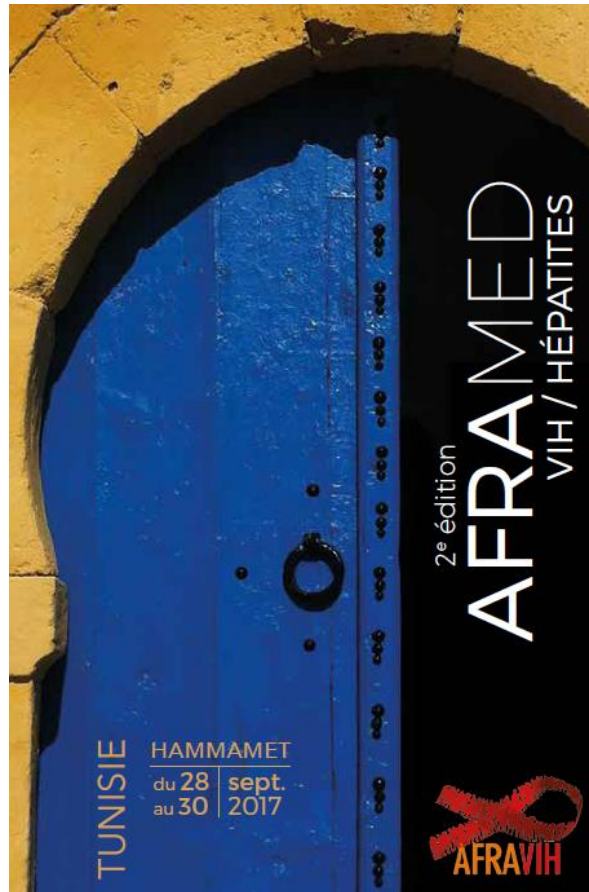
Hépatites Virales B et C
Tendances Epidémiologiques
(au-delà de la prévalence…)

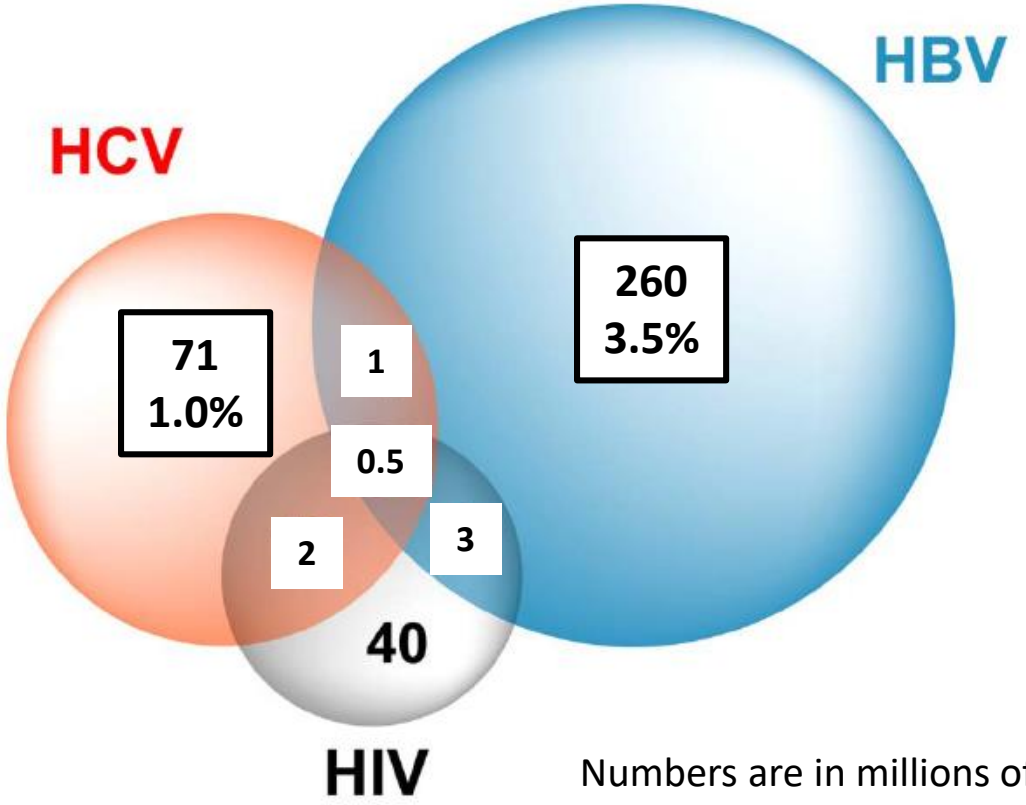
Hammamet, 29.09.2017

Gilles Wandeler, MD MSc

UNIVERSITÄT BERN



Hépatites virales: Global



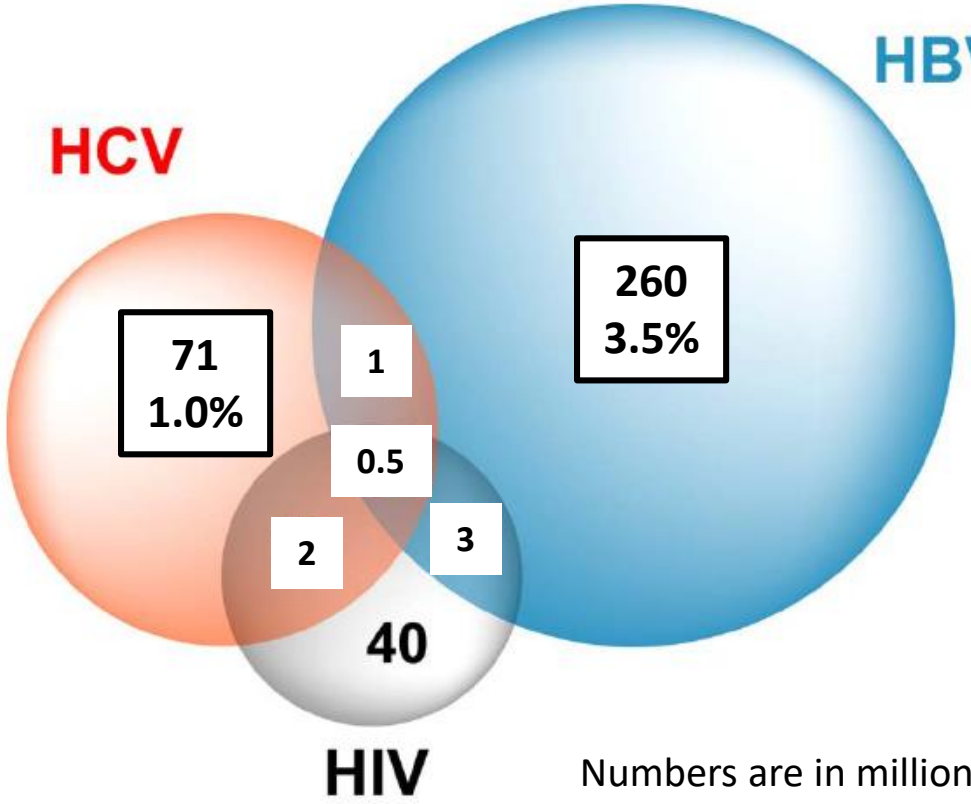
Numbers are in millions of individuals

Global Hepatitis Report, *WHO* 2017

Hépatites virales: Afrique

11

1.0%



60

6.1%

Numbers are in millions of individuals

Global Hepatitis Report, *WHO* 2017

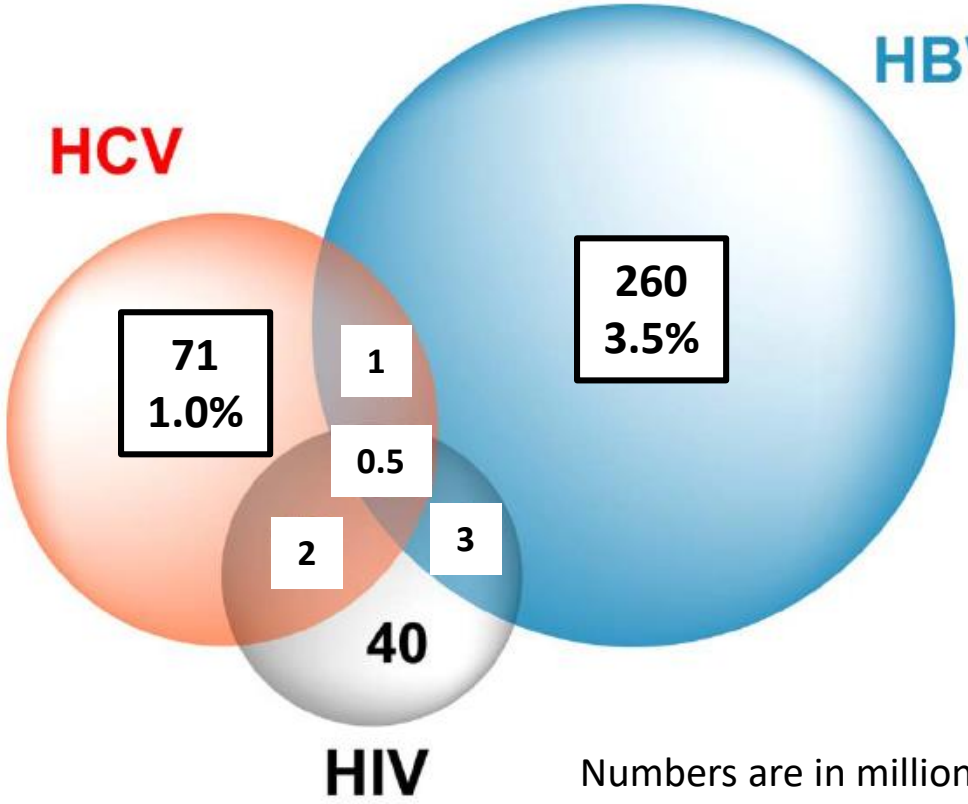
Hépatites virales: Maghreb

11

1.0%

0.9

1-2%



Numbers are in millions of individuals

60

6.1%

3

2-5%

Global Hepatitis Report, *WHO* 2017
Ezzikouri et al. *J Med Virol* 2013
Ezzikouri et al. *Liver Int* 2013

Hépatites virales: Global

11

1.0%

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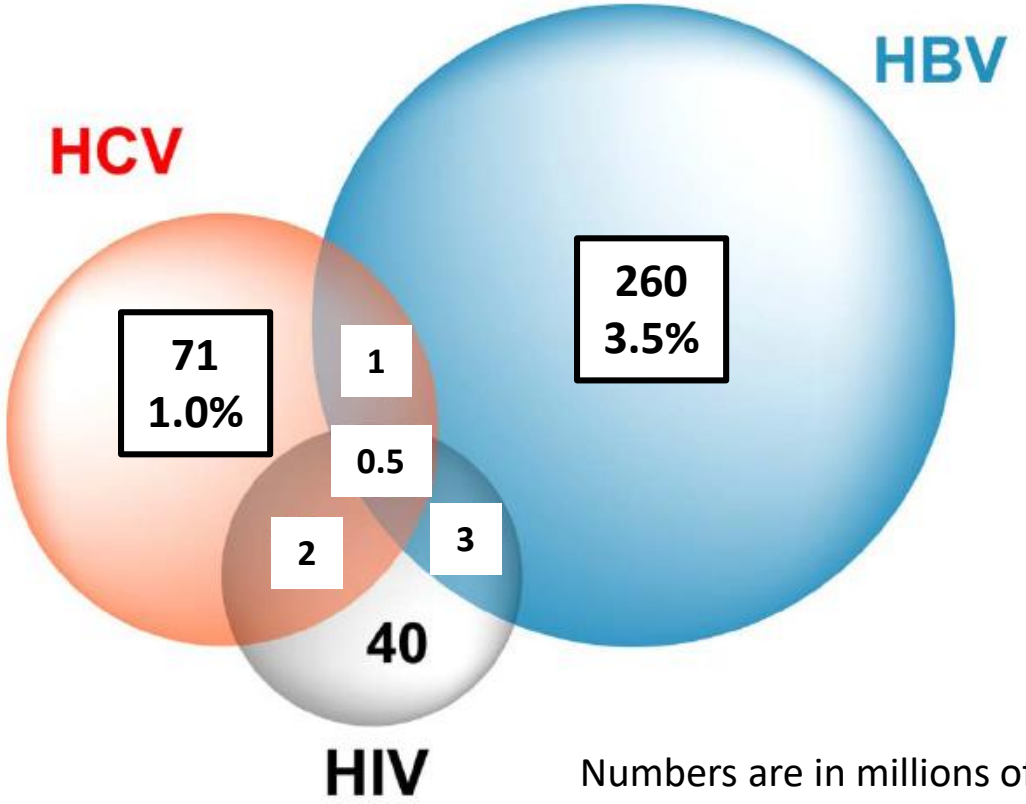
1-2%



