

# ADVANCES IN CARDIAC ARRHYTHMIAS and GREAT INNOVATIONS IN CARDIOLOGY

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# Atrial Fibrillation: Epidemiology in the world and in Italy

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Centro Congressi  
Unione Industriale di Torino



UNIVERSITÀ DEGLI STUDI DI TORINO



Maria Pia Hospital



From Caliper to Catheter



JOINT MEETING  
OF CARDIOLOGY

# Declaration of Interest

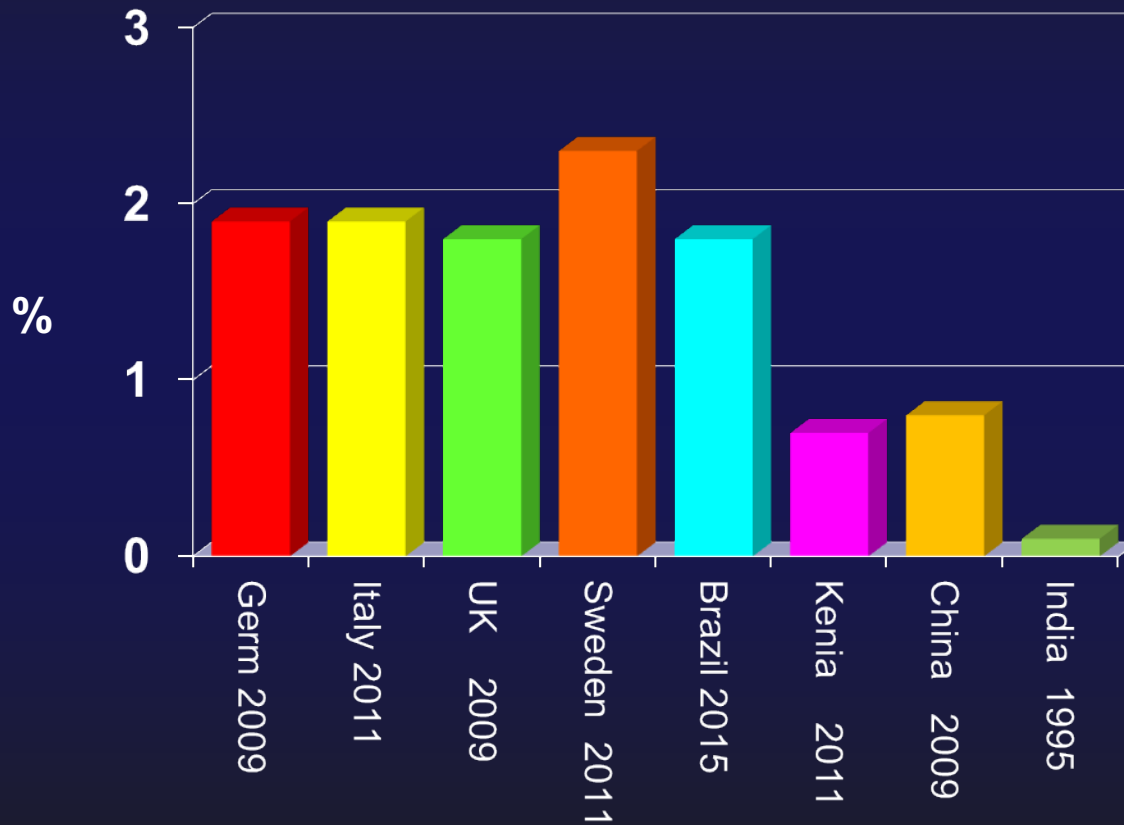
No conflict

# AF: relevant issue of public healthcare

- No lifethreatening arrhythmia
- Significantly affects the quality of life (functional, emotional, social)
- Direct or indirect cause of severe anatomical, coagulative, haemodynamic consequences (cardiac dilation, ↓ cardiac output, thromboembolism, bleeding)
- The most frequent arrhythmia in clinical practice

