

37<sup>es</sup> JHTA

JOURNÉES DE L'HYPERTENSION ARTÉRIELLE

DU DIAGNOSTIC AUX COMPLICATIONS

14-15  
décembre 2017

Paris

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11<sup>th</sup> INTERNATIONAL MEETING OF THE FRENCH SOCIETY OF HYPERTENSION



Société Belge  
d'Hypertension



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Société Suisse  
d'Hypertension

# L'HTA AU MAGHREB: particularités et prise en charge

**Faiçal JARRAYA, MD, FERA**

UR 12ES14, Faculté de Médecine, Université de Sfax, Tunisie.

Service de Néphrologie, CHU Sfax, Tunisie & AGDUC Montélimar, France

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## **Docteur/Professeur Faïçal JARRAYA**

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*L'auteur déclare avoir participé à des interventions ponctuelles  
(essais cliniques, travaux scientifiques, activités de conseil, conférences,  
colloques) pour les entreprises BOEHRINGER, MERCK, SERVIER,*

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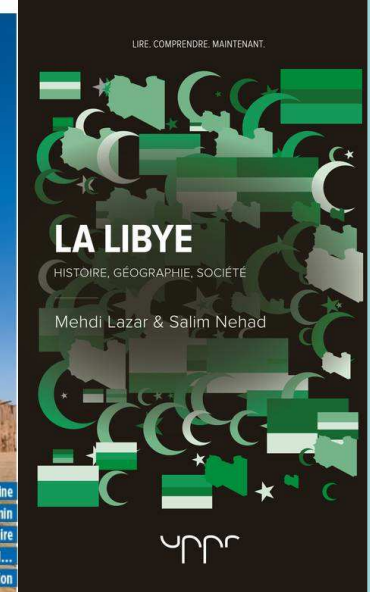
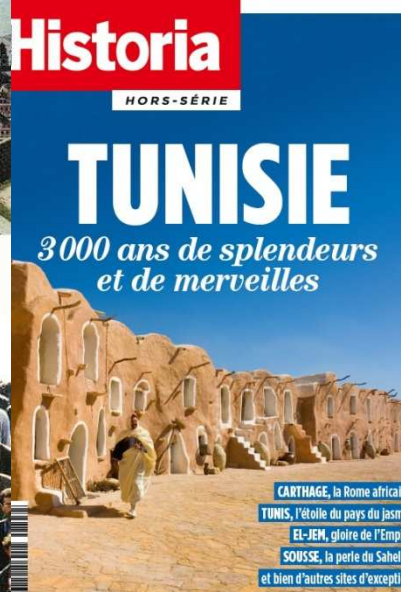
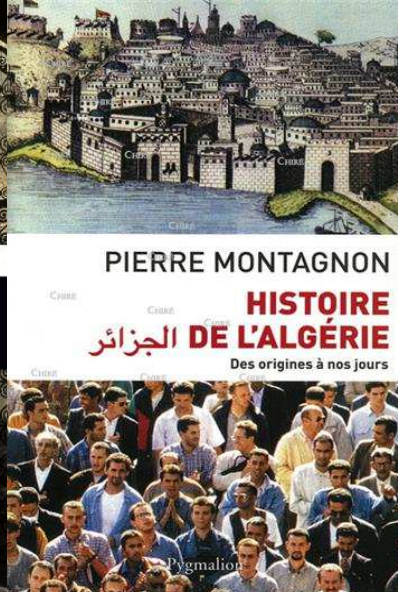
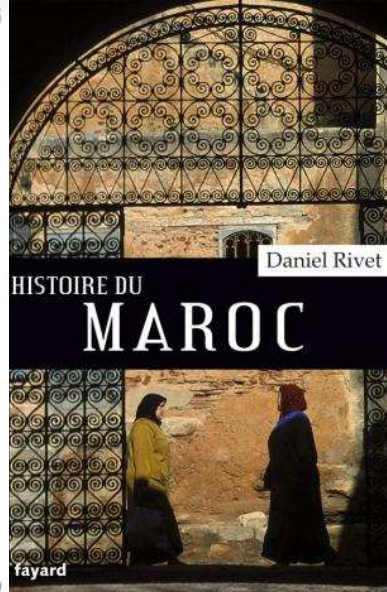
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## MAGHREB:



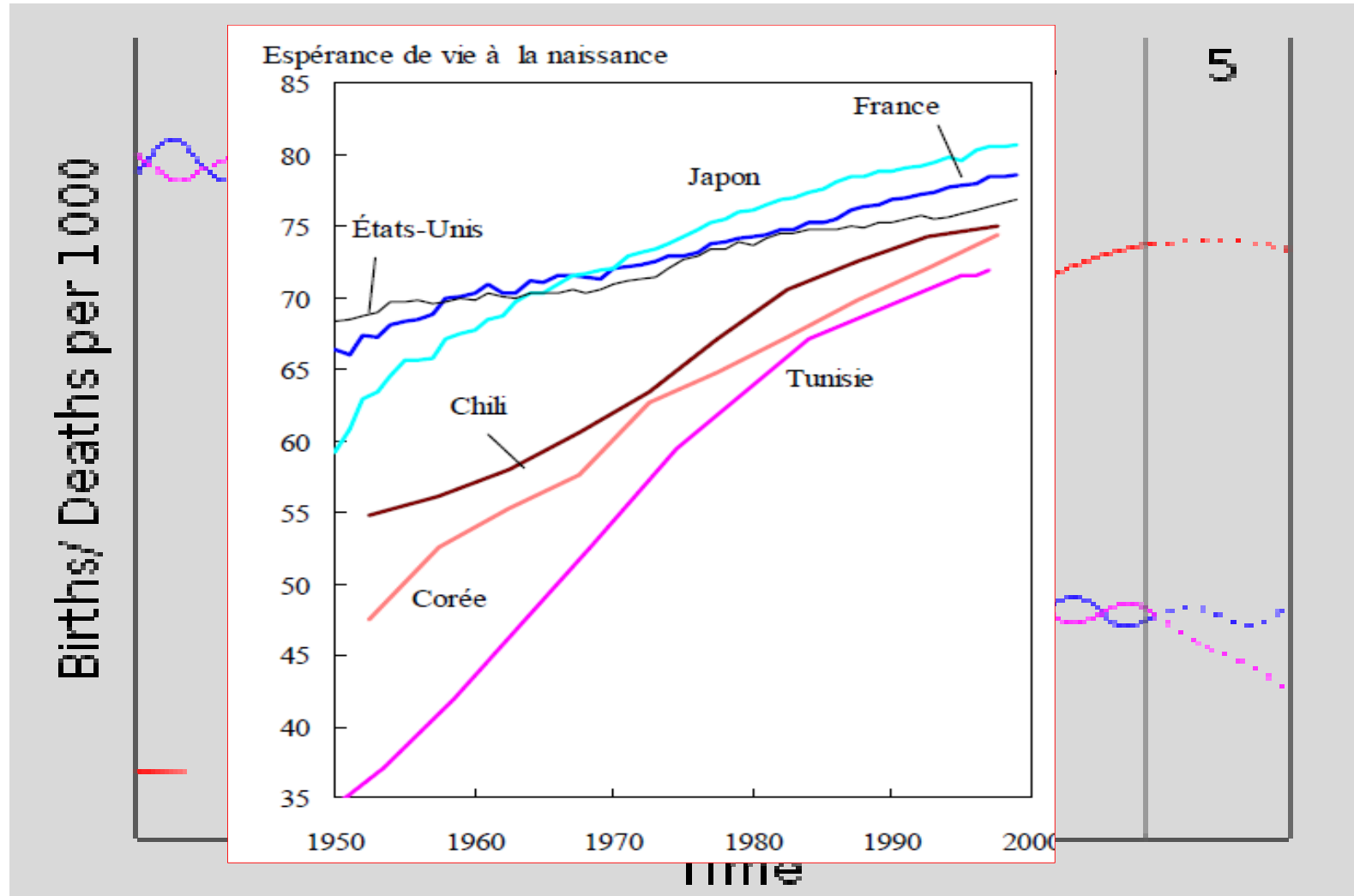
Maghreb  
+3000 ans d'histoire  
Brassage génétique  
multiracial



- Mode de vie de changement rapide
- Développement du niveau de vie orienté vers la surconsommation
- Développement des systèmes de santé
- Eradication/Contrôle des maladies transmissibles
- Développement de la prise en charge sociale et de l'assurance maladie



•Omran A. The Epidemiologic Transition: A theory of epidemiology of population change. Millibank Q. 1971;49:509–38.

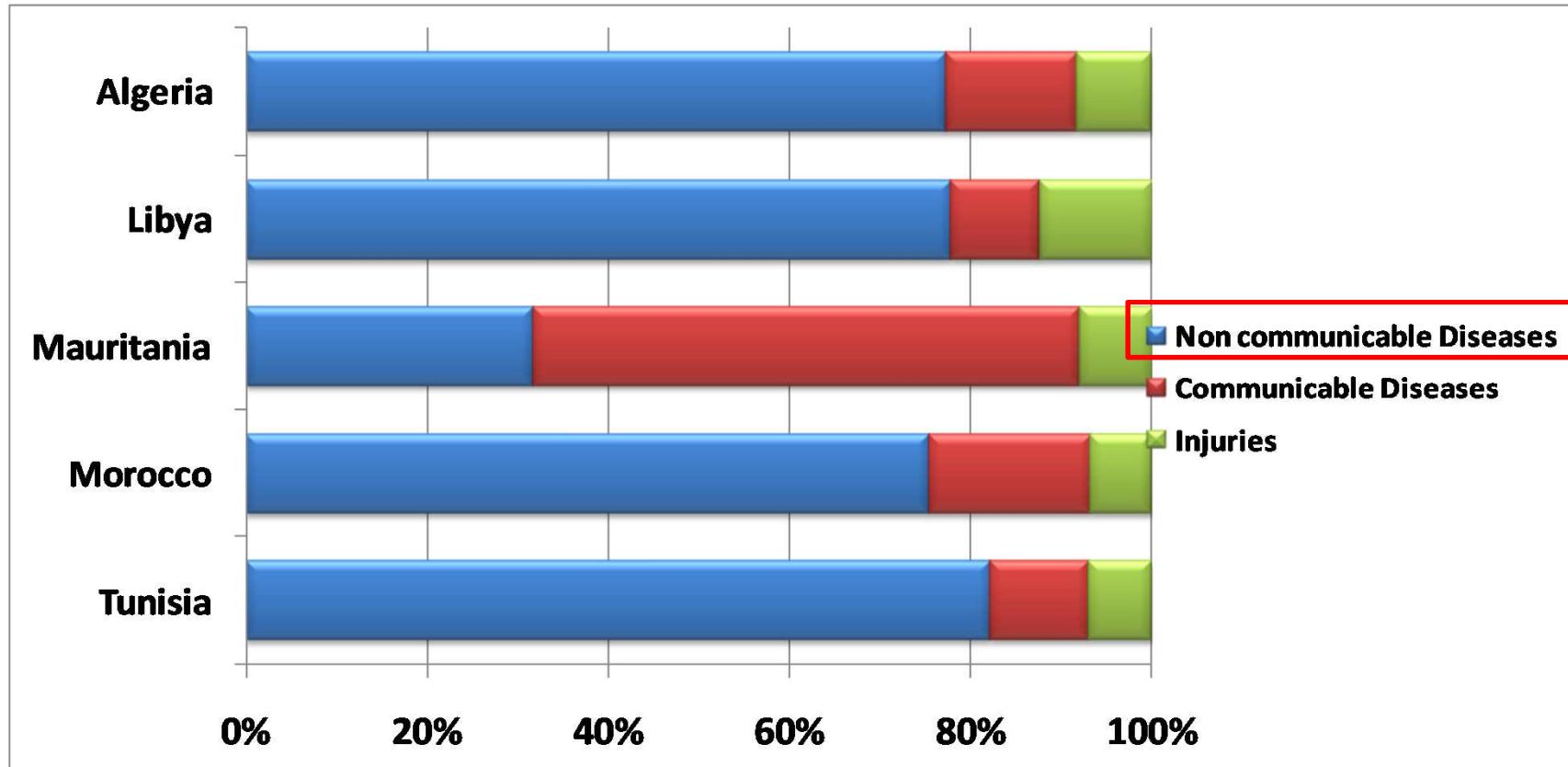


« l'âge de la peste et de la famine »  
(1<sup>er</sup> stade)


« recul des pandémies »  
(2<sup>ème</sup> stade).

