NEPHROLOGY AROUND THE WORLD
Opportunities for Progress

John Feehally

ISN

ISN Mission:

Advancing the diagnosis, treatment and prevention of kidney diseases in the developing and developed world

RENAL REPLACEMENT THERAPY FOR END-STAGE RENAL DISEASE

Dialysis and kidney transplant

…are a fantastic success story ?

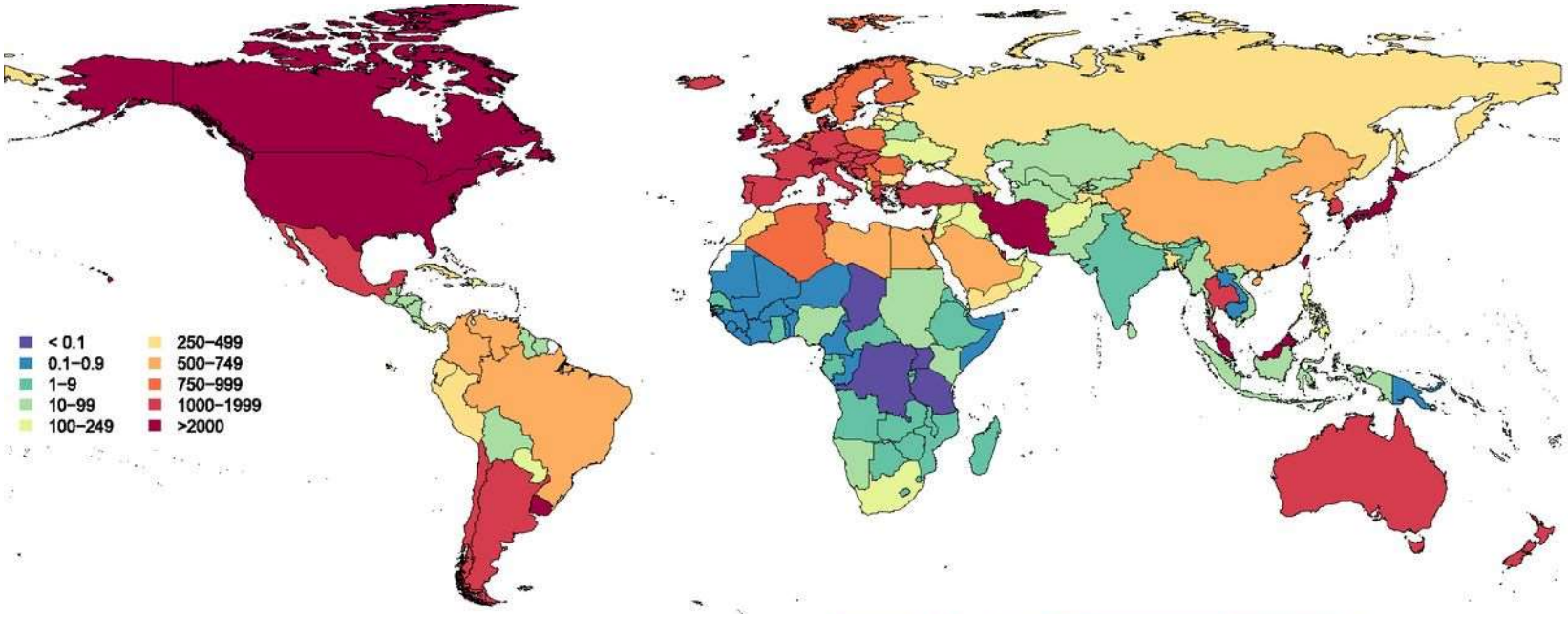
RENAL REPLACEMENT THERAPY FOR END-STAGE RENAL DISEASE

Dialysis and kidney transplant

…are a fantastic success story ?

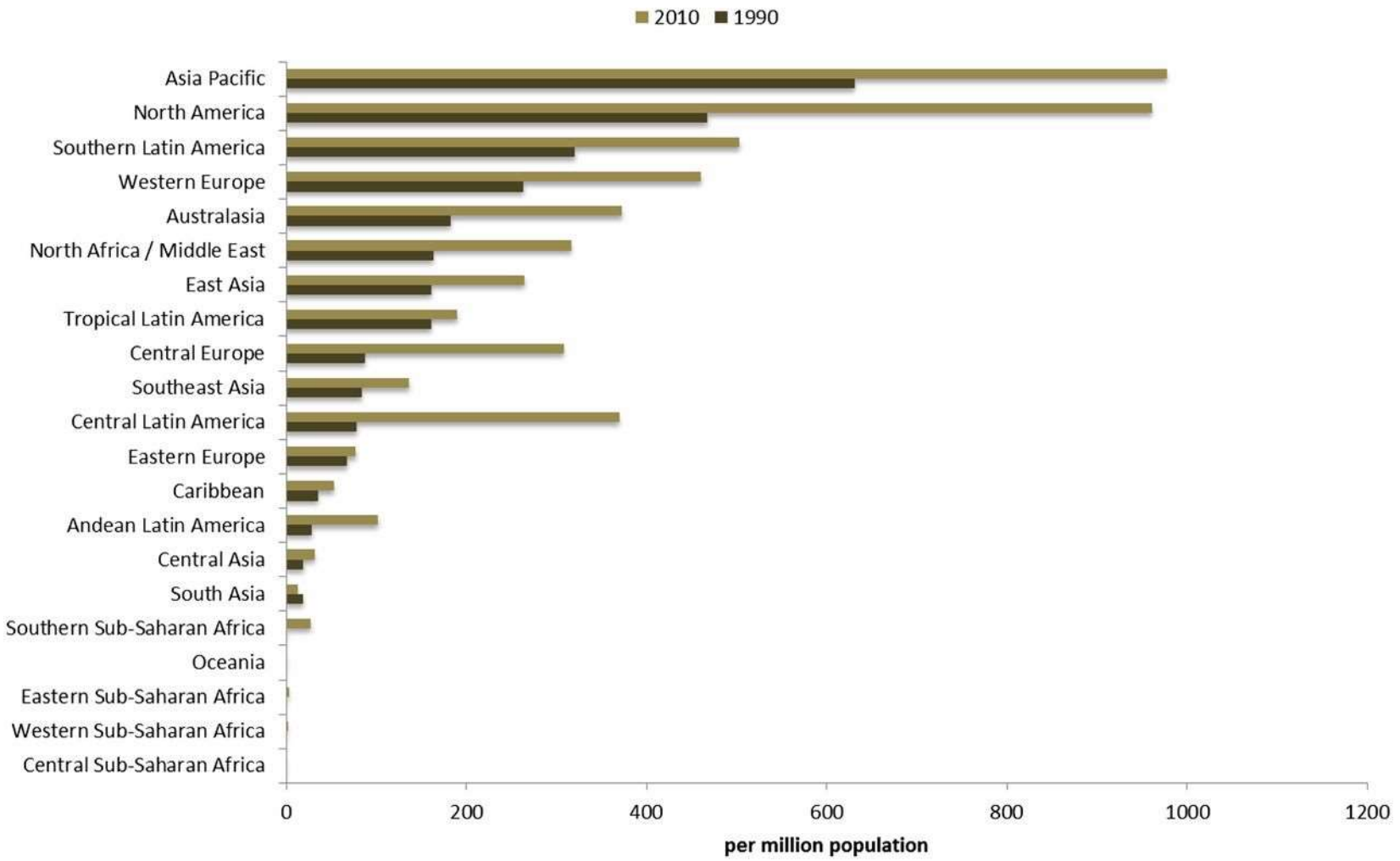
BUT the costs are frightening

Age-standardized prevalence per million population of maintenance dialysis in year 2010 for 187 countries.



Bernadette Thomas et al. JASN
doi:10.1681/ASN.2014101017

Age-standardized maintenance dialysis prevalence per million population for 21 world regions in years 1990 and 2010.



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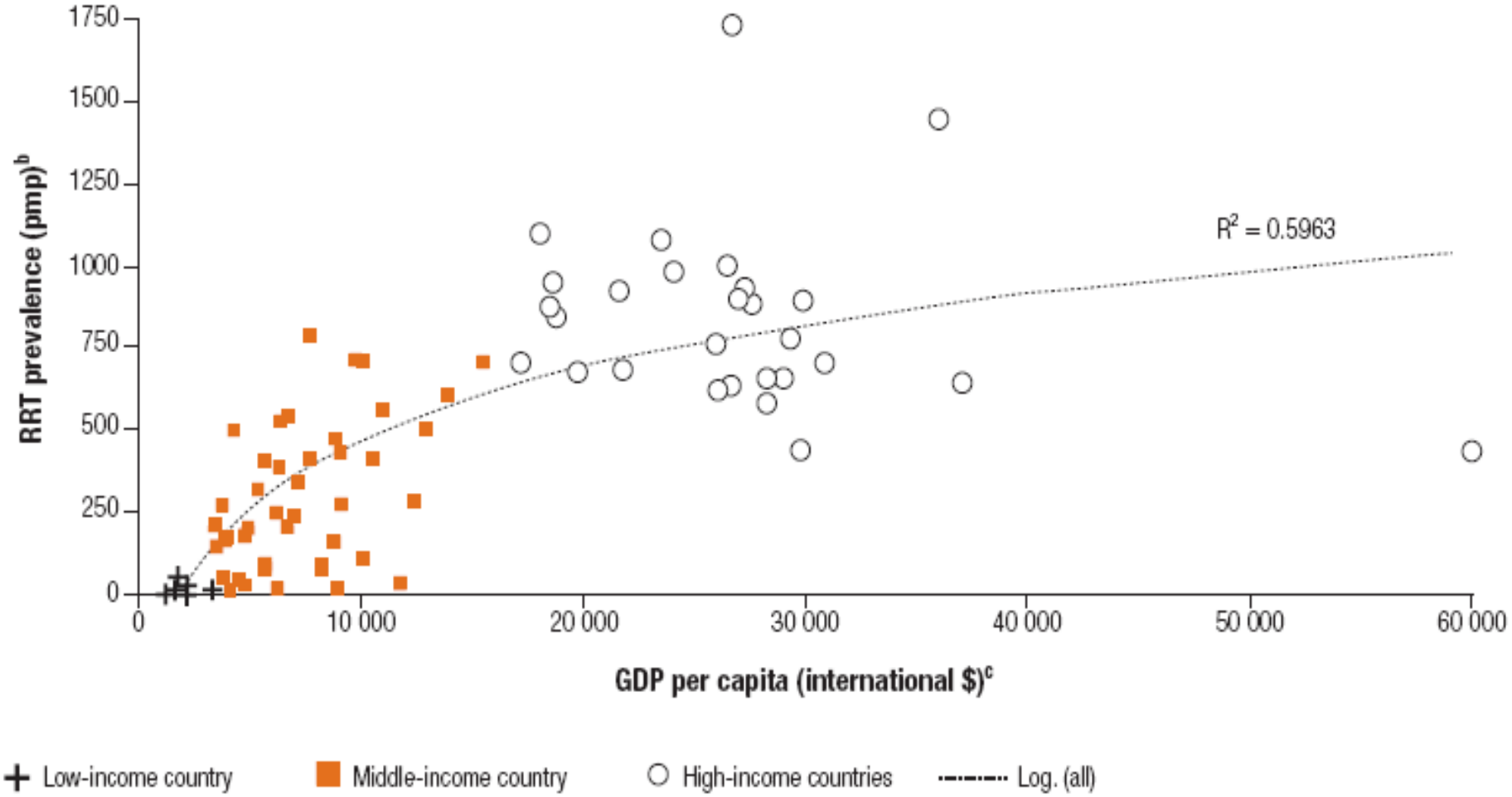
‘PREVALENCE’ OF ESRD

