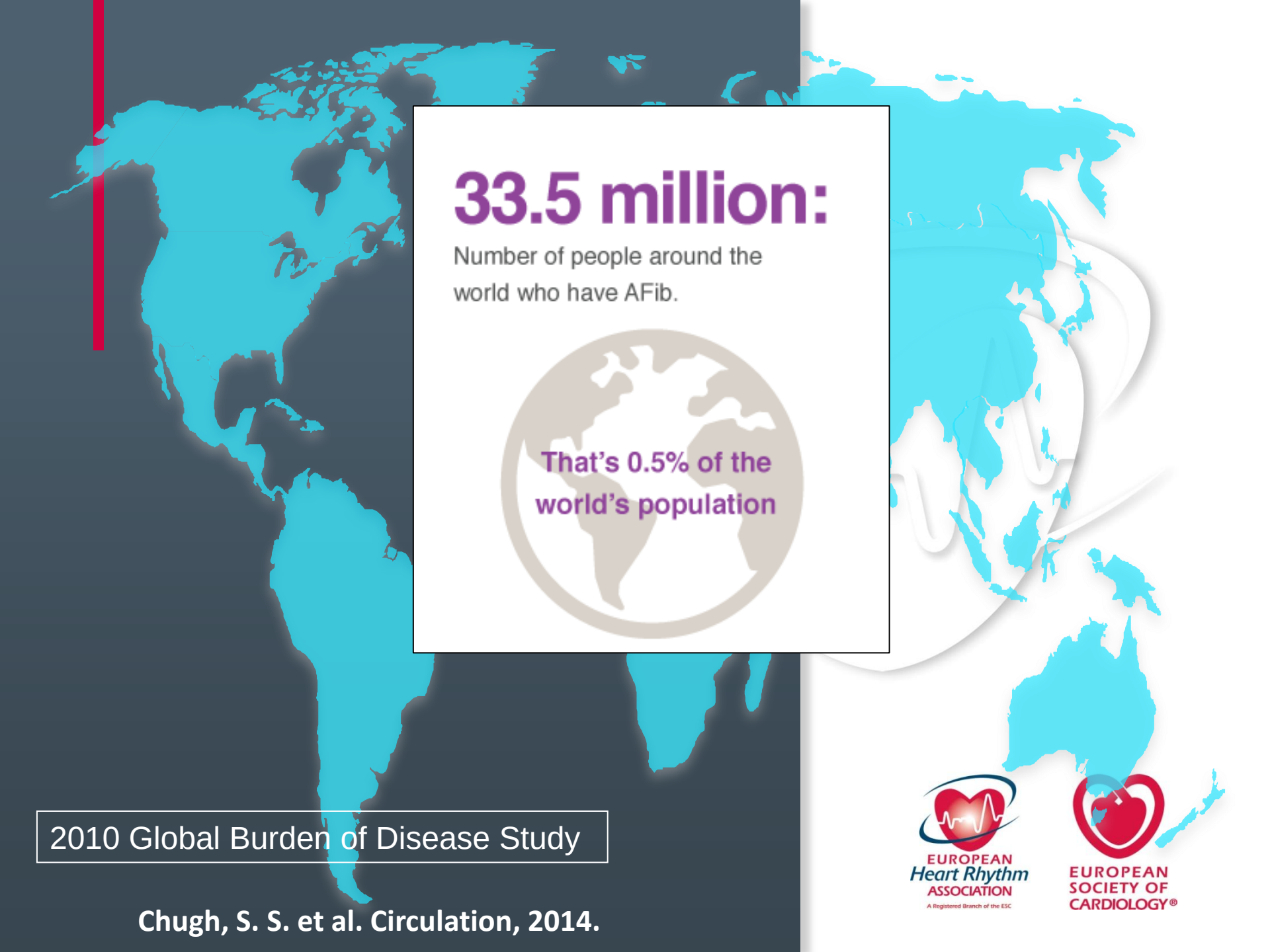
ATRIAL FIBRILLATION AROUND THE WORLD/ CONTINENTAL PERSPECTIVES AND SPECIFICITIES: SOUTH AMERICA

LUIS AGUINAGA MD, PhD, FESC,FACC
Argentina


33.5 million:
Number of people around the world who have AFib.
That's 0.5% of the world's population
2010 Global Burden of Disease Study
Chugh, S. S. et al. Circulation, 2014.
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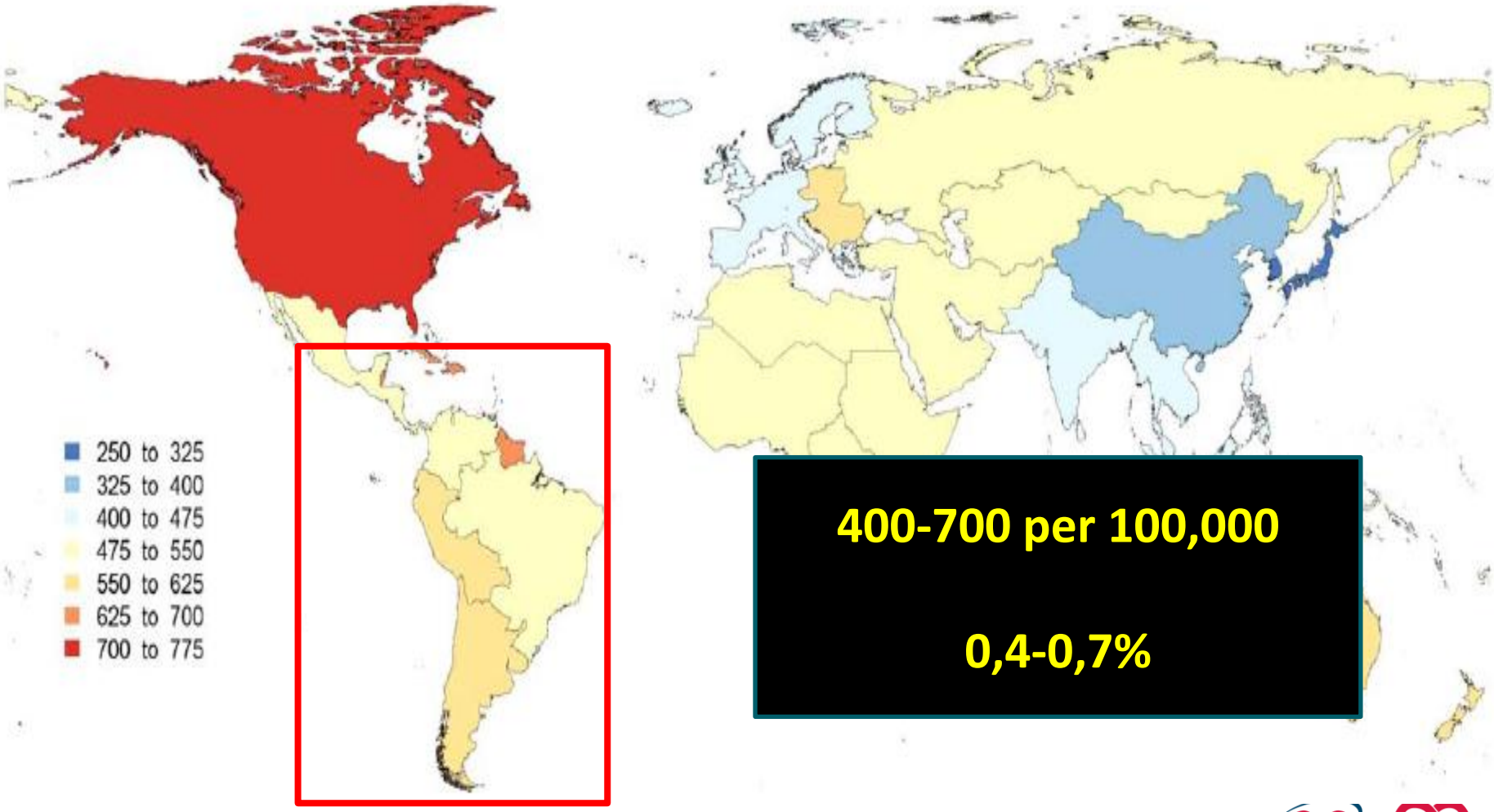
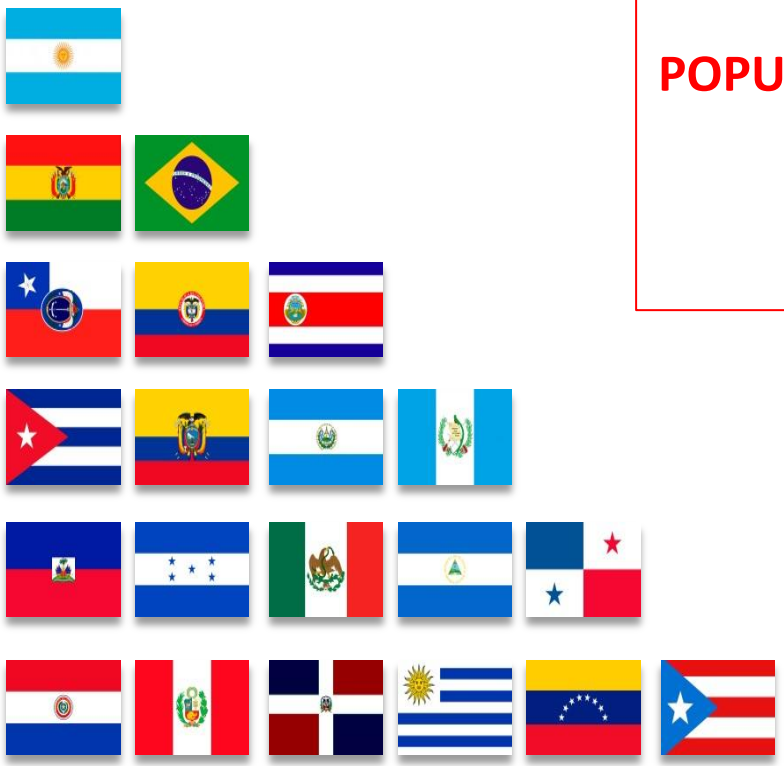
Prevalence of atrial fibrilation and flutter (per 100,000) by region, 2010