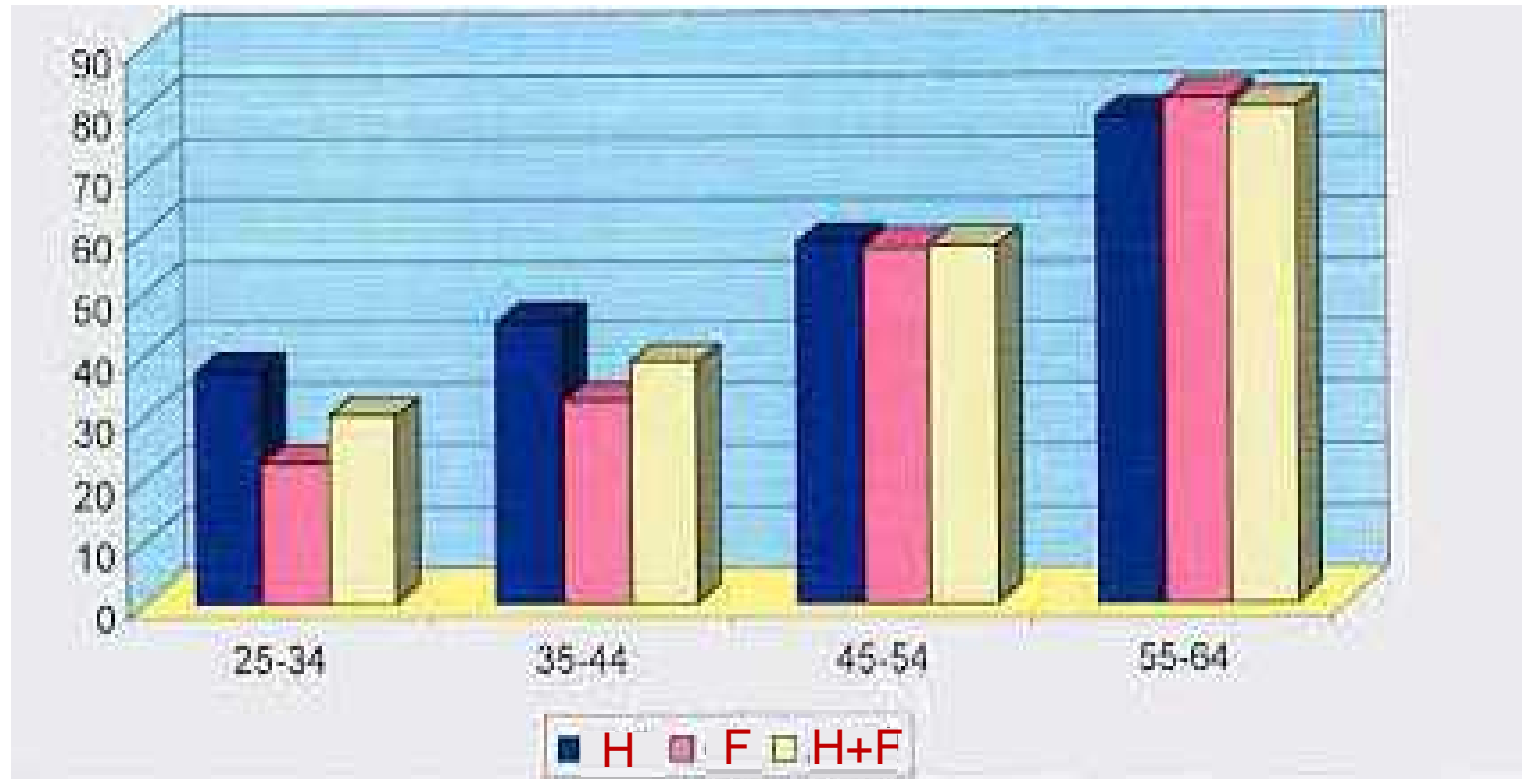
« l'âge des maladies de dégénérescence et des maladies de société »  
(3<sup>ème</sup> stade)

# Maghreb: Causes de décès 2012





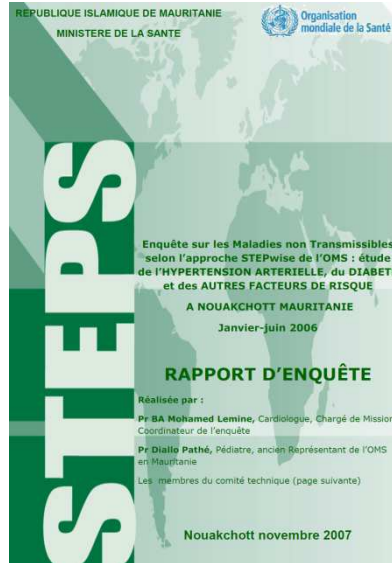
	MAU	MAR	ALG	TUN	LIB
Caisse nationale Assurance Maladie		Oui (fonctionnaires et salariés)	Oui	Oui	
Gratuité des soins pour les plus démunis		Oui	Oui	Oui	
PEC HTA		Oui	Oui	100% HTA « sévère »	
PEC Diabète		Oui	Oui	100%	
Importation médicament Centralisée / libre		Libre	Centralisée et libre	Centralisée <i>Pharmacie Centrale</i>	Libre
Recommandation nationale HTA/année		Oui	Non	Non	
Programme national HTA		Oui		Oui	
Formation Spécialisée acad . en HTA (DU/DIU)		Non	Non	Oui	Non
Soc Nationale HTA	Non	SMHTA	SAHA	Non	Non
Service/centre Sp. HTA	Non	Non	Non	Non	Non



**Prévalence de l'HTA: 40.6% (H: 45.8%, F:35.6%)**

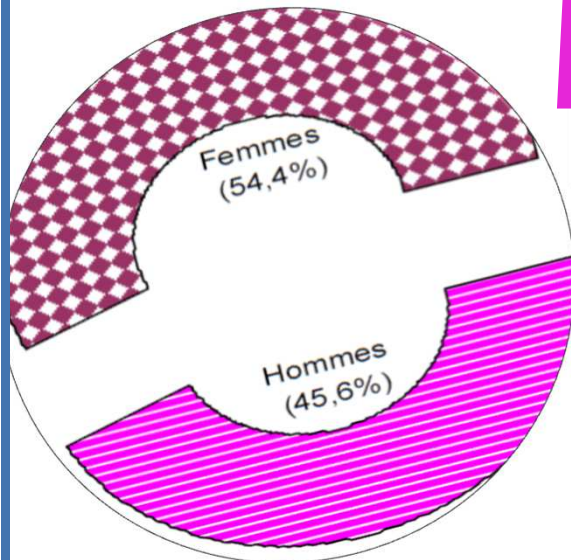


# Mauritania (Nouakchott)



Répartition Age/Sexe

Age (ans)	Hommes		Femmes		Hommes et femmes	
	n	%	n	%	n	%
15-24	289	24.4	340	24.0	629	24.2
25-34	281	23.7	341	24.1	622	23.9
35-44	227	19.1	294	20.8	521	20.0
45-54	191	16.1	241	17.0	432	16.6
55-64	197	16.6	199	14.1	396	15.2
<b>15-64</b>	<b>1185</b>	<b>100.0</b>	<b>1415</b>	<b>100.0</b>	<b>2600</b>	<b>100.0</b>





	SAHA <sup>1</sup> 2004	TAHINA <sup>2</sup> 2005	AIN-AYA <sup>3</sup> 2007	TLEMEN <sup>4</sup> 2008	IN-SALAH <sup>5</sup> 2001-2008	EL-MENIA 2010
Population	1478	4818	1511	1088	1346	727
Âge (années)	≥18	35-70	≥20	35-70	≥40	≥40
HTA (%)	35.3%	24.9%	37.1%	36.1%	44.2%	50.2%

Absence de gradient nord-sud témoignant d'une transition épidémiologique qui gagne même les régions du sud.  
TAHINA présence d'un gradient nord-sud (22,91% vs 12,4%)

1. **Benkhedda S**, Chibane A, Temmar M, et al. Prevalence of cardiovascular risk factors associated to hypertension in the Algerian population. Report SAHA. J Hypertens. 2005;23 (suppl 2)
2. **Atek M**, Ouchfoun A, Laid Y, Ait Mohand A, Fourar D, Kabrane A. La transition épidémiologique et le système de santé en Algérie: Enquête Nationale Santé 2005. Institut National de Santé Publique Algérie & Projet TAHINA (Contrat n° ICA3-CT-2002- 10011) Ed; 2007
3. **Biad A**, Chibane A, Makhoulouf L, Atif ML, Lanari N. Prevalence of hypertension among adults in East Algiers (Ain Taya area), Algeria ESH, 16<sup>e</sup> congress, Milano, Juin 2009, talie ESH book, S P41 p2017
4. **Yahia-Berrouguet A**, Benyoucef M, Meguenni K, Brouri M. Enquête sur la prévalence des facteurs de risque de maladies cardiovasculaires à Tlemcen (Algérie) Médecine des maladies Métaboliques. 2009; 3(3): 313-319
5. **Temmar M**, Labat C, Benkhedda S, Charifi M, Thomas F, Bouafia MT, et al. Prevalence and determinant of Hypertension in the Algeria Sahara. J Hypertens. 2007; 25: 2218-2226



## Prevalence and determinants of hypertension in the Algerian Sahara

Mohamed Temmar<sup>a</sup>, Carlos Labat<sup>b</sup>, Salim Benkhedda<sup>c</sup>, Meriem Charifi<sup>d</sup>, Frederique Thomas<sup>e</sup>, Mohamed Tahar Bouafia<sup>d</sup>, Kathy Bean<sup>e</sup>, Bernadette Darne<sup>f</sup>, Michel E. Safar<sup>f</sup> and Athanase Benetos<sup>b,g</sup>

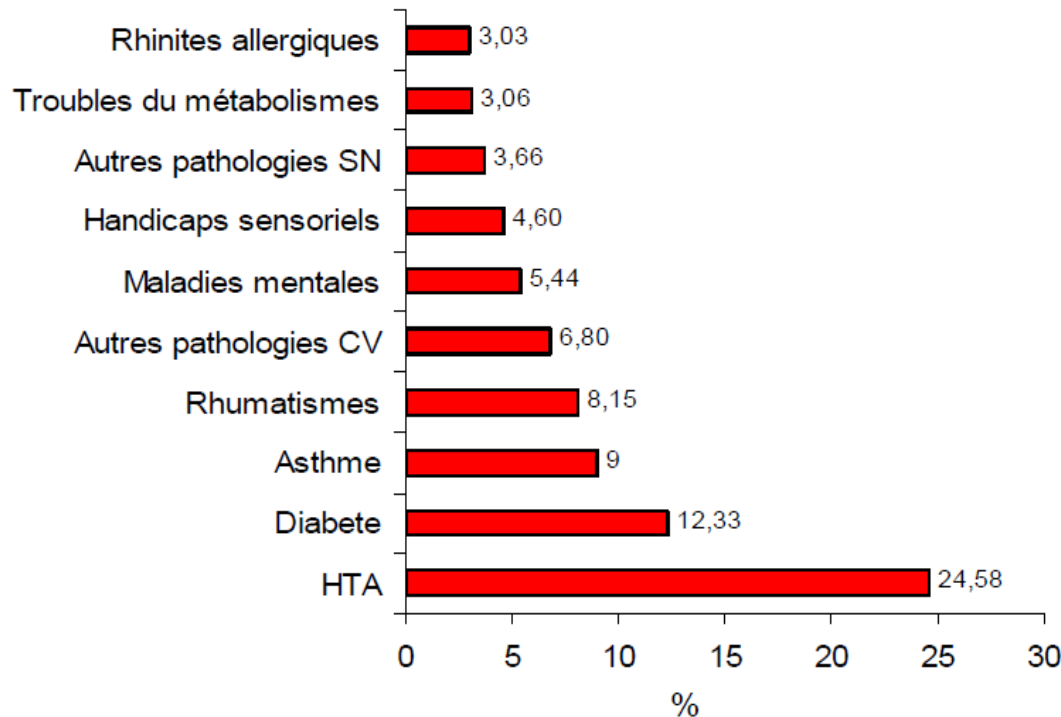
Prevalence of hypertension and effects of antihypertensive treatment according to skin colour and sex

	All	Blacks		Whites		ANOVA (P)		
		Men	Women	Men	Women	Skin colour effect	Sex effect	Interaction
Number	1346	349	372	286	339			
Prevalence of hypertension	594 (44%)	151 (43%)	194 (52%)*	111 (39%)	138 (41%)+	< 0.01	< 0.05	0.19
Antihypertensive therapy among hypertensives	179 (30%)	23 (15%)	81 (42%)*	13 (12%)	62 (45%)*	0.13	< 0.001	0.69
SBP in untreated (mmHg)	134 ± 27	138 ± 28	134 ± 28	135 ± 25	127 ± 26**	< 0.001	< 0.001	0.19
SBP in treated (mmHg)	159 ± 29	169 ± 25	156 ± 28	163 ± 39	157 ± 28	0.71	0.08	0.55
DBP in untreated (mmHg)	80 ± 13	82 ± 14	81 ± 14	80 ± 13	77 ± 12**	< 0.001	< 0.05	0.15
DBP in treated (mmHg)	91 ± 14	97 ± 15	90 ± 15	92 ± 18	89 ± 13	0.22	0.08	0.56
PP in untreated (mmHg)	54 ± 18	56 ± 17	53 ± 19*	55 ± 16	50 ± 18**	< 0.05	< 0.001	0.36
PP in treated (mmHg)	68 ± 20	72 ± 17	66 ± 20	71 ± 24	69 ± 21	0.71	0.25	0.66
BP control among treated								
SBP < 140, DBP < 90	45 (25%)	1 (4%)	25 (31%)*	4 (31%)	15 (24%)	0.24	0.23	< 0.05
SBP < 140, DBP ≥ 90	6 (3%)	1 (4%)	1 (1%)	0 (0%)	4 (6%)	0.90	0.63	0.17
SBP ≥ 140, DBP < 90	49 (28%)	7 (31%)	21 (26%)	3 (23%)	18 (29%)	0.80	0.93	0.54
SBP ≥ 140, DBP ≥ 90	79 (44%)	14 (61%)	34 (42%)	6 (46%)	25 (41%)	0.39	0.19	0.50

ANOVA, Analysis of variance; DBP, diastolic blood pressure; PP, pulse pressure. Values are mean ± SD. \*P < 0.05 versus men and +P < 0.05 versus black.