Usually defined by number of patients on RRT

Assumes acceptance rate for RRT = demand

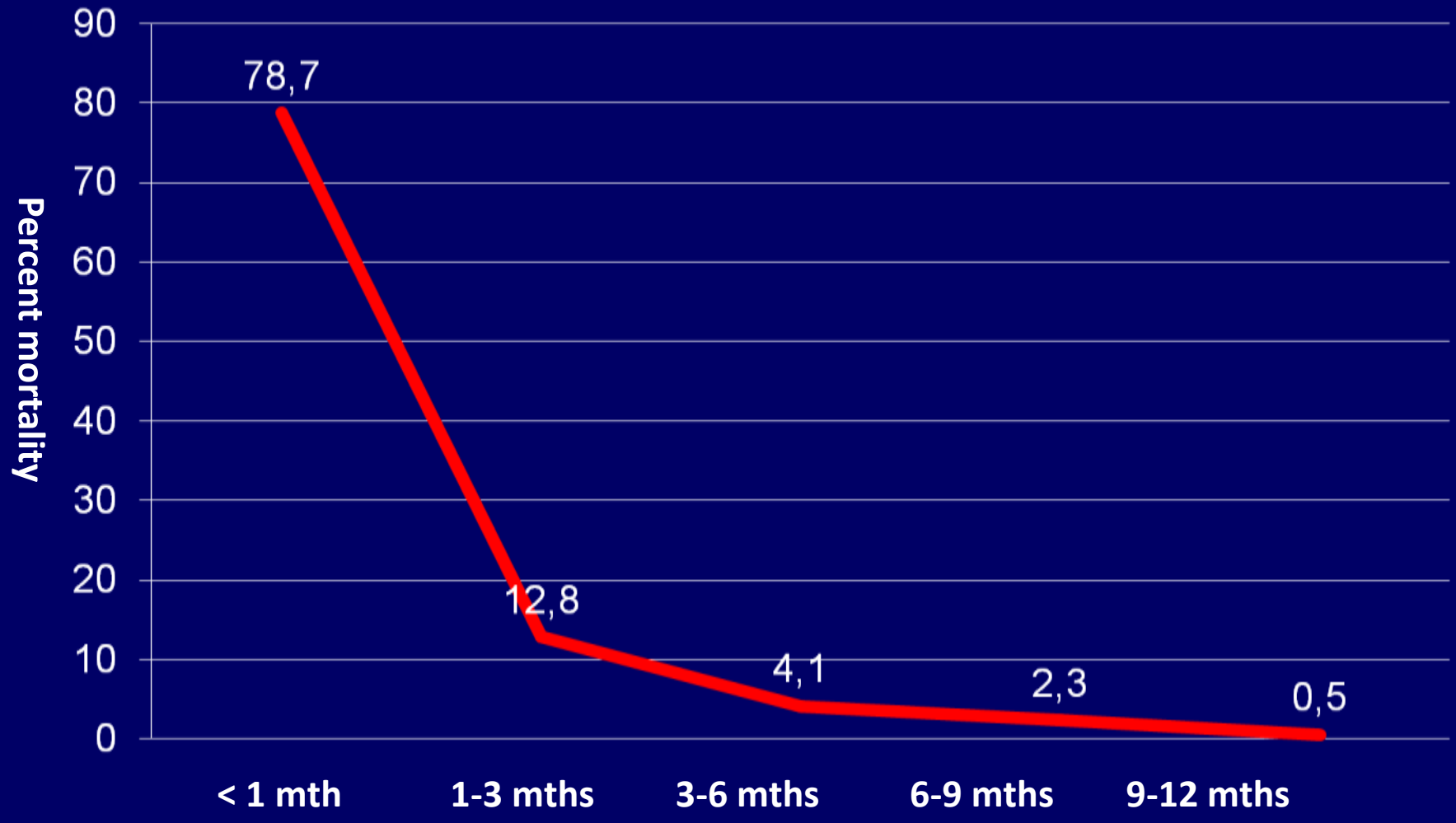
Does not assess equity of access

Prevalent patients on RRT and GDP per capita 2002



White et al, Bulletin WHO, March 2008

Outcome of chronic HD in Nigeria
Mortality



Reasons for stopping dialysis in Nigeria

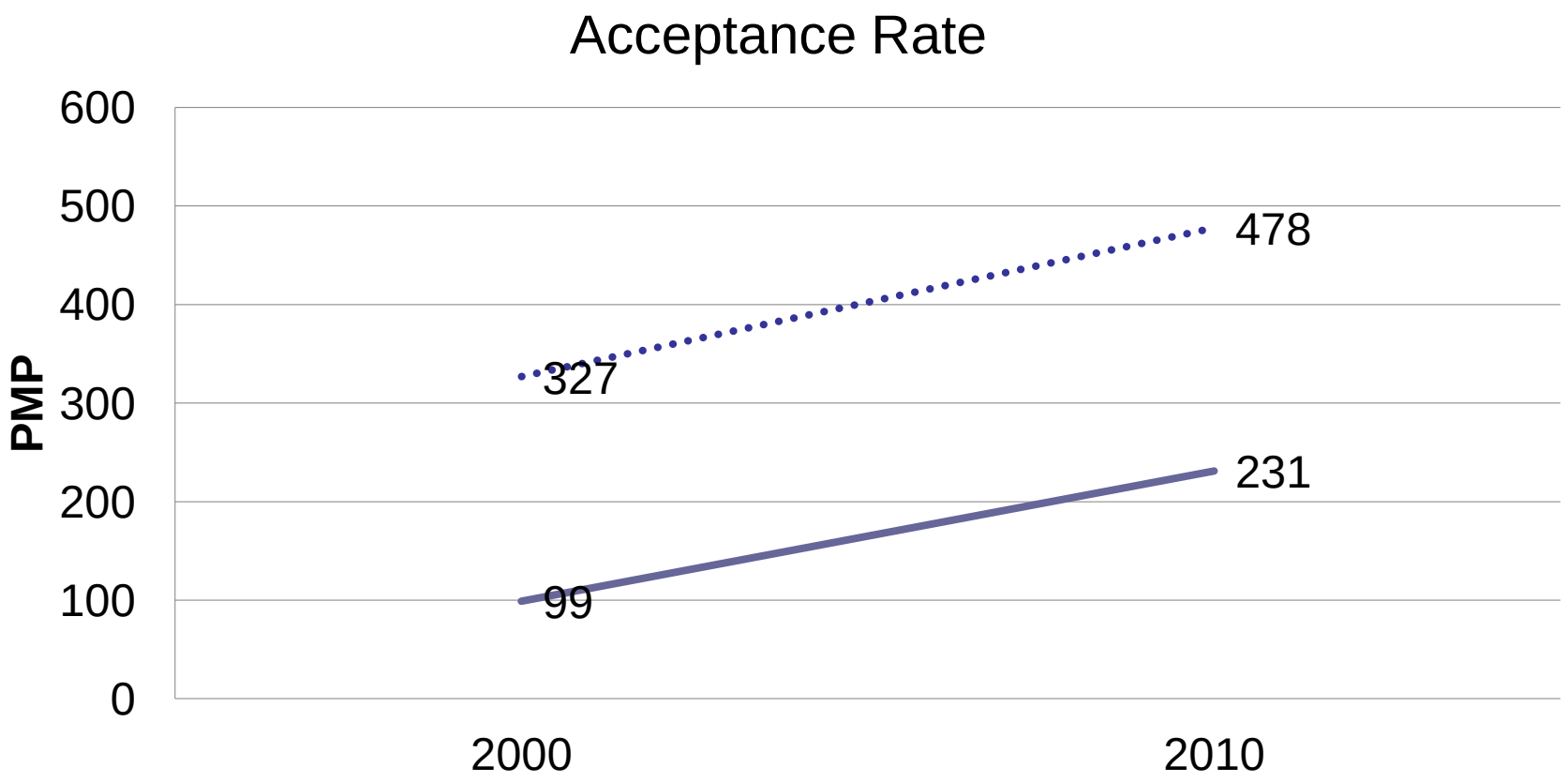
Reasons	%
Financial	91.5
Distance from dialysis facility	0.8
Death	3.7
Referred out*	1.2
Withdrawal of consent	0.1
Others	2.7

*Others referred out for kidney transplantation.