## Epidemiology of AF

# Prevalence (general population aged >15 yy)



Cowan Heart 2013;99:1166

Wilke Europace 2013;15:486

Shavadia J Cardiovasc J Afr 2013;24:6

Zoni Berisso Am J Cardiol 2013;11:705

Naccarelli GV Am J Cardiol 2009;104:1534

Marcolino MS EUROPACE 2015

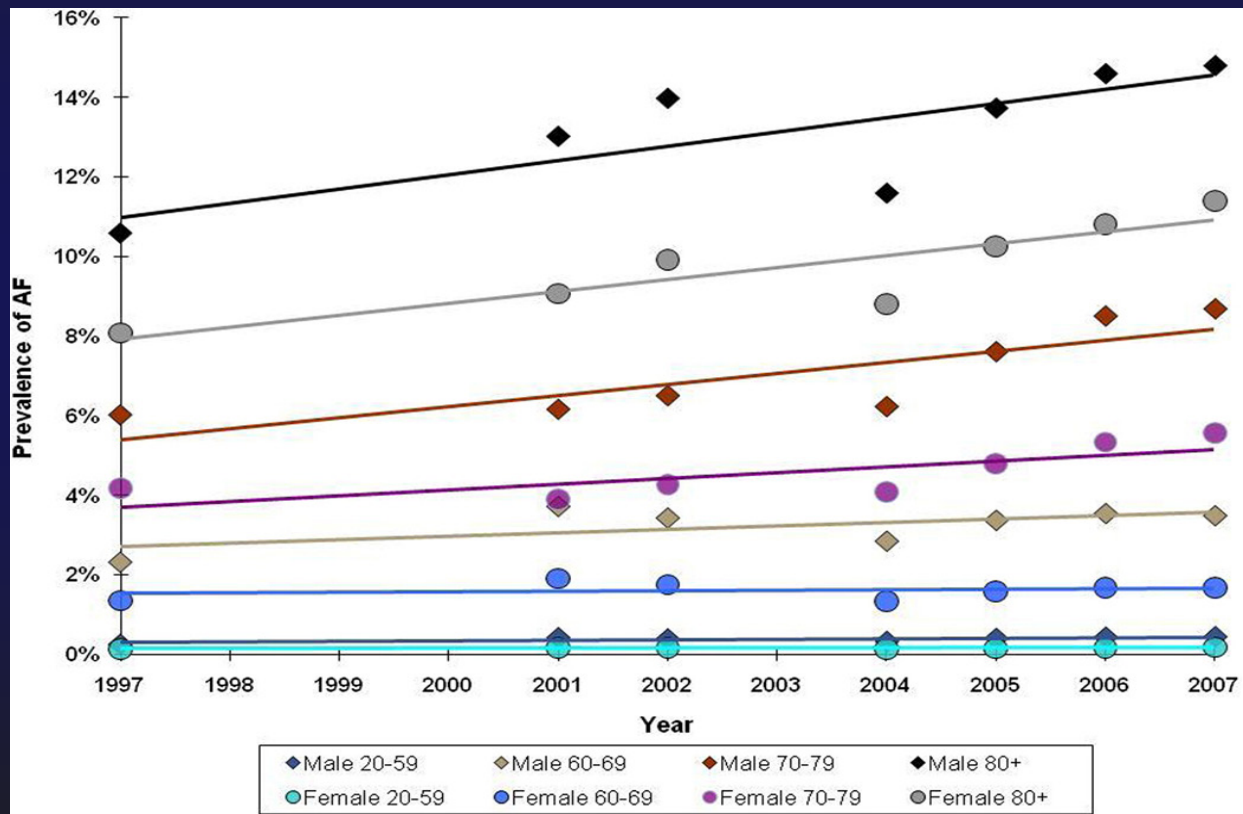
Friberg J Intern Med 2013;274:461

Long MJ Int J Cardiol 2011;148:48

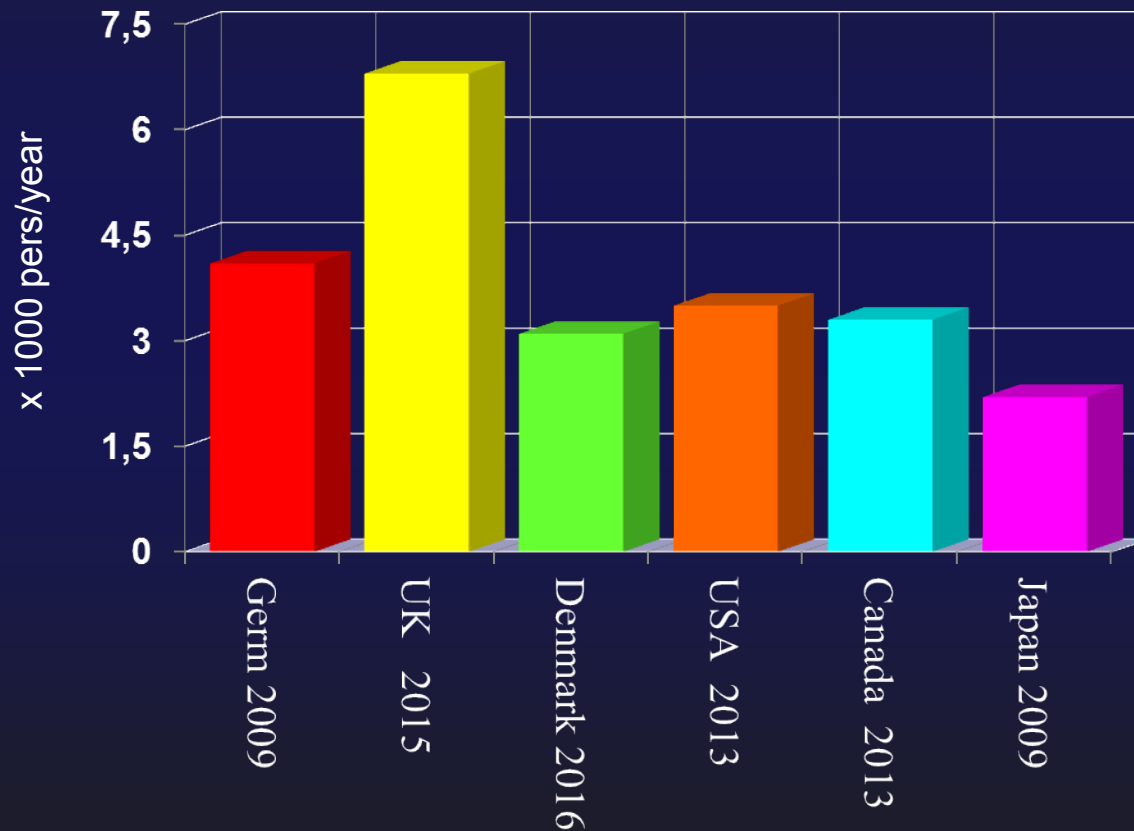
# Prevalence asymptomatic AF

	Clinical setting	Diagnosis	age	percentage
<b>ALFA</b> (1999)	Generalist Cardiologists out-hospital clinics	visit + ecg	19-95	11.4%
<b>CARAF</b> (1996)	Ambulatori MMG Ambulatori cardiologi Pronto Socc, Osp	visit + ecg	Adult	21%
<b>Camm</b> (1980)	GPs Asymptomatic subjects	visit + Holter	> 75	10.5%
<b>Marek</b> (2011)	Asympomatic students	ecg	14-18	0.02%
<b>Molaschi</b> (1995)	Hospitalised Ptsx NoCV causes	ecg	> 80	28%

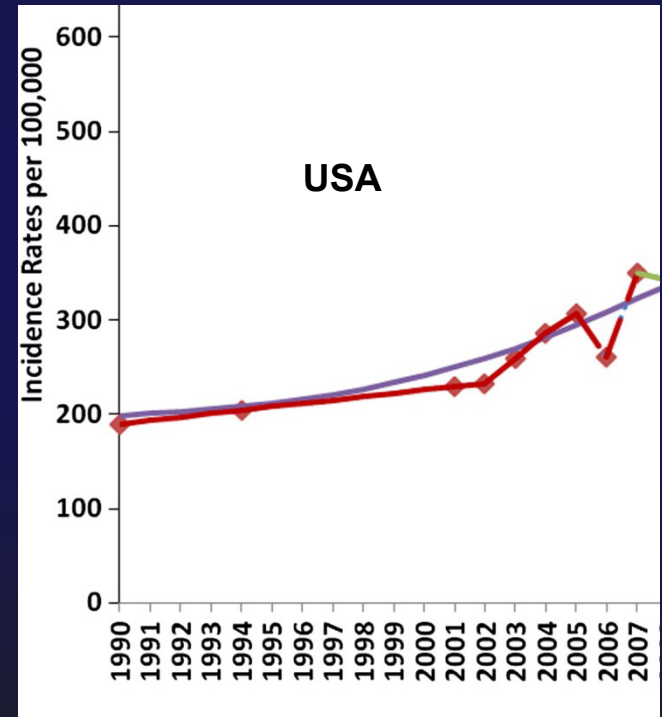
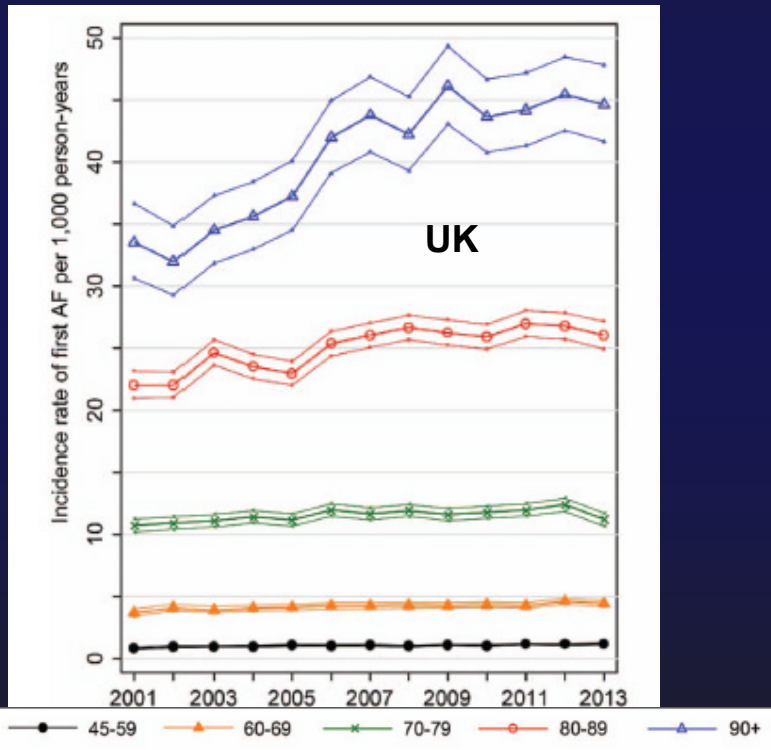
# Prevalence



