



INTERNATIONAL PERSPECTIVES ON HOME DIALYSIS

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#KDIGOHomeDialysis

DISCLOSURES

- Employer - George Institute for Global Health
- Grants - Baxter Healthcare, NephroPlus
- Speaker fees and honoraria – AstraZeneca, Baxter Healthcare

THE WORST KEPT SECRET IN NEPHROLOGY

AVAILABILITY OF TREATMENT
FOR END STAGE KIDNEY DISEASE
AROUND THE WORLD

10 million patients need treatment every year
2.5 million receive it
Everyone else dies

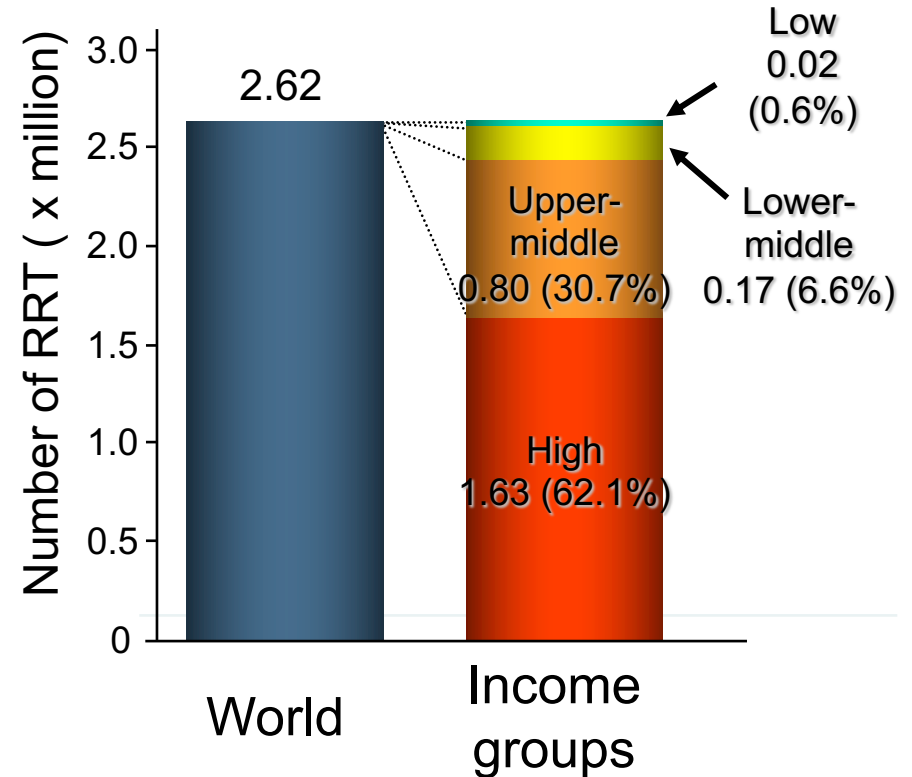
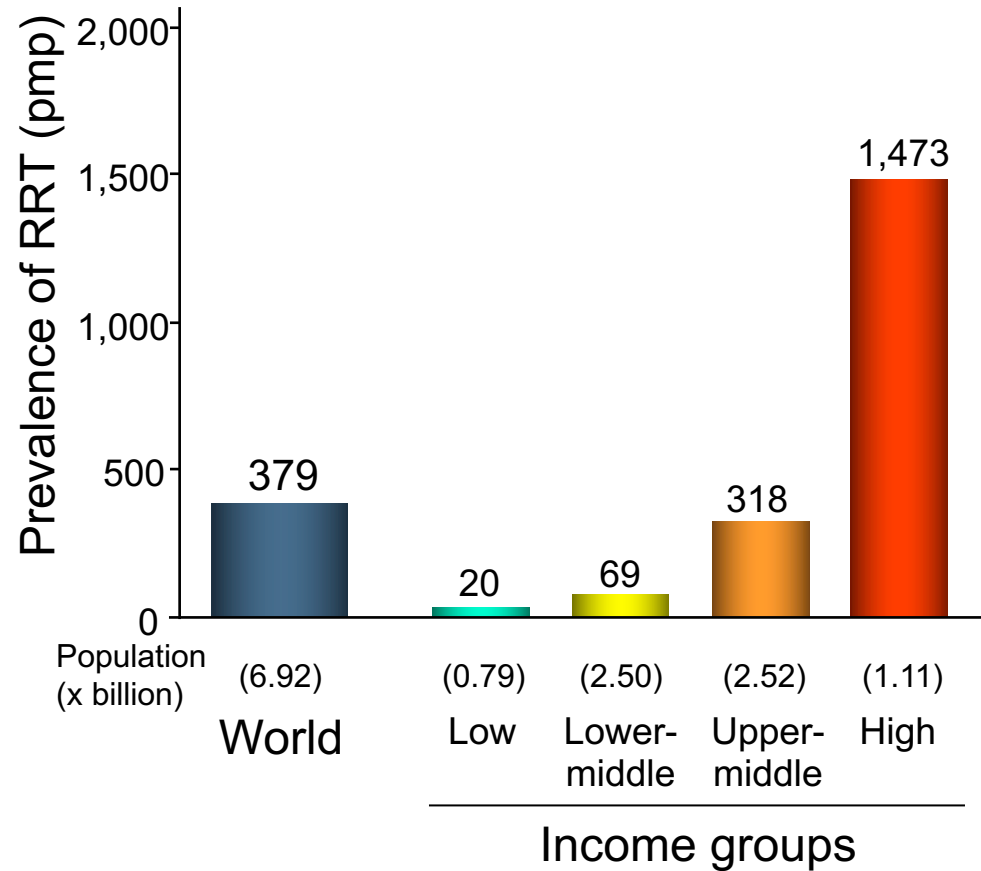
Patients per million population