## ENS 2005 – TAHINA: Fréquence des Maladies Chroniques



## ENS 2005 – TAHINA: Prevalence des FDR CVx

	Homme	Femme	Total
HTA	19.98	28.45	24.93
Diabète	11.93	12.54	12.29
Dyslipidémie	12.52	15.93	14.51

## Prevalence of the main cardiovascular risk factors in Morocco: results of a National Survey, 2000

Mohammed A. Tazi<sup>a</sup>, Saadia Abir-Khalil<sup>b</sup>, Nouredine Chaouki<sup>a</sup>, Sanaa Cherqaoui<sup>a</sup>, Fatima Lahmouz<sup>a</sup>, Jamal E. Sraïri<sup>b</sup> and Jaouad Mahjour<sup>a</sup>

Journal of Hypertension 2003, 21:897–903

Prevalence HTA: 39.6%  
**33.6%**  
après standardisation pour  
la population marocaine  
selon l'âge et le sexe

**HOMMES 30.2%**  
**FEMMES 37.0%**

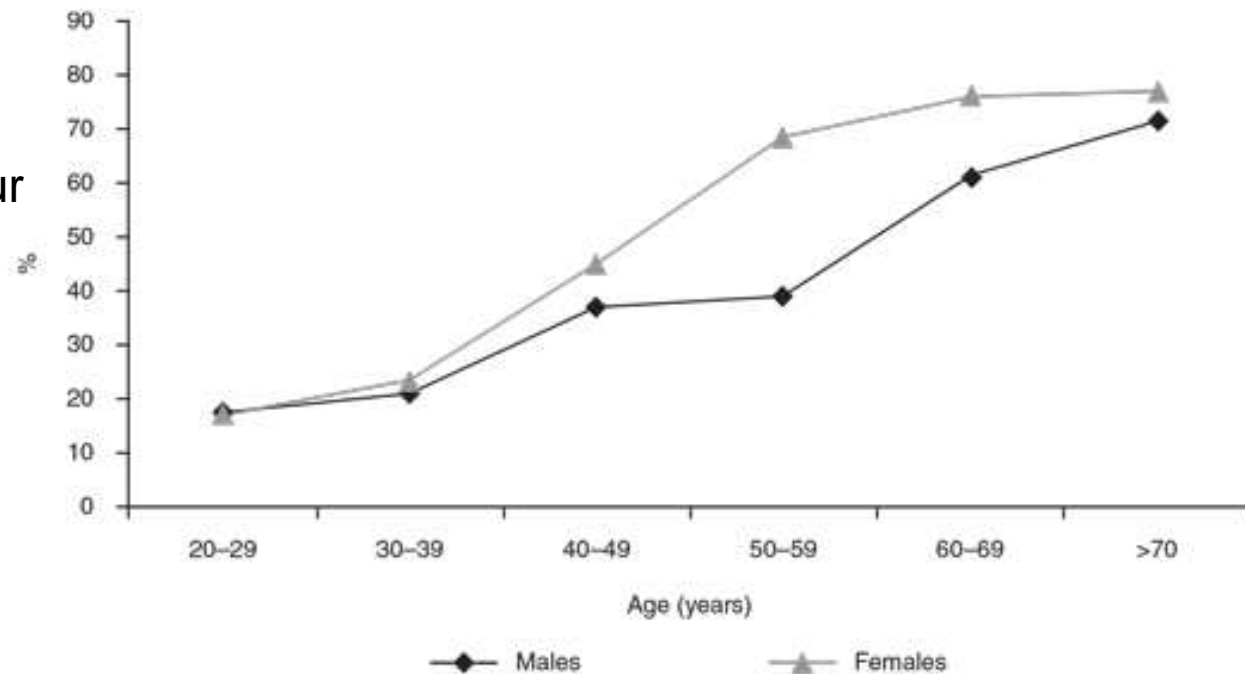


Figure 1 Prevalence of hypertension by age and sex: national health survey, Morocco 2000

Moyenne des PAS Femme vs Homme: **134.0 versus 131.3 mmHg**, P = 0.017

Moyenne des PAD Femme vs Homme: **78.7 versus 76.0 mmHg**, P = 0.0002



F. Jarraya  
K. Kammoun  
H. Mahfoudh  
Kh. Kammoun  
J. Hachicha

# Prise en charge de l'hypertension artérielle en Tunisie: le défi d'un pays en voie de développement

**Tableau 2. Prévalences des facteurs de risque cardiovasculaires en Tunisie<sup>9</sup>**

\*Nombre moyen de cigarettes consommées/jour.

Facteurs de risque cardiovasculaires	Global %	Homme %	Femme %	Urbain %	Rural %
Hypertension artérielle	30,6	27,3	33,5	31,7	26,6
Diabète	9,1	8,9	9,6	10,7	5,6
Hypercholestérolémie	14,0	11,7	16,1	15,4	10,9
Obésité	27,3	16,0	32,8	31,6	18,1
Tabagisme actif*	24,9	48,7	1,9	19,5	18,1



# OBESITE ENFANTS/ADOLESCENTS MAGHREBINS

**Table 1 Characteristics of the sample of 15-19 y, Tunisian adolescents (n = 2870).**

Characteristics	Boys		Girls		P-value <sup>3</sup>
	n <sup>1</sup>	Mean(s.e.) or % <sup>2</sup>	n <sup>1</sup>	Mean(s.e.) or % <sup>2</sup>	
<b>Age (years)</b>	1294	51.0	1576	49.0	
15-17	838	63.2	982	63.2	0.99
18-19	456	36.8	594	36.8	
<b>Area</b>					
Urban	707	62.3	825	62.4	0.93
Rural	587	37.7	751	37.6	
<b>Socio-economic factors</b>					
Household's economic level					
Low	526	38.4	645	37.4	0.14
Intermediate	427	32.1	552	36.0	
High	283	29.5	299	26.6	
Attending school	1292	69.1	1572	74.2	0.020
<b>Anthropometric characteristics</b>					
Body Mass Index (kg/m <sup>2</sup> )	1294	20.9 (0.1)	1576	22.0 (0.1)	< 10 <sup>-4</sup>
No excess weight	1011	76.9	1161	72.9	
Overweight	218	17.9	337	22.3	0.085
Obesity	65	5.2	78	4.8	
Waist circumference (cm)	1287	75.7 (0.4)	1571	73.1 (0.3)	< 10 <sup>-4</sup>
1 <sup>st</sup> tertile	496	33.4	632	36.7	
2 <sup>nd</sup> tertile	433	35.3	468	31.7	0.14
3 <sup>rd</sup> tertile	358	31.3	471	31.7	
<b>Blood pressure (BP) status</b>					
Systolic BP (mmHg)	1294	114.2 (0.4)	1576	110.9 (0.4)	< 10 <sup>-4</sup>
Diastolic BP (mmHg)	1294	68.1 (0.3)	1576	66.6 (0.4)	< 10 <sup>-3</sup>
Elevated BP	1294	46.1	1576	33.3	< 10 <sup>-4</sup>
Hypertension	1294	4.3	1576	5.1	0.45

Aounallah-Skhiri et al. BMC Public Health 2012, 12:98  
http://www.biomedcentral.com/1471-2458/12/98

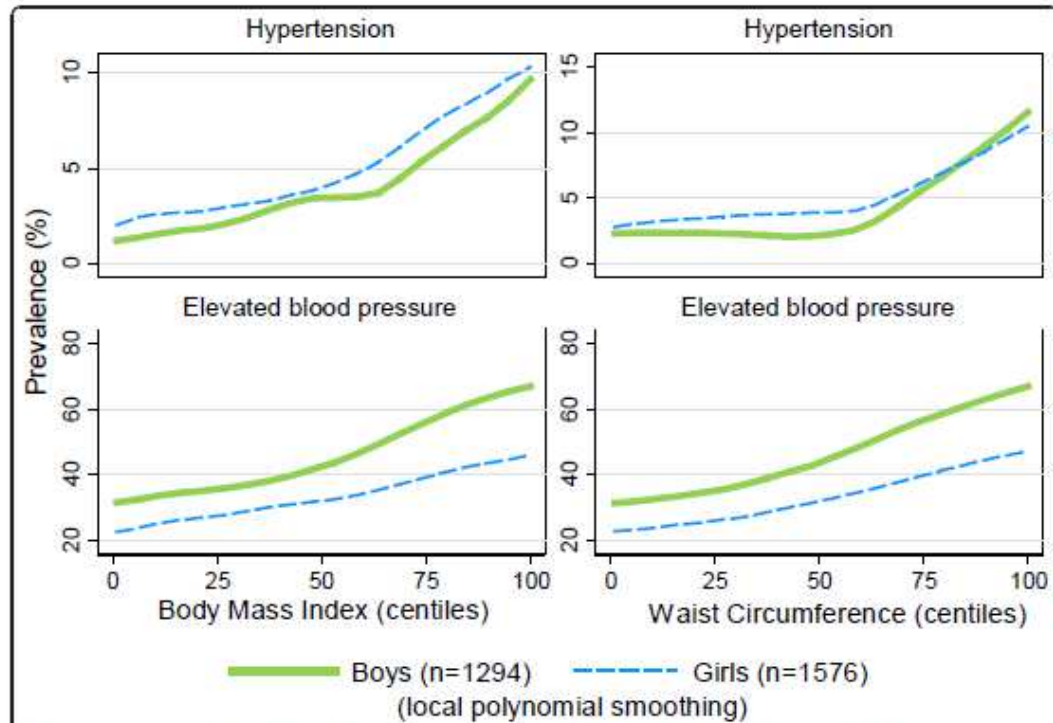


RESEARCH ARTICLE

Open Access

## Blood pressure and associated factors in a North African adolescent population. a national cross-sectional study in Tunisia

Hajer Aounallah-Skhiri<sup>1,2\*</sup>, Jalila El Ati<sup>3</sup>, Pierre Traissac<sup>4</sup>, Habiba Ben Romdhane<sup>1</sup>, Sabrina Eymard-Duvernay<sup>4</sup>, Francis Delpeuch<sup>4</sup>, Noureddine Achour<sup>1</sup> and Bernard Maire<sup>4</sup>