# Incidence

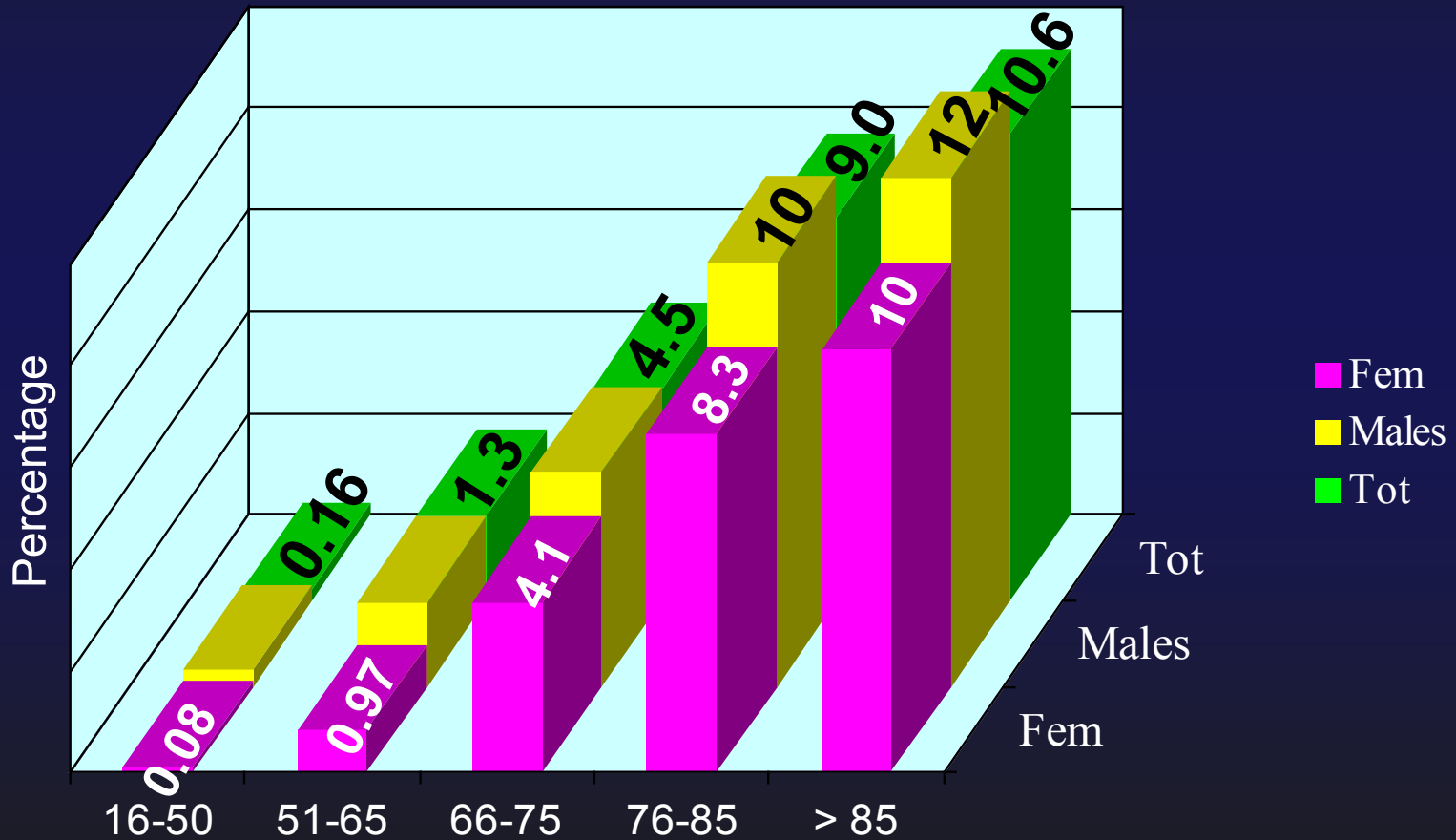


# Incidence

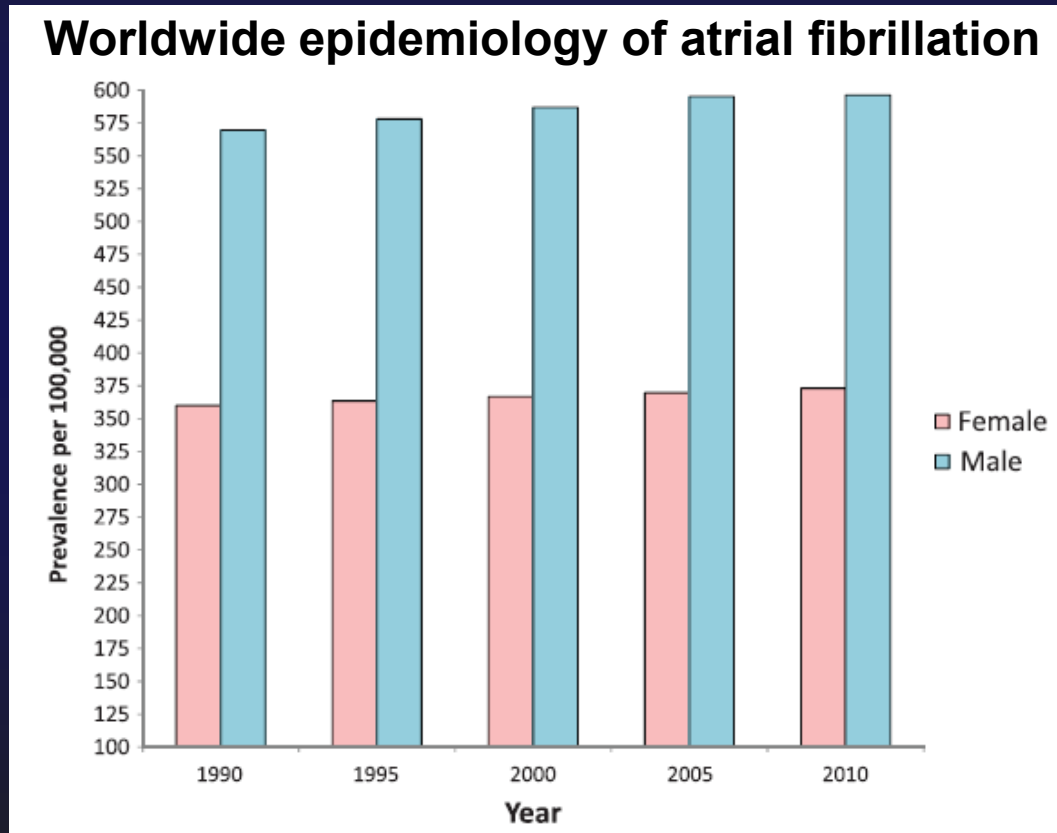




# Distribution by age



# Distribution by sex



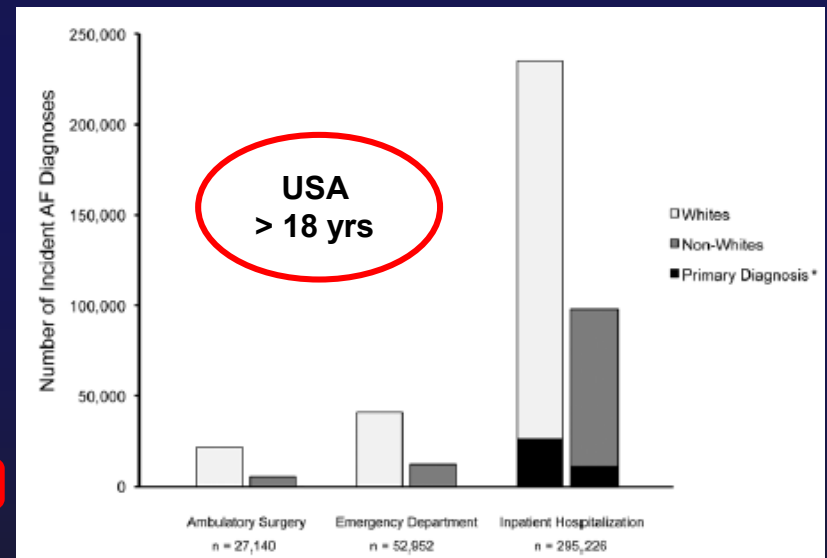
# Epidemiology of AF

## Distribution by race

AF incidence by ethnic origin (45 years and older) UK

Ethnic origin	Cases	PT (years)	Crude incidence rate (1/1000 years)	Standardised* incidence rate (1/1000 years)
Asian	191	49 555	3.9 (3.3 to 4.4)	5.4 (4.6 to 6.3)
Black	291	93 987	3.1 (2.8 to 3.5)	4.6 (4.0 to 5.3)
Mixed	76	19 090	4.0 (3.1 to 5.0)	5.7 (4.3 to 7.0)
South Asian	463	126 584	3.7 (3.3 to 4.0)	4.7 (4.3 to 5.2)
White	76 561	8 598 166	8.9 (8.8 to 9.0)	8.1 (8.1 to 8.2)

Martinez C . Heart 2015;doi 11.1136



Dewland Circulation 2013;128:2470

# Population characteristics

	Heart Disease				
	Isch (%)	Hypert (%)	NICMP (%)	Valv (%)	Others (%)
<b>ISAF</b>	19	33	2	12	2.5