Ulasi, Ijoma J Trop Med, 2010, 50:1957

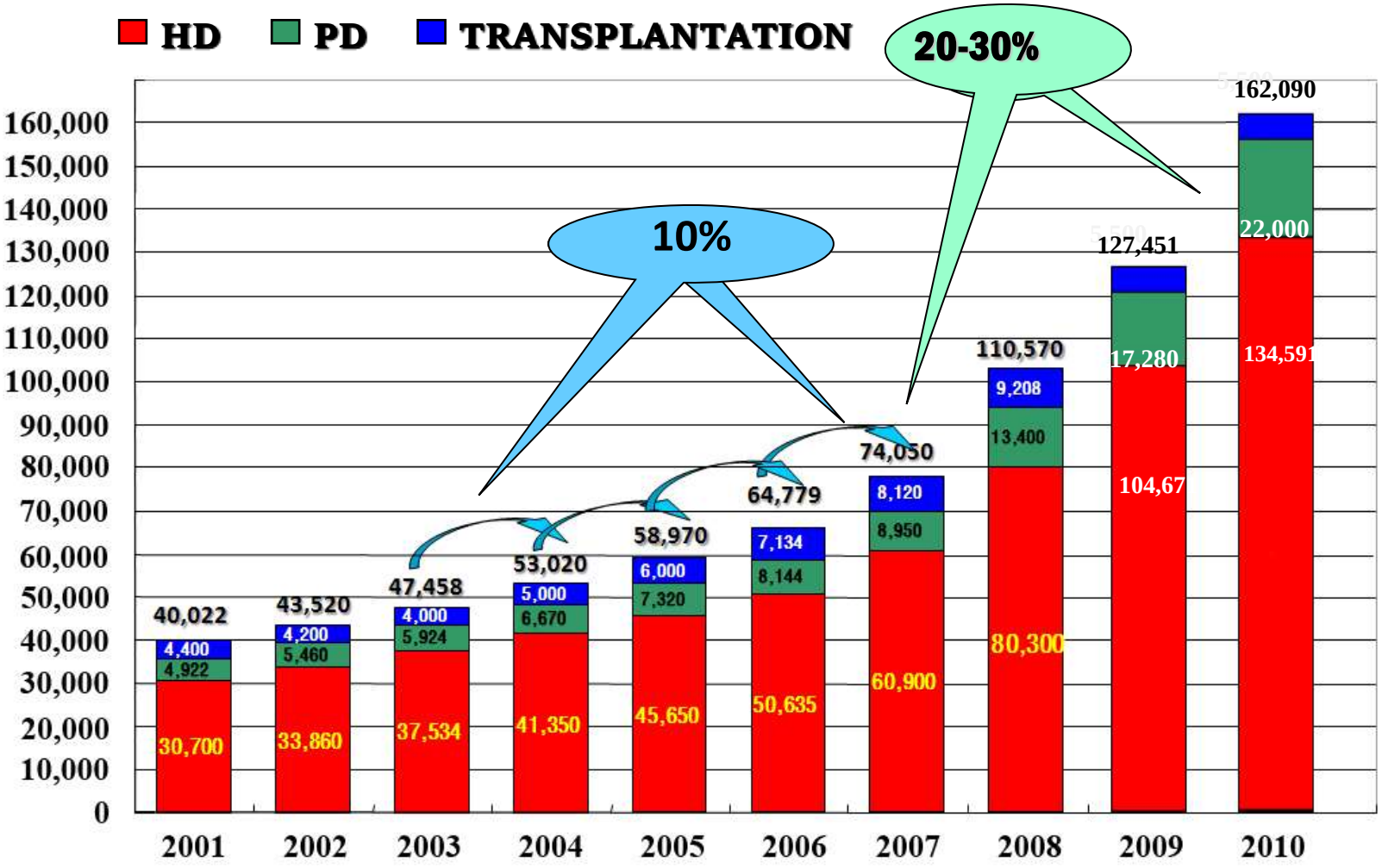
Inequity of access to RRT in developing countries

Acceptance rates among insured and non-insured in Mexico



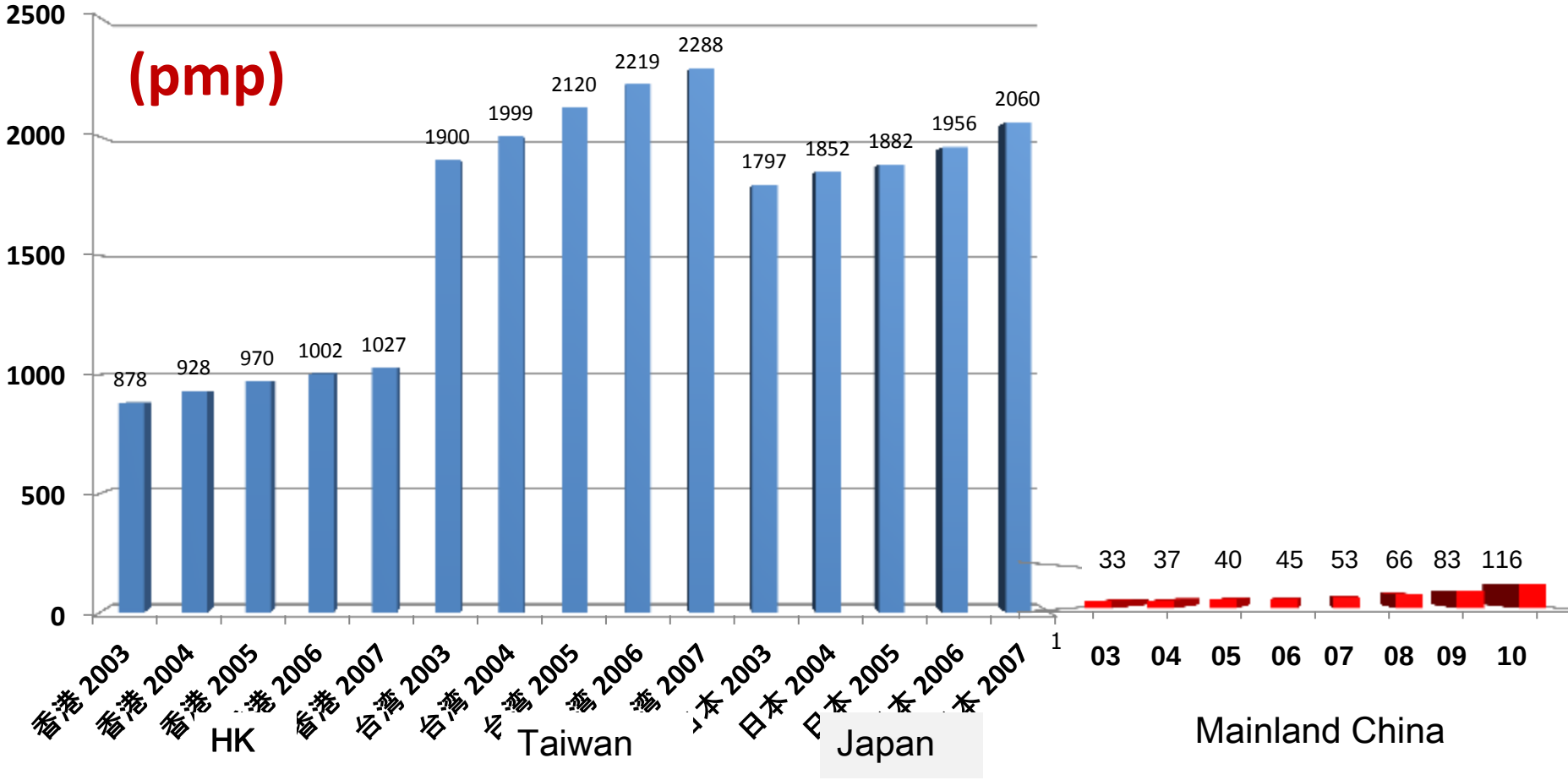
Garcia G et al; Semin Nephrol 2010;30:3-7
Garcia G et al; Kidney Int 2005;Suppl 97: 58-61

RRT in Mainland China



Date from Fresenius Medical Care (Shanghai) Co.

Prevalence of RRT in some Asian countries



DEVELOPING ECONOMIES
BRIC COUNTRIES
Brazil - Russia - India - China

What drives increases in RRT ?

Economic growth

Healthcare systems

Commercial influence

Population expectation

Physician reimbursement

ETHICAL DIALYSIS

Diligence is needed if
the rapid growth of dialysis
in some developing countries is
to proceed to the highest ethical standards

It is the responsibility of
the global nephrology community
to set the standards

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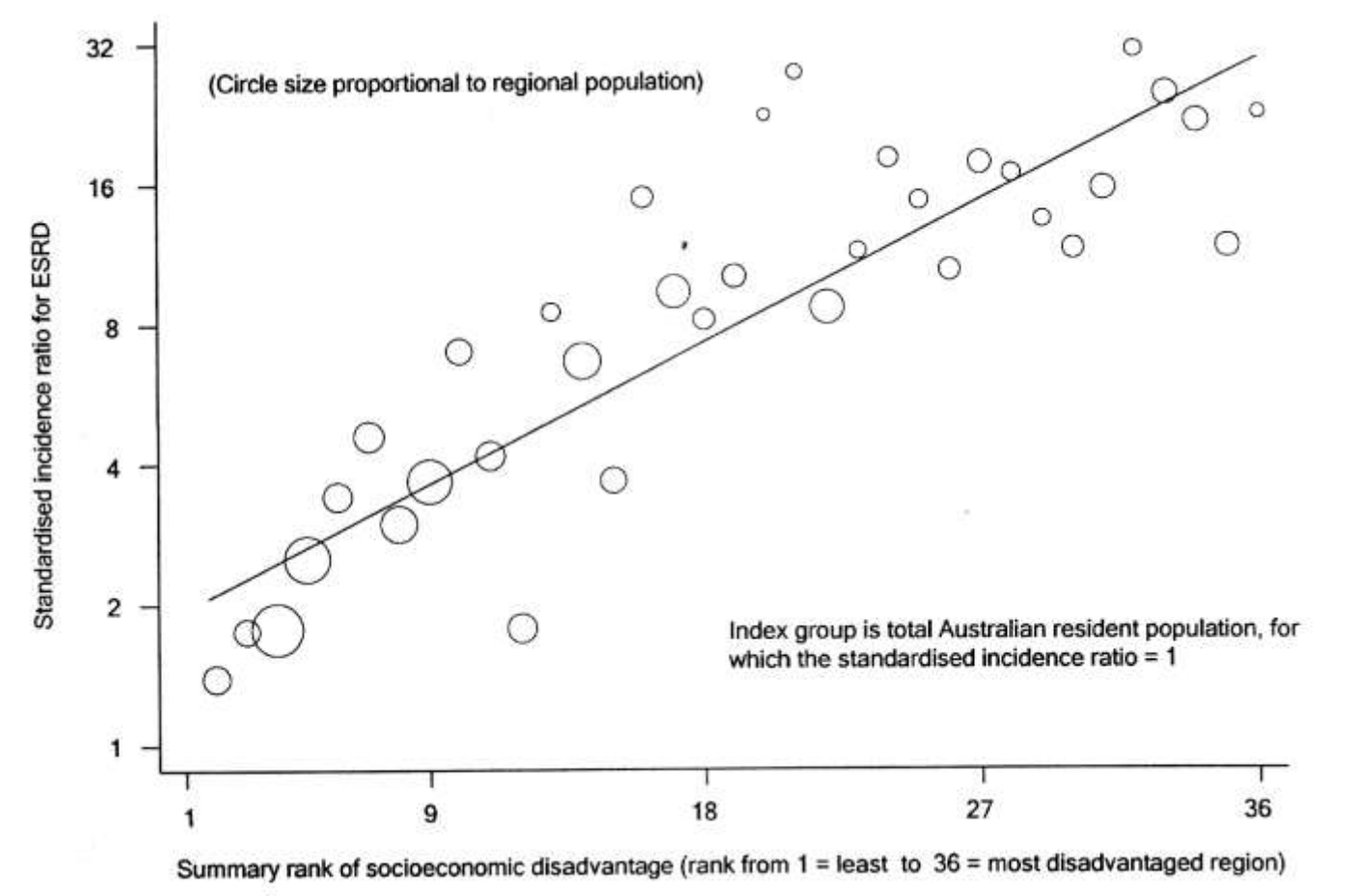
Task Force on Ethical Standards in Dialysis
2015