- <50.0
- 50.0-99.9
- 100.0-499.9
- 500.0-999.9
- 1000.0-1999.9
- ≥2000.0

▣ Values estimated by the model

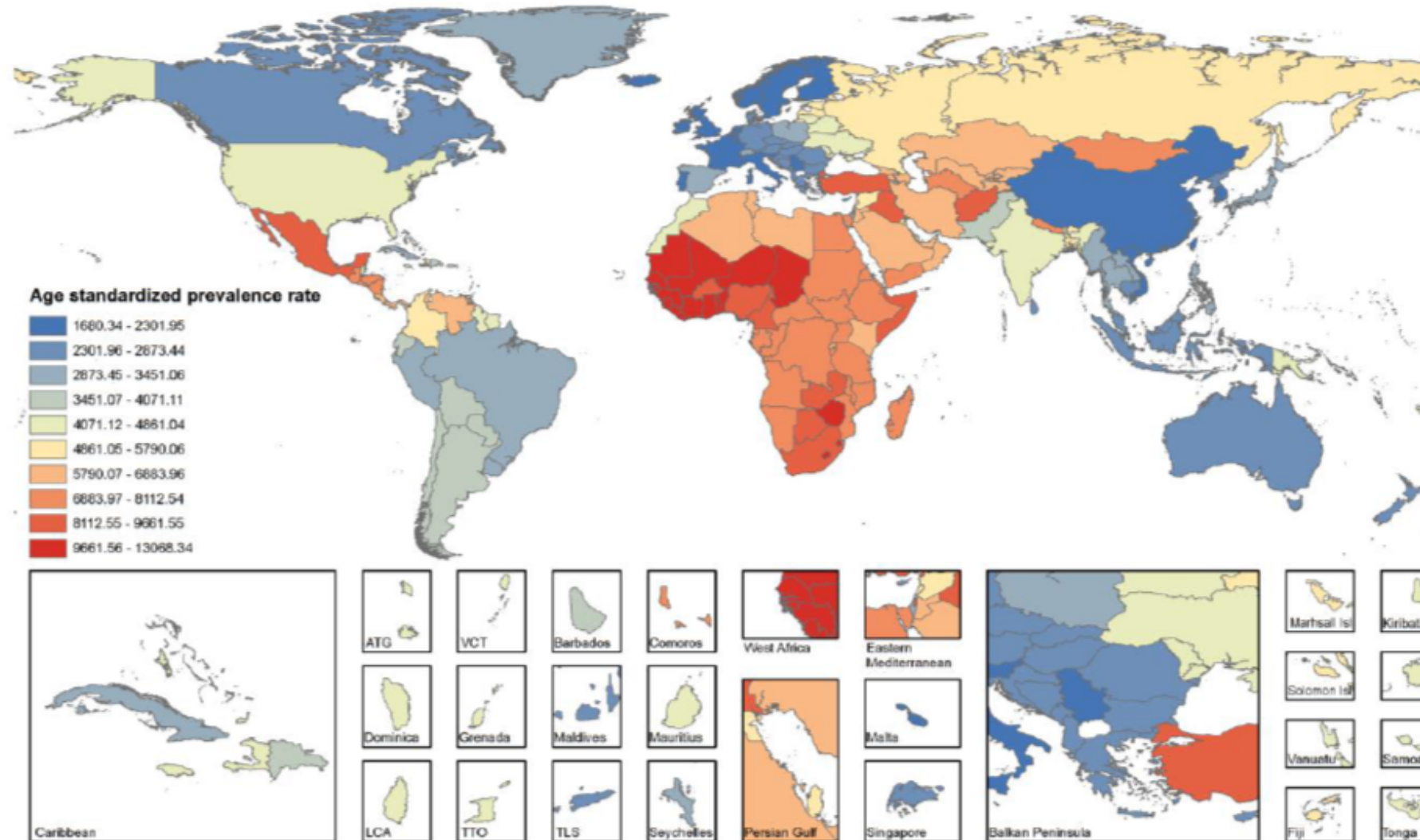


NUMBER OF PEOPLE GETTING KRT WORLDWIDE

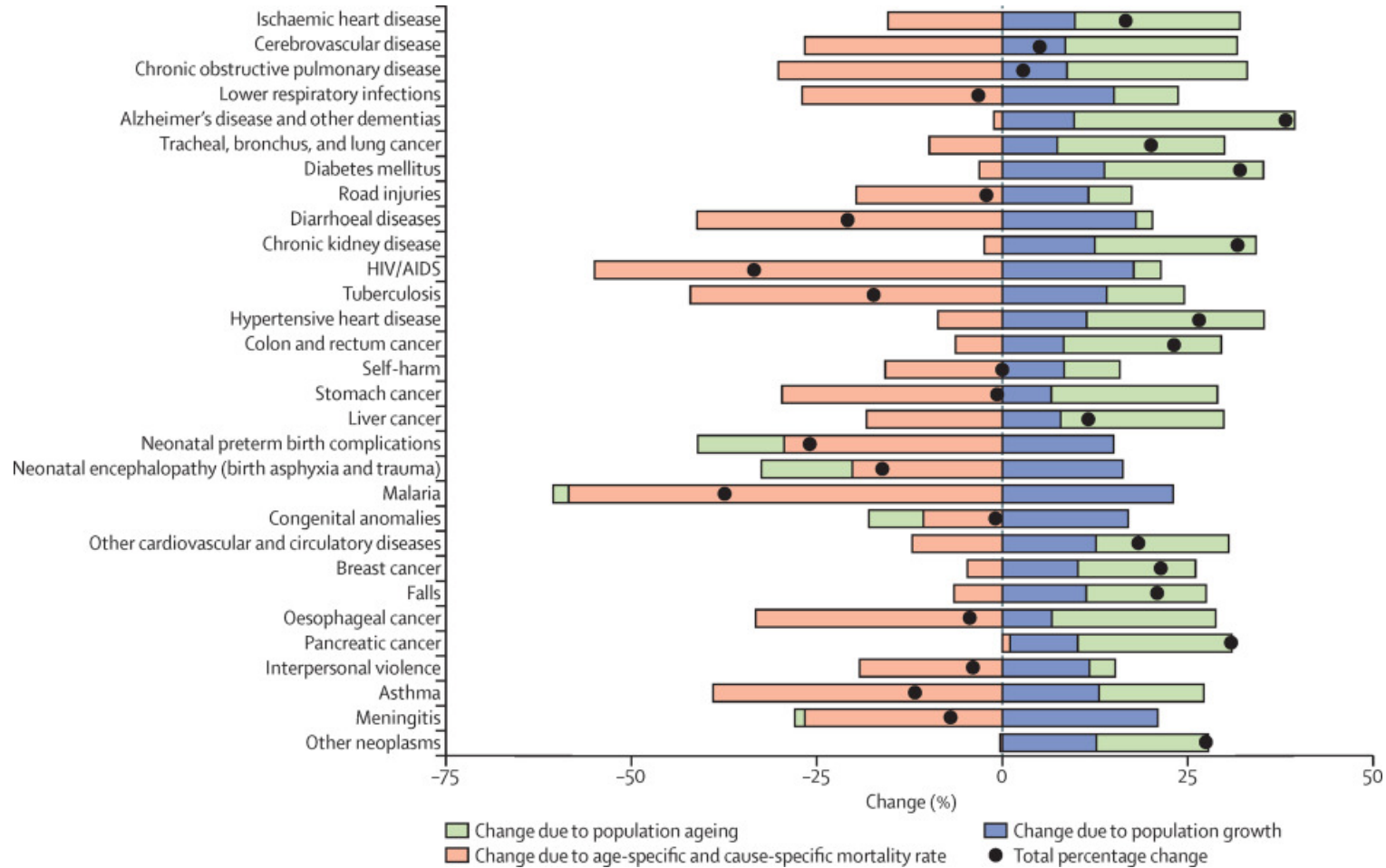


Income groups	GNI per Capita (US\$)
Low:	≤\$1,005
Lower-middle:	\$1,006-\$3,975
Upper-middle:	\$3,976-\$12,275
High:	≥\$12,276

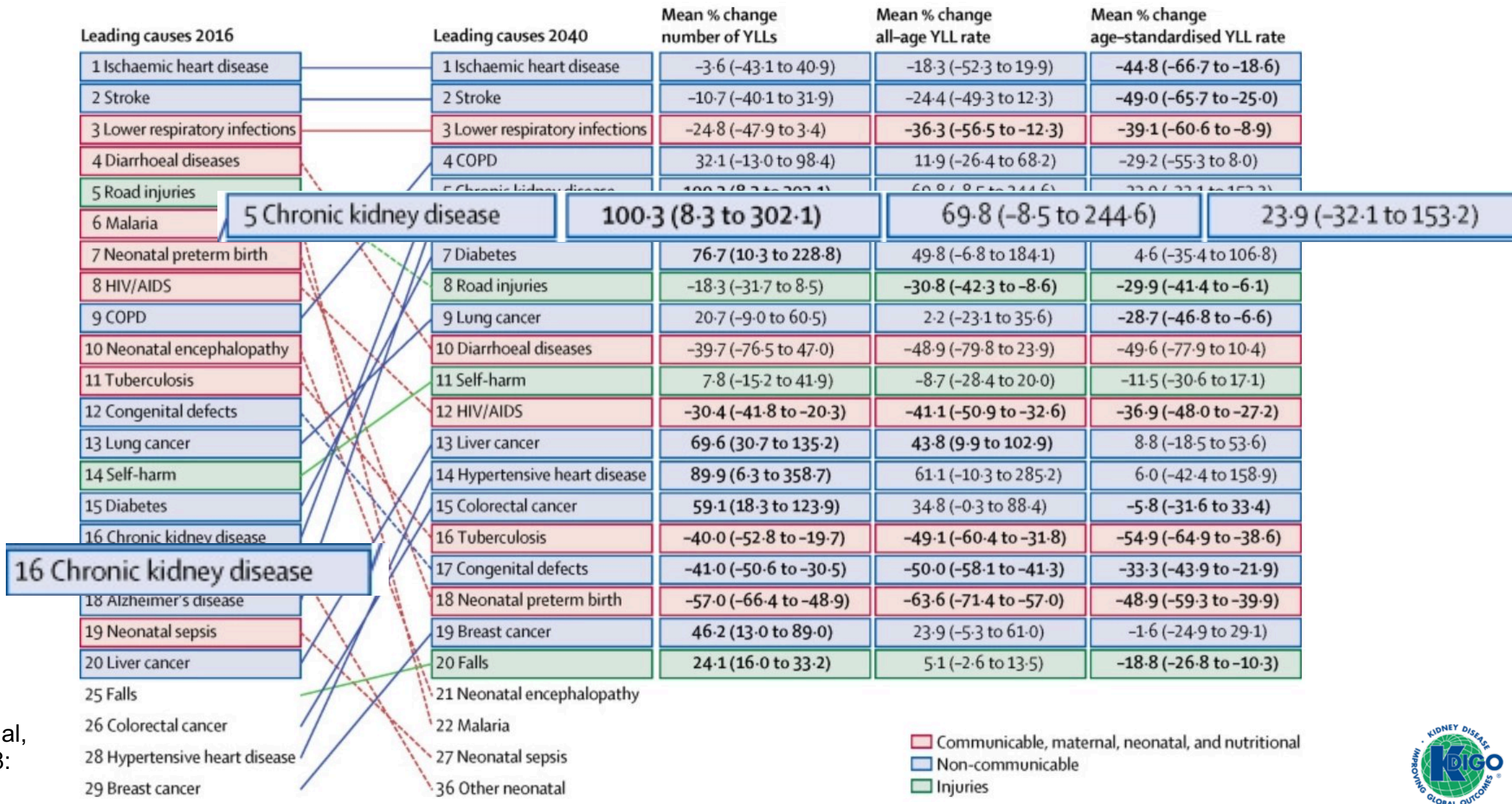
THE MOST DEPRIVED PARTS OF THE WORLD WOULD BE MOST AFFECTED



CKD IS THE THIRD FASTEST GROWING COD



AND WILL BECOME THE 5TH LEADING COD IN 2040

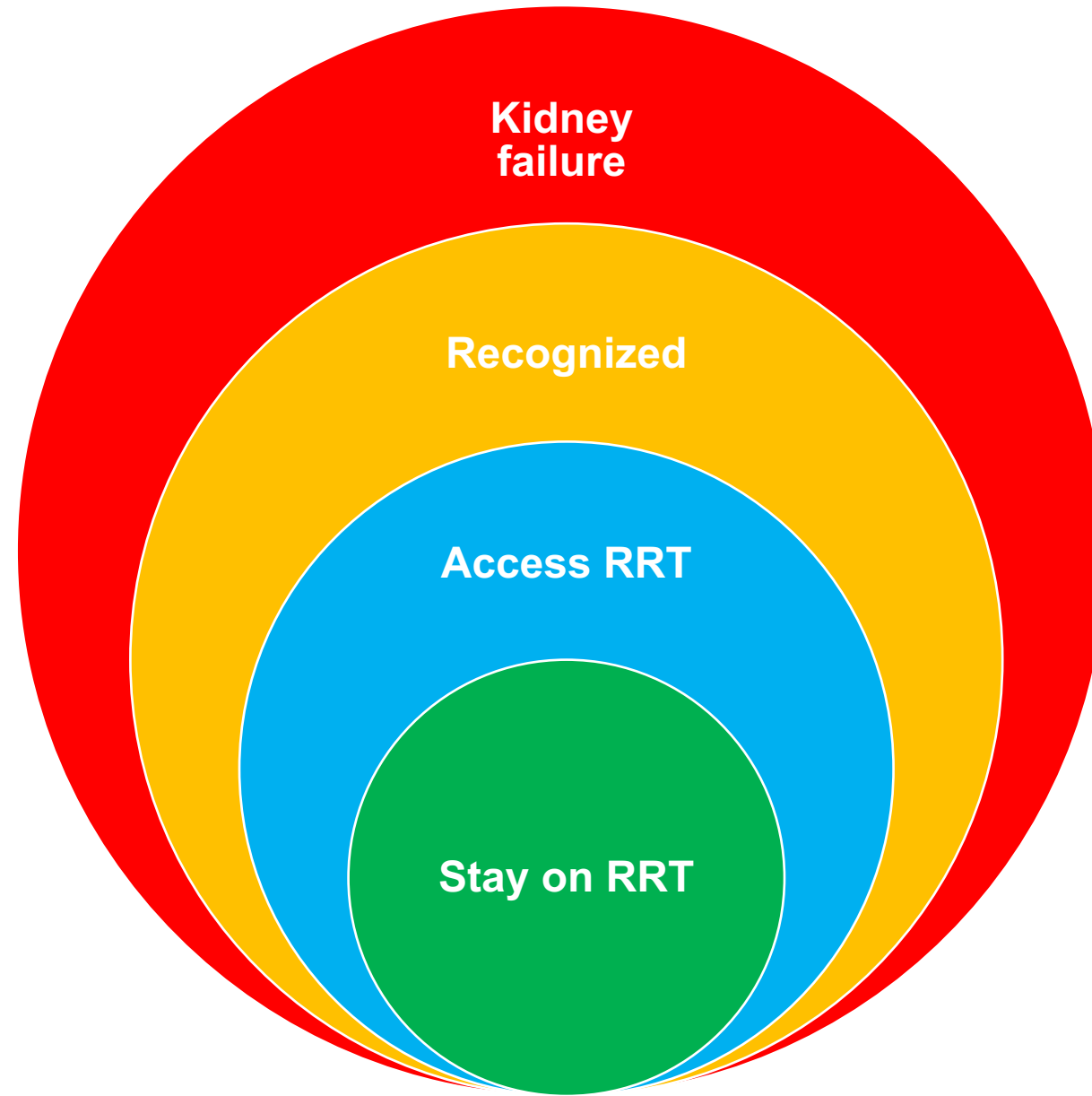


Foreman et al, Lancet 2018: 2052-2090

■ Communicable, maternal, neonatal, and nutritional
■ Non-communicable
■ Injuries