Numbers are in millions of individuals

60

6.1%

3

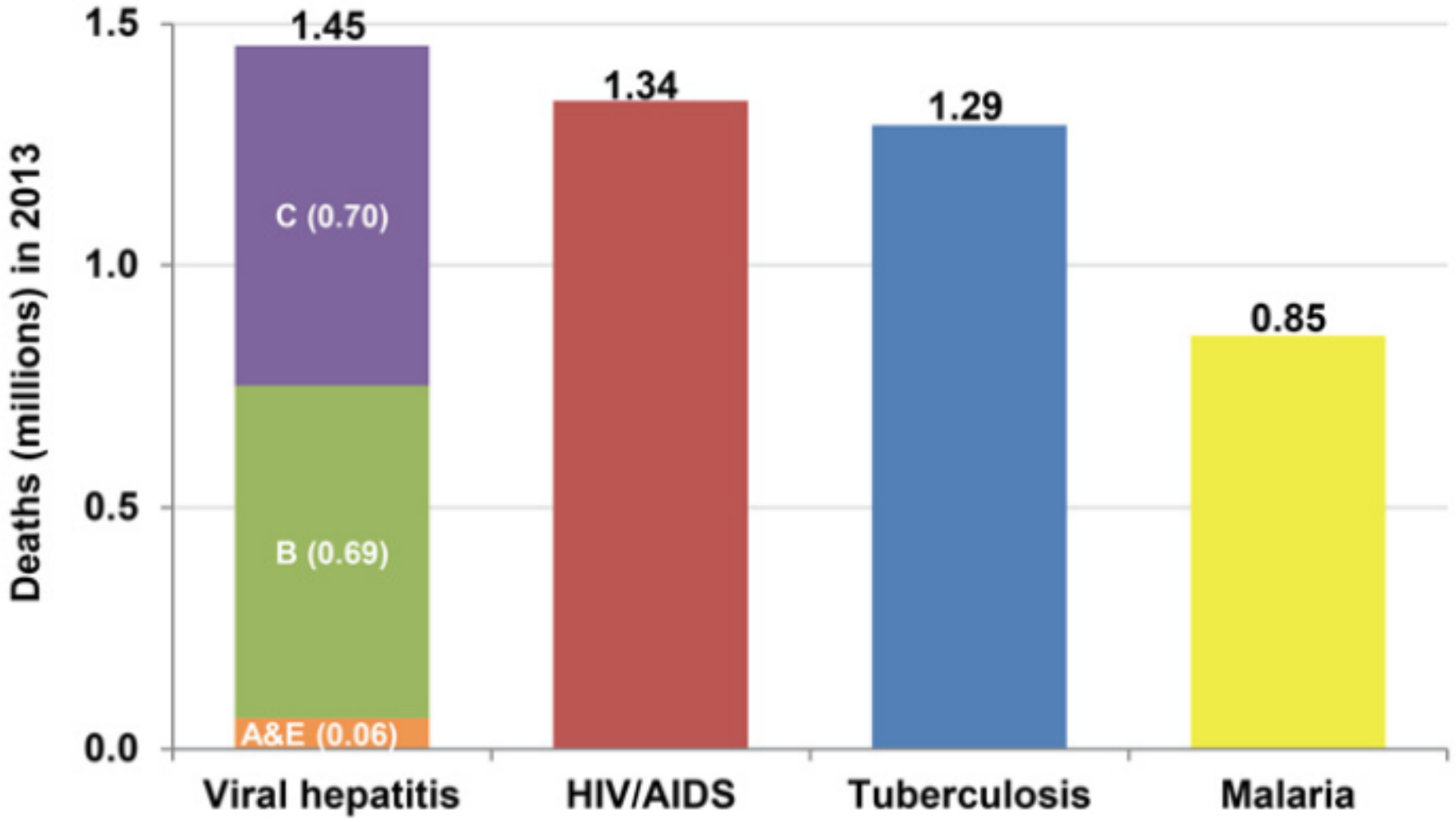
2-5%

- Qui?
- Confirmation pour tous?

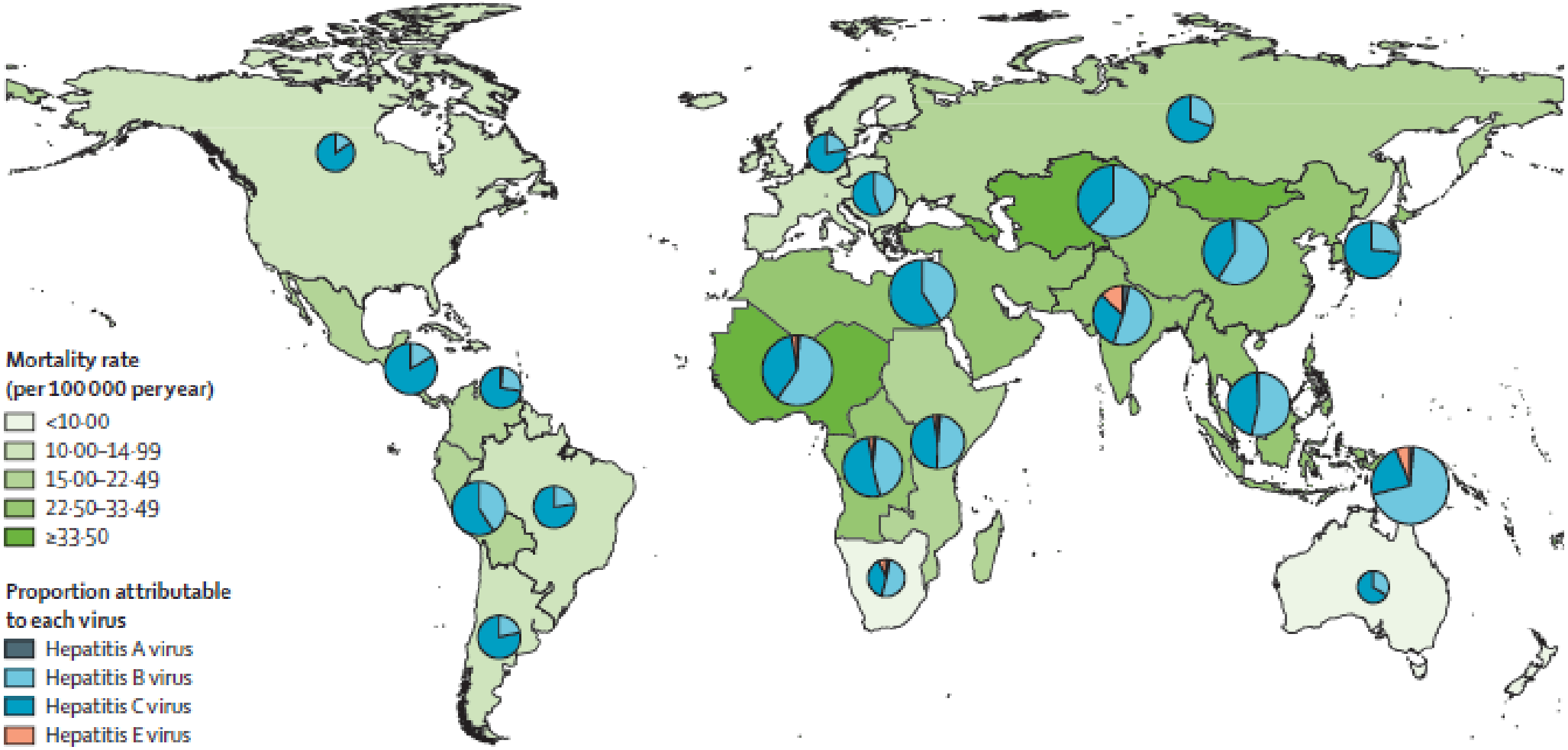
Prévalence
Diagnostic
Challenges

- Combien?
- Dépistage pour tous?

La mortalité liée aux hépatites virales est élevée

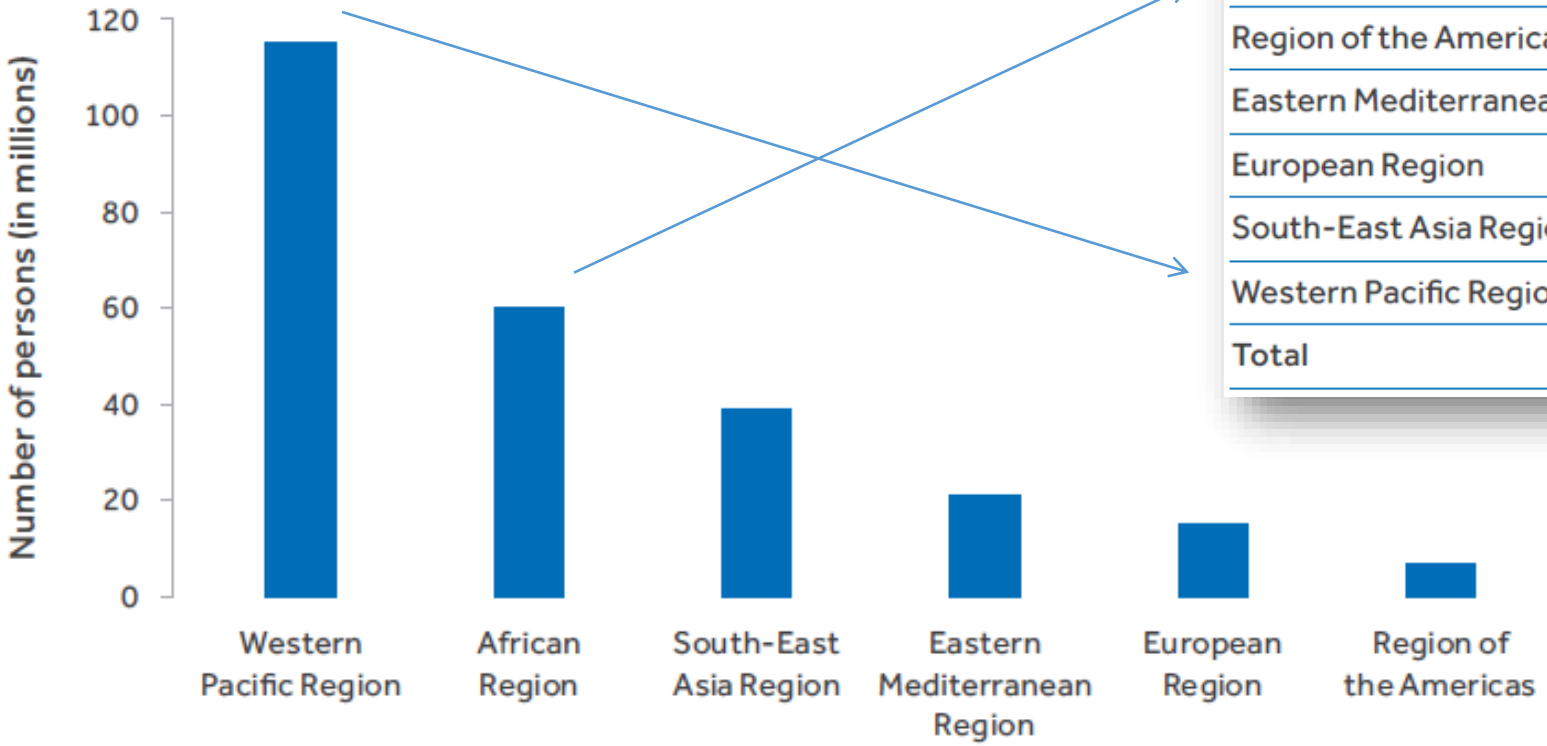


Distribution de la mortalité liée au VHB et VHC



Stanaway et al. *Lancet* 16

Epidemie VHB généralisée en Afrique



	Estimates of the prevalence of HBV infection (%)		
		Uncertainty interval (95%)	
WHO region	Best	Lower	Higher
African Region	6.1	4.6	8.5
Region of the Americas	0.7	0.4	1.6
Eastern Mediterranean Region	3.3	2.6	4.3
European Region	1.6	1.2	2.6
South-East Asia Region	2.0	1.5	4.0
Western Pacific Region	6.2	5.1	7.6
Total	3.5	2.7	5.0

Global Hepatitis Report, *WHO* 2017

Epidemie VHB généralisée en Afrique

WHO TO TEST FOR CHRONIC HBV INFECTION

Testing approach and population	Recommendations*
General population testing	1. In settings with a ≥2% or ≥5%[1] HBsAg seroprevalence in the general population, it is recommended that all adults have routine access to and be offered HBsAg serological testing with linkage to prevention, care and treatment services.