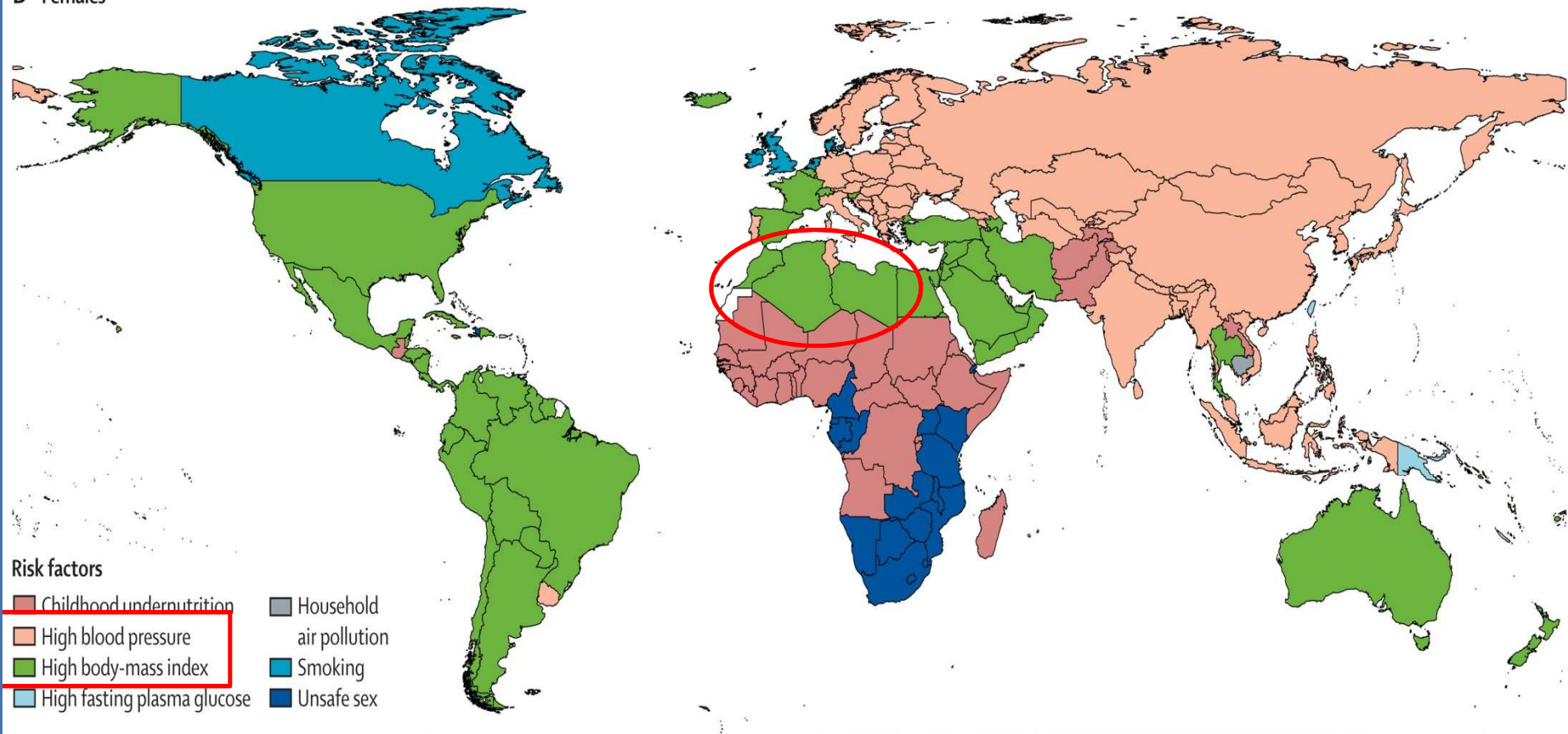


**Figure 1** Prevalence of elevated blood pressure and hypertension according to body mass index and waist circumference. By gender, prevalence of elevated blood pressure and hypertension according to body mass index and waist circumference (in centiles) among Tunisian 15-19 y. adolescents. Overall trends are estimated using local polynomial smoothing.

Global, regional and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks in 188 countries, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013.

Global maps for level 3 risk factors in 2013 of attributable DALYs for **females** (B)  
DALYs=disability-adjusted life-years / années de vie ajustées sur l'incapacité

B Females

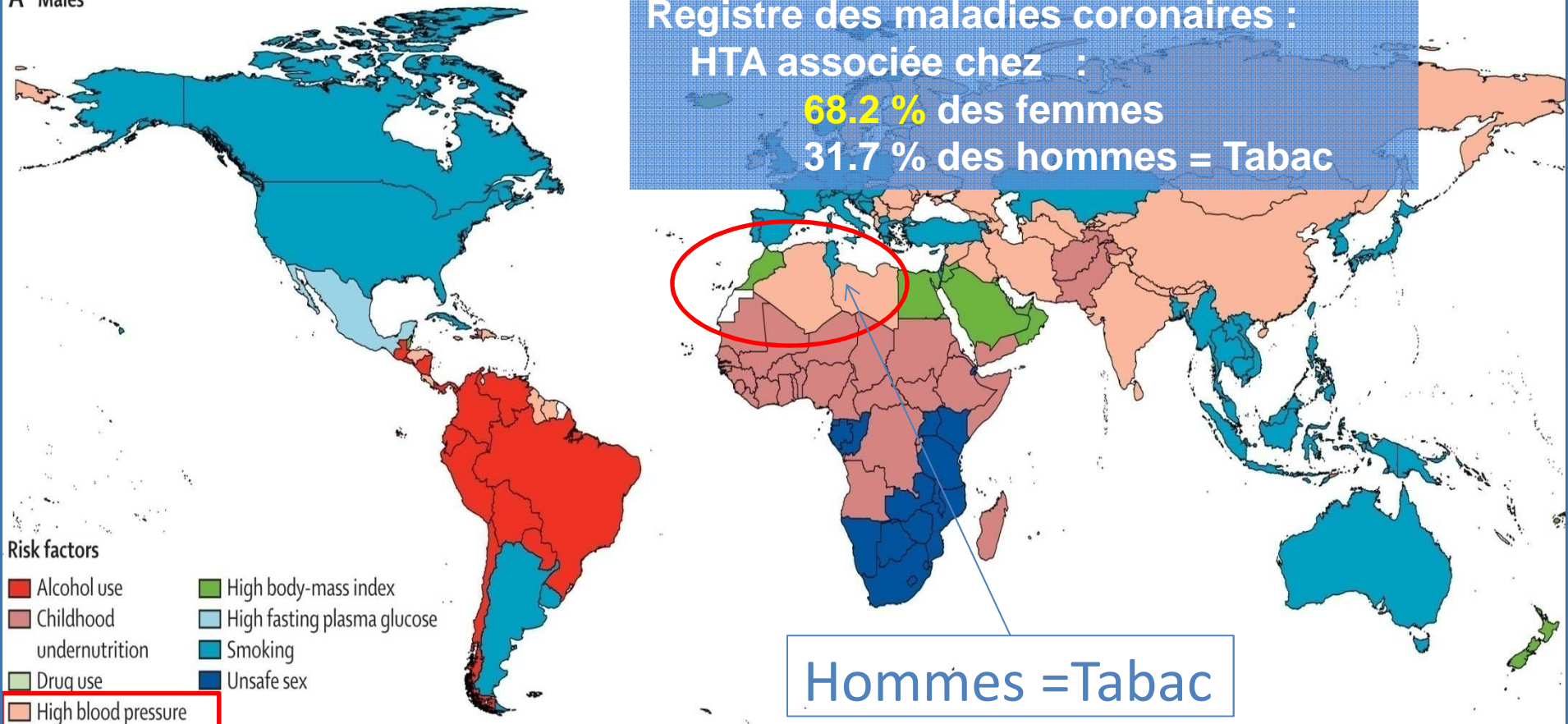


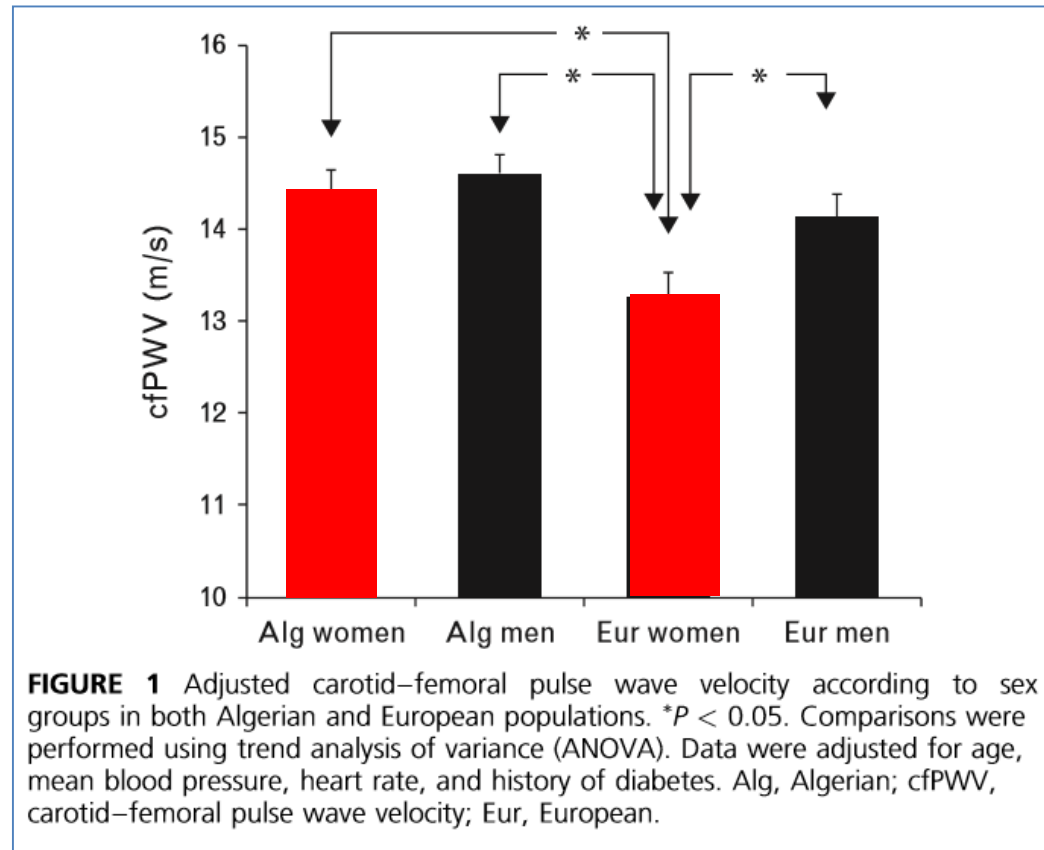


Global, regional and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks in 188 countries, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013.

Global maps for level 3 risk factors in 2013 of attributable DALYs for **males** (A)  
DALYs=disability-adjusted life-years / années de vie ajustées sur l'incapacité

A Males





**TABLE 2. Multiple linear regression analysis with carotid–femoral pulse wave velocity as dependent variable in Algerian and European elderly**

Source	Algerian participants			European participants		
	Regression coefficient	Partial <i>R</i> <sup>2</sup>	<i>P</i>	Regression coefficient	Partial <i>R</i> <sup>2</sup>	<i>P</i>
Age (years)	0.10 ± 0.03	0.03	0.003	0.13 ± 0.03	0.05	<0.001
Diabetes	1.78 ± 0.63	0.02	0.005	1.54 ± 0.47	0.03	0.001
HR (10 bpm)	0.55 ± 0.12	0.07	<0.001	0.46 ± 0.14	0.03	0.002
MBP (10 mmHg)	0.70 ± 0.11	0.11	<0.001	0.55 ± 0.13	0.05	< 0.001
Sex (women)	NA	NA	NS	-0.78 ± 0.33	0.02	0.017
Total <i>R</i> <sup>2</sup>	0.23			0.18		

bpm, beats per minute; cfPWV, carotid–femoral pulse wave velocity; HR, heart rate; MBP, mean blood pressure.

