第一屆全球華人腎臟病學術大會
1st International Congress of Chinese Nephrologists
Hong Kong Convention and Exhibition Centre
香港會議展覽中心
11 – 13 /12 / 2015
ICCN 2015 HONG KONG
Organized by 主辦:
Hong Kong Society of Nephrology
香港腎科學會
Co-organized by 協辦:
The Chinese University of Hong Kong
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香港大學
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Endorsed by 認可:
International Society of Nephrology
國際腎臟病學會

Global impact of Nephropathies

11th Dec, 2015

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Director
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Epidemiology of Nephropathies in the world

Data of Renal failure in Hong Kong and the world

Impact of Nephropathies and Dialysis

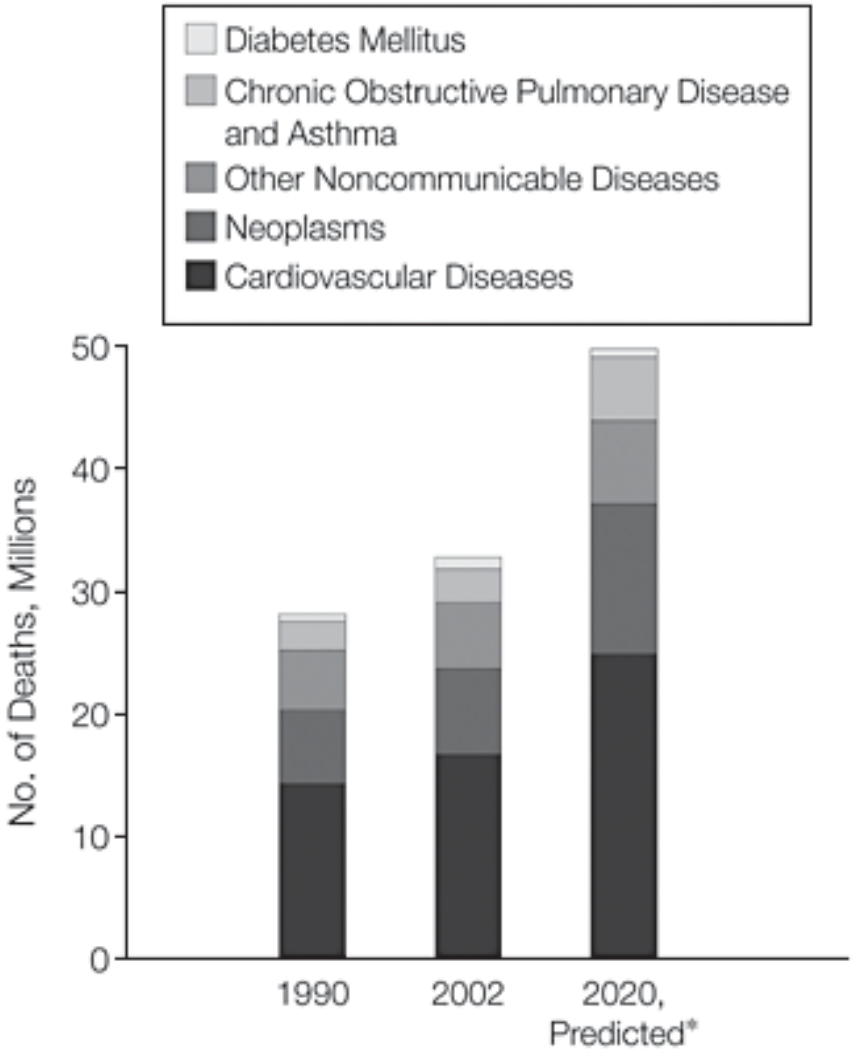
- **Patient Survival**
- **Socioeconomic**

How to deal with it

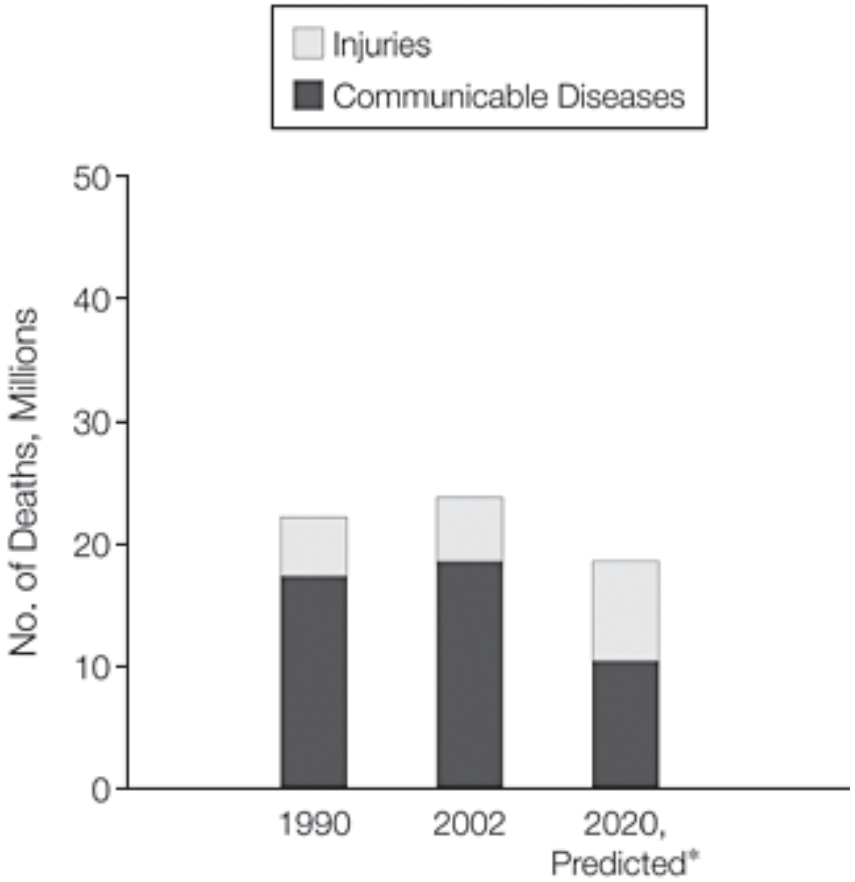
- **Awareness and Early Prevention**
- **Treatment**
- **Provision of Cost Effective Quality Dialysis**

Global Mortality From Chronic Diseases

Chronic diseases



Injuries and Communicable diseases

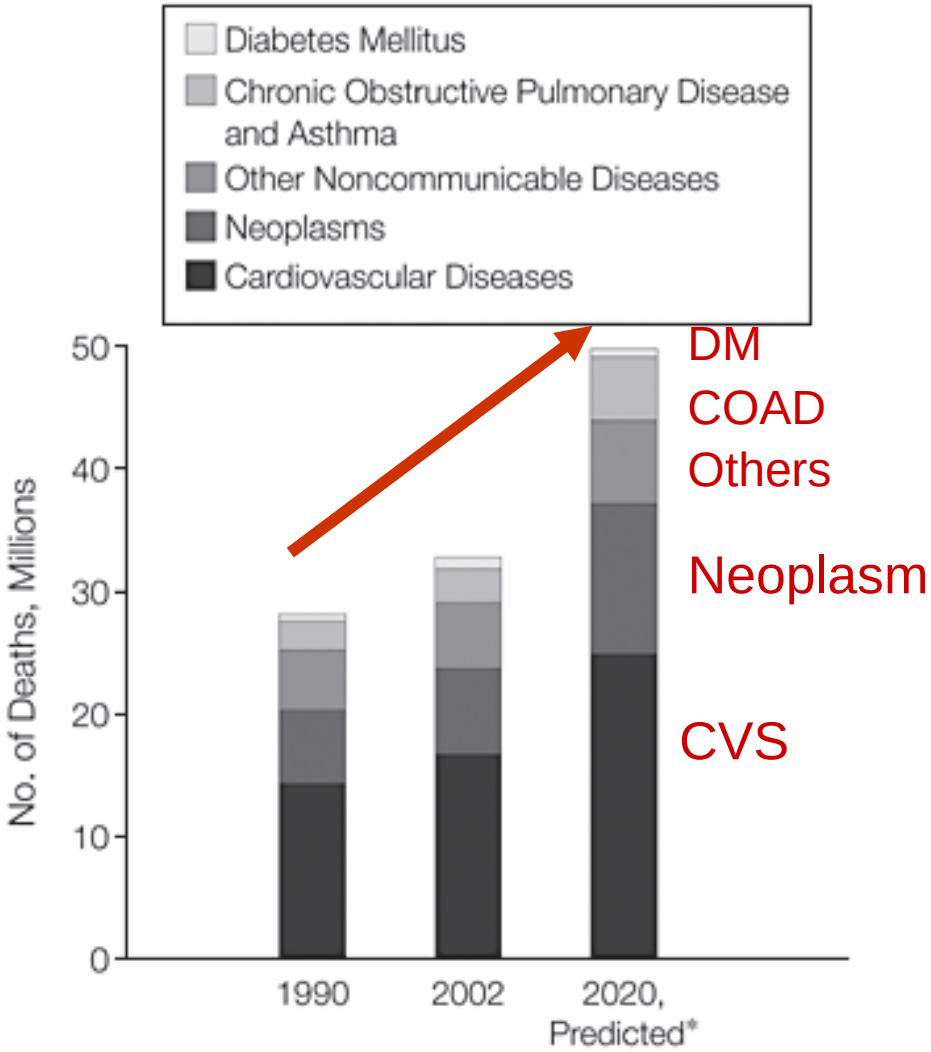


In 2002, the leading chronic diseases caused 29 million deaths worldwide.

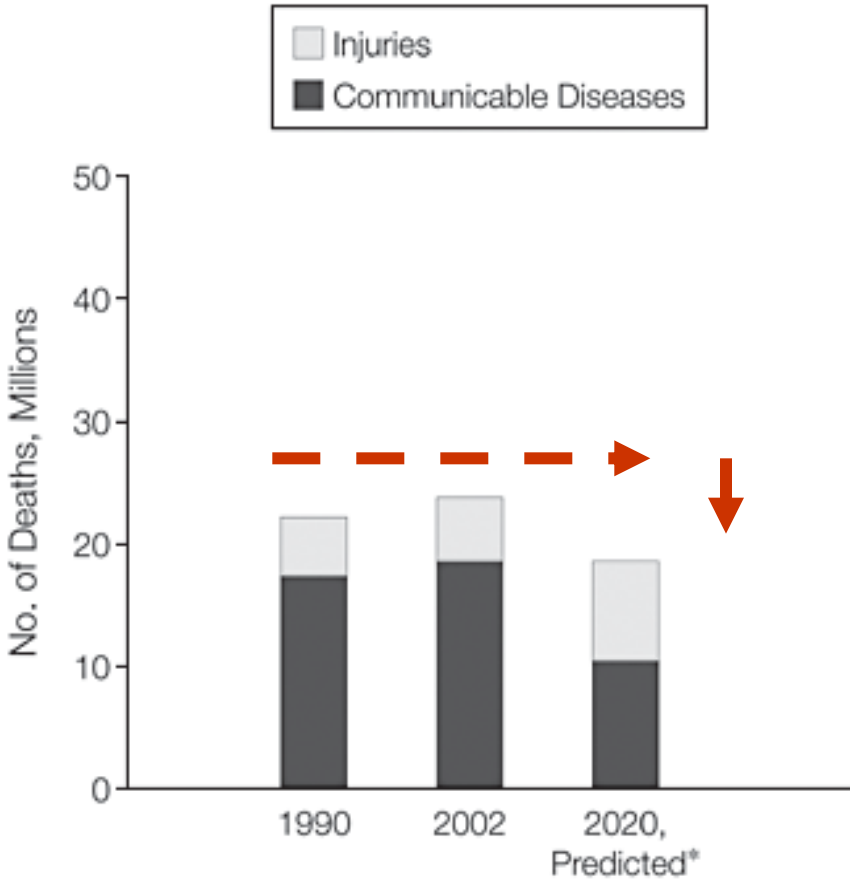
Yach, D. et al. JAMA 2004;291:2616-2622.

Global Mortality From Chronic Diseases

Chronic diseases



Injuries and Communicable diseases



In 2002, the leading chronic diseases caused 29 million deaths worldwide.

Yach, D. et al. JAMA 2004;291:2616-2622.

Projections of Global Mortality and Burden of Disease from 2002 to 2030

Changes in Rankings for 15 Leading Causes of Death, 2002 and 2030

Category	Disease or Injury	2002 Rank	2030 Ranks	Change in Rank
Within top 15	Ischaemic heart disease	1	1	0
	Cerebrovascular disease	2	2	0
	Lower respiratory infections	3	5	−2
	HIV/AIDS	4	3	+1
	COPD	5	4	+1
	Perinatal conditions	6	9	−3
	Diarrhoeal diseases	7	16	−9
	Tuberculosis	8	23	−15
	Trachea, bronchus, lung cancers	9	6	+3
	Road traffic accidents	10	8	+2
	Diabetes mellitus	11	7	+4
	Malaria	12	22	−10
	Hypertensive heart disease	13	11	+2
	Self-inflicted injuries	14	12	+2
	Stomach cancer	15	10	+5
Outside top 15	Nephritis and nephrosis	17	13	+4
	Colon and rectum cancers	18	15	+3
	Liver cancers	19	14	+5

Colin D. Mathers*, Dejan Loncar
Evidence and Information for Policy Cluster, World Health Organization, Geneva, Switzerland

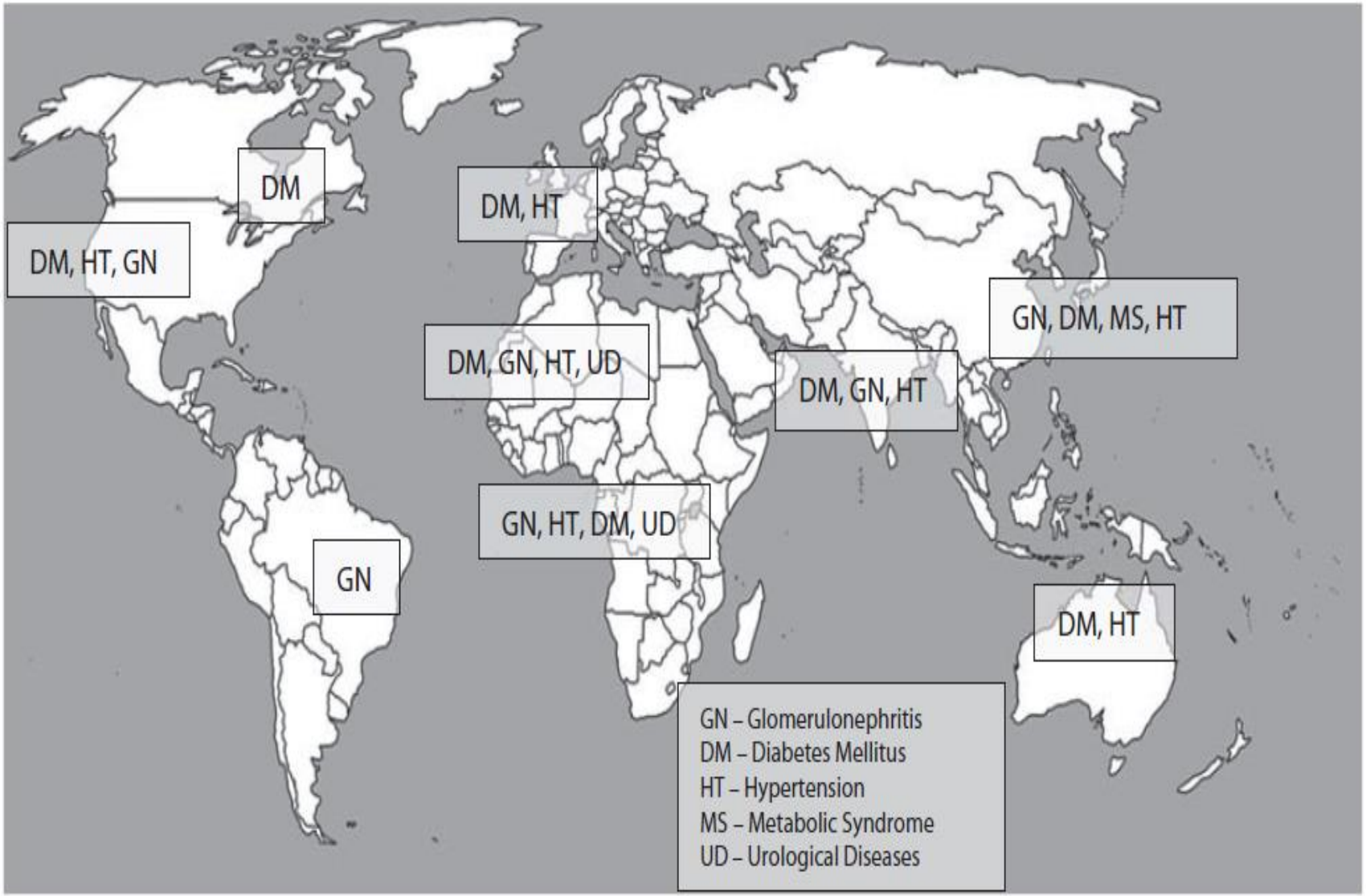
Mathers CD, Loncar D. PLoS Med 2006 Nov;3(11):e442

Global deaths for diabetes, urogenital, blood, and endocrine diseases in 1990 and 2013 for all ages

All ages deaths (thousands)			
Year	1990		2013
Diabetes, urogenital, blood, and endocrine diseases	1569·4		2955·0
Diabetes mellitus (DM)	684·3		1299·4
Acute glomerulonephritis (GN)	23·6		18·8
Chronic kidney disease (CKD)	408·6	**2.3x**	956·2
CKD due to DM	46·3	**3.8x**	173·1
CKD due to hypertension	120·0	**2.3x**	275·7
CKD due to acute GN	99·0	**1.2x**	116·3

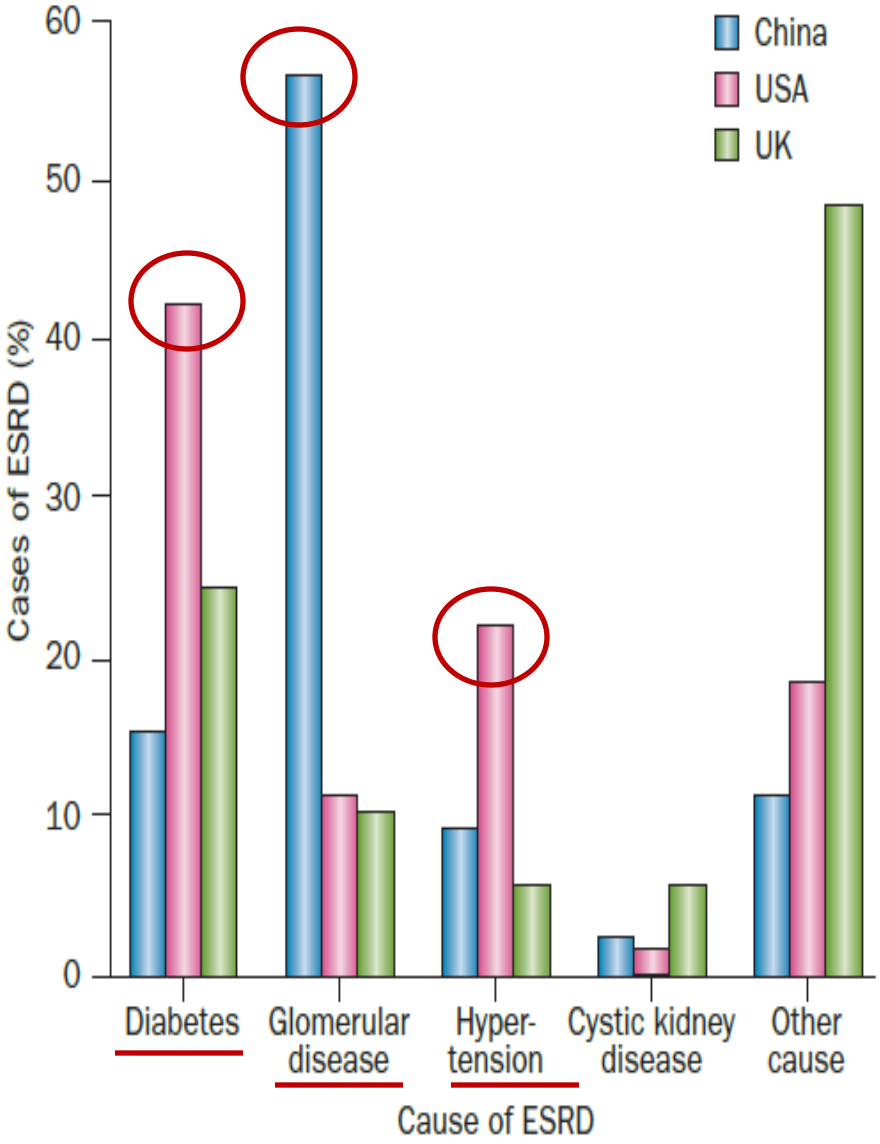
GBD 2013 Mortality and Causes of Death Collaborators. Lancet. 2015;385:117-71.

Distribution of the main pathologies contributing to CKD across the world



Nugent RA, et al. Nephron Clin Pract. 2011;118:c269-77.

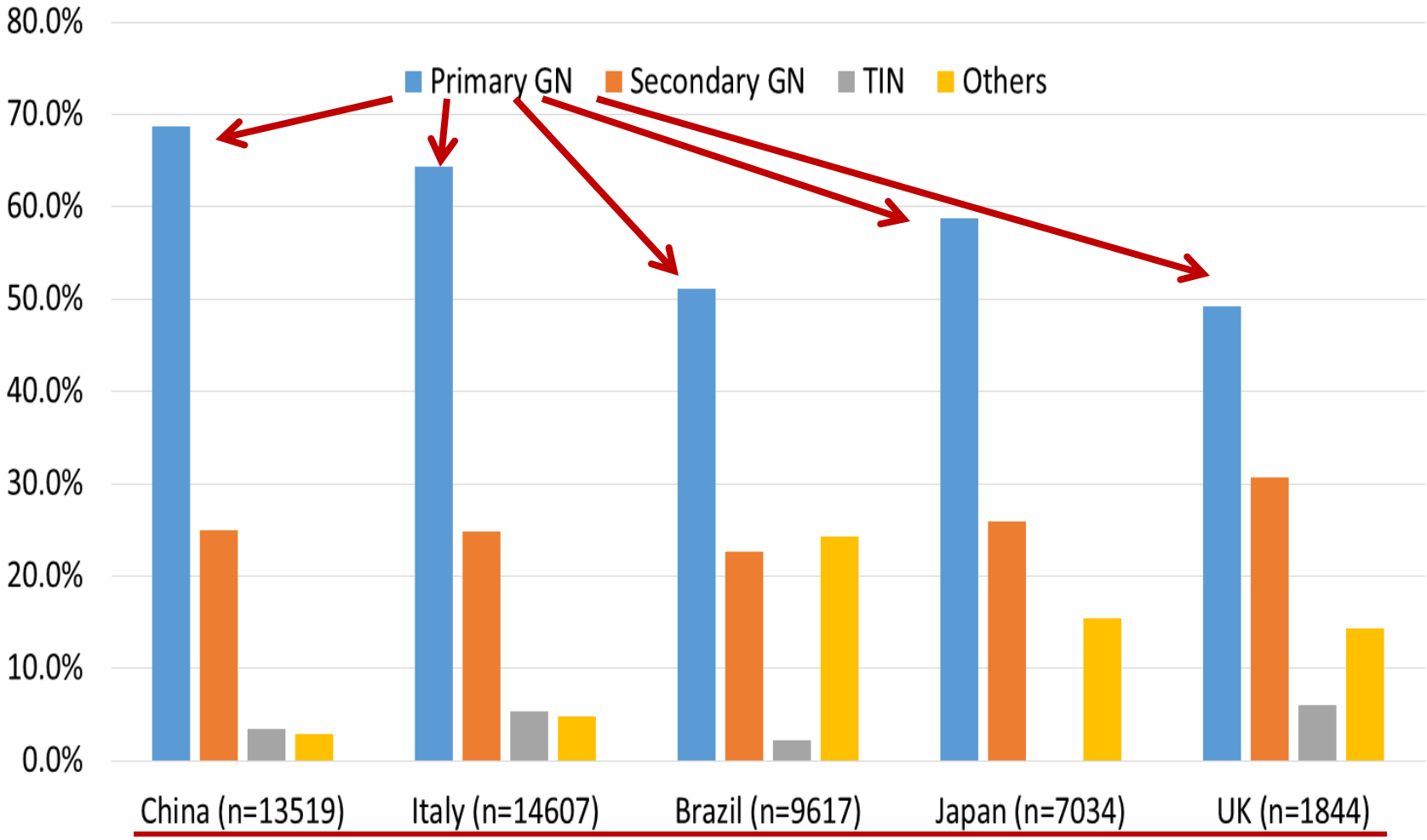
Different causes of ESRD in China, the USA and the UK



IgA nephropathy constituted about 45.3–54.3% of cases of primary glomerulonephritis

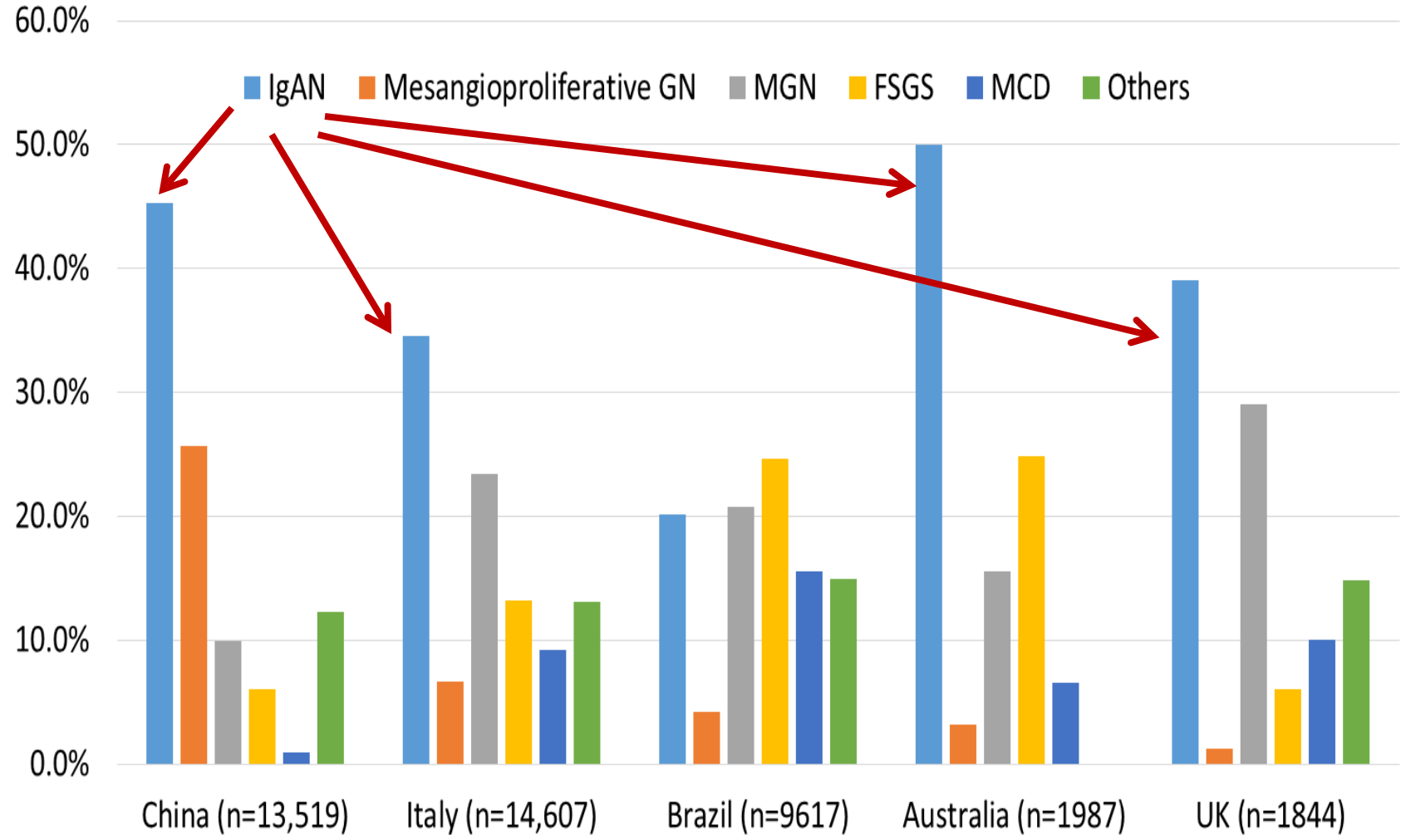
Liu ZH. Nat Rev Nephrol. 2013;9:523-8.