WHO region	Estimates of the prevalence of HBV infection (%)		
		Uncertainty interval (95%)	
	Best	Lower	Higher
African Region	6.1	4.6	8.5
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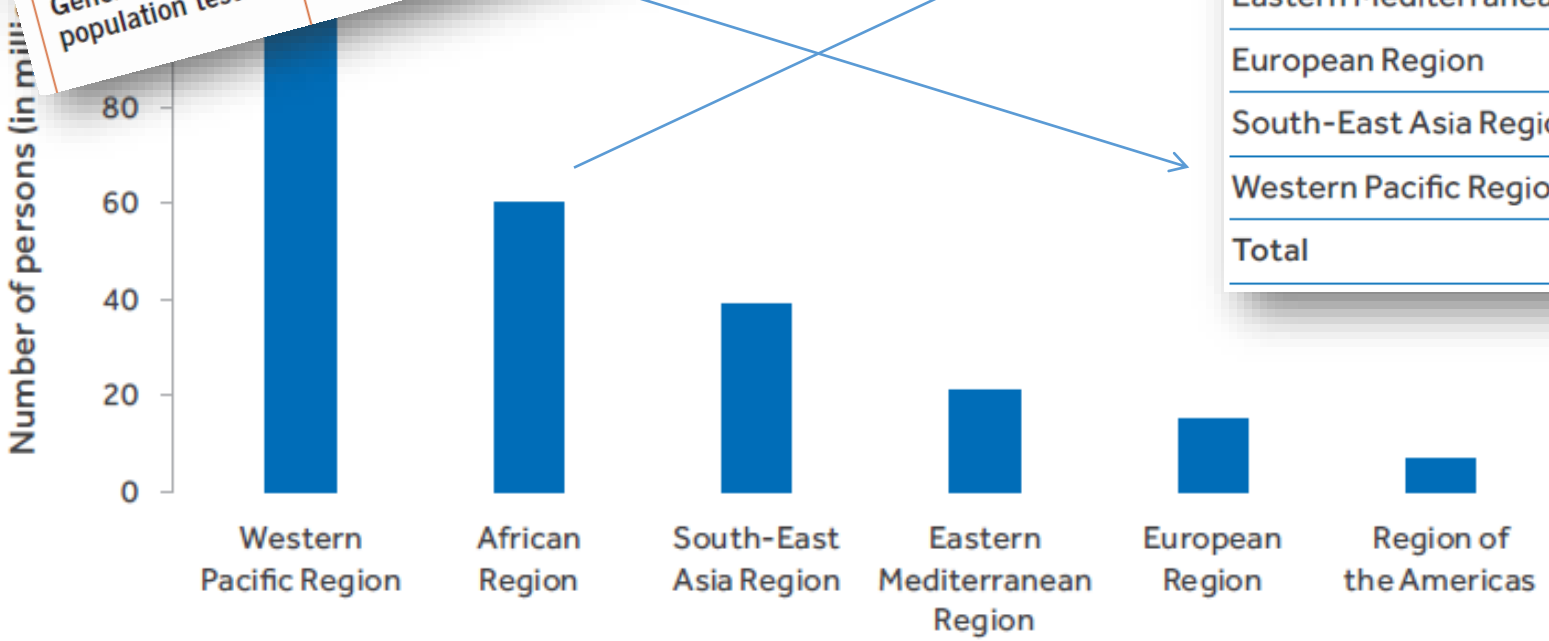
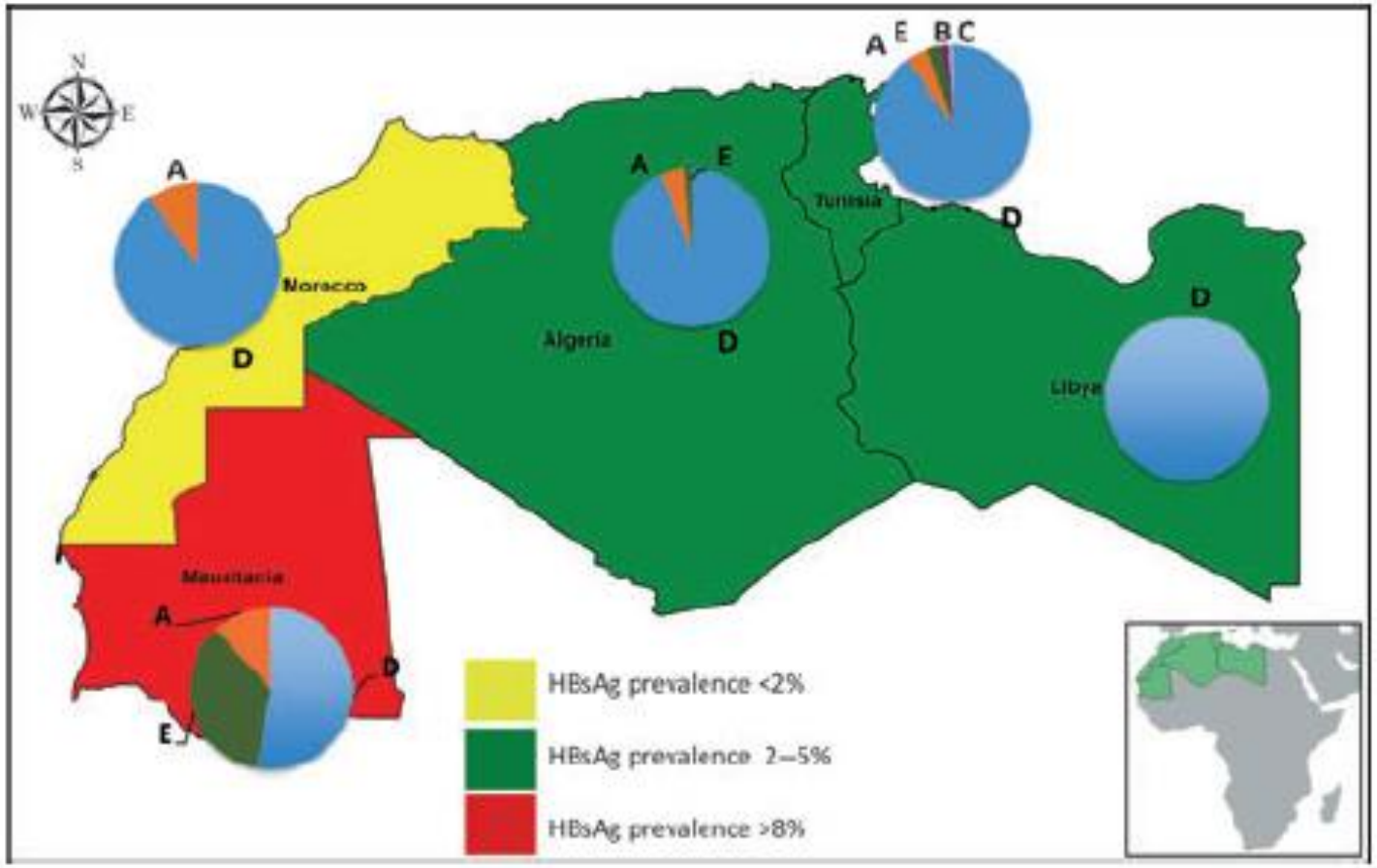


Global Hepatitis Report, *WHO* 2017
Guidelines on HBV and HCV testing, *WHO* 2017

Transmission et histoire naturelle du VHB: Europe vs. Afrique

5% | **Chronic infection** | **50-90%**

Prévalence AgHBs et génotypes au Maghreb



	Algeria	Libya	Mauritania	Morocco	Tunisia
General population	2.6	2.2	18.5	1.8	4.9
Blood Donors	1	3	15.6	1	5
Pregnant Women	1.6	1.5	13.2	1.3	3.5
Haemodialysis	9	NA	NA	2	8

Ezzikouri et al. Liver Int 2013

Vaccine 28 (2010) 3301–3307

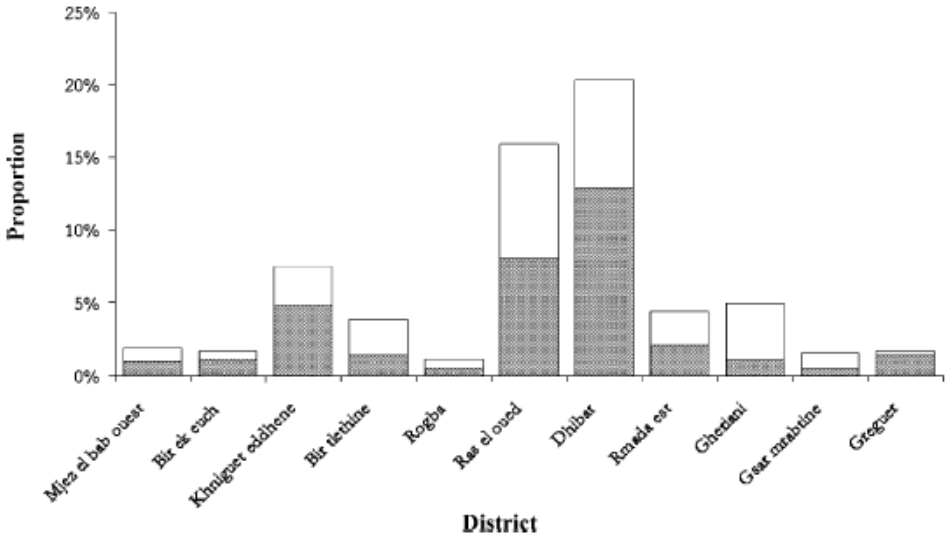
Contents lists available at ScienceDirect

Vaccine

journal homepage: www.elsevier.com/locate/vaccine

Heterogeneity of hepatitis B transmission in Tunisia: Risk factors for infection and chronic carriage before the introduction of a universal vaccine program☆

Nissaf Ben-Alaya-Bouafif[a,*], Olfa Bahri[b], Sadok Chlif[a], Jihène Bettaieb[a], Amine Toumi[a], Hamida Nabil Bel Haj[a], Amor Zâatour[a], Adel Gharbi[a], Koussay Dellagi[c], Hinda Triki[b], Afif Ben Salah[a]



