La patologia cerebrovascolare e il genere: differenze nella prevalenza, fattori di rischio e outcome

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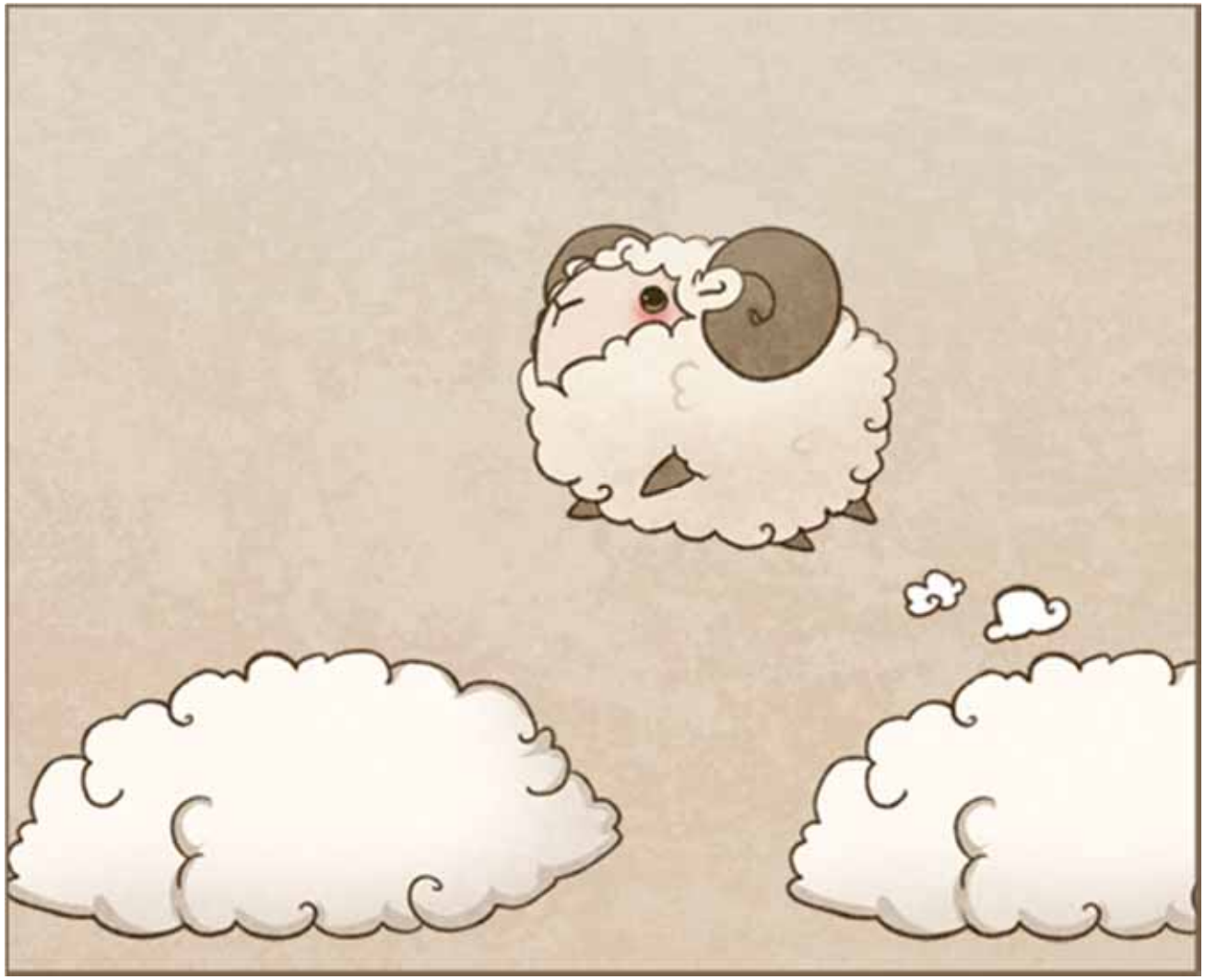
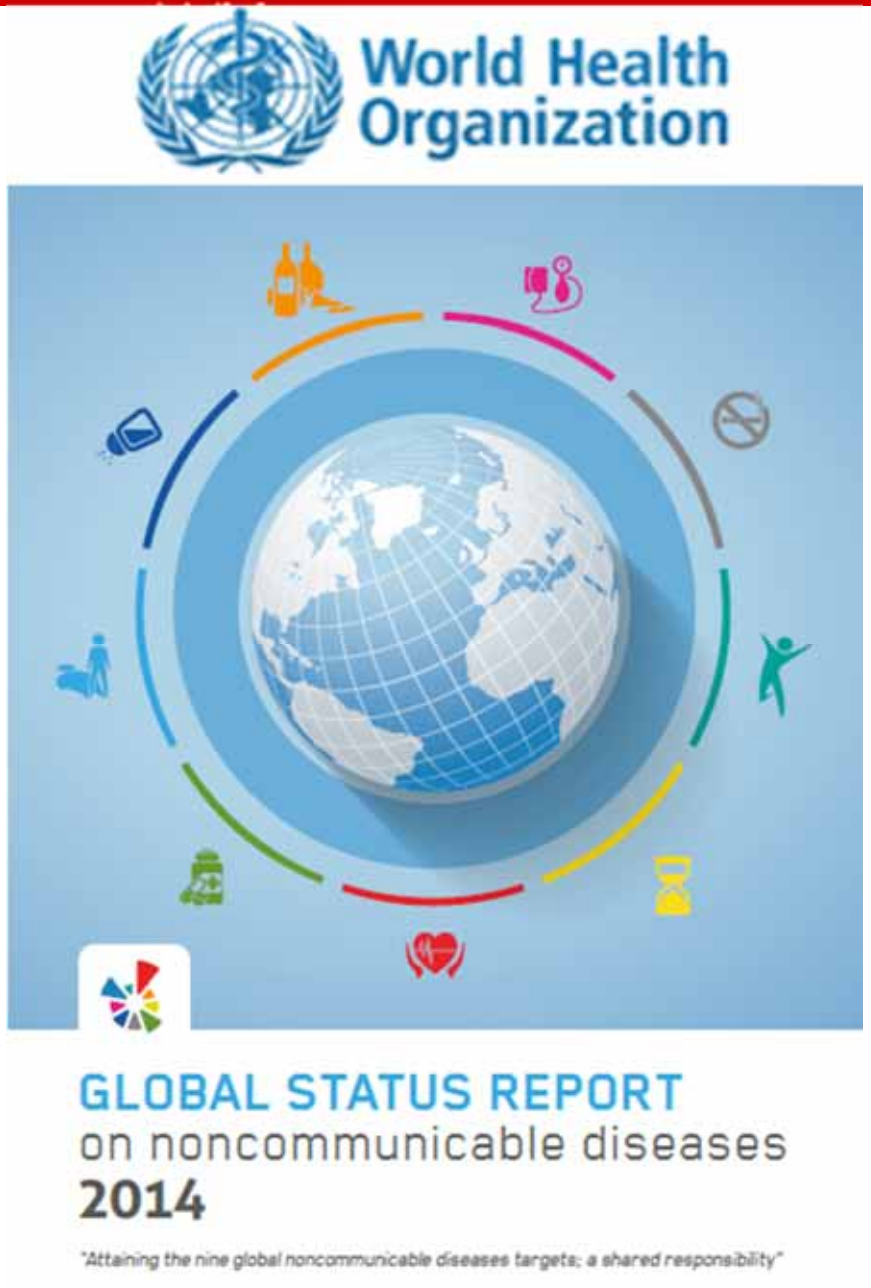
