



La maladie rénale en Afrique (et dans le monde)

Mohammed Benghanem Gharbi

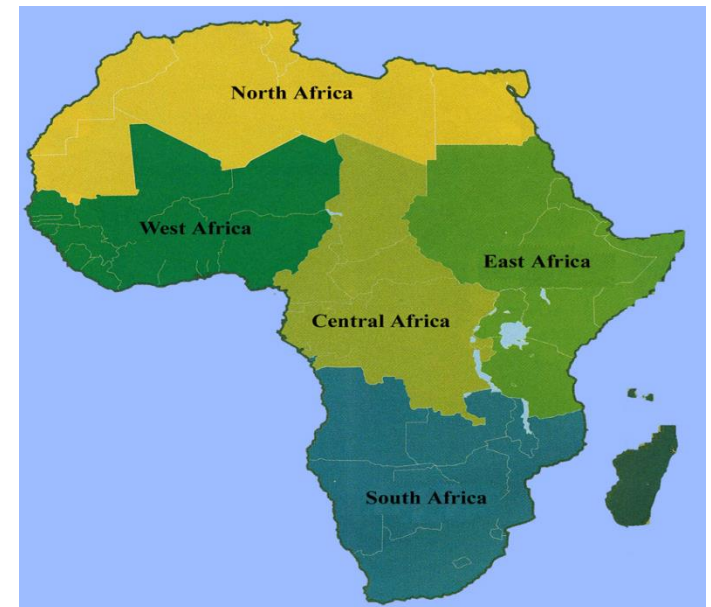
Chair, ISN Africa Board

Service de Néphrologie, CHU Ibn Rochd, Casablanca

mbenghanem@hotmail.fr

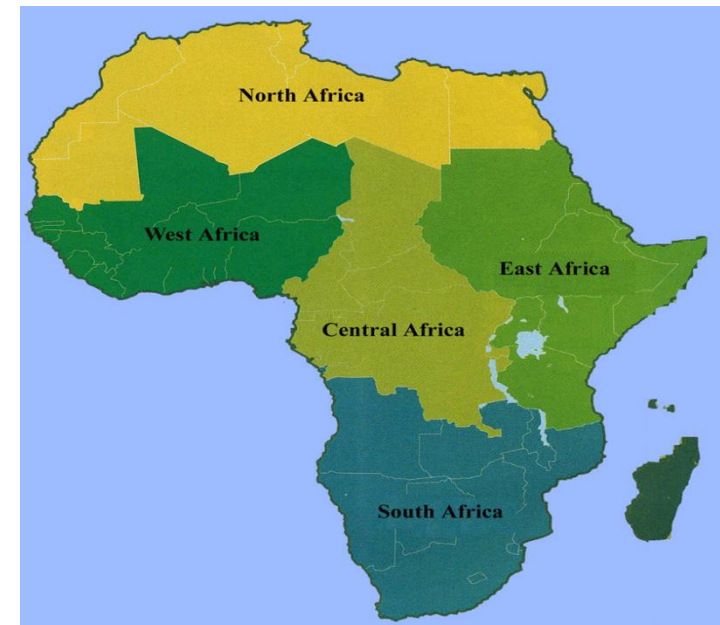
Défis

- **41%:** avec moins de 1,25 \$ / jour
- **70% :** sans accès à des installations sanitaires
- **21-94%:** sans couverture des soins prénataux
- Systèmes de santé faibles

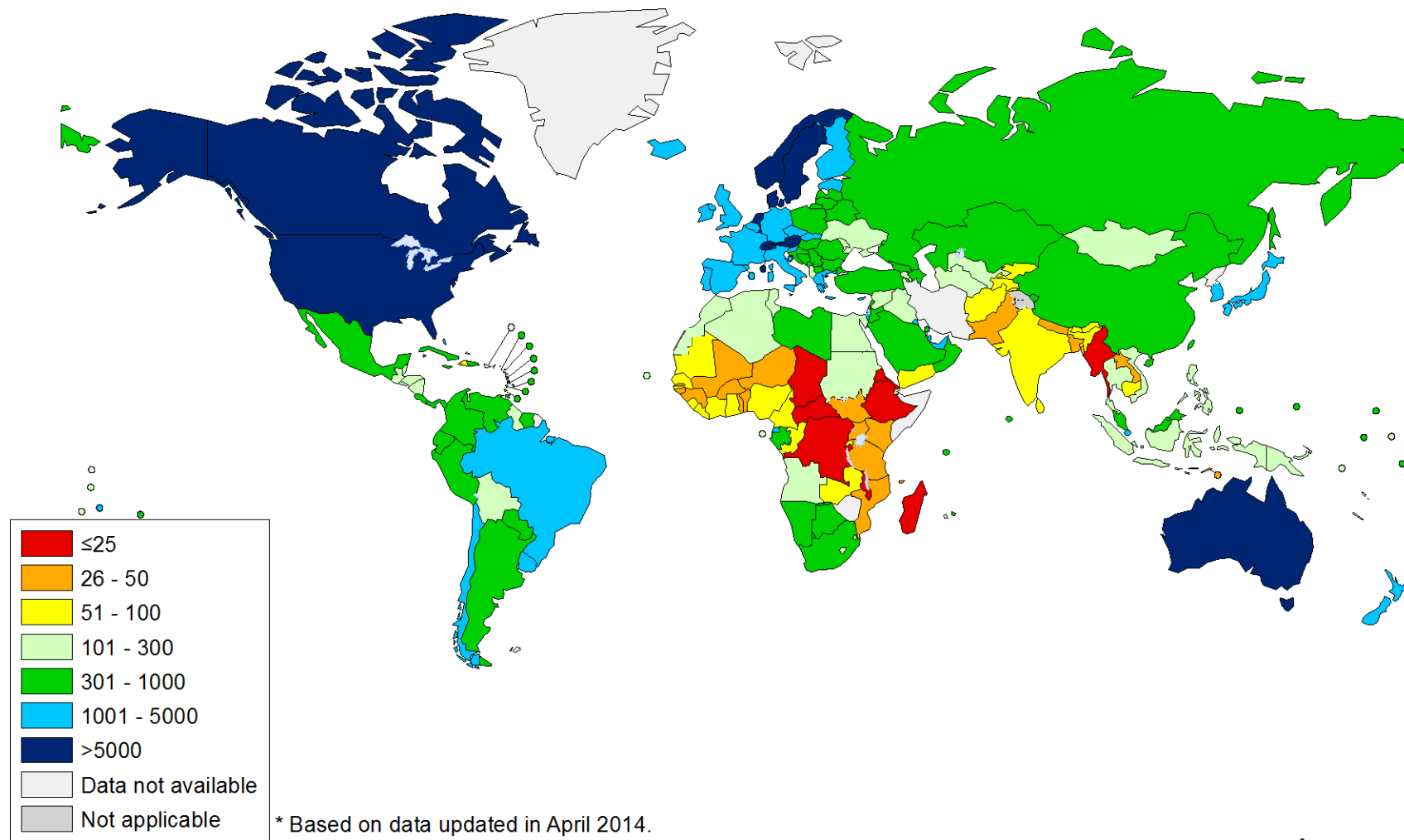


Défis

- Conflits armés / non armés
- Densité et répartition des personnels de santé
- Persistance des maladies transmissibles
- MNT en hausse
- Accès inégal aux soins



Dépenses de santé par habitant, en USD



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

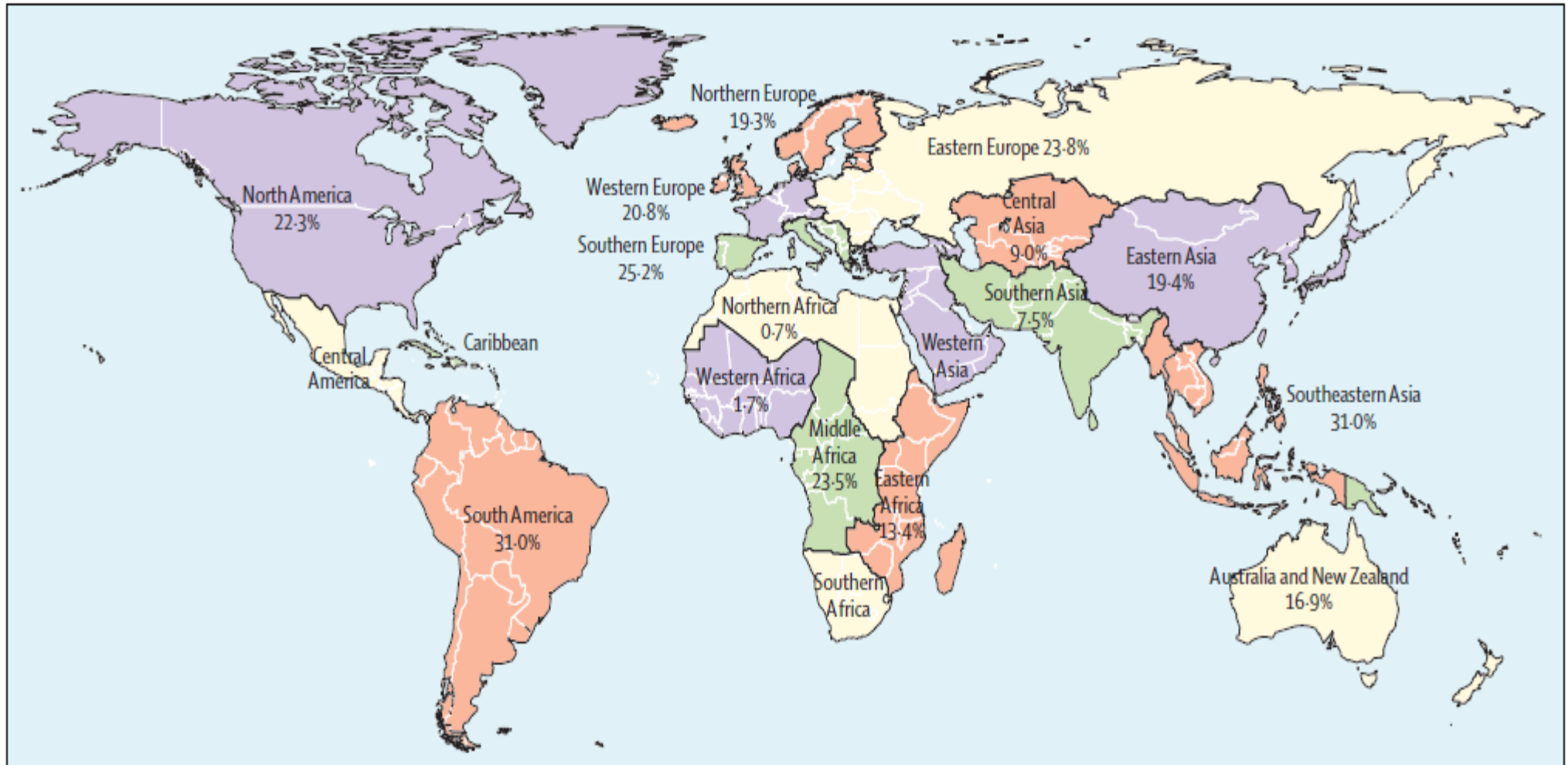
Data Source: Global Health Observatory, WHO
Map Production: Health Statistics and
Information Systems (HSI)
World Health Organization



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L'INSUFFISANCE RENALE AIGUE

Incidence de l'IRA intra-hospitalière



IRA en Afrique Sub-Saharienne



Outcomes of acute kidney injury in children and adults in sub-Saharan Africa: a systematic review



Wasiu A Olowu*, Abdou Niang*, Charlotte Osafo, Gloria Ashuntantang, Fatiu A Arogundade, John Porter, Saraladevi Naicker, Valerie A Luyckx



Summary

Background Access to diagnosis and dialysis for acute kidney injury can be life-saving, but can be prohibitively expensive in low-income settings. The burden of acute kidney injury in sub-Saharan Africa is presumably high but remains unknown. We did a systematic review to assess outcomes of acute kidney injury in sub-Saharan Africa and identify barriers to care.