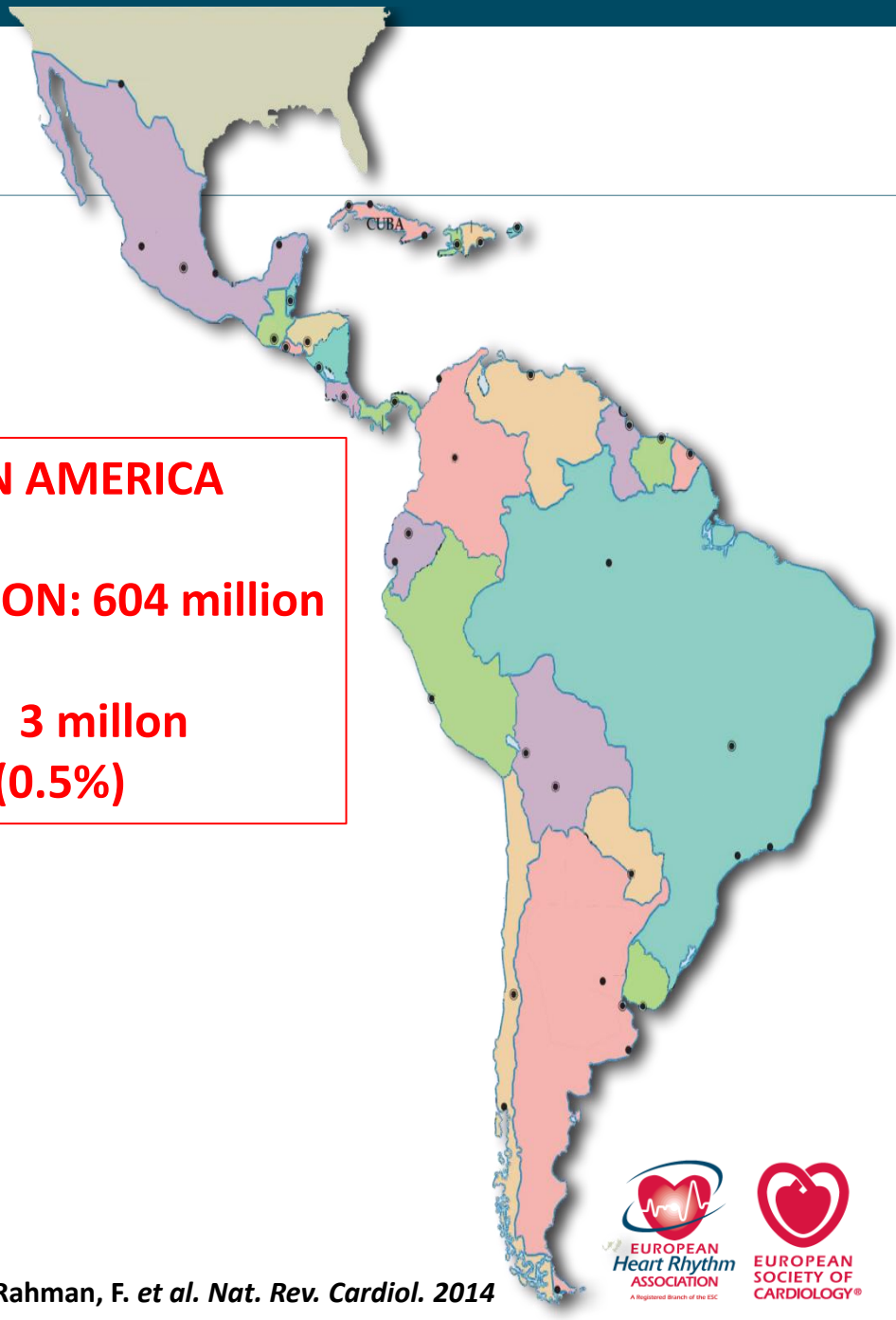


400-700 per 100,000

0,4-0,7%

Chugh S, et al. Circulation 2014





LATIN AMERICA

POPULATION: 604 million

AF: 3 millon (0.5%)

www.escardio.org/EHRA

Rahman, F. *et al. Nat. Rev. Cardiol. 2014*

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ETHNIC DIFFERENCES IN THE PREVALENCE OF AFib

ETHNIC GROUP	PREVALENCE
White	8%
Asian	3.9%
Black	3.8%
Hispanic	3.6%

Kaiser Permanent Southern California Health Plan **(>65 years)**

Shen, A. Y. et al . J. Natl Med. Assoc. 102, 906–913 (2010).