Distribution of histological diagnosis in different renal biopsy registries



1. Gesualdo L, et al. Kidney Int. 2004;66:890-4.
2. Li LS, Liu ZH. Kidney Int. 2004;66:920-3.
3. Hanko JB, et al. Nephrol Dial Transplant. 2009;24:3050.
4. Polito MG, et al. Nephrol Dial Transplant. 2010;25:490-6.
5. Sugiyama H, et al. Clin Exp Nephrol. 2013;17:155-73.

Distribution of primary glomerulonephritis in different renal biopsy registries



1. Briganti EM, et al. Nephrol Dial Transplant. 2001;16:1364-7.
2. Gesualdo L, et al. Kidney Int. 2004;66:890-4.
3. Li LS, Liu ZH. Kidney Int. 2004;66:920-3.
4. Hanko JB, et al. Nephrol Dial Transplant. 2009;24:3050-4.
5. Polito MG, et al. Nephrol Dial Transplant. 2010;25:490-6.

World wide distribution of biopsy proven glomerular disease

Primary GN:
IgAN
(as high as 45%)

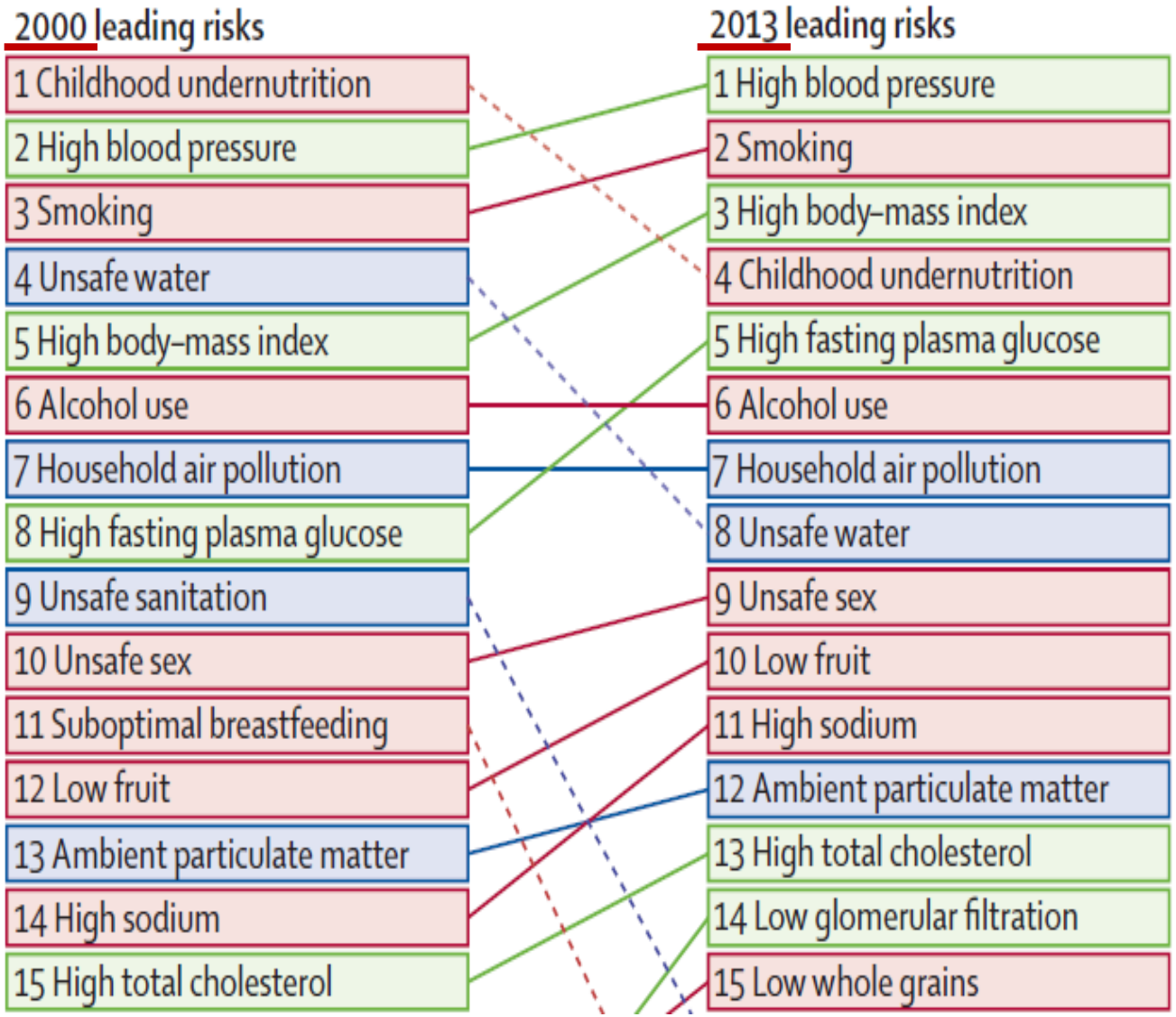
Country	Primary GN (%)	Secondary GN (%)
America		
USA	IgAN (22)[a]	LN (13)[a]
Brazil	FSGS (25)[b]	LN(42)[b]
Europe		
Italy	IgAN (37)[b]	LN (26)[b]
Spain	IgAN (17)[a]	LN (11)[a]
Czech Republic	IgAN (34)[b]	LN (23)[b]
Hungary	IgAN (15)[a]	LN (7)[a]
Macedonia	MN (13)[b]	
Romania	MPGN (29)[b]	LN (29)[b]
Serbia	Non-IgA mesangioproliferative (25)[b]	LN (76)[b]
UK	IgAN (39)[b]	
Asia		
China	IgAN (45)[b]	LN (54)[b]
Korea	IgAN (28)[b]	LN (9)[b]
Middle East		
Saudi Arabia	FSGS (21)[b]	LN (57)[b]
Australia	IgAN (34)[a]	LN (14)[a]

[a]Percentage of total glomerular diseases. [b]Percentage of primary or secondary glomerulonephritis.

Secondary GN:
Lupus
(as high as 76%)

Pesce F, Schena FP. Nephrol Dial Transplant. 2010;25:334-6.

Leading global risk factors for disability-adjusted life year (DALYs) in both sexes combined in 2000 and 2013



GBD 2013 Risk Factors Collaborators, Lancet. 2015. pii: S0140-6736(15)00128-2.

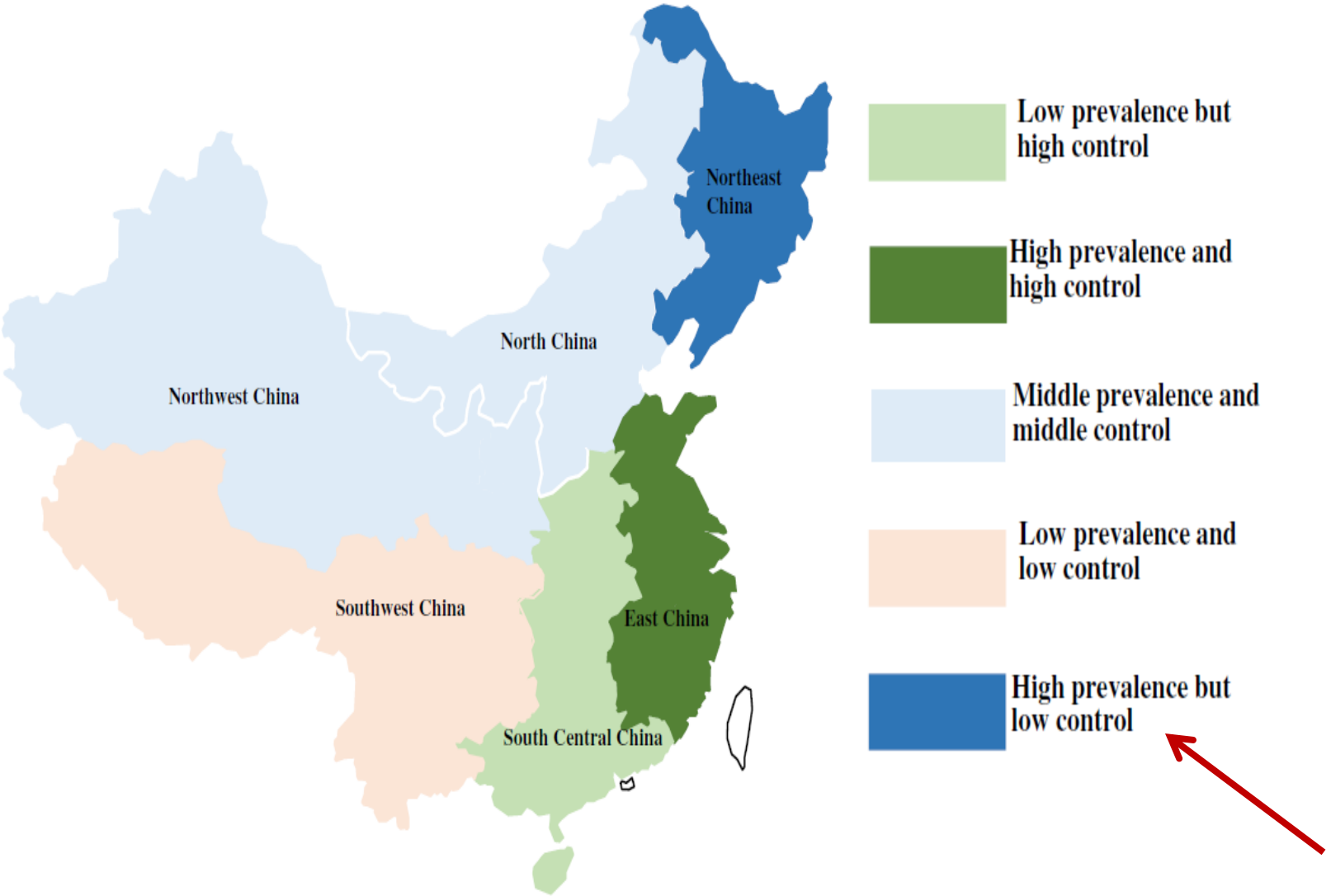
Ten countries with most deaths from cardiovascular diseases, diabetes, and chronic kidney disease attributable to high blood pressure in 1980 and 2010

High blood pressure

1980			2010		
Rank	Country	Contribution to global attributable deaths (%, 95% CI)	Rank	Country	Contribution to global attributable deaths (%, 95% CI)
1	China	17·3 (14·9–20·2)	1	China	21·6 (19·2–24·0)
2	USA	9·2 (8·1–10·3)	2	India	11·9 (9·4–14·1)
3	Russia	8·9 (7·9–9·8)	3	Russia	8·3 (7·3–9·4)
4	India	5·7 (3·6–7·5)	4	USA	4·6 (3·7–5·7)
5	Germany	4·8 (4·4–5·4)	5	Indonesia	4·1 (3·4–4·7)
6	Ukraine	3·8 (3·3–4·3)	6	Ukraine	3·4 (2·8–3·9)
7	UK	3·3 (2·9–3·7)	7	Brazil	3·0 (2·6–3·4)
8	Japan	2·9 (2·6–3·2)	8	Japan	2·1 (1·8–2·5)
9	Italy	2·9 (2·6–3·2)	9	Germany	2·0 (1·6–2·4)
10	Brazil	2·7 (2·3–3·0)	10	Italy	1·5 (1·3–1·8)
13	Indonesia	2·0 (1·4–2·4)	15	UK	1·1 (0·9–1·3)

Global Burden of Metabolic Risk Factors for Chronic Diseases Collaboration. Lancet Diabetes Endocrinol. 2014;2:634-47

Hypertension burden and control in mainland China: Analysis of nationwide data 2003–2012



Li D, et al. Int J Cardiol. 2015;184:637-44.

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1st International Congress of Chinese Nephrologists - Scientific Congress on Nephropathies

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International Society of Nephrology 國際腎臟病學會

Themes 主題

- Diabetic nephropathy 糖尿病腎臟病
- Hypertensive nephropathy 高血壓性腎臟病
- IgA nephropathy IgA腎病
- Lupus nephropathy 狼瘡腎病

The official languages are English and Putonghua, simultaneous interpretation in English and Putonghua will be provided.
大會語言為普通話及英語，並設普通話及英語同步傳譯。

Pre-Congress Program 會前活動:

- Renal Pathology Course 腎臟病理課程
- Roundtable on Dialysis Economics 透析經濟學圓桌會議
- PD Unit Visit 參觀腹膜透析中心

www.iccn2015hk.org

Epidemiology of Nephropathies in the world

Data of Renal failure in Hong Kong and the world

Impact of Nephropathies and Dialysis

- Patient Survival
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How to deal with it

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- Provision of Cost Effective Quality Dialysis

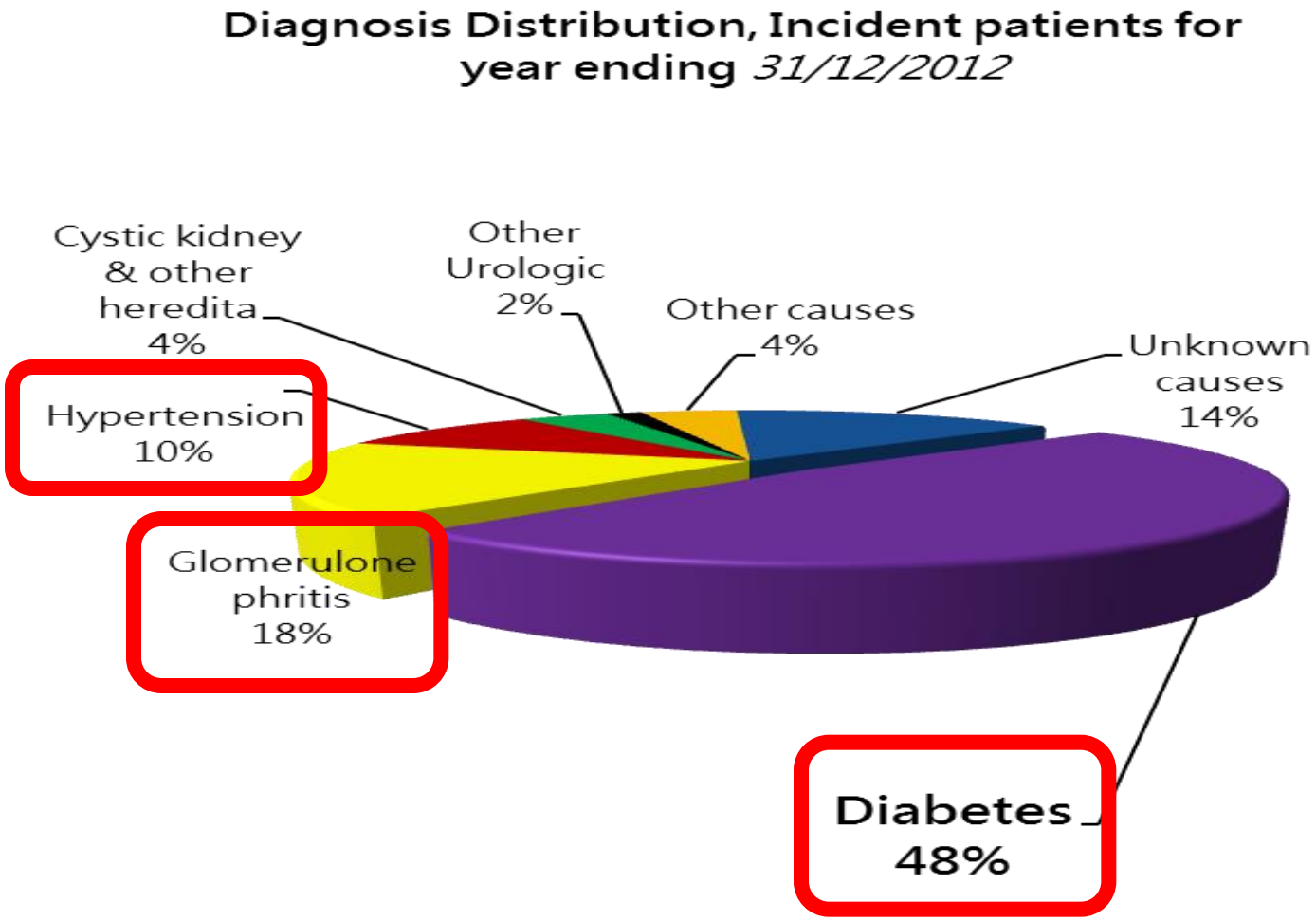
Incidence of ESRD, 2003-2013 (Hong Kong) (pmp)

2003-2013年末期腎衰竭新症發病率

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Hong Kong	128	141	145	149	147	148	132	146	157	165	159

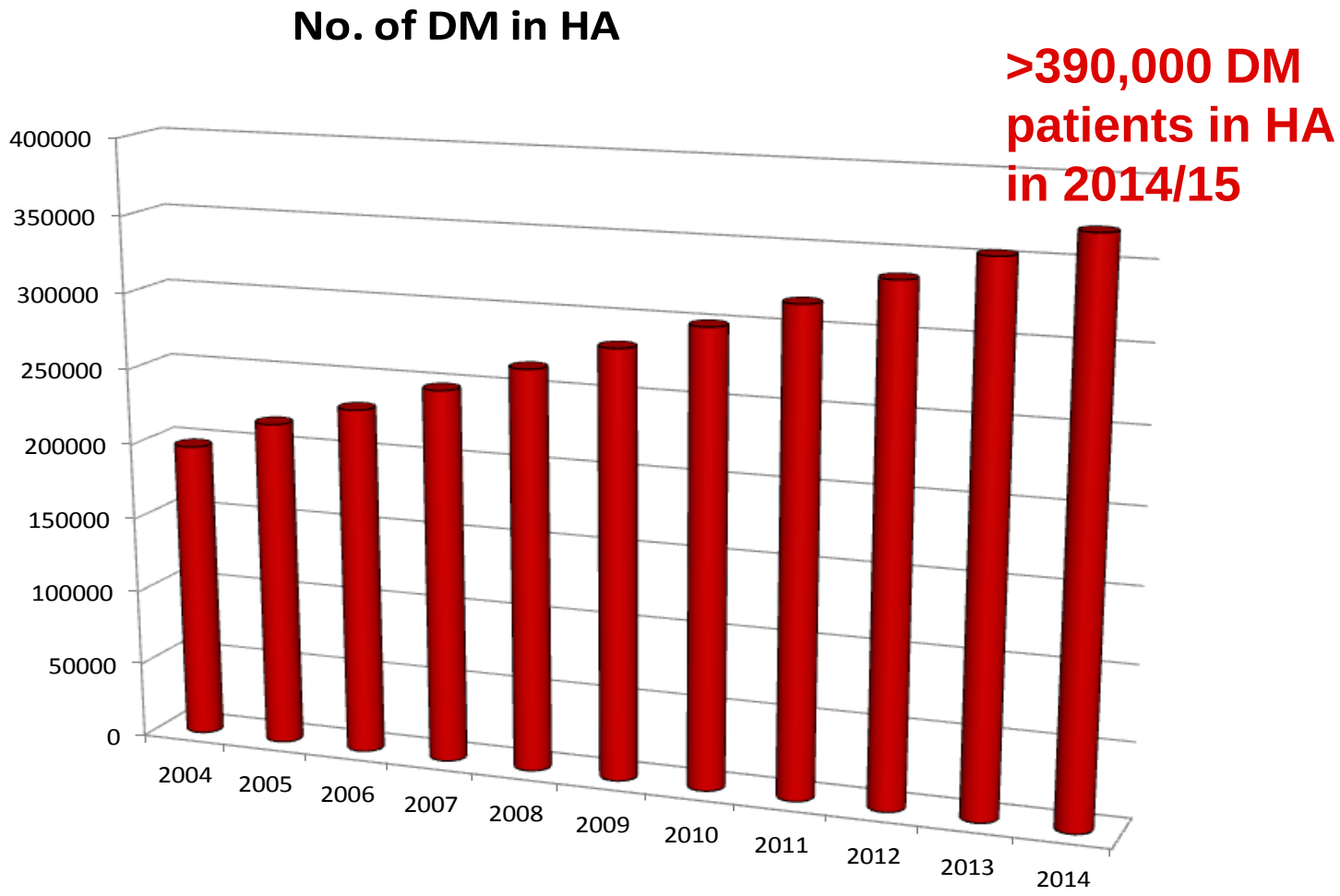
香港醫院管理局腎病註冊 **Hong Kong Renal Registry, Hospital Authority**

CAUSES OF INCIDENT ESRD - New



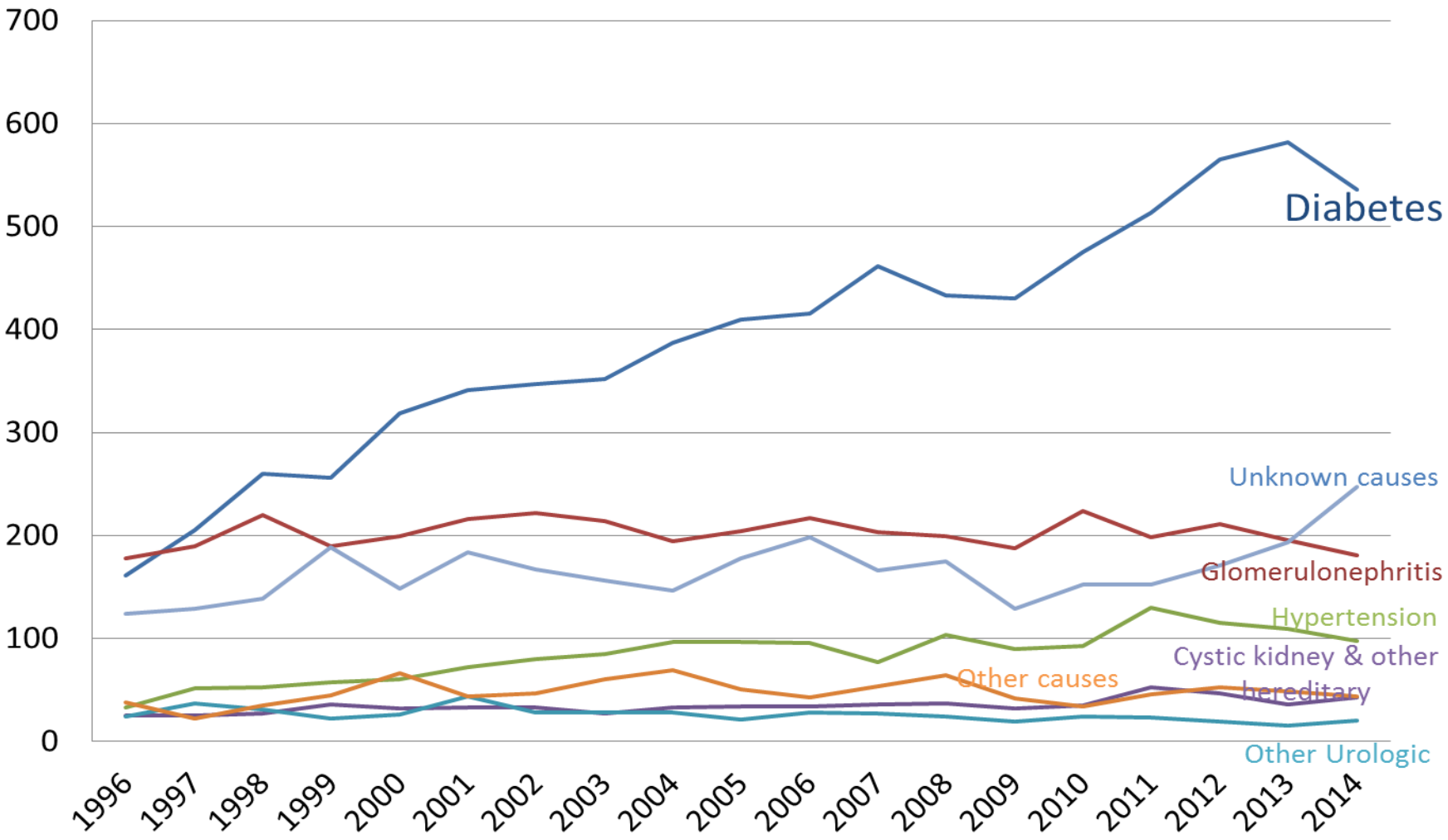
Renal Registry, Central Renal Committee, Hospital Authority, HK