Lancet Glob Health 2016;
4: e242-50

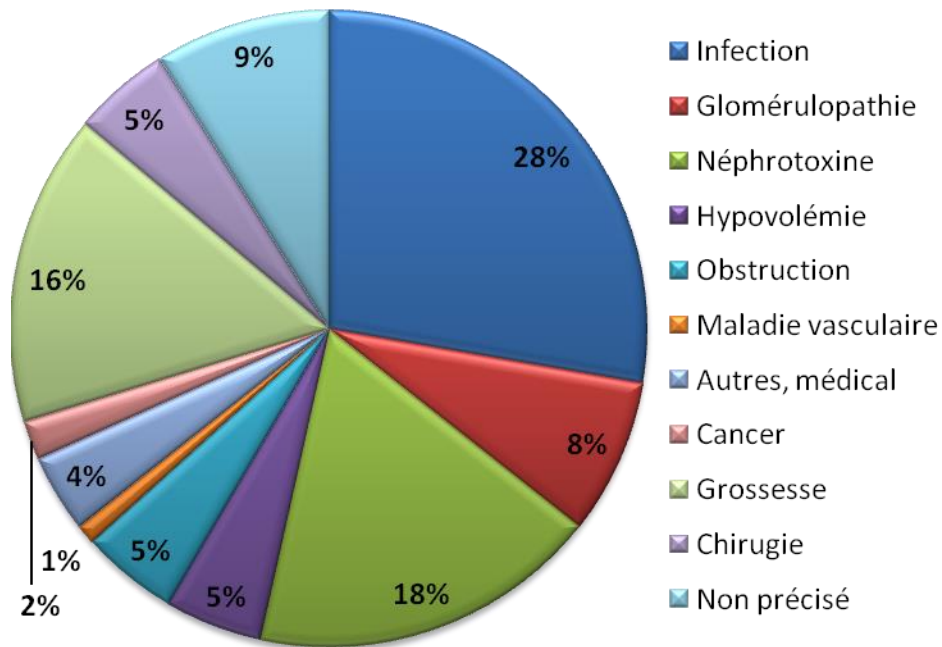
See [Comment](#) page e216

* These authors contributed
equally

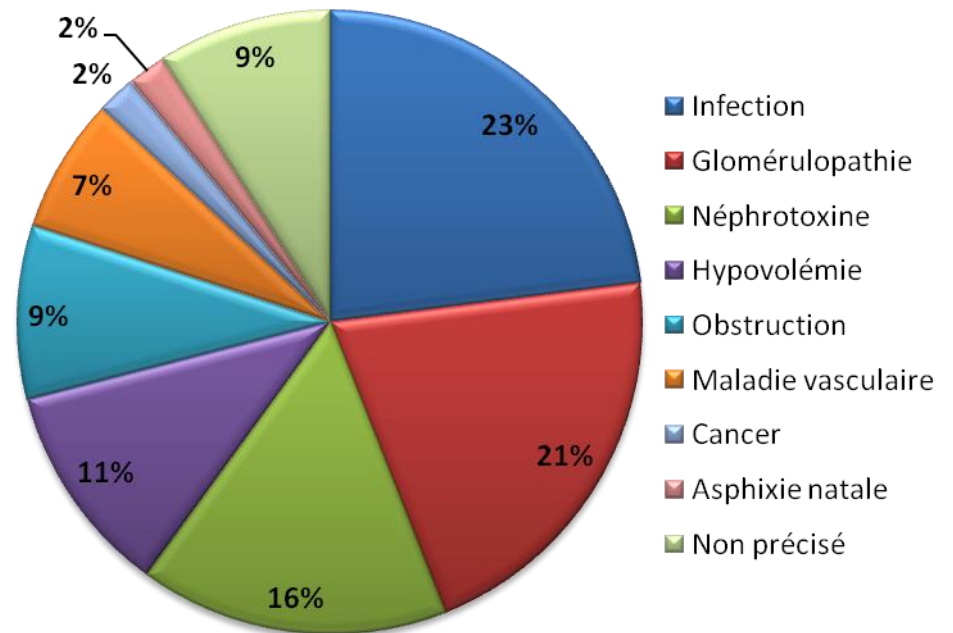
Causes d'IRA en Afrique SS



Adultes

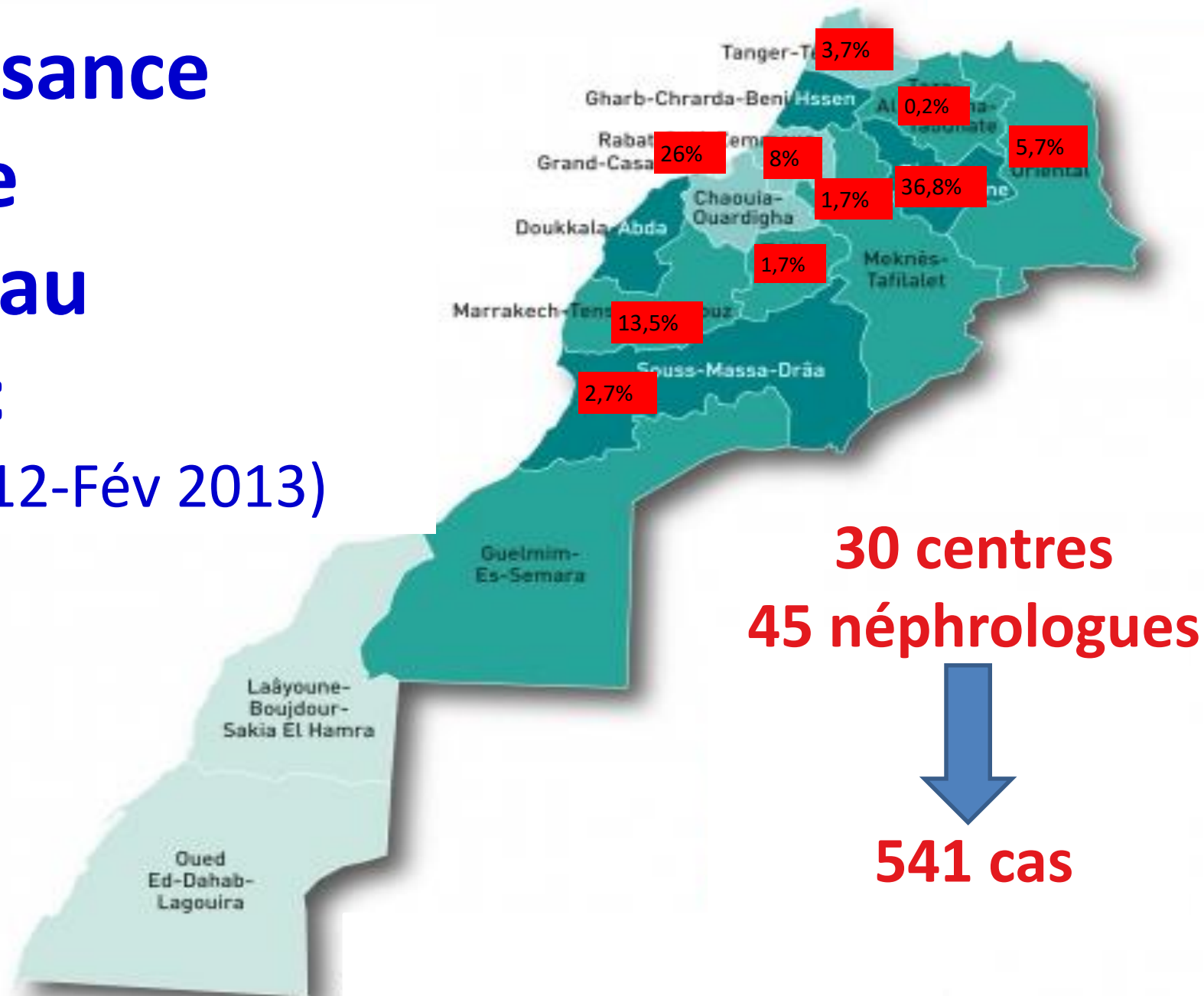


Enfants

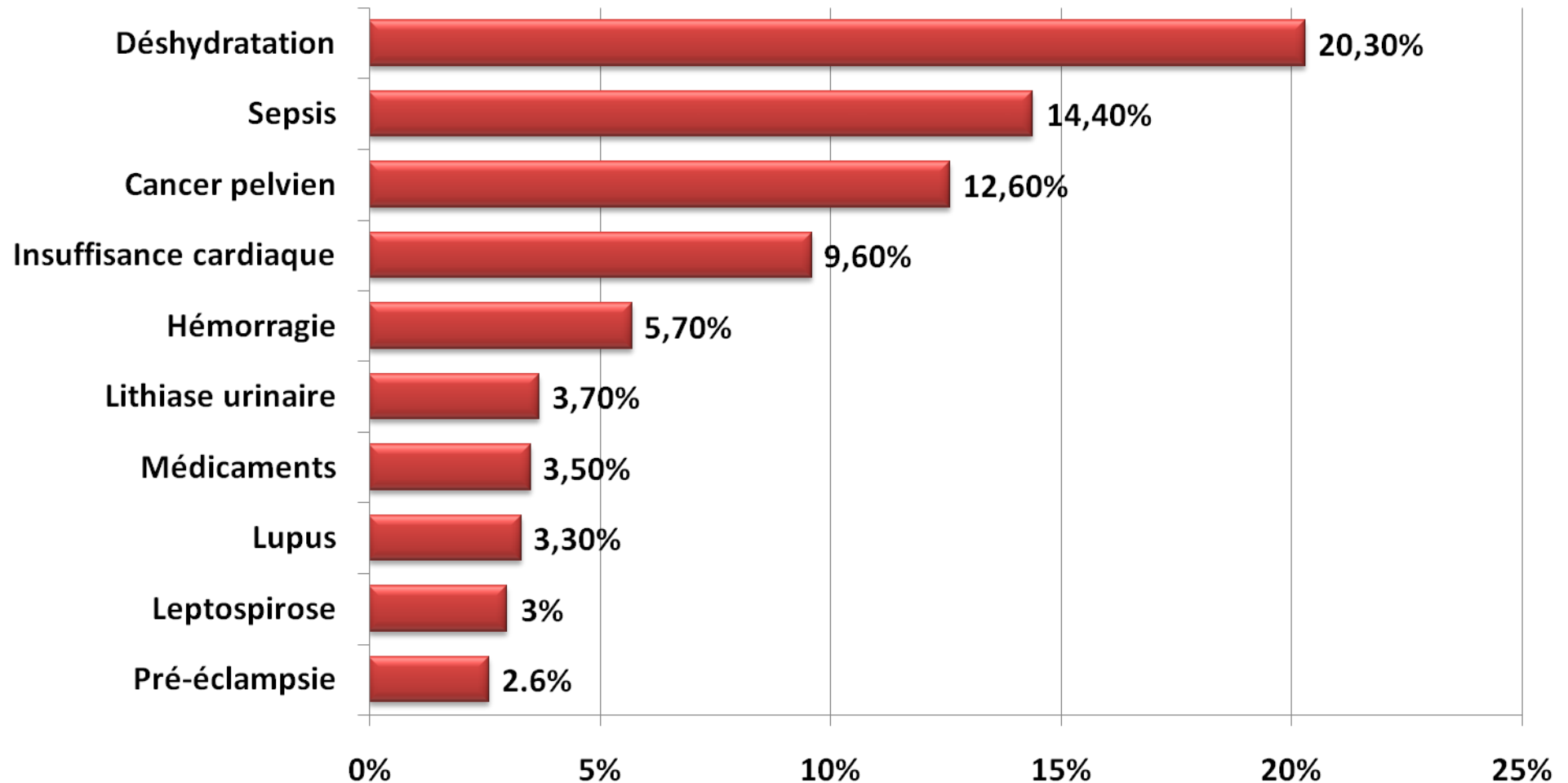


Insuffisance Rénale Aiguë au Maroc

(Sept 2012-Fév 2013)



IRAM: les 10 premiers déterminants étiologiques

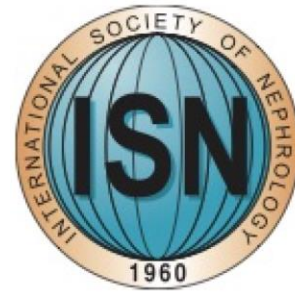




0by25 **AKI**  **Global Snapshot**

Global Snapshot project

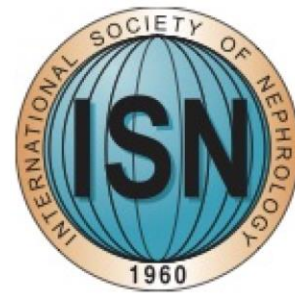
Rapport de région- Afrique



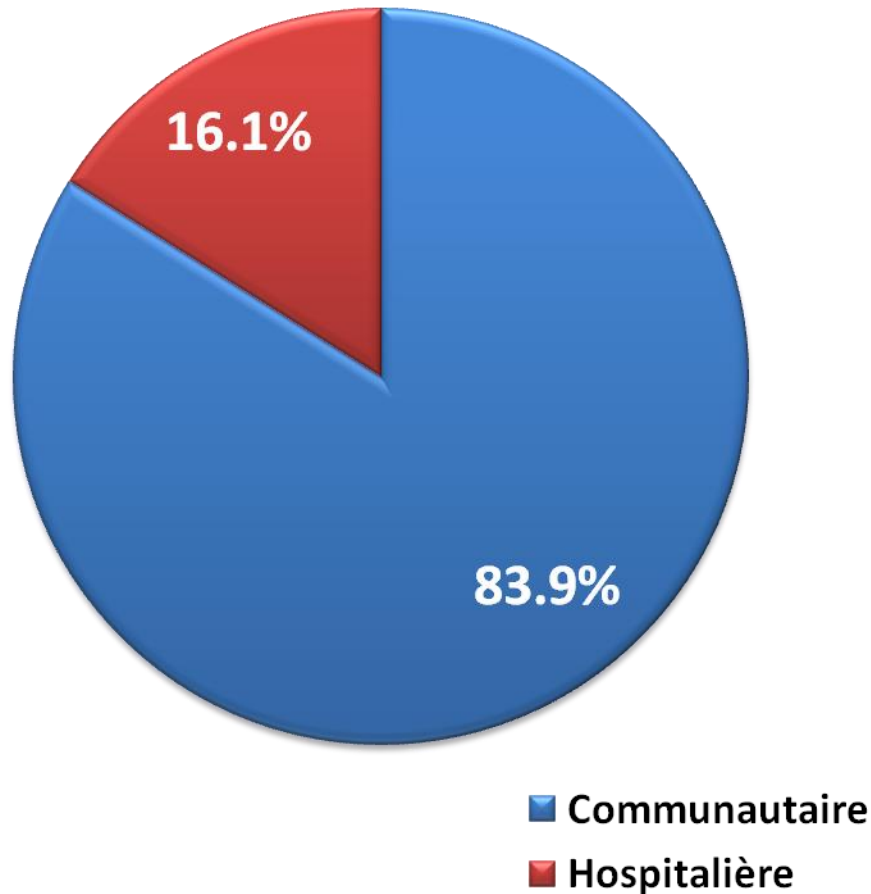
- **Période:** 29 Septembre - 7 Décembre 2014
- **Nombre :** 507 patients
- **Pays:**
 - Nord: Maroc, Egypte, Tunisie
 - Ouest: Sénégal, Ghana, Niger, Nigéria
 - Centre: Cameroun,
 - Est : Ethiopie, Kenya, Soudan, Tanzania,
 - Sud: Malawi, Afrique du Sud

Global Snapshot project

Rapport de région- Afrique



Oby25
AN ISN HUMAN RIGHTS INITIATIVE



- **Age médian (ans):** 53
(34.0–65.0)
- **Patients USI:** 19%
- **IRA hospitalière:** 15%

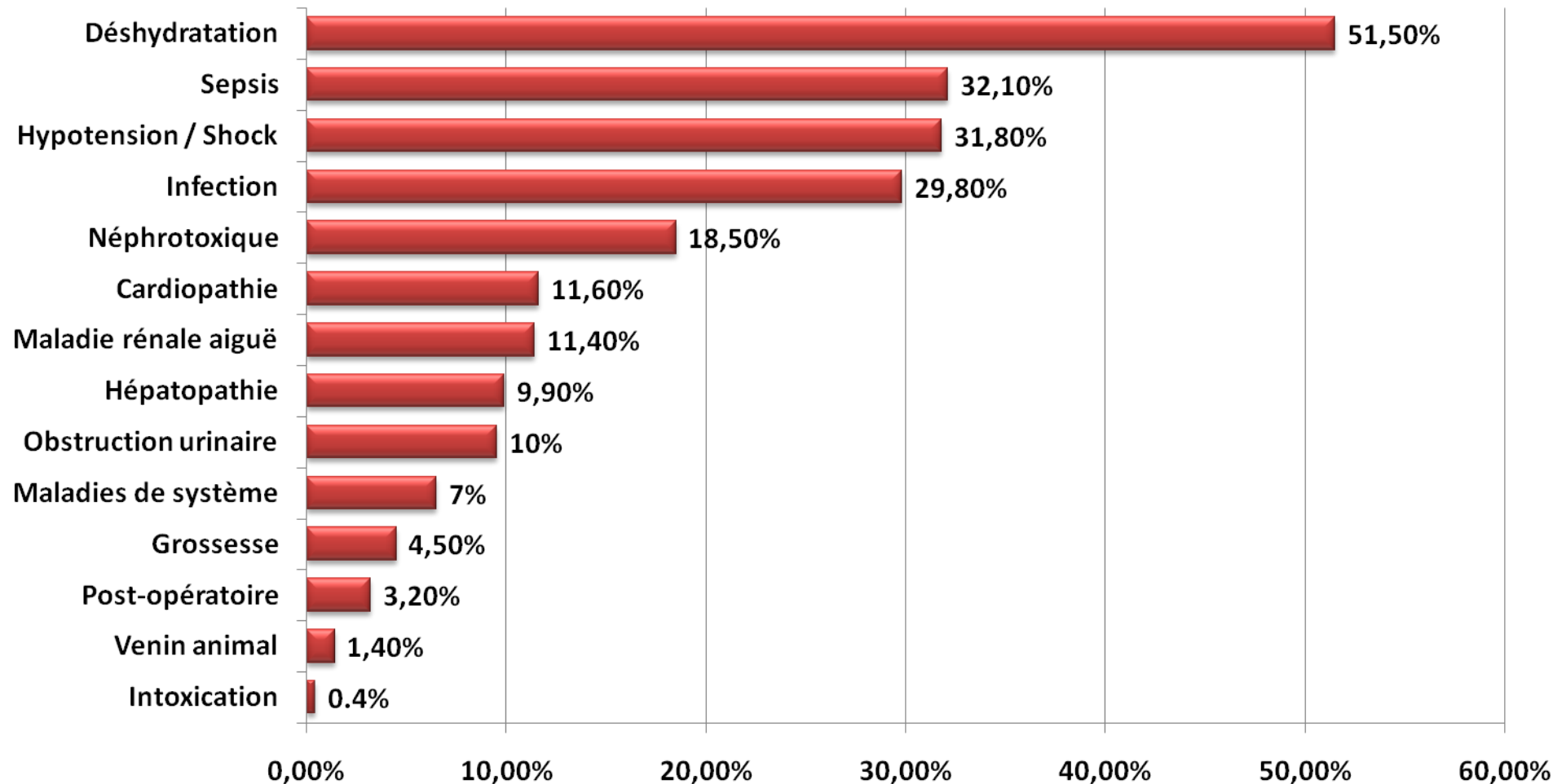
Mehta RL et al. Lancet 2016; 387: 2017–25