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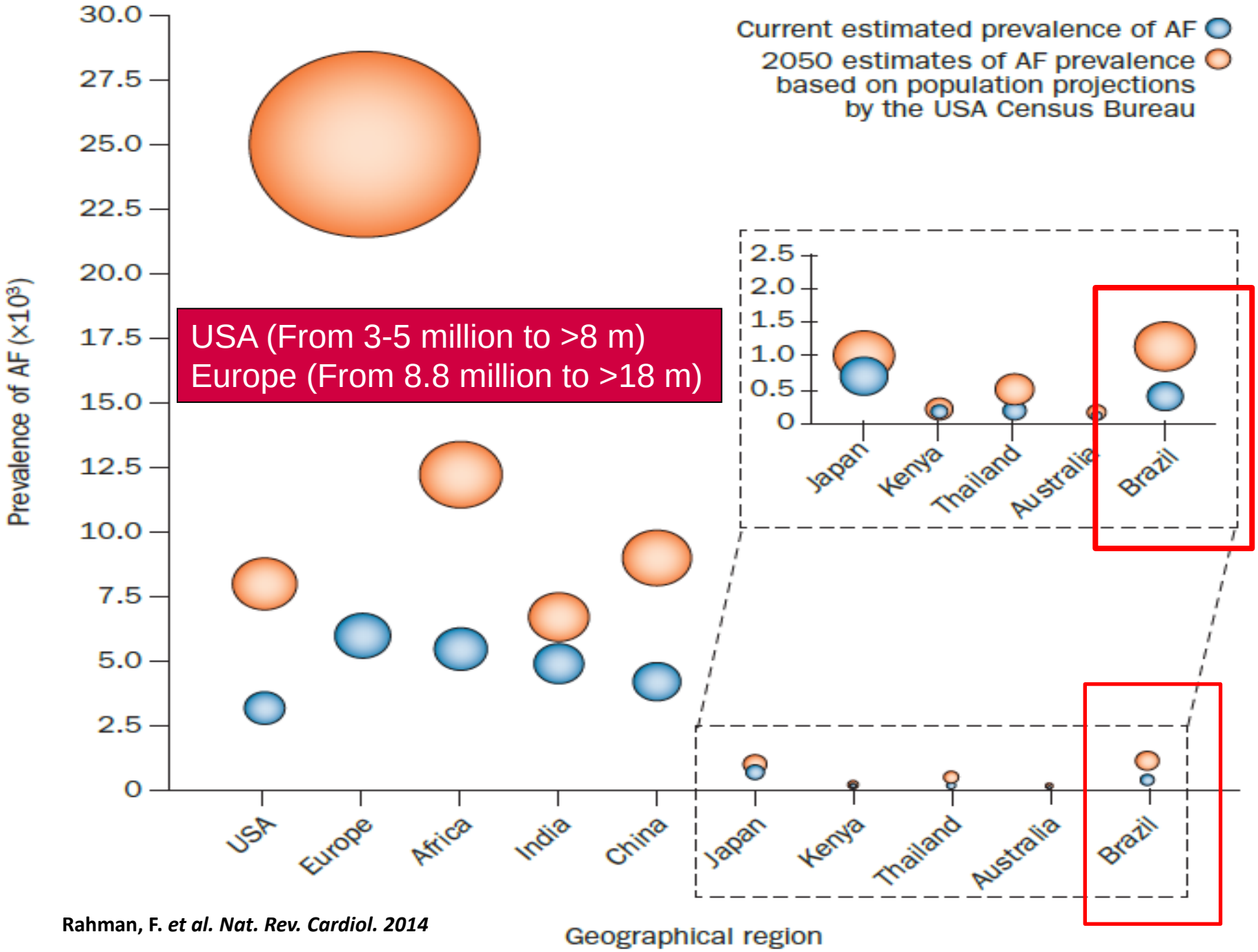


Rahman, F. *et al. Nat. Rev. Cardiol. 2014*

REGIONAL VARIATION

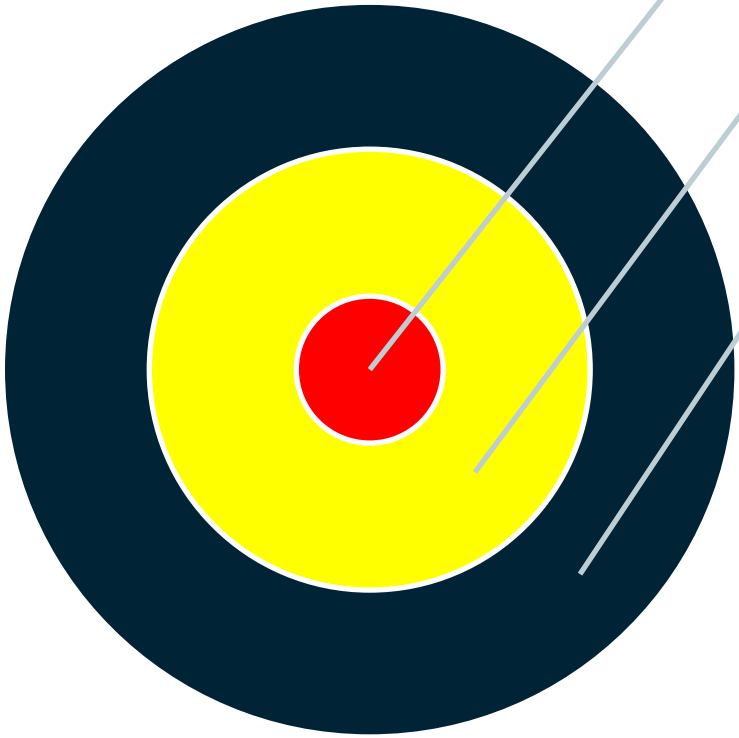
RE-LY AF registry

46 countries
Patients with AF in Africa, India, **South America** and the Middle East were on average 10–12 years younger than those from other regions of the world.

Rheumatic Heart Disease
In some Latin American countries (Perù, Guatemala, El Salvador, Mexico, Bolivia), 16-21% of patients with AF had RHD, a condition that affects a younger population (aged 5–30 years), is rare in developed countries and, importantly, is a risk factor for AF.

Oldgren,J. et al. The RE-LY Atrial Fibrillation Registry. Circulation 2014.

Mostly found in endemic areas, Chagas disease affects 10 to 12 million people worldwide



Gascon, J, et al, Chagas disease in Spain, the United States and other non-endemicc countries. Acta Trop 2009, doi 10.1016/j.actatropica.2009.07.019.

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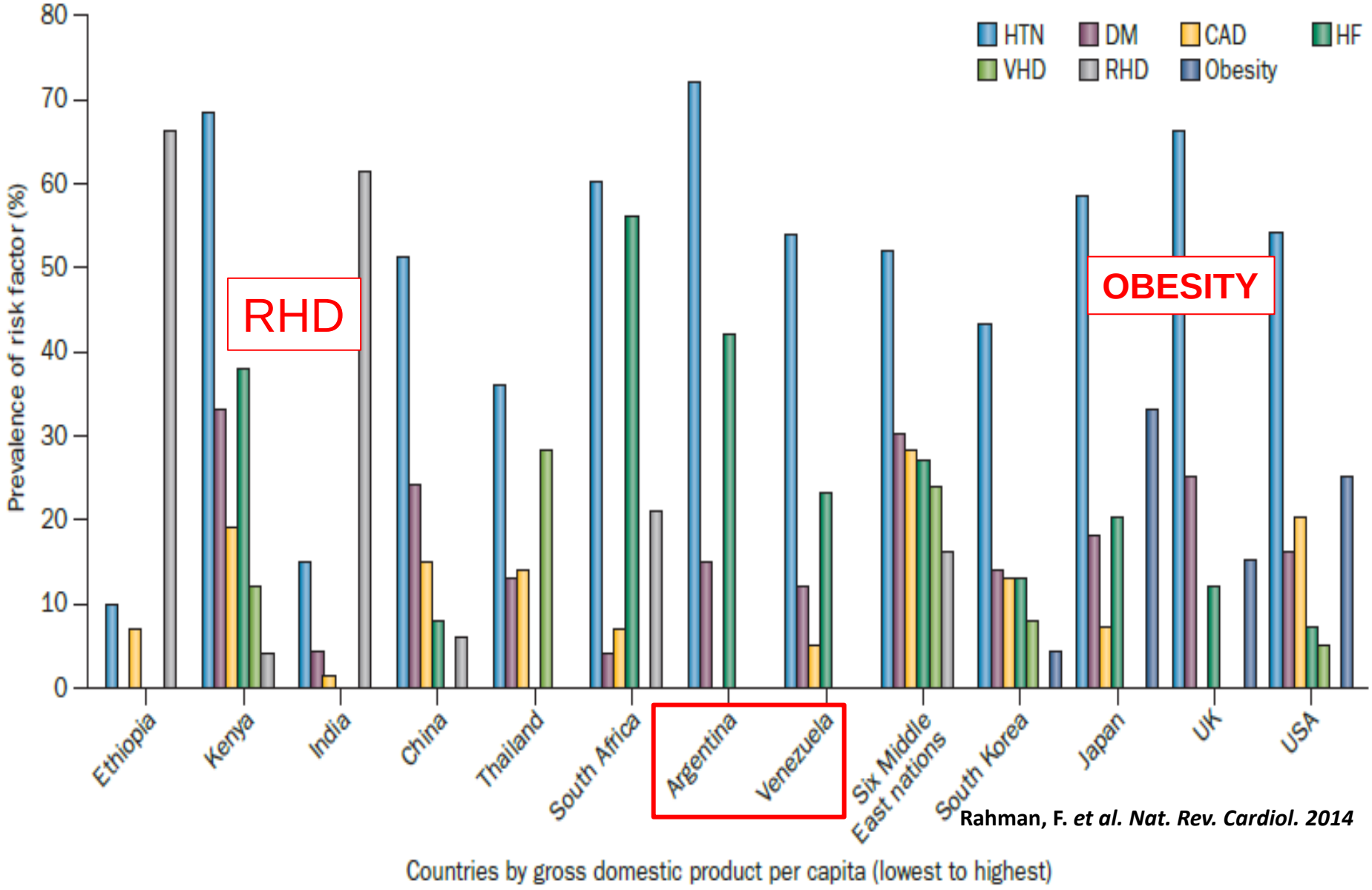
RISK FACTORS