Prevalence of DM patients in HA

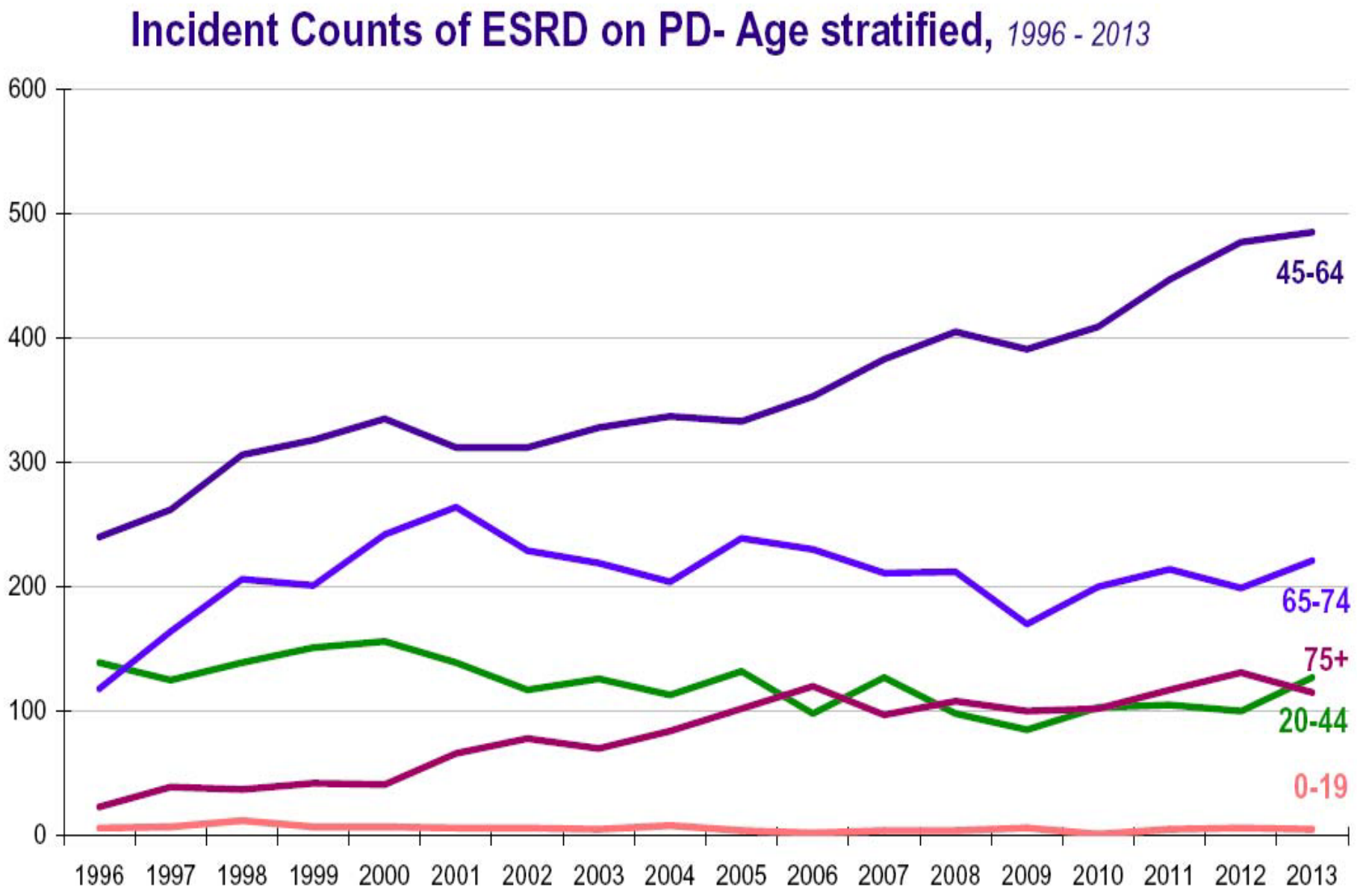


>390,000 DM patients in HA in 2014/15

Causes of Incident ESRD by Diagnosis, 1996-2014



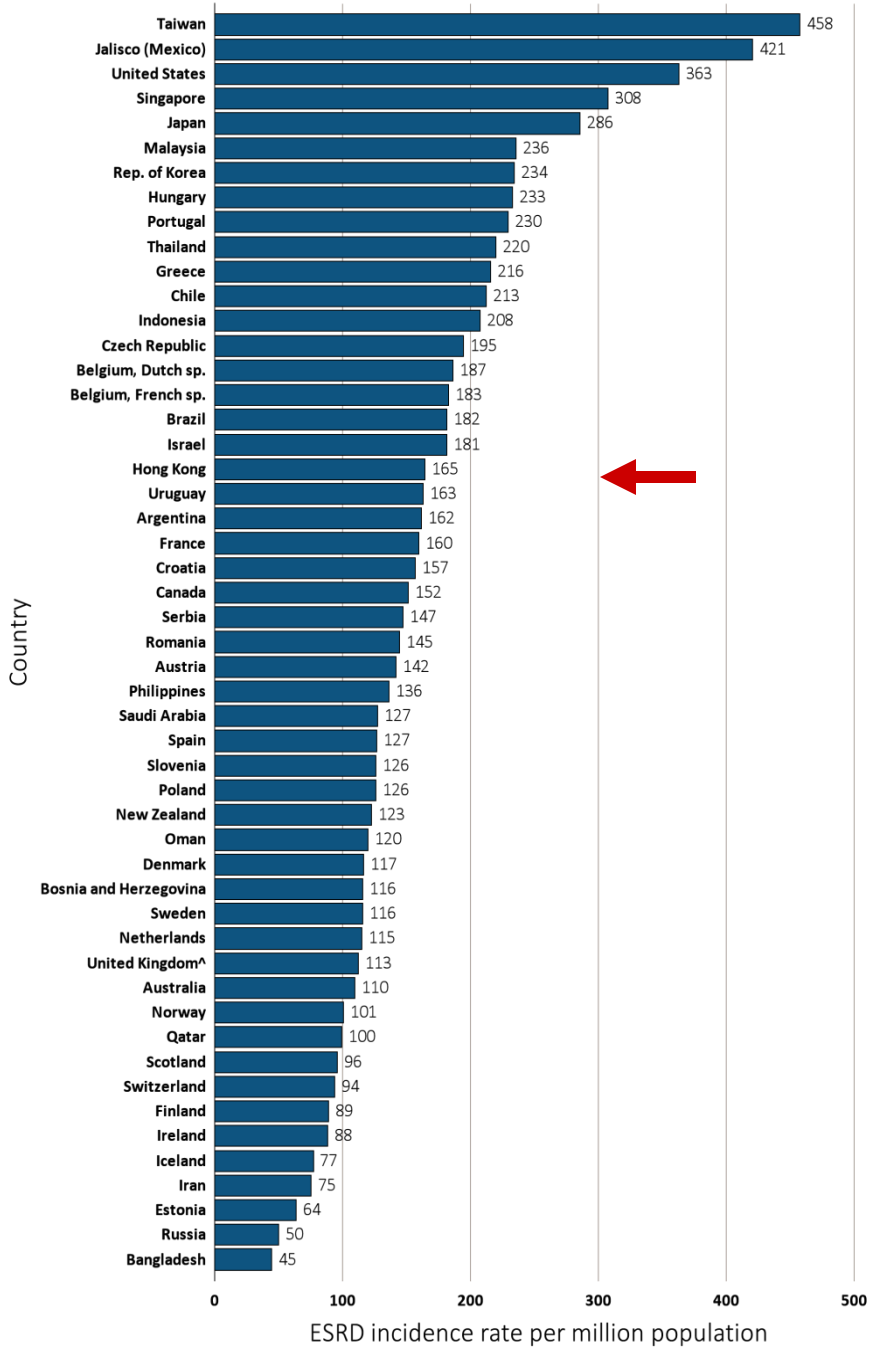
Hong Kong Renal Registry 2015



Renal Registry Hong Kong 2014

Incidence rate of ESRD, 2013 (pmp)
2013年末期腎衰竭新症發病率

1. Taiwan	458
2. Jalisco (Mexico)	421
3. United States	363
4. Singapore	308
5. Japan	286
19. HK	165

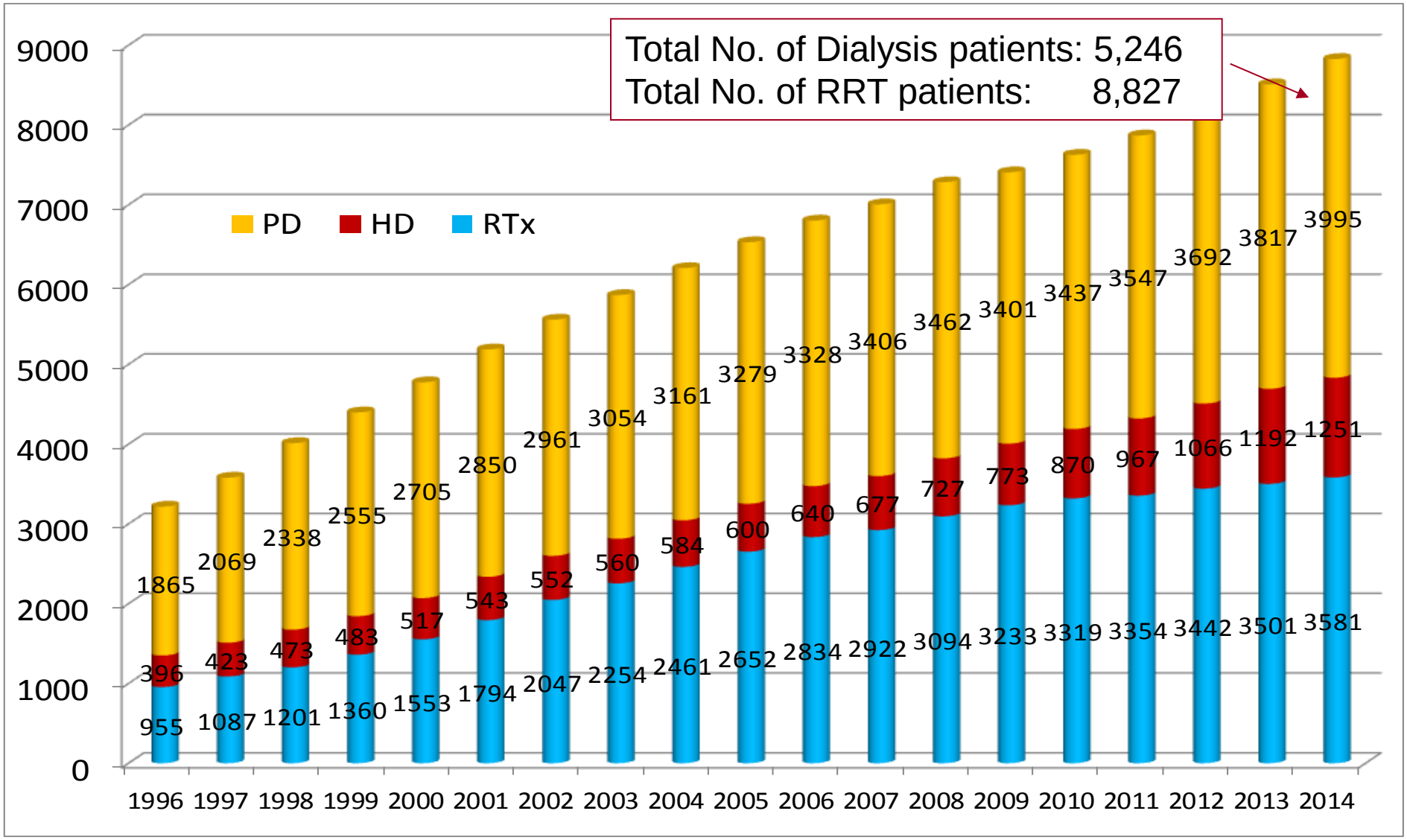


Data Source: Special analyses, USRDS ESRD Database. Data presented only for countries from which relevant information was available. All rates are unadjusted. ^United Kingdom: England, Wales, Northern Ireland (Scotland data reported separately). Data for Belgium do not include patients younger than 20. Data for Indonesia represent the West Java region. Data for France include 22 regions. Data for Spain include 18 of 19 regions. Abbreviations: ESRD, end-stage renal disease; sp., speaking.

USRDS 2015 Report

NO. OF ESRD PATIENTS ON RRT IN HA

Prevalent Counts of the 3 Modes of RRT, *as of 31/12*

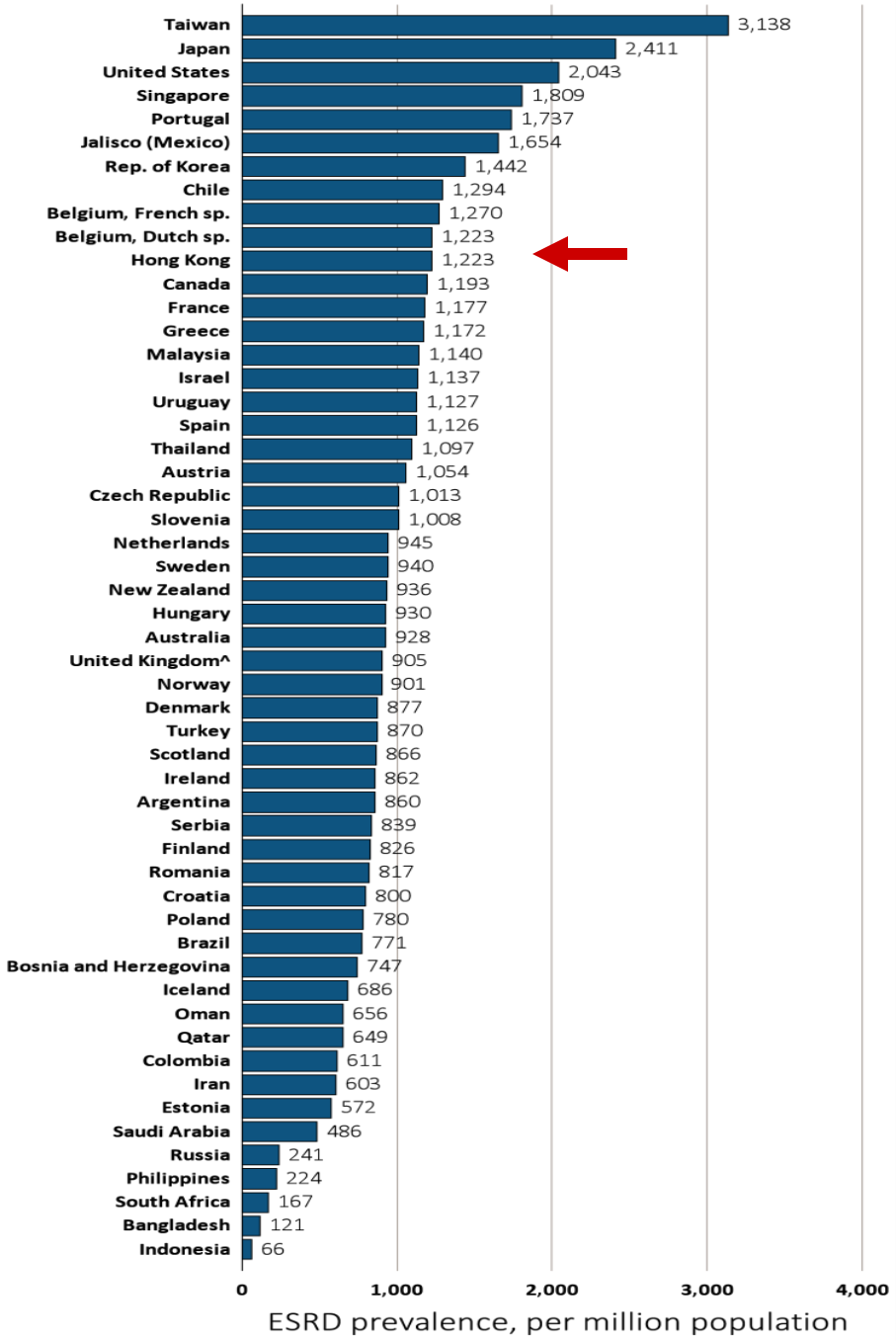


Leung CB, Cheung WL, Li PKT. Kidney Int Suppl 2015 Jun;5(1):33-38

Prevalence of ESRD, 2013 (pmp)

2013年末期腎衰竭患病率

1.	Taiwan	3,138
2.	Japan	2,411
3.	USA	2,043
4.	Singapore	1,809
5.	Portugal	1,737
11.	HK	1,223
12.	Canada	1,223
15.	Malaysia	1,140
28.	UK	905

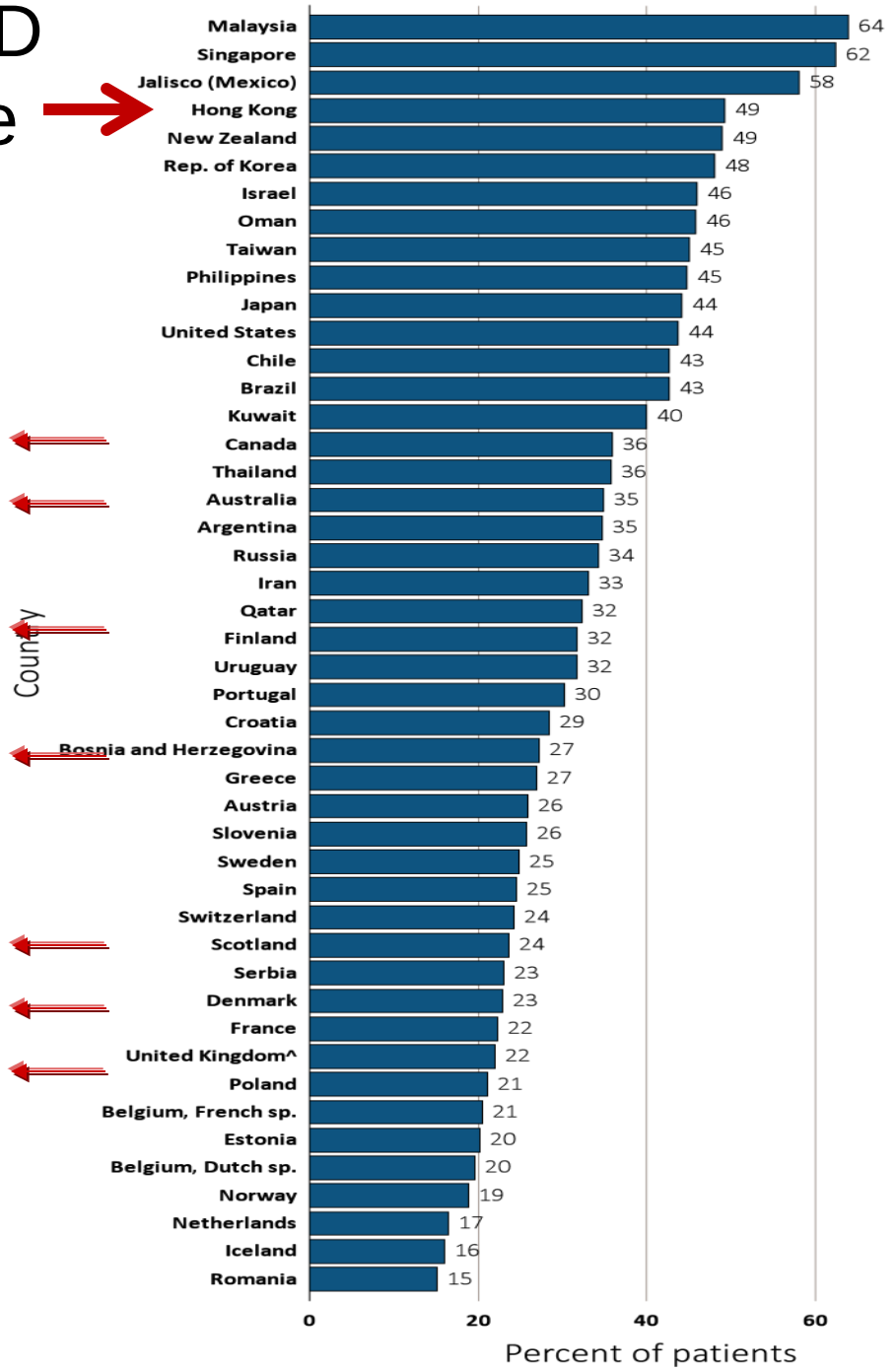


Data source: Special analyses, USRDS ESRD Database. Data presented only for countries from which relevant information was available. The prevalence is unadjusted and reflects prevalence at the end of 2013. ^United Kingdom: England, Wales, Northern Ireland (Scotland data reported separately). Japan and Taiwan include dialysis patients only. Data for Belgium do not include patients younger than 20. Data for Indonesia represent the West Java region. Data for Spain include 18 of 19 regions. Data for France include 22 regions. Abbreviations: ESRD, end-stage renal disease; sp., speaking.

USRDS 2015

Percentage of incident ESRD patients with diabetes as the primary ESRD cause, by country, 2013

1.	**Malaysia**	**64%**
2.	**Singapore**	**62%**
3.	**Jalisco (Mexico)**	**58%**
4.	**Hong Kong**	**49%**
5.	**New Zealand**	**49%**
6.	**Korea**	**48%**
7.	**Israel**	**46%**
8.	**Oman**	**46%**
9.	**Taiwan**	**45%**
10.	**Philippines**	**45%**
11.	**Japan**	**44%**
12.	**USA**	**44%**



USRDS 2015

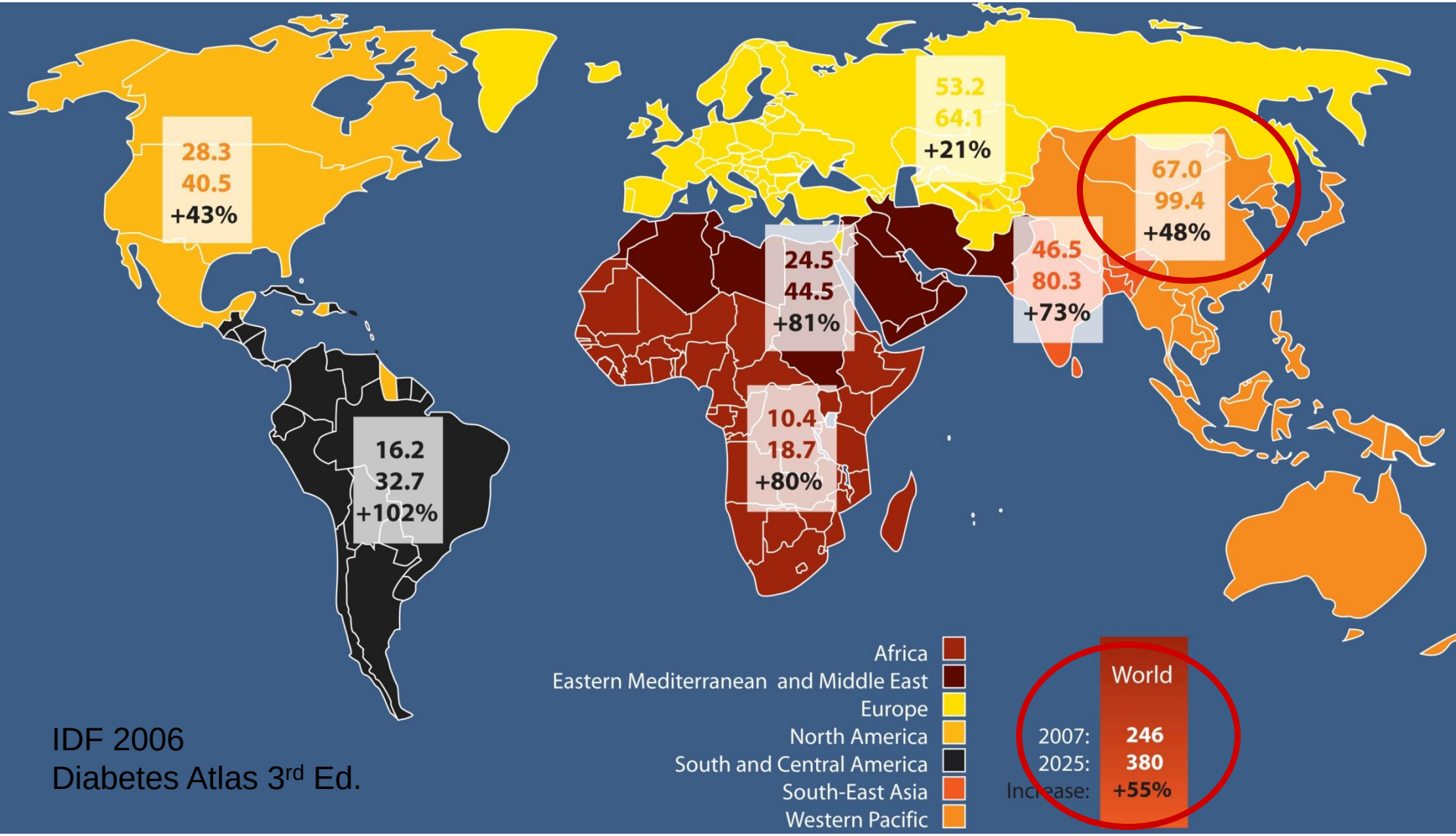
The world prevalence of diabetes among adults (aged 20-79 years)

- In 2010 : 6.4%,
  - affecting 285 million adults
- In 2030: increase to 7.7%
  - Affecting 439 million adults

- Between 2010 and 2030,
  - 69% increase in numbers of adults with diabetes in developing countries
  - 20% increase in developed countries

Shaw JE, Sicree RA, Zimmet PZ. Diabetes Res Clin Pract. 2010;87(1):4-14

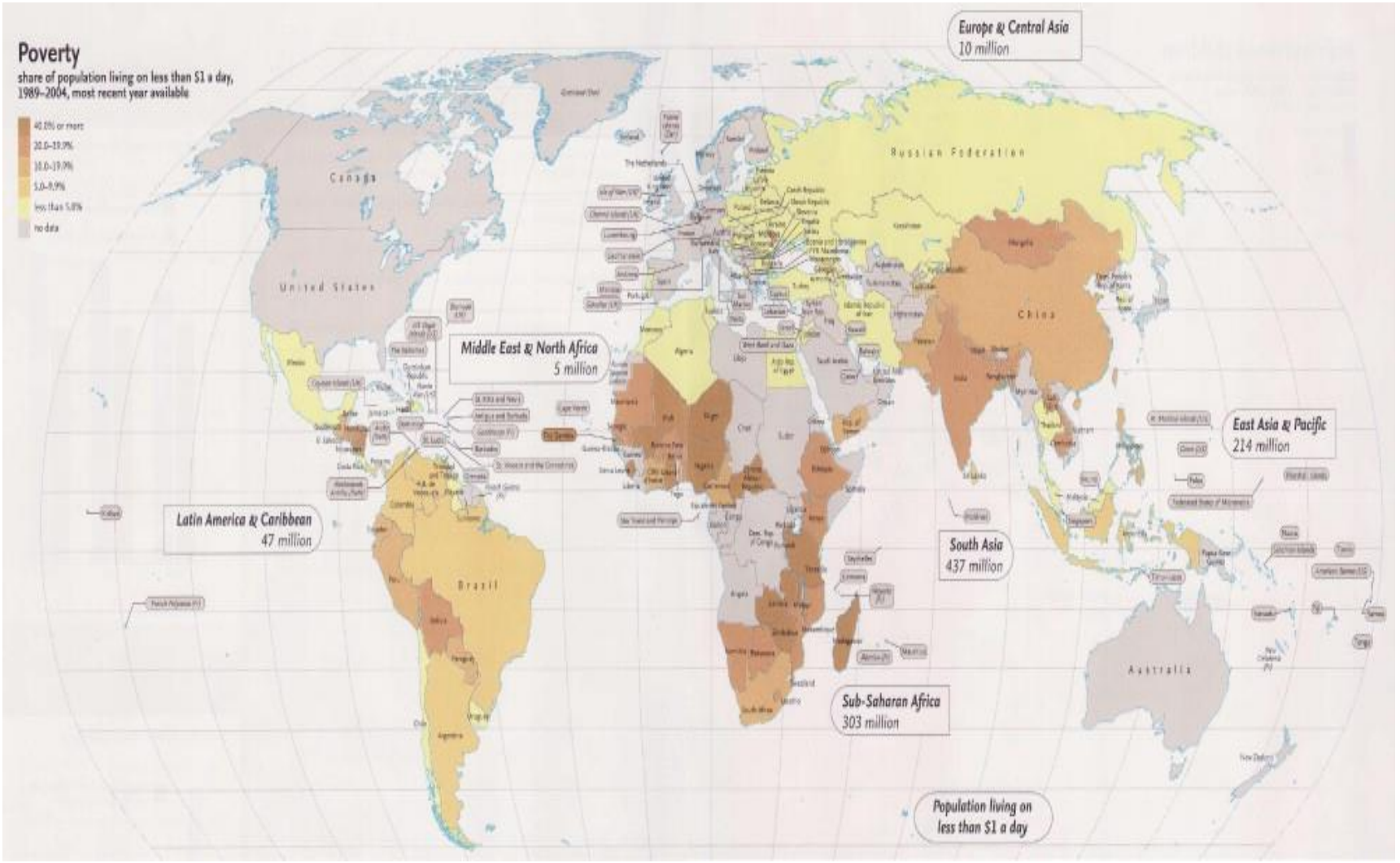
Global projections people with diabetes (20-79 years), 2007 and 2025 (millions)



IDF 2006
Diabetes Atlas 3rd Ed.

Map of world poverty by country

showing the percentage of population living in extreme poverty (income < $1/d)



Source : World Bank

Hossain MP, et al. Am J Kidney Dis 2009 Jan;53(1):166-74.

Global Quantitative Number of Dialysis

- 147 countries reported to provide dialysis in 2011
  - only 37 had published information either directly through a national renal registry or indirectly through a multinational organization.

Sichart JM, Moeller S. Contrib Nephrol 2011; 175: 163-169

Dialysis Modality worldwide

- At the end of year 2013,
- 2,250,000 patients undergoing HD
  - (89% of all dialysis patients)
- ~ 272,000 patients undergoing PD
  - (11% of all dialysis patients).