RF in siblings

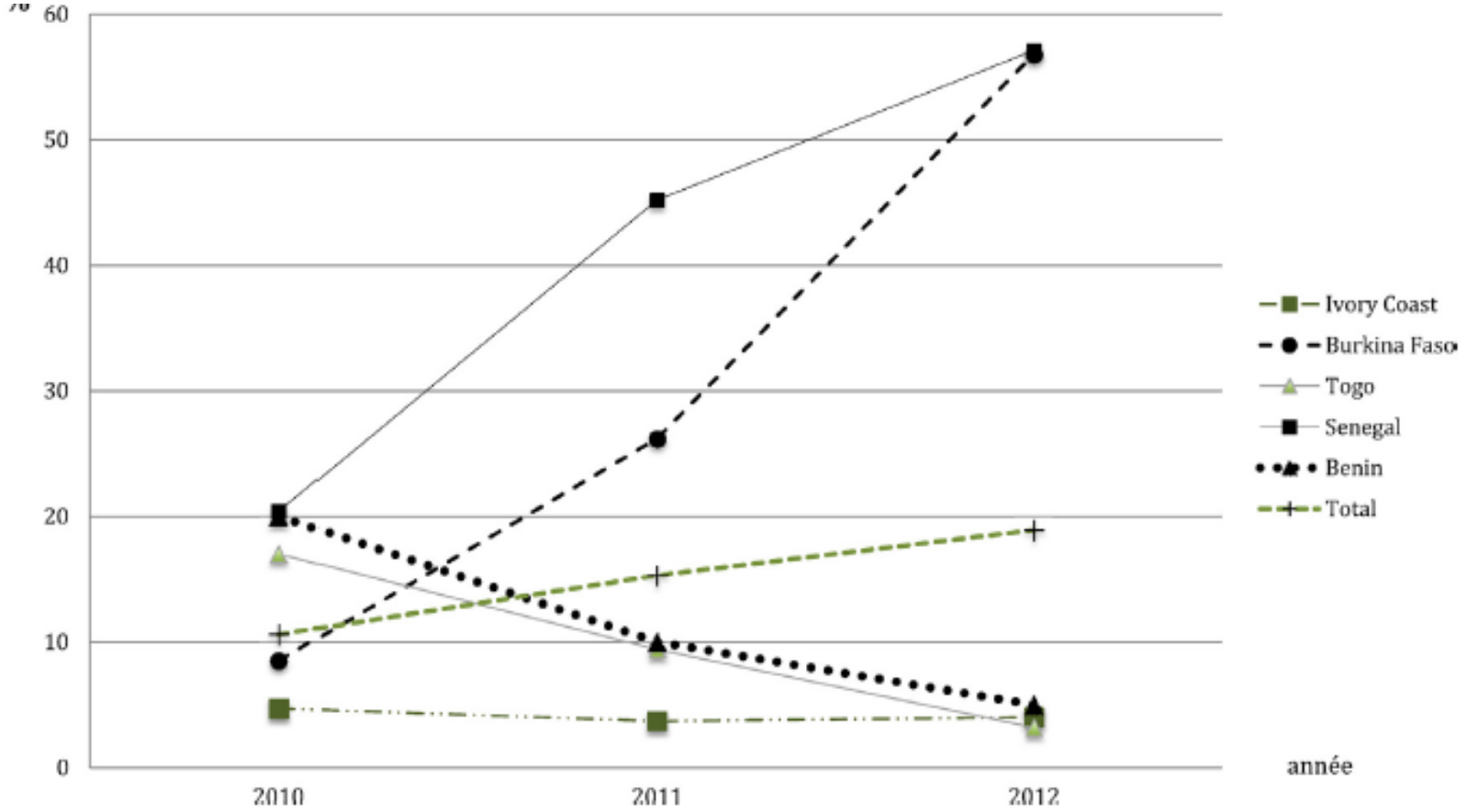
Factors	AOR[a]	95% CI
HBsAg (positive/negative), $N = 2892$		
HBV chronic carrier mother	10.64	[6.23–17.82]
HBV chronic carrier brother/sisters(s)	13.61	[8.78–21.07]
HBV chronic carrier father	6.00	[3.56–10.13]
Gender (male/female)	1.68	[1.10–2.57]
HBsAg (positive/negative), $N = 5830$		
Needles in the PCC (yes/no)	1.85	[1.24–2.77]
Sewage (yes/no)	0.08	[0.02–0.31]
Scarification practices in the family	2.36	[1.60–3.00]
Gender (male/female)	1.53	[1.23–1.90]

Individual RF

Problème majeur: dépistage!

	Regional estimates						Global	Targets required for elimination	
Indicator	African Region	Region of the Americas	Eastern Mediterranean Region	European Region	South-East Asia Region	Western Pacific Region	2015 baseline	2020	2030
% HBV-infected diagnosed	0.3%	10%	2%	13%	3%	2%	9%	30%	90%

Testing uptake among >2,000 HIV-infected patients from 6 countries in West Africa

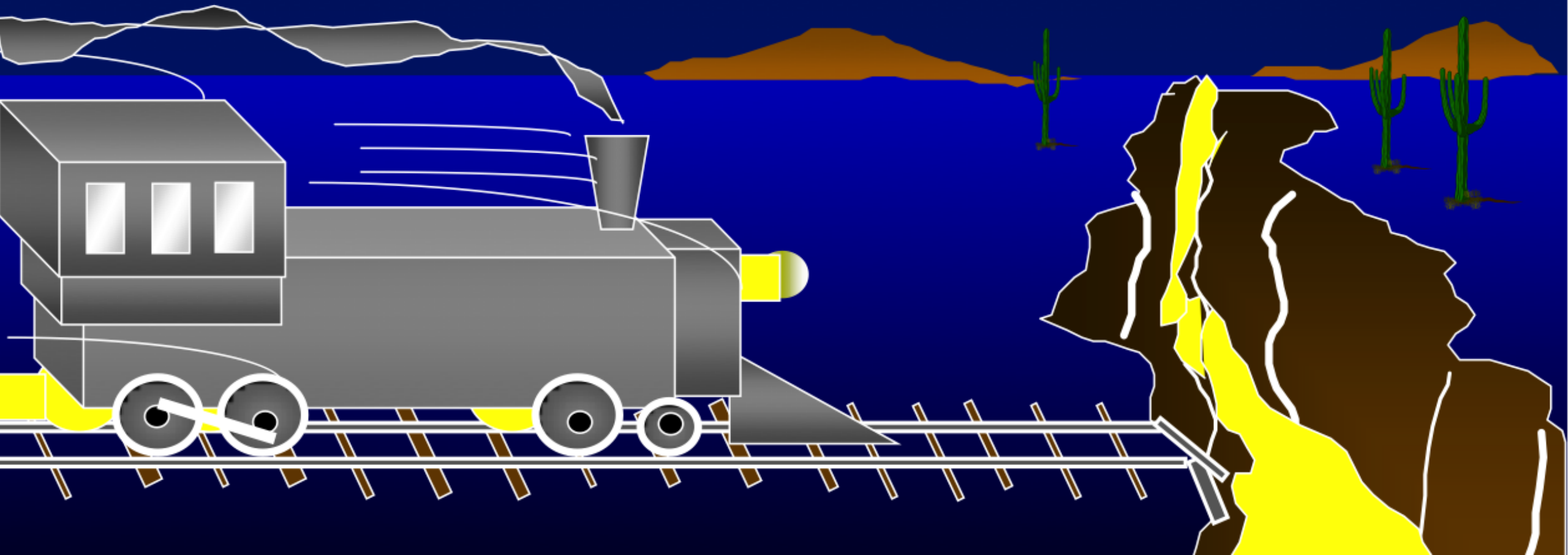


IeDEA
International epidemiologic Databases to Evaluate AIDS

Global Hepatitis Report, *WHO* 2017
Coffie et al. *Med Mal Inf* 2017

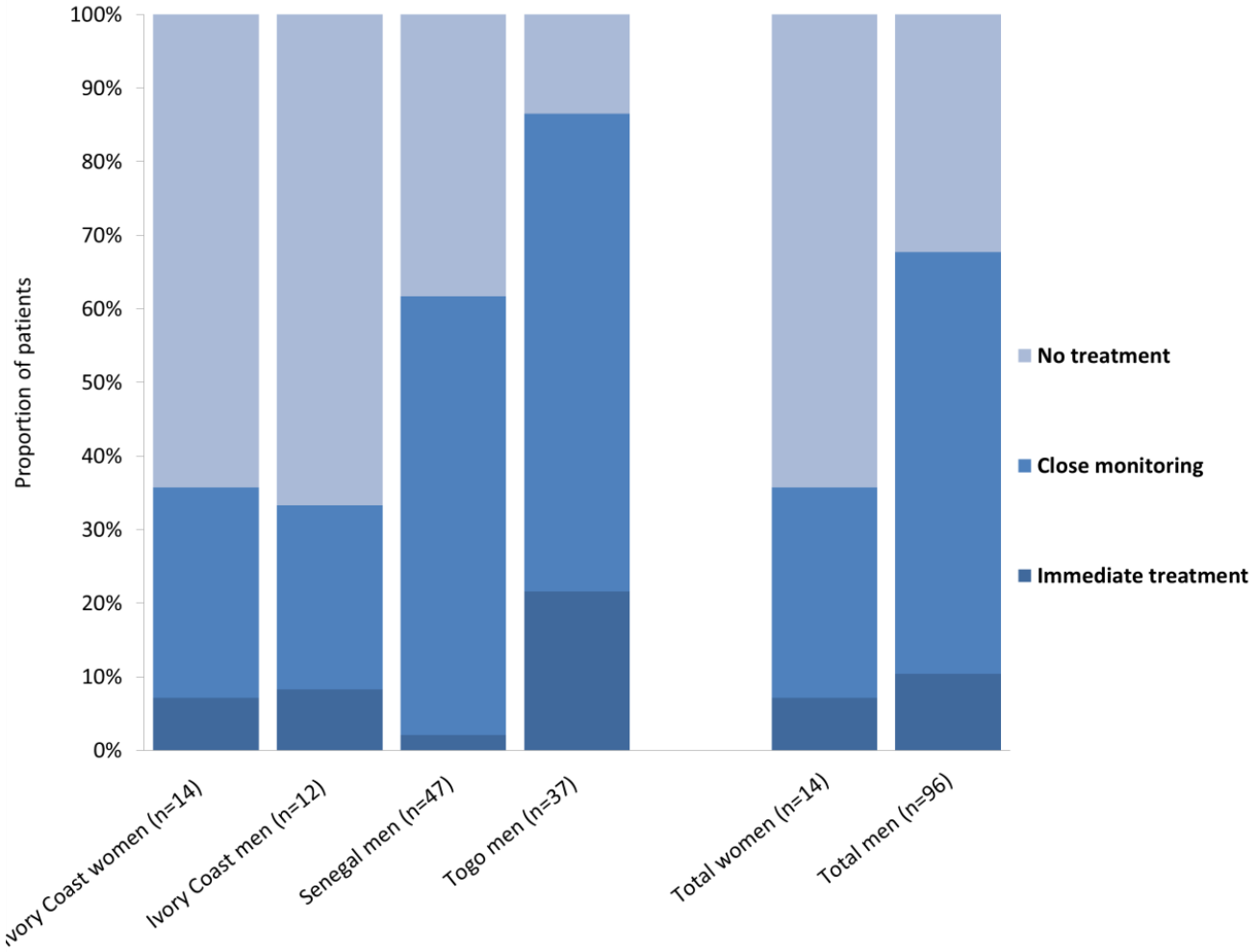
The HBV train

HBV DNA and immune response = engine
ALT/Histological Activity Index (inflammation) = train speed
Fibrosis stage = distance from canyon