UNMET NEED IN KIDNEY FAILURE TREATMENT WORLDWIDE



CONSIDERATIONS WHILE CHOOSING KRT OPTIONS



Cost-effectiveness



Equity

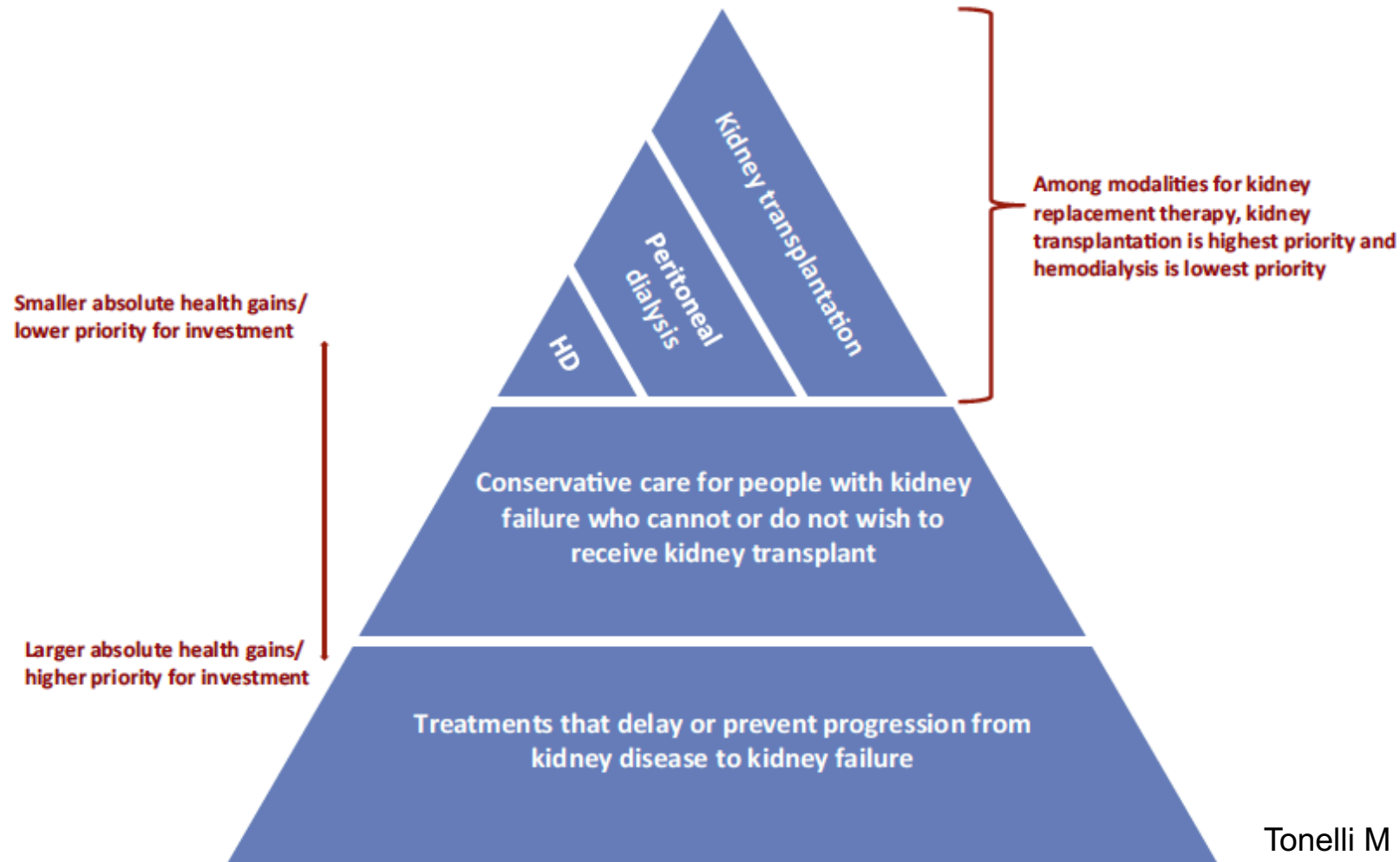


Justice

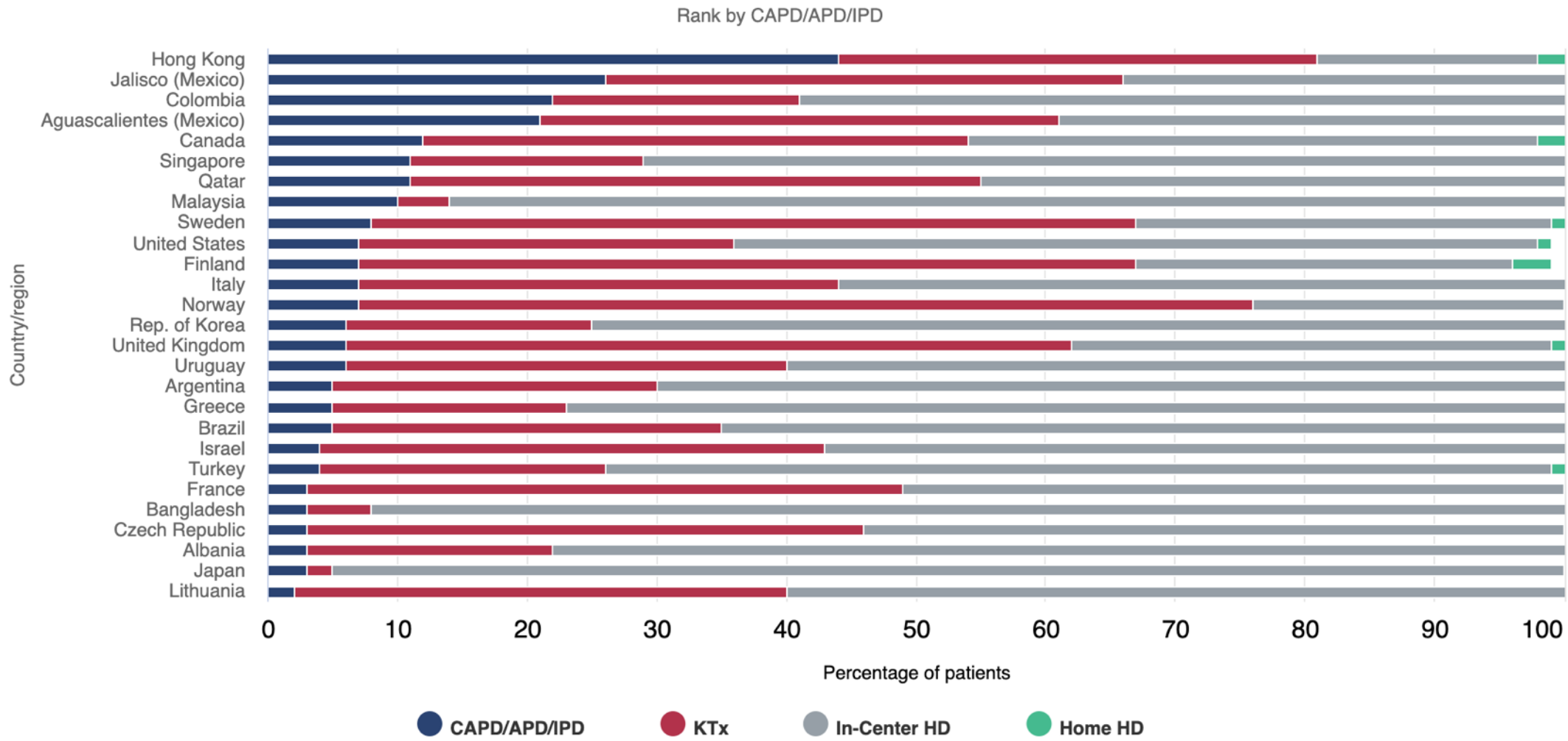


Values and preferences

FROM THE HEALTH SYSTEMS PERSPECTIVE, PD IS THE PREFERRED DIALYSIS MODALITY



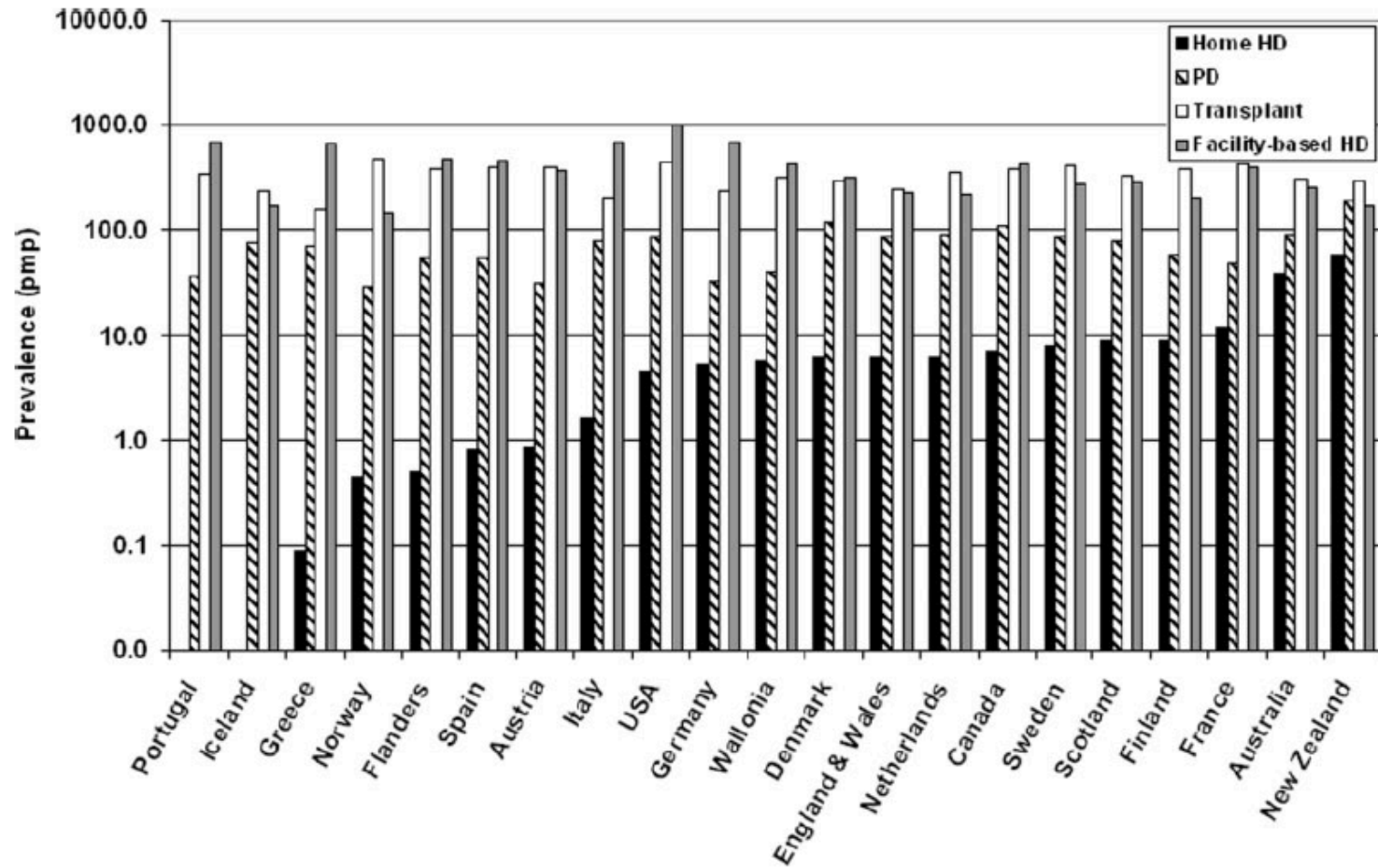
HOME DIALYSIS IS UNDERUTILIZED GLOBALLY



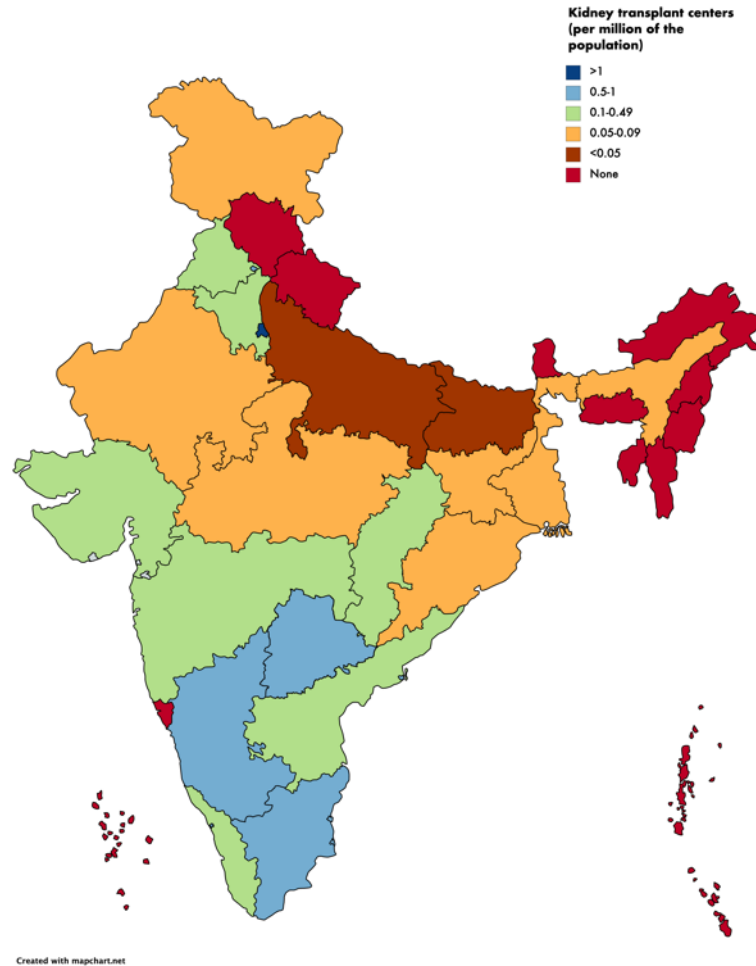
Data Source: 2020 United States Renal Data System Annual Data Report