FMC report : ESRD Patients in 2013 : A Global Perspective

Annual Growth Rates

- World population 1.1%
- ESRD ~6%
- HD 6 –7%
- PD ~8%
- Tx 4 – 5%

FMC report : ESRD Patients in 2013 : A Global Perspective

Regional distribution of dialysis patients compared to the general population

Countries ranked by dialysis population	Population (million)	% of world population	Dialysis patients (thousand)	% of total dialysis patients	Prevalence of dialysis (p.m.p.)
United States	318	4%	452	18%	1,420
China	1,352	19%	330	13%	245
Japan	126	2%	315	12%	2,505
Brazil	201	3%	116	5%	575
Mexico	117	2%	96	4%	820
Countries 6–15	1,769	25%	576	23%	325
Countries 16–150	3,039	43%	637	25%	210
Countries 151–240	186	2%			
Global	**7,108**		**2,522**		**355**

The top 5 countries: 1,309,000

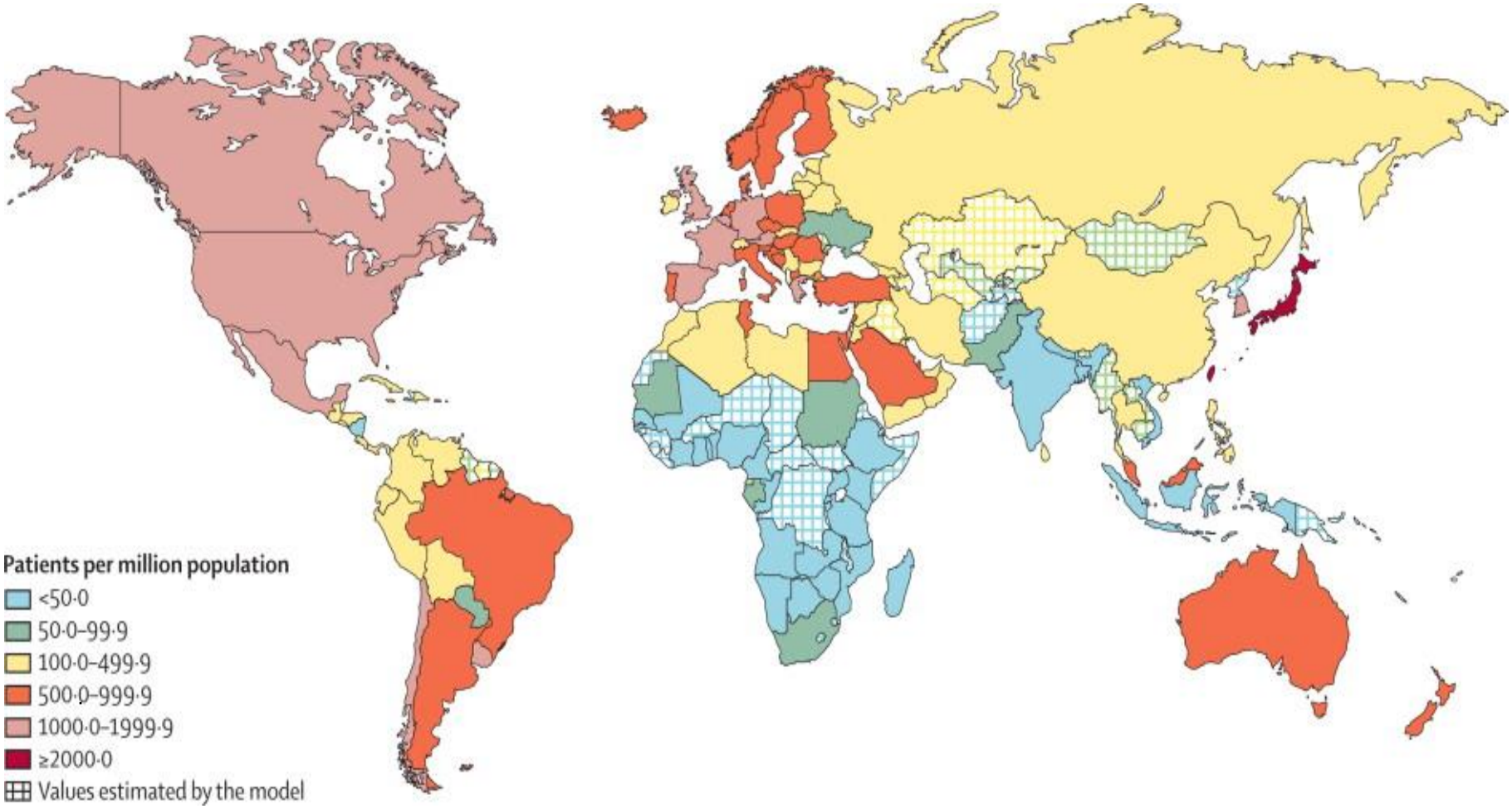
FMC report : ESRD Patients in 2013 : A Global Perspective

Worldwide access to treatment for end-stage kidney disease

- In 2010, 2·618 million people received RRT worldwide.
- Estimated at least 2·284 million people might have died prematurely because RRT could not be accessed.
- Noted the largest treatment gaps in low-income countries,
  - Asia (1·907 million people needing but not receiving RRT; conservative model)
  - Africa (432 000 people; conservative model).

Liyanage T, et al .Worldwide access to treatment for end-stage kidney disease: a systematic review The Lancet 2015 May 16;385(9981):1975-82

Patients receiving RRT in 2010



Liyanage T, et al .Worldwide access to treatment for end-stage kidney disease: a systematic review The Lancet 2015 May 16;385(9981):1975-82

Worldwide access to treatment for end-stage kidney disease

By 2030,

- Worldwide use of RRT is projected to
- more than double to 5·439 million
  - (3·899-7·640 million) people
- the most growth in Asia
  - (0·968 million to a projected 2·162 million [1·571-3·014 million]).

Liyanage T, et al .Worldwide access to treatment for end-stage kidney disease: a systematic review The Lancet 2015 May 16;385(9981):1975-82

Global end stage renal disease -Worldwide 全球

	No. on RRT	Increase (%)	
	腎臟替代治療		
2030	5.4 M	74%	(compared with 2015)
2020	3.8 M	22%	(compared with 2015)
2015	3.1 M		

Global end stage renal disease - Asia 亞洲

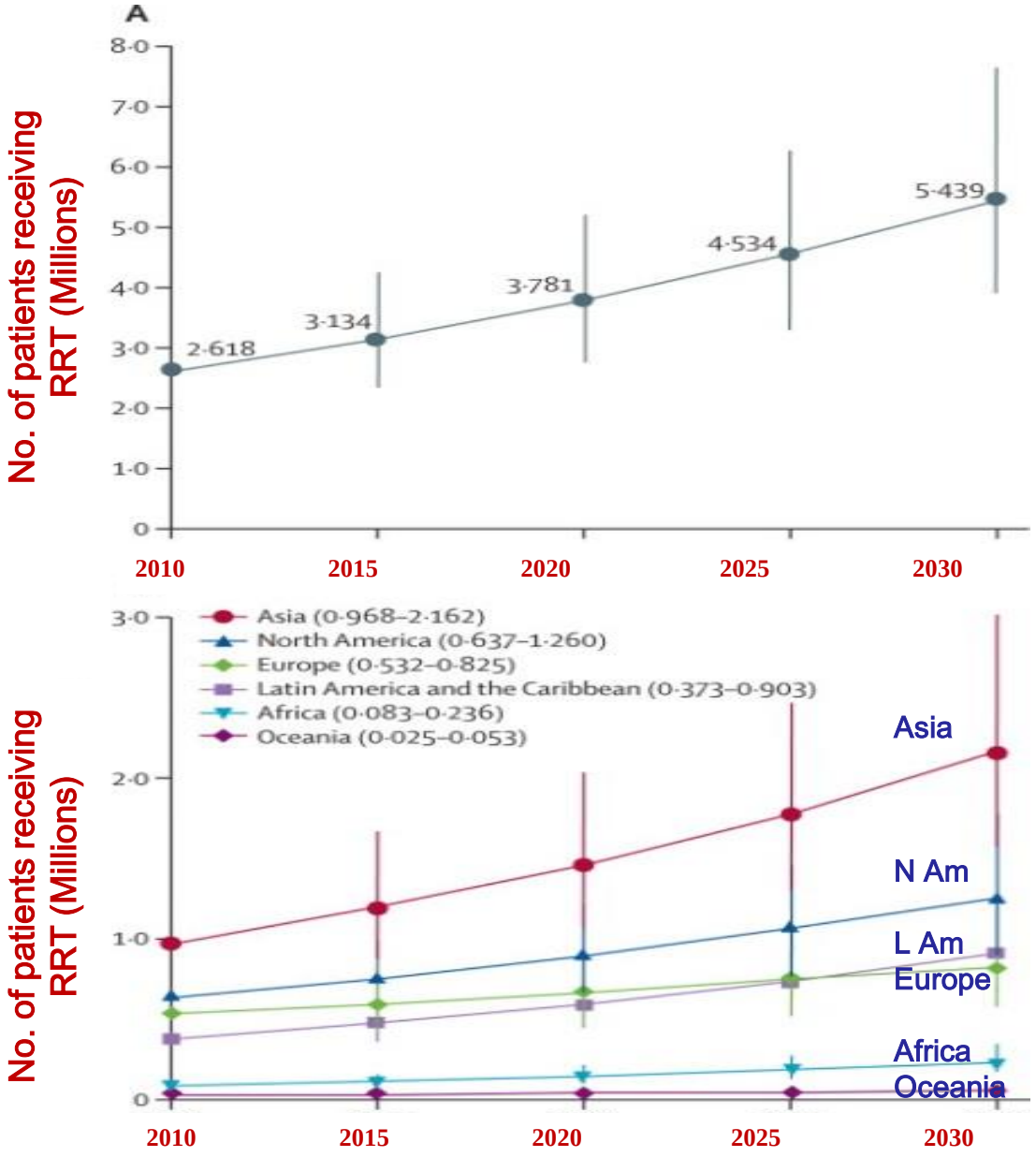
	No. on RRT	Increase (%)	
	腎臟替代治療		
2030	2.2 M	83%	(compared with 2015)
2020	1.5 M	25%	(compared with 2015)
2015	1.2 M		

Liyanage T, et al .Worldwide access to treatment for end-stage kidney disease: a systematic review The Lancet 2015 May 16;385(9981):1975-82

Estimated number of patients undergoing RRT from 2010 to 2030

Worldwide

By region



Liyanage T, et al .Worldwide access to treatment for end-stage kidney disease: a systematic review The Lancet 2015 May 16;385(9981):1975-82

2014年底全国血液透析患者数量

HD patients in China (2011-2014)

	2011年	2012年	2013年	2014年
查重后患者数	276008	286199	324811	381467
在透患者 Prevalent	234632	248016	283581	339748
新导入患者 New	72682	70961	73936	63968
新增死亡患者	13861	12864	12910	14322
新增肾移植	2078	1967	1807	2008
转腹膜透析	1055	1061	937	961
其它原因转出与退出	24382	22291	25576	24428

Prevalent case :↑ 6%　　↑ 14%　　↑ 20%

From 2012 to 2014 - ↑ by 91,732　[↑ 37%]

Courtesy Prof XQ Yu

腹膜透析患者登记情况

PD patients in China (2012-2014)

	2012年	2013年	2014年
登记患者总数	43. 383	49, 683	73, 559
在透患者 Prevalent	37. 942	46, 633	55, 373
新置管患者 New case	6930	8, 023	8784
新增死亡患者	2168	2003	1678
新增肾移植	418	454	389
转血液透析	1126	1081	1000
退出	284	232	186
好转	54	37	21

单位：例

Prevalent case :↑ 23%　　↑ 19%

From 2012 to 2014 - ↑ by 17,431　[↑ 46%]

Courtesy Prof XQ Yu

Epidemiology of Nephropathies in the world

Data of Renal failure in Hong Kong and the world

Impact of Nephropathies and Dialysis

- **Patient Survival**
- **Socioeconomic**

How to deal with it

- Awareness and Early Prevention
- Treatment
- Provision of Cost Effective Quality Dialysis

Leading causes of death in HK, 2014

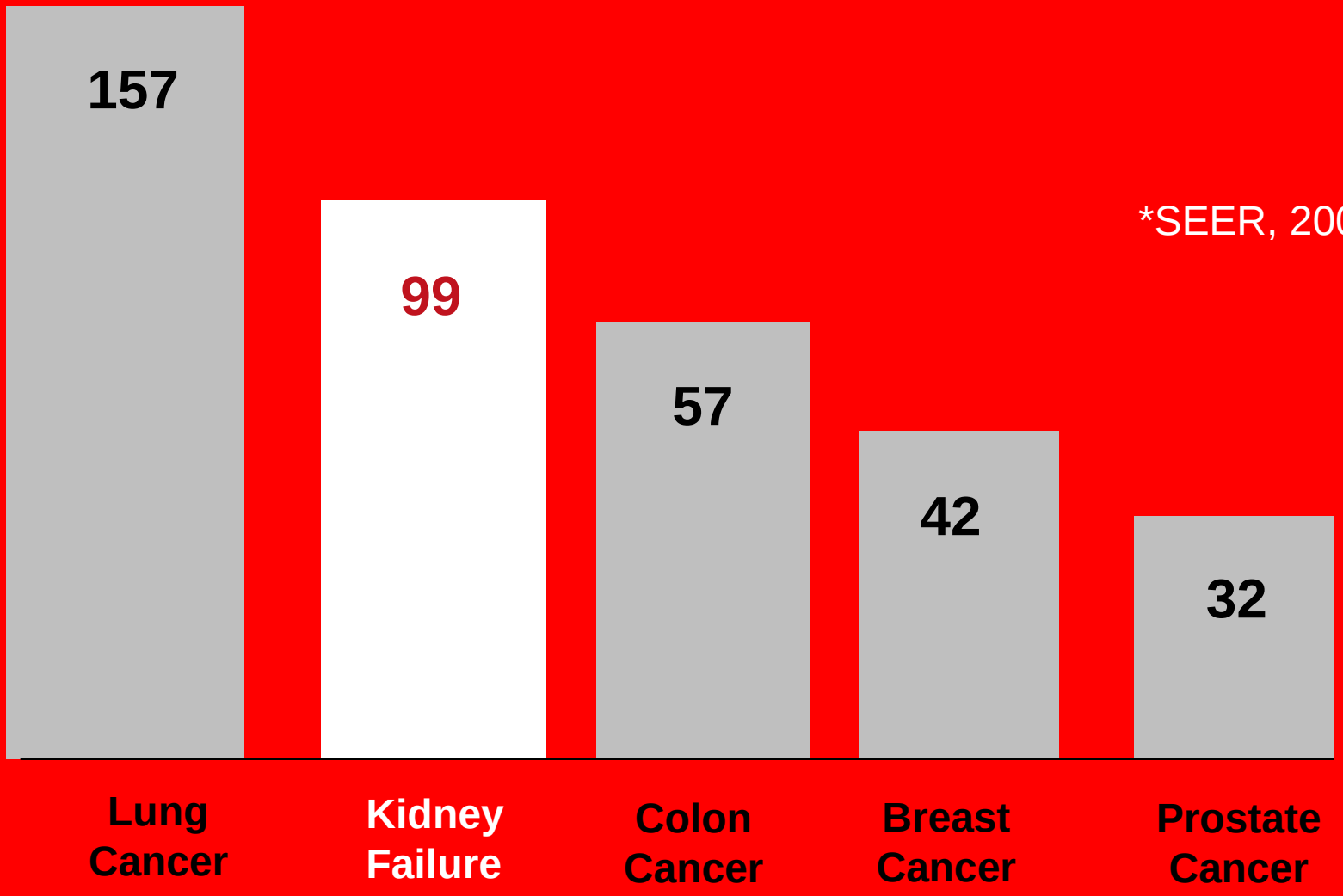
Cause of Death	Number of Death	Death Rate*
1. Malignant neoplasms 惡性腫瘤	13803	190.6
2. Pneumonia 肺炎	7502	103.6
3. Diseases of heart 心臟病	6405	88.4
4. Cerebrovascular diseases 腦血管病	3336	46.1
5. External causes of morbidity and mortality 疾病和死亡的外因	1834	25.3
6. Chronic lower respiratory diseases 慢性下呼吸道疾病	1742	24.1
7. Nephritis, nephrotic syndrome and nephrosis 腎炎，腎變病綜合症和腎變病	1684	23.3
8. Dementia 認知障礙症	1112	15.4
9. Septicaemia 敗血病	884	12.2
10. Diabetes mellitus 糖尿病	390	5.4

*Number of Deaths per 100000 Population

Source: Department of Health

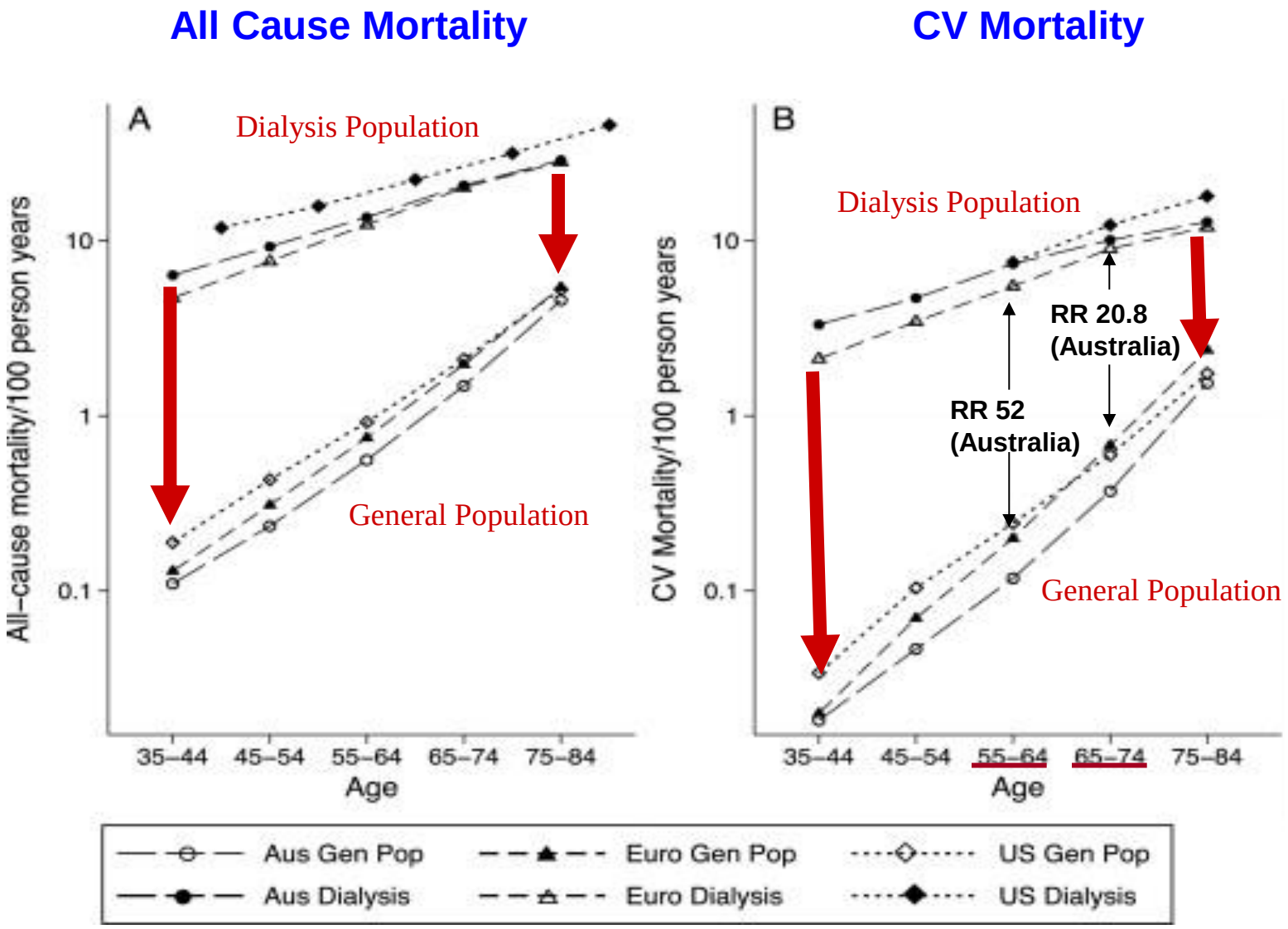
Kidney Failure Compared to Cancer Deaths in the U.S. in 2000*

(in Thousands)



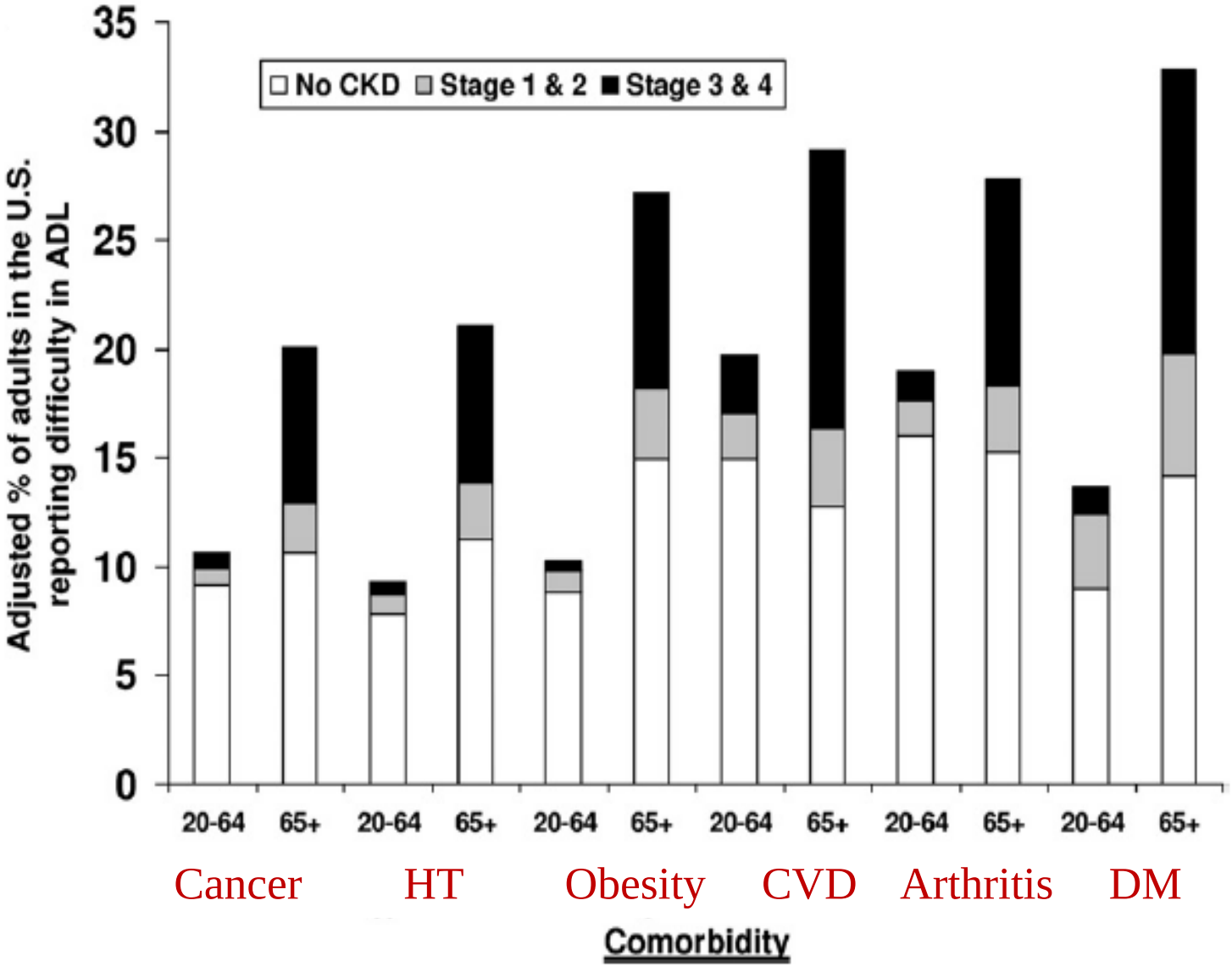
*SEER, 2003

(A) All-cause and (B) cardiovascular (CV) mortality rates in the Australian (Aus), European (Euro), and US dialysis and general populations (Gen Pop)



Roberts MA et al, Am J Kidney Dis 2011; 58: 64–72

Association of CKD With Disability



Plantinga LC, et al. Am J Kidney Dis. 2011;57:212-27.

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Data of Renal failure in Hong Kong and the world

Impact of Nephropathies and Dialysis

- Patient Survival
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How to deal with it

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- Treatment
- Good Pre-Dialysis Care
- Provision of Cost Effective Quality Dialysis

Medical costs of CKD in the Medicare population

Per person and total costs attributable to CKD

CKD Stage	Per Person Costs (95% CI)[a]	Estimated Medicare FFS Enrollees, 2008 (*n*)[b]	Total CKD Costs for Medicare FFS Enrollees ($)[c]
1	1600 (−900 to 3870)	474,012	0.76 billion
2	1700 (530 to 2840)	2,700,432	4.56 billion
3	3500 (1780 to 4620)	10,726,317	37.18 billion
4	12,700 (6000 to 19,650)	563,787	7.17 billion

The total annual medical costs attributable to stage 2 through stage 4 CKD among the Medicare FFS beneficiary population are almost

$49 billion!

Honeycutt AA, et al. J Am Soc Nephrol. 2013;24:1478-83.

Annual hospital costs by baseline CKD stage in UK

Baseline CKD stage[1]	Number of patients	Years of follow-up	Years of follow-up with hospital use, n (%)	Mean (SE) hospital cost per person-year of follow-up	
CKD 1-3B[2]	1,494	6,077	1,447 (24%)	£1,055 (46)	1
CKD 4	2,228	8,867	3,379 (38%)	£3,694 (84)	3.5
CKD 5 not on dialysis	1,017	3,954	2,849 (72%)	£12,952 (185)	12.3
Dialysis	2,498	9,339	8,543 (91%)	£20,511 (93)	19.4
All patients	**7,246**	**28,261**	**16,227 (57%)**	**£9,977 (69)**	

Additional annual hospital care costs associated with diabetes, cardiovascular complications and death (£, 95% CI)

Experienced non-fatal MVE during the current annual period, not on maintenance dialysis	£4,350 (3,819-4,880)
Experienced non-fatal MVE during the current annual period; on maintenance dialysis	£6,133 (5,608-6,658)

Morad Z, et al. Am J Kidney Dis. 2015;65:799-805.

Direct and Indirect Expenditures for SLE Patients With Nephritis and Matched Controls

Variable	SLE Patients With Nephritis	Matched Controls	Difference	*P*
Direct expenditures (*N*)	592	592	N/A	N/A
Inpatient admission				
Mean (SD) costs in 12-mo study period	$28,008 ($73,333)	$2,565 ($9,316)	$25,443	<0.001
Emergency department visits				
Mean (SD) costs in 12-mo study period	$621 ($2,496)	$194 ($754)	$427	<0.001
Outpatient/MD office visits				
Mean (SD) costs in 12-mo study period	$25,895 ($55,232)	$6,830 ($14,977)	$19,065	<0.001
Prescription drugs				
Mean (SD) costs in 12-mo study period	$3,865 ($5,808)	$1,937 ($3,965)	$1,928	<0.001
Total medical expenditures				
Mean (SD) costs in 12-mo study period	$58,389 ($99,483)	$11,527 ($21,935)	$46,862	<0.001
Indirect expenditures				
Absenteeism (*N*)	10	10	N/A	N/A
Percent of patients with absenteeism claims in 12-mo study period	70.00%	100.00%	−30.00%	0.081
Mean (SD) absence costs in 12-mo study period	$4,781 ($10,144)	$4,552 ($2,878)	$229	0.946
Short-term disability (*N*)	20	20	N/A	N/A
Percent of patients with STD claims in 12-mo study period	15.00%	5.00%	10.00%	0.305
Mean (SD) STD costs in 12-mo study period	$1,025 ($2,673)	$386 ($1,728)	$638	0.375

Carls G, et al. J Occup Environ Med. 2009;51:66-79.

Medical care expenditures associated with chronic kidney disease in adults with diabetes: United States 2011

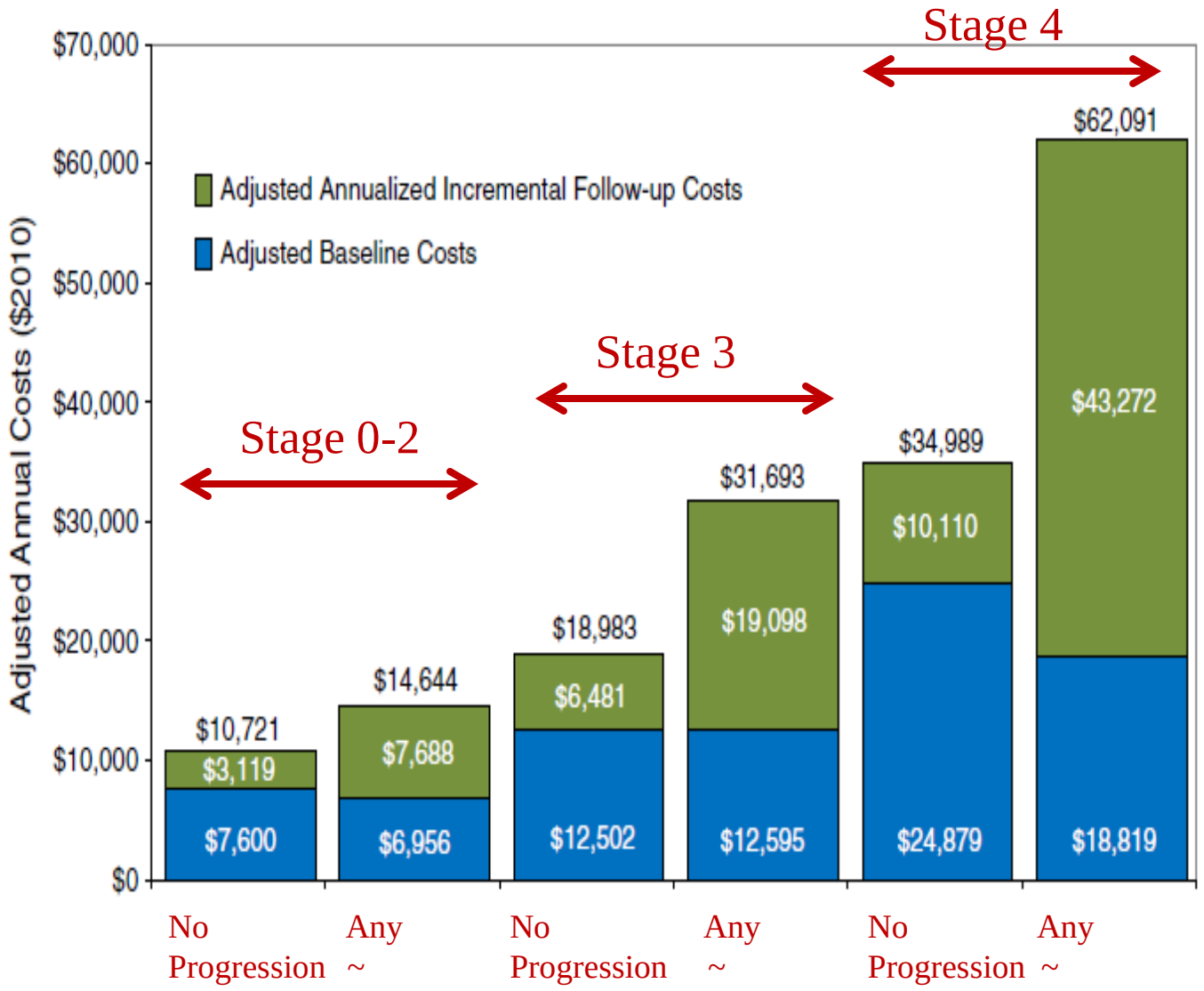
Table 2 – Means of total expenditure by CKD status among adults with diabetes.

