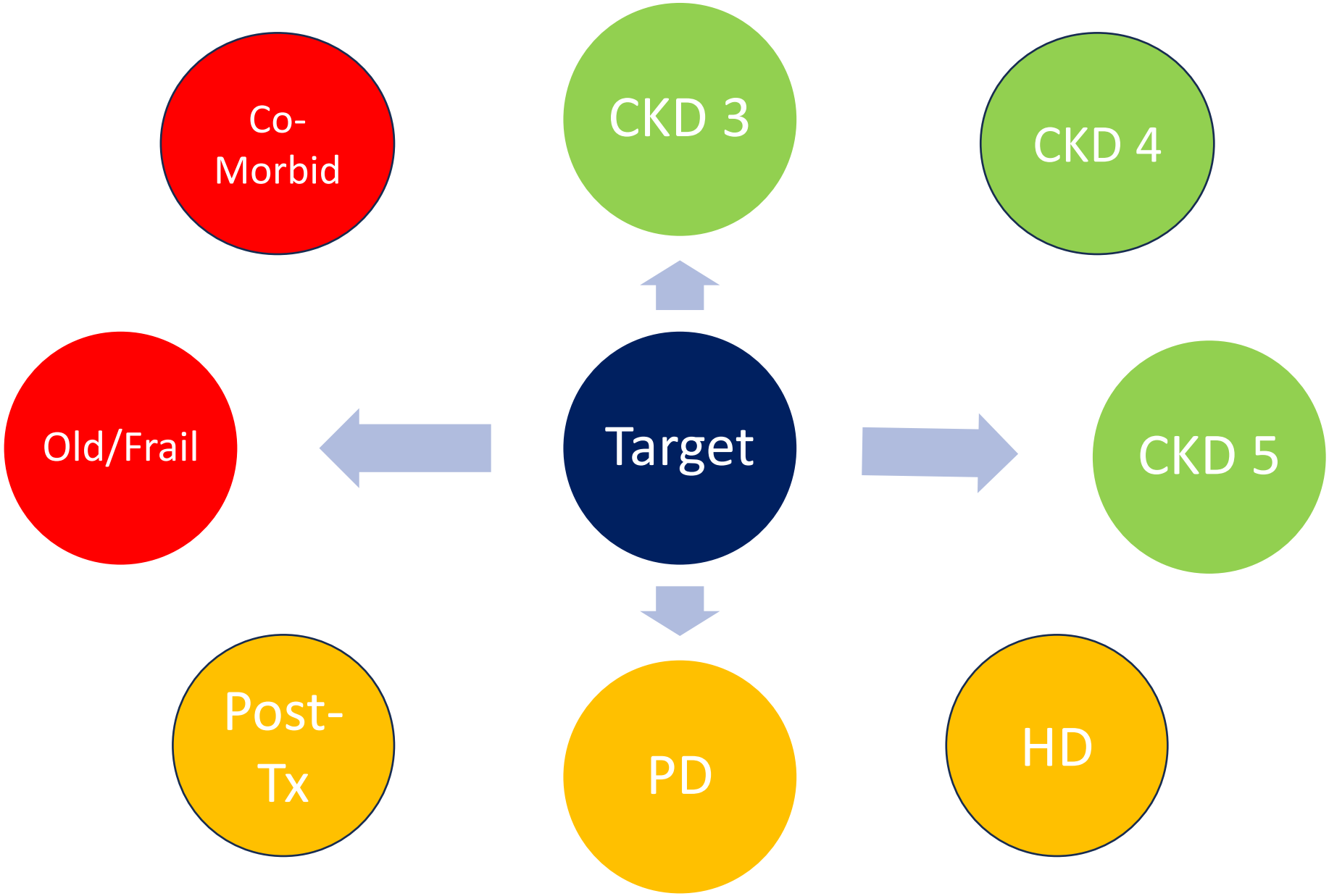
(year 2010)

H Ismail et al.: Malaysian Expenditure on ESRD


Morbidity and Mortality
Fatigue
Sarcopenia
CKD
Depression
Reduced exercise capacity
Low self esteem