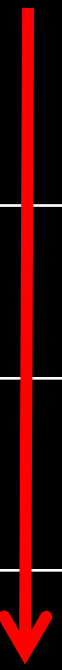


Rahman, F. *et al. Nat. Rev. Cardiol. 2014*

STROKE

PREVALENCE OF AF IN PATIENTS WITH ACUTE *ISCHAEMIC STROKE*

Country	Sample size (n)	Study population	Prevalence of AF (%)	Study
Argentina	545	Admission to hospitals with acute stroke	11	Weir et al. (2001)249
Brazil	133	One emergency department	14	Mallman et al. (2012)251
Europe	13,974	Seven European countries	18	Weir et al. (2001)249
USA	147,780	Eight states	23	Hanchate et al. (2013)141



Adapted from:
Rahman, F. *et al. Nat. Rev. Cardiol. 2014*

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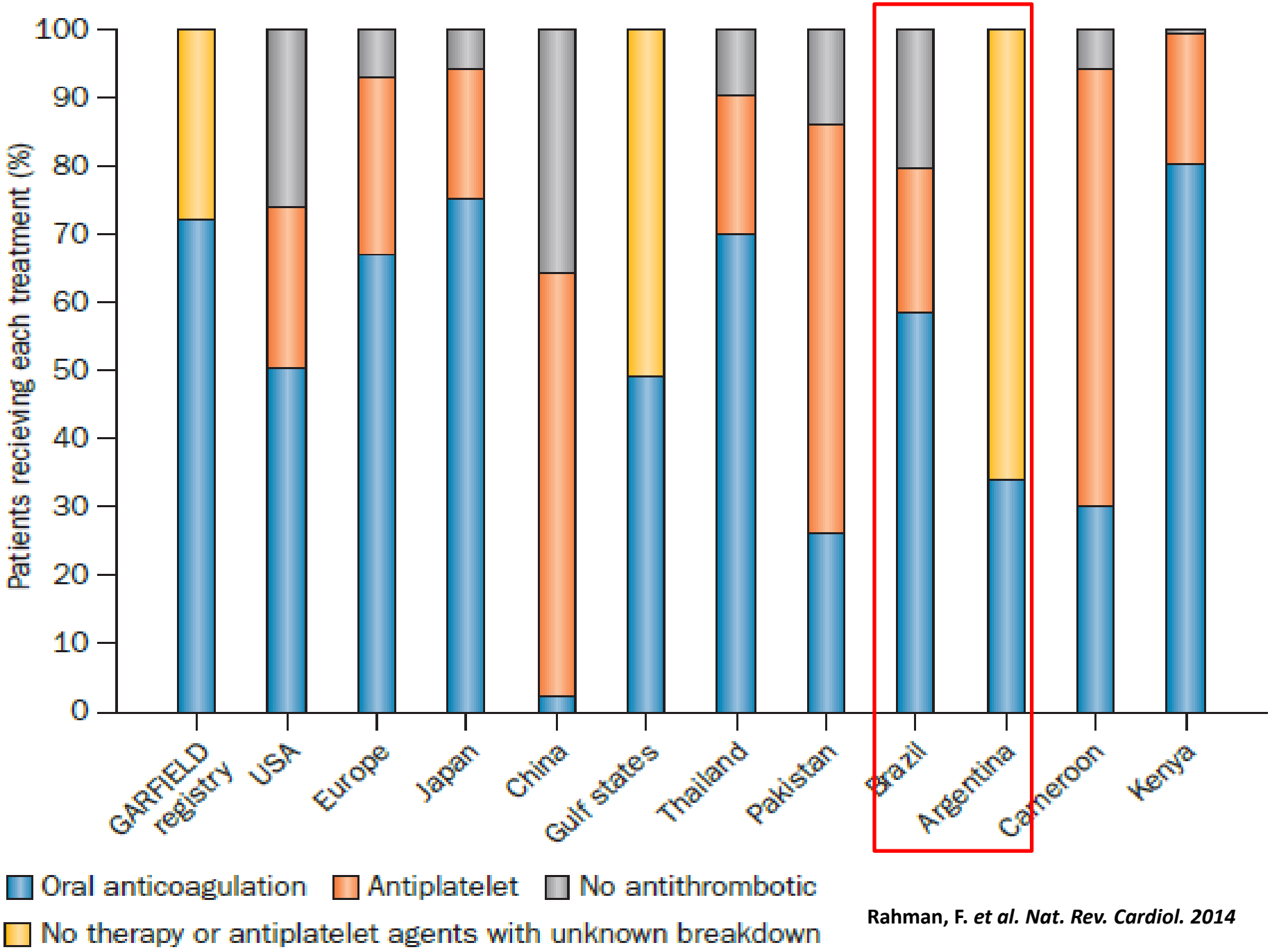
TREATMENT

ANTICOAGULATION



Rahman, F. *et al. Nat. Rev. Cardiol. 2014*

Study	CHA2DS2VASC	On ACO
GARFIELD registry	0	39%
REALISE AF	0	46%

Kakkar, A. K. et al. GARFIELD registry. PLoS ONE 8, e63479 (2013).
Gamra, H. et al. Arch. Cardiovasc. Dis. 107, 77–87 (2014).

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SUBTHERAPEUTIC ACO

ROCKET-AF

Region	INR< 2 (>25% of the time)
Latin America	27%
East Asia	37%
Eastern Europe	35%
India	44%

Singer, D. E. et al. ROCKET AF clinical trial. J. Am. Heart Assoc. 2013.