KRT PREVALENCE IN HIGH INCOME COUNTRIES



HOME DIALYSIS HAS THE POTENTIAL TO DEMOCRATIZE ACCESS TO KRT IN THE GLOBAL SOUTH



Almost 60% of patients on dialysis had to travel >50 km to access HD, and nearly a quarter lived >100 km away from the facility



Indonesia | 17,508 islands;
6000 inhabited



Barriers	Potential solutions
Lack of exposure, visibility, and education regarding home HD	Units adopt formal predialysis education with nonbias information regarding all treatment options
Preconception that home HD is “too difficult and complex”	Training for clinical staff to increase confidence in home HD Utilization and further development of simpler home HD training machines
Lack of patient confidence to perform home HD	Peer support from established home HD patients
Fears of vulnerability and isolation from medical support	Strong clinical recommendation for home HD
Unexpected problems at early stage of home HD	Increased support when patient transitioning home
Fear of self-cannulation	Technological support for patient at home Community house models of care
Caregiver burden	Encouraging home HD independence with enhanced support Paid models of support – family members or support staff Inclusion of family members in education and training
Increased cost of home HD to patient	Transparent information regarding expected costs Reimbursement for out-of-pocket costs Community houses
Increased travel expenses	Units provide flexible and individualized training programs (after hours/5 day week/training in home)
Extended training duration	Exploration of return and training work policy
Housing problems (storage and water quality)	Developments in technology and home HD machines Independent community houses
Socioeconomic disadvantage	Reimbursement for out-of-pocket, transport, and setup costs Independent community houses Increased support and peer education for minority and indigenous groups Government policy and incentive programs

(A FEW) BARRIERS TO HOME DIALYSIS



Educate stakeholders (policymakers, doctors, patients)



Get the access in!



Empower and support the patient during the course of treatment



Use right tools for monitoring



Reimbursement issues

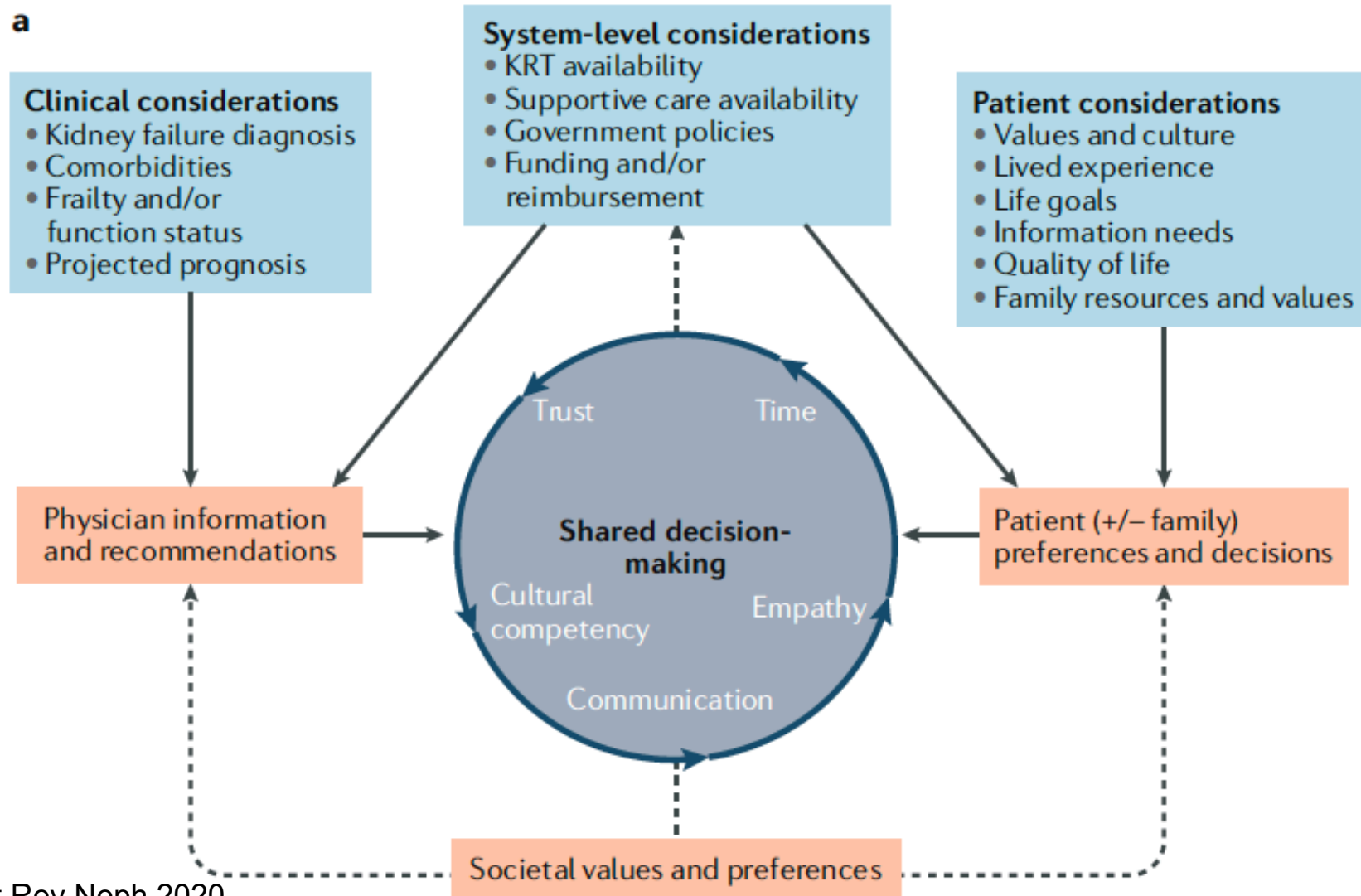
HOW SHOULD WE THINK OF DIALYSIS

- Patient selects therapy
 - supported by data/tools
- High quality
 - redefine quality measures
- Flexible
 - listen to patients
- Environmentally responsive
 - use as much as needed
- Innovation driven
 - patients tell us



WE NEED TO MAKE PATIENTS OUR ALLIES...

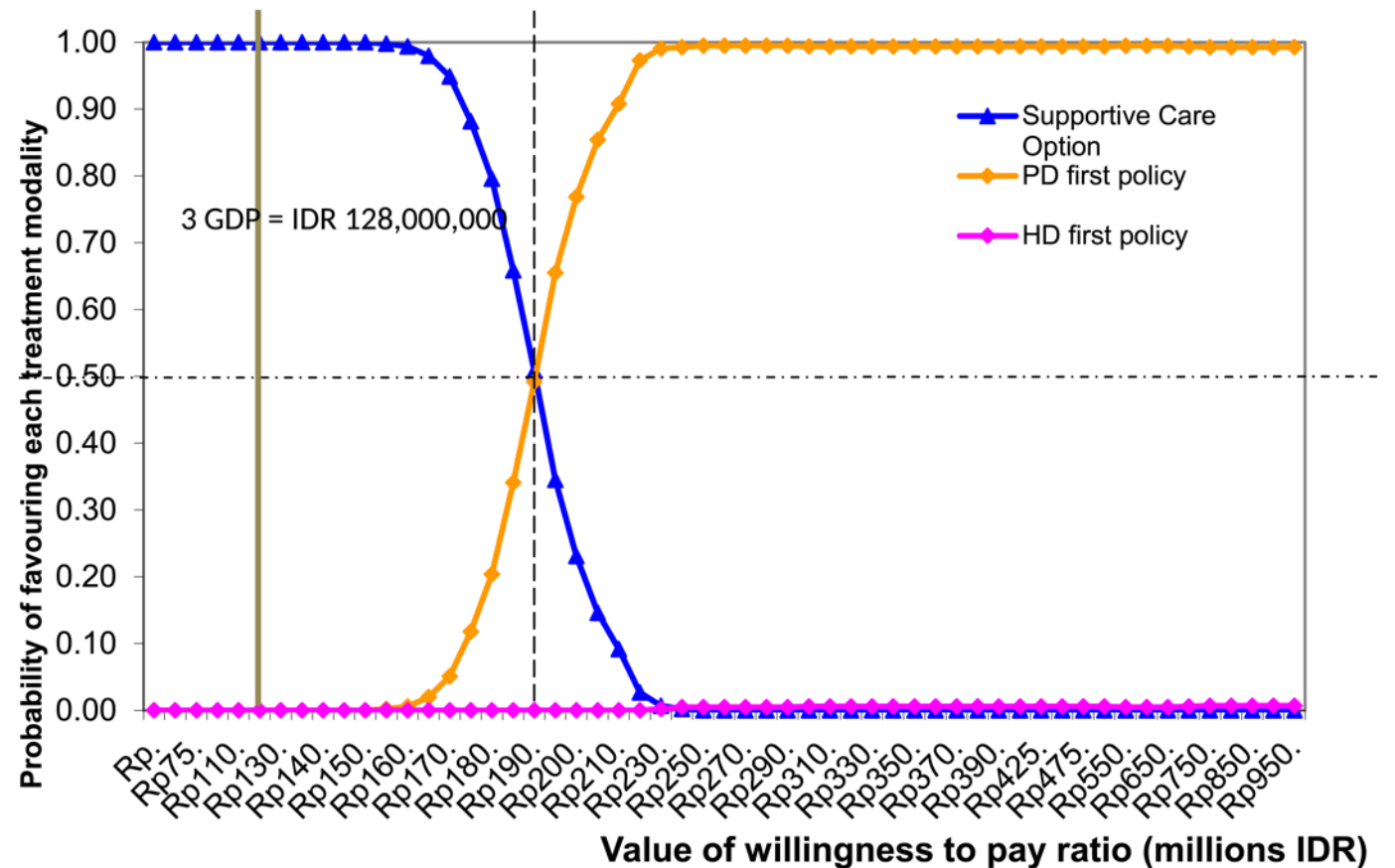
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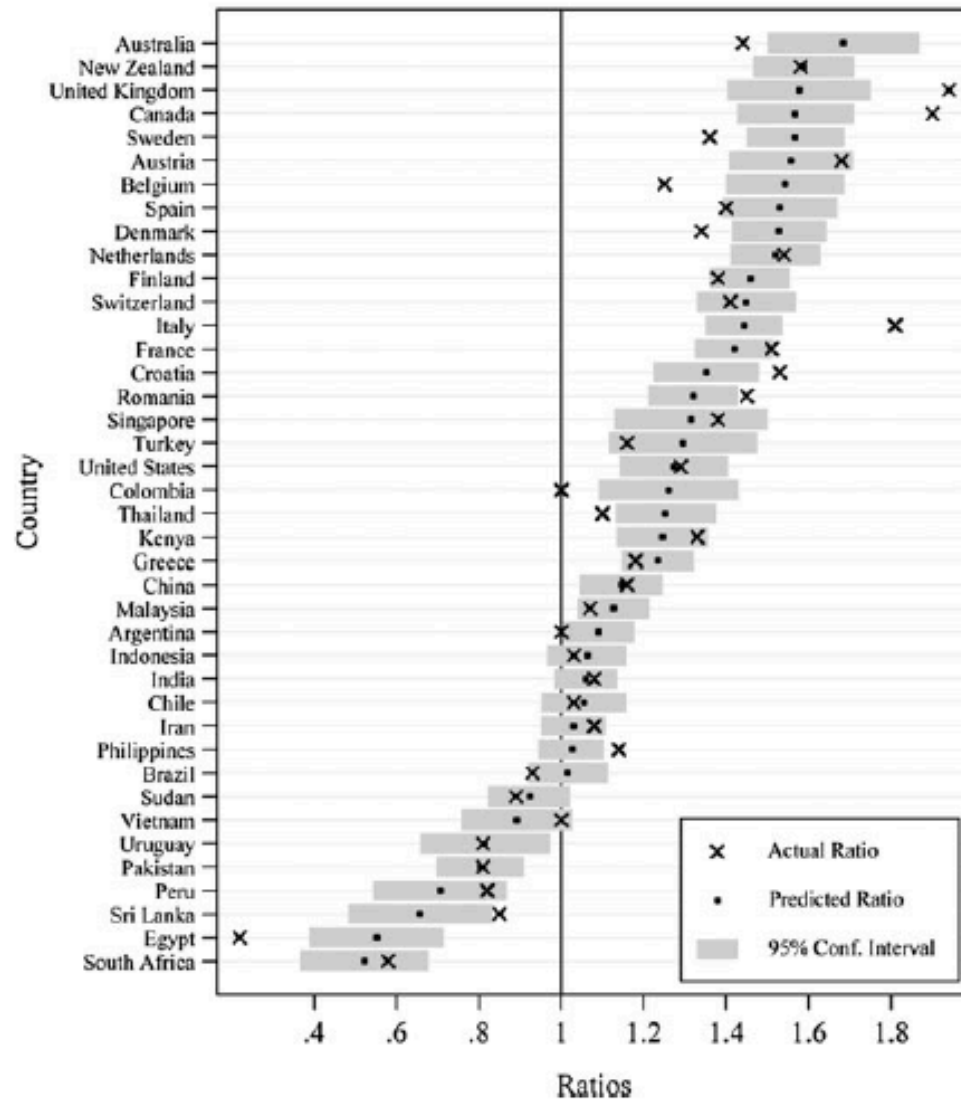
COST EFFECTIVENESS ACCEPTABILITY CURVES