Global Snapshot project

Rapport de région- Afrique



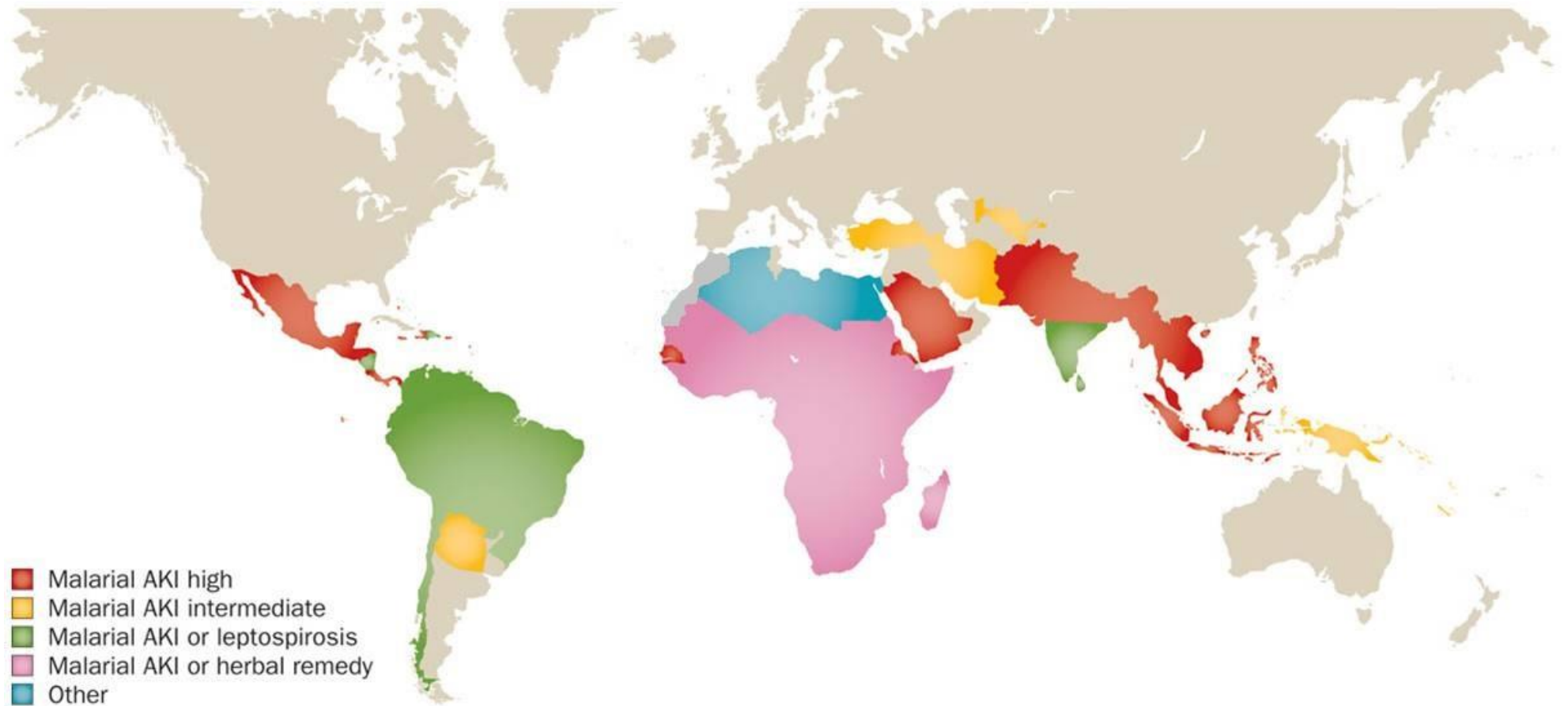
Oby25
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Facteurs étiologiques

	N	Total (n=4015)	HICs (n=1260)	UMICs (n=1605)	LLMICs (n=1153)
Aetiological risk factors					
Dehydration	1536	38%	492 (39%)*	518 (32%)†	526 (46%)‡
Hypotension or shock	1615	40%	564 (45%)*	611 (38%)	440 (38%)‡
Cardiac	905	23%	306 (24%)*	448 (28%)†	151 (13%)‡
Liver	331	8%	97 (8%)	148 (9%)	86 (7%)
Acute kidney disease	488	12%	140 (11%)*	150 (9%)†	198 (17%)‡
Urinary obstruction	320	8%	99 (8%)	11 (1%)†	110 (10%)
Infection	1291	32%	363 (29%)	516 (32%)	412 (36%)‡
Pregnancy related	56	1%	5 (<1%)	15 (1%)†	36 (3%)‡
Systemic diseases	322	8%	118 (9%)	151 (9%)†	53 (5%)‡
Nephrotoxic agents	980	24%	365 (29%)*	349 (22%)	266 (23%)‡
Poisoning	73	2%	27 (2%)	23 (1%)	23 (2%)
Envenomation	35	1%	4 (<1%)	11 (1%)†	20 (2%)‡
Post-surgery	269	7%	116 (9%)*	109 (7%)†	44 (4%)‡
Sepsis	1123	28%	341 (27%)*	331 (21%)†	451 (39%)‡

IRA malariale



Maroc: Plantes néphrotoxiques



Chenopodium Ambrosioidis



Colchicum autumnale



Nigella sativa



Atractylis Gummifera



Peganum harmala



Afrique du Sud: IRA et toxiques



Maroc - Casablanca: IRA liée à la grossesse

Tableau I: Etiologies de l'IRA obstétricale.

	Nombre	%
• PE-E	41	74,5
• Etats septiques	6	11
– PNA	1	1,8
– Sepsis post-IVG	4	7,3
– Chorioamniotite	1	1,8
• Hémorragies obstétricales	4	7,2
– HRP	2	3,6
– Hémorragie par inertie utérine	1	1,8
– Hémorragie post-abortum	1	1,8
• MFIU	3	5,5
• Post-césarienne	1	1,8

Tableau 1
Causes de IRAH en obstétrique.

	Nombre	%
Prééclampsie/éclampsie	39	67,2
Hémorragie	15	25,9
Sepsis	5	8,6
Mort fœtale	2	4
Stéatose hépatique aiguë gravidique	1	2

Hachim K et al. Néphrologie Vol. 22 n° 1 2001, pp. 29-31

Miguil M, et al. Néphrol ther(2011),doi:10.1016/ j.nephro.2010.12.003

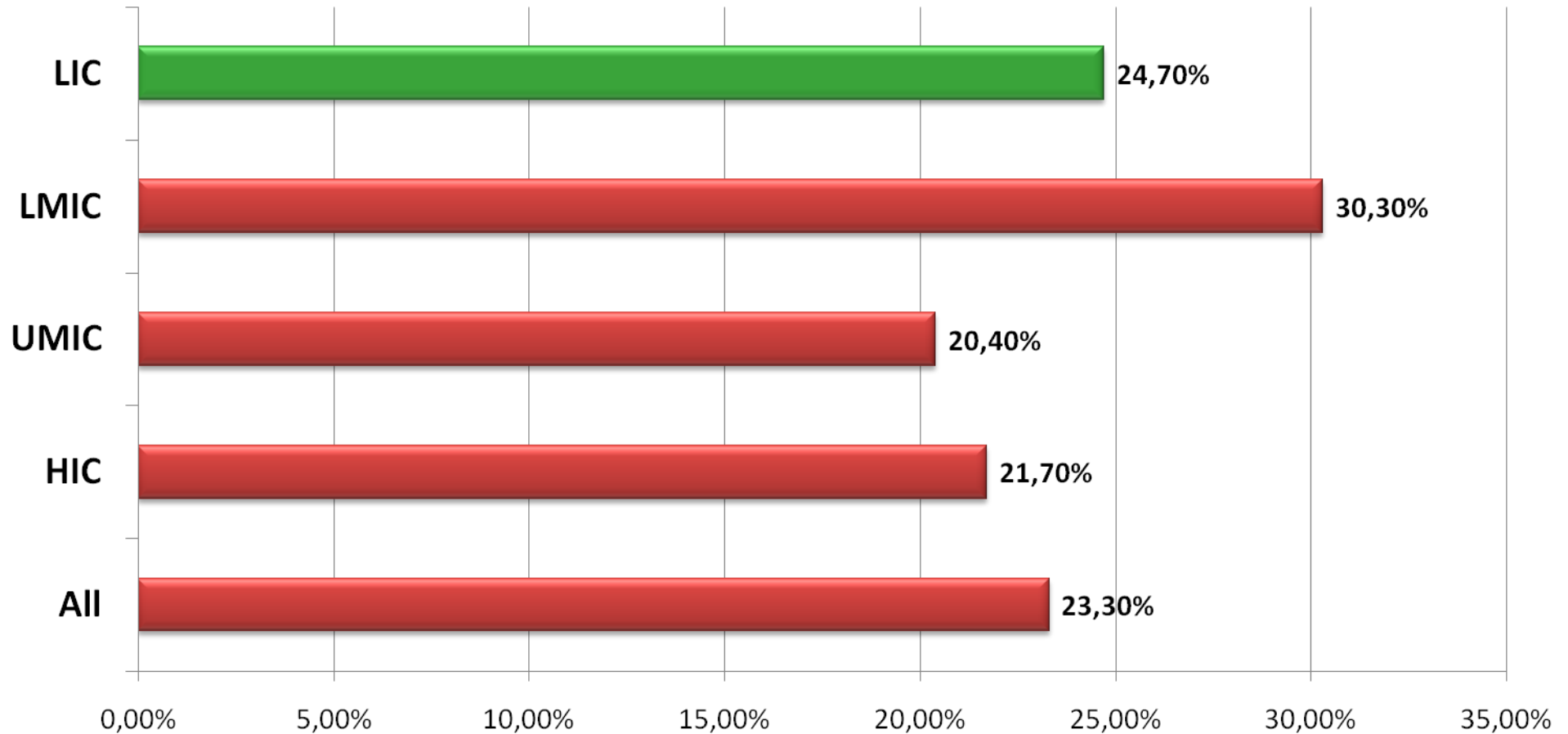
Diagnostic

	N	All	HICs (n=1260)	UMICs (n=1605)	LLMICs (n=1153)
Community acquired	2337	58%	633 (50%)	815 (51%)†	889 (77%)‡
Location*					
Emergency room	705	18%	242 (19%)	284 (18%)	179 (16%)‡
ICU	1238	31%	481 (38%)*	427 (27%)	330 (29%)‡
Ward or step down unit	1820	45%	485 (38%)*	807 (50%)†	528 (46%)‡ ←
Outpatient clinic	190	5%	33 (3%)*	76 (5%)†	81 (7%)‡
At acute kidney injury diagnosis§					
sCr (μmol/L)	3718	221.9 (146.0–390.0)	215.0 (143.0–362.4)	203.3 (135.0–335.9)†	288.2 (176.8–512.7)‡ ←
BUN (mmol/L)	3272	18.7 (11.4–30.7)	19.6 (12.0–31.0)*	16.0 (10.2–25.9)†	23.9 (14.3–37.1)‡ ←
Urine output past 24 h (mL)	2329	760 (300–1500)	700 (290–1440)*	1000 (400–1655)†	500 (200–1100)‡ ←
Criteria for acute kidney injury diagnosis*					
sCr (alone)	..	2839 (71%)	845 (67%)*	1273 (79%)†	721 (63%)‡
Oliguria (alone)	..	257 (6%)	131 (10%)*	37 (2%)†	89 (8%)‡
sCr and urine output	..	887 (22%)	277 (22%)*	291 (18%)†	319 (28%)‡
Stage at diagnosis (n=3679)					
1	..	1376 (37%)	424 (37%)*	644 (44%)†	308 (29%)‡
2	..	552 (15%)	192 (17%)	227 (15%)†	133 (13%)‡
3	..	1751 (48%)	540 (47%)*	606 (41%)†	605 (58%)‡ ←

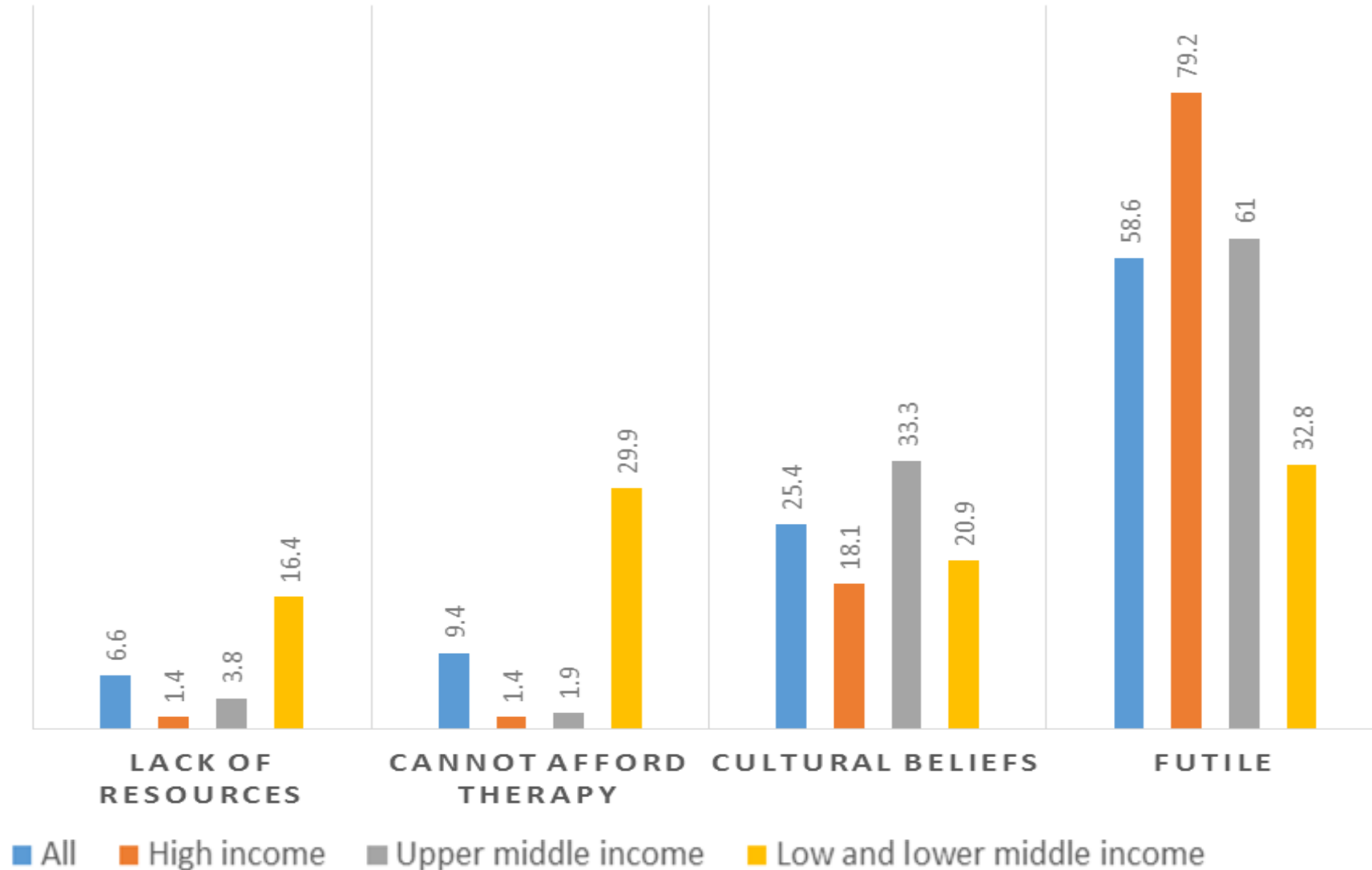
Data are n (%), mean (SD), or median (IQR). HICs=high-income countries. UMICs=upper-middle-income countries. LLMICs=low-income and lower-middle-income countries. ICU=intensive care unit. BUN=blood urea nitrogen. sCr=serum creatinine. Statistically significant at 5% with bootstrap correction:* compared with UMICs; †compared with LLMICs; ‡compared with HICs.