	Mean ($)	95% CI	*p-Value
	2.14 times		<0.001
No CKD	$9,689	$8,871–$10,507	
CKD	$20,726	$16,322–$25,130	

* Level of significance $p < 0.05$ for each category.

Ozieh MN, et al. Diabetes Res Clin Pract. 2015;109:185-90.

The economic burden of progressive chronic kidney disease among patients with type 2 diabetes



Vupputuri S, et al. J Diabetes Complications. 2014;28:10-6.

Dialysis Cost 6.8 - 48 times > National Average

Country	Total dialysis costs	Healthcare costs (%)	Dialysis patients (% of population)
UK	300 (£000 000)	0.7	0.022
Switzerland	130 (SF, 000 000)	1.0	0.03
Germany	3000 (DM, 000 000)	1.3	0.05
France	7000 (FF, 000 000)	1.5	0.035
Italy	2000 (Lira, 000 000 000)	1.5	0.06
Belgium	6800 (BF, 000 000)	1.8	0.037
Japan		3.7	0.203
Taiwan		6.2 (TNHI)	0.22 (TNHI)
USA		8.2 (Medicare)	1.2 (Medicare)

32 x

25 x

48 x

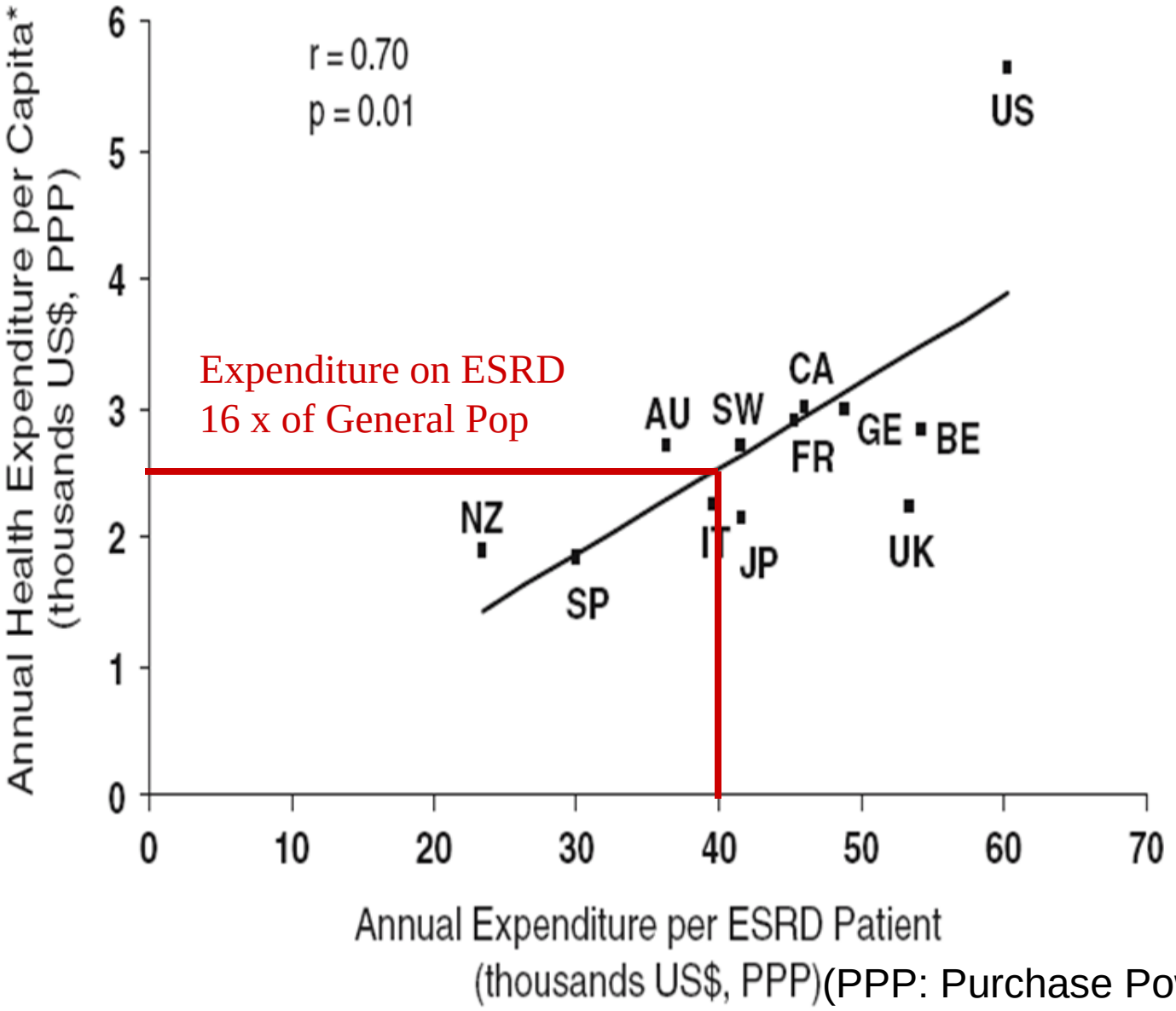
18 x

28 x

6.8 x

De Vecchi AF, et al. NDT 1999; USRDS ADR Precis 2007
Fukuhara S, et.al. Int J Health Care Finance Econ. 2007;7:217-231

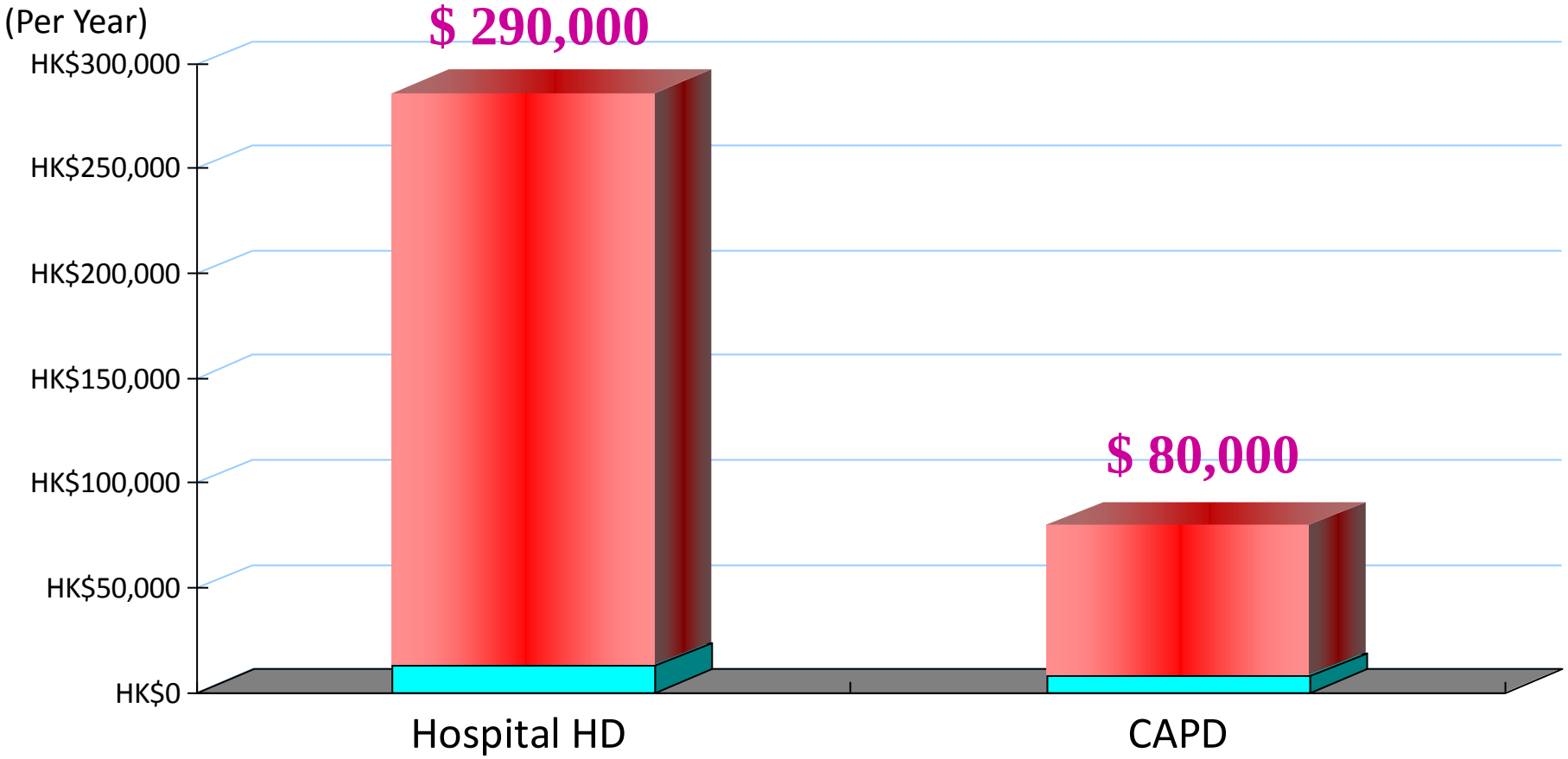
Annual expenditure per ESRD patient and general population health expenditure per capita, 2003



(PPP: Purchase Power Parity)

Dor A, et al. End-stage renal disease and economic incentives: the International Study of Health Care Organization and Financing (ISHCOF). Int J Health Care Finance Econ. 2007 Sep;7(2-3):73-111.

Costing Comparison of PD vs Hospital HD in Public in HK - 2011



The cost of renal dialysis in a UK setting - Multicentre

Modality	Pounds per year
APD	21 655
CAPD	15 570
Hospital HD	35 023
Satellite HD	32 669
Home-based HD	20 764

HD : CAPD 2.33 : 1

Baboolal K, et al. Nephrol Dial Transplant. 2008 Jun;23(6):1982-9

Mainland China: Modality Costs

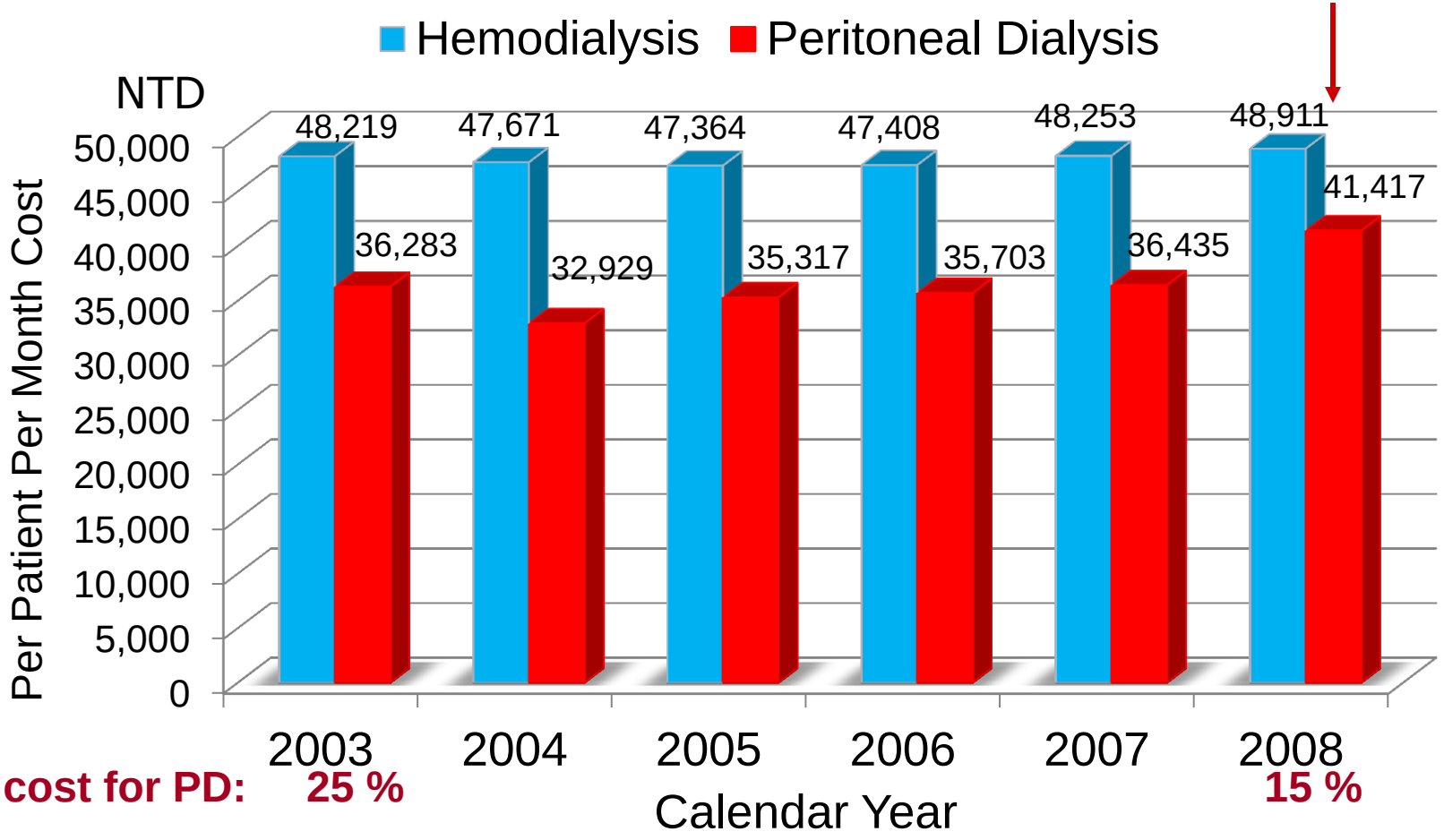
	HD (RMB)	PD (RMB)
Not standardized	98,204	84,141
Standardized	100,388	78,782

HD : CAPD 1.27 : 1

Source & Courtesy Chinese Medical Insurance Agency 2006 data presented in ISPD 2006 Dialysis Economics Roundtable, HK

Medical Costs of HD and PD per Patient per Month Taiwan

HD : CAPD 1.18 : 1



Less cost for PD: 25 % **15 %**

Presented in Roundtable discussions - Health economics on dialysis management: China, Hong Kong, Macau, Taiwan 2011 Quadrangular Chinese Nephrology Conference September 10, 2011

HD/PD ratios calculated from responses in completed mail surveys.

Source	Country	Year	HD/PD cost ratio	
Prof. Xueqing Yu	China	2013	1.10	Asia
Prof. YL Kim	South Korea	2013	1.20	
Dr. KBM Hadiuzzaman	Bangladesh	2013	1.00	
Prof. Harun-Ur-Rashid	Bangladesh	2013	1.00	
Dr. D. Sirivongs	Thailand	2013	1.20	
Dr. Klara Paudel	Nepal	2013	1.30	
Prof. HC Chen	Taiwan	2013	1.20	
Dr. J. de Arteaga	Argentina	2013	1.00	South America
Prof. G. Rosa Diez	Argentina	2013	1.00	
Dr. Zulma Cruz	El Salvador	2013	1.20	

Karopadi AN, Mason G, Rettore E, Ronco C.
Nephrol Dial Transplant. 2013 Oct;28(10):2553-69

Estimated costs (in €1000 per month) and effects (QALYs)

	Outcome parameter	Value	95% CI
	Therapy costs (€1000/month)		
HD	HD (1st year)	3.630	3.462–3.801
	HP (2nd year)	3.330	3.189–3.474
	HM (after 2nd year)	3.380	3.225–3.539
PD	PD (1st year)	2.160	0.903–3.957
	PP (2nd year)	1.530	0.392–3.429
			3.403
			4.754
TxP	TD (Deceased donor - 1st year)	4.250	3.761–4.769
	TP (2nd year)	1.430	1.161–1.726
	TM (after 2nd year)	1.070	0.702–1.515
	Monthly QALY gains		
	HD, HP, HM	0.055	0.018–0.112
	PD, PP, PM	0.068	0.034–0.112
	TL, TD, TP, TM	0.075	0.039–0.123

Monthly QALY gains : Txp > PD > HD

Haller M et al. Nephrol. Dial. Transplant 2011; 26 (9): 2988-2995

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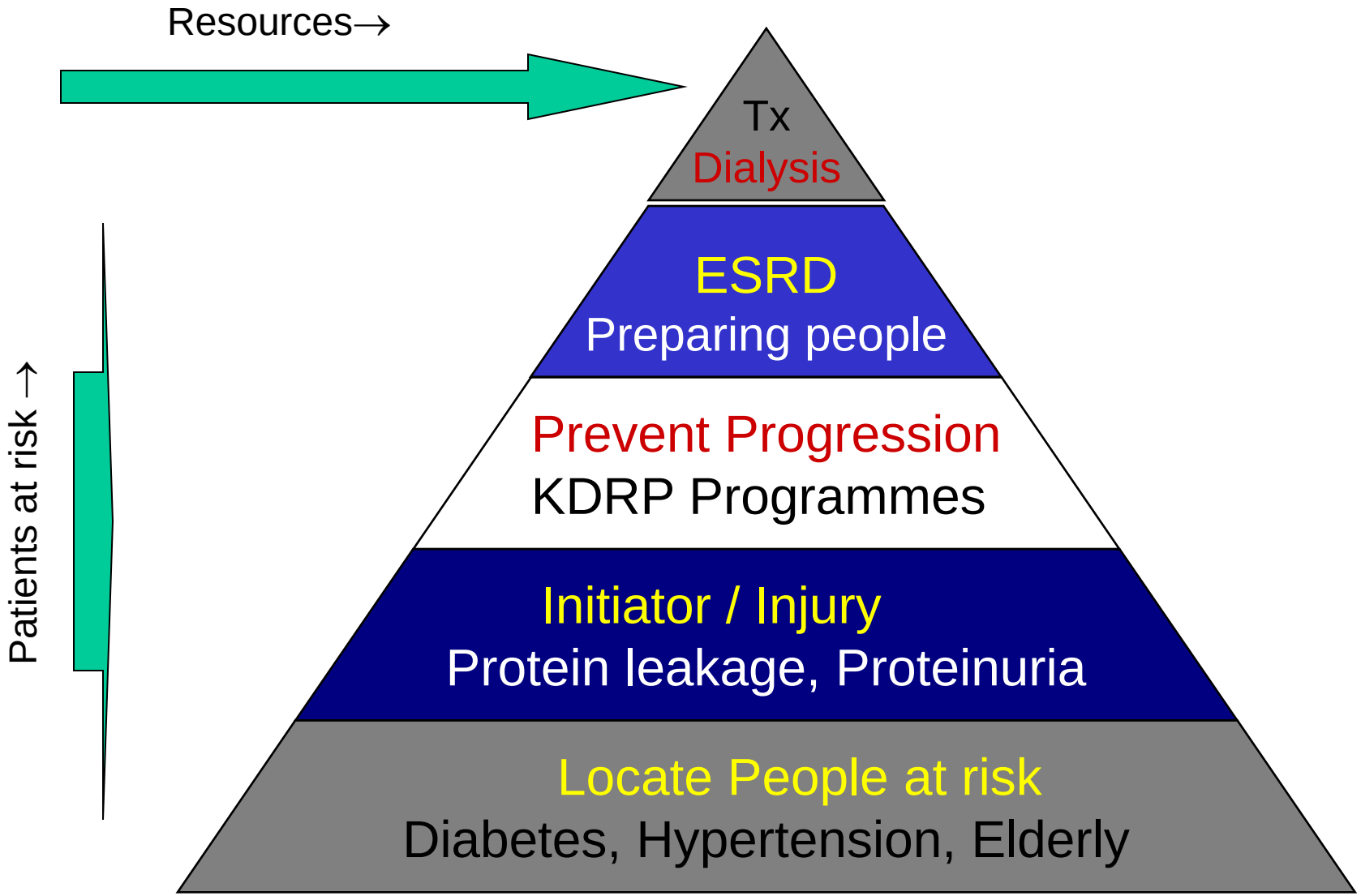
How to deal with it
- **Awareness and Early Prevention**
- **Treatment**
- **Provision of Cost Effective Quality Dialysis**

Chronic Kidney Disease Renoprotection Programmes



Prevalence, Awareness, and Management of CKD and Cardiovascular Risk Factors in Canada

Table 1. Estimated GFR and CKD awareness

eGFR[a]	CKD-EPI Equation			MDRD Equation		
	N	Percent	Aware (%)	*N*	Percent	Aware (%)
≥90	9530	49	—	5493	28	—
60–89	9123	47	—	12,608	65	—
45–59	662	3.4	4	1181	6.1	3
30–44	103	0.5	22	137	0.7	19
15–29	12	0.07	75	11	0.1	82
<15	5	0.03	100	5	0.03	100
Total	19,435		8			5

CKD-EPI, Chronic Kidney Disease Epidemiology Collaboration; MDRD, Modification of Diet in Renal Disease.
[a]Expressed in milliliters per minute per 1.73 meters^2. The serum creatinine was unavailable in 569 individuals.

Self-awareness was low: 8% for CKD, 73% for diabetes, and 45% for hypercholesterolemia.

Verhave JC, et al. Clin J Am Soc Nephrol. 2014;9:713-9.

Public lacks knowledge on chronic kidney disease

Questions	No. (%) of participants (n=516)
Perceived symptom(s) of early kidney disease that might progress to kidney failure*	
Bubbles in the urine	272 (52.7)
Yellow urine	209 (40.5)
Frequent thirst	211 (40.9)
Back pain	273 (52.9)
Blood in the urine	257 (49.8)
Yellow eyes	116 (22.5)
Without symptoms or complaints	92 (17.8)
Others	8 (1.6)
Do not know	52 (10.1)

- Less than half the general public in Hong Kong are aware that hypertension is a risk factor of chronic kidney disease.
- Only 17.8% of respondents in a telephone survey recognised the asymptomatic nature of chronic kidney disease.

Chow KM,...,Li PK. Hong Kong Med J. 2014;20:139-44.

Characteristics of Participants and Odds of Being Aware of CKD

	Unaware (n = 3,997)	Aware (n = 446)	Age- and Sex-Adjusted OR (95% CI)	Multivariable Adjusted[a] OR (95% CI)
Age (y)	57.2 ± 15.6[b]	58.5 ± 15.0[b]	—	1.01 (1.00-1.02)
Male sex	37.7%	43.1%	—	0.87 (0.70-1.07)
Income[c]				
Tertile 1	35.1%	37.7%	1.00 (reference)	1.00 (reference)
Tertile 2	25.8%	25.7%	0.92 (0.72-1.17)	0.91 (0.70-1.17)
Education ≥ high school	28.5%	36.1%	1.48 (1.19-1.84)	1.69 (1.29-2.19)
Insurance	—	—[d]		
Free medical insurance	9.3%	11.9%	1.65 (1.04-2.64)	1.22 (0.74-2.01)
Basic medical insurance	29.6%	31.8%	1.43 (0.95-2.15)	1.12 (0.73-1.72)
New rural cooperative medical care	44.4%	44.4%	1.36 (0.92-2.02)	1.33 (0.87-2.04)
Other	7.2%	4.9%	0.83 (0.46-1.50)	0.73 (0.40-1.34)
No insurance	9.6%	7.0%	1.00 (reference)	1.00 (reference)
Health exam in previous 2 y	32.7%	39.9%[d]	1.27 (1.03-1.57)	1.26 (1.00-1.59)
Self-reported concern of kidney disease	4.4%	21.1%[d]	5.01 (3.51-7.14)	5.09 (3.54-7.32)
Family history of kidney disease	1.5%	7.0%[d]	5.34 (3.41-8.38)	4.81 (2.97-7.77)
History of CVD	5.5%	7.0%[d]	1.14 (0.76-1.70)	1.12 (0.74-1.70)
Hypertension	58.3%	63.5%[d]	0.99 (0.94-1.04)	0.98 (0.93-1.04)
Diabetes	17.0%	20.0%	1.17 (0.91-1.50)	1.14 (0.88-1.49)
Scr ≥ 1.5 mg/dL	4.5%	16.4%[d]	—	—
Proteinuria	86.9%	87.4%	—	—

The overall awareness rate of CKD in China was ~10%

Wang F, et al. Am J Kidney Dis. 2014;63:1068-70.

World Kidney Day

12 MARCH 2015

KIDNEY HEALTH FOR ALL

World Kidney Day is a joint initiative

ISN International Society of Nephrology 1960

IFKF International Federation of Kidney Foundations
Improving kidney health worldwide

The World Kidney Day Steering Committee

The Steering Committee for World Kidney Day 2015 is composed of nephrology and transplantation experts who live and work in Africa, Asia, Australia, Europe, South America and North America.

Members of the Steering Committee are:

1. Philip Kam Tao Li, Co-chairman for ISN, Hong Kong
2. Guillermo Garcia, Co-chairman for IFKF, Mexico
3. William G. Couser, ISN, USA
4. Timur Erk, IFKF, Turkey
5. Elena Zakharova, ISN, Russia
6. Luca Segantini, ISN, Belgium
7. Miguel C. Riella, IFKF, Brazil
8. Charlotte Osafo, ISN, Ghana
9. Charles Kernahan, IFKF, UK
10. Kamyar Kalantar-Zadeh, IFKF, USA
11. Julie Ingelfinger, WKD 2016 Campaign, USA

特刊

世界腎臟日 在香港 8.3.2015
www.worldkidneyday.org

第10屆世界腎臟日在香港

（廣告）

獻辭

第10屆「世界腎臟日在香港」由香港腎科學會、香港腎臟基金會、醫院管理局及衞生署合辦，今年的主題是「全民腎康　全城響應」。腎臟疾病十分普遍，全球有一成人口患腎臟疾病，5%人慢性腎臟受損。過去一年，全港新增約有一千三百名末期腎衰竭病者。至今，全港積累有近一萬名末期腎衰竭病者在接受透析治療或接受了腎臟移植。舉辦世界腎臟日的目的，是讓大眾意識到腎臟疾病的普遍及嚴重性、腎臟疾病可嚴重影響身體健康，甚至危害生命。

過去一年，全港新增的末期腎衰竭病者當中，46%人士是由糖尿病引致，由高血壓/血管病引致則有8%。因此，糖尿病及高血壓人士屬患慢性腎病的高危一群，必要做好病情管理，避免併發慢性腎病，最終引致末期腎衰竭，要靠替代治療維持生命。教育大眾關注腎臟健康及病向淺中醫討不容緩。

今年世界腎臟日倡導機構重點推動八項預防腎病的金科玉律，包括：控制血糖、監察血壓、腎病高危者要檢查腎功能、不要亂服成藥、足夠水份、經常運動、正常體重、不要吸煙。對於普羅市民，最簡易維持腎臟健康的做法是每日多飲水，身體健康人士可飲8杯水，多留意是否有腎病徵狀及定期做身體檢查。此外，急性腎損傷亦會造成末期腎衰竭。因此，市民在用藥時要嚴格遵從醫生及藥劑師的指示，切勿自行胡亂用藥。

第十屆世界腎臟日在香港
健康護腎 全城和應

中華人民共和國第十二屆全國人民代表大會常務委員會委員
范徐麗泰 GBM, GBS, JP

第十屆世界腎臟日在香港
同心護腎 協力揚康

食物及衞生局局長
高永文醫生 GBS, JP

第十屆世界腎臟日在香港
扶康強腎 益壽永年

衞生署署長
陳漢儀醫生 JP

第十屆世界腎臟日在香港
全民推動 人人腎康

香港腎臟基金會會長
梁智鴻醫生 GBM, GBS, JP

第十屆世界腎臟日在香港
康樂人生腎為始 全民同心福澤長

醫院管理局主席
梁智仁教授 SBS, JP

第十屆世界腎臟日在香港
廣倡保健 齊護腎康

醫院管理局行政總裁
梁栢賢醫生 JP

第十屆世界腎臟日在香港
腎護携手推廣腎康 全城市民響應預防

香港腎臟基金會贊助人
余宇康教授 SBS

第十屆世界腎臟日在香港
國際齊心同倡護腎 全球致力保衞民康

世界腎臟日國際委員會主席
李錫泓教授

ISN 2004 Conference on

Prevention of Progression of Renal Disease June 29- July 1, 2004

Li PKT, et al. Kidney Int Suppl. 2005;94:S36-40.