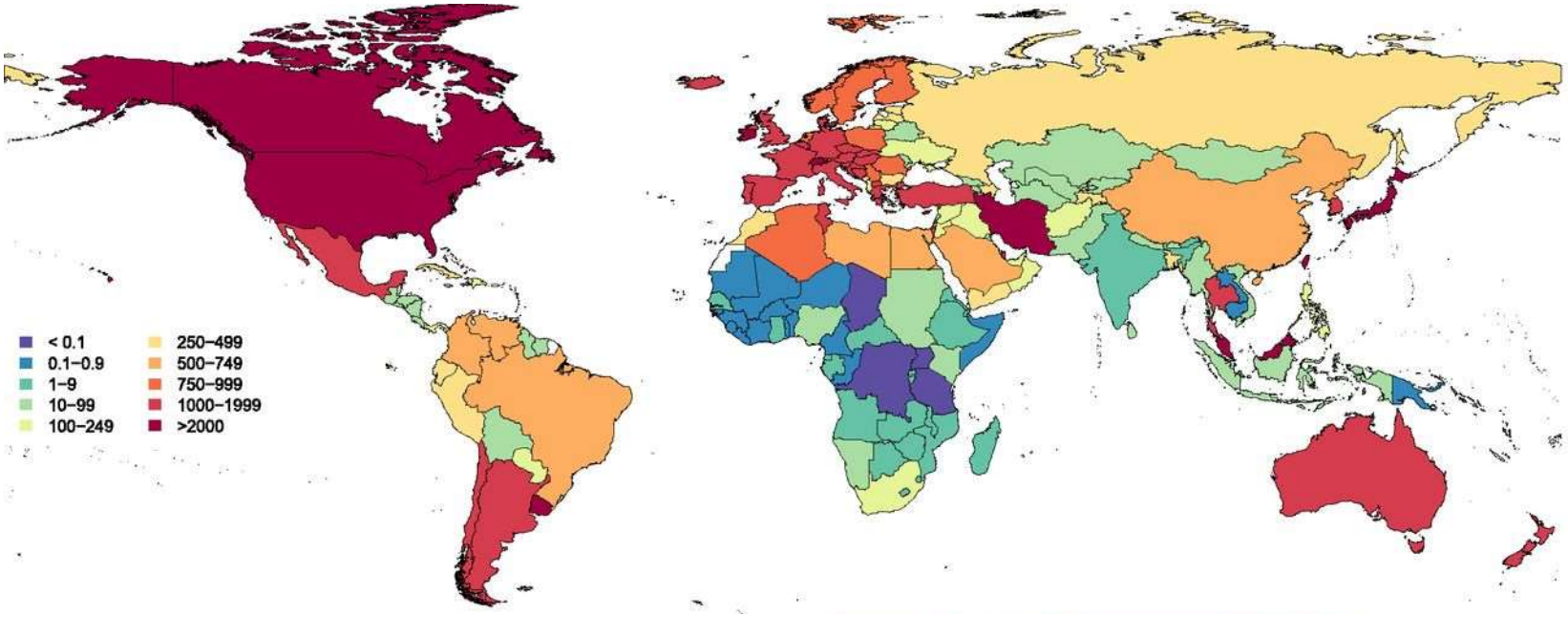
ABORIGINAL AUSTRALIANS

SOCIO-ECONOMIC DISADVANTAGE AND ESRD



Cass A et al Ethnicity & Disease 2002; 12: 373

Age-standardized prevalence per million population of maintenance dialysis in year 2010 for 187 countries.



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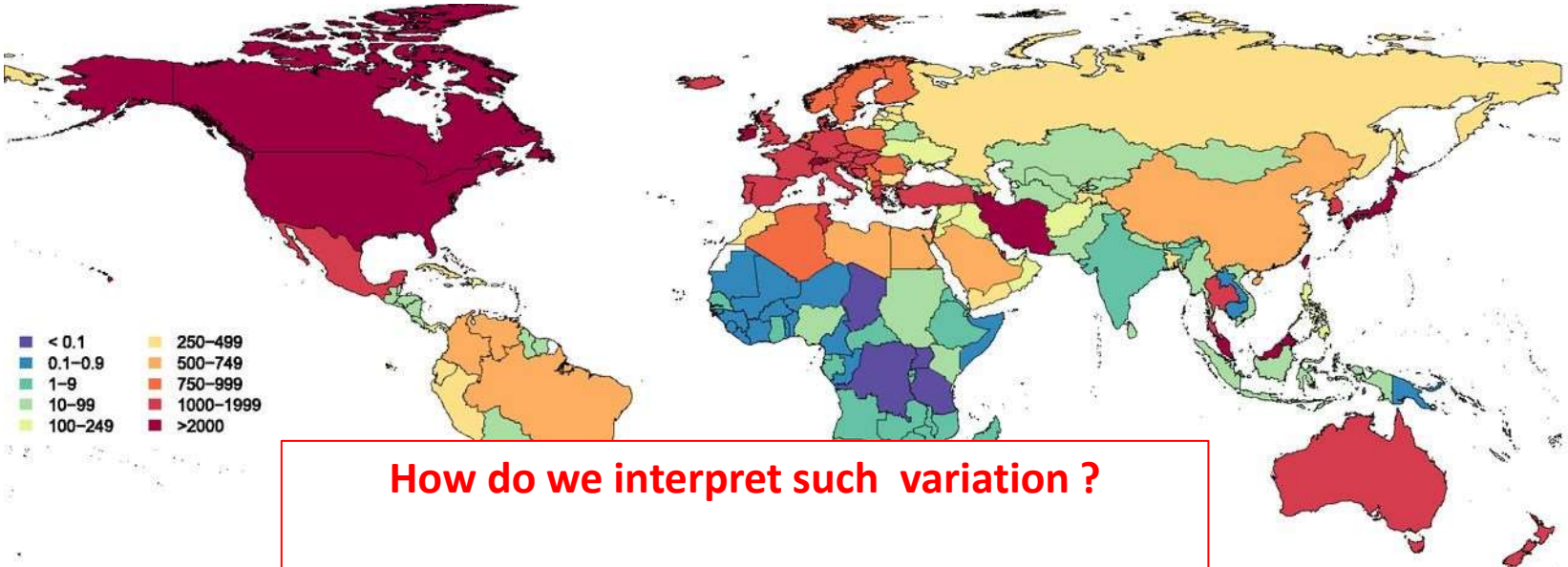


How do we interpret such variation ?

Success?

Failure?

Good care?

'Rationing' ?

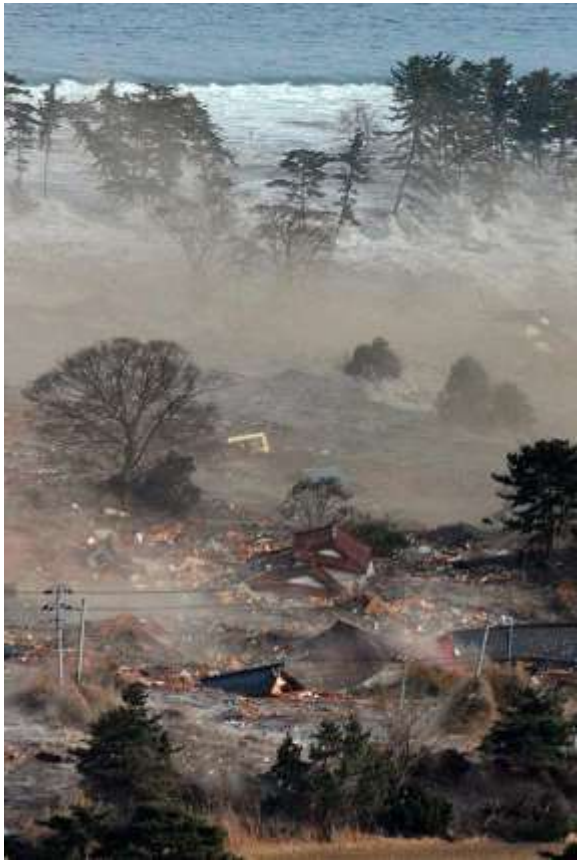
Bernadette Thomas et al. JASN
doi:10.1681/ASN.2014101017

However “successful” a dialysis programme may be….

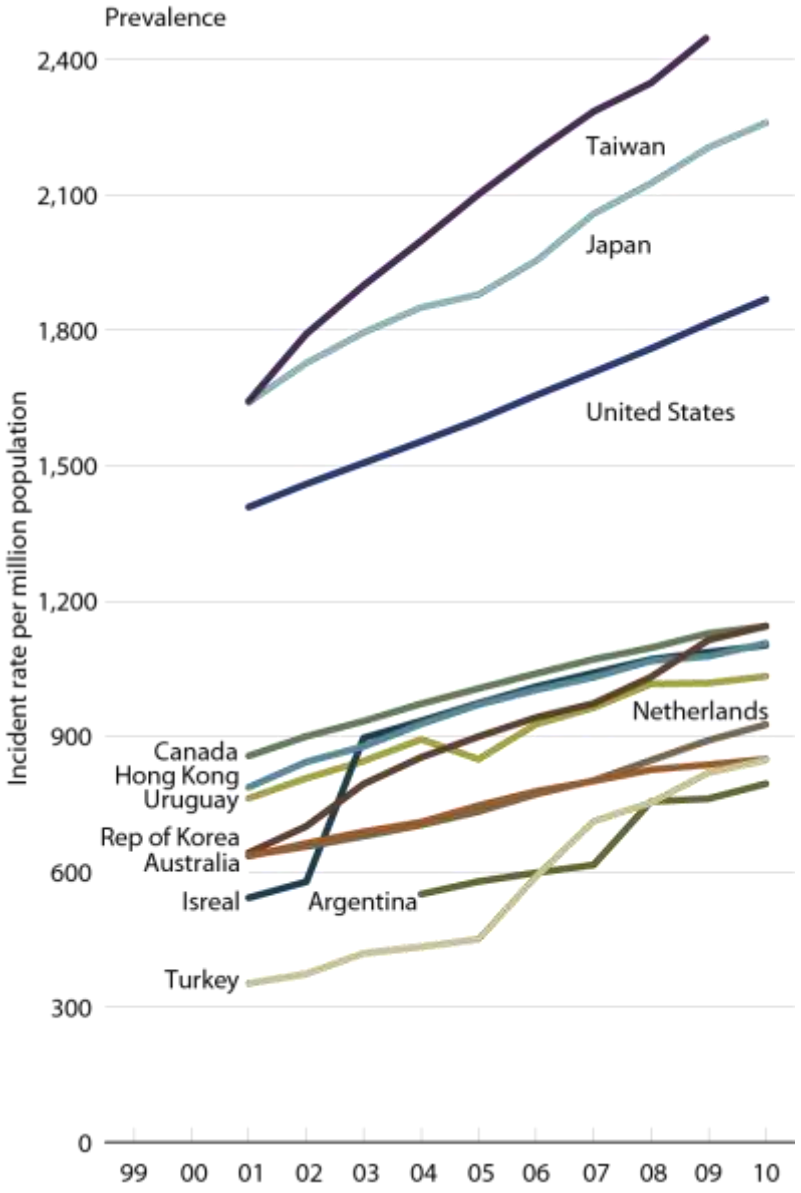
….. haemodialysis patients are uniquely vulnerable to