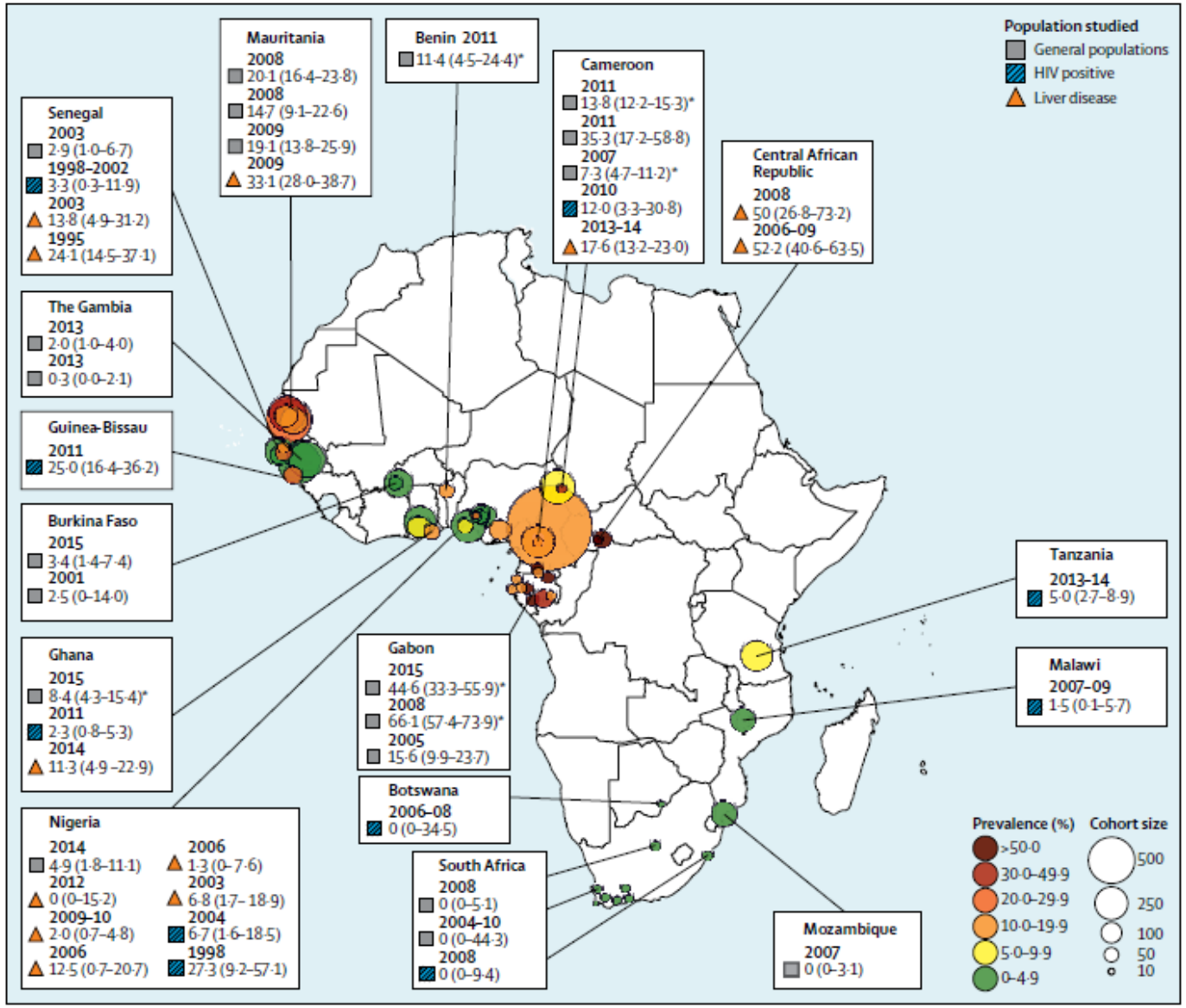
Eligibilité au traitement VHB au sein de populations vulnérables en Afrique de l'Ouest

680 prison inmates
HIV: 3%
HBV: 13%
HCV: 0.5%
Severe fibrosis: 3%



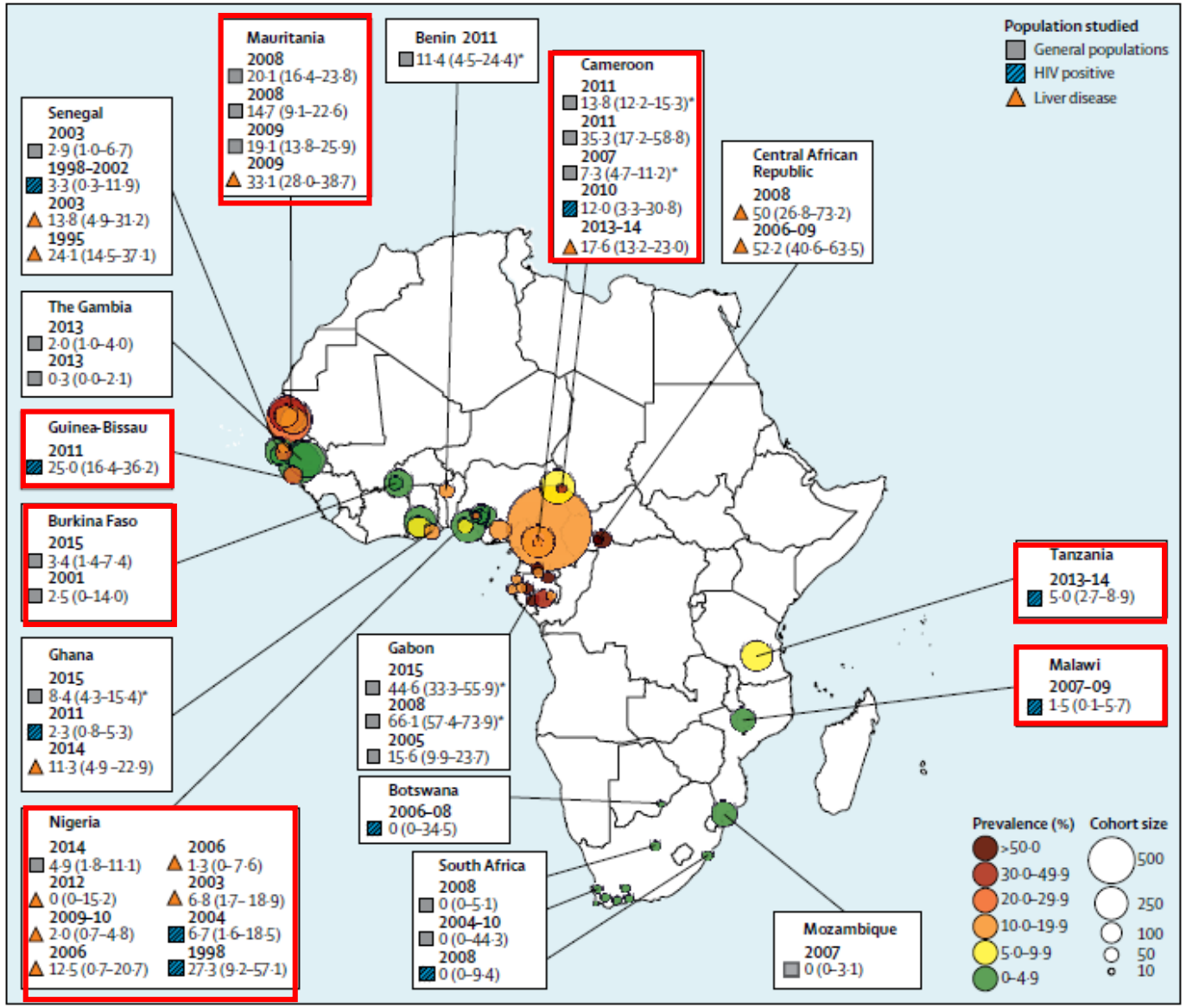
Jaquet et al. *Liver Int 2017*

Prévalence VHD variable: 30 études en Afrique



Stockdale et al. *Lancet GH* 2017

Prévalence VHD: seules 8 études avec confirmation virologique



Stockdale et al. *Lancet GH* 2017

Prévalence VHD: seules 8 études avec confirmation virologique

Contents lists available at ScienceDirect

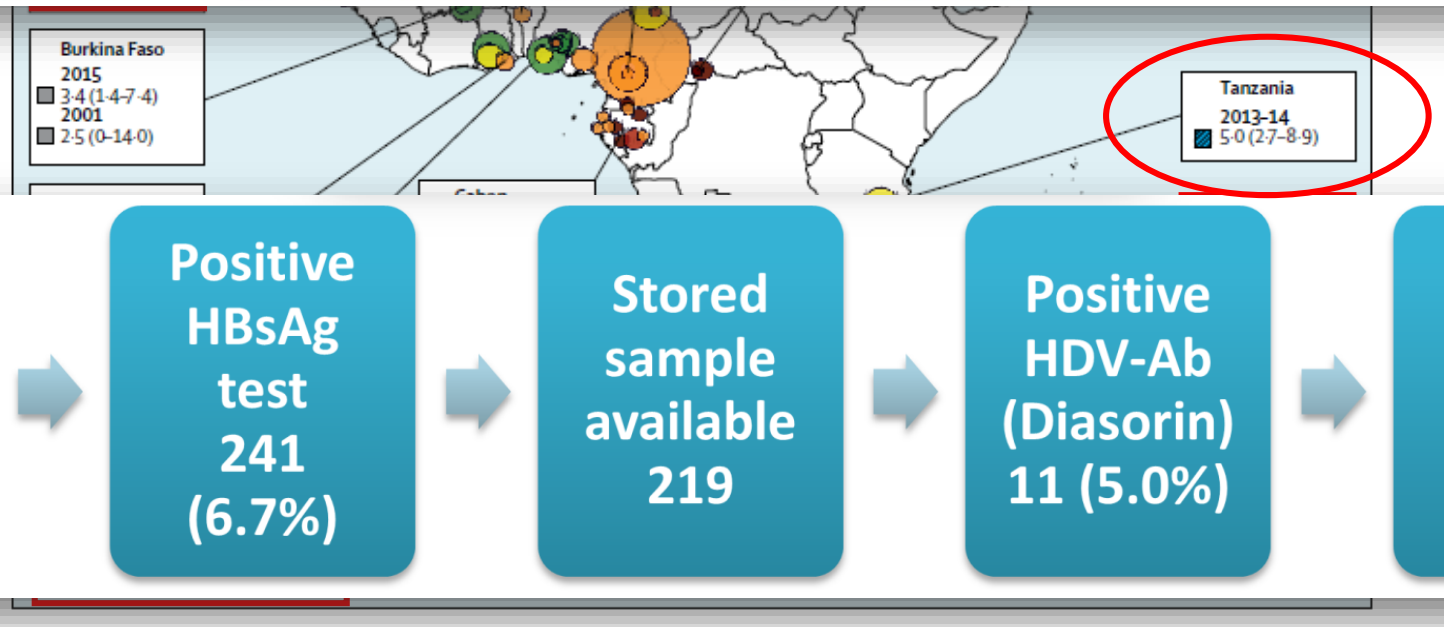
International Journal of Infectious Diseases

journal homepage: www.elsevier.com/locate/ijid

Short Communication

Absence of hepatitis delta infection in a large rural HIV cohort in Tanzania

Annja Winter[a], Emilio Letang[b,c,d], Aneth Vedastus Kalinjuma[c], Namvua Kimera[c], Alex Ntamatungiro[c], Tracy Glass[b], Darius Moradpour[e], Roland Sahli[f], Frédéric Le Gal[g], Hansjakob Furrer[a], Gilles Wandeler[a,h,i,*] and the KIULARCO Study Group