Fletcher BR, Damery S, Aiyegbusi OL, et al. Symptom burden and healthrelated quality of life in chronic kidney disease: a global systematic review and meta-analysis. PLoS Med. 2022;19:e1003954


Co-Morbid
CKD 3
CKD 4
Old/Frail
Target
CKD 5
Post-Tx
PD
HD

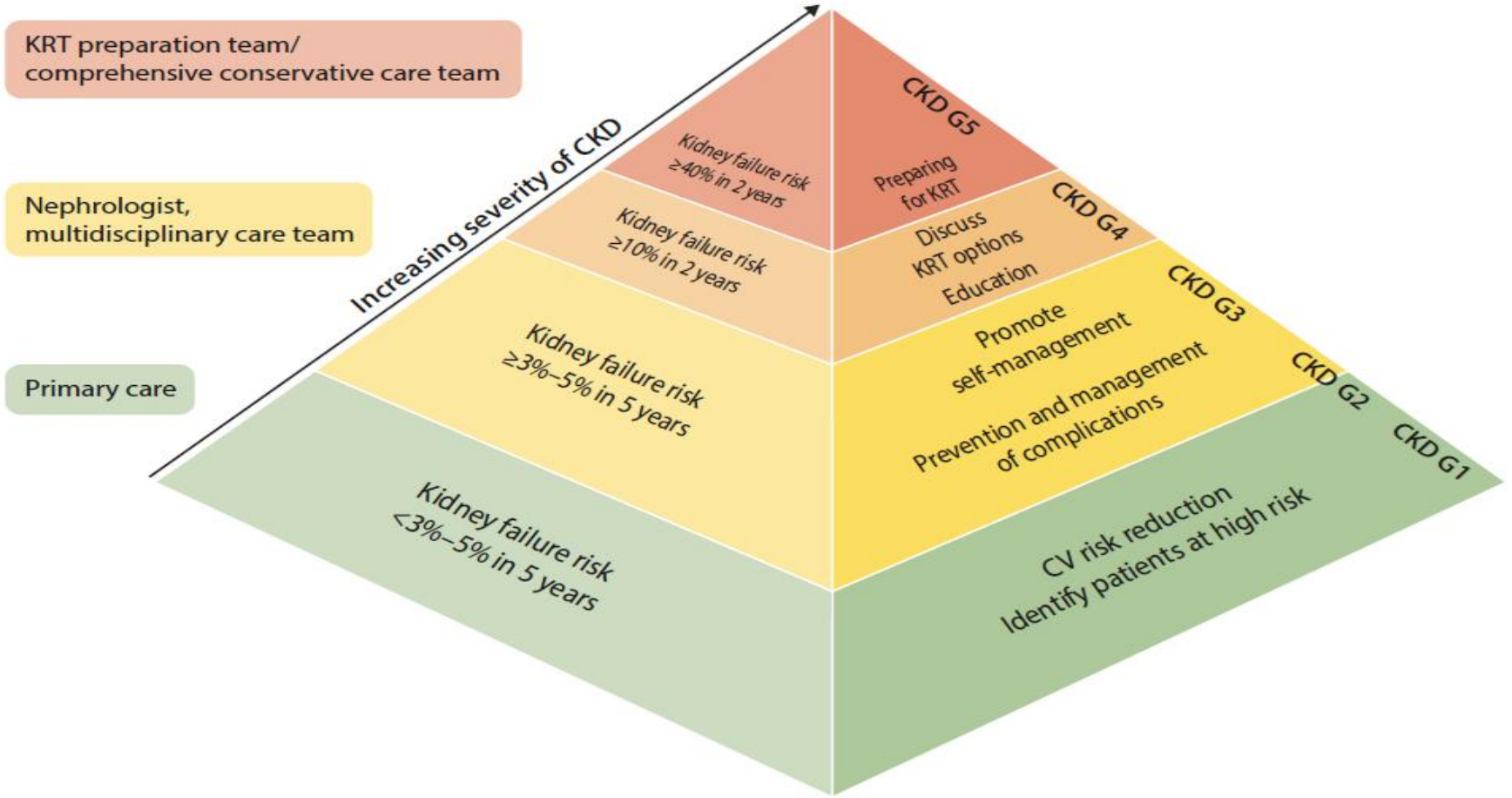


Figure 50 | Optimal care model by increasing severity of chronic kidney disease (CKD). CV, cardiovascular; KRT, kidney replacement therapy.