<b>AFNET</b>	28		6.5	36	4
<b>Euro Heart Survey</b>	34		6	26	3
<b>ATRIA</b>	35			5	
<b>TAIWAN</b>	21		15	5	

ATRIA JAMA 2001;285:2370  
 AFNET Europace 2009;11:423  
 TAIWAN Am J Med 2007;120:e1-e7

ISAF Am J Cardiol 2013;111:705  
 Euro Heart Survey Eur Heart J 2005;26:242

# Population characteristics

## Comorbidities

	HF (%)	Hypert (%)	COPD (%)	Ict/TIA (%)	Cognit Def (%)	Diab (%)	Ren Ins (%)
<b>ATRIA</b>	29	49		9		17	
<b>TAIWAN</b>	25	15		16		17	2
<b>ISAF</b>	25	67	18	17	15	23	23
<b>AFNET</b>	36	68	11	10		23	12
<b>Euro Heart Sur</b>	34	64	13	11		17	7

ATRIA JAMA 2001;285:2370  
AFNET Europace 2009;11:423

TAIWAN Am J Med 2007;120:e1-e7  
Euro Heart Survey Eur Heart J 2005;26:2422

ISAF Am J Cardiol 2013;111:70

# Population characteristics

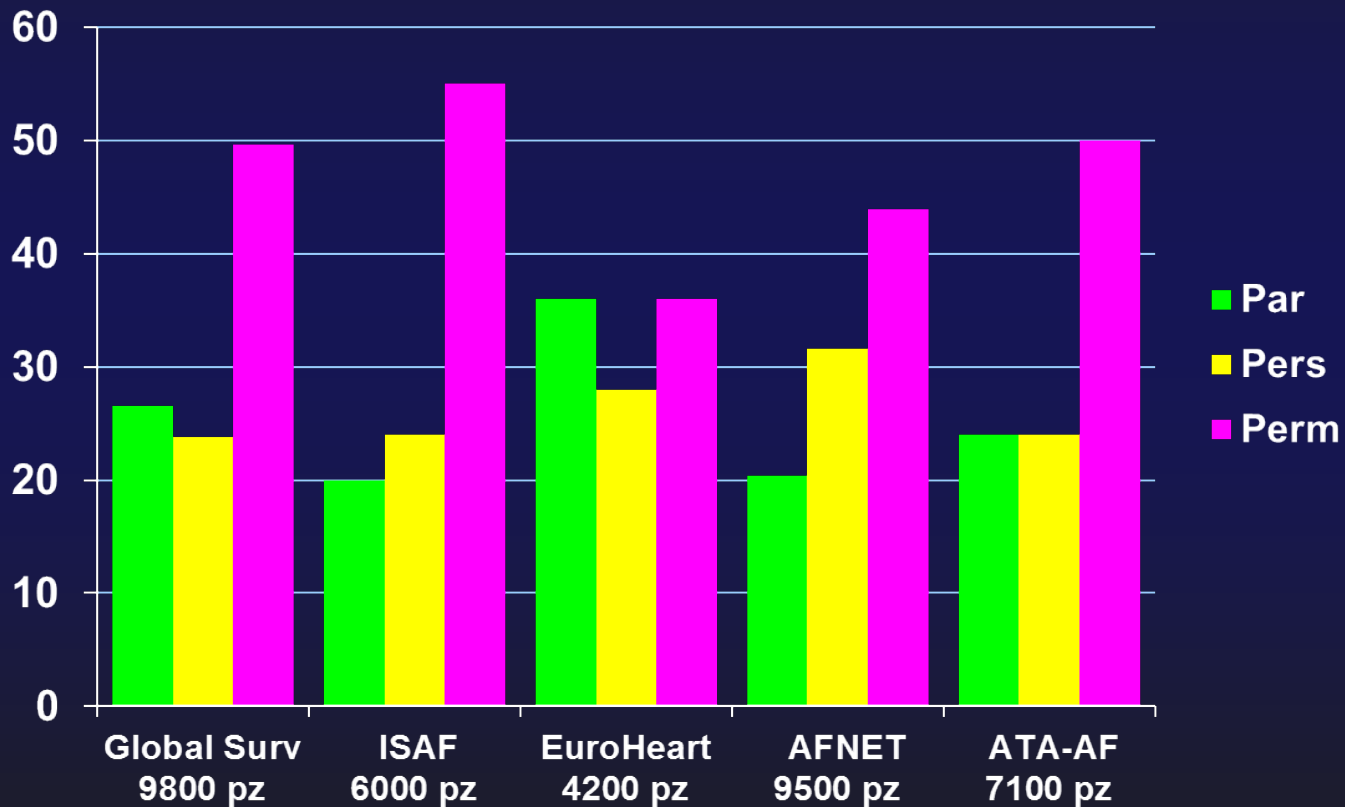
**Real-life Global  
Survey Evaluating  
Patients  
with Atrial Fibrillation**