- At birth: - France (2008) :  
Women : **84.4** years vs Men: **77.6 ( 7 years)**  
- Algeria (2010) :  
Women : **77.0** years vs Men: **75.6 ( 1.4 years)**
- At age of 80: - France (2008) :  
Women : **10.5** years vs Men : **8.3 (2 years)**  
- Algeria (2010):  
Women : **7.6** years vs Men : **7.7 ( 0 year)**

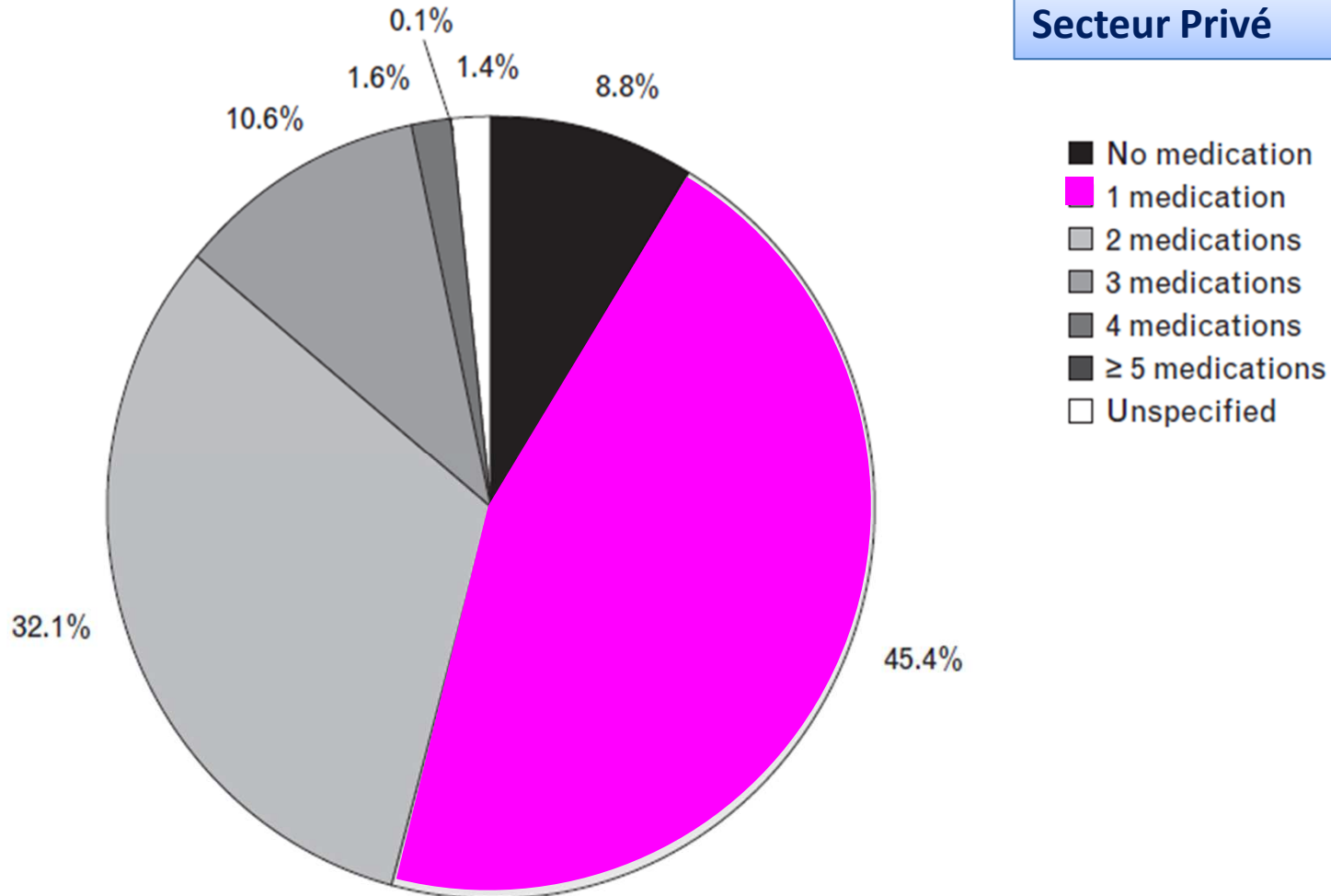
# Epidemiological Trial of Hypertension in North Africa (ETHNA): an international multicentre study in Algeria, Morocco and Tunisia

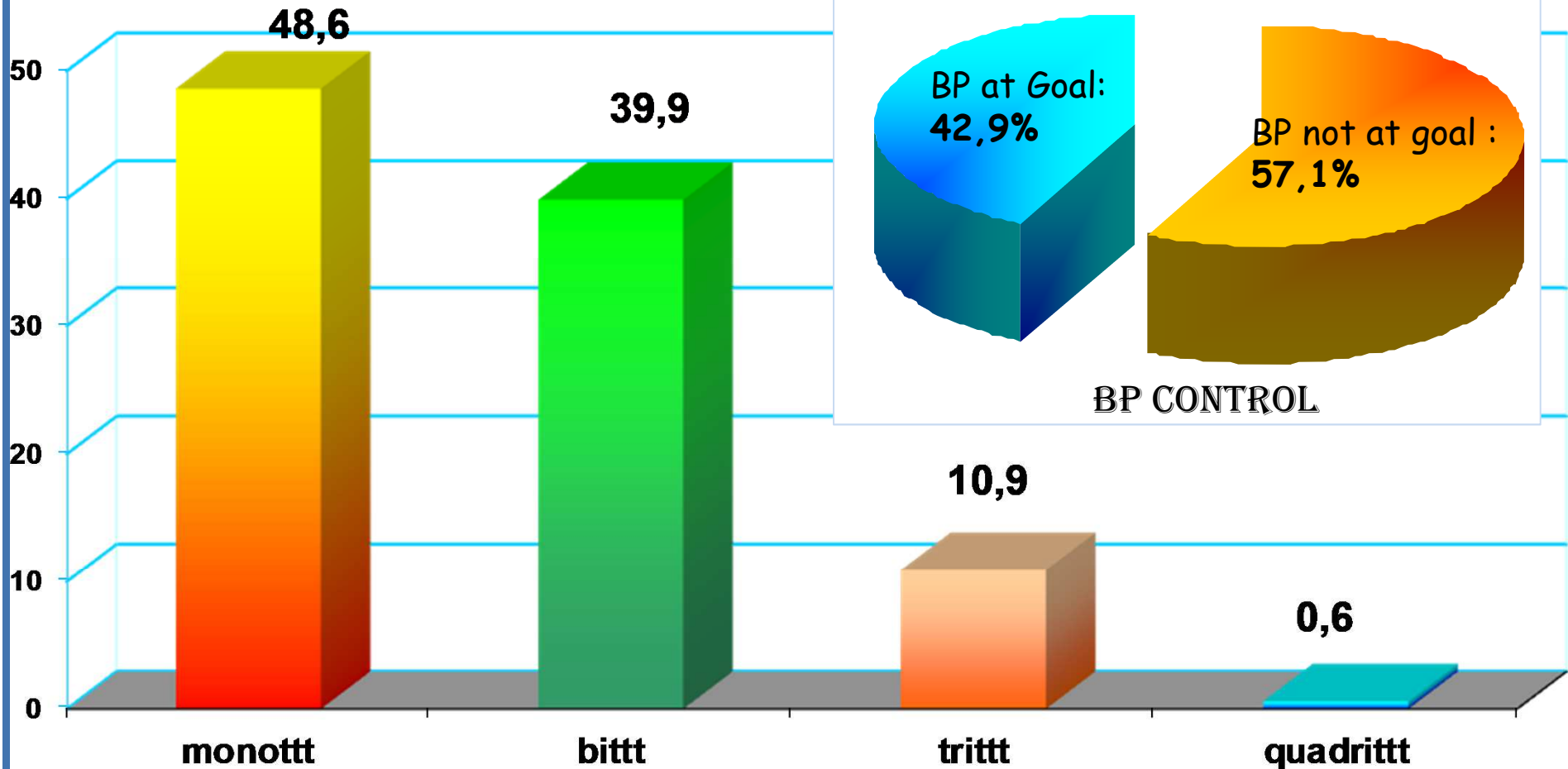
Journal of Hypertension 2013, 31:49–62

Chakib Nejjari<sup>a</sup>, Mohammed Arharbi<sup>b</sup>, Mohand-Tayeb Chentir<sup>c</sup>, Rachid Boujnah<sup>d</sup>, Omar Kemmou<sup>e</sup>, Hafedh Megdiche<sup>f</sup>, Fadhila Boulahrouf<sup>g</sup>, Karima Messoussi<sup>g</sup>, Laila Nazek<sup>e</sup>, and Vladimir Bulatov<sup>e</sup>

**35.7%**  
**controlled hypertension**  
**(BP<140/90mmHg)**

Secteur Privé





BP target and treatment in 2662 Hypertensive patients followed in primary care clinics in Tunisia

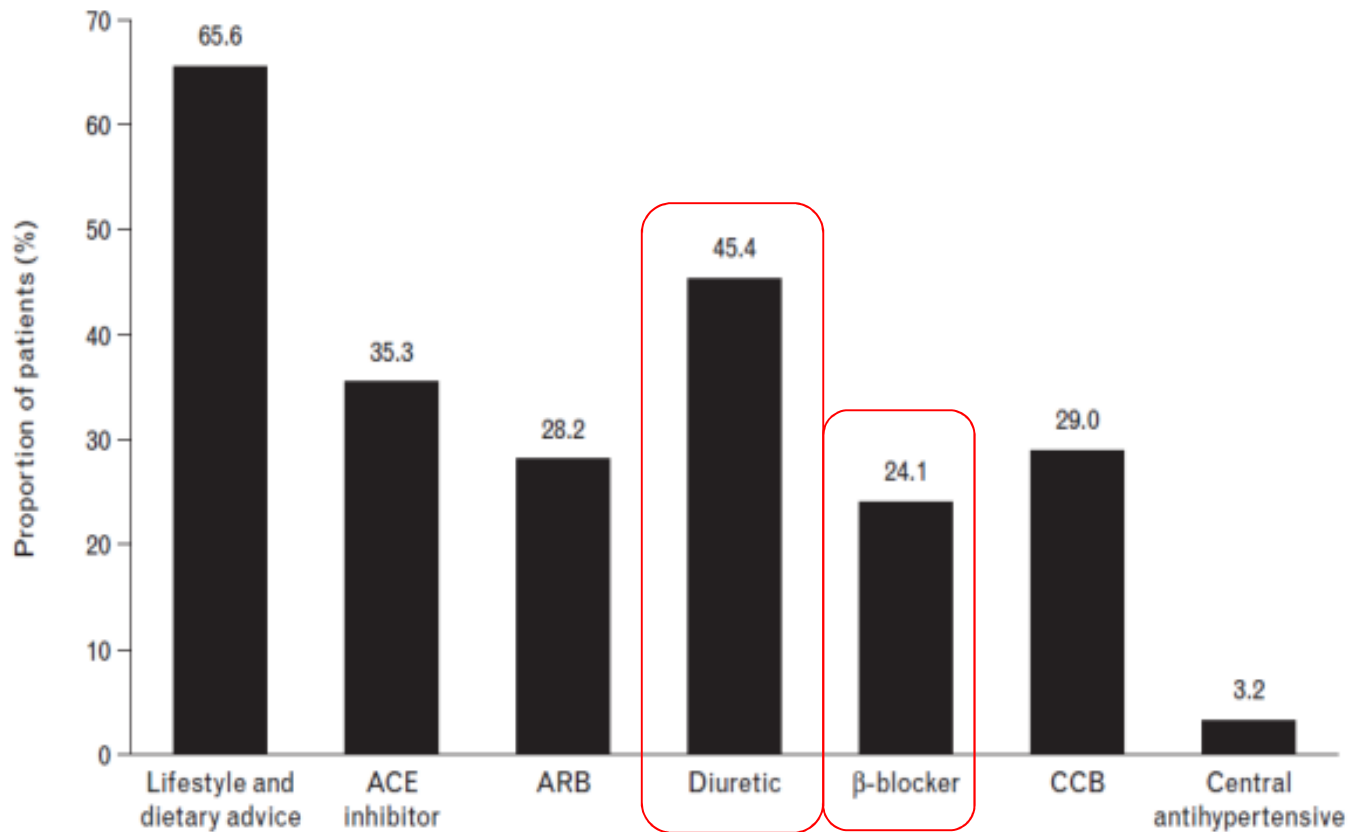
Secteur Public

Epidemiological Trial of Hypertension in North Africa (ETHNA): an international multicentre study in Algeria, Morocco and Tunisia

Journal of Hypertension 2013, 31:49–62

Chakib Nejjari<sup>a</sup>, Mohammed Arharbi<sup>b</sup>, Mohand-Tayeb Chentir<sup>c</sup>, Rachid Boujnah<sup>d</sup>, Omar Kemmou<sup>e</sup>, Hafedh Megdiche<sup>f</sup>, Fadhila Boulahrouf<sup>g</sup>, Karima Messoussi<sup>g</sup>, Laila Nazek<sup>e</sup>, and Vladimir Bulatov<sup>e</sup>