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COMPLICATIONS OF ANTICOAGULATION

ETHNIC GROUP	RISK OF INTRACRANIAL HAEMORRHAGE
ASIAN	HR 4.06
HISPANIC	HR 2.06
BLACK	HR 2.04
WHITE	HR 1

Kaiser Permanent Southern California Health Plan

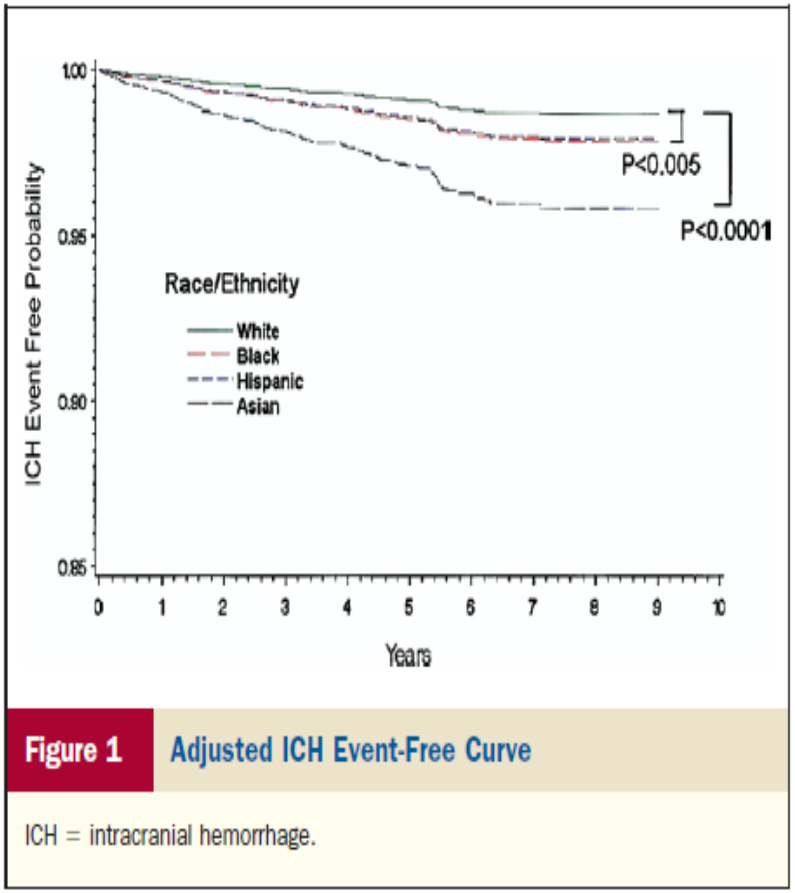

Figure 1 Adjusted ICH Event-Free Curve

ICH = intracranial hemorrhage.

Shen, A. Y. et al. J. Am. Coll. Cardiol. 50, 309–315 (2007).

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Type of ACO

SOLAECE AF SURVEY

6 LA Countries N=2,272

Anticoagulant	%
Warfarin	43%
Rivaroxabán	16%
Dabigatrán	11%
Apixabán	3%
No-ACO	27%

SOLAECE AF SURVEY. Unpublished

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TREATMENT

ABLATION

ABLATION

The available data show that AF-ablation procedures are increasing, particularly in high-income countries.

Surveys from electrophysiological centres around the world reported more ablation procedures in 2003–2006 than in 1995–2002.

Cappato, R. et al. Circ. Arrhythm. Electrophysiol. 2010.

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Europace Advance Access published January 23, 2015

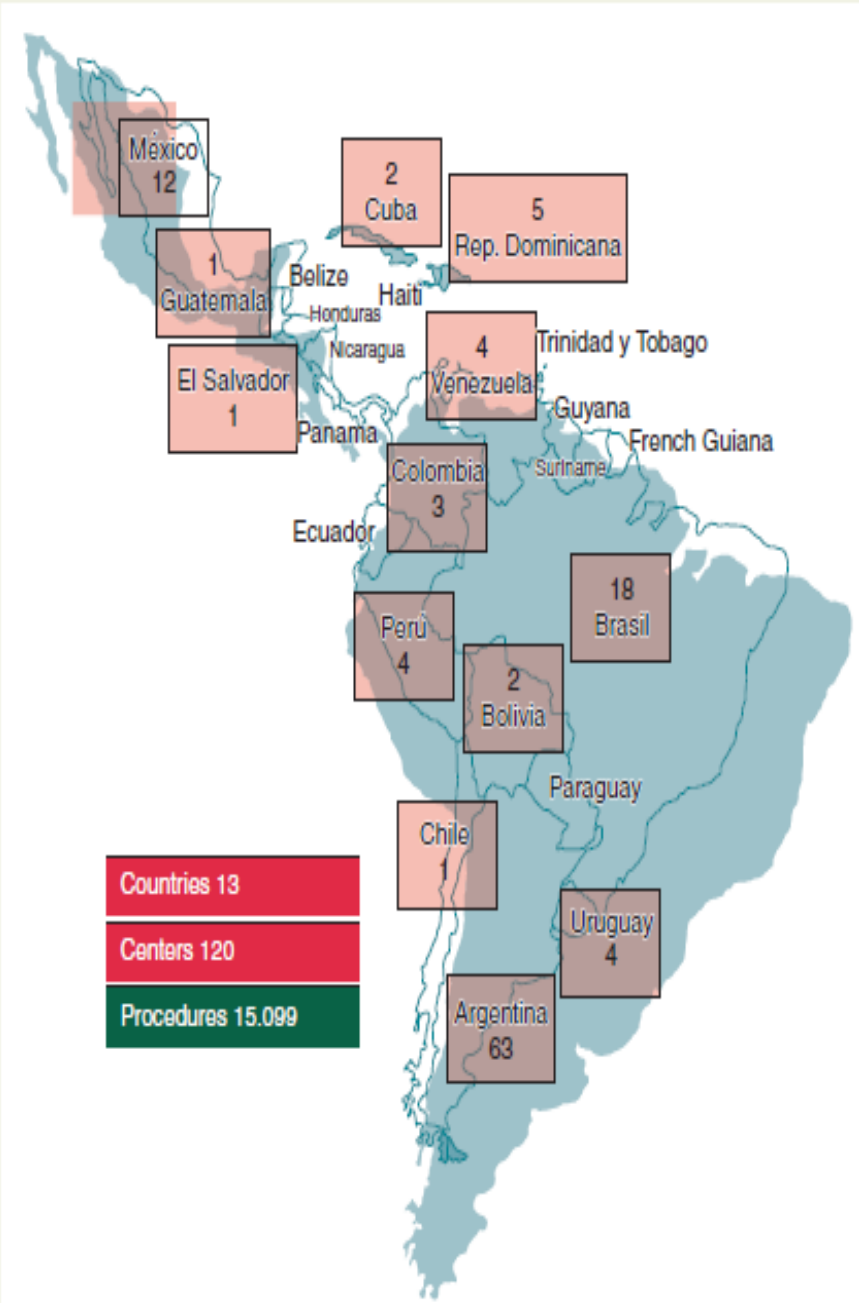
Europace
doi:10.1093/europace/euu322

CLINICAL RESEARCH

The first Latin American Catheter Ablation Registry

Roberto Keegan[1*], Luis Aguinaga[2], Guilherme Fenelon[3], William Uribe[4], Gerardo Rodriguez Diez[5], Mauricio Scanavacca[6], Manuel Patete[7], Ricardo Zegarra Carhuaz[8], Carlos Labadet[9], Claudio De Zuloaga[10], Domingo Pozzer[11], and Fernando Scazzuso[12] on behalf of the SOLAECE registry investigators[†]