Table 3: Acute kidney injury location and characteristics by gross national income per person

Pourcentage des patients bénéficiant de dialyse

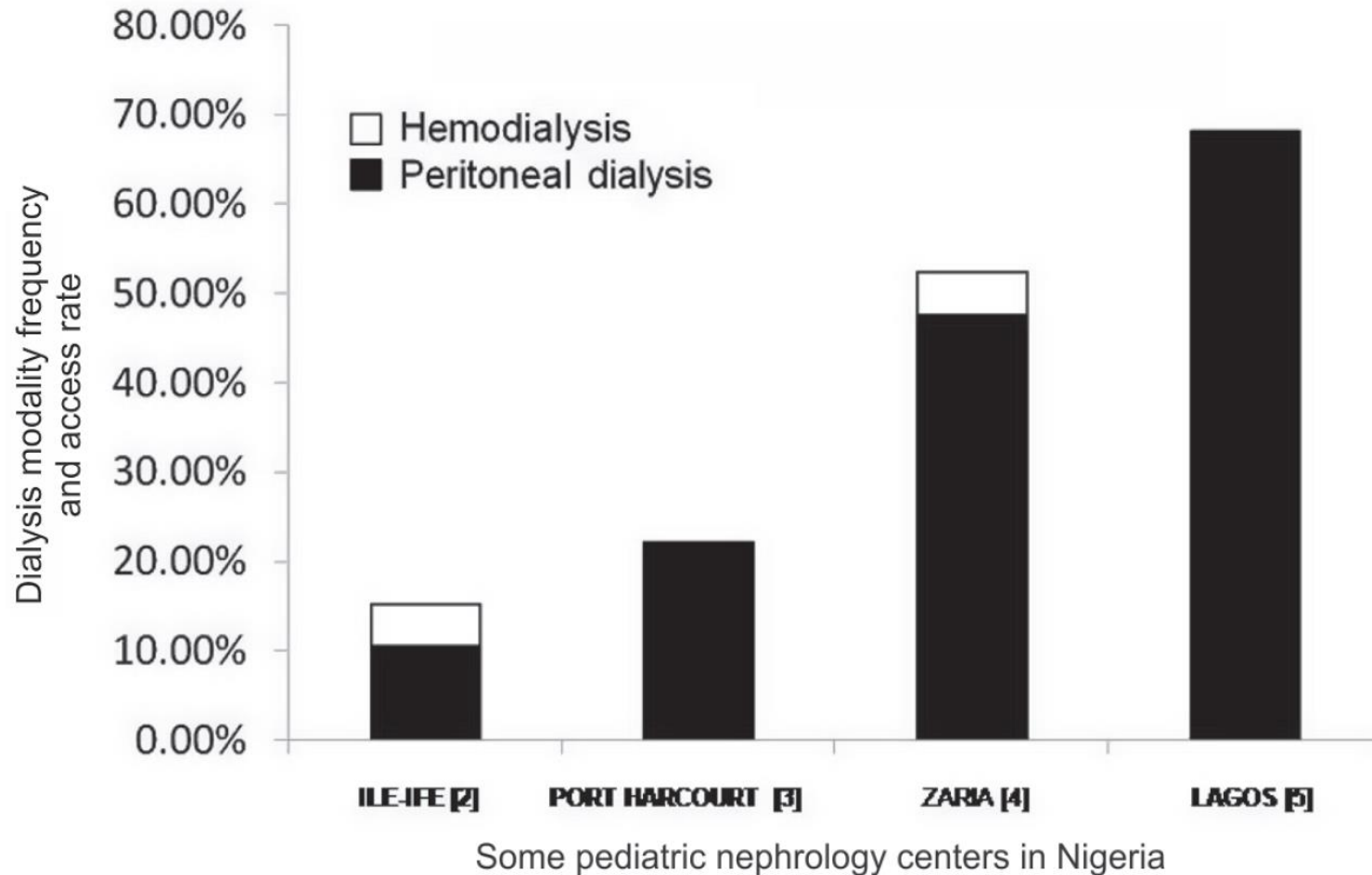


Raisons de non-dialyse



IRA chez l'enfant au Nigeria:

Accès à la dialyse



Coût de l'HD (US\$) pour IRA dans le secteur libéral

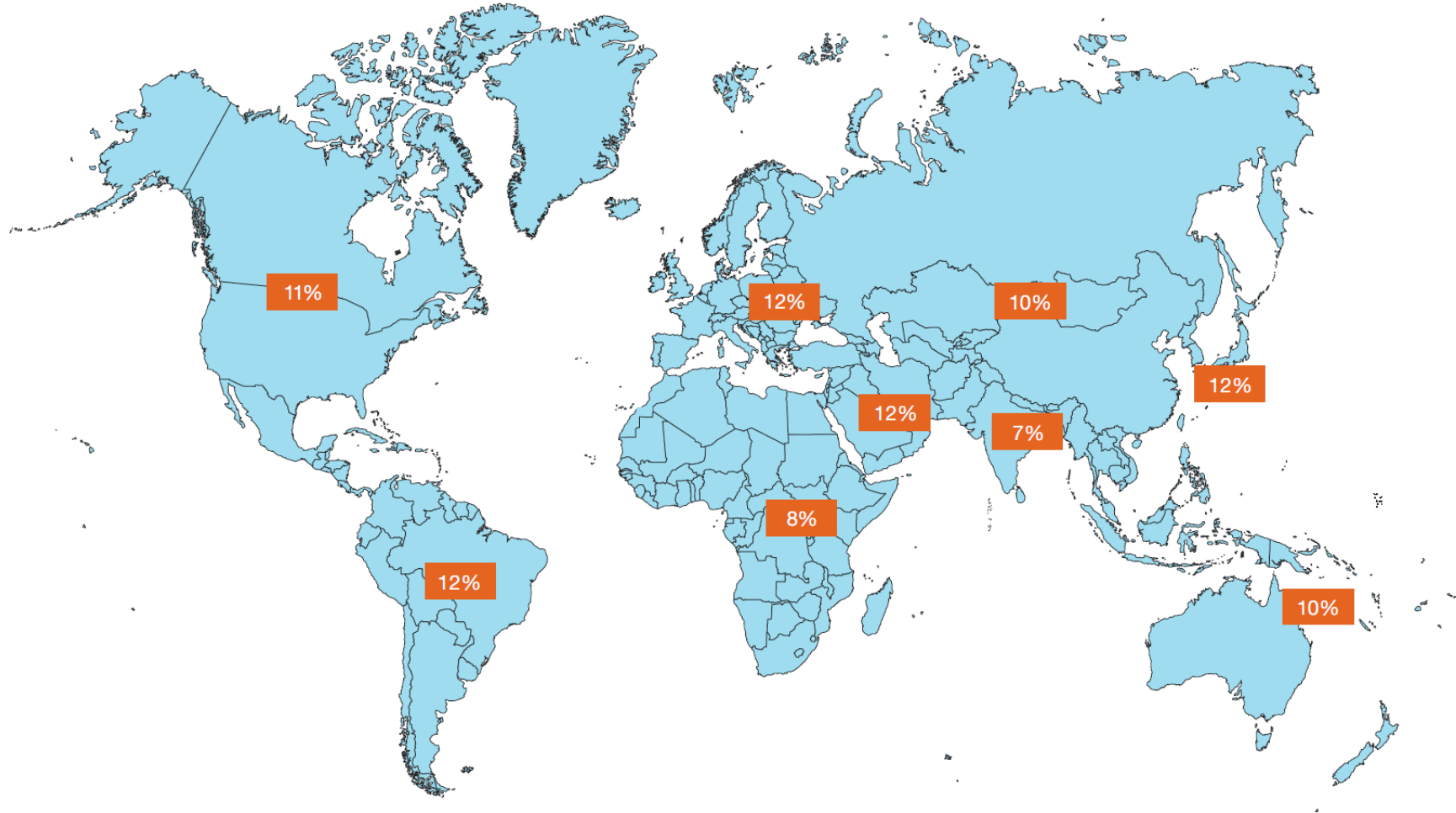
Country	Costs for day 1 includes treatment and catheter	Costs for individual treatments	Total costs for 6 treatments
Uganda	600	100	1,100
Ethiopia	260	100	760
Nigeria	260	125	885
Ghana	300	100	800
Kenya	500	90	900
Tanzania	500	150	1,250

Profil de l'IRA selon le pays

	AKI in high-income countries	AKI in low-income and middle-income countries
Pattern of occurrence	Occurs predominantly in intensive care units	Occurs in health centres and hospitals in rural areas and large hospitals and intensive care units in large cities
Disease patterns	Associated with multiple organ failure	Often caused by a single disease; multiple organ failure less common
Associations	Associated with sepsis and complex surgery (major trauma, cardiovascular surgery)	Frequently associated with specific disease (eg, diarrhoea) and specific infection (eg, malaria)
Mortality	High mortality	Same or lower mortality than in high-income countries
Populations affected	A disease of elderly populations	A disease of young, otherwise healthy people
Prevalence	Could be increasingly prevalent	Could be increasingly prevalent?
Sufficiency of reporting	Accurately reported	Severely under-reported
Preventable status	Difficult to prevent	Preventable
Expense	Very expensive to treat	Very inexpensive to treat at early stages, too costly for most at severe stages

LA MALADIE RENALE CHRONIQUE

Prévalence de la MRC



Revue systématique: Afrique Sub-saharienne

	Study quality (number of studies)*	Number of people	Mean age (years)	Population characteristics				Prevalence by method of chronic kidney disease measurement			Prevalence by disease-specific population		
				Male (%)	Diabetes (%)	HIV (%)	Hyper- tension (%)	Proteinuria	Modification of Diet in Renal Disease	Cockcroft- Gault	Diabetes	HIV	Hyper- tension
Eastern region													
Burundi	Low (1)	245	40	20%	2%	100%	2%	..	..	..	..	..	..

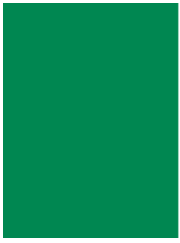
All countries,
by study quality

Low (68);
Medium (25);
High (3)

Region	Study quality	Number of people	Mean age (years)	Male (%)	Diabetes (%)	HIV (%)	Hypertension (%)	Proteinuria	Modification of Diet in Renal Disease	Cockcroft-Gault	Diabetes	HIV	Hypertension
Senegal	Low (1)	587	41	60%	54%	..	..	..	..	..	..	..	..
Sudan	Medium (1); ³⁰ low (5)	2011	37.2	44%	29%	..	8%	6%	3%	6%	8%	..	..
Central region													
Cameroon	Medium (3) ^{38,43}	2194	30	41%	..	..	13%	7.3%	..	4%	..	4.0%	..
DRC	High (2); ^{45,46} medium (1); ³¹ low (5)	5267	50.6	50%	25%	10%	33%	16.0%	8.6%	15.0%	19.8%	..	19.9%
All countries, by study quality	Low (68); Medium (25); High (3)	15 939; 39 680; 4465	37; 35; 45.9	33%; 39%; 52%	60%; 6%; 6%	25%; 82%; ..	23%; 4%; 16%	..	..	..	14.1%; 11.9%; 19.8%	..	18.8%; 14.8%

DRC=Democratic Republic of Congo. *References for low-quality studies given in the appendix.

Table: Chronic kidney disease in sub-Saharan Africa by country and comorbidity



Nigeria, Sud-Est

Ulası I.I, Ijoma C.K. , Onodugo O.D, Arodiwe E.B,
Ifibunandu N.A, Okoye J.U.

- **Étude populationnelle**
- Communautés rurales et semi urbaines
- 1941 participants, âge moyen: 43.7 ± 13.2 années
- Prévalence:
 - Hypertension: 26.1%
 - Diabète: 5.9%
 - Obésité: 14.9%
 - Anomalies urinaires: 19%
 - **MRC: 11.4%**

Courtesy of Prof. Ulası I.I.
Poster, WCN, Vancouver, 2011



Chronic kidney disease, hypertension, diabetes, and obesity in the adult population of Morocco: how to avoid “over”- and “under”-diagnosis of CKD

Mohammed Benghanem Gharbi^{1,6}, Monique Elseviers^{2,6}, Mohamed Zamd¹, Abdelali Belghiti Alaoui³, Naïma Benahadi³, El Hassane Trabelssi³, Rabia Bayahia⁴, Benyounès Ramdani¹ and Marc E. De Broe^{5,6}

Table 3 | Prevalences according to age categories and adult population of Morocco

	Observed prevalence (%)	Observed prevalence according to age (%)			Adjusted prevalence according to the Moroccan population	
	N = 10,524	26–40 yr	41–55 yr	56–70 yr	%	95% CI
		n = 3506	n = 3689	n = 3329		
Hypertension	21.9	7.2	20.3	39.2	16.7	16.0–17.4
Diabetes	16.8	6.2	17.8	26.7	13.4	12.8–14.1
Obesity	24.2	18.3	28.2	25.9	23.2	22.4–24.0
CKD	6.7	3.0	5.3	12.0	5.1	4.7–5.5
eGFR <60	2.7	0.5	1.3	6.6	1.6	1.4–1.8
Proteinuria	1.6	0.9	1.2	2.7	1.3	1.1–1.5
Hematuria	3.4	1.9	3.3	5.2	2.4	2.1–2.7

MRC par stades

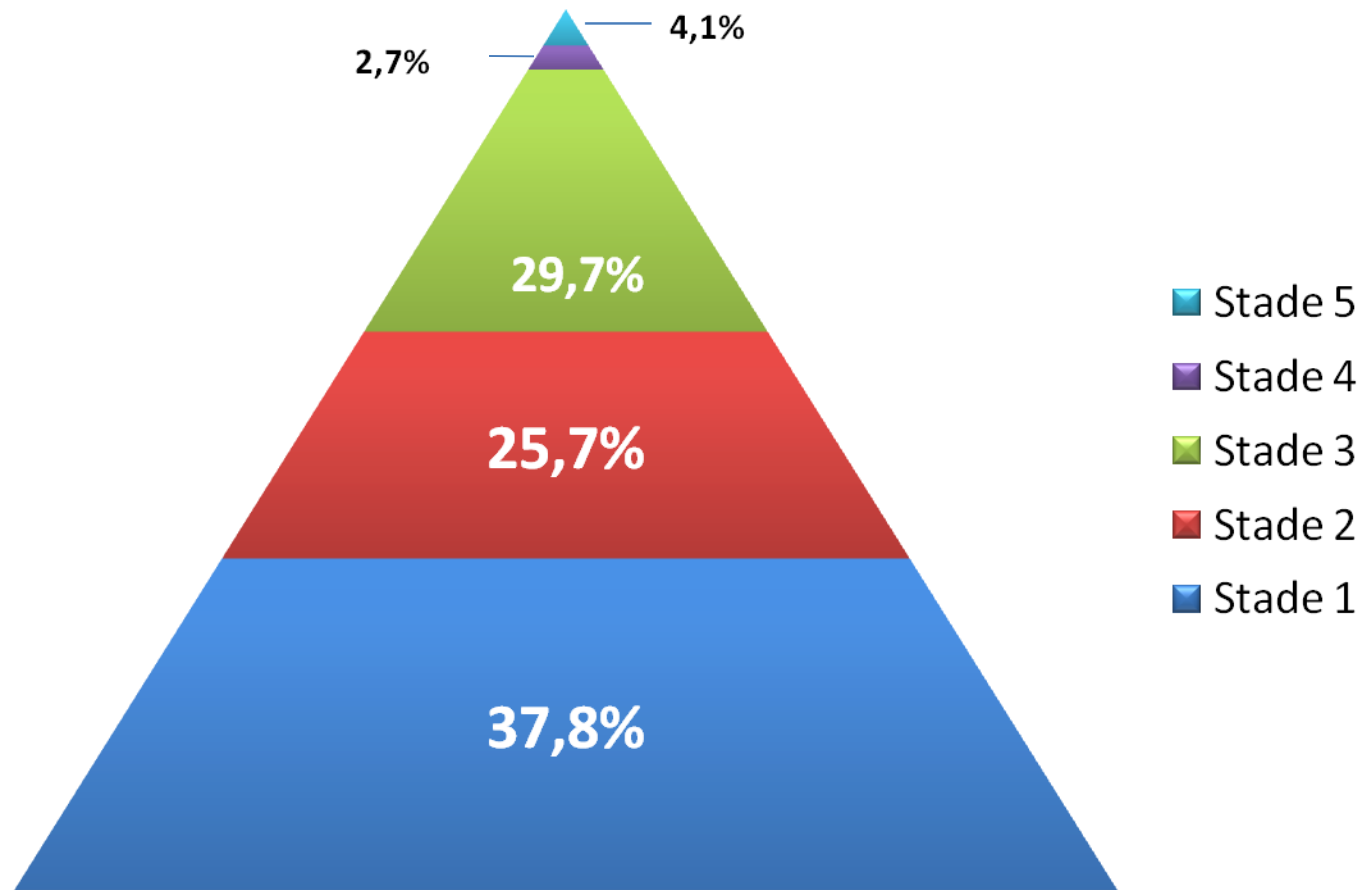
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23 652