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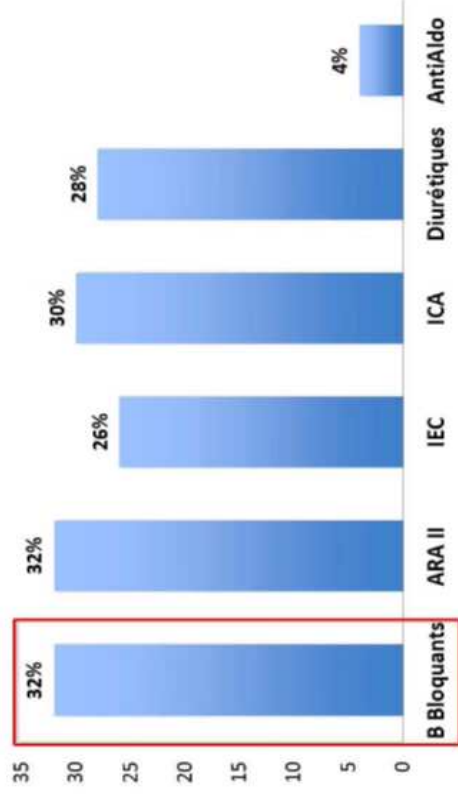


35<sup>e</sup> JOURNÉES  
DE L'HYPERTENSION  
ARTÉRIELLE  
17-18 DÉCEMBRE 2015  
PARIS



FLAIS  
2015

## Les médicaments cités



Base : Ensemble des individus traités pour l'HTA n = 2814

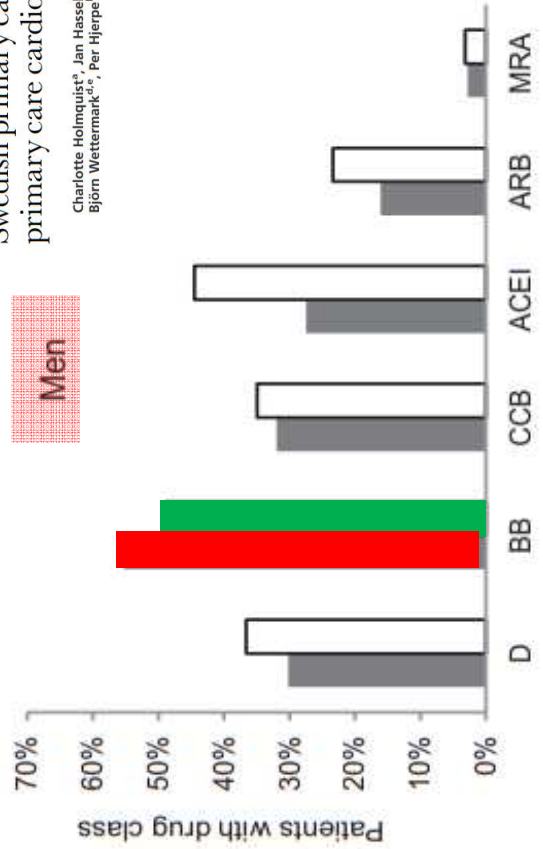
Original Article

Journal of Hypertension 2017, 35:2102-2108

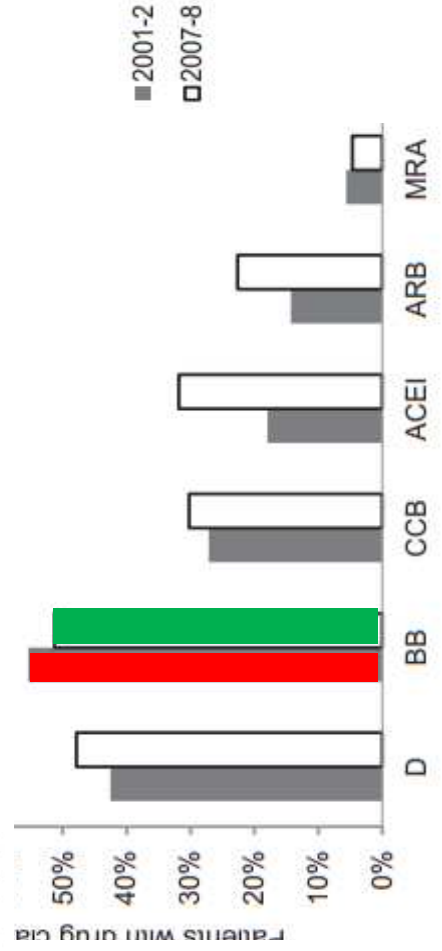
Improved treatment and control of hypertension in Swedish primary care: results from the Swedish primary care cardiovascular database

Charlotte Holmquist<sup>a</sup>, Jan Hasselström<sup>a</sup>, Kristina Bengtsson Boström<sup>b</sup>, Karin Manhem<sup>c</sup>, Björn Wettermark<sup>d,e</sup>, Per Hjerpe<sup>b</sup>, and Thomas Kahan<sup>b</sup>

Men



Women



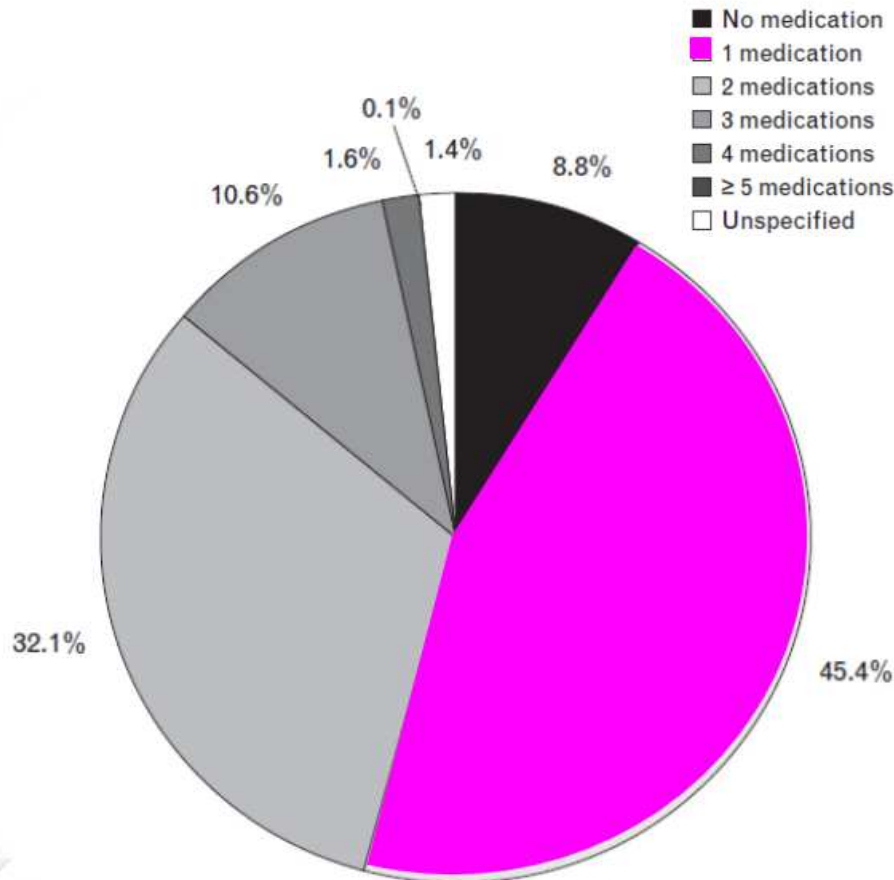


# L'HTA AU MAGHREB: INERTIE THERAPEUTIQUE?

## Epidemiological Trial of Hypertension in North Africa (ETHNA): an international multicentre study in Algeria, Morocco and Tunisia

Journal of Hypertension 2013, 31:49–62

Chakib Nejari<sup>a</sup>, Mohammed Arharbi<sup>b</sup>, Mohand-Tayeb Chentir<sup>c</sup>, Rachid Boujnah<sup>d</sup>, Omar Kemmou<sup>c</sup>, Hafedh Megdiche<sup>f</sup>, Fadhila Boulahrouf<sup>g</sup>, Karima Messoussi<sup>g</sup>, Laila Nazek<sup>e</sup>, and Vladimir Bulatov<sup>e</sup>



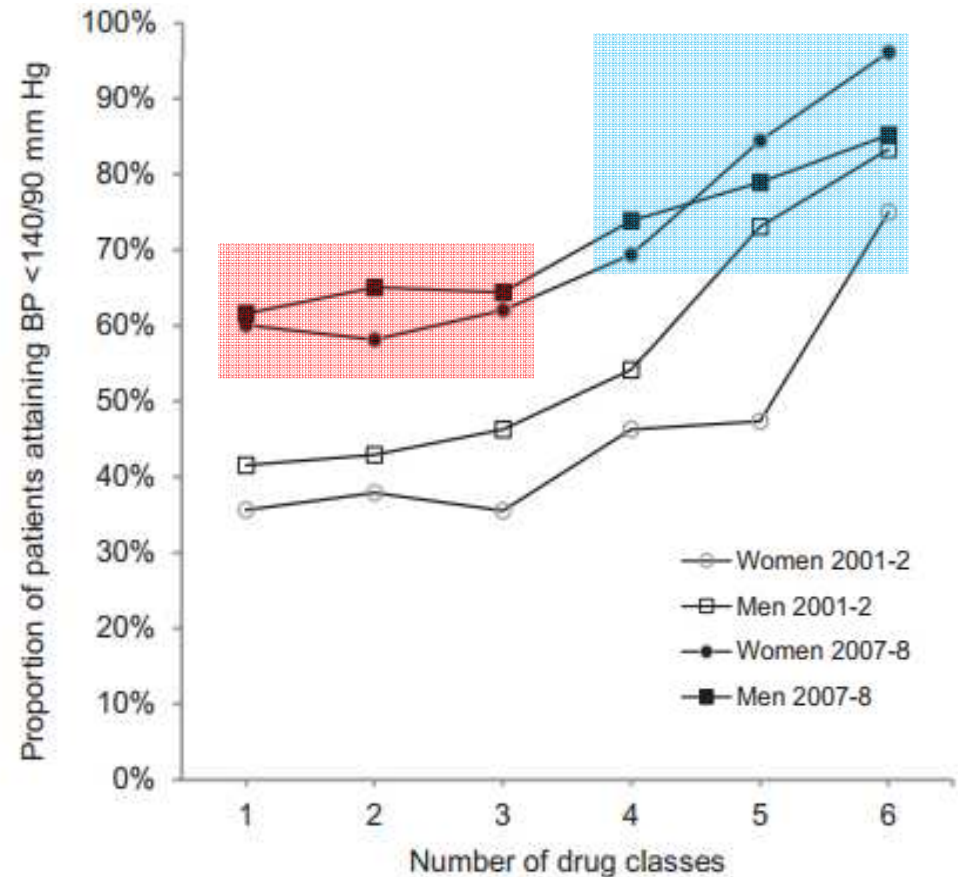
**controlled hypertension  
(BP < 140/90 mmHg)**

## Original Article

Journal of Hypertension 2017, 35:2102–2108

## Improved treatment and control of hypertension in Swedish primary care: results from the Swedish primary care cardiovascular database

Charlotte Holmquist<sup>a</sup>, Jan Hasselström<sup>a</sup>, Kristina Bengtsson Boström<sup>b</sup>, Karin Manhem<sup>c</sup>, Björn Wettermark<sup>d,e</sup>, Per Hjerpe<sup>b</sup>, and Thomas Kahan<sup>f</sup>

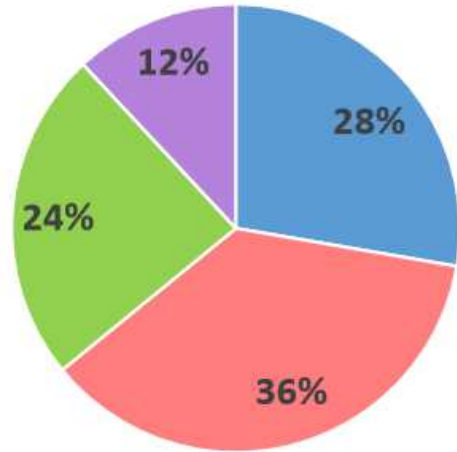






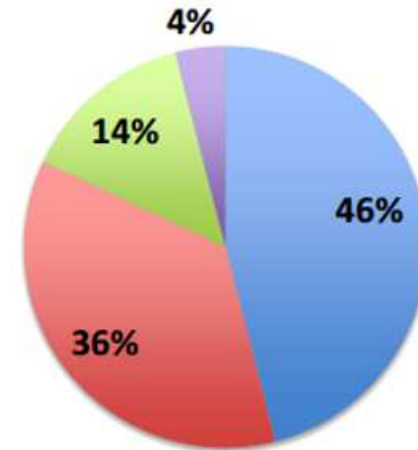
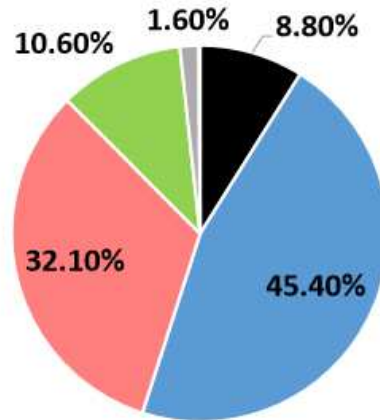
# CNAM 2015 Tunisie

- Monothérapie
- Bithérapie
- Trithérapie
- Quadrithérapie



# ETHNA 2008 Maghreb

- Pas de traitement



# FLAHS 2015 France



# L'HTA AU MAGHREB: AWARENESS (prise de conscience)

Journal of the American College of Cardiology  
© 2012 by the American College of Cardiology Foundation  
Published by Elsevier Inc.