**10500 pz**

**26 Nazioni**

	Paroxysmal	Persistent	Permanent	P Value
At least 1 comorbidity, %	69.3	75.7	84.8	<0.0001
Heart failure, %	32.9	44.3	55.6	<0.0001
Heart failure in class, %				<0.0001
No HF or NYHA I	72.7	62.0	50.3	
NYHA II	20.0	24.3	29.5	
NYHA III-IV	7.3	13.7	20.2	
Left ventricular ejection fraction within past 12 mo in %, n mean (SD)	1975 58.5 (10.7)	1892 54.3 (12.1)	3481 53.3 (12.2)	<0.0001
Left ventricular hypertrophy (ECG), %	12.3	12.7	14.6	0.0117
Coronary artery disease, %	30.0	32.9	34.3	0.0009
Cerebrovascular disease, %	11.7	10.8	17.6	<0.0001
Valvular heart disease, %	16.7	21.2	35.8	<0.0001
Chronic pulmonary disease, %	9.4	8.9	12.9	<0.0001
Liver diseases, %	4.5	3.9	4.9	0.16
Chronic advanced renal failure, %	3.5	3.9	4.3	0.22

# Types of AF

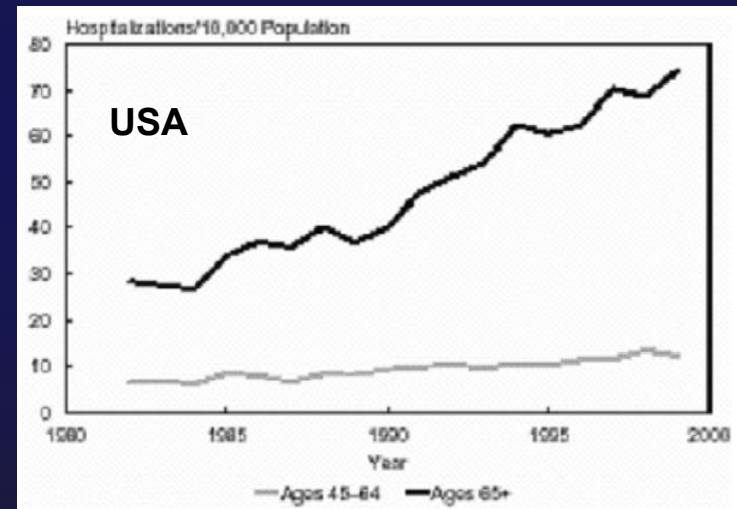
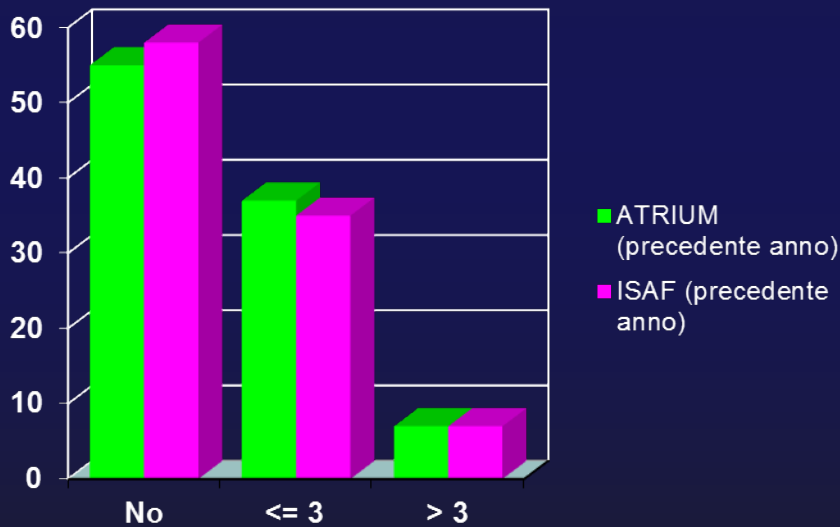


Chiang CE Circ Arrh Electrophysiol 2012;5:632  
Euro Heart Survey Eur Heart J 2005;26:2422

ISAF Am J Cardiol 2013;111:705  
ATA-AF Europace 2011 (Abstract)