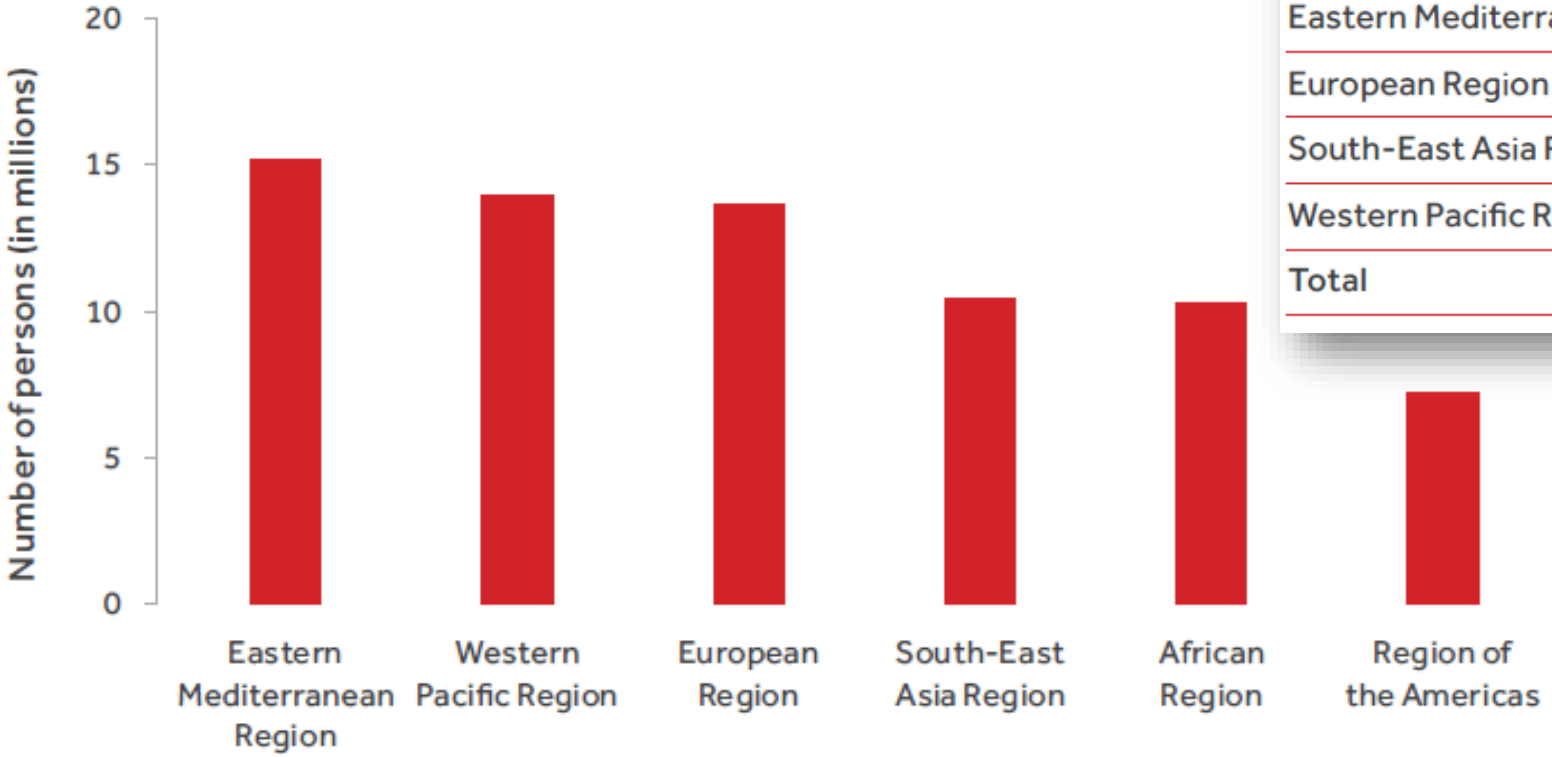


Tested for HBsAg 3,604 → Positive HBsAg test 241 (6.7%) → Stored sample available 219 → Positive HDV-Ab (Diasorin) 11 (5.0%) → Positive HDV-Ab (Diapro) or VL 0

Stockdale et al. *Lancet GH* 2017

Epidemies VHC localisées en Afrique

	Estimates of the prevalence of HCV infection (%)		
		Uncertainty interval	
WHO region	Best	Lower	Higher
African Region	1.0	0.7	1.6
Region of the Americas	0.7	0.6	0.8
Eastern Mediterranean Region	2.3	1.9	2.4
European Region	1.5	1.2	1.5
South-East Asia Region	0.5	0.4	0.9
Western Pacific Region	0.7	0.6	0.8
Total	1.0	0.8	1.1



Global Hepatitis Report, *WHO* 2017

Epidemies VHC localisées en Afrique

WHO TO TEST FOR CHRONIC HCV INFECTION

Testing approach and population	Recommendations*
Focused testing in most affected populations	1. In all settings (and regardless of whether delivered through facility- or community-based testing), it is recommended that serological testing for HCV antibody (anti-HCV)[1] be offered with linkage to prevention, care and treatment services to the following individuals: • **Adults and adolescents from populations most affected by HCV infection**[2] (i.e. who are either part of a population with high HCV seroprevalence or who have a history of exposure and/or high-risk behaviours for HCV infection); • **Adults, adolescents and children with a clinical suspicion of chronic viral hepatitis**[3] (i.e. symptoms, signs, laboratory markers).

	Estimates of the prevalence of HCV infection (%)		
		Uncertainty interval	
n	Best	Lower	Higher
on	1.0	0.7	1.6
Americas	0.7	0.6	0.8
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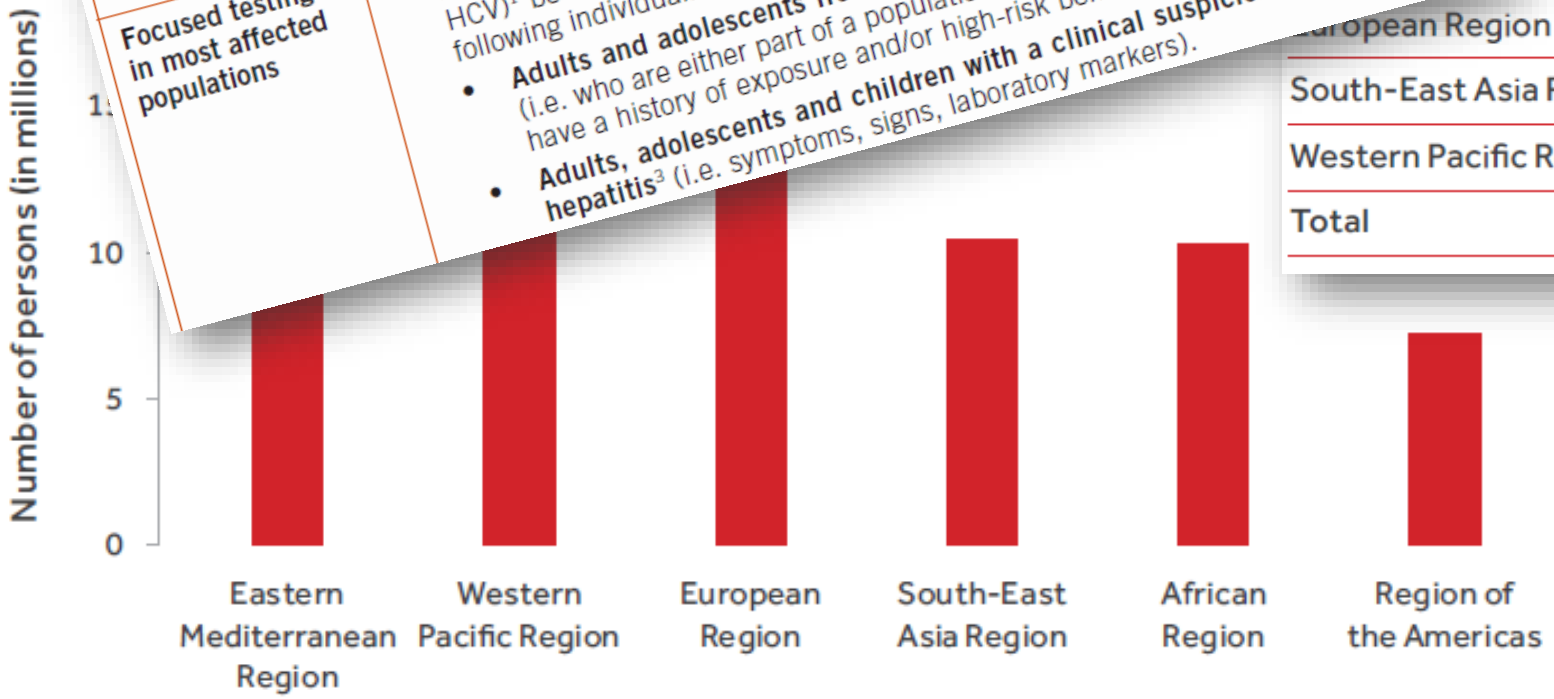
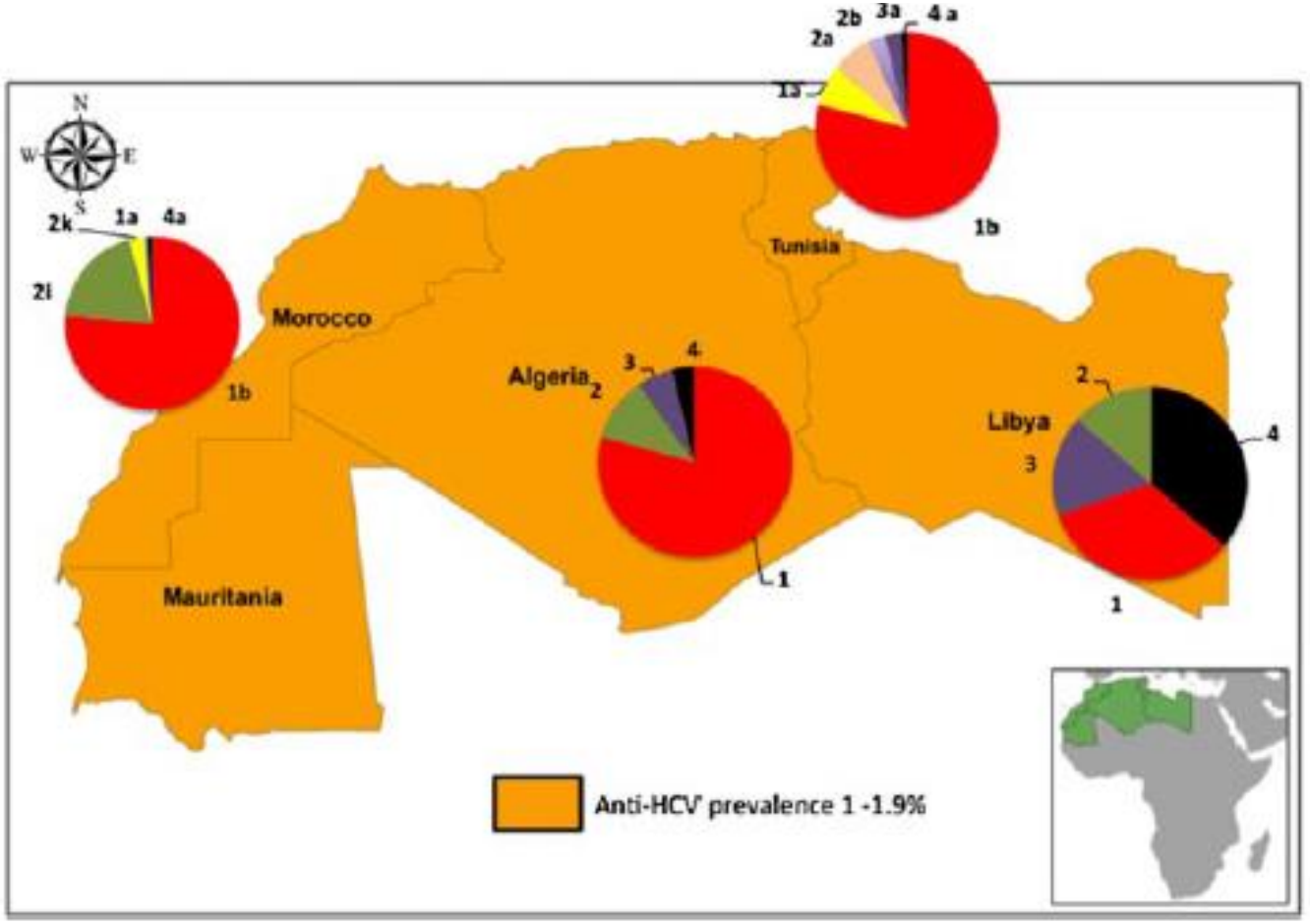


Global Hepatitis Report, *WHO* 2017
Guidelines on HBV and HCV testing, *WHO* 2017