‘events beyond our control’

RENAL DISASTER RELIEF TASK FORCE



Comparison of unadjusted ESRD prevalence worldwide



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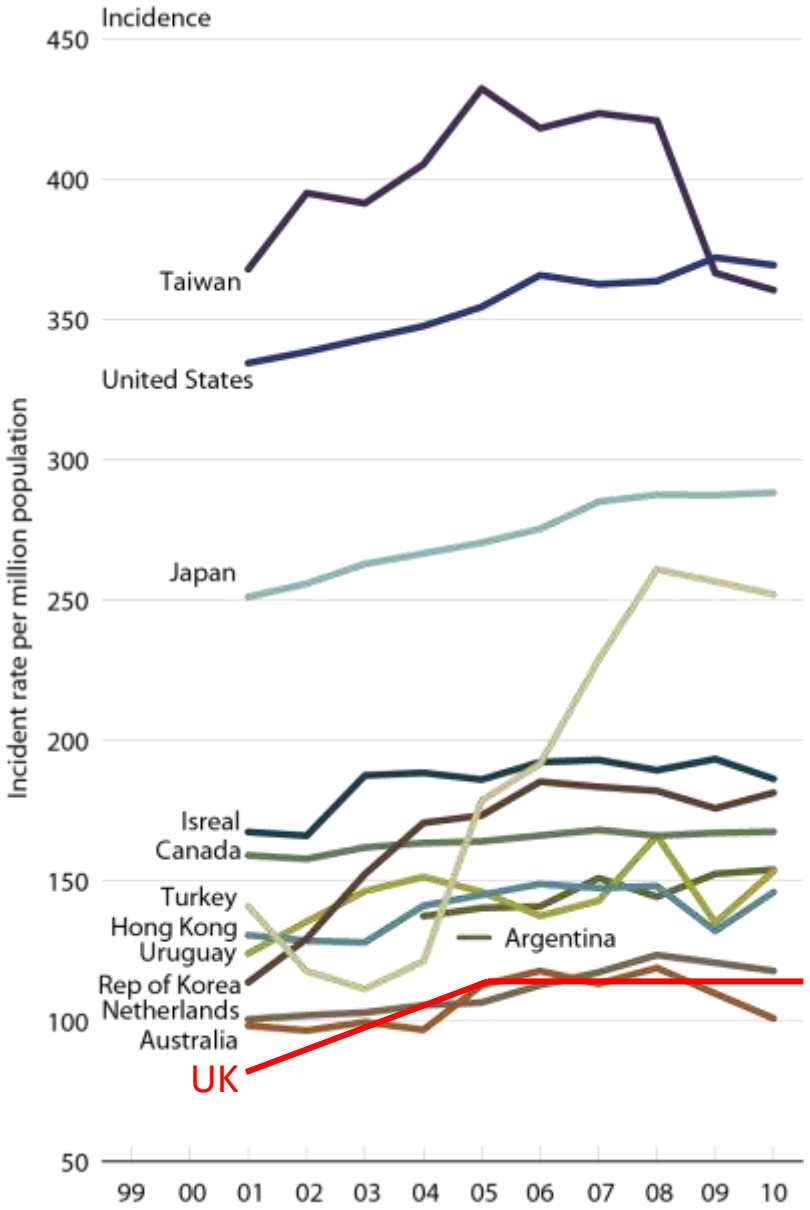

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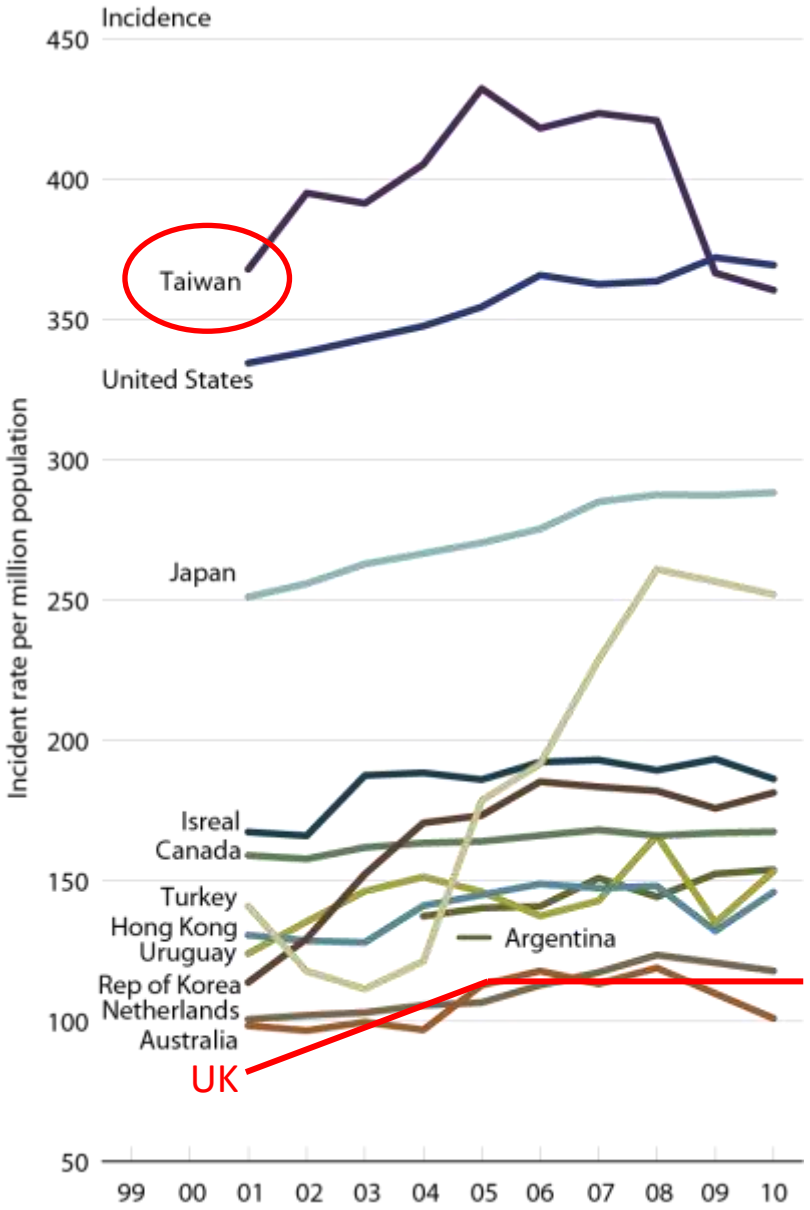
USRDS 2012 ADR

Comparison of unadjusted ESRD incidence worldwide

The tide can be turned



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USRDS 2012 ADR

KIDNEY TRANSPLANTATION

The underused option

Deceased and living donor

Cost effective

Affordable in some countries where dialysis is not

KIDNEY TRANSPLANTATION

The underused option

Deceased and living donor

Cost effective

Affordable in some countries where dialysis is not

BUT
Cultural influences

Commercial pressures
Exploitation
Transplant tourism

The Declaration of Istanbul

Against

Organ Trafficking and Transplant Tourism

Organ trafficking and transplant tourism and commercialism: the Declaration of Istanbul

www.thelancet.com Vol 372 July 5, 2008

Chronic Kidney Disease

2002

K/DOQI Classification of Chronic Kidney Disease

‘Chronic Kidney Disease’ ~ 2002

A new terminology to ‘simplify’ kidney disease

A ‘new’ lab test to simplify kidney disease – eGFR

A new epidemiology – to prove kidney disease is common

New evidence that eGFR and proteinuria are powerful CV risk and outcome predictors

New awareness of non-communicable disease as a global health threat

‘Chronic Kidney Disease’

First entered our vocabulary in ~ 2002

Is the term CKD a ‘good thing’ ?

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GAINS

Stimulated valuable population epidemiology

Clinical awareness outside the kidney community

Assisted policy influence

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LOSSES

Confusion between epidemiological and clinical definitions

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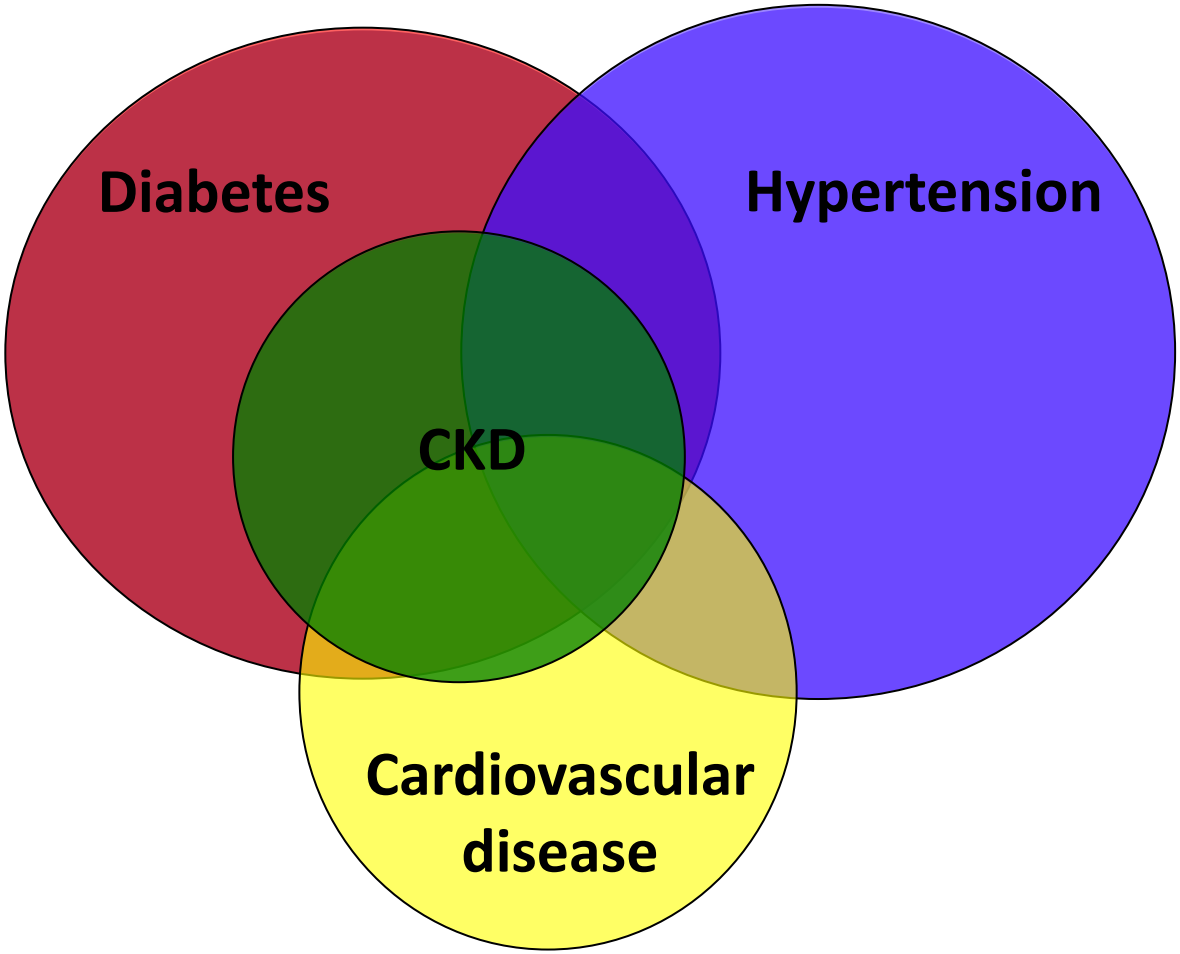
LOSSES

Confusion between epidemiological and clinical definitions

The loss of ‘diagnostic thinking’

CKD often coexists with other NCDs



Chronic Kidney Disease – A VASCULAR DISEASE ?