Vol. 60, No. 7, 2012  
ISSN 0735-1097/\$36.00  
<http://dx.doi.org/10.1016/j.jacc.2012.04.026>

## Hypertension

### Trends in Prevalence, Awareness, Management, and Control of Hypertension Among United States Adults, 1999 to 2010

Fangjian Guo, MD,\* Di He, BS,† Wei Zhang, MD,\* R. Grace Walton, PhD‡

	2009-2010
Awareness	
All	74.0 (68.6-79.4)
Management	
All	71.6 (65.7-77.5)
Control	
All	<b>46.5%</b>
Control in management	
All	64.4 (59.9-68.9)

## Prise en charge de l'hypertension artérielle en Tunisie: le défi d'un pays en voie de développement

Rev Med Suisse 2012; 8: 1725-30

F. Jarraya  
K. Kammoun  
H. Mahfoudh  
Kh. Kammoun  
J. Hachicha

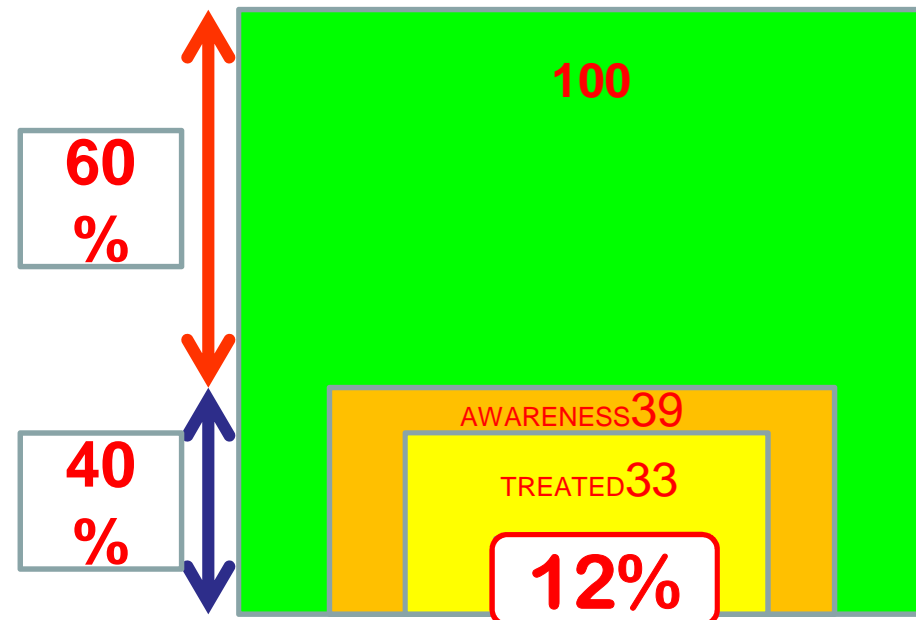
30,6% des adultes sont hypertendus

Sur 100 hypertendus

38,8 se connaissent hypertendus

Parmi eux, 33 (84%) sont traités

& 12 sont contrôlés\*

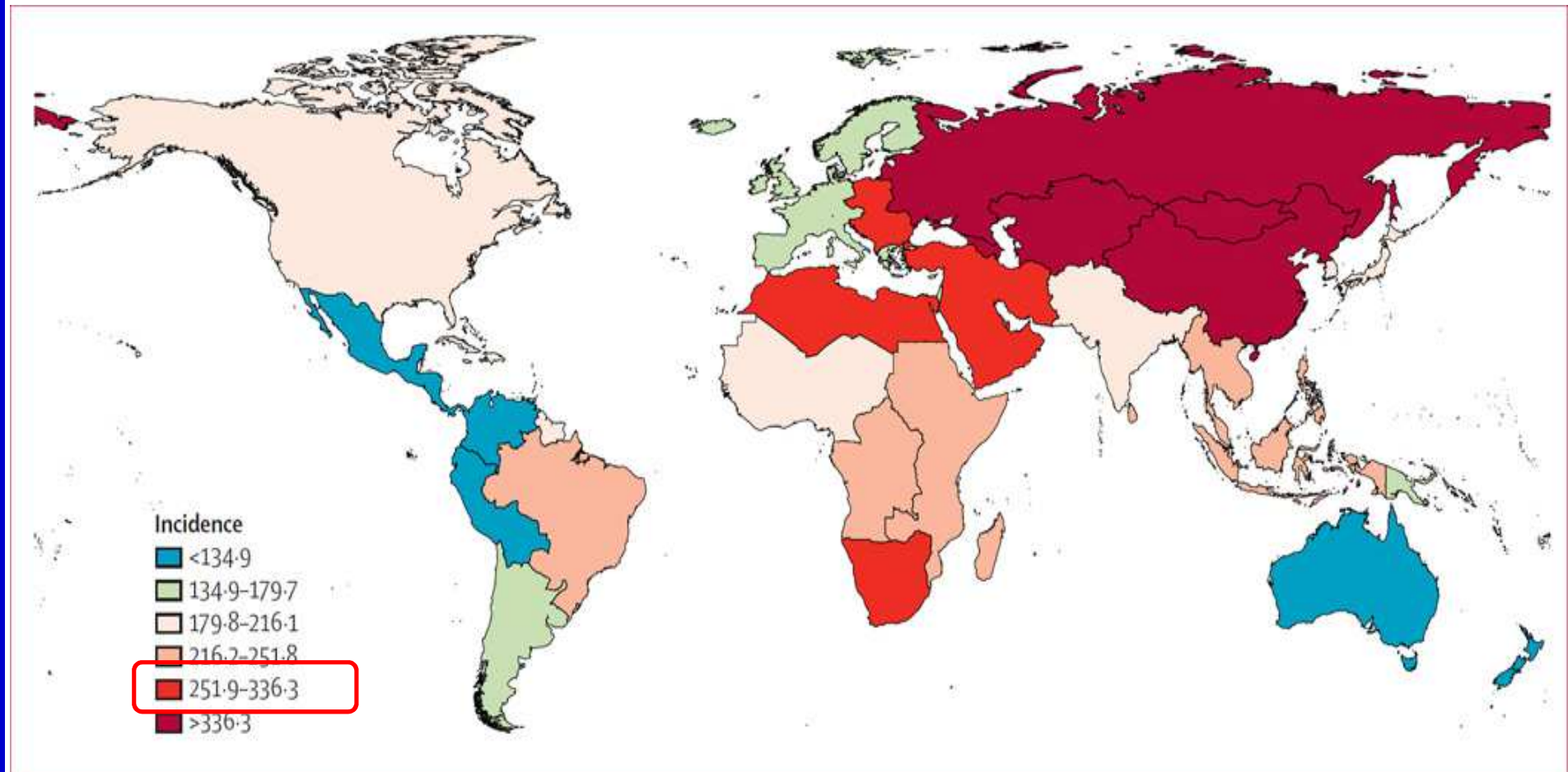


\* Selon les données de l'étude ETHNA

9- Hyper tension among Tunisian adults : Results of the TAHINA project. Hvpertens Res 2012;35:341-7.

# Global and regional burden of **stroke** during 1990–2010: findings from the Global Burden of Disease Study 2010.

Age-standardised stroke incidence per 100 000 person-years for 2010



## Clinical Kidney Journal

The European Renal Association - European Dialysis and Transplant Association (ERA-EDTA) Registry Annual Report 2015: a summary.

Kramer Anneke<sup>1</sup>, Pippias Maria<sup>1</sup>, Noordzij Marlies<sup>1</sup>, Stel Vianda S.<sup>1</sup>, Afentakis Nikolaos<sup>2</sup>, Ambühl Patrice M.<sup>3</sup>, Andrushev Anton M.<sup>4,5</sup>, Arcos Fuster Emma<sup>6</sup>, Arribas Monzón Federico E.<sup>7</sup>, Åsberg Anders<sup>8</sup>, Barbullushi Myftar<sup>9</sup>, Bonthuis Marjolein<sup>10</sup>, Caskey Fergus J.<sup>11,12</sup>, Castro de la Nuez Pablo<sup>13</sup>, Cerneviskis Harijs<sup>14</sup>, des Grottes Jean-Marin<sup>15</sup>, Garneata Liliana<sup>16</sup>, Golan Eliezer<sup>17</sup>, Hemmelder Marc H.<sup>18</sup>, Ioannou Kyriakos<sup>19,20</sup>, Jarraya Faical<sup>21</sup>, Kolesnyk Mykola<sup>22</sup>, Komissarov Kirill<sup>23</sup>, Lassalle Mathilde<sup>24</sup>, Macario Fernando<sup>25</sup>, Mahillo-Duran Beatriz<sup>26</sup>, Martín de Francisco Angel L.<sup>27</sup>, Palsson Runolfur<sup>28,29</sup>, Pechter Ülle<sup>30</sup>, Resic Halima<sup>31</sup>, Rutkowski Boleslaw<sup>32</sup>, Santiuste de Pablos Carmen<sup>33</sup>, Seyahi Nurhan<sup>34</sup>, Simic Ogrizovic Sanja<sup>35</sup>, Slon Roblero María F.<sup>36</sup>, Spustova Viera<sup>37</sup>, Stojceva-Taneva Olivera<sup>38</sup>, Traynor Jamie<sup>39</sup>, Massy Ziad<sup>40,41</sup>, Jager Kitty J.<sup>1</sup>

Accepted (23/11/2017) Clin Kidney J 2017



anel) prevalence of renal replacement therapy  
mber 2015.

Prévalence  
Sfax 1135ppm  
All countries 810ppm

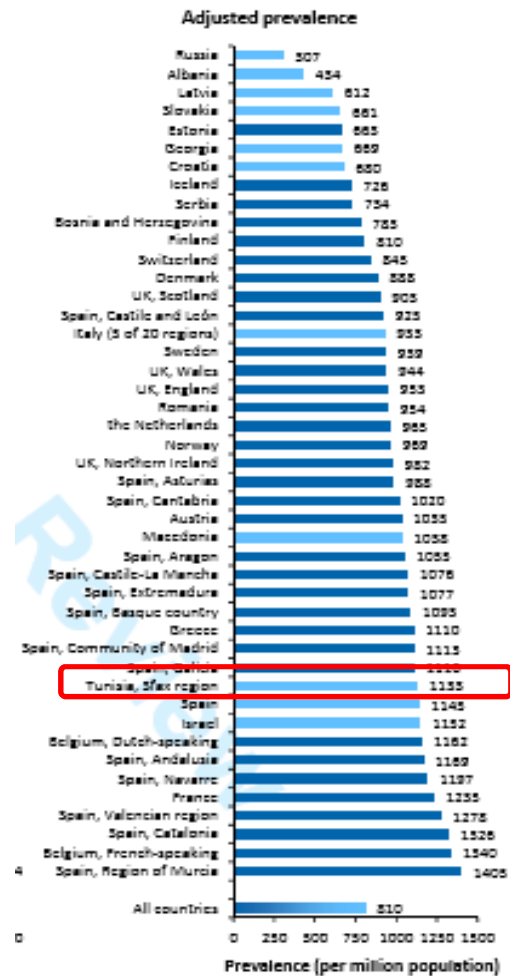
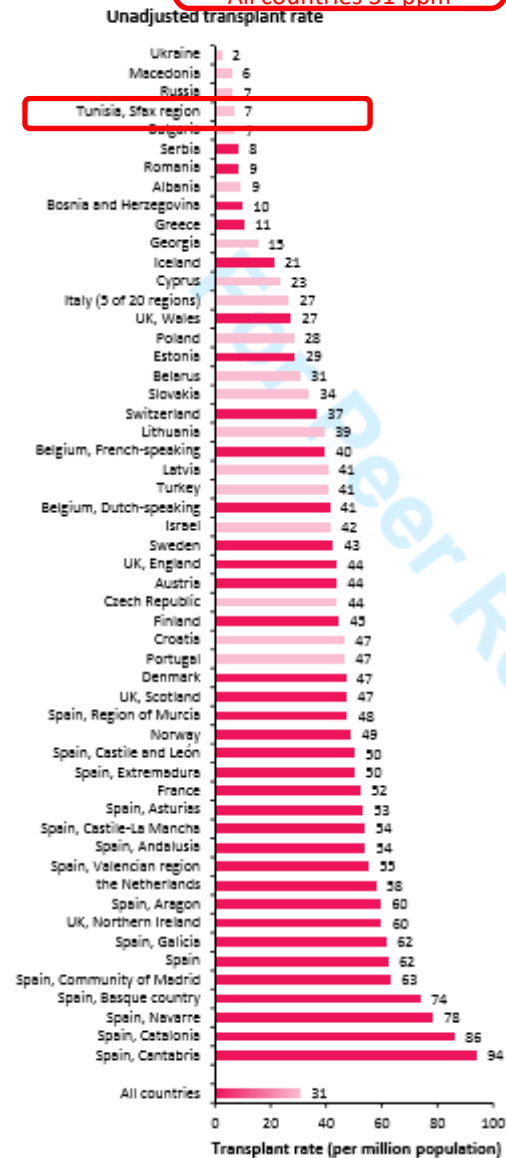