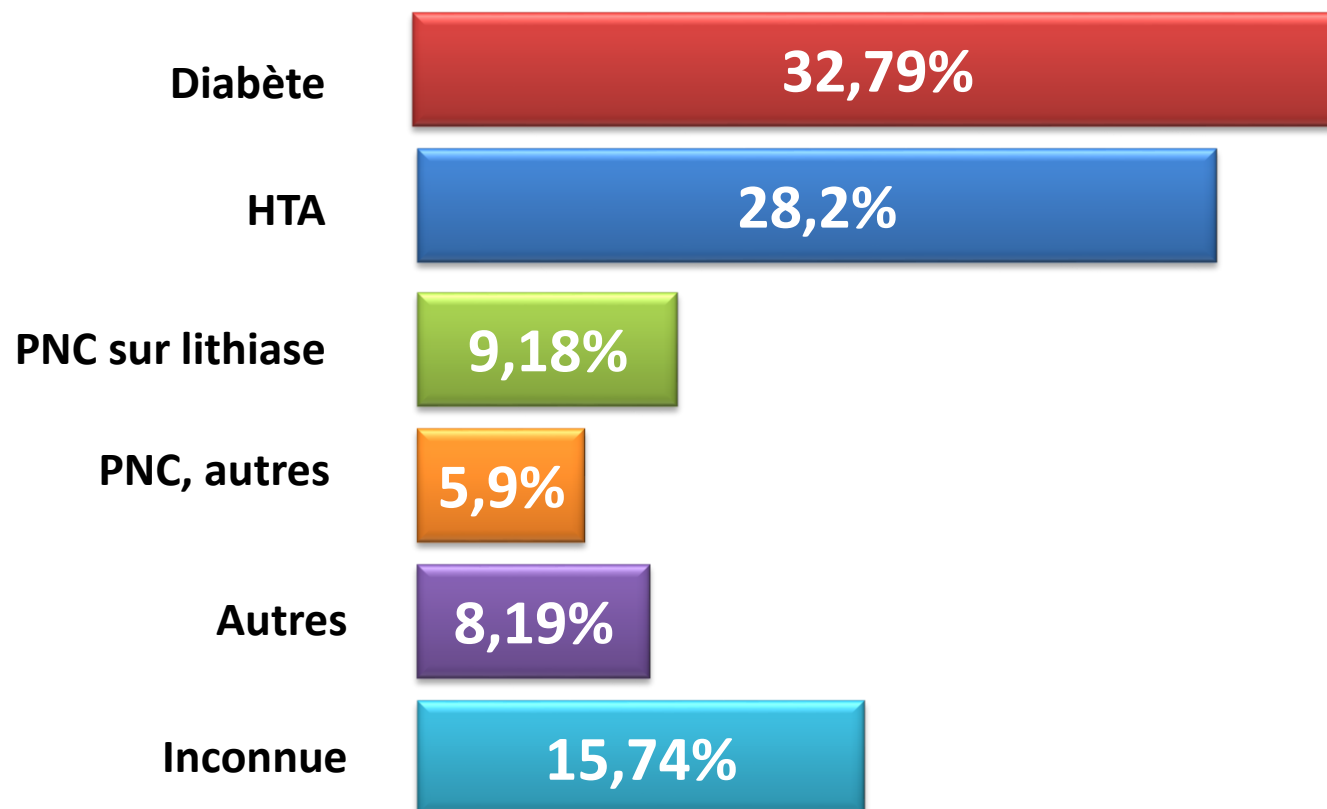
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225 132