ICER

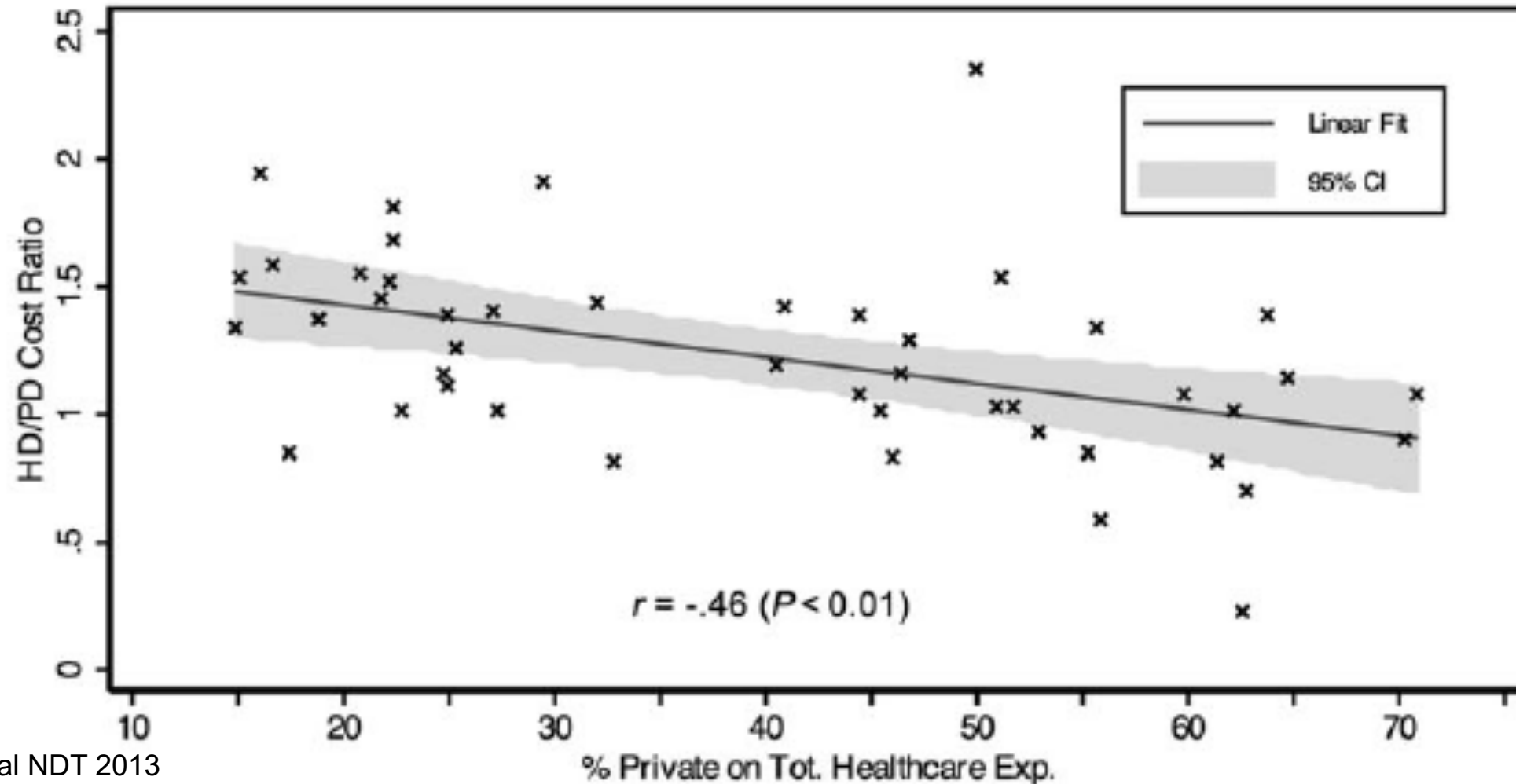
- PD first: 193.2 m IDR/QALY
- HD first: 207.4 m IDR/QALY



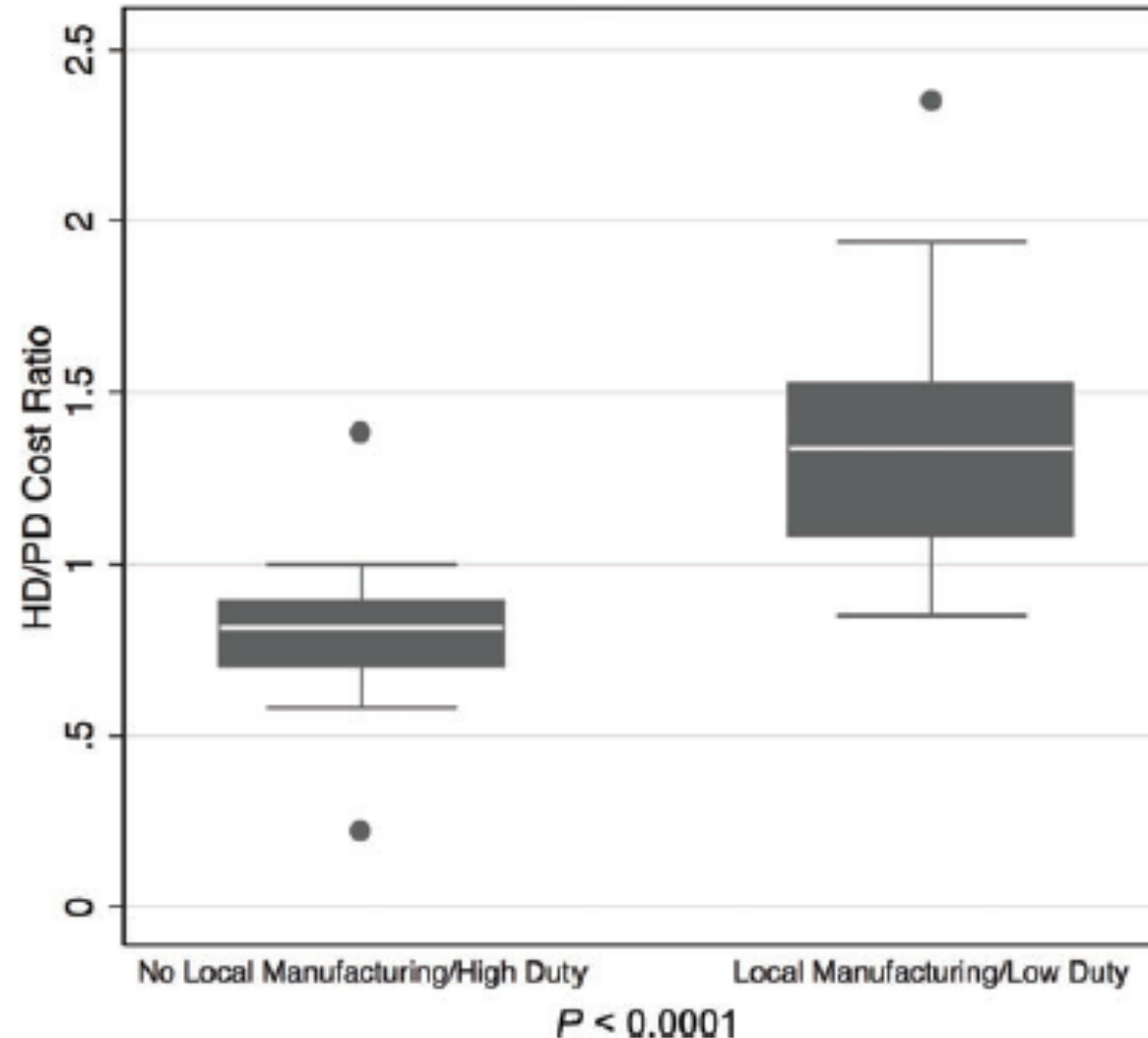
THE COST OF HD AND PD VARIES WORLDWIDE



AS THE COST OF HD RISES, THE OOP EXPENDITURE ON DIALYSIS GOES UP



PD COSTS ARE HIGH WHEN SUPPLIES NEED TO BE IMPORTED AND/OR ARE TAXED



How does government reimbursement for dialysis vary around the world?