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GAIN

Entry to ‘mainstream’ NCD policy

A ‘seat at the table’

We can discuss large populations at risk

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RISKS

A change of message

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RISKS

A change of message

CKD seen as just a minor issue…

"If we sort out diabetes and hypertension… that will deal with the CKD problem"

‘Chronic Kidney Disease’

CKD as a vascular disease

But NOT ONLY a vascular disease

‘Chronic Kidney Disease’

Up to ~40% of those with CKD do not have

cardiovascular disease, hypertension, or diabetes

Communicable disease

Glomerulonephritis

Hereditary/congenital diseases

Stones

Environmental factors

‘Chronic Kidney Disease’

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BALKAN ENDEMIC NEPHROPATHY

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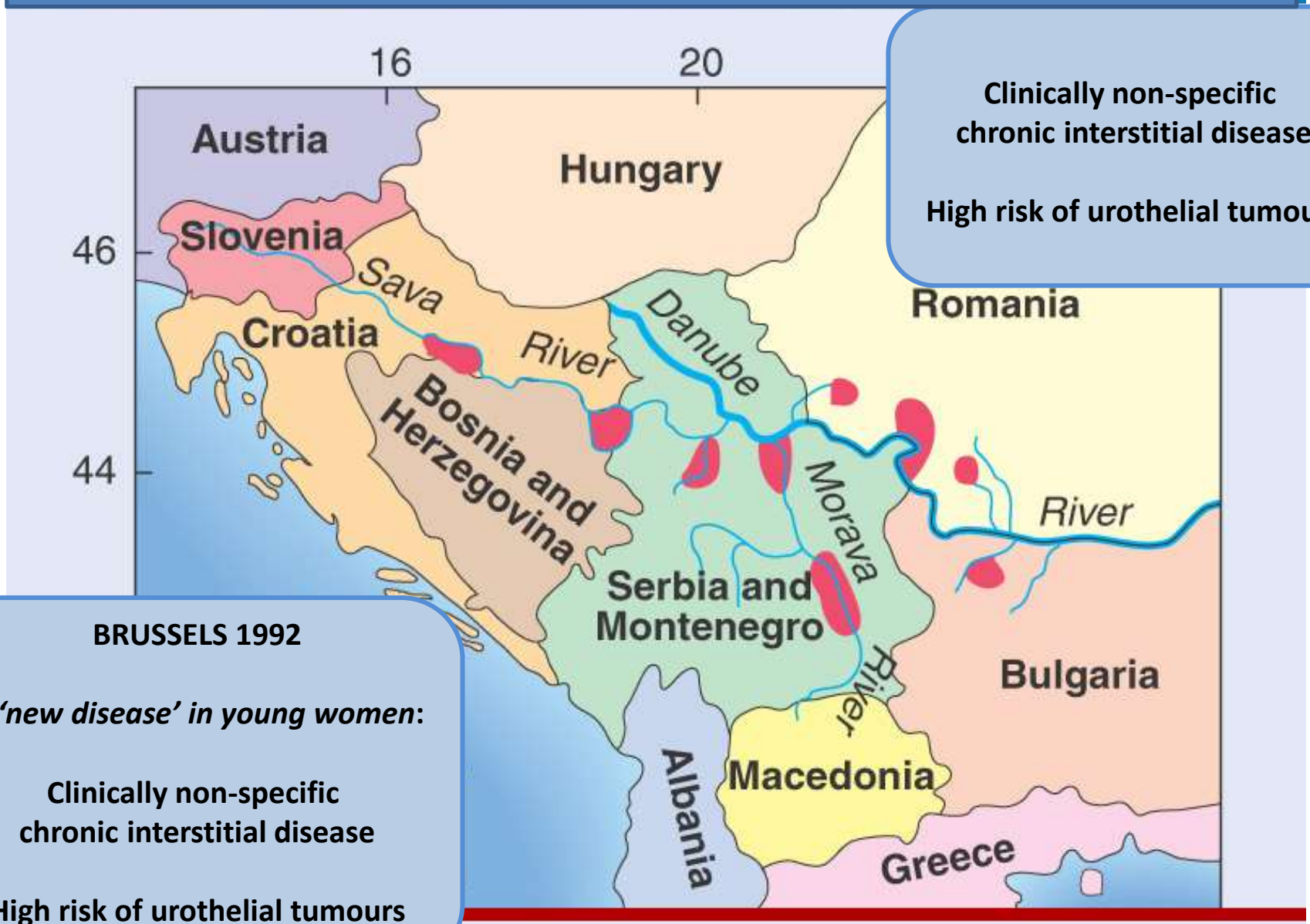
Clinically non-specific chronic interstitial disease

High risk of urothelial tumours

BALKAN ENDEMIC NEPHROPATHY



Clinically non-specific chronic interstitial disease

High risk of urothelial tumours

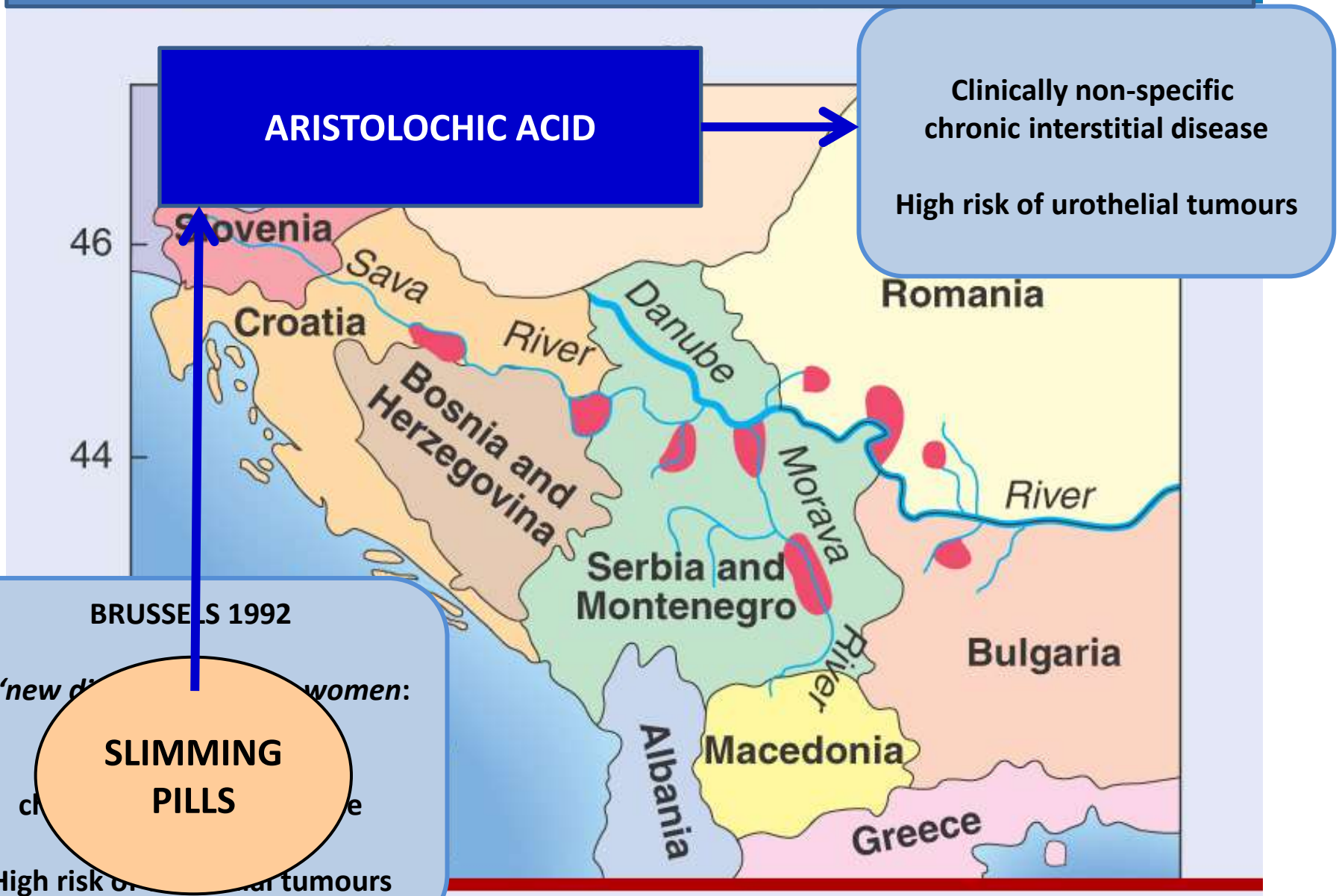
BRUSSELS 1992

***A 'new disease' in young women*:**

Clinically non-specific chronic interstitial disease

High risk of urothelial tumours

BALKAN ENDEMIC NEPHROPATHY



Epidemic of CKD in Sri Lanka: known since 2008

***NOT* Aristolochic acid**

Growing evidence of

Heavy metal intoxication – cadmium, arsenic

in food, tobacco, soil, agrochemicals

MESO-AMERICAN NEPHROPATHY
Epidemic of CKD in Central America

Pacific coasts of Costa Rica, El Salvador, Nicaragua
Interstitial disease
Poor sugar cane workers
Less at higher altitudes

Not aristolichic acid

Not *h*eavy metals

? adverse effects of:

- **recurrent episodic dehydration**
- **hot environment**
- **NSAID misuse**

Epidemics of CKD with environmental factors

Every ‘epidemic’ is a different detective story

Each ‘epidemic’ is a new opportunity

What may these ’epidemics’ tell us about

apparently sporadic cases of

chronic kidney disease of uncertain cause ?