327 726

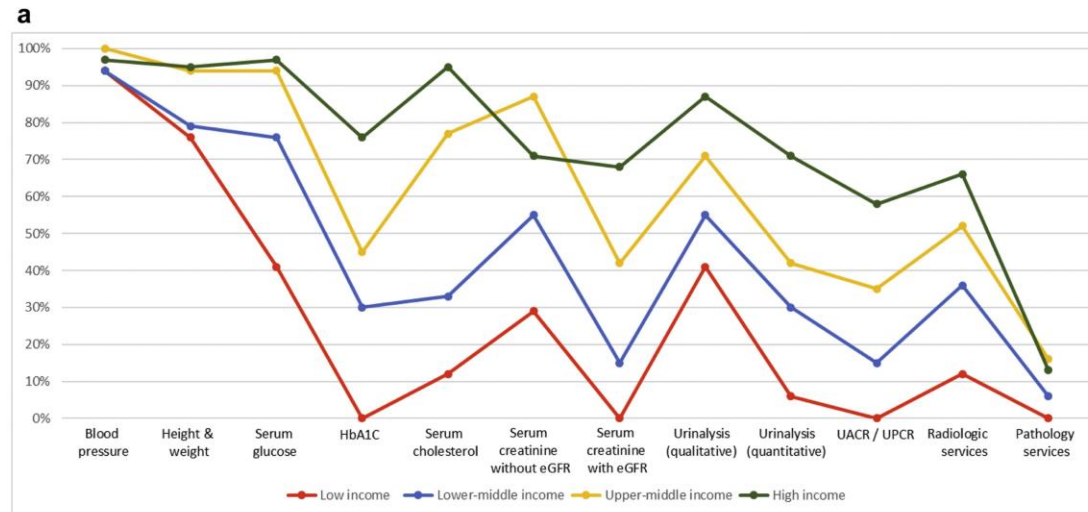


Causes de la MRC

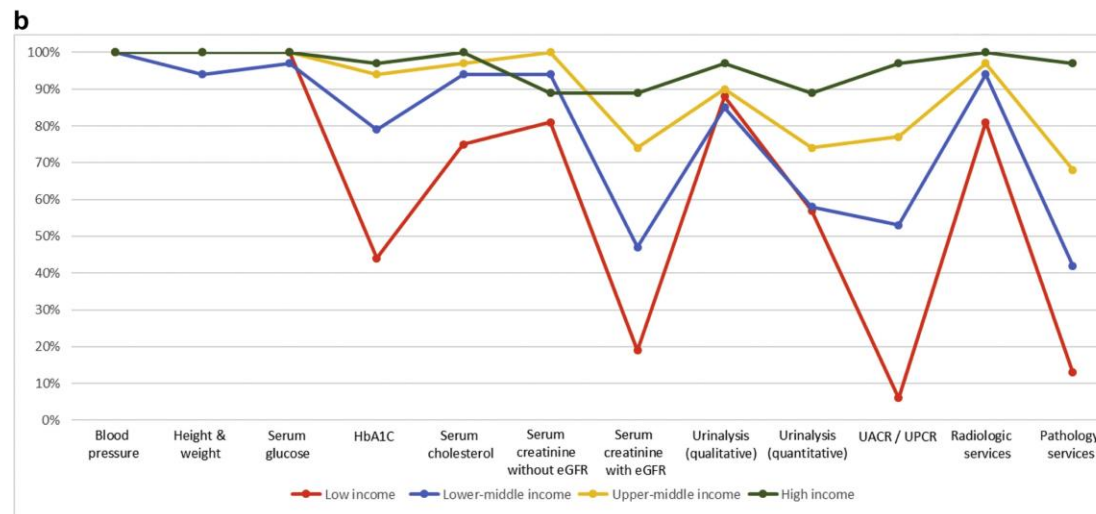


Accès au diagnostic

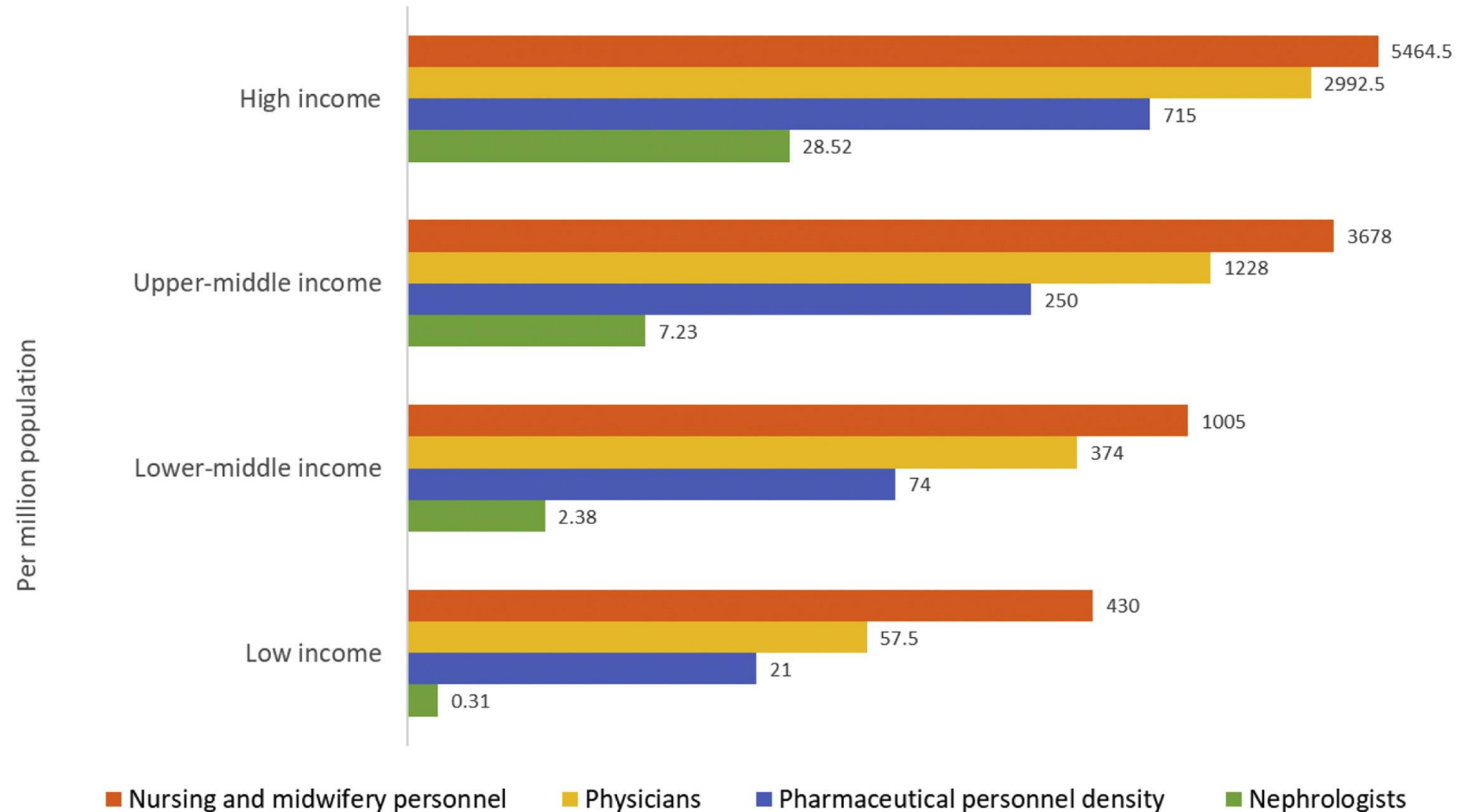
Niveau 1



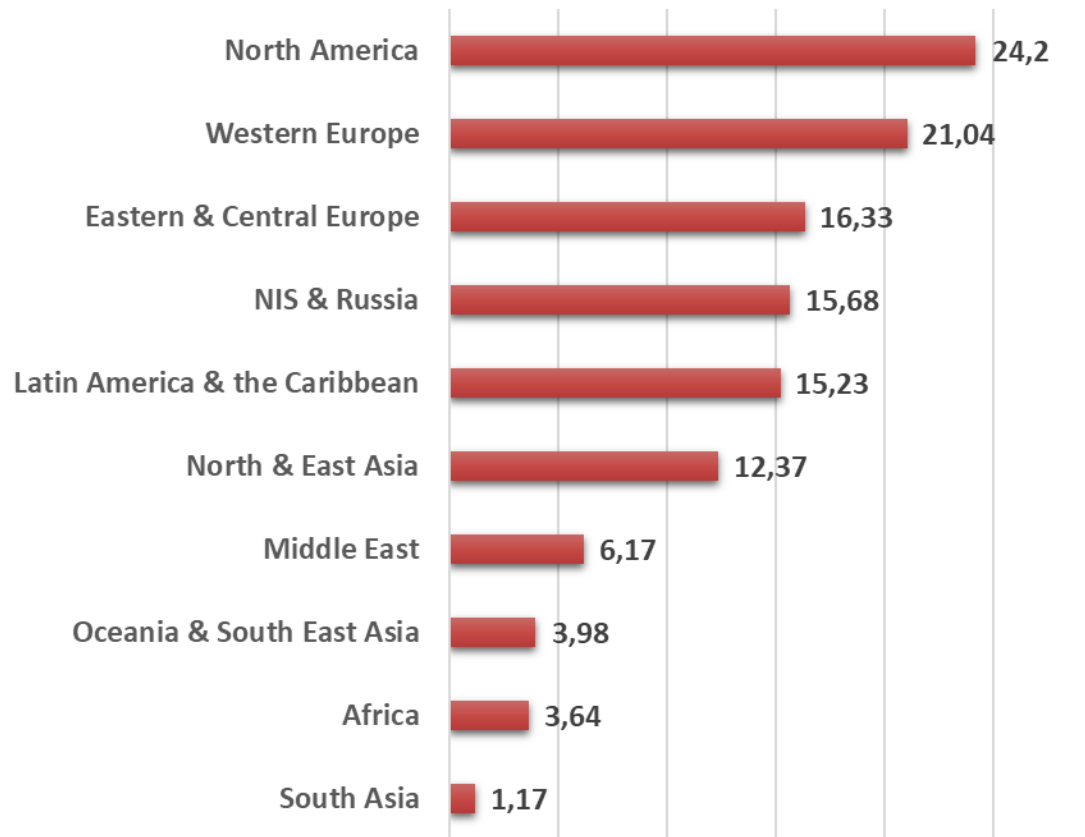
Niveau 2



Densité des ressources humaines

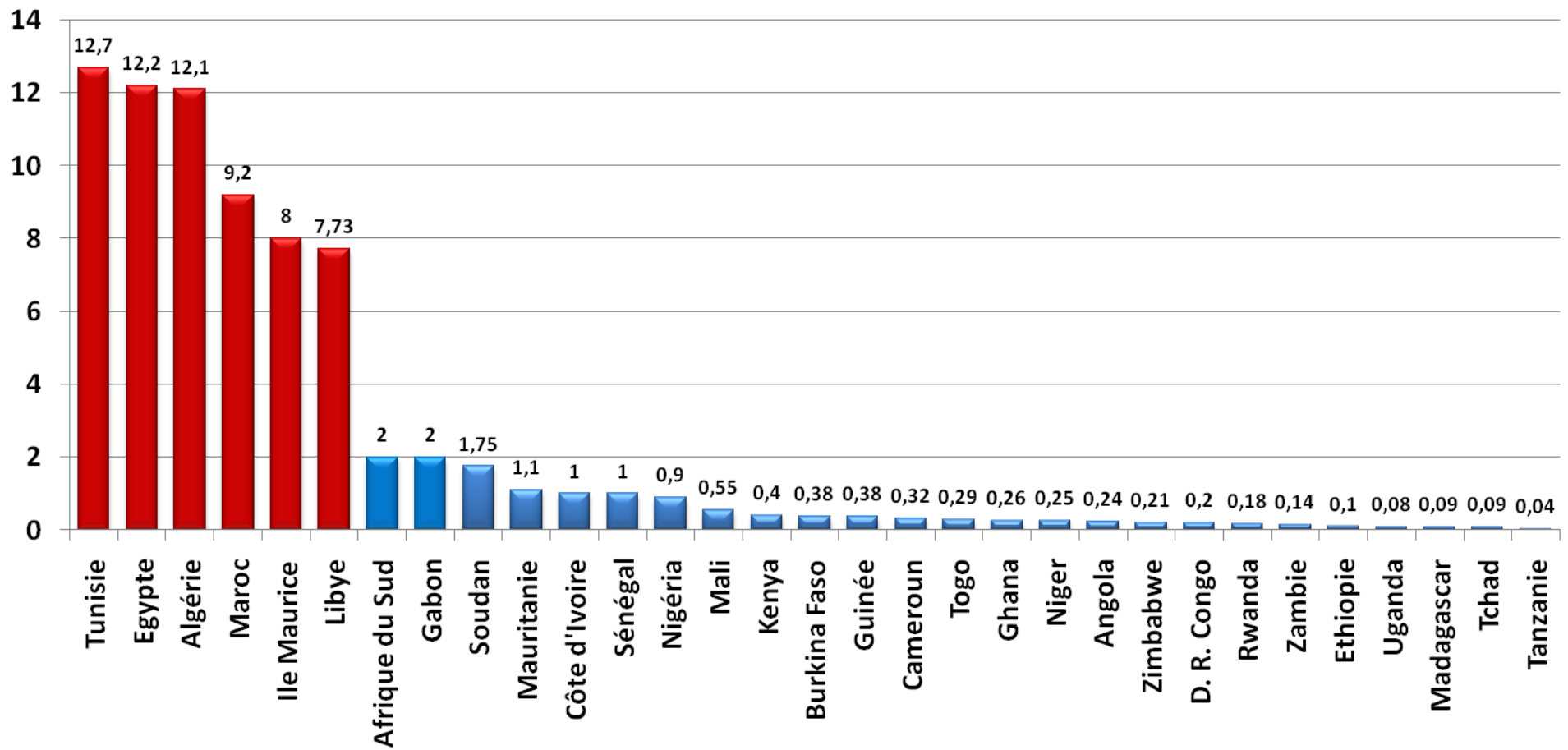


Densité des néphrologues (pmh)



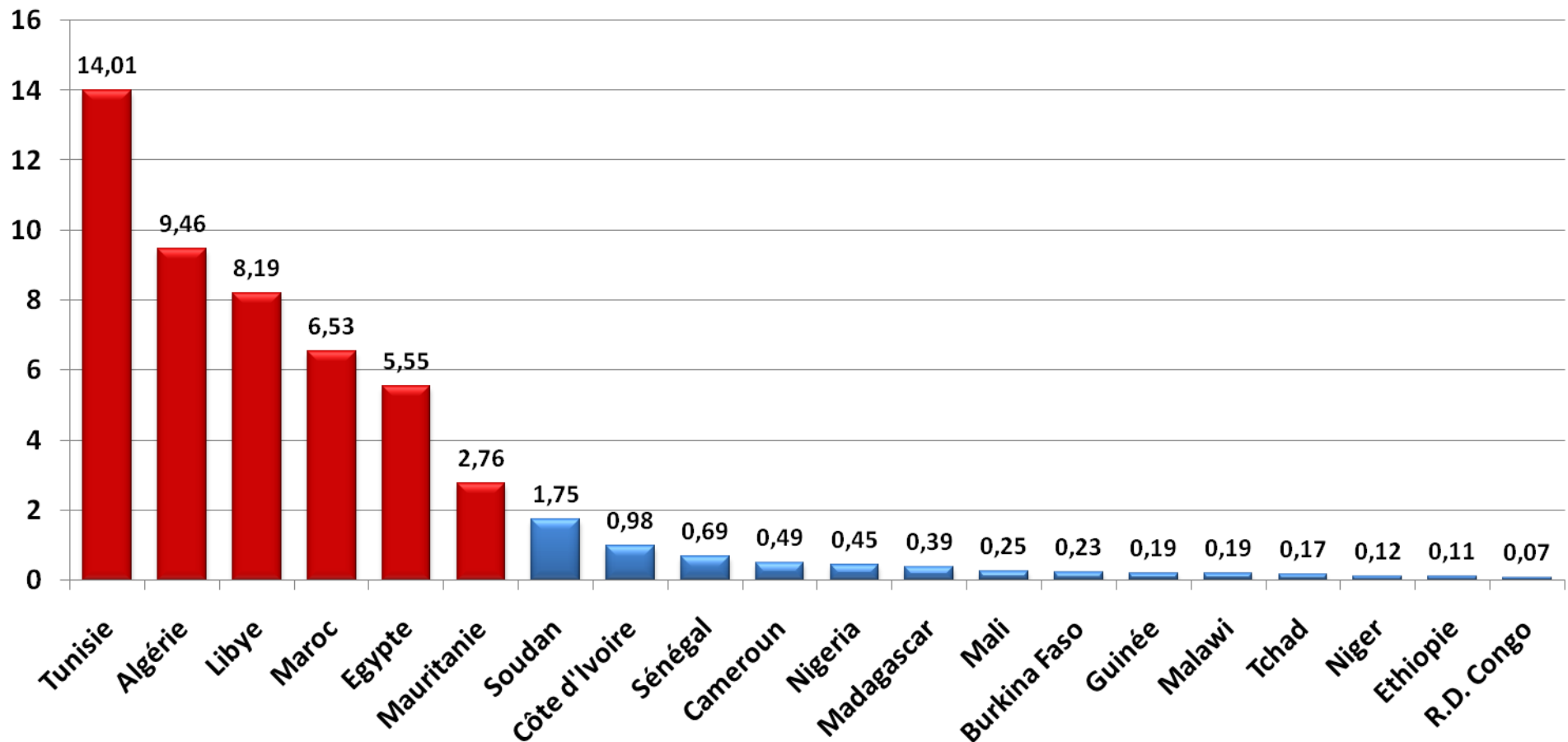
Country	Nephrologist (pmp)	Trainee (pmp)
Overall	8.83	1.87
LIC	0.32	0.18
LMIC	2.53	0.77
UMIC	7.18	1.21
HIC	28.52	6.03

Nombre de néphrologues (pmh)

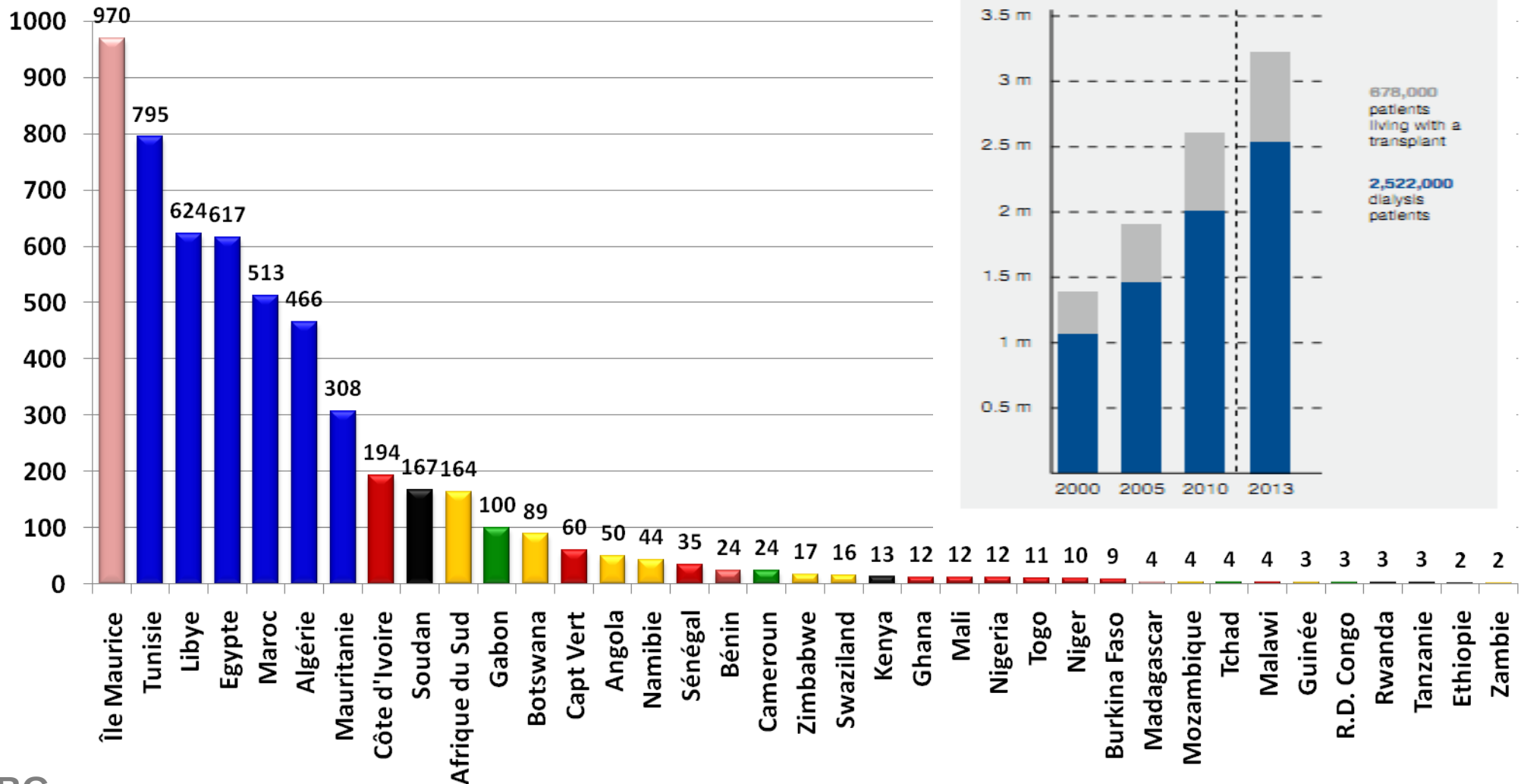


ACCES A LA SUPPLEANCE RENALE

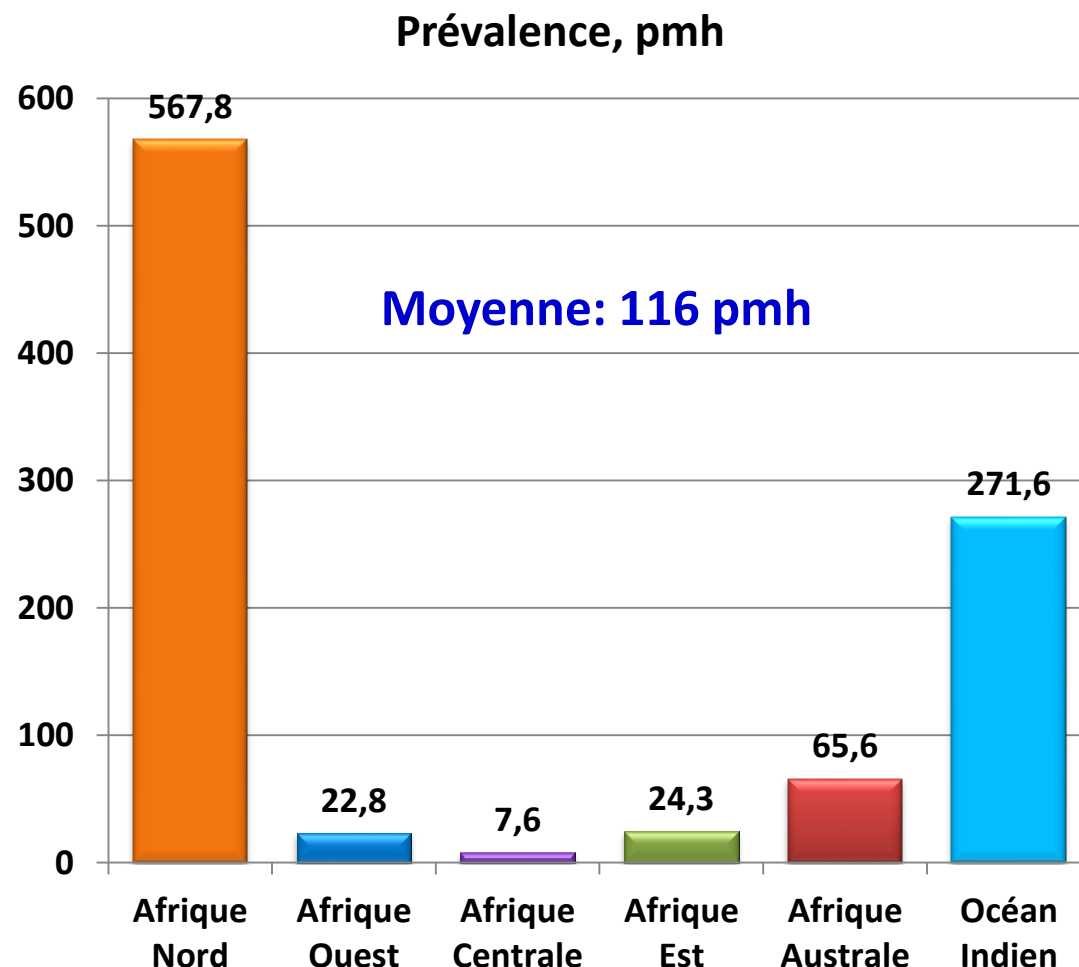
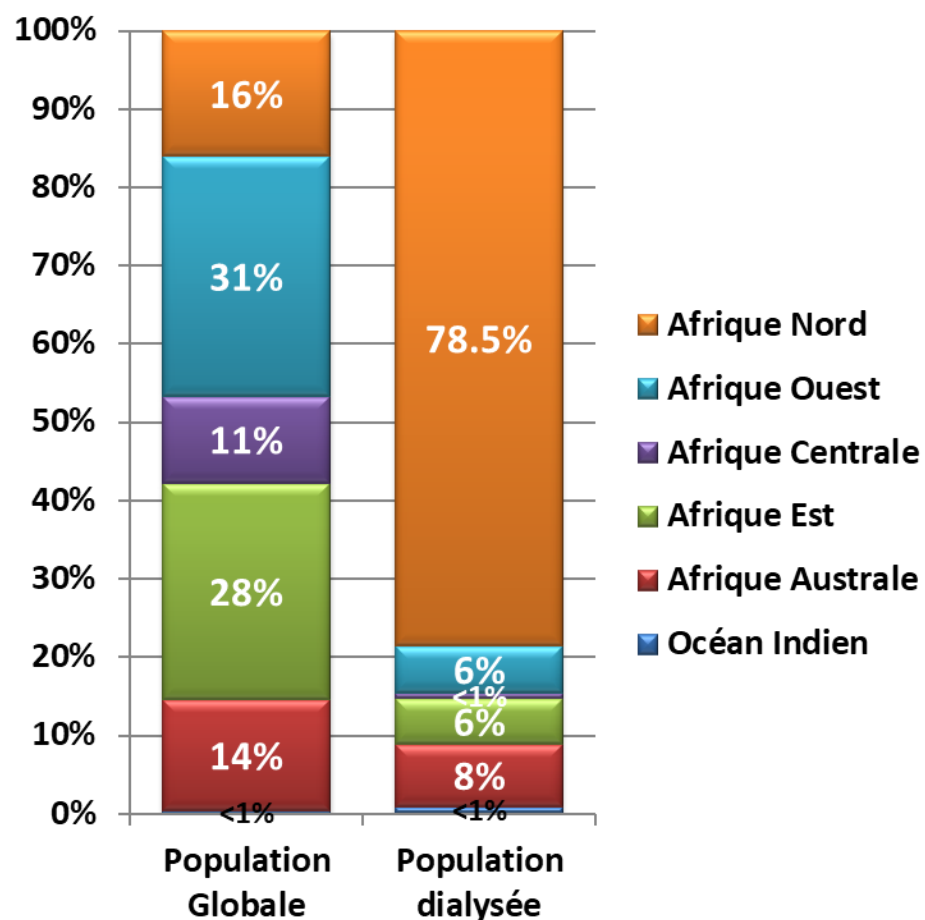
Nombre de centres de dialyse (pmh)