Survey study of 1 nephrologist per country



90/94 countries responded



2.6 million patients on dialysis



11.4% PD

World Bank Income Group



Low income



Middle income



High income



Govt reimbursement For HD (median)

\$6396

\$13432

\$36254

Govt reimbursement For PD (median)

\$6935

\$14271

\$26373

Sufficient to cover total cost (%)

29

84

88

Dialysis (% health expenditure)

3.0 ± 2.1

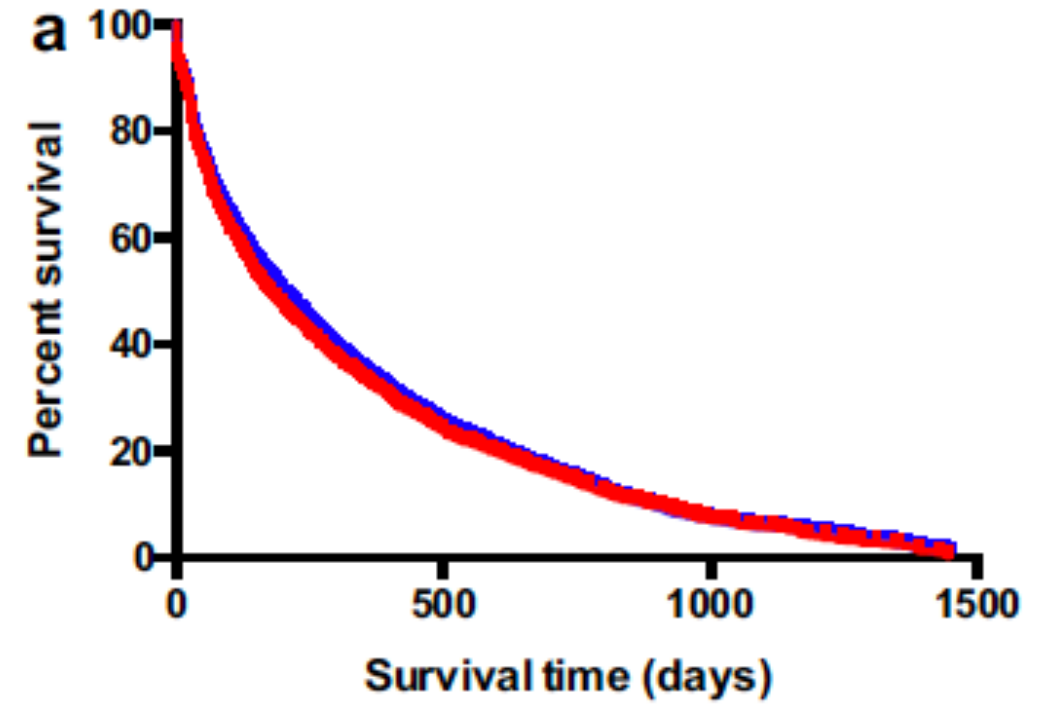
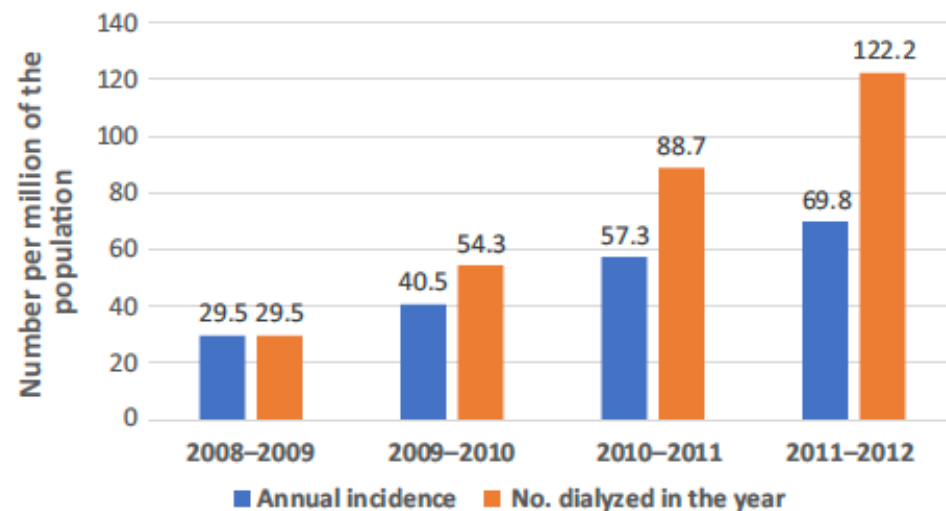
2.7 ± 1.7

1.3 ± 0.8

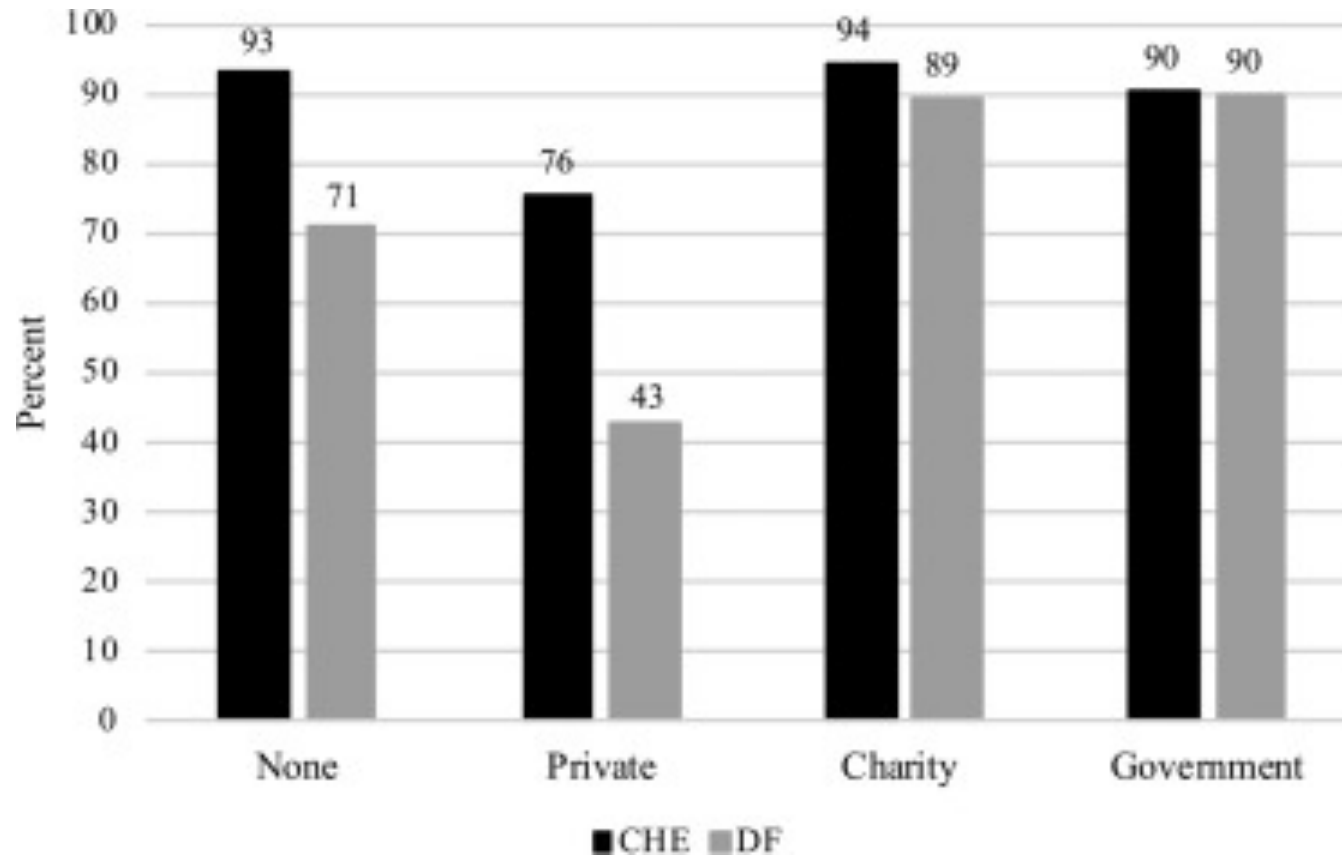
Conclusions In low and middle income countries reimbursement of dialysis is insufficient to treat all patients with ESKD and has a disproportionately high impact on public health expenditure.

Arjan van der Tol, Norbert Lameire, Rachael Morton, Wim Van Biesen, and Raymond Vanholder. An International Analysis of Dialysis Services Reimbursement. CJASN doi: 10.2215/CJN.08150718. Visual Abstract by Michelle Rheault, MD