AFNET Europace 2009;11:42

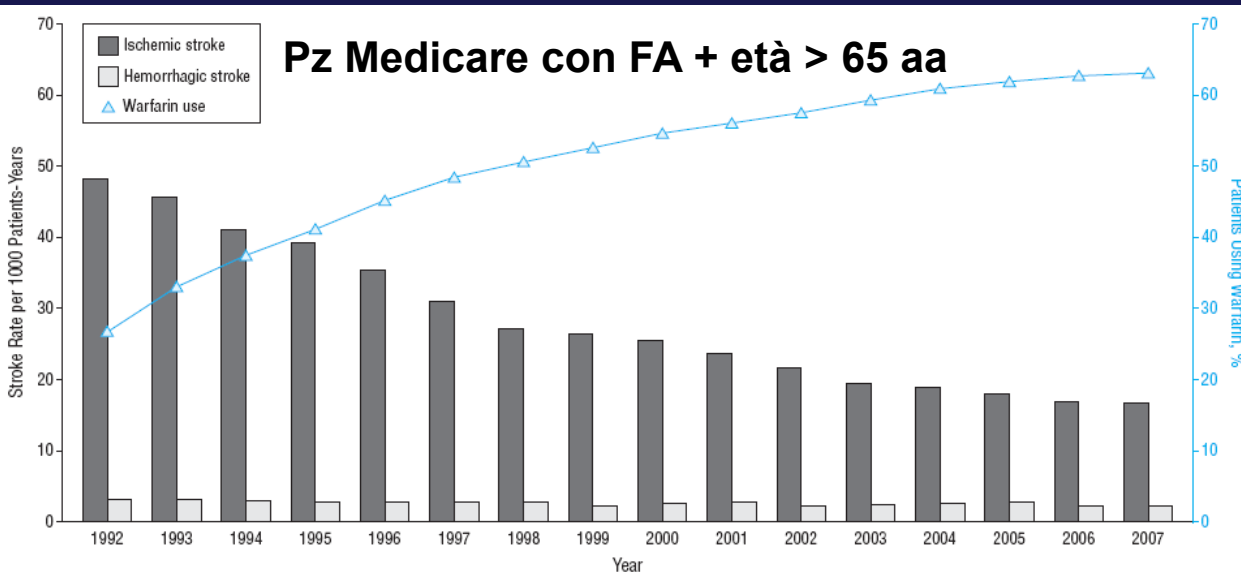
# Hospitalisations



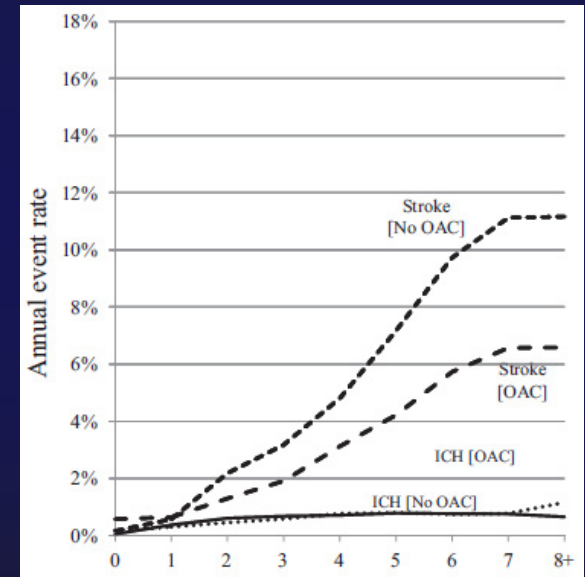
ATRIUM Clin Res Cardiol 2011;100:897      ISAF Giorn Ital Cardiol 2012: (Suppl 1)  
Ruskin Heart Rhythm 2004;1(Issue 2, Suppl):31