FIRST LATIN AMERICAN CATHETER ABLATION REGISTRY



Keegan R, et al. Europace 2015

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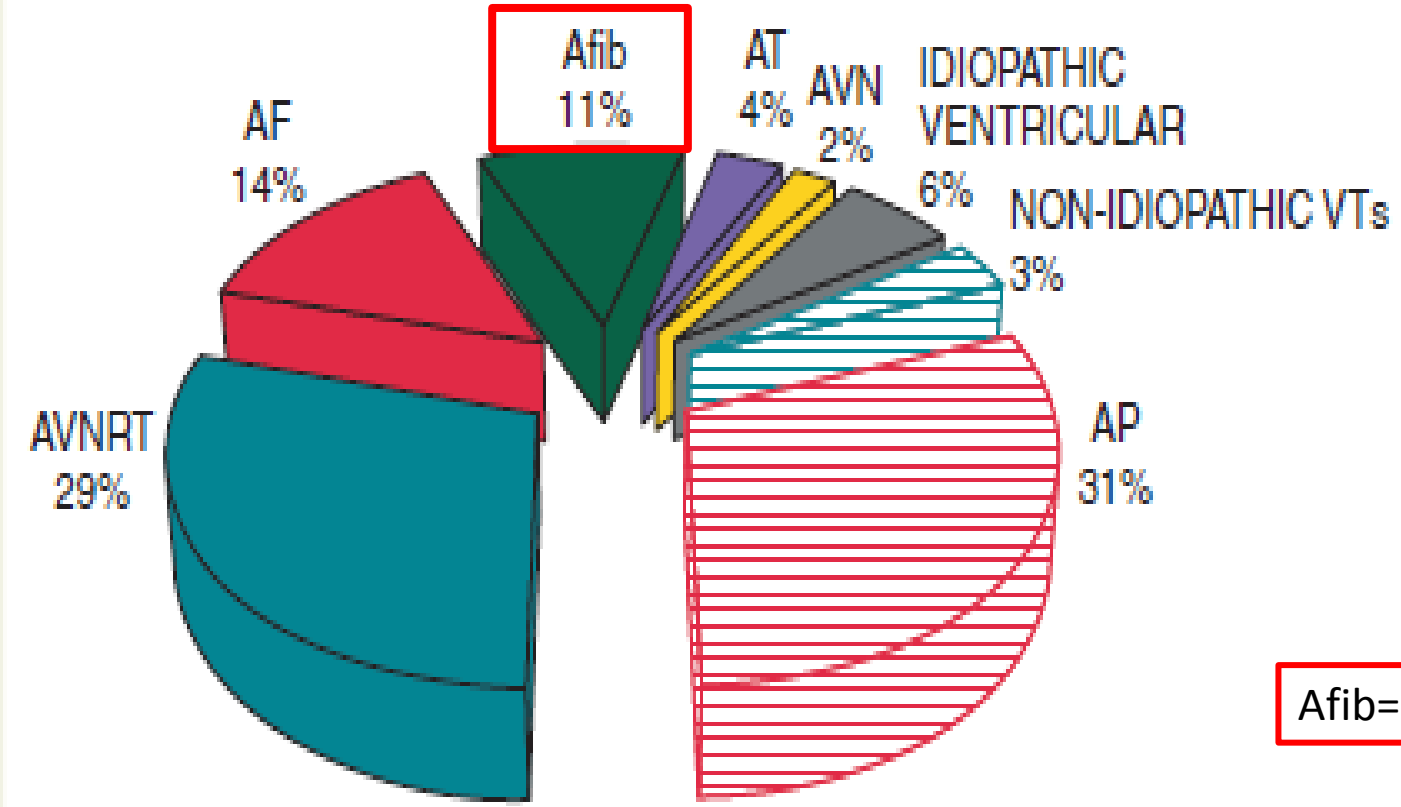
SUBSTRATES



Afib=1649

Keegan R, et al. Europace 2015

Substrate	Centres
Atrio-ventricular nodal reentrant tachycardia	116 (97%)
Typical Atrial flutter	105 (88%)
Atypical Atrial flutter	56 (47%)
Left Accessory Pathways	113 (94%)
Right Accessory Pathways	83 (69%)
Septal Accessory Pathways	102 (85%)
Right Focal atrial tachycardia	77 (64%)
Left Focal atrial tachycardia	43 (36%)
Paroxysmal atrial fibrillation	56 (47%)
Not paroxysmal atrial fibrillation	38 (32%)
Atrioventricular node ablation	75 (63%)
Premature ventricular complexes	70 (58%)
Idiopathic VT	80 (67%)
Post-myocardial infarction ventricular tachycardia	42 (35%)
Ventricular tachycardia in Chagas disease	22 (18%)
Congenital VT	7 (6%)
Cardiopathy VT	21 (18%)

Centers Afib Ablation: 47%

Centers 3D MAPPING: 20%

TRAINING
TECHNOLOGY

Keegan R, et al. Europace 2015

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PUBLIC HEALTH-CARE COSTS

AF results in a major public health-care burden in high-income countries.

In the USA, the annual incremental cost of AF was an estimated US$26 billion, and AF accounted for 3.2 million hospital-days.

In the **Euro Heart Survey,** the average annual cost per person in each country was €1,507 (Greece), €3,225 (Italy), €2,328 (the Netherlands), €1,010 (Poland), and €2,315 (Spain), and the estimated combined annual cost in all five countries was €6.2 billion.

In Latin America there are not cost related studies

Health-care costs related to AF will also continue to rise worldwide.

Kim, M. H., et al. Circ. Cardiovasc. Qual. Outcomes. 2011.

Ringborg, A. et al. Europace 2008.

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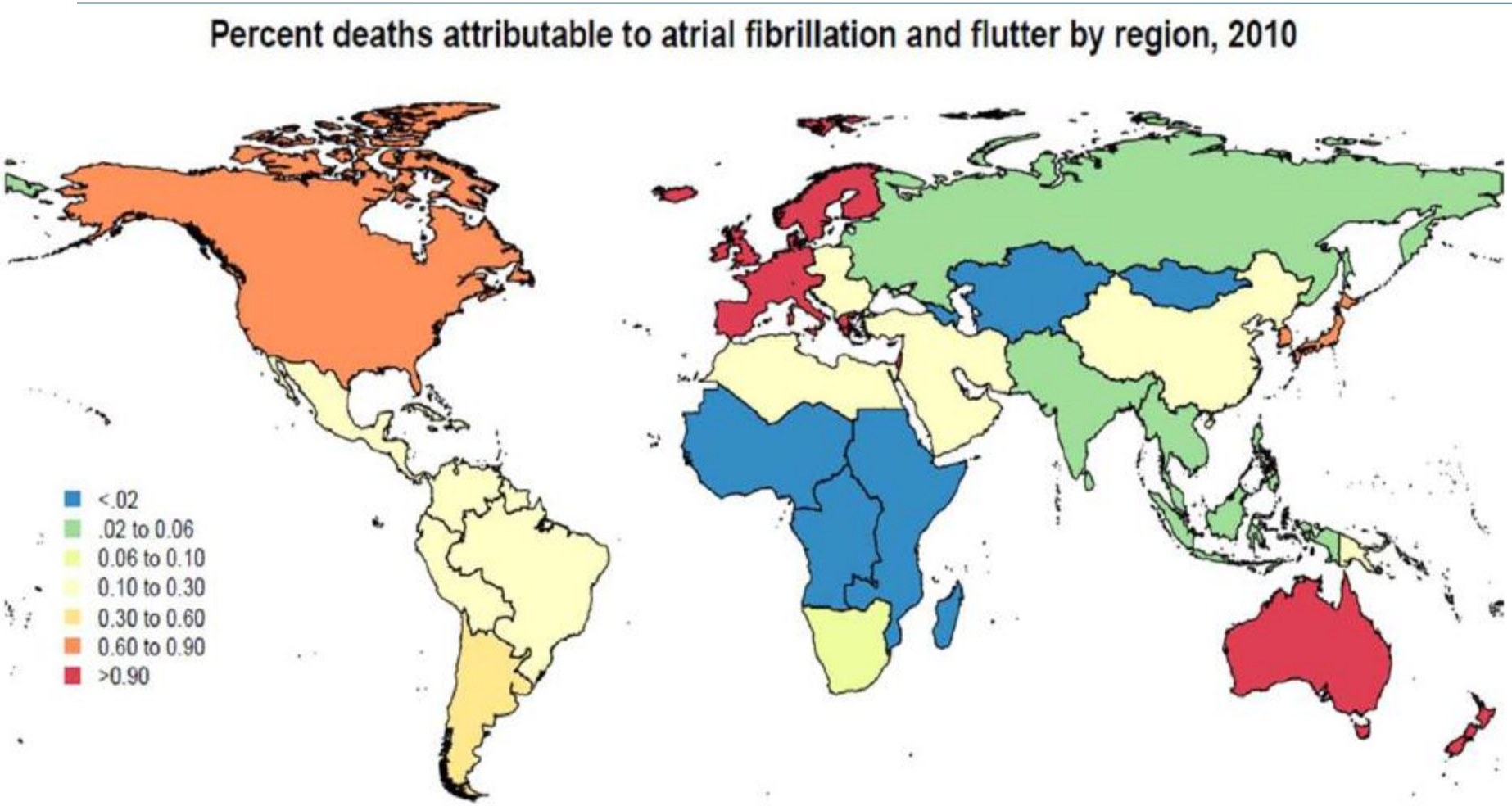
MORTALITY