KDIGO 2024 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease

Renal Rehabilitation

Multi-Disciplinary Approach

- Doctor
- Nurse
- Pharmacist
- Dietitian
- Physiotherapist
- Occupational therapist
- Psychologist/ psychiatrist
- Social welfare officer
- Peers support group

Aspects of Rehabilitation

- Physical wellbeing
- Laboratory parameters
- Nutritional status
- Physical fitness
- Self-care
- Mental health
- Self-esteem
- Vocational
- Social life

Renal Rehabilitation

Multi-Disciplinary Approach

- Doctor
- Nurse
- Pharmacist
- Dietitian
- Physiotherapist
- Occupational therapist
- Psychologist
- Social welfare officer
- Peers support group

Aspects of Rehabilitation

- Physical wellbeing
- Laboratory parameters
- Nutritional status
- Physical fitness
- Self-care
- Mental health
- Self-esteem
- Vocational
- Social life

QOL

Factors	n	Hazard ratio	95% CI	P-value
Modality				
HD (ref*)	117,324	1.00		
PD	19,304	0.79	(0.764, 0.818)	<0.001
BMI				
BMI <18.5	5,148	1.34	(1.278, 1.41)	<0.001
BMI 18.5-25 (ref*)	55,620	1.00		
BMI 25-30	56,544	1.07	(1.053, 1.097)	<0.001
BMI >=30	19,316	0.94	(0.917, 0.971)	<0.001
Albumin (g/L)				
<25	4,010	7.04	(6.639, 7.463)	<0.001
25-<30	8,960	4.12	(3.943, 4.301)	<0.001
30-<35	25,580	2.42	(2.353, 2.499)	<0.001
35-<40	62,590	1.55	(1.514, 1.59)	<0.001
>=40 (ref*)	35,488	1.00		

Factors	n	Hazard ratio	95% CI	P-value
Modality				
HD (ref*)	117,324	1.00		
PD	19,304	0.79	(0.764, 0.818)	<0.001
BMI				
BMI <18.5	5,148	1.34	(1.278, 1.41)	<0.001
BMI 18.5-25 (ref*)	55,620	1.00		
BMI 25-30	56,544	1.07	(1.053, 1.097)	<0.001
BMI >=30	19,316	0.94	(0.917, 0.971)	<0.001
Albumin (g/L)				
<25	4,010	7.04	(6.639, 7.463)	<0.001
25-<30	8,960	4.12	(3.943, 4.301)	<0.001
30-<35	25,580	2.42	(2.353, 2.499)	<0.001
35-<40	62,590	1.55	(1.514, 1.59)	<0.001
>=40 (ref*)	35,488	1.00		

Practice Point 5.2.3.3:
Enable availability of appropriate medical nutrition therapy for people with signs of malnutrition, ideally under the supervision of renal dietitians or accredited nutrition providers if not available.

KDIGO 2024 Clinical Practice Guideline for the

Evaluation and Management of Chronic Kidney Disease

Recommendation 3.2.2.1: We recommend that people with CKD be advised to undertake moderate-intensity physical activity for a cumulative duration of at least 150 minutes per week, or to a level compatible with their cardiovascular and physical tolerance (1D).

KDIGO 2024 Clinical Practice Guideline for the

Evaluation and Management of Chronic Kidney Disease

P1


PGDC BAKERY


INTEX


LUCKY


Lotus's


ANDA
TANGAN?
Sila cuci tangan sebelum dan
sesudah menyentuh saya


நன்றி
Paldies
Mauruuru koe
Teşekkür ederim
Dankon
Kiitos
Ďakujem
Дзякуй
Köszönöm
Дякую
धन्यवाद
شكرا
Cảm ơn
Faleminderit
Hvala ti
Þakka þer fyrir
Go raibh maith agat
Mahadsanid
ধন্যবাদ
谢谢
ขอบคุณ
Gracias
Спасибо
Grazie
הדות
ありがとう
Dziękuję
Terima kasih
Asante
Danke
tak skal du have
شكريه
Merci
Thank you
Obrigado