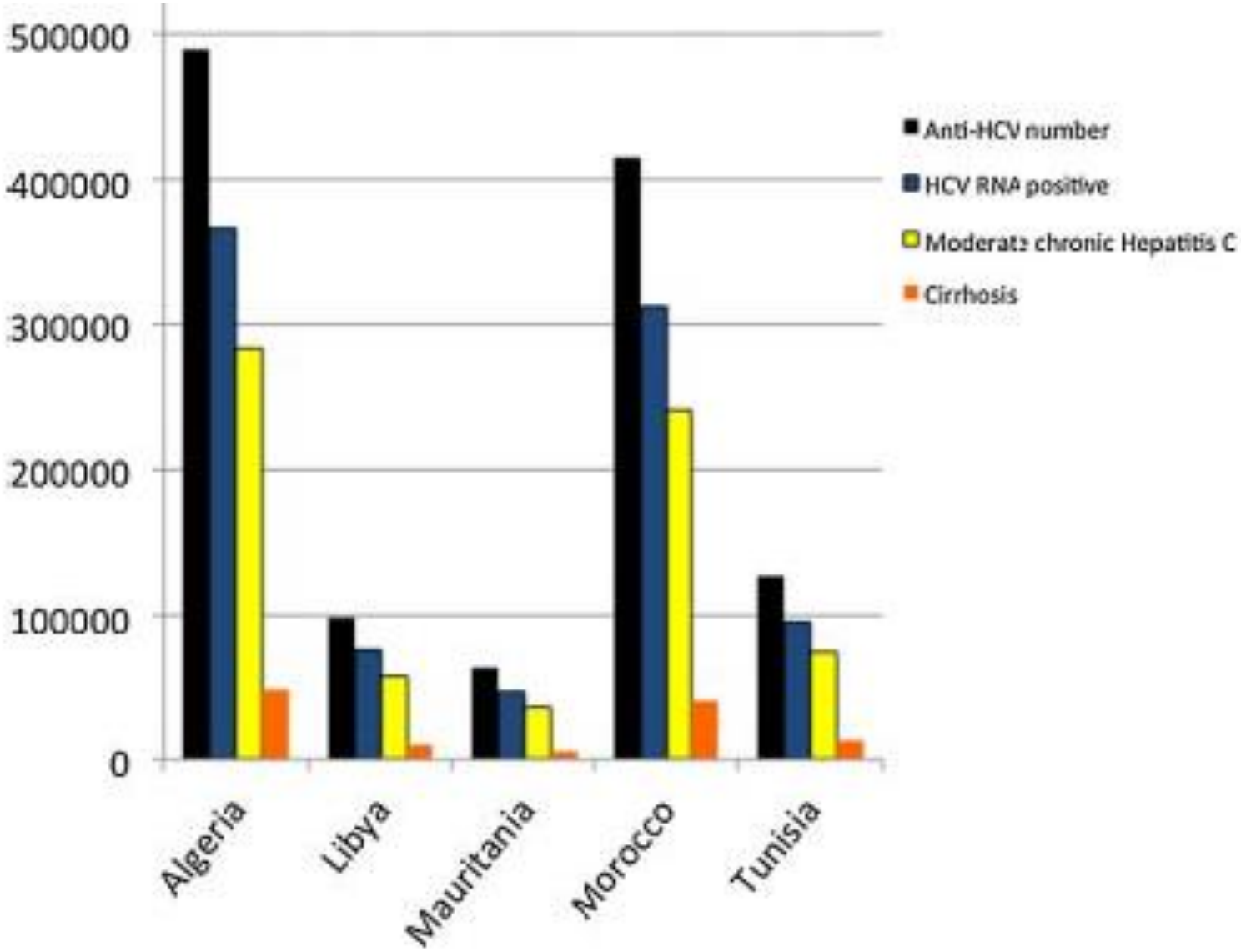
Prévalence anti-VHC et génotypes au Maghreb

	Algeria	Libya	Mauritania	Morocco	Tunisia
General population	1.4	1.5	1.9	1.3	1.2
Blood donors	0.42	1.2	1.1	0.62	0.56
Pregnant women	0.24	2.3	10.69	1	0.5
Haemodialysis	39	20.5	68	48.6	20



Ezzikouri et al. J Med Virol 2013

Cascade VHC au Maghreb



Ezzikouri et al. J Med Virol 2013

Facteurs de risque VHC au Maghreb

Étude originale

Cahiers Santé 2004 ; 14 : 211-6

Risque infectieux lié au sang chez les coiffeurs-barbiers traditionnels et leurs clients au Maroc

150 barbiers: 5% anti-VHC+

LETTER TO THE EDITOR

Prevalence of antibodies to human immunodeficiency virus, hepatitis B, and hepatitis C in prisoners in Libya

Age group (years)	HBsAg positive			Anti-HCV		
	Libyan* (%)	Non-Libyan (%)	*P*	Libyan (%)	Non-Libyan (%)	*P*
16–25	21 (0.3)	44 (0.7)	<0.05	66 (1.1)	18 (0.3)	<0.05
26–40	154 (2.5)	122 (2)	<0.05	1060 (17.3)	78 (1.3)	<0.05
>40	32 (0.6)	38 (0.6)	<0.05	180 (2.9)	59 (0.9)	<0.05

Libyan J Med 2012,

ELSEVIER

Available online at www.sciencedirect.com

SCIENCE DIRECT

Transfusion Clinique et Biologique 12 (2005) 301–305

TRANSFUSION CLINIQUE ET BIOLOGIQUE

http://france.elsevier.com/direct/TRACLI/

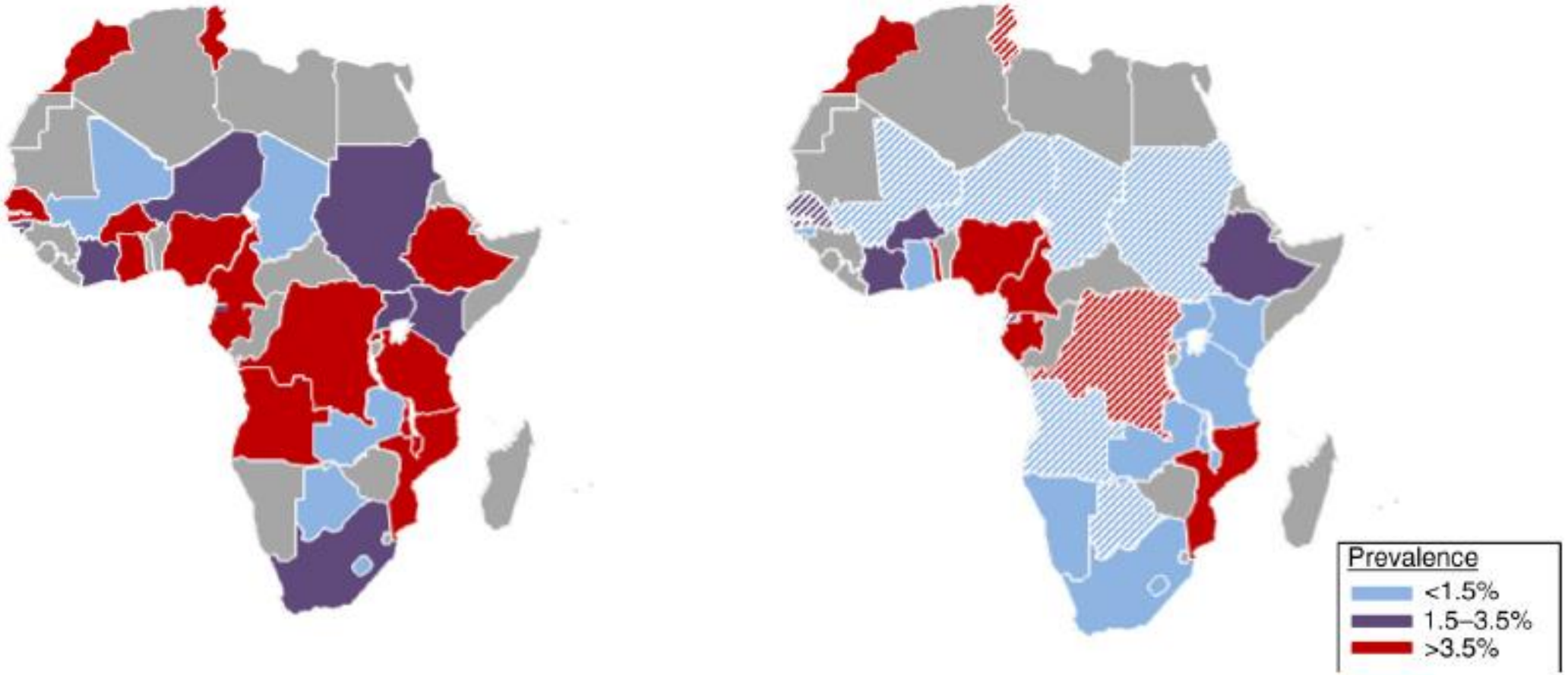
Article original

Infections par des virus transmissibles par le sang chez des hémophiles en Tunisie

		Prévalences Nombre positifs/Nombre sérums testés (%)		
		Globales	Chez les sujets nés avant 1985	chez les sujets nés après 1985
VHB	AgHBs (+)/AcHBc (+)	5/70 (7,1 %)	5/32 (15,6 %)	0/38 (0 %)
	AgHBs (–)/AcHBc (+)	32/70 (45,7 %)	18/32 (56,2 %)	14/38 (36,8 %)
	Total VHB (+)	37/70 (52,9 %)	24/32 (75 %)	13/38 (34,2 %)
VHC		35/70 (50,0 %)	25/32 (78,1 %)	10/38 (37,0 %)

Prévalence VIH/VHC: peut-on se fier aux Ac?

Méta-analyse de 108,000 patients VIH de 152 études dans 35 pays



HCVab-pos.: 8.5% (95% CI: 6.9-10.1)

RNA-pos.: 2.0% (95% CI: 1.5-2.6)

Castro et al. *J Int AIDS Soc* 2016

Challenges diagnostiques VHC

High Frequency of False-Positive Hepatitis C Virus Enzyme-Linked Immunosorbent Assay in Rakai, Uganda

1,000 patients tested
- 76 anti-HCV pos.
- 0 HCV RNA pos.

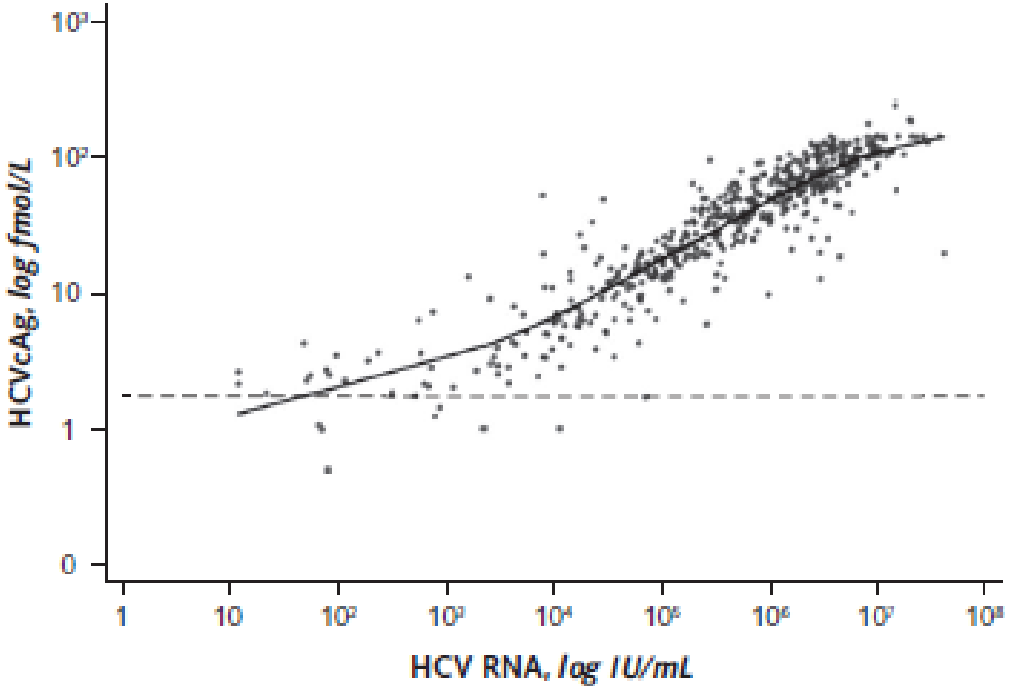
Table 1. Factors Associated With Positive Hepatitis C Virus Enzyme-Linked Immunosorbent Assay