Chugh S, et al. Circulation 2014

Speaker

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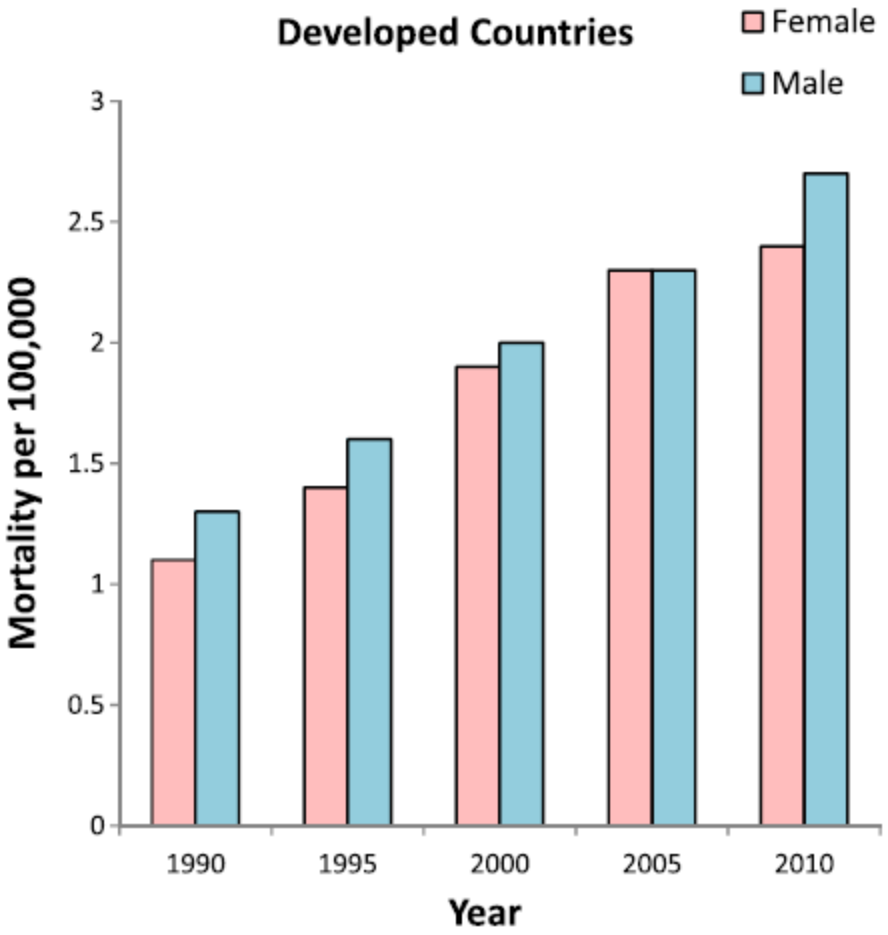
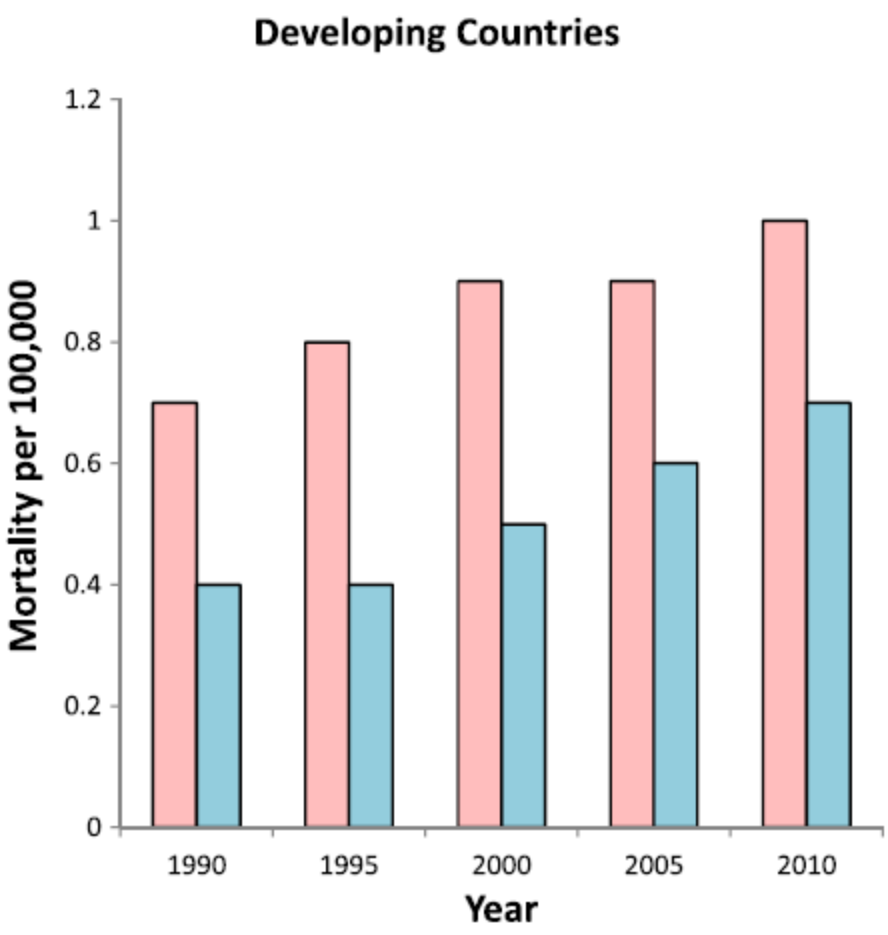
MORTALITY