# Ischemic/hemorrhagic stroke

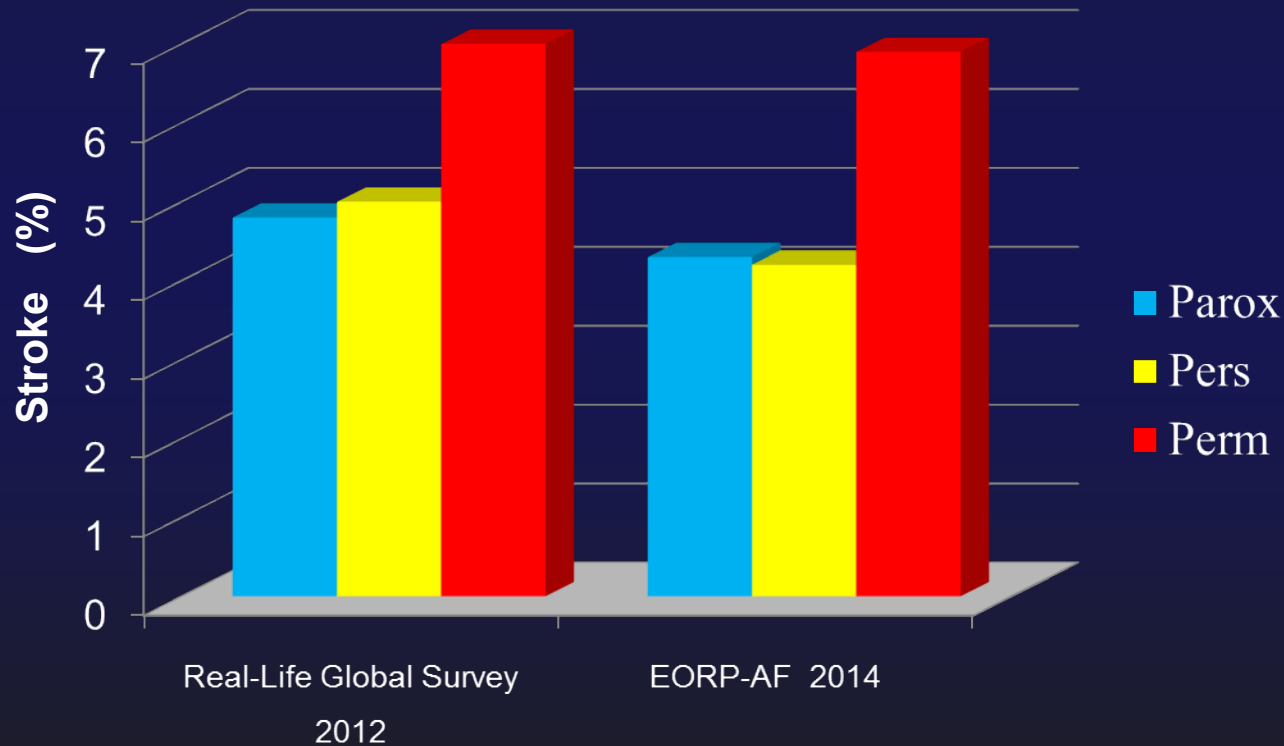


Shroff JAMA Intern Med 2013;173:159

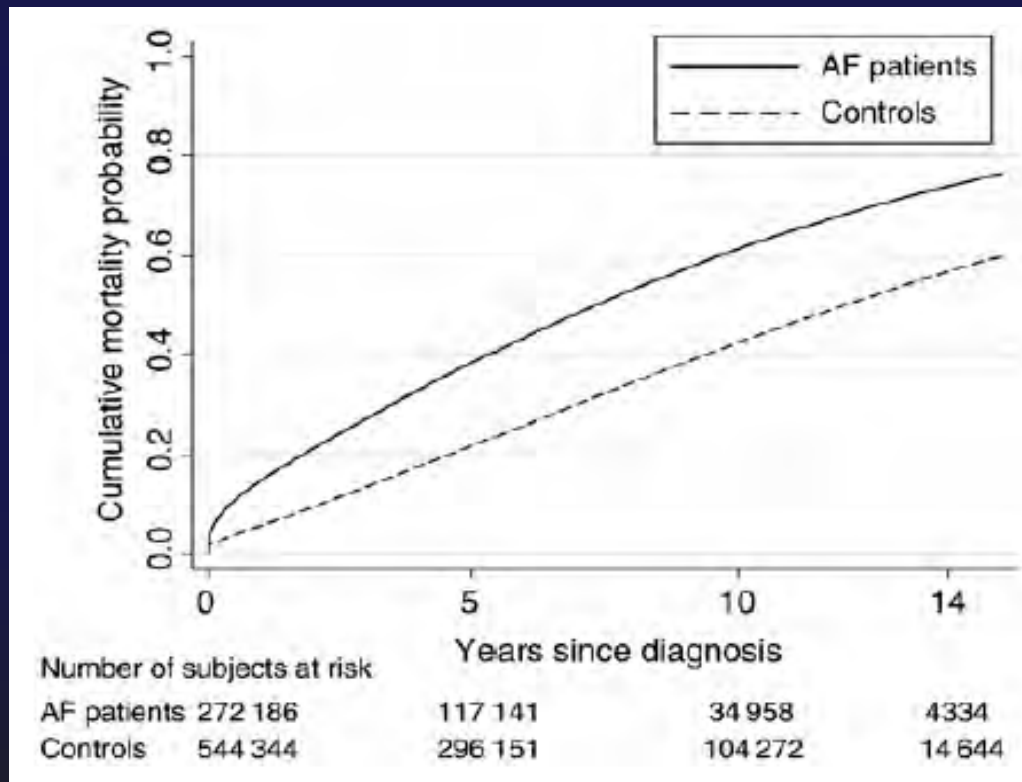


Friberg Circulation 2012;125:2298

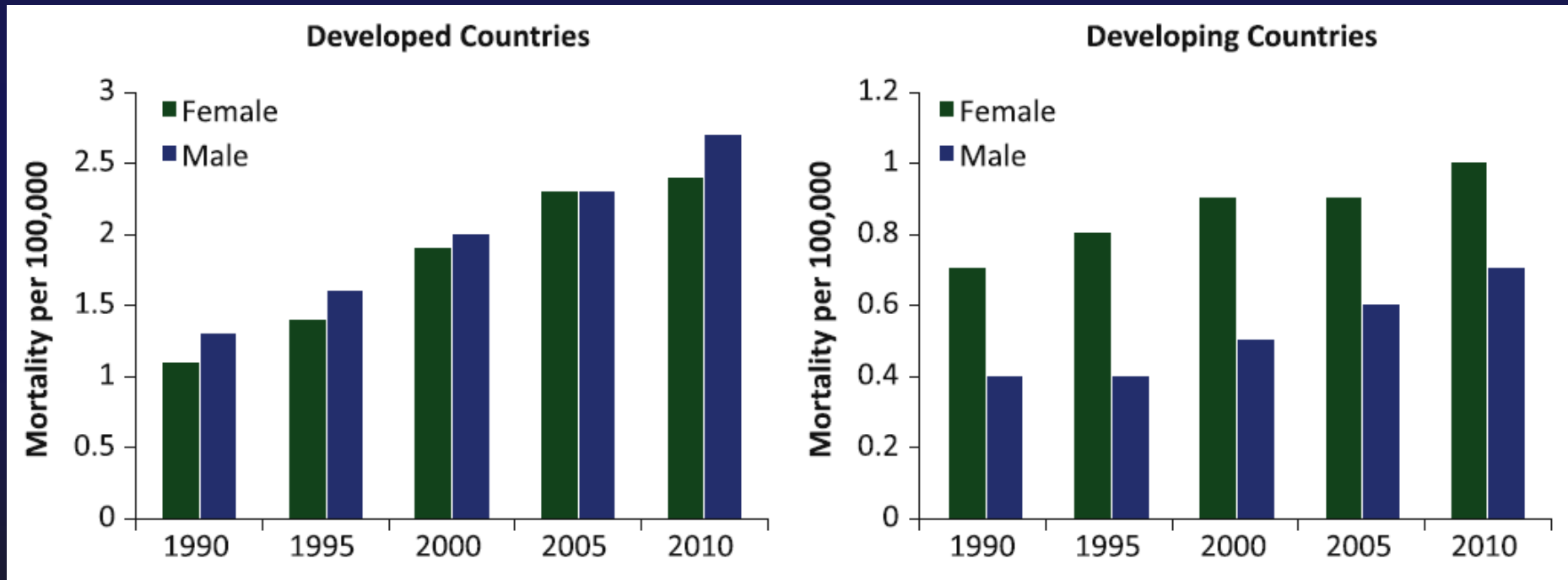
# Prognosis: AF and risk of ischemic stroke



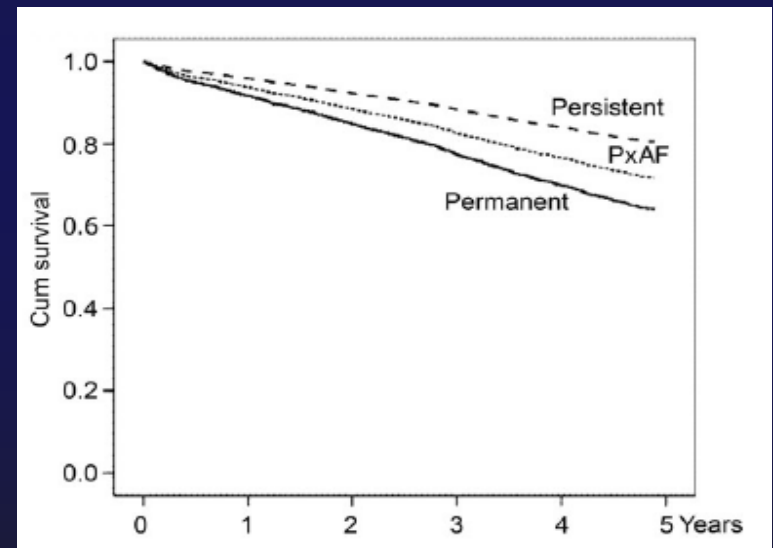
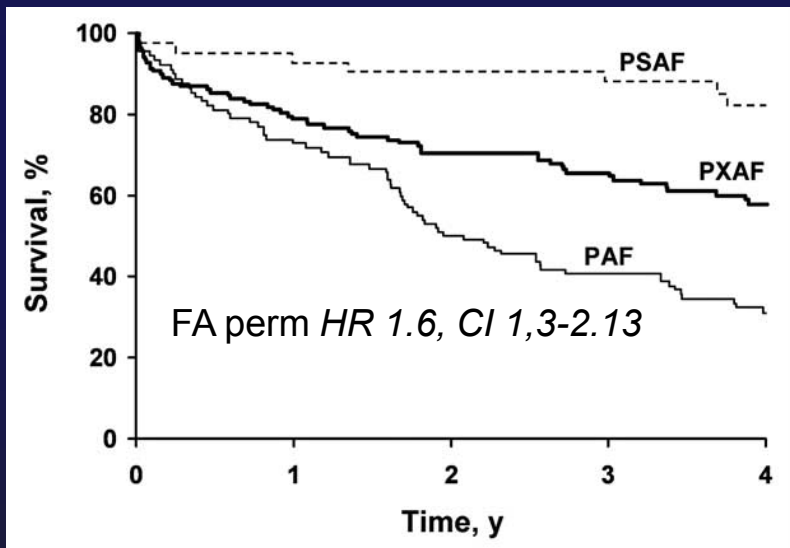
# Prognosis: mortality