SUSCEPTIBILITY TO KIDNEY DISEASE or PROGRESSION OF KIDNEY DISEASE

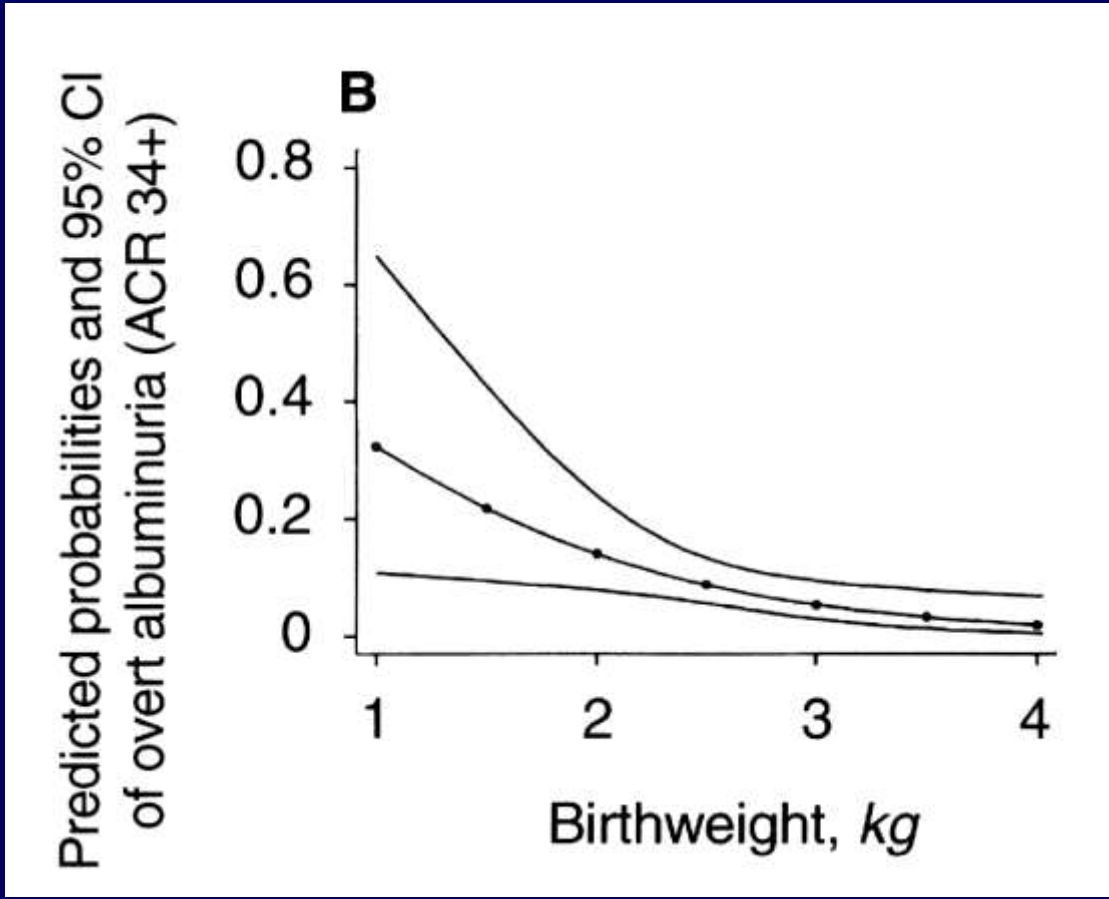
Genetic ?

Environment ?

Fetal environment?

BIRTHWEIGHT AND PROTEINURIA IN AUSTRALIAN ABORIGINALS

25% of Aborigines have birthweight < 2500gm



Hoy 2000 NDT;15:1293

PREVALENCE OF RENAL DISEASE IN DEPRIVED POPULATIONS

In very deprived populations
health improvement
may paradoxically increase CKD

Fall in perinatal mortality will
increase survival of low birthweight babies

Adults will survive longer to get CKD

WHERE ARE THE PHYSICIANS ?

PHYSICIANS WHO HAVE LEFT THEIR HOME COUNTRY

Doctors trained in sub Saharan Africa working in OECD countries

Source country	Total doctors in home country	Doctors working in eight OECD recipient countries[a] Number		Percentage of home country workforce
Angola	881	168		19
Cameroon	3 124	109		3
Ethiopia	1 936	335		17
Ghana	3 240	926		29
Mozambique	514	22		4
Nigeria	34 923	4 261		12
South Africa	32 973	12 136		37
Uganda	1 918	316		16
United Republic of Tanzania	822	46		6
Zimbabwe	2 086	237		11
Total	82 417	18 556		Average 23

[a] Recipient countries: Australia, Canada, Finland, France, Germany, Portugal, United Kingdom, United States of America.

WHERE ARE THE NEPHROLOGISTS ?

	Population	Nephrologists
INDIA	~ 1 billion	~900
UK	60 million	~500

WHERE ARE THE NEPHROLOGISTS ?

There are more nephrologists of Indian origin in North America than in India

ISN FELLOWSHIP PROGRAMME

Low & Middle Income Countries

Are we promoting the 'brain drain' ?

ISN FELLOWSHIP PROGRAMME

Low & Middle Income Countries

Are we promoting the 'brain drain' ?

SUB-SAHARAN AFRICA

- **Fellowships in South Africa**
- **>95% return rate**

ISN

ISN Programs

Fellowships
Sister Renal Centers
Clinical Research
Continuing Medical Education
Educational Ambassadors

For low and middle income countries

GOVERNMENT ATTITUDES TO KIDNEY DISEASE

NGO ATTITUDES TO KIDNEY DISEASE

Can they be influenced?

How to advocate for the inclusion of CKD in a national non-communicable chronic disease program

ISN CKD Policy Task Force (2013)

M Tonelli
S Agarwal
A Cass
G Garcia Garcia
V Jha
S Naicker
HY Wang
C-W Yang
D O'Donoghue

Government Approaches to Health Issues

Some generalisations ……..

Governments are concerned about common problems

Governments are concerned about high cost problems

Governments want hard epidemiological data

Governments want evidence of success

Governments want hard financial data

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Some generalisations ……..

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Governments want hard epidemiological data
… in their own population

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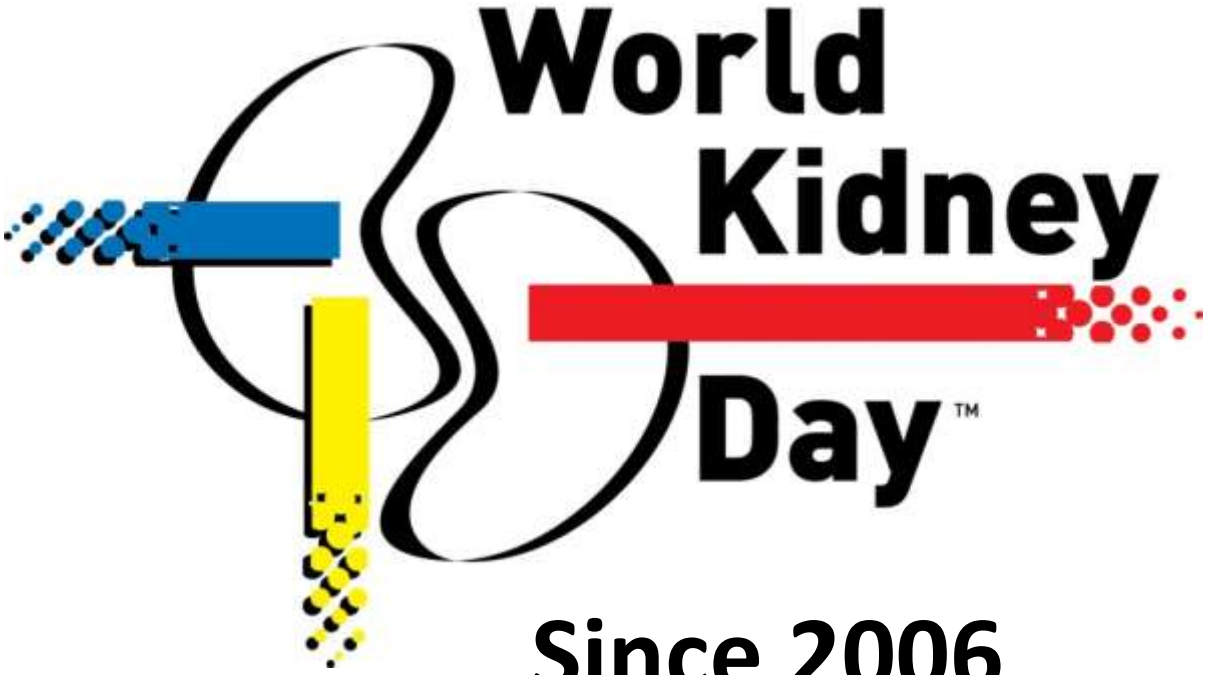
INTERNATIONAL SOCIETY OF NEPHROLOGY
ISN
1960