Prevalence of silent kidney disease in Hong Kong: The Screening for Hong Kong Asymptomatic Renal Population and Evaluation (SHARE) program

PHILIP KAM-TAO LI, BONNIE CHING-HA KWAN, CHI BON LEUNG, TZE HOI KWAN, KIM MING WONG, SING LEUNG LUI, WAI KAY TSANG, CHRISTOPHER CHUN YU MAK, SIU KA MAK, ALEX WAI-YIN YU, SYDNEY TANG, FOR THE HONG KONG SOCIETY OF NEPHROLOGY

Prince of Wales Hospital, Chinese University of Hong Kong, Hong Kong; Tuen Mun Hospital; Queen Elizabeth Hospital; Tung Wah Hospital; Princess Margaret Hospital; Kwong Wah Hospital; Alice Ho Miu Ling Nethersole Hospital; and Queen Mary Hospital, Hong Kong

Prevalence of silent kidney disease in Hong Kong: The Screening for Hong Kong Asymptomatic Renal Population and Evaluation (SHARE) program.

Background. End-stage renal disease (ESRD) is epidemic worldwide. In Hong Kong, the annual incidence of ESRD has risen from 100 pmp (per million population) in 1996 to 140 pmp

educated toward the significance of such findings in order to have regular health check for asymptomatic renal diseases.

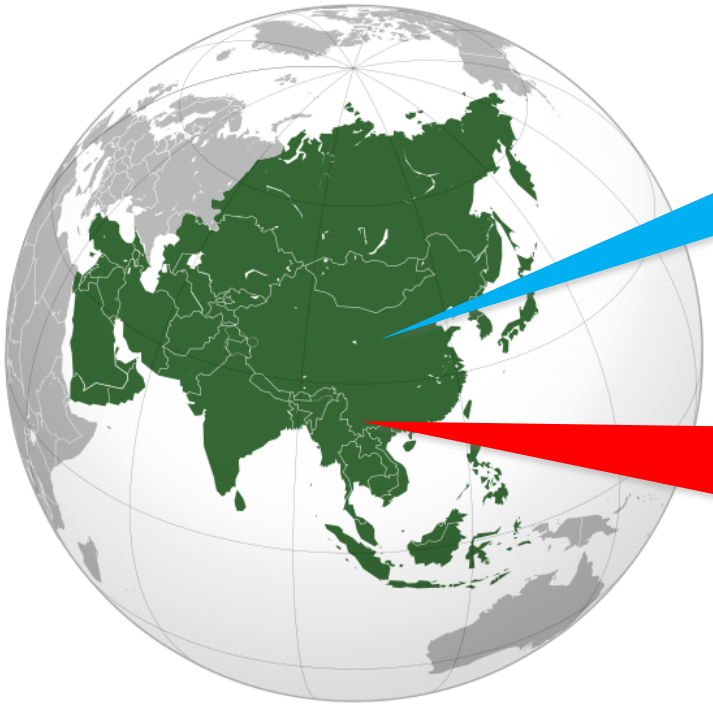
End-stage renal disease (ESRD) is epidemic world-

Population-based epidemiological studies of chronic kidney disease

Region	Screened population	Screening tools	Prevalence
Beijing, China	13,925 adults (response rate 90.6%)	Glomerular filtration rate using calibrated serum creatinine level and formula estimation	**13%**, defined as glomerular filtration rate < 60 ml/min/1.73 m^2 or markers of kidney damage
Taiwan	462,293 adults	MDRD equation for estimated glomerular filtration rate Dipstick analysis of urine protein	**12%** with chronic kidney disease
Hong Kong	1,201 adults	Dipstick analysis of urine protein and blood	**3.2%** with proteinuria ≥ 1+

Li PKT, et al. Nephrology 2011 Sep;16(7):633-641

Prevalence of CKD



Chinese

- about 11%- 12% [1,2]

Hong Kong

- More than 800,000 people affected
- One of the **major burdens** on the health of general public

1. Zhang L, et al Lancet. 2012 Mar 3;379(9818):815-22.
2. Wen CP, et al. Lancet 2008; 371: 2173–82.

Unique aspects of CKD in Asian populations

Aspect	Implications
Lower creatinine appearance rate (possibly from both muscle and diet)	eGFR equations based on creatinine may need to be adjusted downward by about 20%
Lower GFR/1.73 m^2	Conventional staging of CKD may not apply due to a lower "healthy" range of GFR
→ High rates of hypertension, salt intake, smoking	Potential improvements due to education, dietary salt restriction, smoking cessation programs
→ High rates of glomerulonephritis	Possible improvement due to better sanitation and improvement of infections associated with GN
→ High rate of diabetes	Attention to diet and exercise; better detection of diabetes and treatments needed
Lower threshold of BMI for kidney damage	
Low nephron number at birth due to suboptimal maternal prenatal nutrition	Social and economic programs to focus on maternal health care
→ More rapid progression of CKD	Cause unknown
Better survival once CKD established	Cause unknown
→ Nephrotoxicity from herbal medicines	Better control and regulation and quality control of herbal medicines to avoid contaminants and adulterants
Environmental nephrotoxins	Community education and initiatives
Consumption of traditional foods with nephrotoxic potential or toxicity in CKD patients (djenkol, star fruit, fish gallbladder)	Patient education to avoid such foods

Li PKT, Chow KM. **Chronic Kidney Disease in Asia**. In Daugirdas JT. Handbook of Chronic Kidney Diseases 1st Edition Lippincott Williams & Wilkins, Philadelphia 2010: Chapter 33

NEPHROLOGY

Nephrology **16** (2011) 633–641

Original Article

Asian chronic kidney disease best practice recommendations: Positional statements for early detection of chronic kidney disease from Asian Forum for Chronic Kidney Disease Initiatives (AFCKDI)

PHILIP KAM-TAO LI,[1] KAI MING CHOW,[1] SEIICHI MATSUO,[2] CHIH WEI YANG,[4] VIVEKANAND JHA,[5] GAVIN BECKER,[6] NAN CHEN,[9] SANJIB KUMAR SHARMA,[11] ANUTRA CHITTINANDANA,[12] SHAFIQUL CHOWDHURY,[13] DAVID C.H. HARRIS,[7] LAI SEONG HOOI,[14] ENYU IMAI,[2] SUHNGGWON KIM,[15] SUNG GYUN KIM,[16] ROBYN LANGHAM,[8] BENITA S. PADILLA,[17] BOON WEE TEO,[18] ARIUNAA TOGTOKH,[19] ROWAN G. WALKER,[6] HAI YAN WANG[10] and YUSUKE TSUKAMOTO[3]

[1]Department of Medicine and Therapeutics, Prince of Wales Hospital, The Chinese University of Hong Kong, Hong Kong; [2]Nagoya University Graduate School of Medicine, Nagoya, [3]Department of Nephrology, Itabashi Chuo Medical Center, Tokyo, Japan; [4]Department of Nephrology, Chang Gung Memorial Hospital, Taipei, Taiwan; [5]Postgraduate Institute of Medical Education and Research, Chandigarh, India; [6]Department of Nephrology, Royal Melbourne Hospital, Melbourne, Victoria, [7]University of Sydney at Westmead Hospital, Sydney, [8]Department of Medicine, St Vincent's Hospital, Melbourne, Australia; [9]Department of Nephrology, Ruijin Hospital, Shanghai Jiaotong University, Shanghai, [10]Institute of Nephrology, The First Hospital, Peking University, Beijing, China; [11]Department of Internal Medicine, B P Koirala Institute of Health Sciences Dharan, Nepal; [12]Department of Medicine, Bhumibol Adulyadej Hospital, Bangkok, Thailand; [13]Raja Isteri Pengiran Anak Saleha RIPAS Hospital, Brunei; [14]Department of Medicine, Sultanah Aminah Hospital Johor Baru, Johor, Malaysia; [15]Department of Internal Medicine, Seoul National University, Seoul, [16]Department of Internal Medicine, Hallym University Sacred Heart Hospital, Seoul, South Korea; [17]National Kidney and Transplant Institute, Quezon City, Philippines; [18]Department of Medicine, National University of Singapore, Singapore; and [19]Department of Nephrology, Health Sciences University of Mongolia, Ulaanbaatar, Mongolia

Li PKT, et al. Nephrology 2011 Sep;16(7):633-641

AFCKDI recommendations for Early Detection of Chronic Kidney Disease

1. Targets:

Patients with diabetes, hypertension
Those with family history of chronic kidney disease
Individuals receiving potentially nephrotoxic drugs, herbs or substances or taking indigenous medicine.
Patients with past history of acute kidney injury
Individuals older than 65

2. Tools:

Spot urine sample for protein with standard urine Dipstick test (need a repeat confirmatory test if positive)
Dipstick for red blood cells (need confirmation by urine microscopy)
An estimate of glomerular filtration rate based on serum creatinine concentration

3. Frequency of Screening

Screening frequency for targeted individuals should be yearly if no abnormality is detected on initial evaluation.

4. Who should perform the screening:

Doctors, nurses, paramedical staff and other trained healthcare professionals

5. Intervention after screening

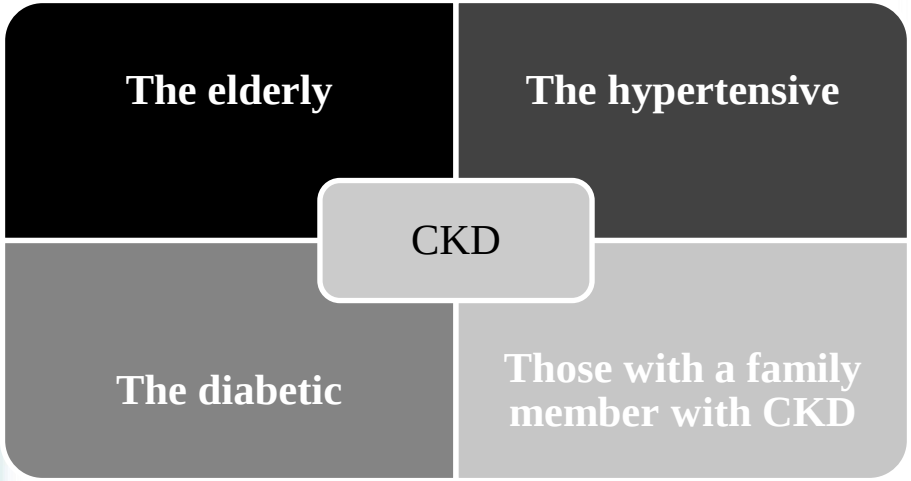
Patients detected to have chronic kidney disease should be referred to primary care physicians with experience in management of kidney disease for follow up. A management protocol should be provided to the primary care physicians. Further referral to nephrologists for management will be based on the protocol together with clinical judgment of the primary care physicians with their assessment of the severity of chronic kidney disease and the likelihood of progression.

6. Screening for cardiovascular disease risk

It is recommended that cardiovascular disease risk factors should be screened in all patients with CKD.

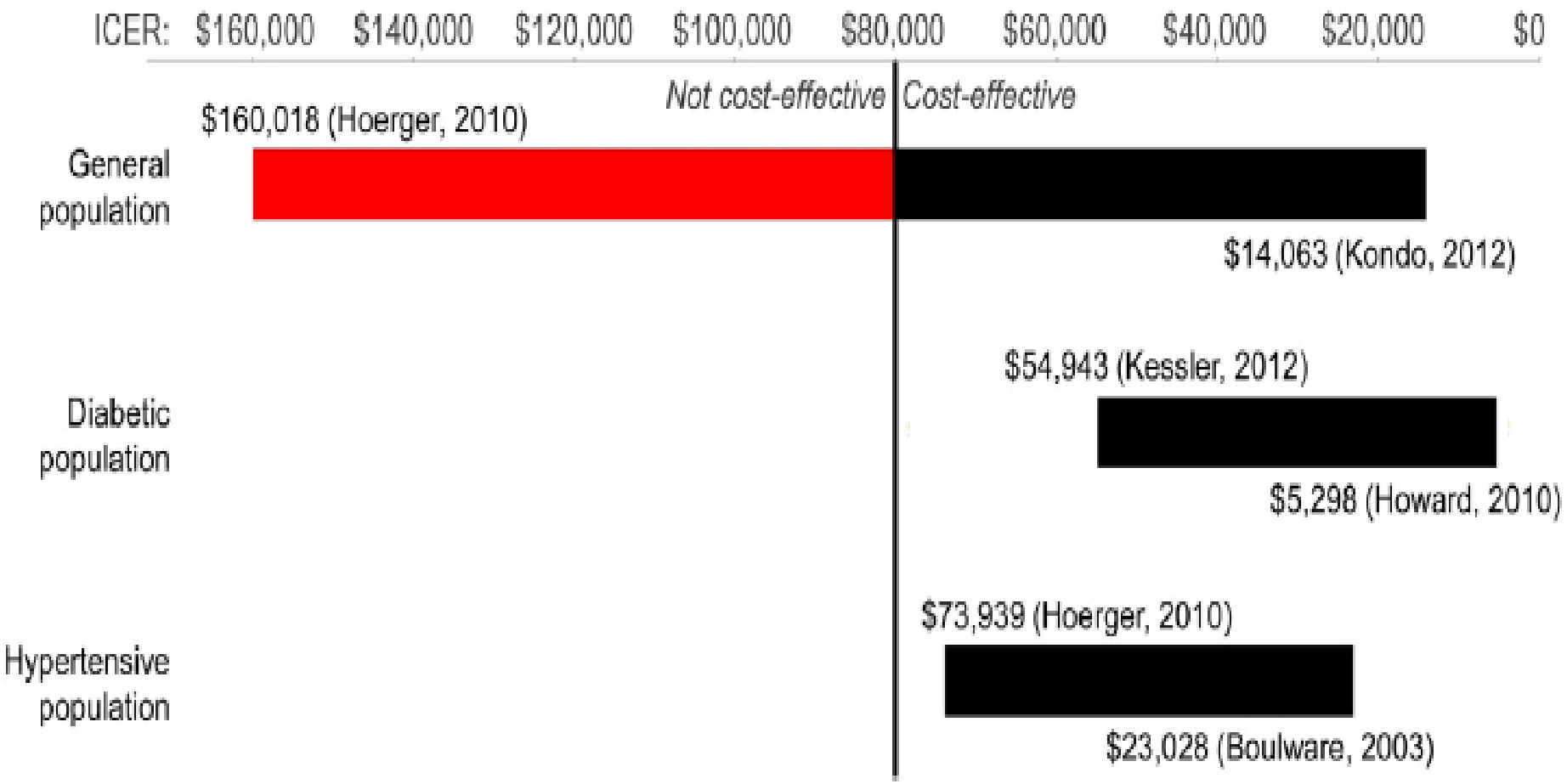
Li PKT, et al. Nephrology 2011 Sep;16(7):633-641

CKD: high-risk groups



1. Li PKT, Chow KM, et al. Asian Chronic Kidney Disease (CKD) Best Practice Recommendations – Positional Statements for Early Detection of CKD from Asian Forum for CKD Initiatives (AFCKDI). Nephrology (Carlton) 2011 Sep;16(7):633-641

Cost-effectiveness of primary screening for CKD



Komenda P, et al. Am J Kidney Dis. 2014;63:789-97.

Epidemiology of Nephropathies in the world

Data of Renal failure in Hong Kong and the world

Impact of Nephropathies and Dialysis
- Patient Survival
- Socioeconomic

How to deal with it
- Awareness and Early Prevention
- **Treatment**
- Good Pre-Dialysis Care
- Provision of Cost Effective Quality Dialysis

KDIGO Clinical Practice Guideline for Glomerulonephritis

KDIGO Workgroup
CLINICAL PRACTICE GUIDELINE
ON GLOMERULONEPHRITIS

Dan Cattran (cochair) Canada
John Feehally (cochair) UK

Terry Cook, UK
Sergio Mezzano, Chile
Juergen Floege, Germany
Fernando Fervenza, USA
Debbie Gipson, USA
Richard Glassock, USA
Elisabeth Hodson, Australia
Vivek Jha, India
Zhi-Hong Liu China

Philip Li, Hong Kong (IgAN Subgroup Chair)

Patrick Nachman, USA
Manuel Praga, Spain
Jai Radhakrishnan, USA
Brad Rovin, USA
Stephan Troyanov, Canada
Jack Wetzels, Netherlands

KDIGO Clinical Practice Guideline for Glomerulonephritis. Kidney Int 2012; 2 (Suppl 2): 1-274

Antiproteinuric & antihypertensive therapy

- **We recommend long-term ACEi or ARB treatment when proteinuria is >1 g/d with uptitration of the drug depending on blood pressure . (1B)**

- We suggest ACEi or ARB treatment if proteinuria is between 0.5 to 1 g/d [in children between 0.5 to 1 g/d per 1.73 m^2]. (2D)

- We suggest the ACEi or ARB be titrated upwards as far as tolerated to achieve proteinuria <1 g/d. (2C)

- The goal of blood pressure treatment in IgAN should be < 130/80 mmHg in patients with proteinuria <1 g/d and < 125/75 mmHg when initial proteinuria is >1 g/day. (Not Graded)

KDIGO Clinical Practice Guideline for Glomerulonephritis. Kidney Int 2012; 2 (Suppl 2): 1-274

Li PKT, et al. Am J Kidney Dis. 2006 May;47(5):751-60

Hong Kong Study Using Valsartan in IgA Nephropathy (HKVIN): A Double-Blind, Randomized, Placebo-Controlled Study

Philip Kam-Tao Li, MD, FRCP, Chi Bon Leung, FRCP, Kai Ming Chow, MRCP, Yuk Lun Cheng, MRCP, Samuel Ka-Shun Fung, FRCP, Siu Ka Mak, FRCP, Anthony Wing-Chung Tang, MRCP, Teresa Yuk-Hwa Wong, MRCP, Chun Yu Yung, MRCP, Jonathan Chee-Unn Yung, MRCP, Alex Wai-Yin Yu, FRCP, and Cheuk Chun Szeto, MD, FRCP, for the HKVIN Study Group

• *Background:* Previous studies showed that angiotensin-receptor blocker (ARB) therapy decreased proteinuria and possibly slowed the rate of renal function decline in patients with chronic proteinuric nephropathies. We performed a double-blind, randomized, placebo-controlled, multicenter study on the ARB valsartan in the treatment of patients with immunoglobulin A (IgA) nephropathy. *Methods:* From 6 centers, we recruited 109 patients with IgA nephropathy who had either: (1) proteinuria with protein greater than 1 g/d and serum creatinine level less than 2.8 mg/dL (<250 μmol/L), or (2) serum creatinine level of 1.4 to 2.8 mg/dL (120 to 250 μmol/L) regardless of degree of proteinuria. Patients were randomly assigned to administration of either valsartan, 80 mg/d (titrated up to 160 mg/d for blood pressure control), or placebo for 104 weeks. Additional antihypertensive therapy was allowed to achieve a target blood pressure of 140/90 mm Hg. The primary end point was doubling of serum creatinine level or

CLINICAL RESEARCH STUDY

Li PKT, et al. Am J Med 2013 Feb; 126(2): 162-8

THE AMERICAN JOURNAL of MEDICINE®

Treatment of Early Immunoglobulin A Nephropathy by Angiotensin-converting Enzyme Inhibitor

Philip Kam-Tao Li, MD, Bonnie Ching-Ha Kwan, MBBS, Kai-Ming Chow, MBChB, Chi-Bon Leung, MBChB, Cheuk-Chun Szeto, MD

Department of Medicine & Therapeutics, Prince of Wales Hospital, The Chinese University of Hong Kong, Shatin, Hong Kong, China.

ABSTRACT

BACKGROUND: The treatment of immunoglobulin A (IgA) nephropathy with normal renal function and minimal proteinuria is unknown.

METHODS: We randomly assigned 60 patients with IgA nephropathy, proteinuria <0.5 g/day, normal blood pressure and renal function to ramipril 2.5 mg daily or no treatment. Patients were followed for 5 years for the development of hypertension, proteinuria, or impaired renal function.

RESULTS: The blood pressure of the treatment group was marginally lower than the control group throughout the study period. At 60 months, the event-free survival was marginally higher for the treatment group as compared with the control group (81.1% vs 70.5%, $P = .27$). The proteinuria-free survival was similar at 82.9% and 79.3% for the treatment and control groups, respectively ($P = .6$); hypertension-free survival was 86.4% and 79.3% ($P = .2$). After 60 months of follow-up, the estimated glomerular filtration rate (GFR) was 108.1 ± 29.0 mL/min/1.73 m^2 for the treatment group and 105.7 ± 17.7 mL/min/1.73 m^2 for the control group ($P = .7$), but the difference was not statistically significant. None of the patients developed impaired renal function. The rate of GFR decline was similar between the treatment and control groups (-0.39 ± 2.57 vs -0.59 ± 1.63 mL/min/1.73 m^2 per year, respectively, $P = .7$). In general, the study medication was well tolerated. Two

OPEN ACCESS Freely available online

PLOS ONE

The Safety and Short-Term Efficacy of Aliskiren in the Treatment of Immunoglobulin A Nephropathy – A Randomized Cross-Over Study

Cheuk-Chun Szeto*, Bonnie Ching-Ha Kwan, Kai-Ming Chow, Chi-Bon Leung, Philip Kam-Tao Li

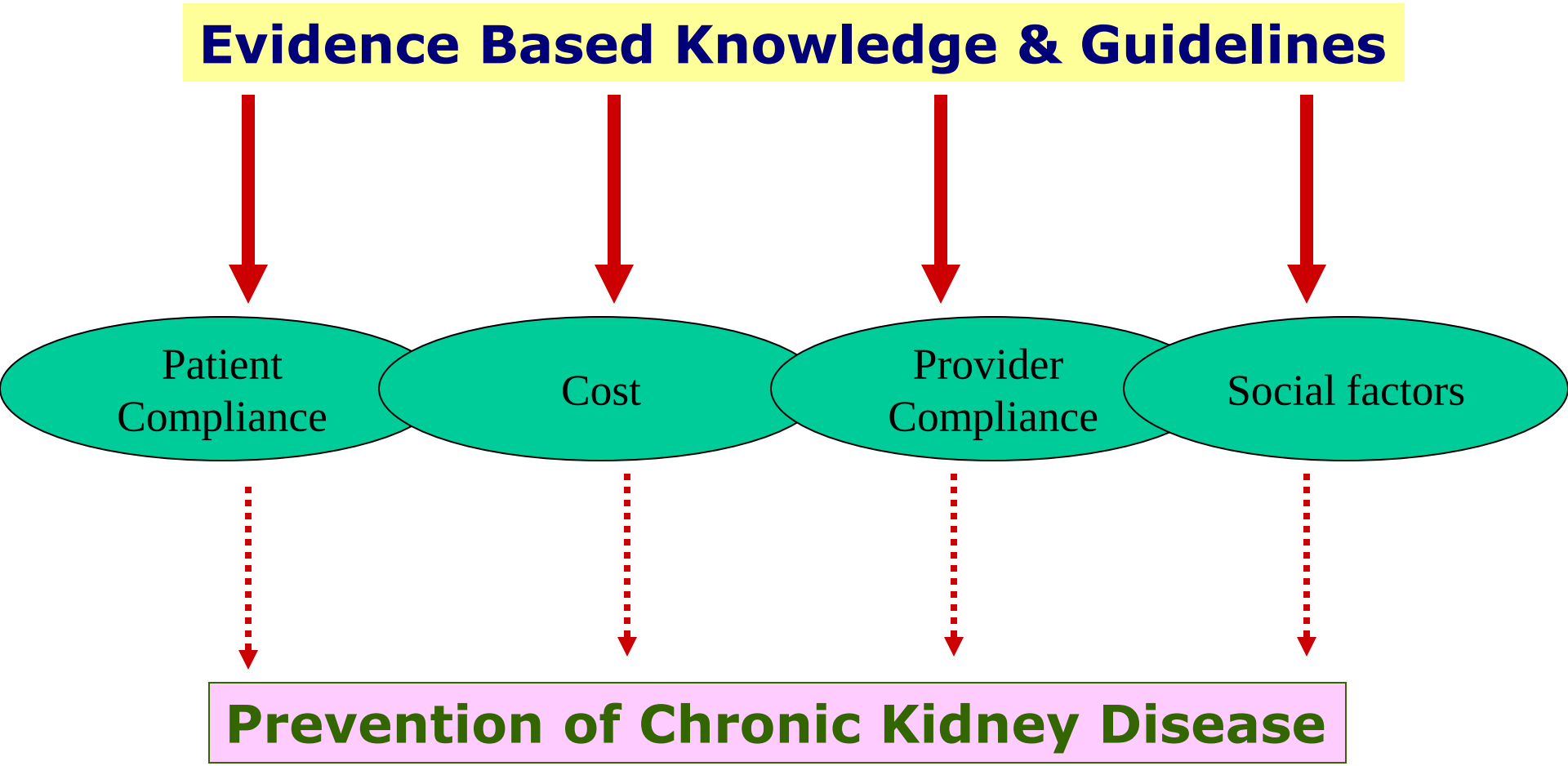
Department of Medicine and Therapeutics, Prince of Wales Hospital, The Chinese University of Hong Kong, Shatin, Hong Kong, China

Abstract

Background: Laboratory research and previous study suggest that aliskiren, a direct renin inhibitor, has anti-proteinuric effects. We conducted a randomized crossover study to evaluate the anti-proteinuric effect of aliskiren in patients with immunoglobulin A (IgA) nephropathy.

Methods: We studied 22 patients with biopsy-proven IgA nephropathy and persistent proteinuria despite angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB). Patients were randomized to either oral aliskiren 300 mg/day or placebo for 16 weeks and then crossed over to the other treatment arm after a washout period. Proteinuria, estimated glomerular filtration rate (eGFR), blood pressure, and serum potassium were monitored.