# Prognosis: mortality



# Prognosis: type of AF and mortality



Keating RJ Olmsted County Am J Cardiol 2005;96:1420

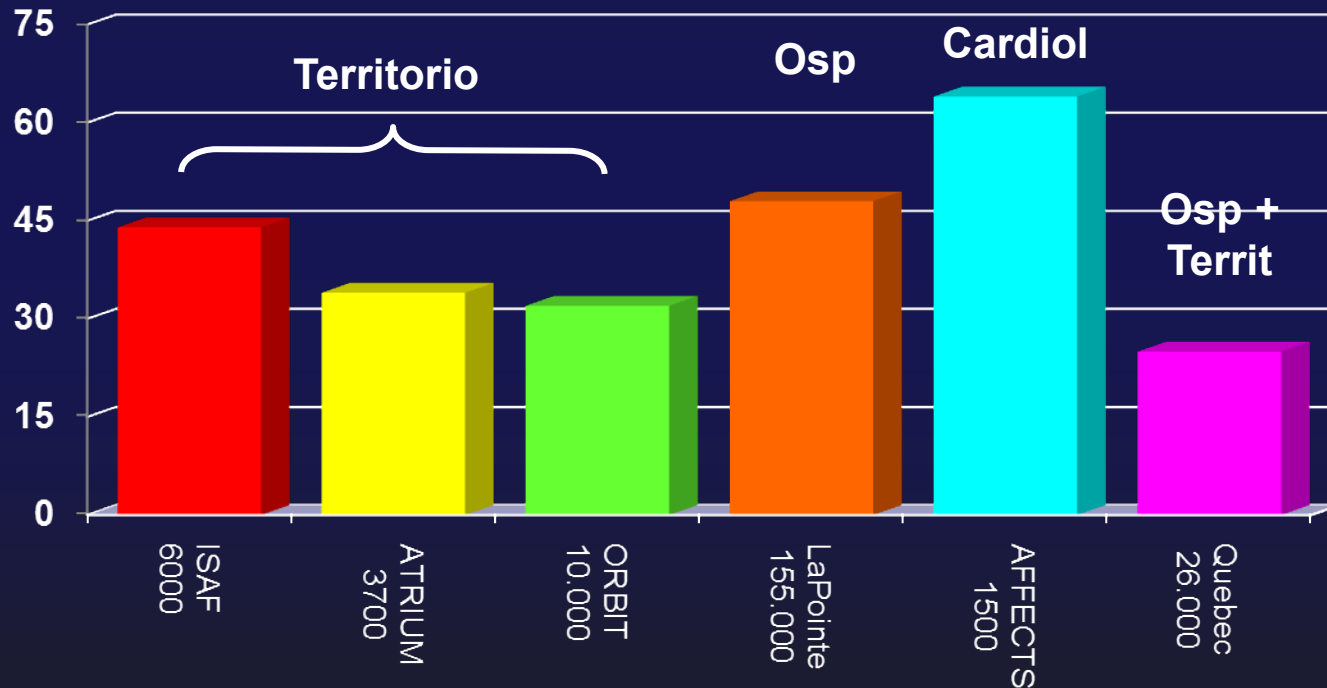
Friberg et al Eur Heart J 2007;28:2346

# Prognosis

Denmark (300.000 subjects) from 1983 to 2012

Heart failure	↓	50%
Mortality	↓	40%
Ischemic stroke	↓	20%
Hemorrhagic stroke	↑	14%

# Antiarrhythmic treatment strategy (Rhythm control)



ATRIUM Clin Res Cardiol 2011;100:897  
AFFECTS Am J Cardiol 2010;105:1122

ISAF Am J Cardiol 2013;111:705  
LaPointe Am J Cardiol 2008;101:1134

ORBIT Am Heart J 2013;165:622  
Quebec Arch Intern Med 2012;172:997

# Antithrombotic therapy

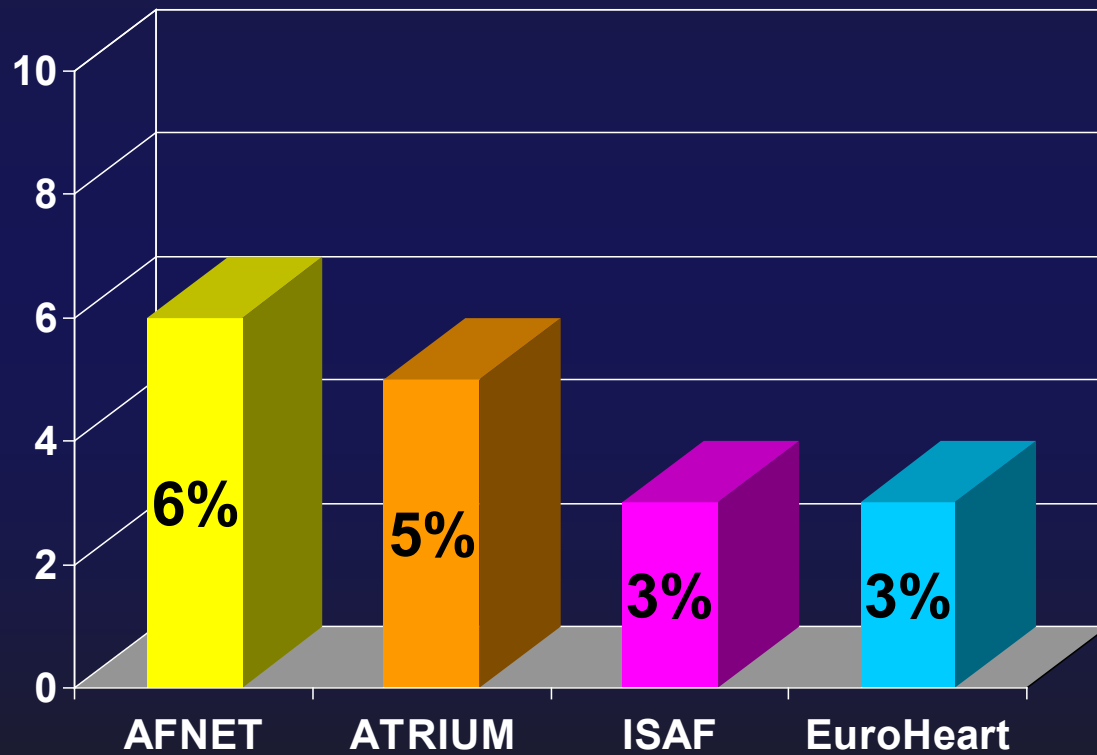
	<i>Italy</i>	<i>UK</i>	<i>Japan</i>
<b><i>Anticoagulants</i></b>	<b>63%</b>	<b>54%</b>	<b>58%</b>
<b><i>Reasons of AC nonuse</i></b>			
<i>Contraindication</i>	6%	9%	
<i>Refusal</i>	5%	2.2%	20%
<i>Pt/care giver unreliability</i>	7%	4%	
<b><i>Unknown</i></b>	<b>20%</b>	<b>30%</b>	<b>22%</b>



# Conclusions

- 1) Prevalence of AF is growing and, at least in Europe, is twice than that reported in the past decade
- 2) The differences in prevalence and incidence among nations are mainly related to race, population mean age and level of development of the national healthcare systems
- 3) Italian epidemiologic data are similar to those observed in the developed countries

# Transcatheter ablation



ATRIUM Clin Res Cardiol 2011;100:897  
Euro Heart Survey Eur Heart J 2005;26:2422

Studio ISAF Am J Cardiol 2013;111:705  
AFNET Europace 2009;11:423

## Epidemiology of AF

# Prognosis: type of AF and the ischemic stroke risk