IFKF


World
Kidney
Day™

Since 2006

January 2012

ISN IS IN 'OFFICIAL RELATIONS' WITH WORLD HEALTH ORGANISATION

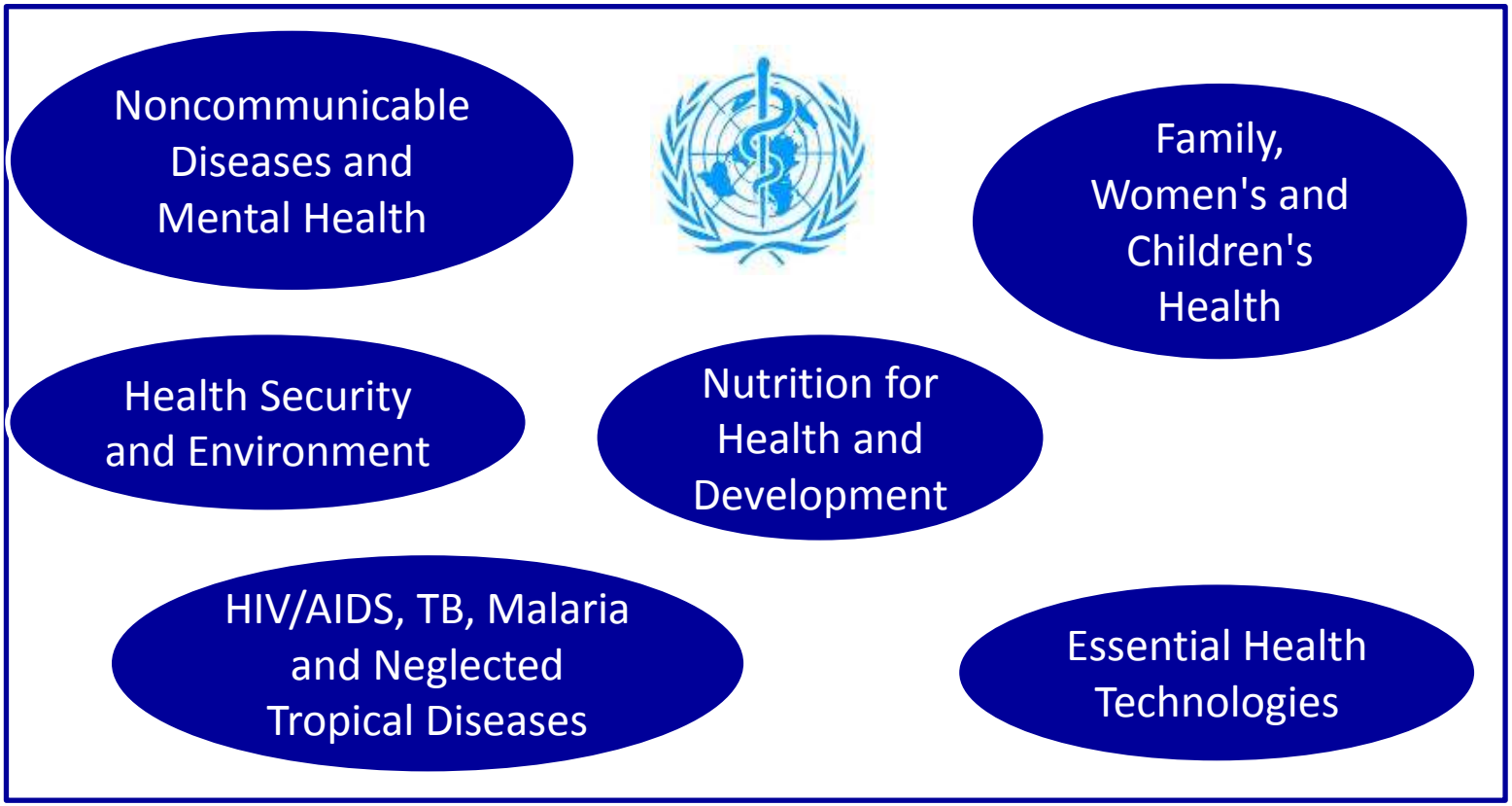
This follows several years of ISN working with WHO

.... and will increase the influence of the voice for kidney disease

Positioning kidney disease at WHO

CHRONIC KIDNEY DISEASE

ACUTE KIDNEY INJURY



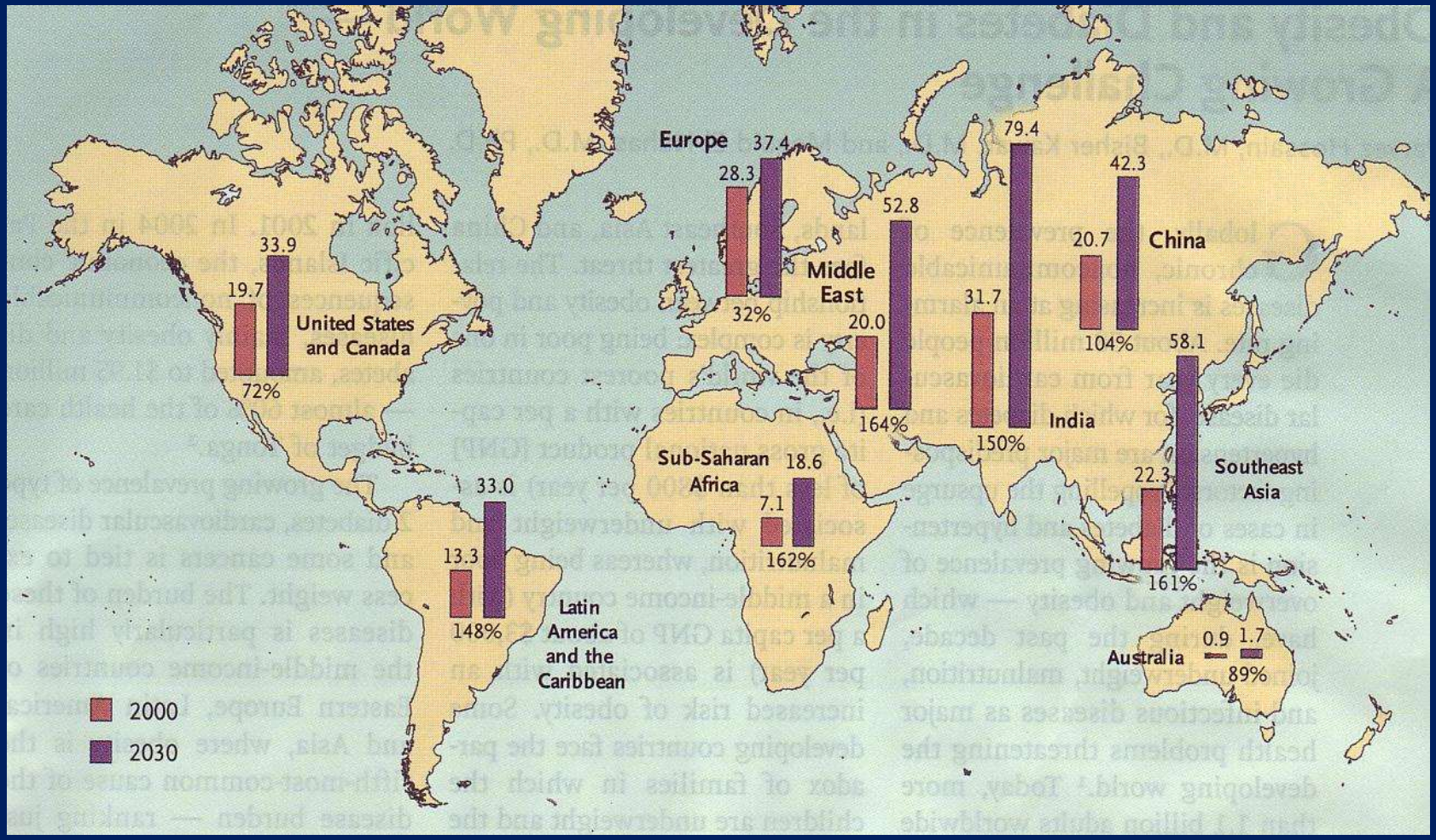
The Worldwide Burden of Kidney Disease

What is modifiable ?

What can nephrologists help to change ?

PREDICTED INCREASES IN PREVALENCE OF DIABETES

Millions of cases – 2000, and projected for 2030



Wild S *et al.* Diabetes Care 2004; 27:1047 - quoted in Hossain *et al.* NEJM 2007; 365:213

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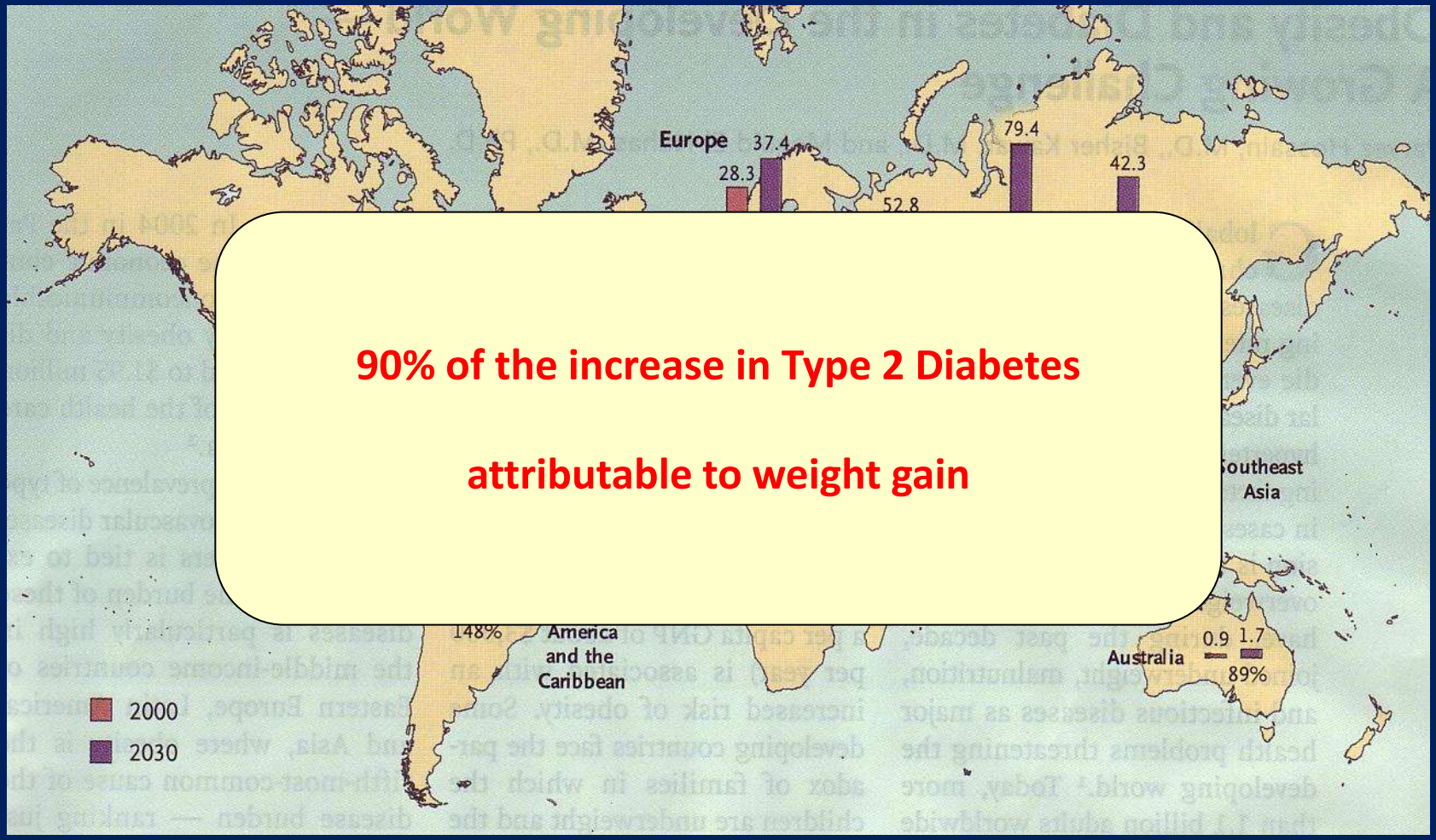

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FUTURE PREVALENCE OF KIDNEY DISEASE

Implications for health policy

Interventions to control or reduce obesity

…. will eventually help to reduce the incidence of CKD

PREVALENCE OF CKD IN DISADVANTAGED POPULATIONS

Implications for health policy

In very deprived populations
health improvement
may paradoxically increase CKD

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PREVALENCE OF CKD IN DISADVANTAGED POPULATIONS

Implications for health policy

Any social, economic, or political changes

which increase population survival

will have a major effect on the prevalence of ESRD

NEPHROLOGY AROUND THE WORLD

We are making progress…..

but there is still much to do