Factor	% HCV ELISA Positive (No.)	OR (95% CI)	*P* Value	Adjusted OR (95% CI)	*P* Value
Age, y					
<30	18.42 (14/191)	1		1	
30–34	13.16 (10/220)	0.60 (.26–1.39)	.234	0.61 (.26–1.42)	.255
35–39	18.42 (14/192)	0.99 (.46–2.15)	.989	0.99 (.46–2.17)	.989
40–44	23.68 (18/167)	1.53 (.73–3.17)	.257	1.57 (.75–3.30)	.235
45–49	17.11 (13/152)	1.18 (.54–2.60)	.676	1.20 (.54–2.66)	.653
≥50	9.21 (7/78)	1.25 (.48–3.22)	.649	1.39 (.53–3.67)	.505
Sex					
Female	6.87 (46/670)	1		1	
Male	9.09 (30/330)	1.36 (.84–2.19)	.213	1.23 (.754–2.02)	.404
HIV status					
Negative	9.00 (45/500)	1		1	
Positive	6.20 (31/500)	0.67 (.42–1.08)	.097	0.61 (.37–1.00)	.049
Schistosoma Ab					
Negative	6.58 (58/882)	1		1	
Positive	15.38 (18/117)	2.58 (1.46–4.56)	.001	2.80 (1.57–5.01)	.001

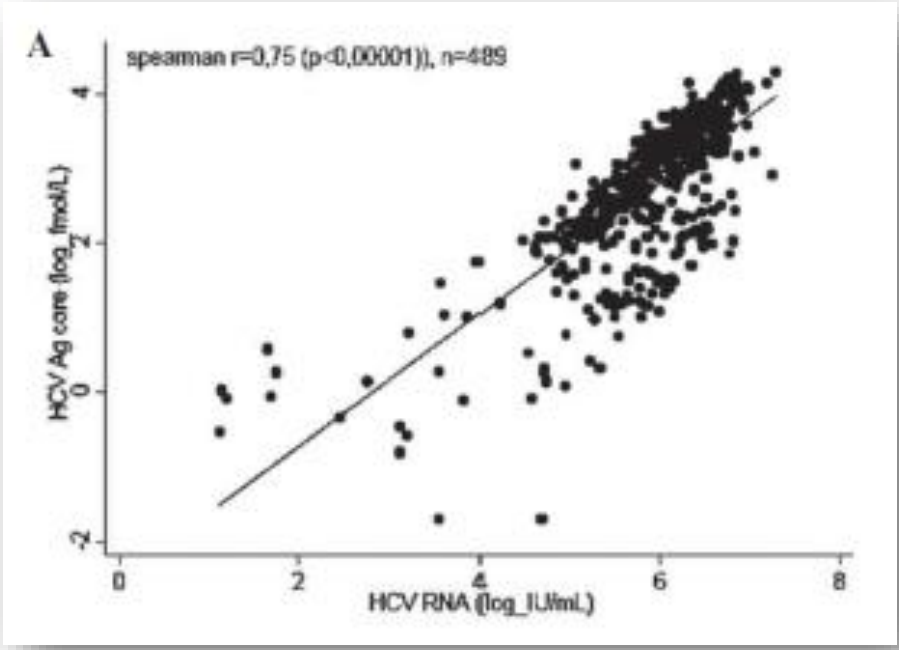
Mullis et al. *Clin Infect Dis* 2013

HCV core antigen: solution miracle?

Index Test	HCV Antibody Status	Studies, *n*	Samples, *n*	Sensitivity (95% CI), %	Specificity (95% CI), %
Abbott ARCHITECT HCV Ag					
By bivariate meta-analysis	All	23	12 670	93.4 (90.1–96.5)	98.8 (97.4–99.5)

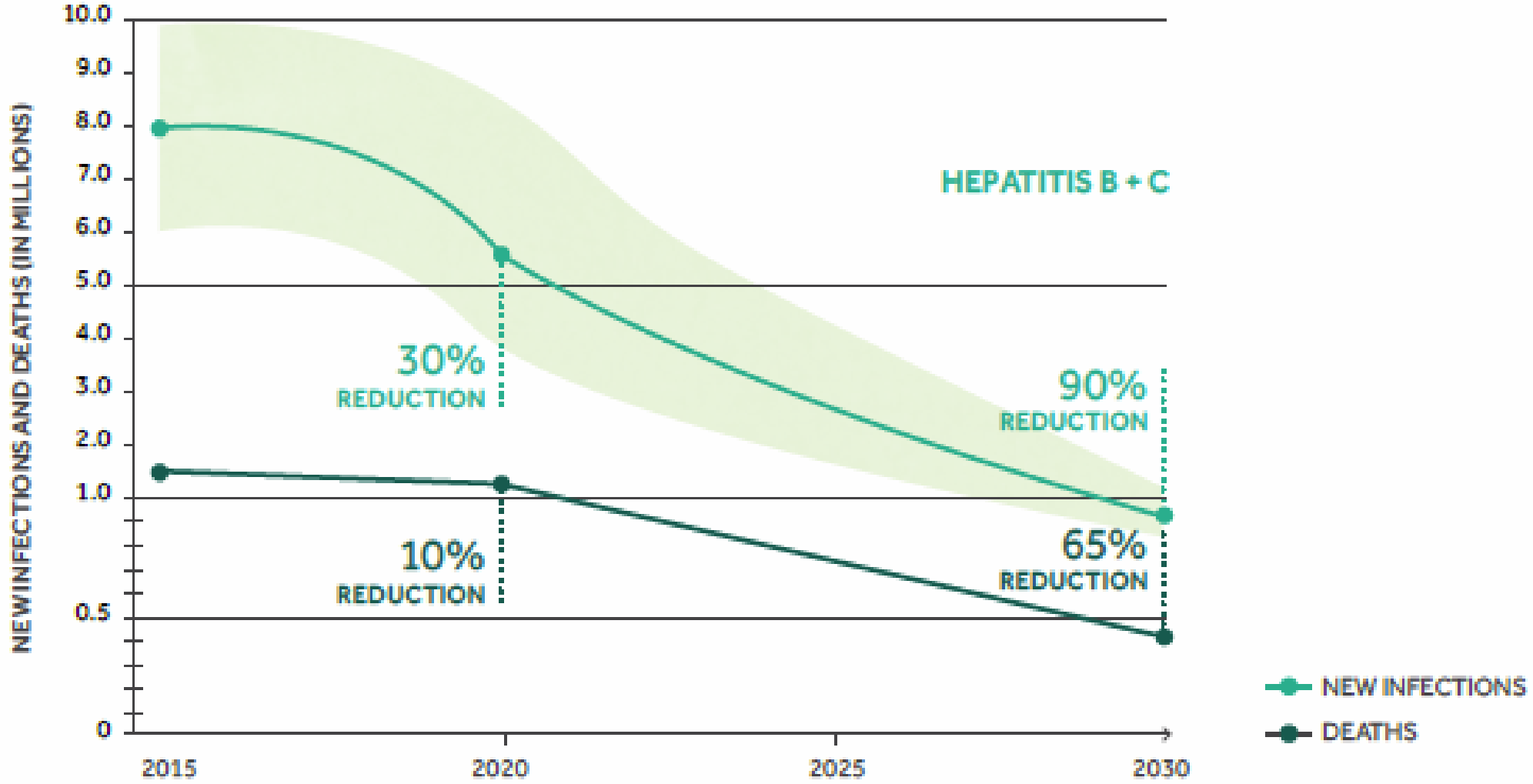


Freiman et al. *Ann Intern Med* 2016



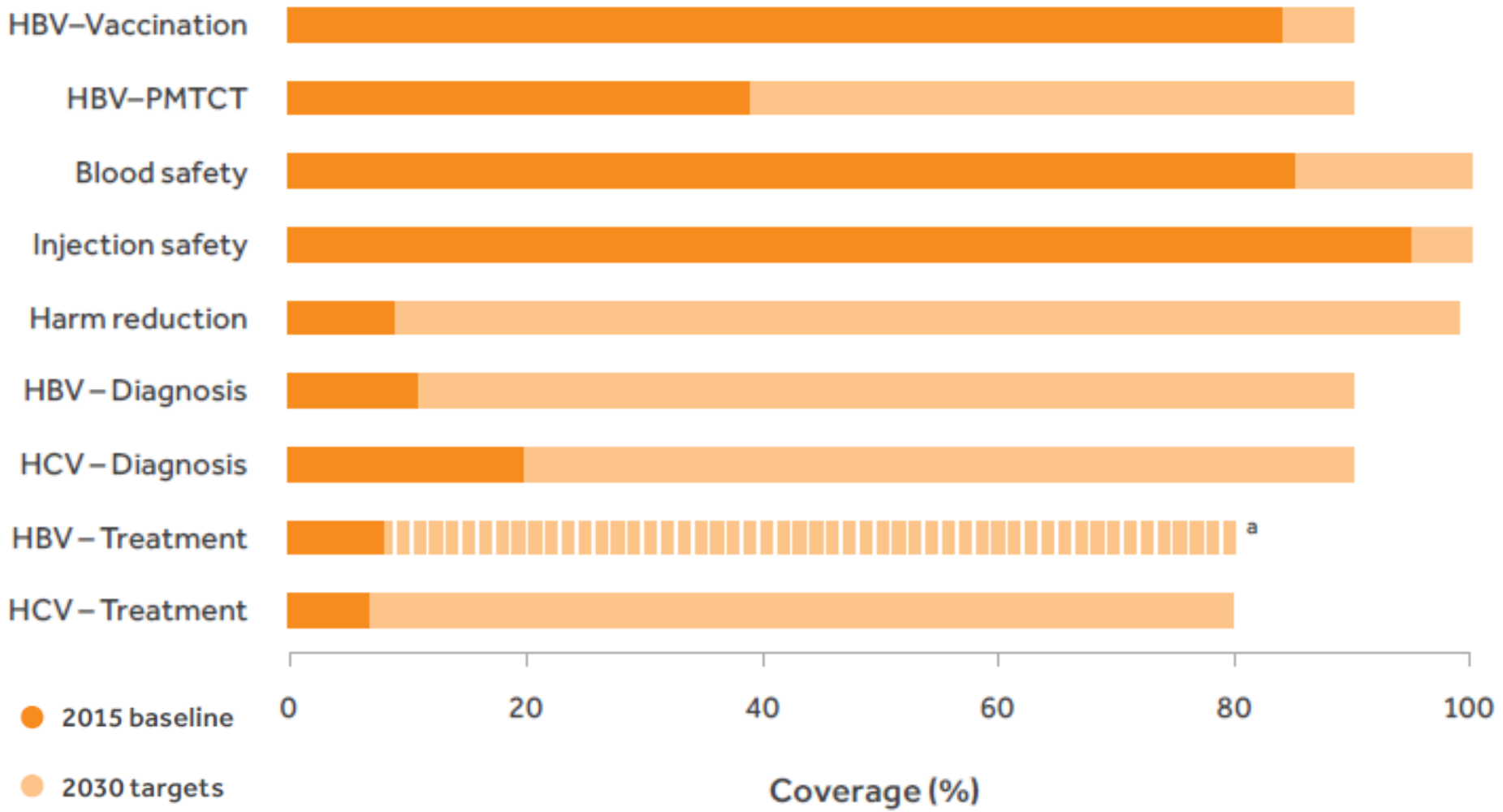
Duchesne et al. *J Int AIDS Soc* 2017

WHA 2016 (GHSS): Call for elimination of viral hepatitis as a public health threat by 2030



Global Hepatitis Report, *WHO* 2017

Targets for the elimination of viral hepatitis by 2030



Global Hepatitis Report, *WHO* 2017

Conclusions

- 1-5% des personnes vivant en Afrique sont infectées par le VHC et 2-12% par le VHB
- L'épidémiologie des infections VHB et VHC au Maghreb semble complexe mais reste peu connue
- L'accès au dépistage et aux autres méthodes diagnostiques sont un obstacle majeur à l'élimination des hépatites virales dans les pays à resources limitées
- La planification de stratégies d'élimination des hépatites virales doit être basée sur des études approfondies, au delà des estimations générales de prévalence.

Merci pour votre attention