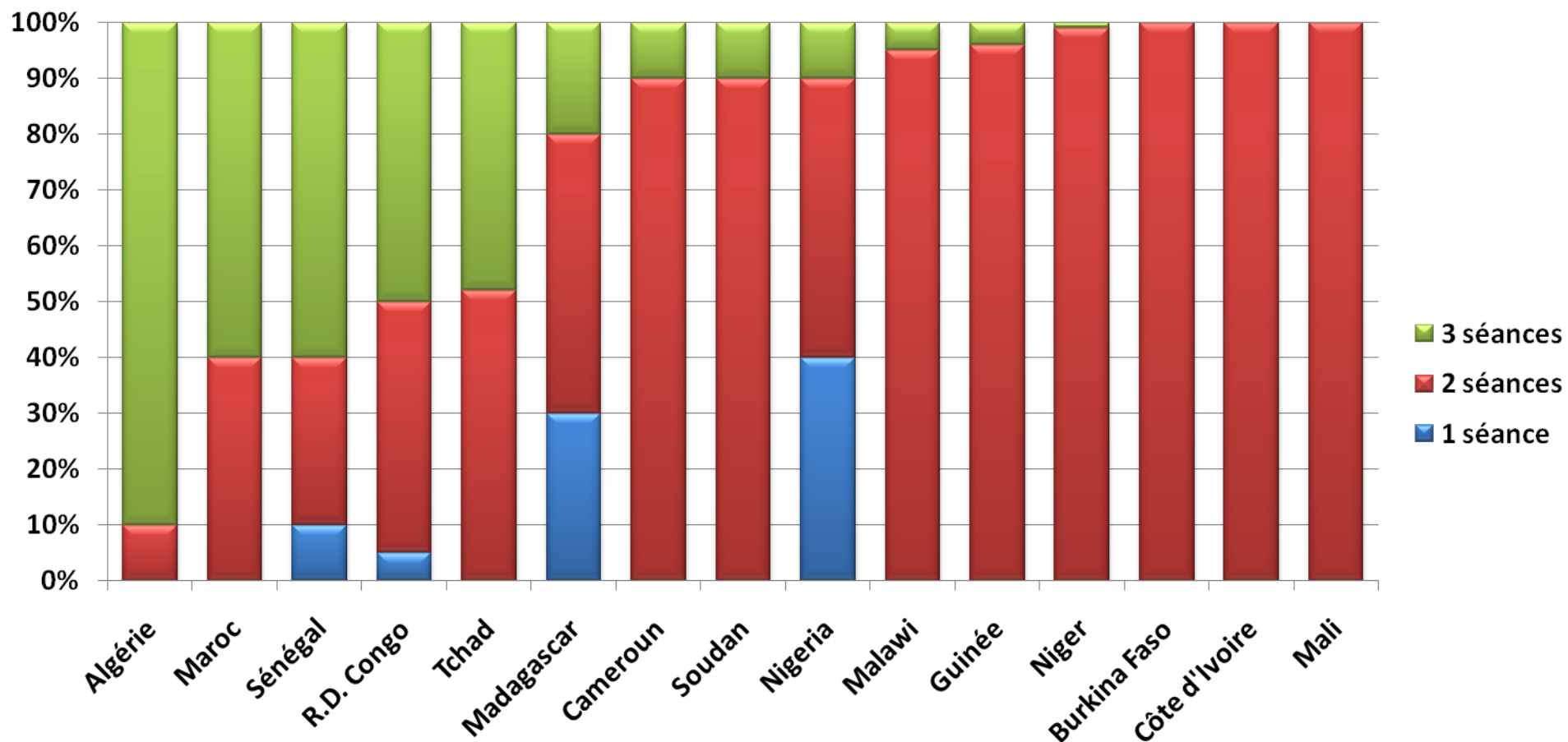
Afrique: 126 944 prévalents en HD (38/54)



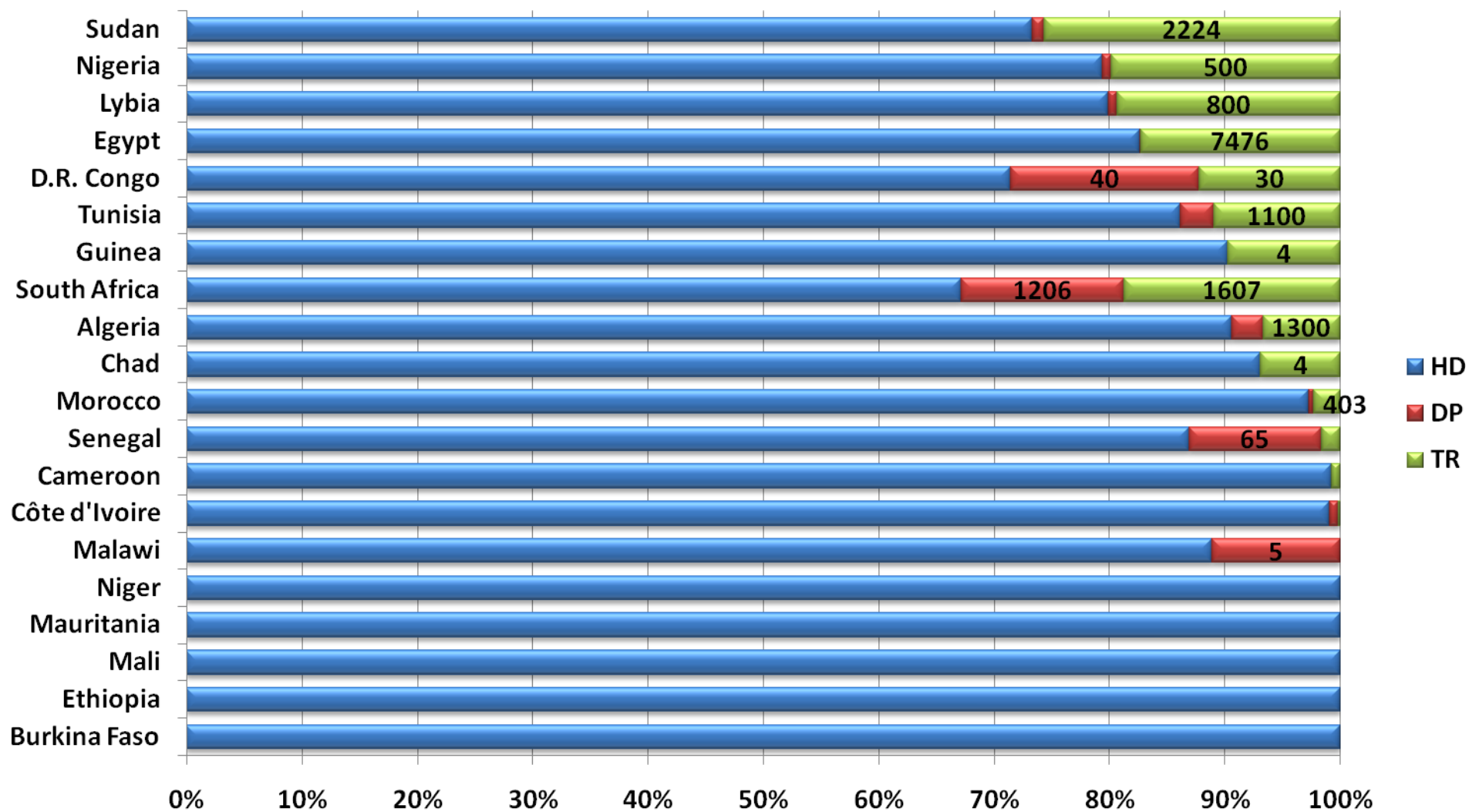
Hémodialyse: Disparités en Afrique



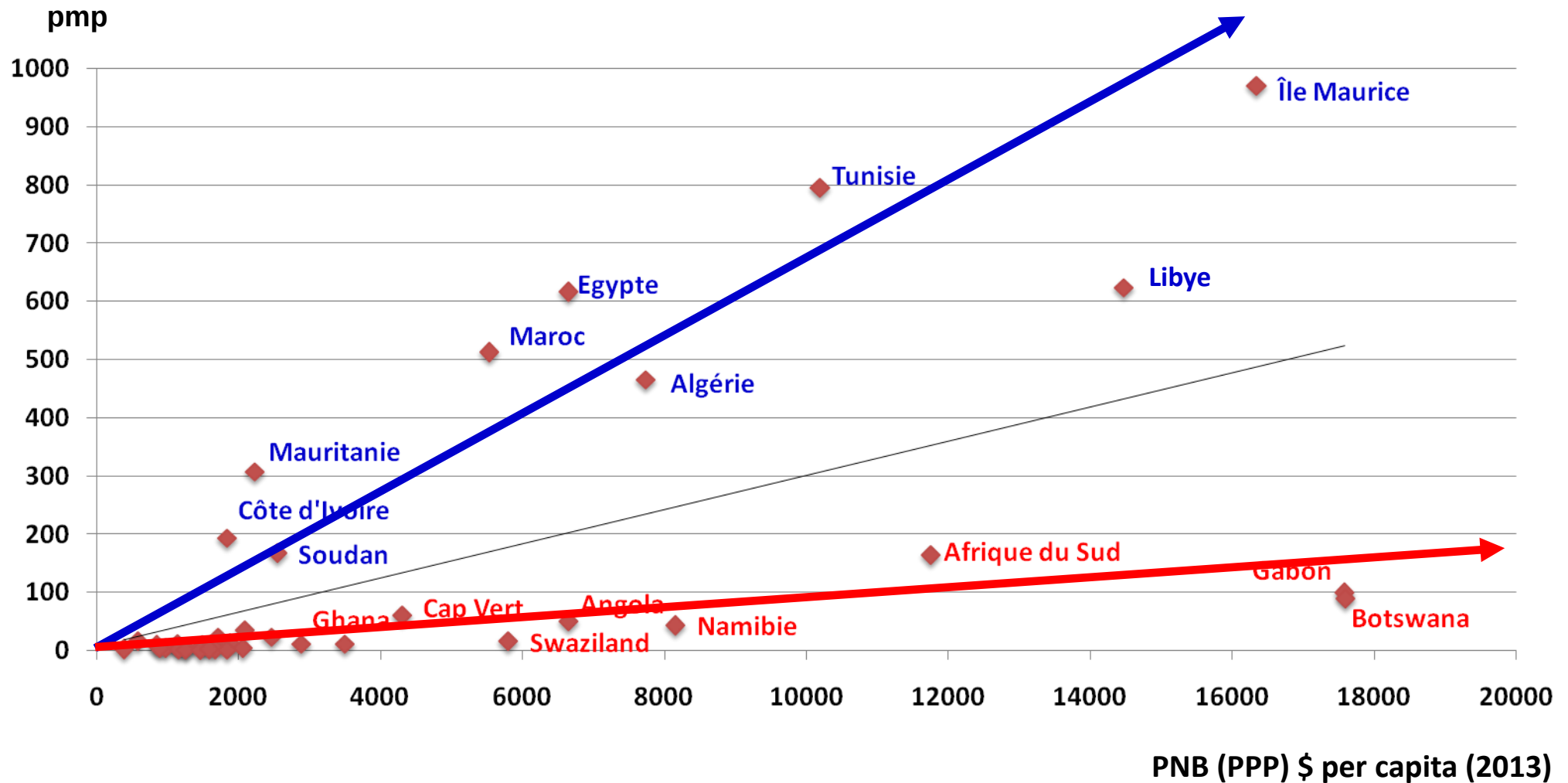
Aspects quantitatifs



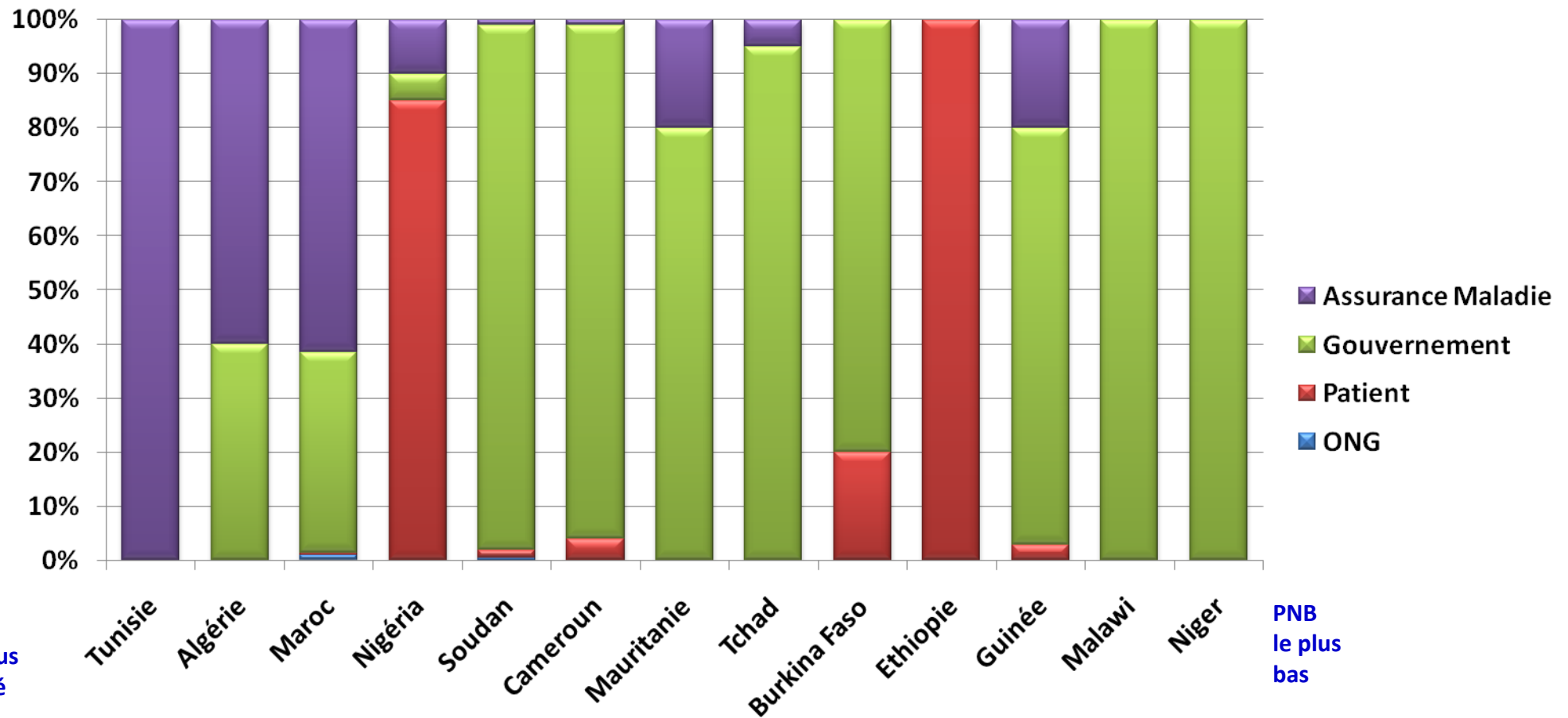
Distribution des modalités de suppléance rénale