COST CONTROL AT THE 'COST' OF QUALITY COMPROMISES OUTCOMES

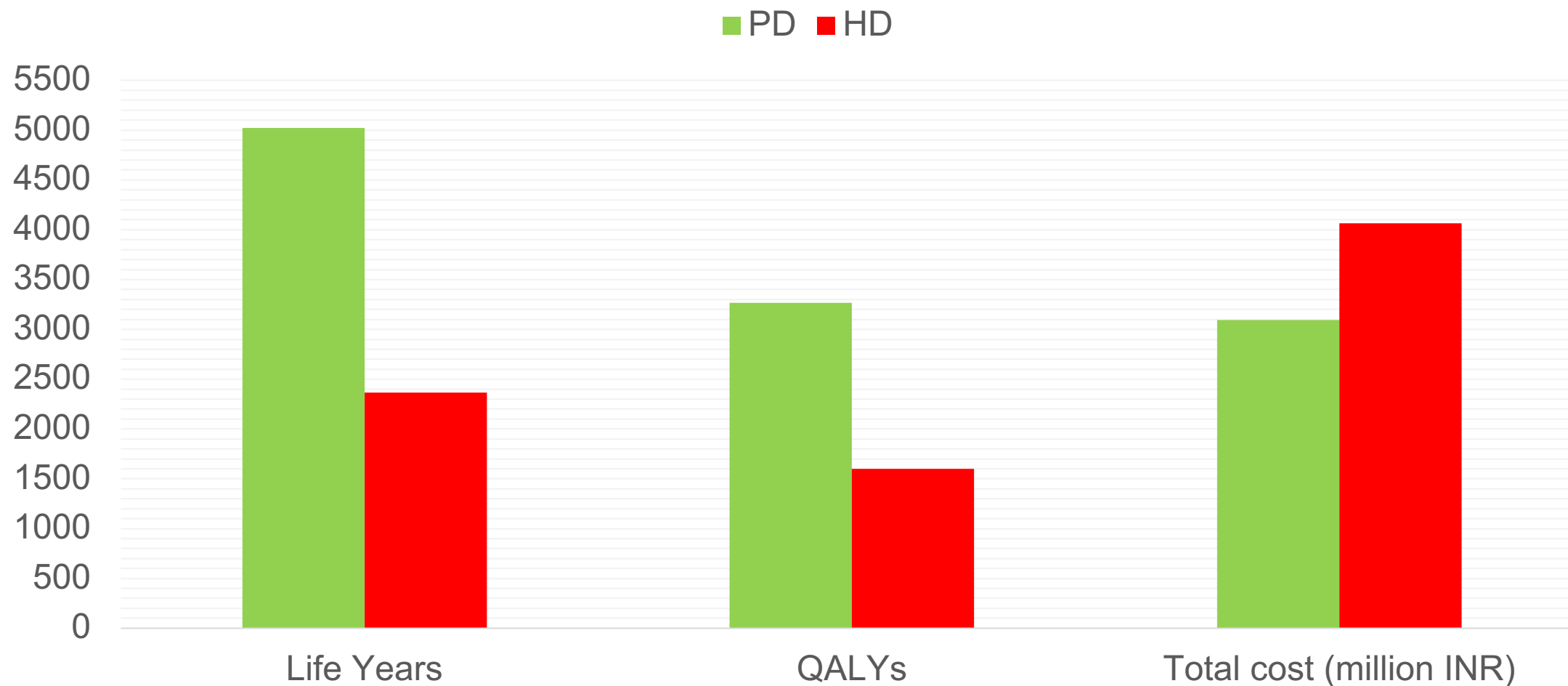


A MAJORITY OF PATIENTS EXPERIENCE CATASTROPHIC HEALTHCARE EXPENDITURE

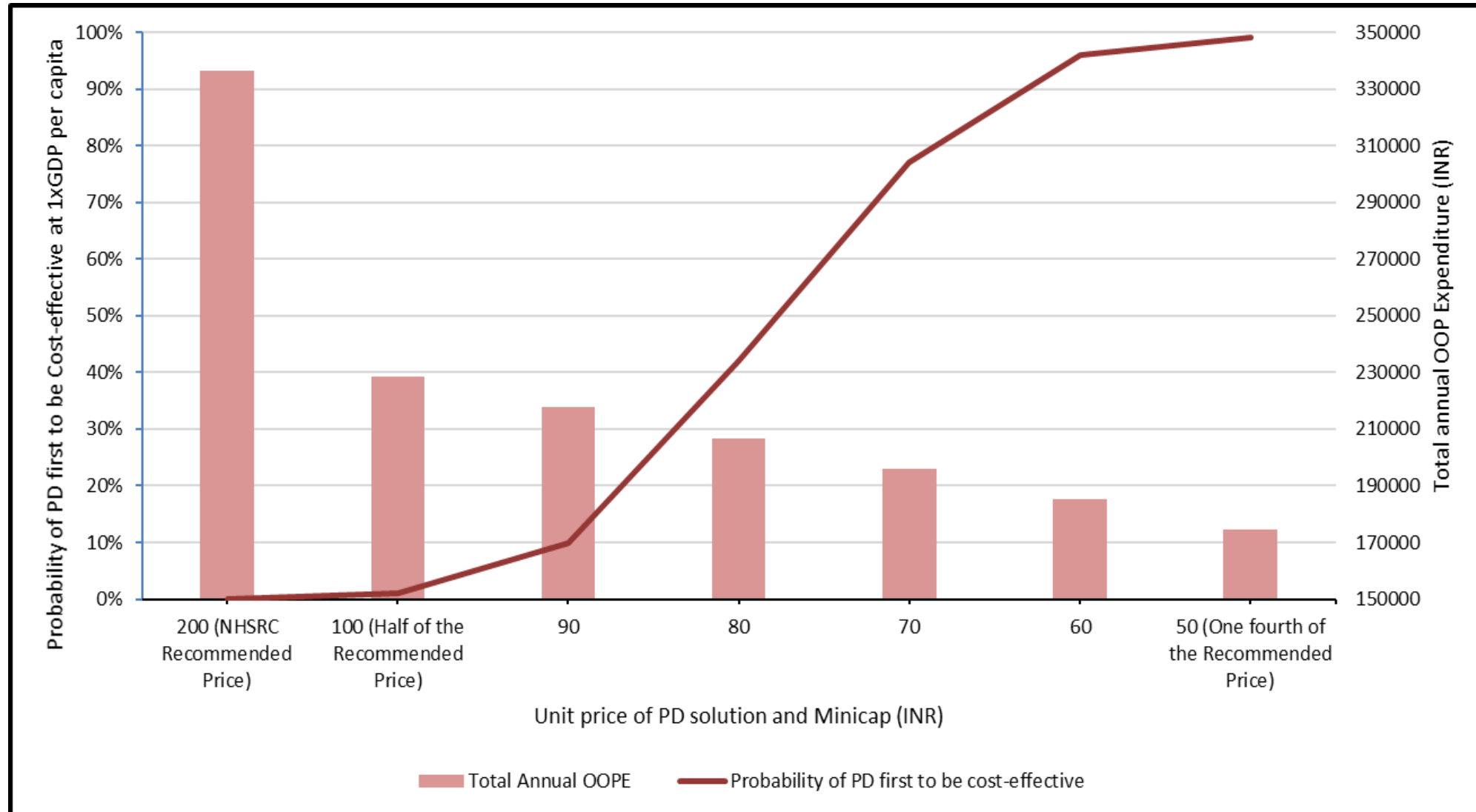


835 patients at 10 dialysis centers in Kerala

MODELED HEALTH OUTCOMES AND COSTS OF HD AND PD IN INDIA

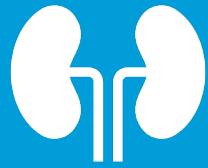


THRESHOLD PRICE ANALYSIS FOR PD CONSUMABLES

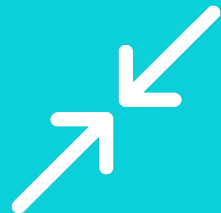




FINANCIAL REFORMS



Reforms in the way nephrologists/dialysis centers are reimbursed: Remove perverse incentives in favor of ICHD



Consumable pricing reforms: local manufacturing, removing tariff barriers, strategic purchasing



MEDICAL BARRIERS

- Lack of expertise in PD catheter insertion
- Crashlanders
- Home situation
- Delayed referrals – few opportunities for SDM

CATHETER INSERTION PROGRAMS

SAVING YOUNG LIVES (SYL): A PARTNERSHIP TO DELIVER SUSTAINABLE ACUTE PD FOR AKI.

SYL works in low-resource areas to help establish and maintain hospital services for the care of AKI, including facilities for acute PD.

SYL focuses on providing training and educational activities in the community to improve awareness and equip local health practitioners to prevent and identify cases needing hospital care.

SYL is made up of four equal partners, each bringing complementary missions and expertise to the initiative:

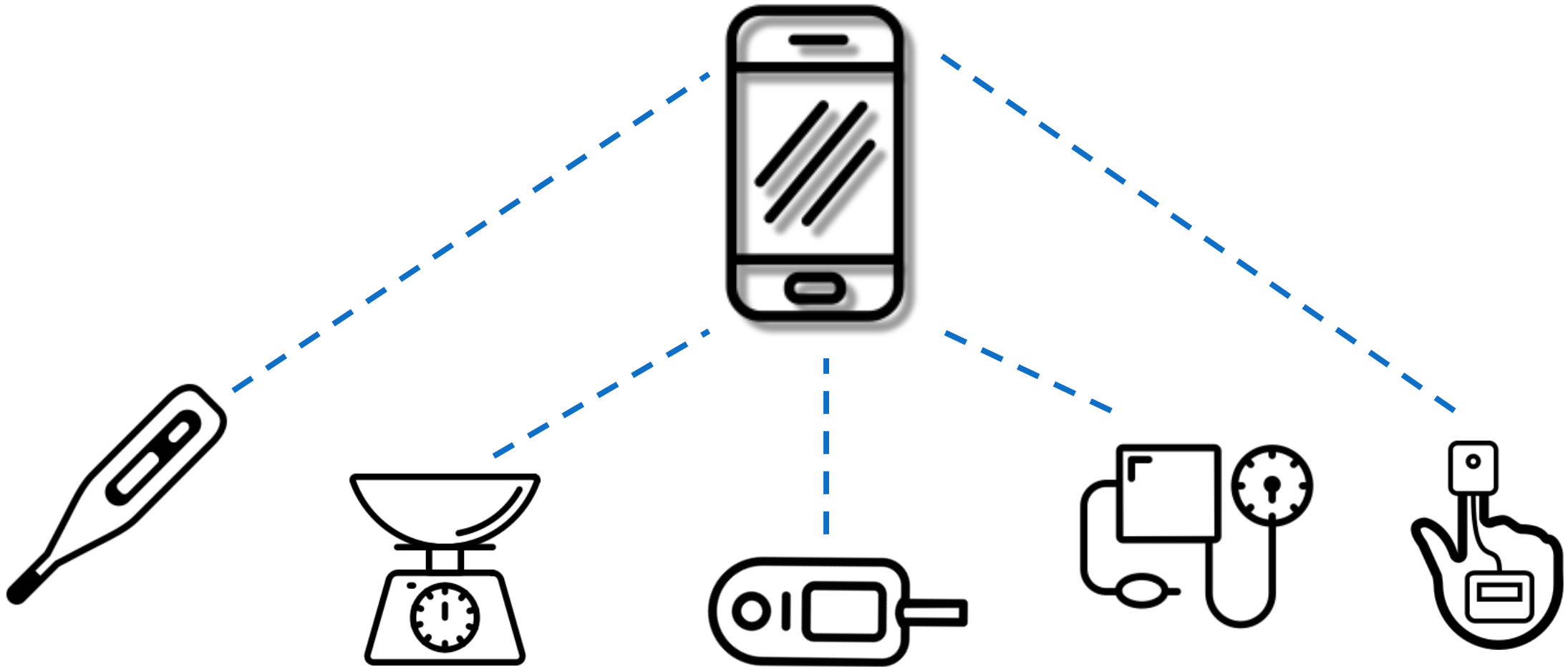


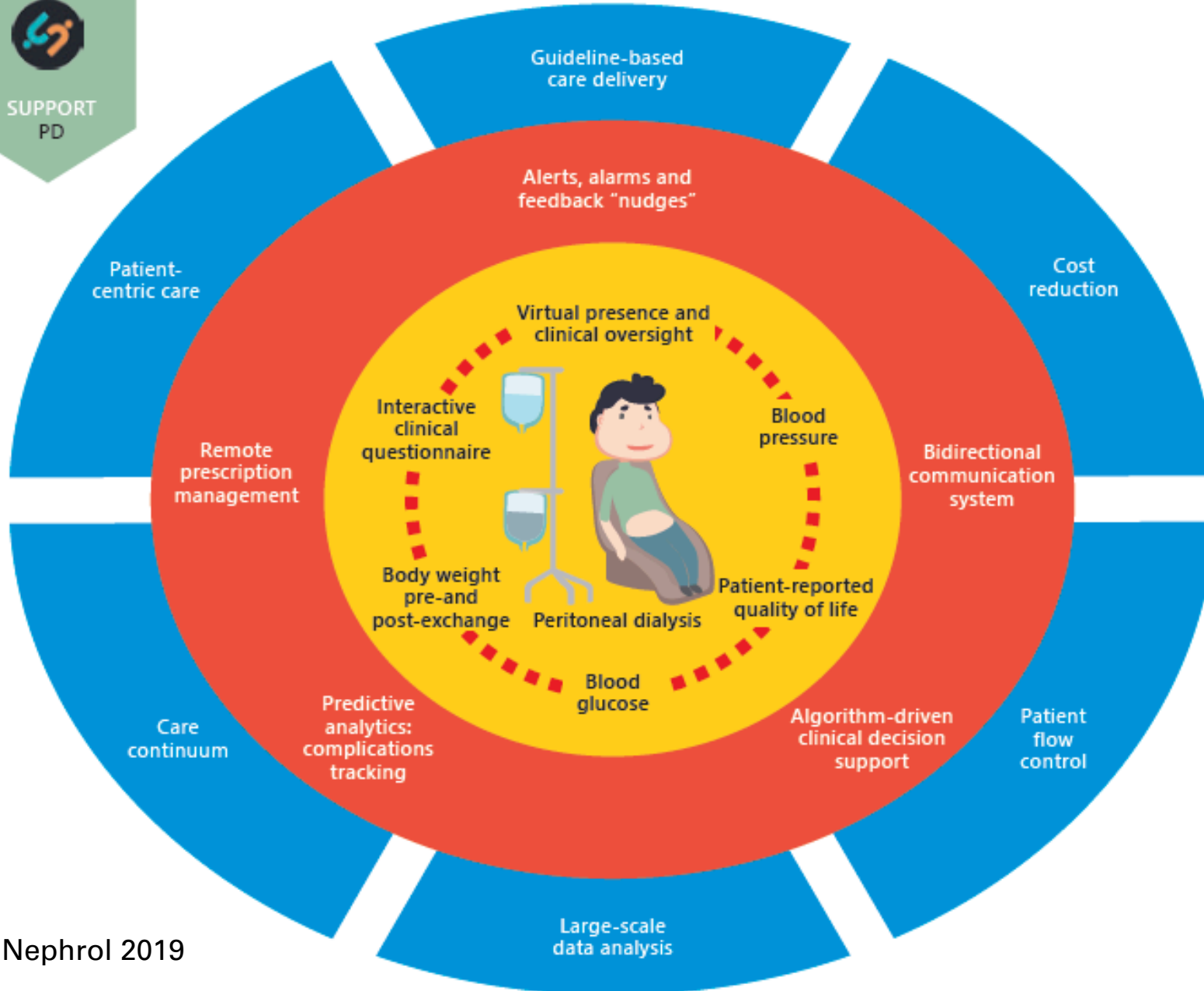
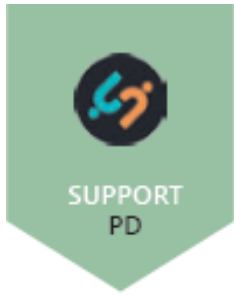
- IPNA (International Pediatric Nephrology Association)
- ISN (International Society of Nephrology)
- ISPD (International Society for Peritoneal Dialysis)
- EuroPD (European Peritoneal Dialysis)