Barriers to Applying Good Evidences



Hypertension: incidence, awareness, treatment, and control

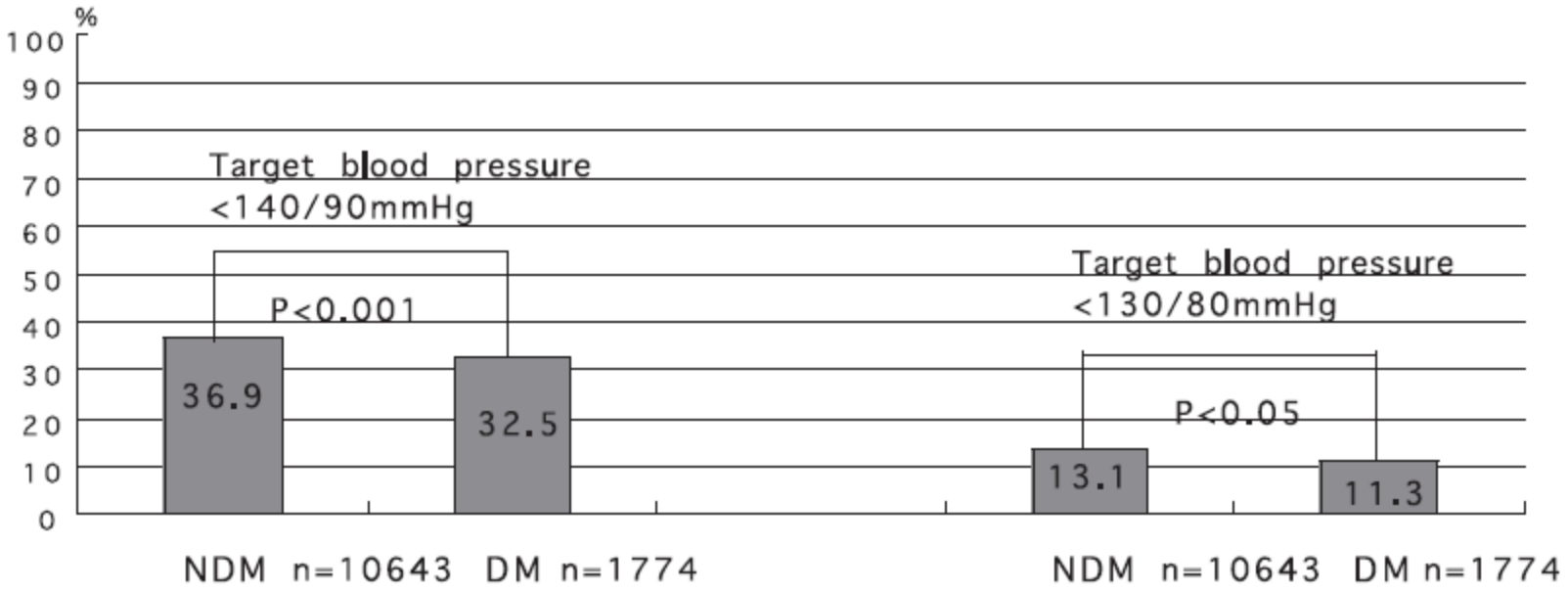
Hypertension status (%)

	Prevalence of diagnosed hypertension	Aware	Treated	Controlled
Canada	**22%**	**59%**	**40%**	**16%**
France	**41%**	**70%**	**59%**	**24%**
Germany	**53%**	**12%**	**32%**	**22%**
Italy	**58%**	**79%**	**51%**	**19%**
UK	**19%**	**63%**	**50%**	**30%**
US	**24%**	**42%**	**52%**	**24%**
China	**14%**	**26%**	**12%**	**3%**

Chockalingam and Fodor, Am J Hypertens, 1998; Chamontin et al, Am J Hypertens, 1998; Marques-Vidal et al, Q J Med, 1997; Trenkwalder et al, J Hypertens, 1994; Vincenzi et al, G Ital Cardiol, 1992; Colhoun et al, J Hypertens, 1998; Franklin et al, Hypertension, 2001; Tao et al, Chin Med J, 1995.

Attained rate of target blood pressure in non-diabetic and diabetic hypertensives

12,437 treated hypertensive patients from 1,186 clinics and hospitals in 7 groups of prefectures in Japan collected in 2002



Mori H, et al. Current Status of Antihypertensive Prescription and Associated Blood Pressure Control in Japan. Hypertens Res 2006; 29: 143–151

Risk Assessment Management Program – RAMP

- Starting 2009, territory-wide diabetes management program

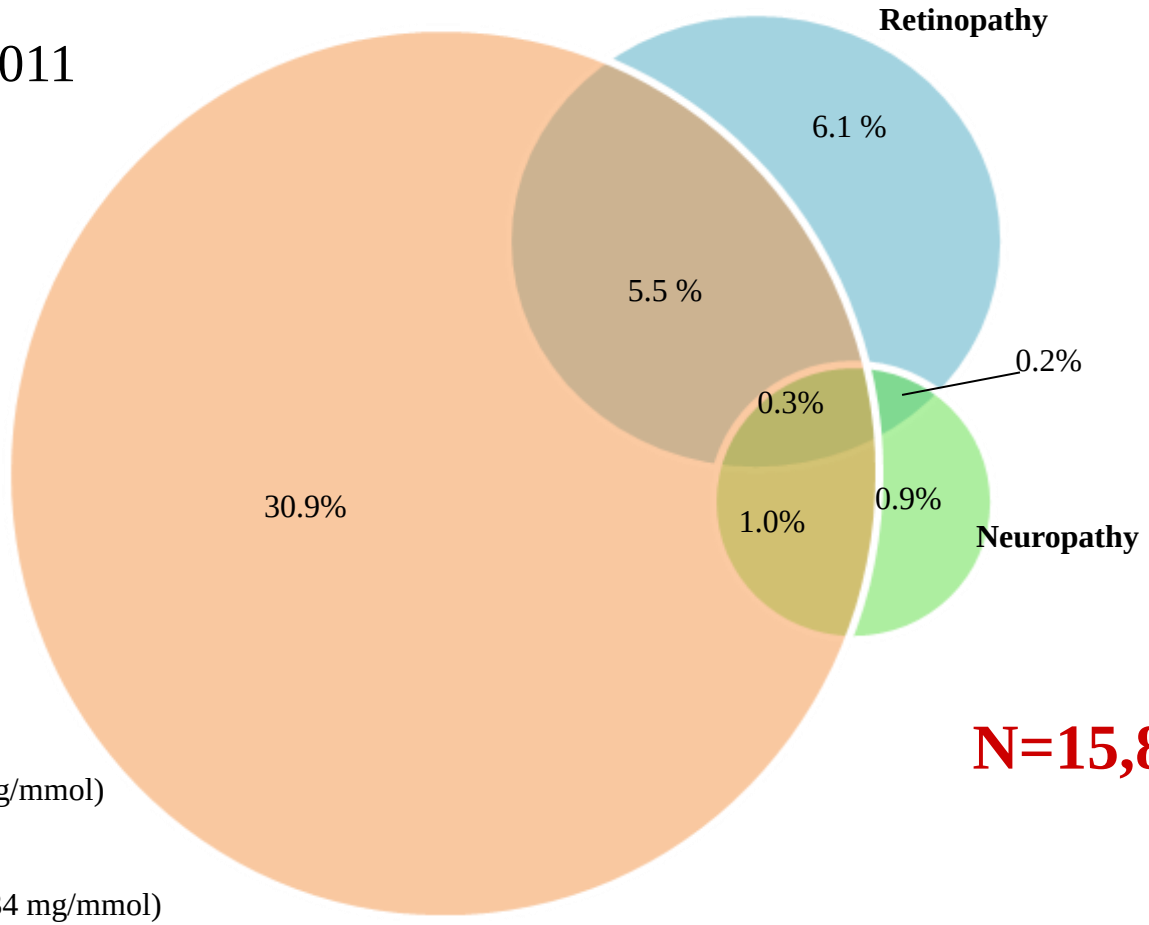
- all diabetics, helping to delineate current level of control and complications prevalence among primary care diabetic patients in Hong Kong

Kung K,.., Li PKT. BMC Family Medicine 2014 Jan 10;15(1):8

Prevalence of complications

in type 2 diabetic patients in primary care

Oct 2009 - Dec 2011



Overt –
uACR >300 mg/g (or > 34 mg/mmol)

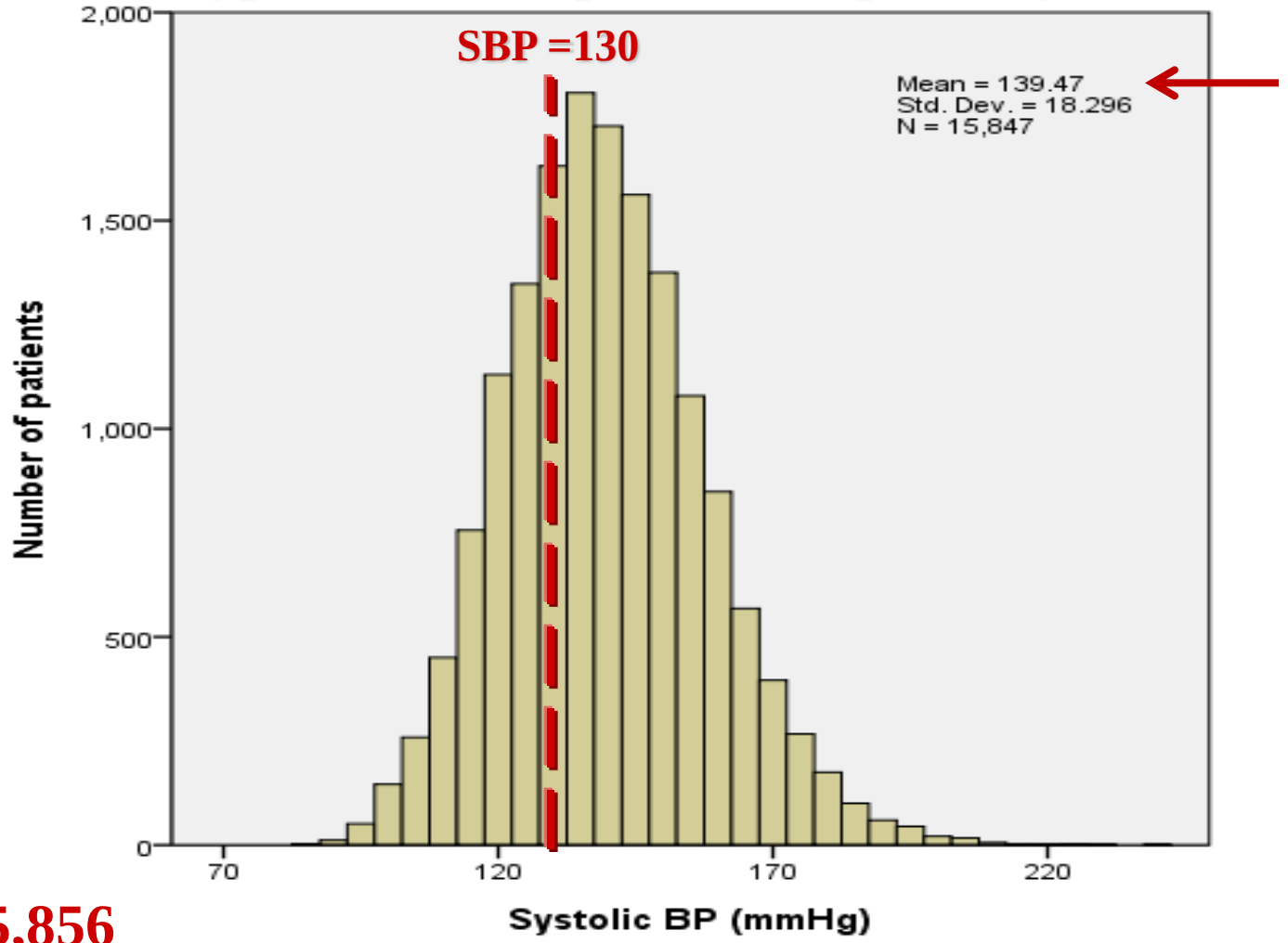
Incipient nephropathy –
uACR 30-300 mg/g (or 3.4-34 mg/mmol)

N=15,856

Kung K,.., Li PKT. BMC Family Medicine 2014 Jan 10;15(1):8

Systolic Blood pressure

in type 2 diabetic patients in primary care

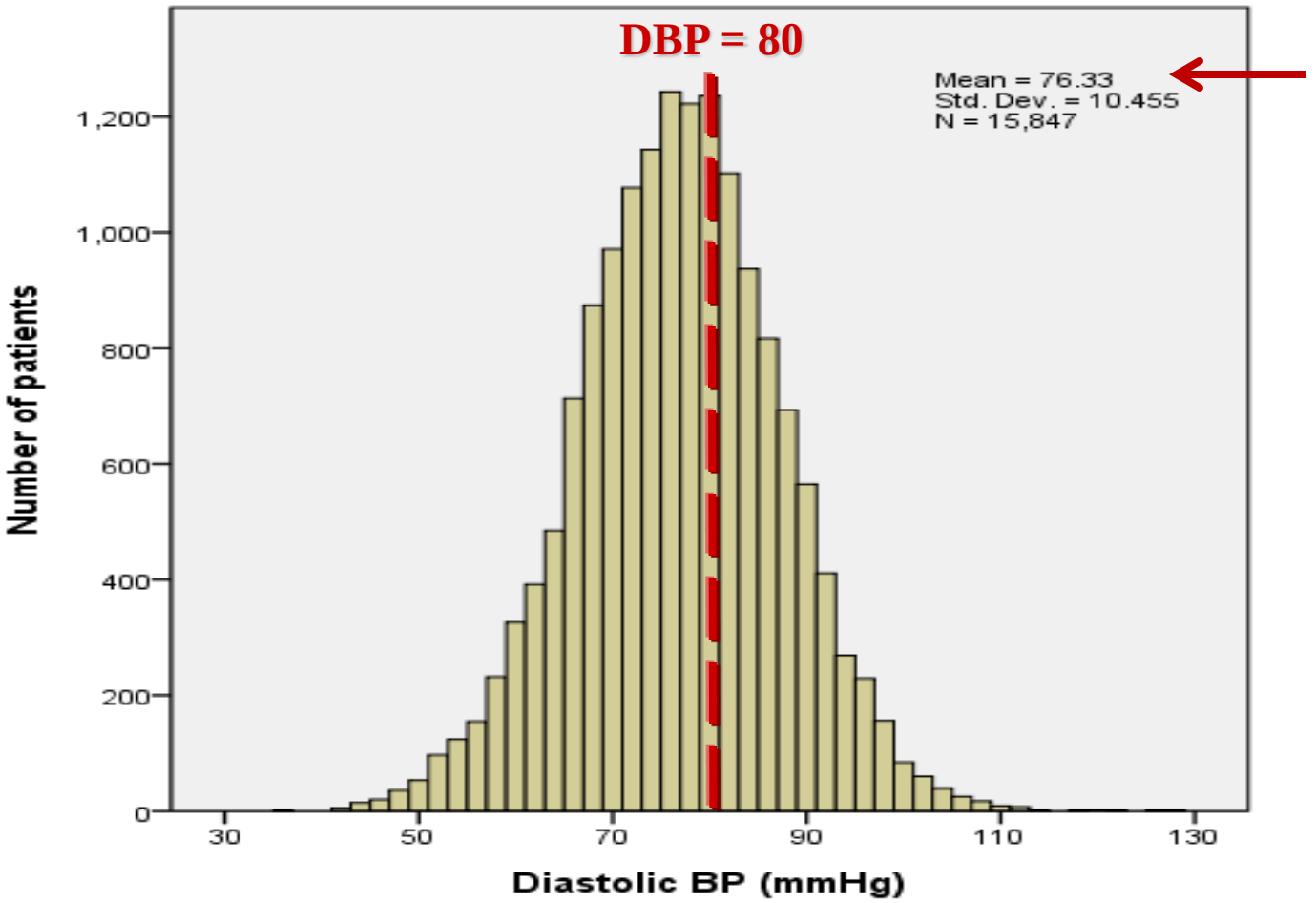


N=15,856

Kung K,.., Li PKT. BMC Family Medicine 2014 Jan 10;15(1):8

Diastolic Blood pressure

in type 2 diabetic patients in primary care

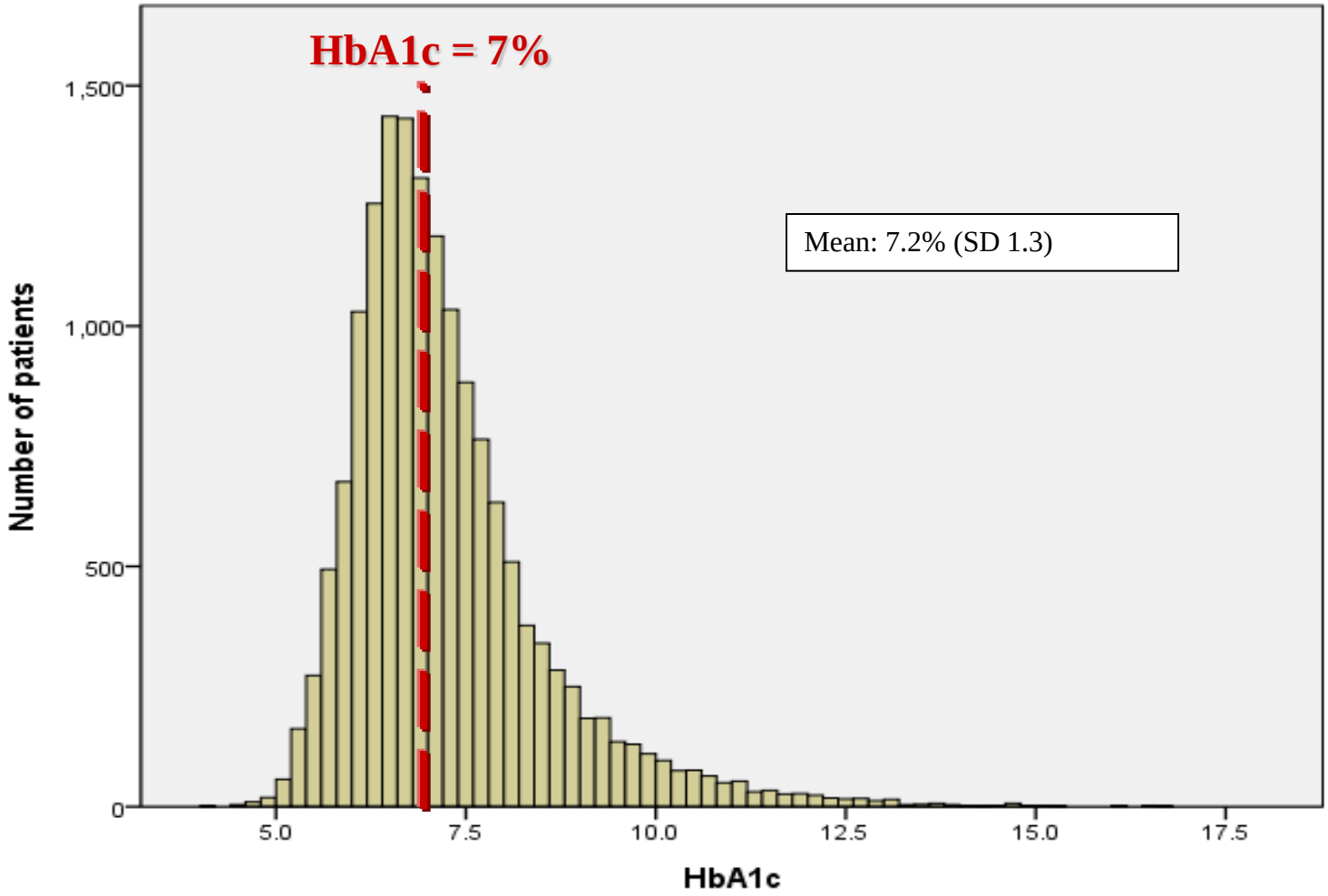


N=15,856

Kung K,.., Li PKT. BMC Family Medicine 2014 Jan 10;15(1):8

HbA1c

in type 2 diabetic patients in primary care

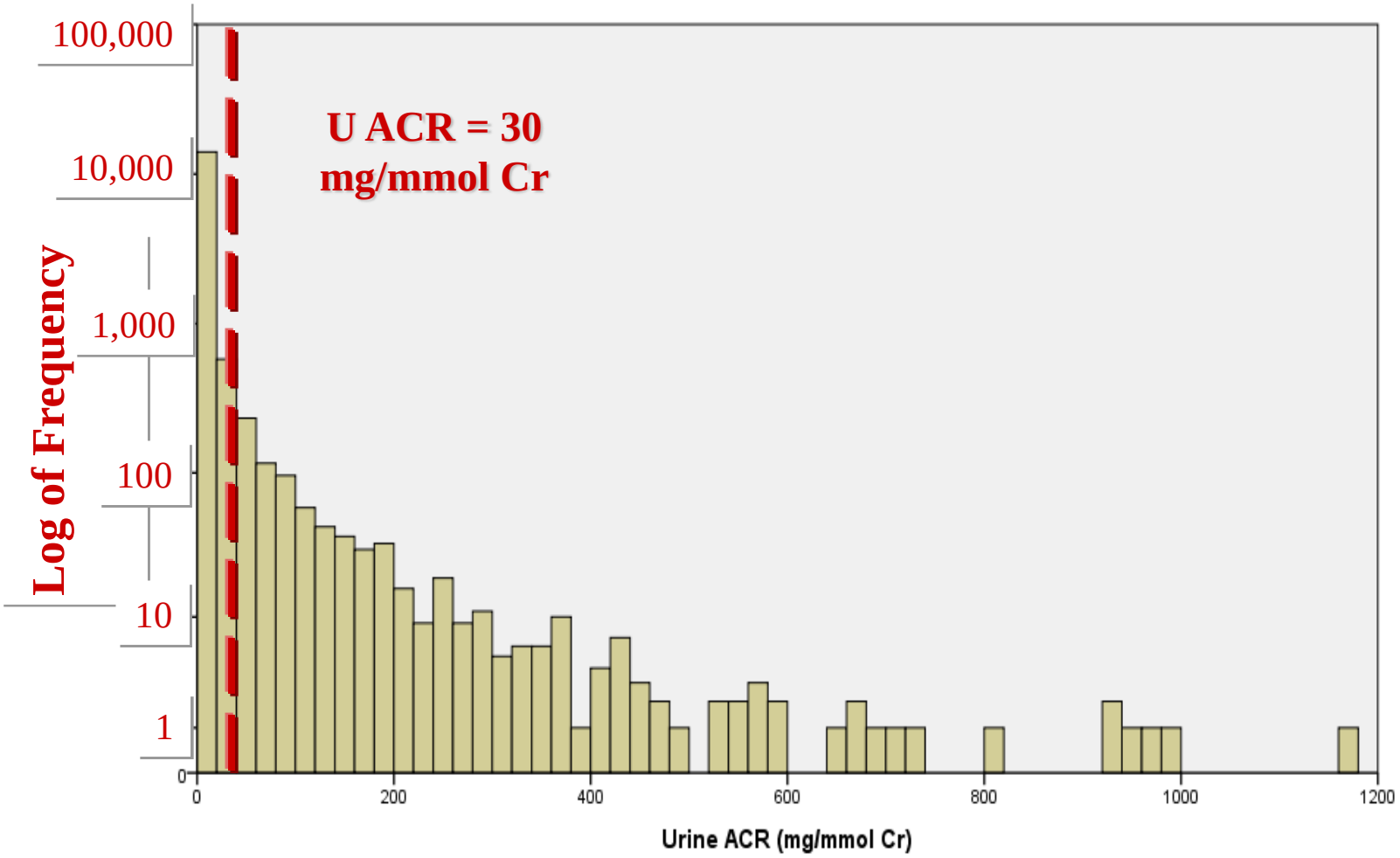


N=15,856

Kung K,.., Li PKT. BMC Family Medicine 2014 Jan 10;15(1):8

Urine Alb Cr Ratio (ACR)

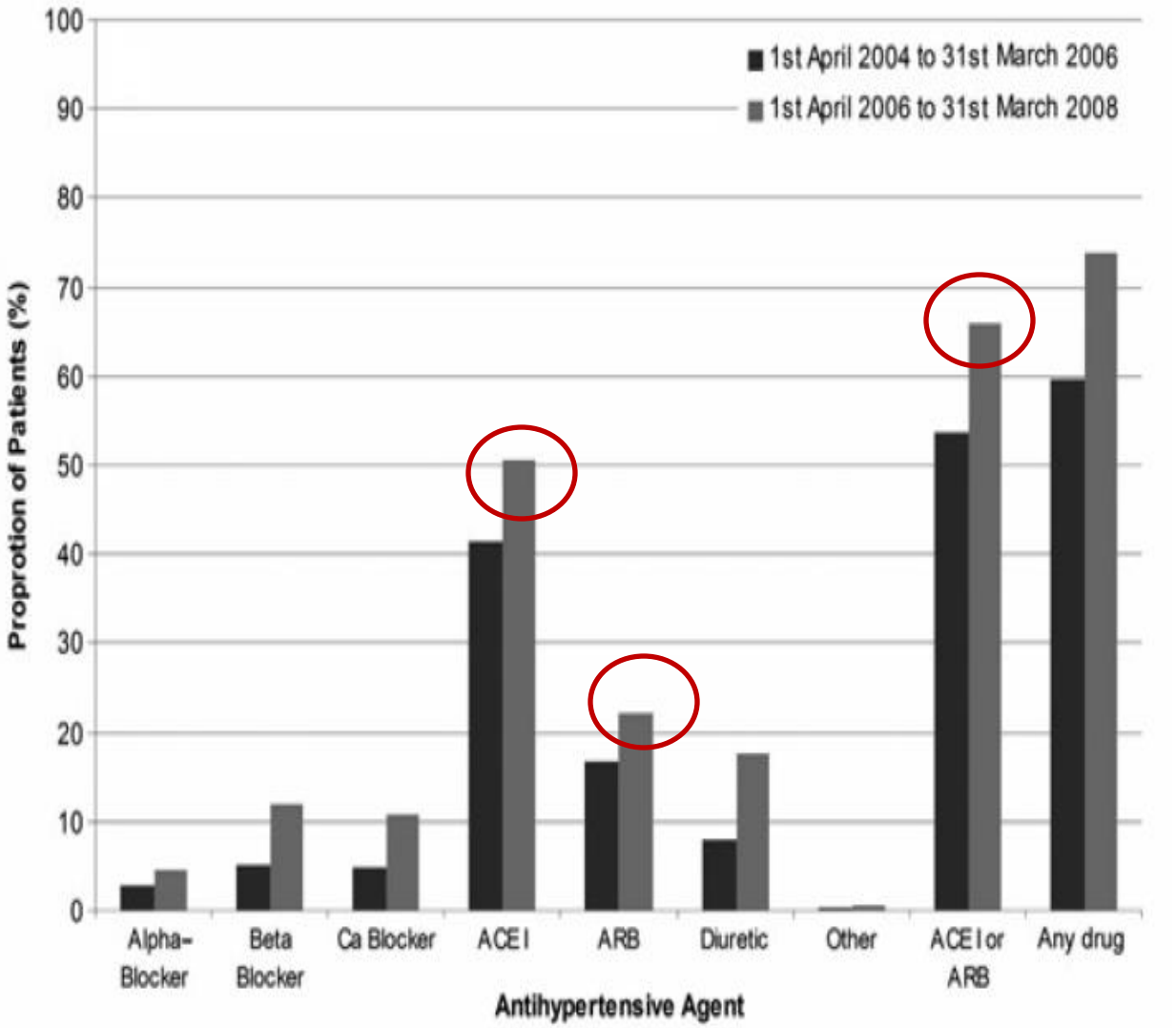
in type 2 diabetic patients in primary care