Corrélation PNB et prévalence en HD



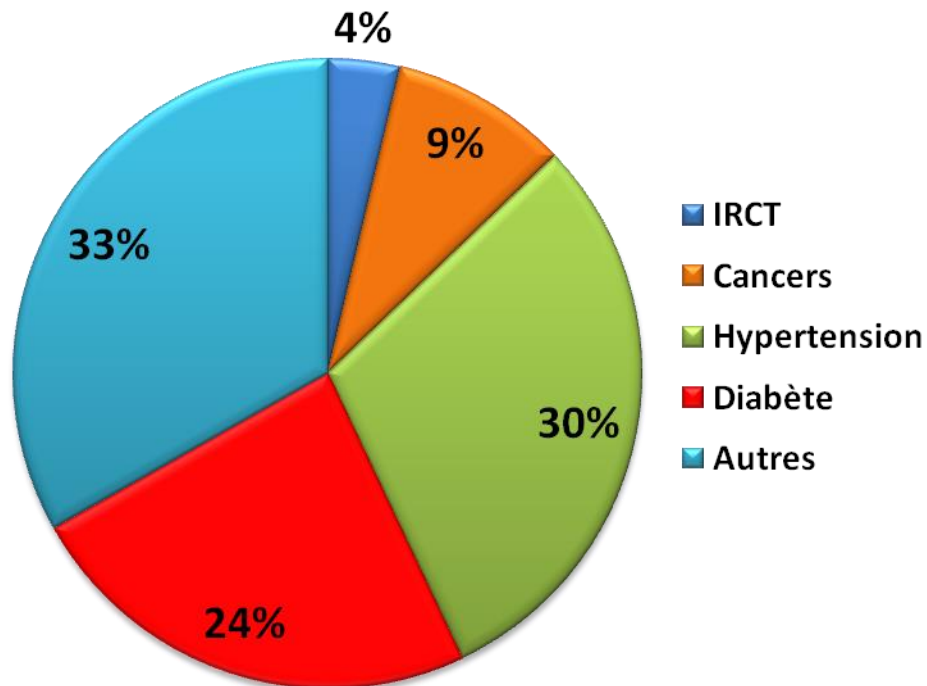
Sources de financement



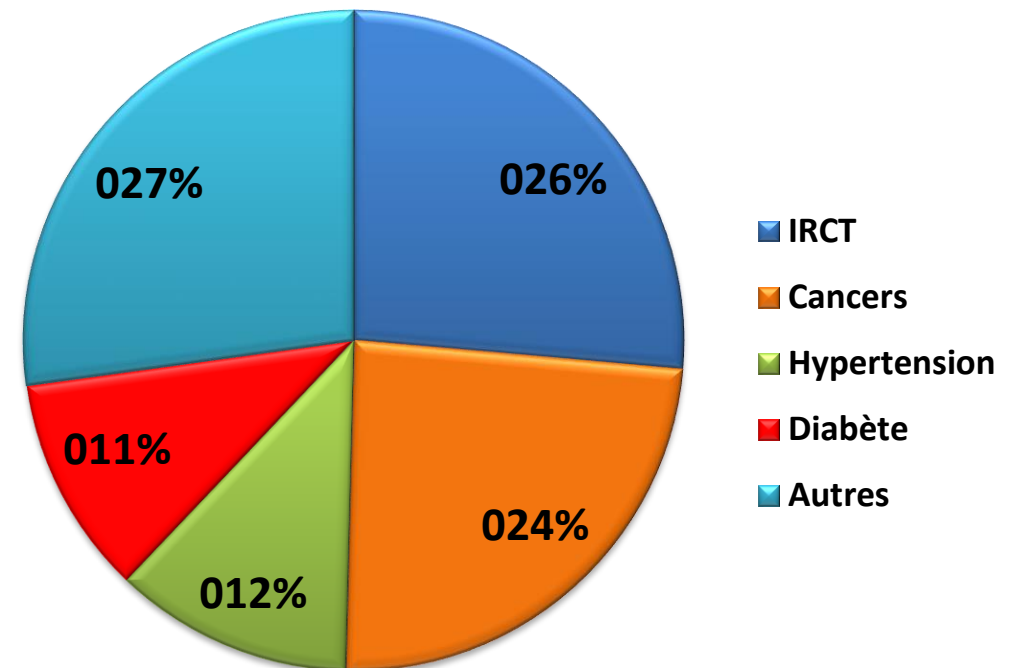
Poids dans les dépenses de santé

Cas du Maroc: Dépenses liées aux ALD

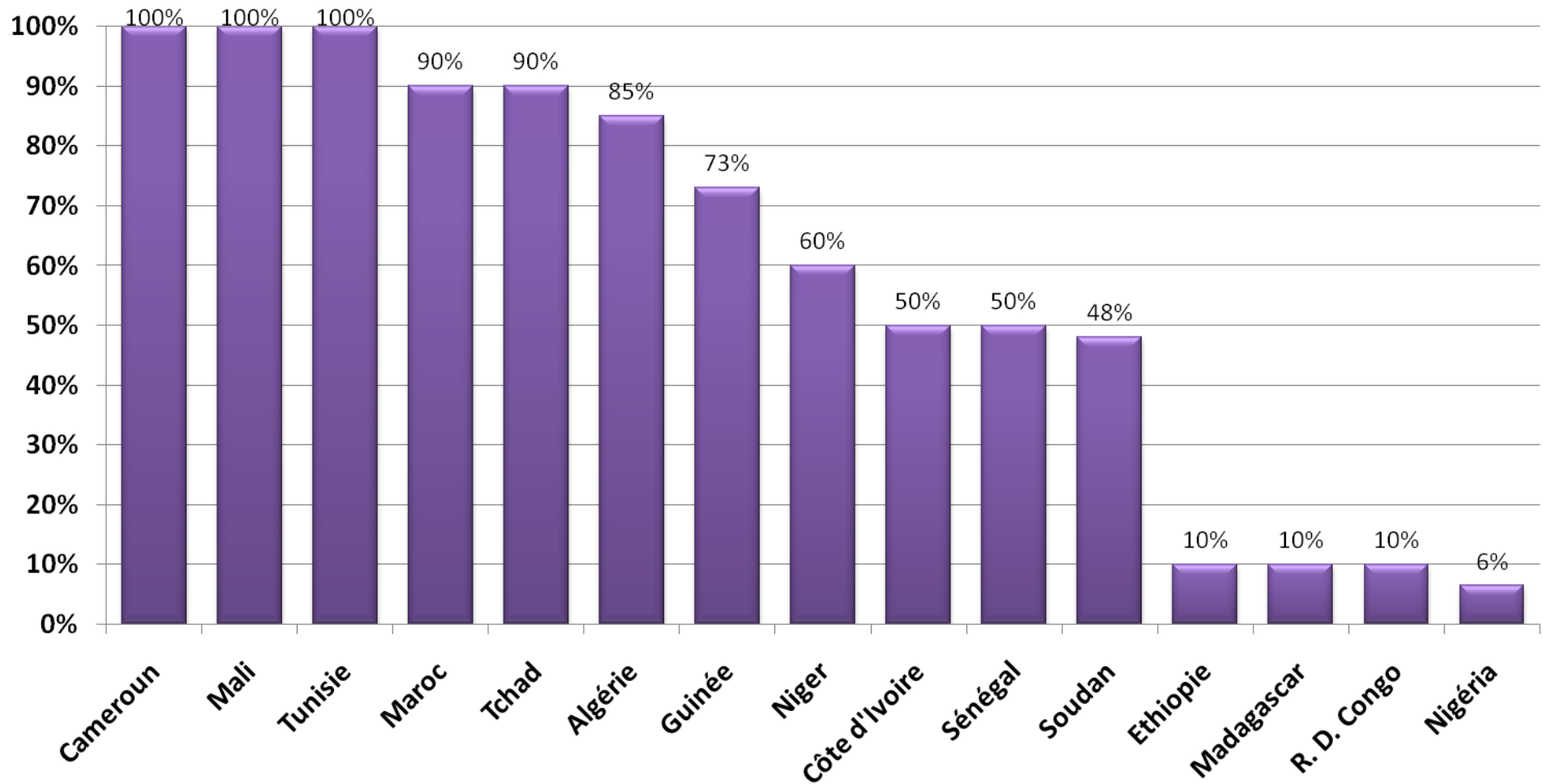
Distribution des ALD



Distribution des dépenses pour ALD



Proportion d'accès à la dialyse



Un pronostic sévère même chez les dialysés

Persistence en dialyse

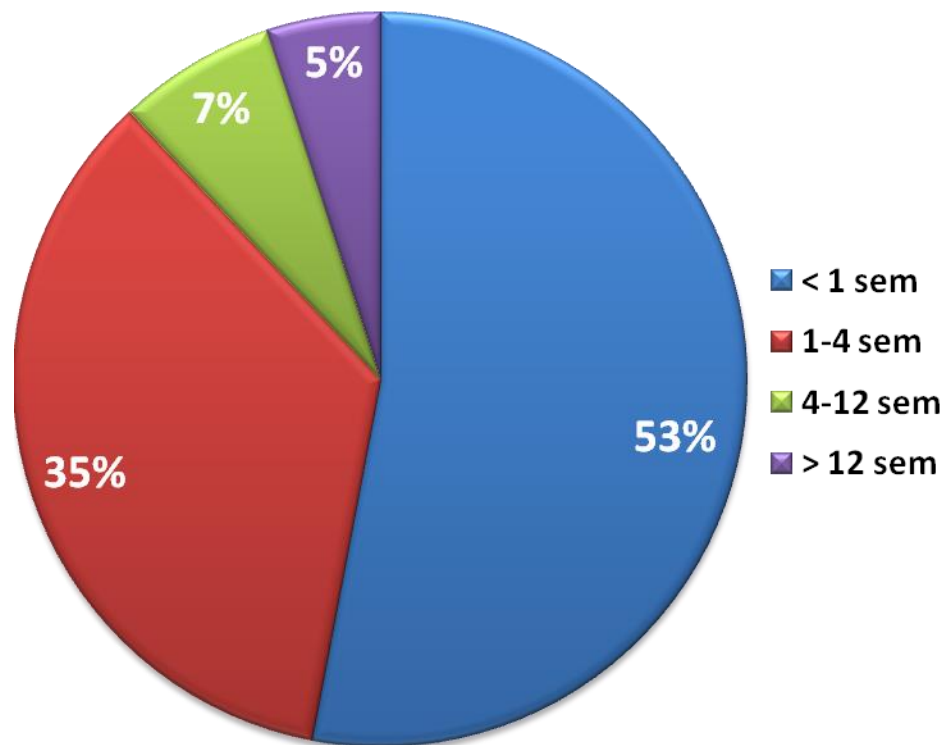
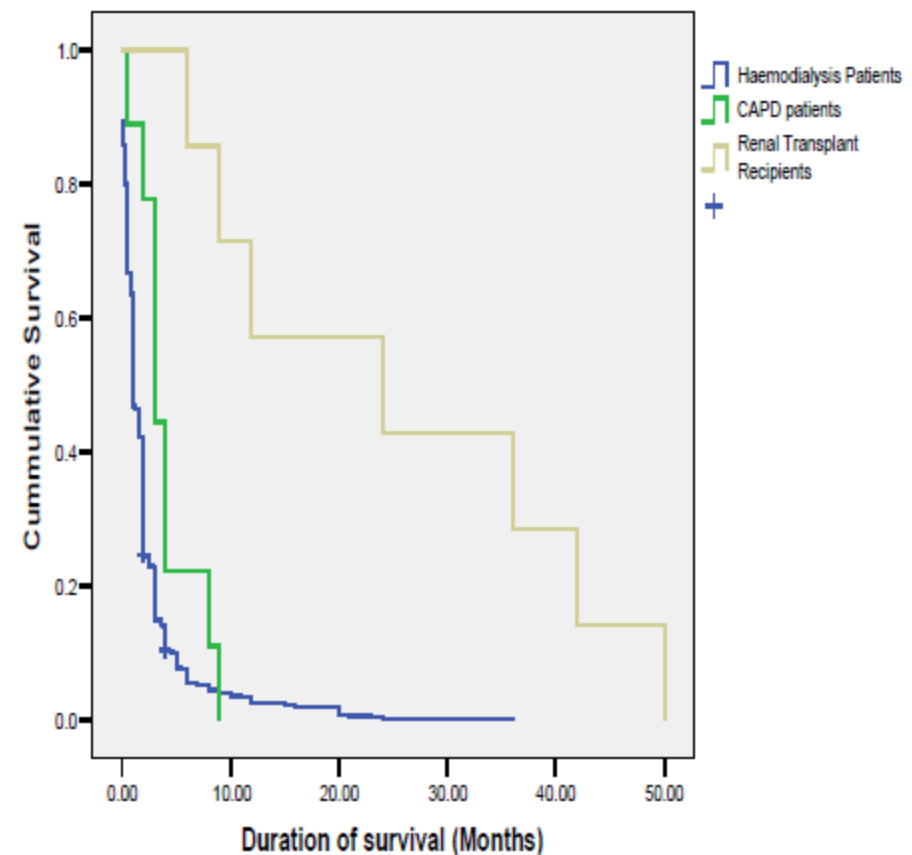


Figure 3: Kaplan Meier survival curves of patients according to renal replacement therapy options



Outil d'évaluation pour rationnement de la dialyse (Western Cape, SA)

Category 3 (patients in this category will be excluded)

- Age >60 years
- BMI >35 kg/m²
- Transplantation contraindicated or associated with unacceptable risk
- HIV infection other than described in category 2
- Active substance abuse
- HBeAg positive or cirrhosis
- Diabetes mellitus and age >50 years
- Active uncontrollable malignancy with short life expectancy
- Non-South African citizen
- Advanced irreversible progressive vital organ disease (cardiac/cerebrovascular/liver/lung/unresponsive infections)
- Mental illness resulting in diminished capacity to take responsibility for actions
- Habitual non-adherence to any medical treatment

SOUTH AFRICAN RENAL REGISTRY ANNUAL REPORT 2012



Table 7. Prevalence of RRT by sector

	PUBLIC	PRIVATE
Population in millions	43.604	8.671*
ESRD patients on treatment	3 182	5 377
Treatment rate (pmp)	73	620

* Council for Medical Schemes 2012-2013 Annual Report.

SOLUTIONS ?

Rôle des acteurs locaux



Signing up for nephrology: the silence is broken in South Africa

In his Offline (March 21, p 1058),¹ Richard Horton wrote about the crisis of chronic kidney disease (CKD) in South Africa, comparing it with the HIV epidemic at the start of the new millennium. He reflected on the sense of helplessness within the local nephrology community.

We are happy to write that the South African Department of Health initiated a national summit about an Effective Approach to CKD, which took place on March 25, 2015, in Johannesburg, South Africa. This summit was largely in response to the South African Renal Registry's annual report in 2012, which clearly showed the dismal state of CKD management throughout the country.²

This landmark event was the first of its kind since the advent of renal replacement therapy in South Africa almost 50 years ago. An explicit commitment was made by the South African Government to address the complex issues associated with management of this disease. The summit resulted in a draft declaration that provides a framework to address prevention of CKD, management of dialysis, transplantation, human resources, and funding. The goals from the summit are to increase dialysis coverage (from the current 164 per million population [pmp] to 250 pmp) and to increase the number of new transplants (from 4 pmp to 25 pmp) by 2025. This summit is hoped to be the beginning of a sustained and productive initiative that could inform a greater policy agenda for CKD in sub-Saharan Africa.

Fabian J et Etheredge H.
Lancet. 2015 May 30;385(9983):2150-1

Merci pour votre attention