Remote monitoring



TELEMEDICINE AS AN ENABLER OF HOME DIALYSIS





Remote Automated Peritoneal Dialysis Management in Colombia

Remote Patient Monitoring (RPM)



Cellular Modem Device Connected to APD Cycler Transmits:
Number of sessions, therapy time, effective dialysis time, fill volume, drainage volume, ultrafiltration per cycle, blood pressure, and weight.

49 adult patients with end-stage renal disease

- Previous 90-day history of automated peritoneal dialysis (APD)
- Functioning peritoneal catheter
- APD prescription for treatment 7 days/week
- Pre-/post-intervention study design
 - 2 months without RPM
 - 1-month transition
 - 2 months with RPM

Without
RPM

With
RPM

Prescription Adjustments

10%

35%

$P = 0.0073$

Preemptive Consultations

14%

43%

$P = 0.0017$

Diastolic Blood Pressure

81 mmHg

77 mmHg

$P = 0.0070$

CONCLUSION:

Remote patient monitoring has an early impact on APD management by incentivizing therapy adjustments with the goal of optimizing patient care and improving clinical outcomes.

Is the use of a remote treatment monitoring system associated with hospitalization and technique failure rates among those on PD?

Kidney360

Cohort

6,343 adult patients on PD



24.9% frequent remote treatment monitoring system users



64.5% non remote treatment monitoring systems users



Results at 6 months

Incidence rate of hospital admission



24%

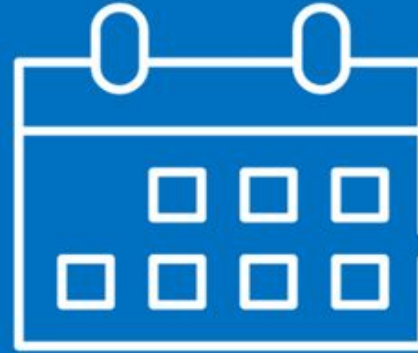
lower in those using RTM system

Incidence rate ratio

0.76

CI 0.67-0.87

Incidence rate of hospital days



35%

lower in those using RTM system

Incidence rate ratio

0.65

CI 0.51-0.85

Incidence of sustained technique failure risk



31%

lower in those using RTM system

Incidence rate ratio

0.69

CI 0.54-0.88

Conclusions Our findings suggest frequent use of a RTM application associates with less hospital admissions, shorter hospital length of stay, and lower technique failure rates. Adoption of RTM applications may have the potential to improve timely identification/intervention of complications.

Sheetal Chaudhuri, Hao Han, Carlos Muchiutti, et al. *Remote Treatment Monitoring on Hospitalization and Technique Failure Rates in Peritoneal Dialysis Patients*. Kidney360 doi: 10.34067/KID.0000302019. Visual Abstract by Pablo Garcia, MD

TELEHEALTH AWARENESS

Heard of telemedicine	11 (37)
Able to define telemedicine in their own words	12 (40)
Correctly identifies an example of telemedicine	12 (40)
Aware of statute law expanding telehealth to home dialysis patients.	0

Has a device to perform telehealth	
Computer	15 (50)
Tablet	10 (33)
Smartphone	25 (83)
Access to Internet services	27 (90)

30 patients, urban dialysis facility in US

OPPORTUNITIES FOR INNOVATION

- Education
- Training
- Home assessment
- Allied care – diet, physical therapy, meds
- Multidisciplinary care
- Checklists
- Visit preparedness





TASK-SHIFTING

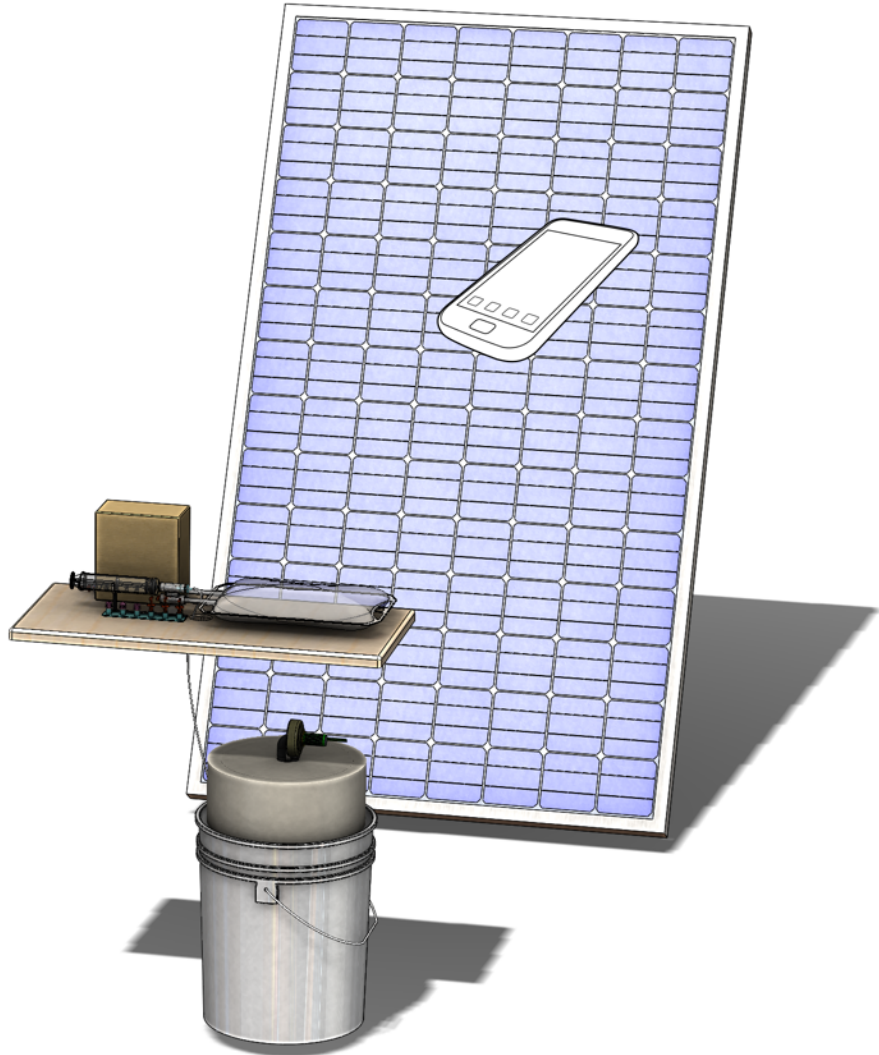
SUSTAINABILITY

THE SEARCH FOR A SOLUTION – THE AFFORDABLE DIALYSIS PRIZE

- Created by TGI and ISN in 2015
- A search for a new, disruptive, affordable dialysis system which
 - is light, portable and runs on solar power
 - can purify water from any source
 - is just as safe and effective as conventional dialysis
 - costs less than US\$1000 to manufacture
 - and a few dollars a day to run
- A global expert judging panel considered entries from around the world
- ... and unanimously chose a winner



THE AFFORDABLE DIALYSIS PRIZE – US \$100K AWARDED TO VINCENT GARVEY, MARCH 2016



- The winning entry:
prepares peritoneal dialysis fluid
at the point of care using solar power
and water from any source.
- Controlled by a smartphone.
- Cost: around \$500 for kit plus \$5-10 a day.



Webinar: COVID19 for the Nephrologist: Real-Life experience from Italy

ISN Academy, & Dr. Arvind Canchi D. 03/20/20; 290431



Dr. Francesco Iannuzzella, Prof. Vivekanand Jha & Dr. Arvind Canchi

Contributions



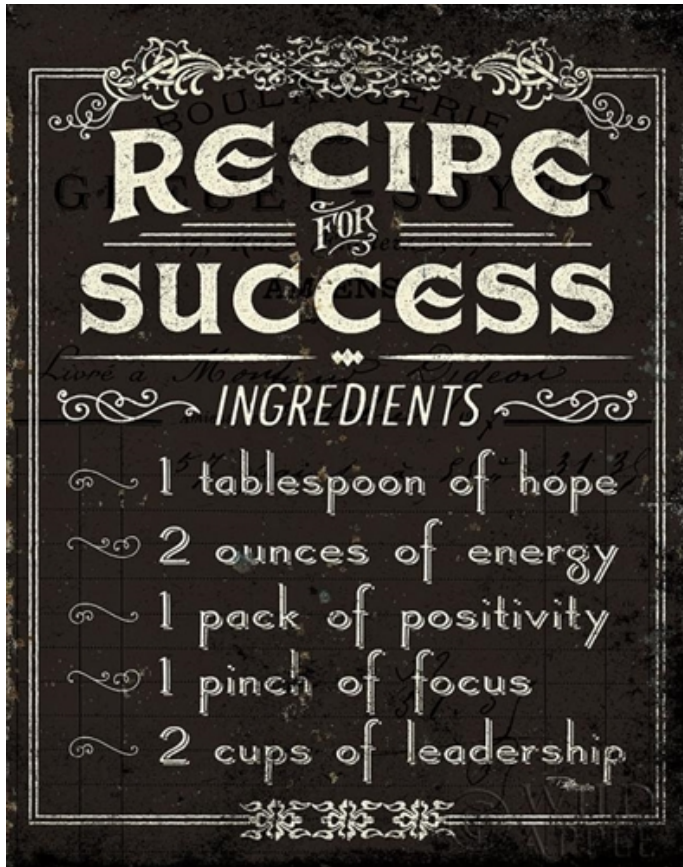
PRESENTATION



COVID-19 FOR THE NEPHROLOGIST. REAL LIFE EXPERIENCE FROM ITALY.

Francesco Iannuzzella, MD
@ISNeducation, SC di Nefrologia e
Dialisi, IRCCS-AUSL
Arcispedale Santa Maria Nuova,
Reggio Emilia, Italy

CONCLUSIONS: DEVELOPING A RECIPE FOR SUCCESS



- Identify the goal
 - Patient centeredness
 - Consistent with UHC principles
- Map out the knowledge gap
 - Generate robust evidence
 - Shared decision making
- Develop a contextualised solution
 - Resource-sensitive
 - Quality-oriented
 - Participative