N=15,856

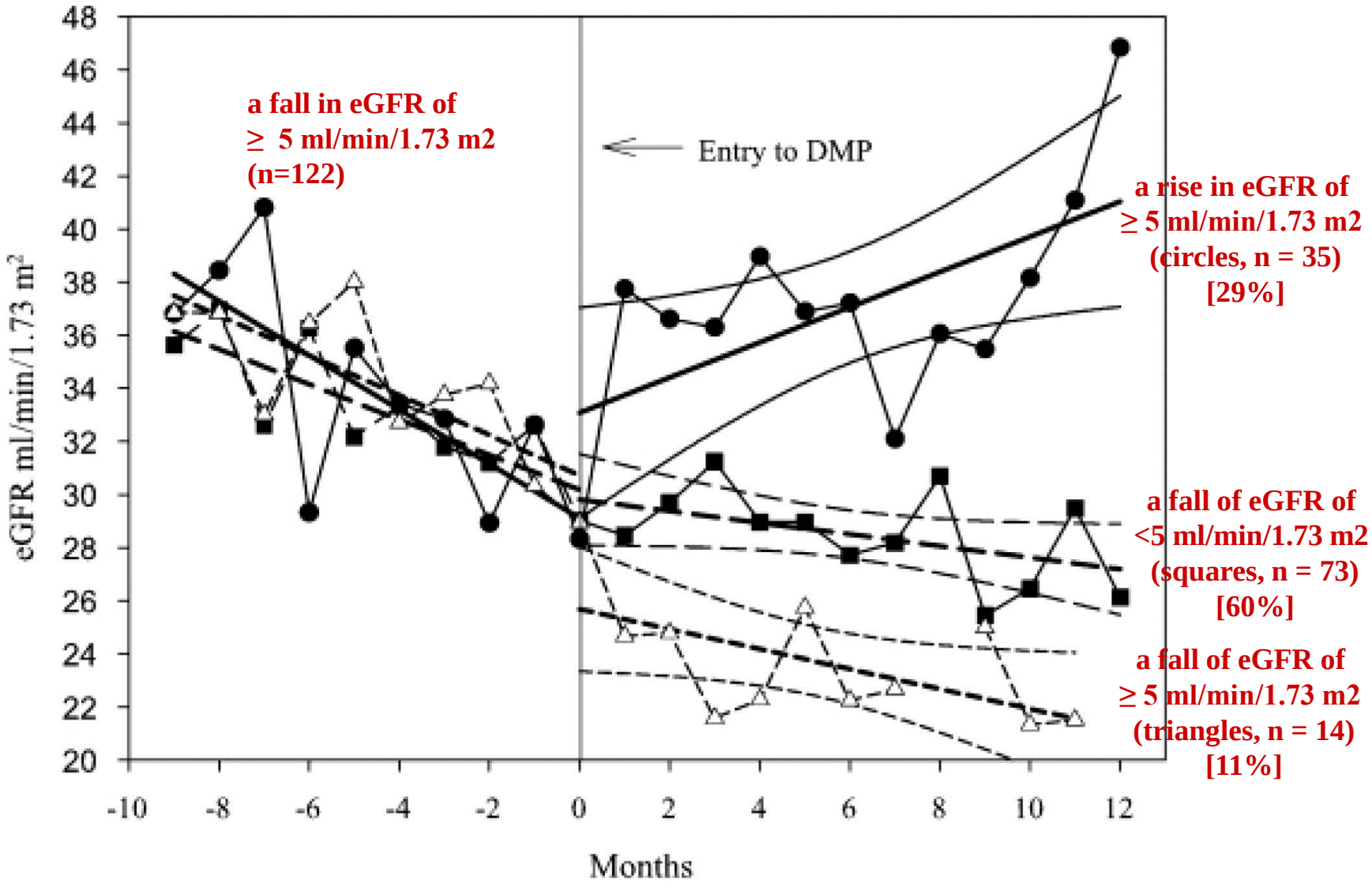
Kung K,.., Li PKT. BMC Family Medicine 2014 Jan 10;15(1):8

The impact of pay for performance on the control of blood pressure in people with chronic kidney disease stage 3-5

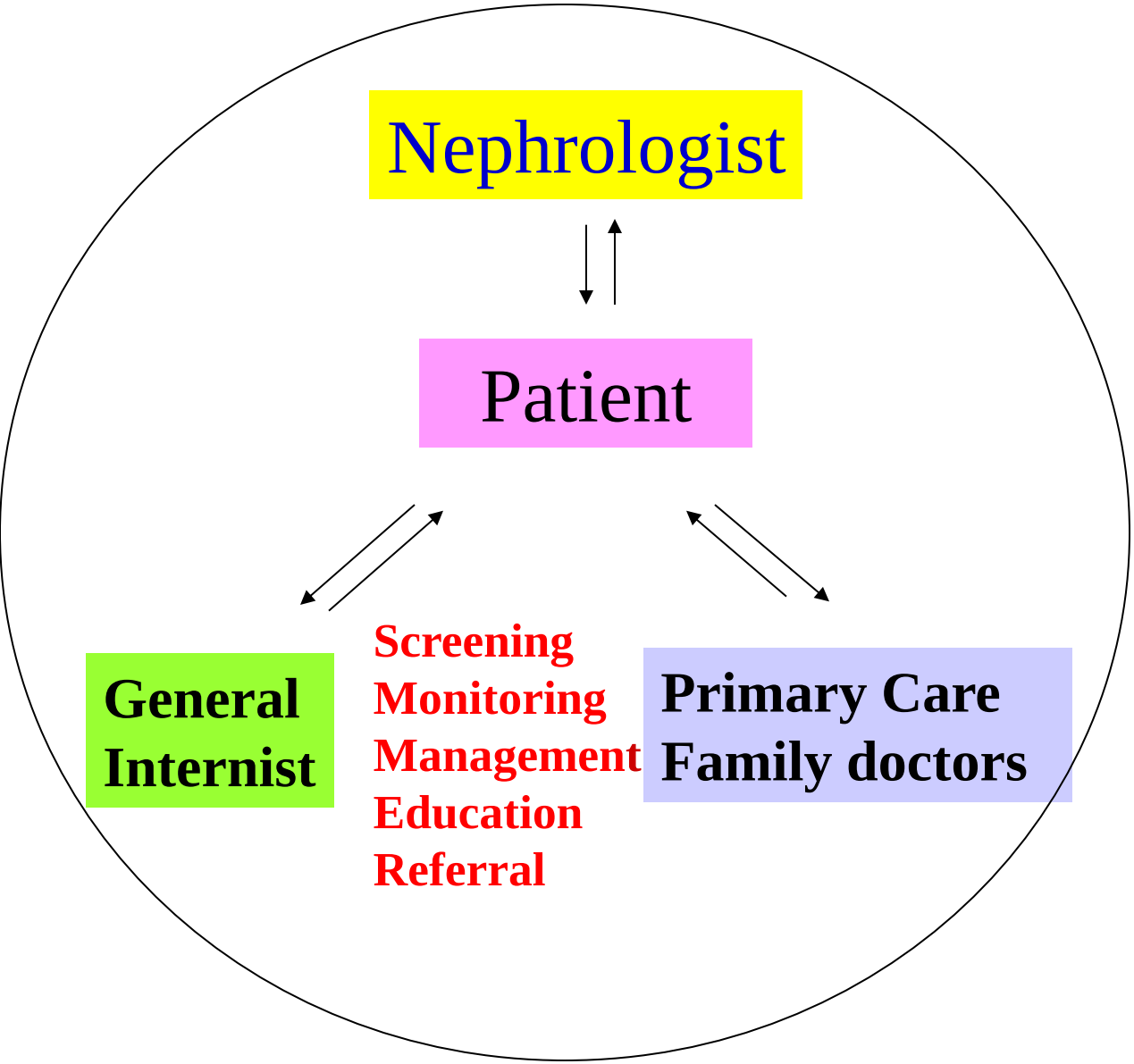


Karunaratne K, et al. Nephrol Dial Transplant. 2013;28:2107-16.

Primary Care based disease management programme for CKD



Richards N, et al. Primary care-based disease management of CKD, based on eGFR reporting, improves patient outcomes. Nephrol Dial Transplant. 2008 Feb;23(2):549-55



Training

Education

Public Awareness

Organization

Coordination

Epidemiology of Nephropathies in the world

Data of Renal failure in Hong Kong and the world

Impact of Nephropathies and Dialysis
- Patient Survival
- Socioeconomic

How to deal with it
- Awareness and Early Prevention
- Treatment
- **Provision of Cost Effective Quality Dialysis**

AJKD

Li PKT and Chow KM. Am J Kidney Dis 2013 Nov;62(5):993-1005

Narrative Review

Peritoneal Dialysis–First Policy Made Successful: Perspectives and Actions

Philip Kam-tao Li, MD, FRCP, and Kai Ming Chow, MBChB, FRCP

Peritoneal dialysis (PD) represents an important but underused strategy for patients who are beginning dialysis treatment worldwide. The development of a health care model that encourages increased use of PD is hampered by a lack of expertise and absence of pragmatic strategies. This article provides a brief review of a PD-first initiative that was implemented in Hong Kong more than 25 years ago and issues related to this policy. Clinical studies and research by the authors' and other teams around the world have shown evidence that, as a home-based dialysis therapy, PD can improve patient survival, retain residual kidney function, lower infection risk, and increase patient satisfaction while reducing financial stress to governments by addressing the burden of managing the growing number of patients with end-stage renal disease. Achieving a successful PD-first policy requires understanding inherent patient factors, selecting patients carefully, and improving technique-

Hemodialysis International 2011; **15**:10–14

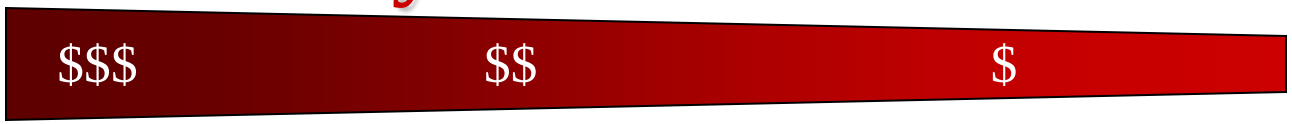
Global Health

Increasing home-based dialysis therapies to tackle dialysis burden around the world: A position statement on dialysis economics from the 2nd Congress of the International Society for Hemodialysis

Philip Kam-Tao LI,[1] Wai Lun CHEUNG,[2] Sing Leung LUI,[3] Christopher BLAGG,[4] Alan CASS,[5] Lai Seong HOOI,[6] Ho Yung LEE,[7] Francesco LOCATELLI,[8] Tao WANG,[9] Chih-Wei YANG,[10] Bernard CANAUD,[11] Yuk Lun CHENG,[12] Hui Lin CHOONG,[13] Angel L. de FRANCISCO,[14] Victor GURA,[15] Kazo KAIZU,[16] Peter G. KERR,[17] Un I. KUOK,[18] Chi Bon LEUNG,[1] Wai-Kei LO,[3] Madhukar MISRA,[19] Cheuk Chun SZETO,[1] Kwok Lung TONG,[20] Kriang TUNGSANGA,[21] Robert WALKER,[22] Andrew Kui-Man WONG,[23] Alex Wai-Yin YU,[12] On Behalf of the participants of the Roundtable Discussion on Dialysis Economics in the 2nd Congress of the International Society for Hemodialysis held in Hong Kong in August 2009

Li PKT, et al. Hemodialysis International 2011; 15:10–14

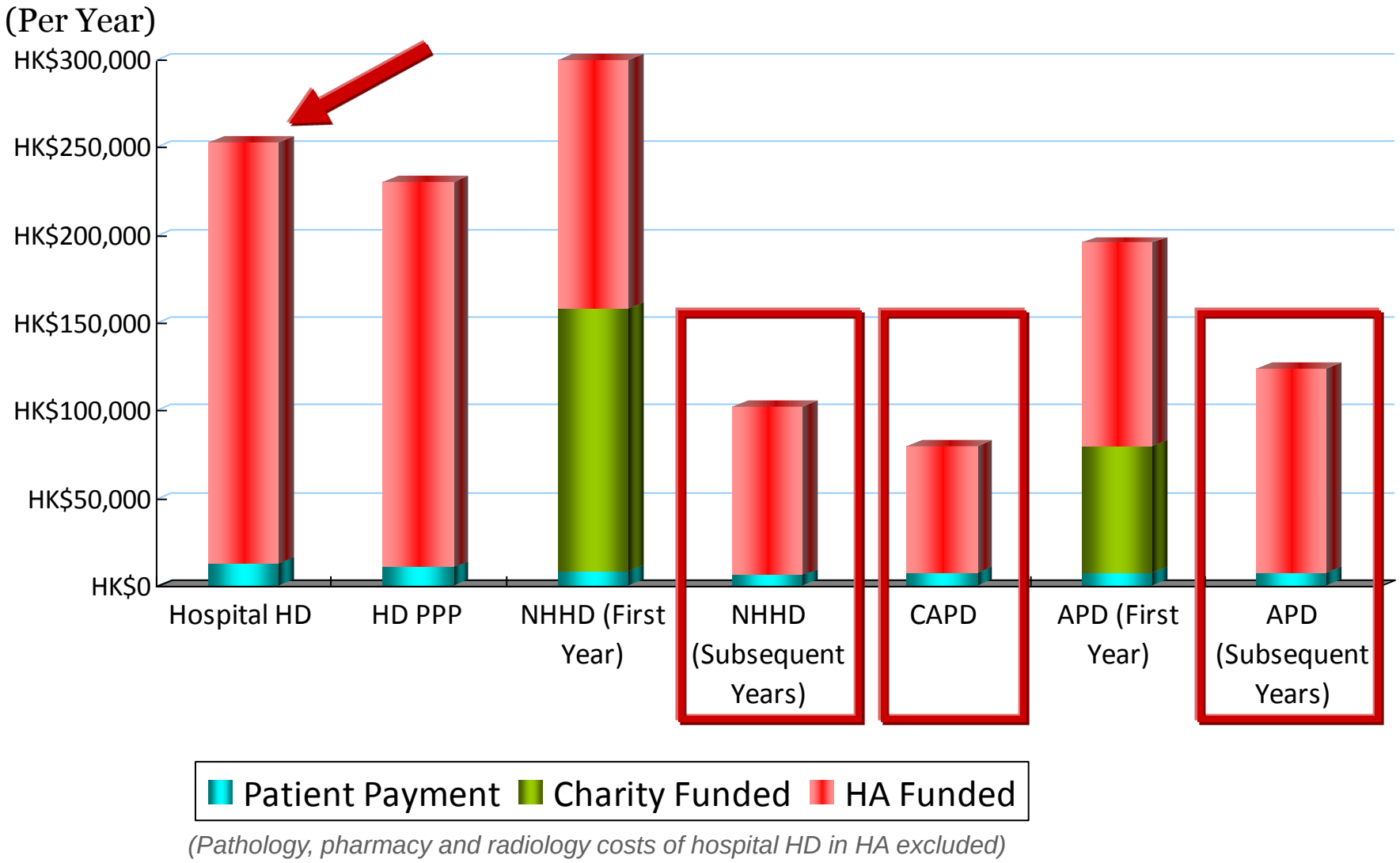
Dialysis Cost



	In-Centre HD	Satellite HD	Home HD	Home PD
Hong Kong 2000	US$ 30,600			US$12,800 (CAPD)
Hong Kong 2011	US$ 37,179 (~HK$ 290,000)	US$ 29,487 (~HK$ 230,000)	1st yr: US$ 38,461 (~HK$ 300,000) >1 yr: US$ 12,820 (~HK$ 100,000)	US$10,256 (~HK$ 80,000) (CAPD)
Australia 2005		A$36,284	A$33,392	
Canada 2002	US $51,252	US$42,057	US$29,961	US$26,959
UK 2008	£ 35,023		£ 20,764	£21,655 (APD) £15,570 (CAPD)

Li PKT, et al. Hemodialysis International 2011; 15:10–14

Costing Comparison of Different Modes of RRT in HA



(Pathology, pharmacy and radiology costs of hospital HD in HA excluded)

A Position Statement on Dialysis Economics from the 2nd Congress of the International Society for Hemodialysis

- The global increase in end stage renal failure patients poses significant stresses on healthcare systems around the world.
- The current world wide provision of the majority of renal replacement therapy via in-centre hemodialysis (HD) is costly.
- **The provision of home based therapies, as either Home HD or peritoneal dialysis (PD), is less costly than in-centre HD, in most parts of the world.**
- **Home therapies provide a level of empowerment to patients that impact positively on their patient outcome and quality of life**.
- Proactive pre-dialysis patient education on the availability of dialysis modalities including in-centre hemodialysis, home based hemodialysis, and home based peritoneal dialysis programmes (CAPD and Automated PD) should be enhanced in order to improve patient choice regarding their dialysis regimen.
- The dialysis community should engage with local governments and Health Authorities to discuss the planning and provision of dialysis modalities with a view to providing the most cost effective therapies.
- Local governments and Health Authorities should actively plan the increase use of home dialysis modalites in order to maximize health care resources for treating end stage renal disease patients.
- Academic training of both doctors and nurses on home dialysis therapies especially for peritoneal dialysis should be enhanced in order to promote more home dialysis.

Li PKT, et al. Hemodialysis International 2011; 15:10–14

Is there light at the end of the tunnel?

- Continue research – bench & bedside
- Earlier detection through targetted screening
- Putting theory into practice – thro' incentives
- CKD management
  - Primary care
  - Multidisciplinary team
  - Use of IT
- **Increase awareness of CKD – to public & policy makers**
- Use of cost effective dialysis modality

AJKD

Bello AK, et al. Am J Kidney Dis. 2015;65:15-25.

Special Report

Effective CKD Care in European Countries: Challenges and Opportunities for Health Policy

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Chronic kidney disease (CKD) is an important global public health problem that is associated with adverse health outcomes and high health care costs. Effective and cost-effective treatments are available for slowing the progression of CKD and preventing its complications, including cardiovascular disease. Although wealthy nations have highly structured schemes in place to support the care of people with kidney failure, less consideration has been given to health systems and policy for the much larger population of people with non–dialysis-dependent CKD. Further, how to integrate such strategies with national and international initiatives for control of other chronic noncommunicable diseases (NCDs) merits attention. We synthesized the various approaches to CKD control across 17 European countries and present our findings according to the key domains suggested by the World Health Organization framework for NCD control. This report identifies opportunities to strengthen CKD-relevant health systems and explores potential mechanisms to capitalize on these opportunities. Across the 17 countries studied, we found a number of common barriers to the care of people with non–dialysis-dependent CKD: limited work force capacity, the nearly complete absence of mechanisms for disease surveillance, lack of a coordinated CKD care strategy, poor integration of CKD care with other NCD control initiatives, and low awareness of the significance of CKD. These common challenges faced by diverse health systems reflect the need for international cooperation to strengthen health systems and policies for CKD care.

Am J Kidney Dis. 65(1):15-25.

INDEX WORDS: Chronic kidney disease (CKD); non–dialysis-dependent CKD; chronic noncommunicable disease (NCD); policy; care structures; health systems; organization; public health; Europe; Kidney Health for Life (KH4L).

National Initiatives to Improve CKD Care Delivery

Belgium	"Trajectory" ("Trajectoire") established to care for patients with CKD 3b-4-5 (early identification of cases, referral, and improved collaboration between PCPs and specialists)
Denmark	None identified
Finland	National policy document on chronic disease (to include CKD) in development covering aspects of care guidelines, improving CKD awareness, and collaboration between PCPs and nephrologist
France	White paper by Renaloo (grassroots patient organization) that advocates for prioritizing CKD care to government
Germany	None identified
Greece	None identified
Ireland	National Service Framework/policy development for CKD underway
Italy	CKD care policy document (in development by the Ministry of Health); national CKD prevalence study (in preparation; collaboration with the Ministry of Health)
Netherlands	Standard Prevention consult developed in 2012 to guide management and referrals from PCPs to specialists
Norway	National action plan for CKD (for early CKD care and RRT in development)
Portugal	None identified
Spain	Current initiative to adapt international practice guidelines for CKD management to the Spanish setting and target them at PCPs (in progress)
Sweden	None identified
Switzerland	Ongoing national study to determine the prevalence of CKD in the Swiss population and its socioeconomic impact, model future cost trends of CKD, and compare data across cantonal systems
Turkey	National study on the prevalence of CKD (the CREDIT Study) by the Turkish Society of Nephrology
UK	Pan-vascular disease prevention policy: Health Check program to prevent heart disease, stroke, diabetes, and CKD in those aged 40-74 y, administered in 5-y cycles[110]; Quality and Outcomes Framework for CKD[30]

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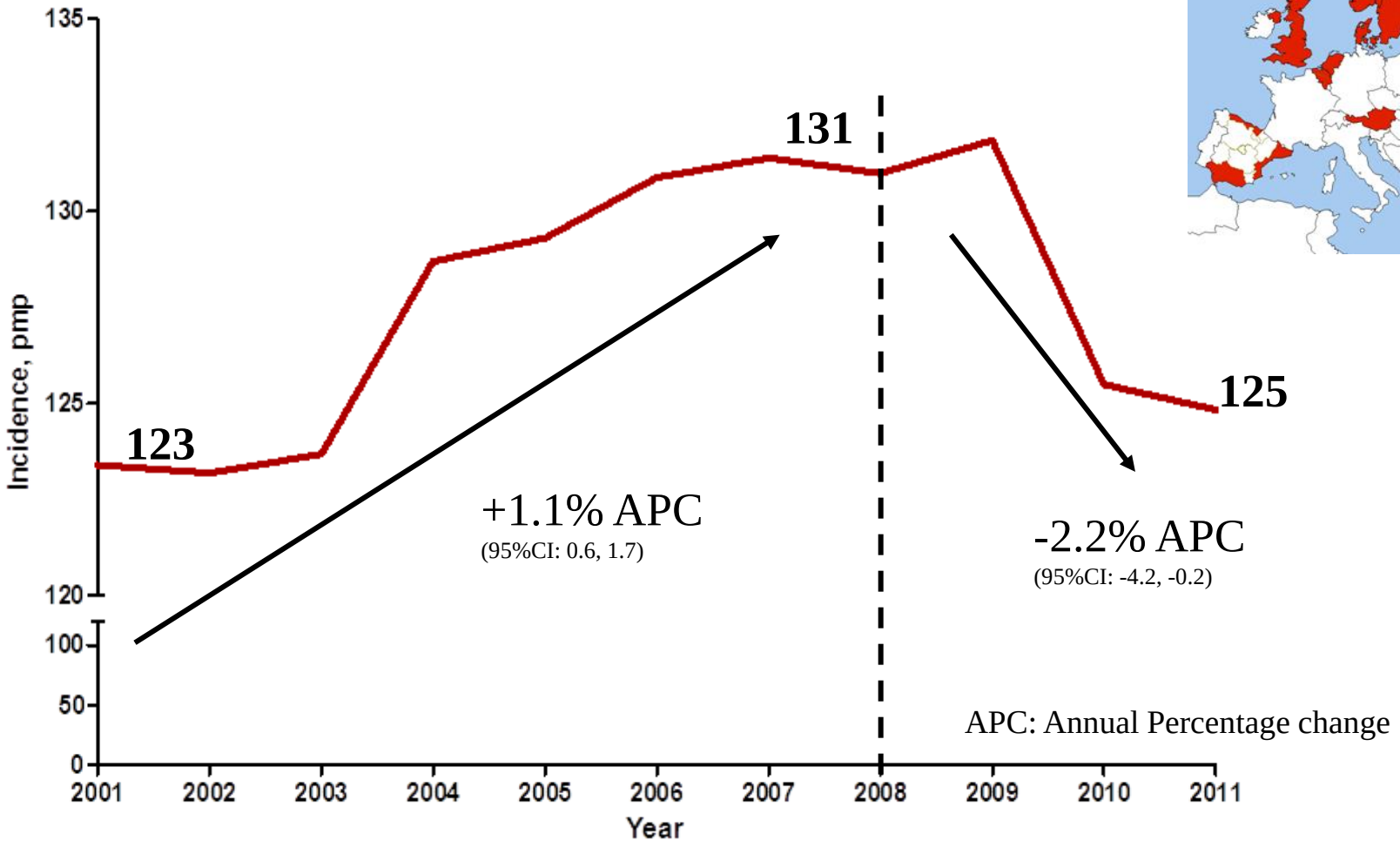
ERA - EDTA

Incident patients accepted for RRT

overall trend, 2001-2011



Courtesy Prof. Andrzej Wiecek

***adjusted for age and gender of EU27**

Common barriers to the care of people with non-dialysis-dependent CKD

- Across the 17 European countries studied:
  - Limited work force capacity
  - Nearly complete absence of mechanisms for disease surveillance
  - Lack of a coordinated CKD care strategy
  - Poor integration of CKD care with other NCD control initiatives
  - Low awareness of the significance of CKD

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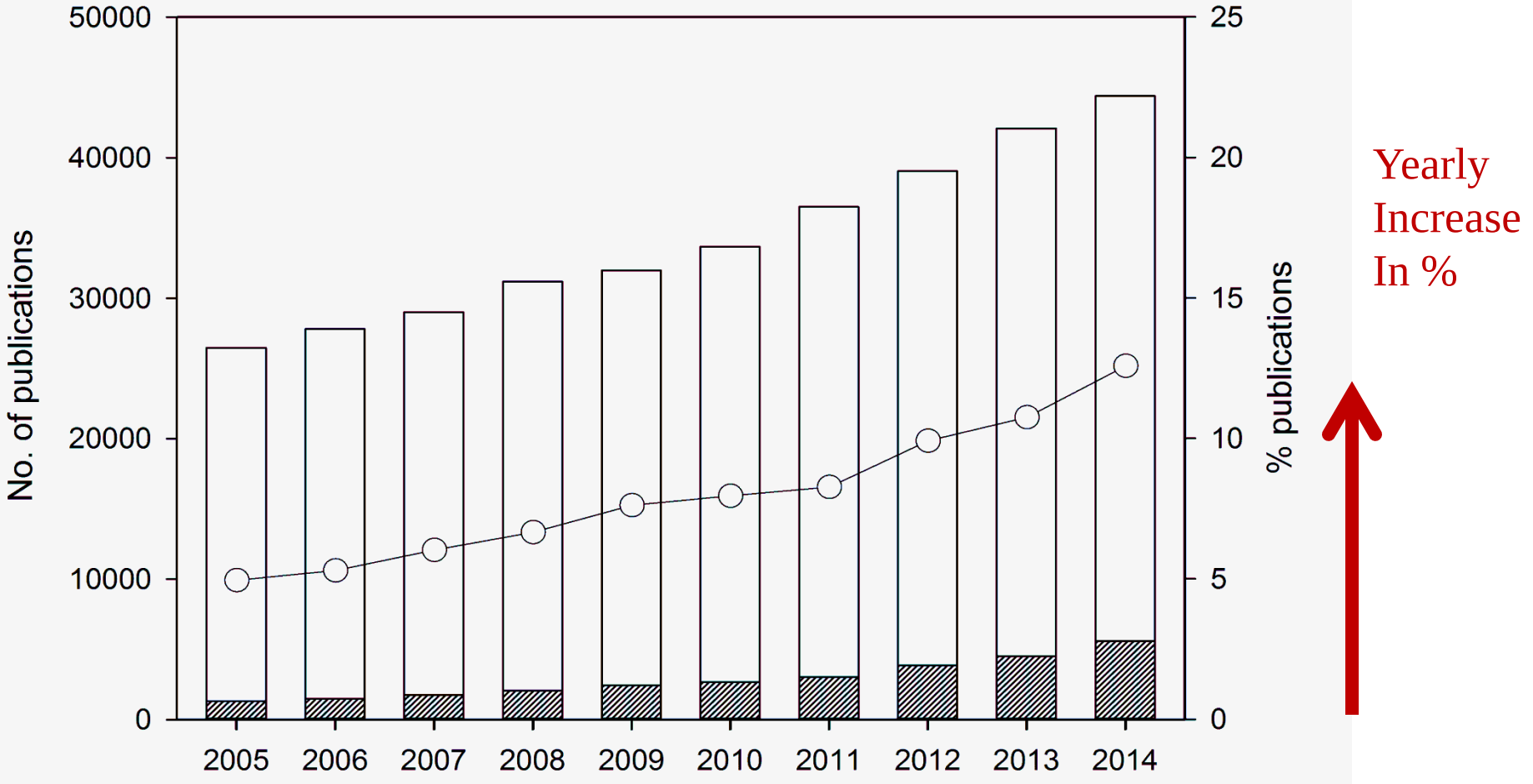
Is there light at the end of the tunnel?

- **Continue research – bench & bedside**
- Earlier detection through targetted screening
- Putting theory into practice – thro' incentives
- CKD management
  - Primary care
  - Multidisciplinary team
  - Use of IT
- Increase awareness of CKD – to public & policy makers
- Use of cost effective dialysis modality

Contributions of Chinese Nephrologists to Research in Nephrology

(Publications from China, Hong Kong, Macau, Taiwan)



(*Have not included Chinese nephrologists outside China, HK, Macau & Taiwan)

From 2011 to 2015 Increase proportion from 8.27% to 14.06 %

Contributions of Chinese Nephrologists to Research in Nephrology

(Publications from China, Hong Kong, Macau, Taiwan)

	All renal publcations		
Year	China, HK, Macau, Taiwan	World wide	%
2005	1310	26473	4.95
2006	1473	27811	5.30
2007	1748	29002	6.03
2008	2076	31181	6.66
2009	2436	31975	7.62
2010	2678	33675	7.95
2011	3018	36512	8.27
2012	3872	39052	9.91
2013	4524	42084	10.75
2014	5587	44397	12.58
2015	5725	40732	14.06

Yearly Increase In %

(*Have not included Chinese nephrologists outside China, HK, Macau & Taiwan)

From 2011 to 2015 Increase proportion from 8.27% to 14.06 %

Epidemiology of Nephropathies in the world

Data of Renal failure in Hong Kong and the world

Impact of Nephropathies and Dialysis

- **Patient Survival**
- **Socioeconomic**

How to deal with it

- **Awareness and Early Prevention**
- **Treatment**
- **Provision of Cost Effective Quality Dialysis**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