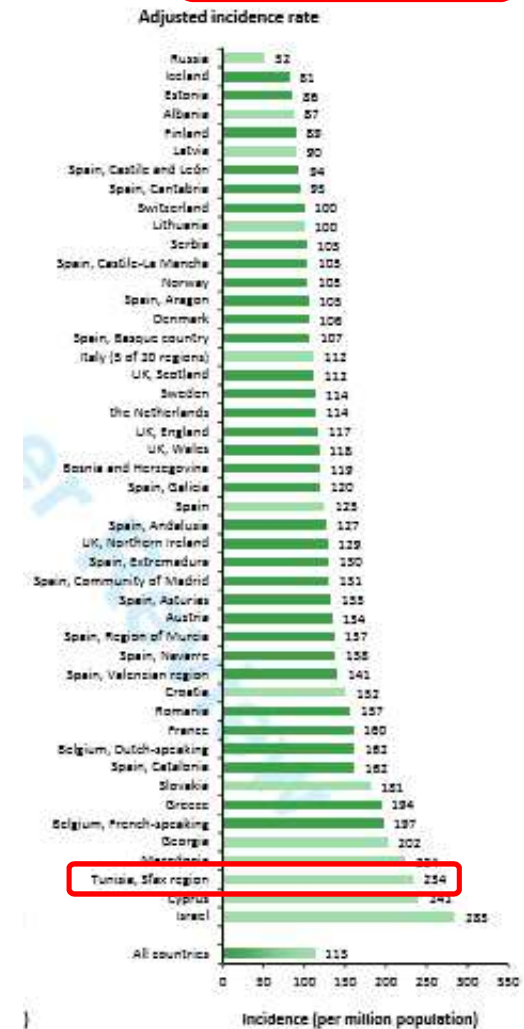
Figure 10. Kidney transplants performed in 2015, as counts  
by country / region

Taux de Transplantation  
Sfax 7 ppm  
All countries 31 ppm



(right panel) incidence rates of renal replacement  
gion at day 1 in 2015.

Taux d'Incidence  
Sfax 234ppm  
All countries 115ppm



	General population covered by the registry in thousands	Incidence of RRT in 2015, at day 1				
		All N	All Pmp	Mean age	DM N	DM Pmp
Albania	2851	251	88	52.5	11	30
Austria	8585	1204	140	65.0	37	316
Belarus	9299	747	80		18	167
Belgium, Dutch-speaking *	6473	1158	179	70.6	36	234
Belgium, French-speaking *	4802	902	188	67.8	41	197
Bosnia and Herzegovina	3531	404	114	61.4	35	122
Bulgaria †	7154	1093	153		39	278
Croatia	3427	540	158	65.3	49	168
Cyprus	855	164	192	66.3	71	61
Czech Republic †	10293	2393	232			
Denmark	5740	621	108	62.3	31	179
Estonia	1315	114	87	58.6	17	23
Finland	5480	520	95	59.6	32	177
France	66624	11084	166	67.9	38	2513
Georgia	3714	694	187	61.9	43	158
Greece	10821	2455	227	69.6	60	646
Iceland	331	24	73	57.4	15	5
Israel	8380	1606	192	65.3	86	723
Italy (5 of 20 regions)	16986	2232	131	68.2	24	402
Latvia	1574	152	97	62.2	15	23
Lithuania	2921	308	105	64.7	15	44
Macedonia	2022	307	152	63.5	35	71
Norway	5189	514	99	63.0	17	90
Poland	37967	6617	174			
Portugal	10375	2352	227		74	771
Romania	19617	3125	159	61.7	18	355
Russia	145080	7413	51	52.3	9	1297
Serbia	7095	818	115	62.4	26	185
Slovakia	5426	916	169	62.8	62	334
Spain (All regions)	46624	6277	135	64.8	31	1454
Sweden	9799	1166	119	63.7	31	306
Switzerland	8282	848	102	64.6	19	155
the Netherlands	16940	1996	118	63.7	22	375
Tunisia, Sfax region *	1186	193	163	59.4	52	62
Turkey ‡	78736	11597	147		8	636
Ukraine	42759	1024	24	48.1	6	248
United Kingdom, England *¶	54786	6323	115	62.3	28	1546
United Kingdom, Northern Ireland *	1852	220	119	63.5	28	51
United Kingdom, Scotland	5373	619	115	59.6	32	173
United Kingdom, Wales *	3099	382	123	63.3	34	104
All countries	683363	81373	119	63.1	26	14679

Taux d'Incidence 2015  
 Sfax: IRCT: 163  
**NPD: 52**  
 EUR: IRCT: 119  
**NPD: 26**

The 2008 ERA-EDTA Registry Annual Report—a précis

European Renal Registry Investigators

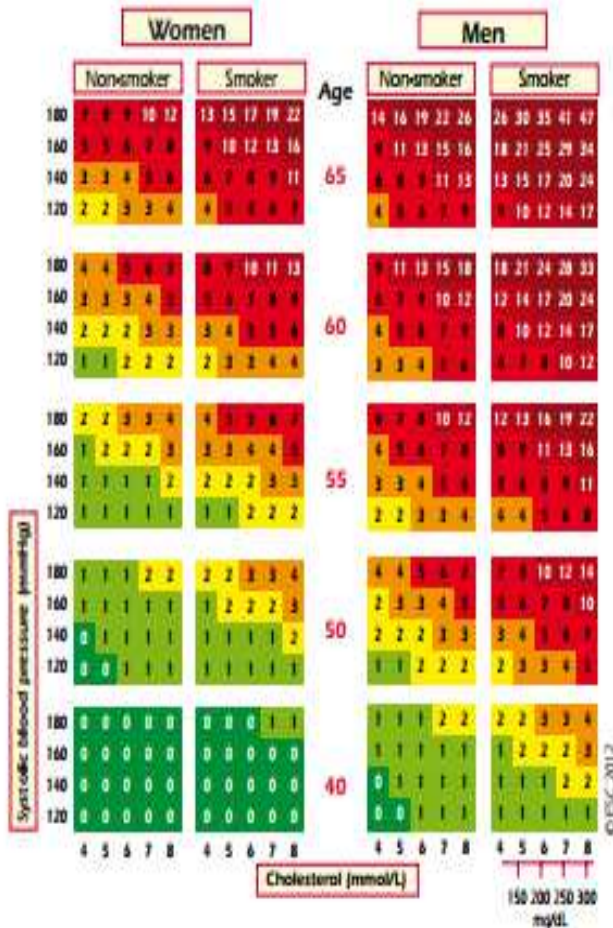
Fig. 1. Incidence of RRT per million population (pop) at Day 1, 2008. B&B, Bosnia-Herzegovina; FYROM, Former Yugoslav Republic of Macedonia.

Taux d'Incidence 2008  
 TUN: IRCT: 135  
**NPD: 29**  
 EUR: IRCT: 128  
**NPD: 27**

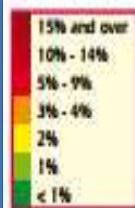


## La Population Maghrébine est à Haut Risque CV

### HIGH RISK COUNTRIES

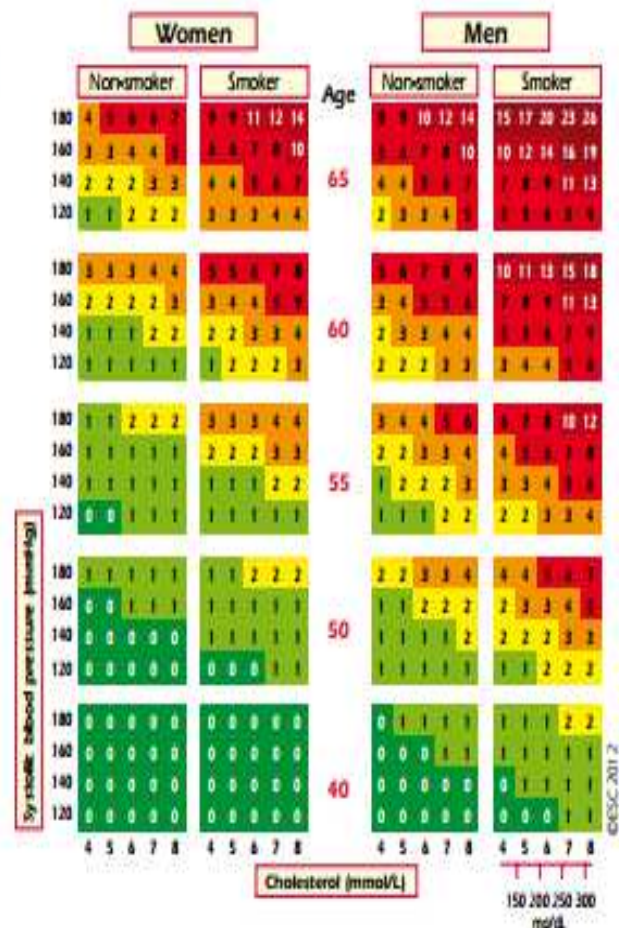


### SCORE

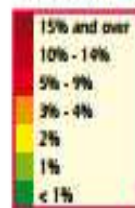


10-year risk of fatal CVD in populations at high CVD risk

### LOW RISK COUNTRIES



### SCORE



10-year risk of fatal CVD in populations at low CVD risk

### Europe high risk:



Albania, Algeria, Bosnia and Herzegovina, Croatia, Czech Republic, Egypt, Estonia, Hungary, Kosovo, Lebanon, Libya, Montenegro, Morocco, Poland, Romania, Serbia, Slovakia, Syria, Tunisia and Turkey.  
Very high risk (please note that the charts may underestimate risk in these countries): Armenia, Azerbaijan, Belarus, Bulgaria, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, FYR Macedonia, Moldova, Russia, Ukraine and Uzbekistan.

### Europe low risk:



Andorra, Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Luxembourg, Malta, Monaco, The Netherlands\*, Norway, Portugal, San Marino, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## L'HTA AU MAGHREB: particularités et prise en charge

Maladie Cardio-vasculaire: 1<sup>ere</sup> cause de mortalité

HTA fréquente 30% chez les adultes

Plus fréquente dans la population noire du sud Algérien

Plus fréquente chez les femmes

Obésité (femme) + Tabac (homme) FDR CV

Fréquence du Diabète en croissance continue

Objectif tensionnel atteints dans 30-35% (patients diagnostiqués, traités)

mais contrôle global PA demeure faible

- Remboursement des antihypertenseurs?,
- Inertie thérapeutique?,
- Non/retard diagnostic = Méconnaissance (Awareness) +++

=> Maghrébin: sujet à Haut risque CV



**37<sup>es</sup> JHTA**  
JOURNÉES DE L'HYPERTENSION ARTÉRIELLE  
DU DIAGNOSTIC AUX COMPLICATIONS

**14-15 décembre 2017**  
**Paris**

[www.jhta2017.fr](http://www.jhta2017.fr)

Cité Universitaire (CIUP)

**11<sup>th</sup> INTERNATIONAL MEETING OF THE FRENCH SOCIETY OF HYPERTENSION**

Société Française d'Hypertension Artérielle  
[www.sfhta.org](http://www.sfhta.org)

Société Belge d'Hypertension

Société Française d'Hypertension Artérielle

Société Suisse d'Hypertension

## **L'HTA AU MAGHREB: particularités et prise en charge**

**Remercîments:**

**Mohamed TEMMAR & Ahcène CHIBANE: Algérie**

**Mohamed BEN GHANEM: Maroc**

**Anissa JOULEK: Tunisie**