Chugh S, et al. Circulation 2014

Speaker

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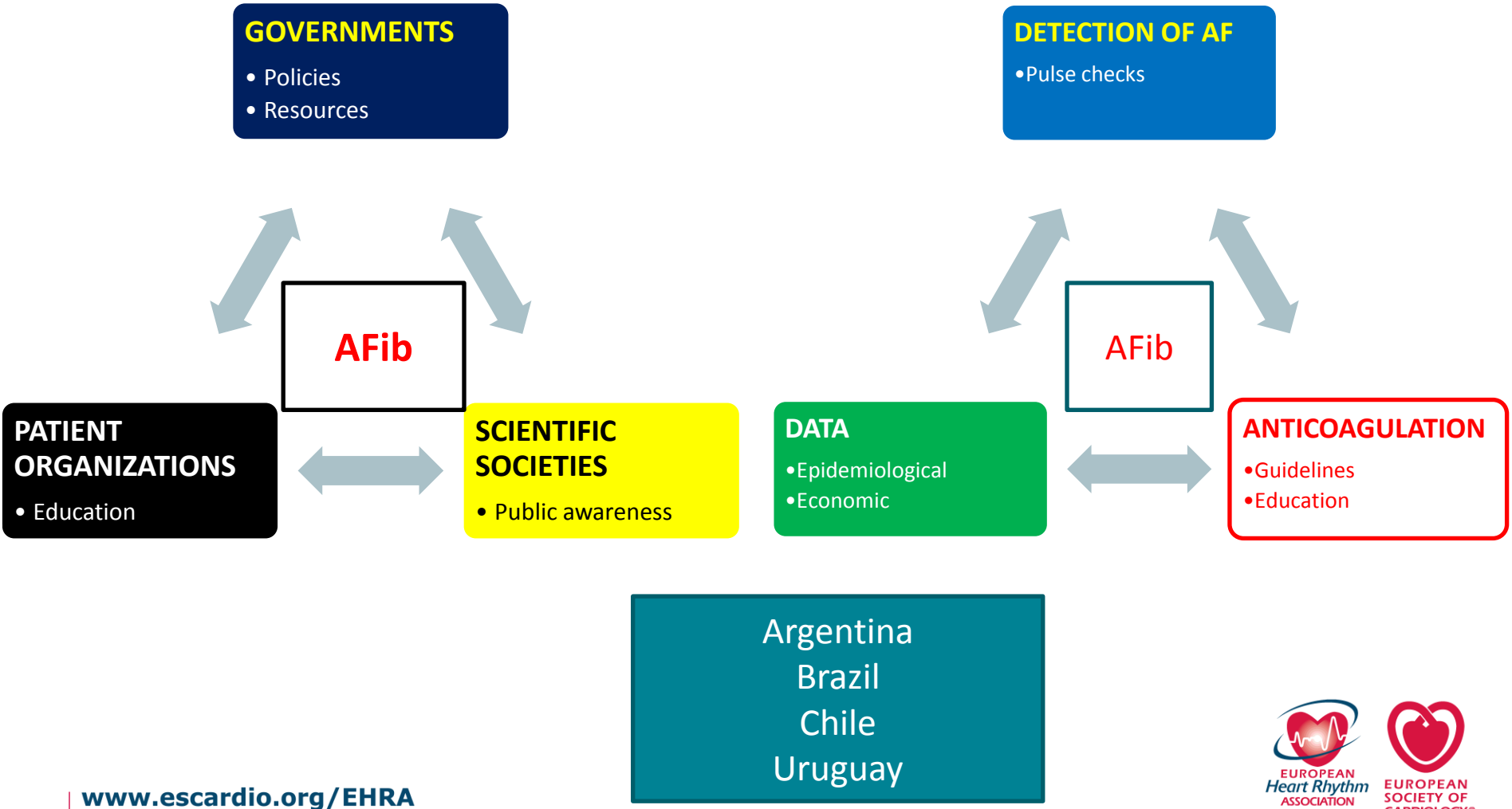
CONCLUSIONS

- Evidence for geographic variation in AF burden.
- Especially in developing (South America) versus developed nations
- Systematic, global surveillance of AF is required to formulate effective region-specific prevention and treatment strategies.

FUTURE DIRECTIONS



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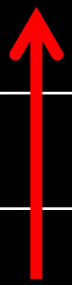
RISK OF ISCHAEMIC STROKE (MEDICARE)

ETHNIC GROUP	RISK OF ISCHAEMIC STROKE (per 100 patient years)
BLACK	12.2
HISPANIC	10.6
WHITE	5.2



Therefore, although the **prevalence of AF is higher among white individuals**, the risk of stroke if one has AF seems to be higher among **black and Hispanic individuals** compared with white individuals.

Birman-Deych, E., et al. Stroke .2006

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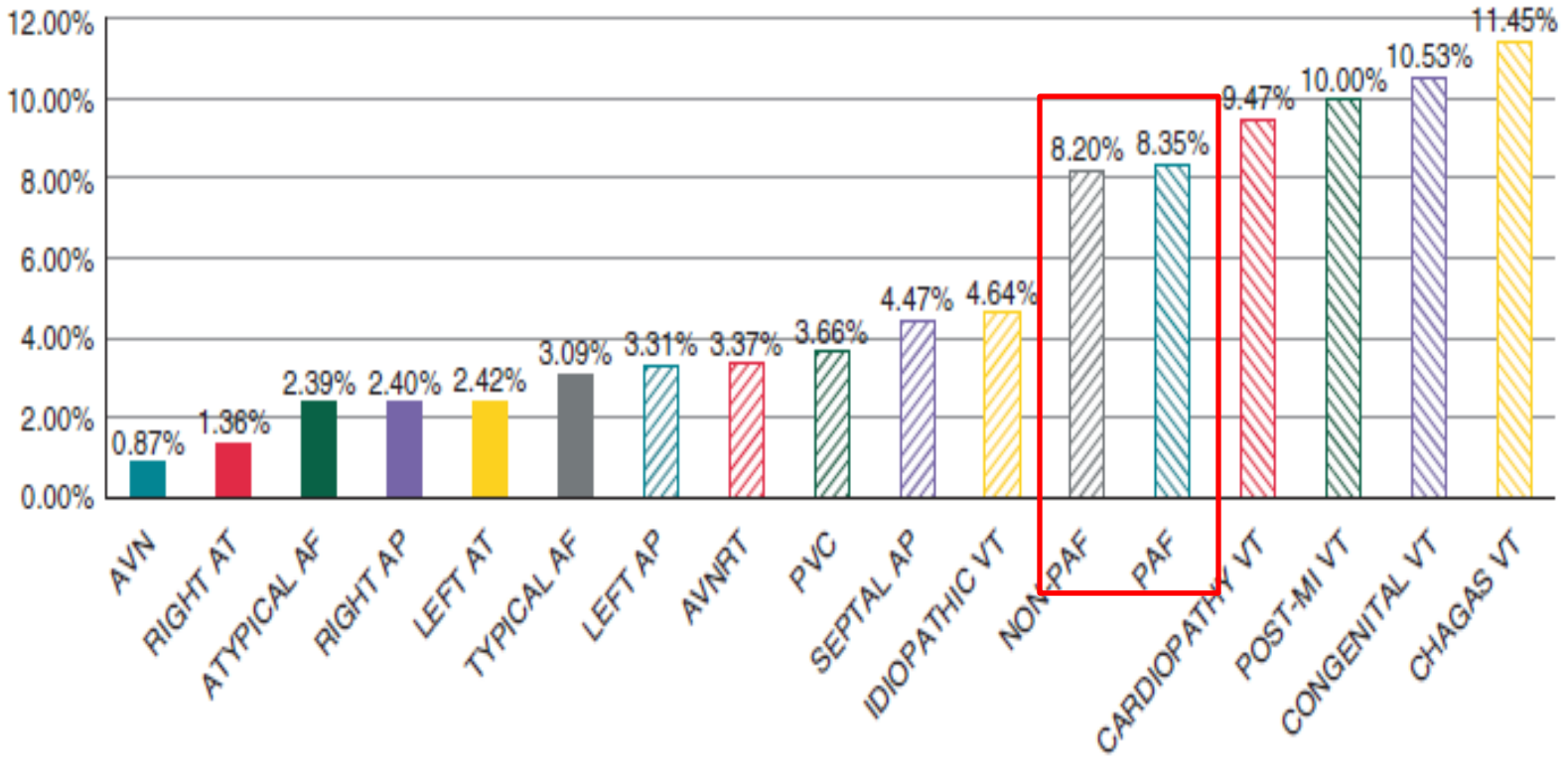
COMPLICATIONS



Keegan R, et al. Europace 2015