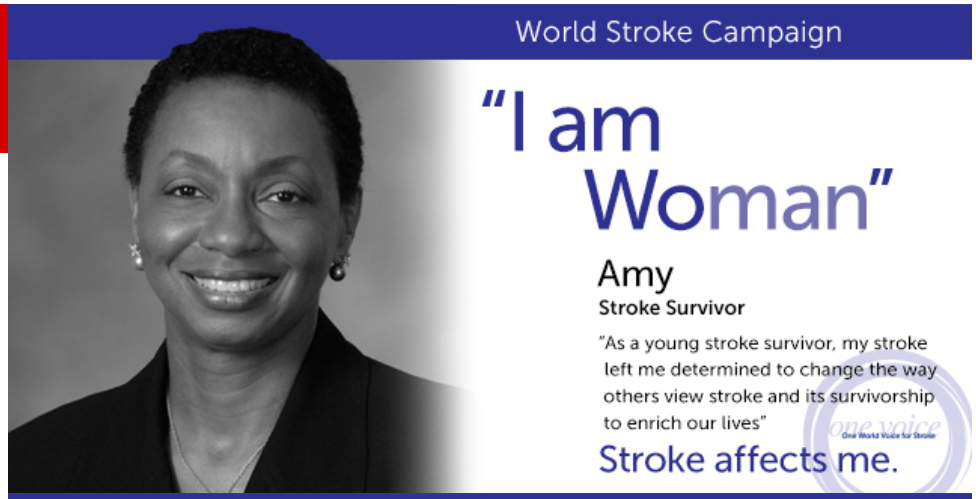
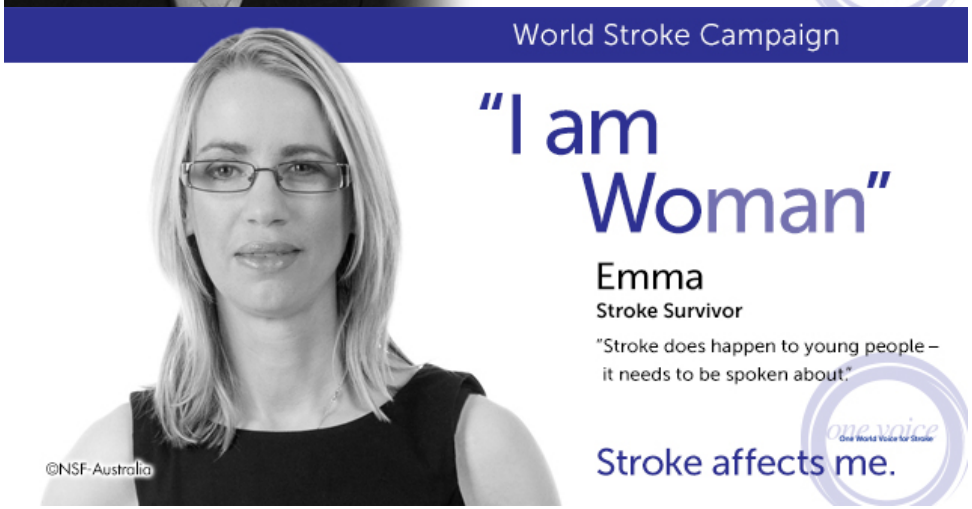
PREMESSA



Stroke







World Stroke Campaign | World Stroke Organization

Gender

PRIMA DEL 2014

AHA/ASA Guideline

Guidelines for the Prevention of Stroke in Women

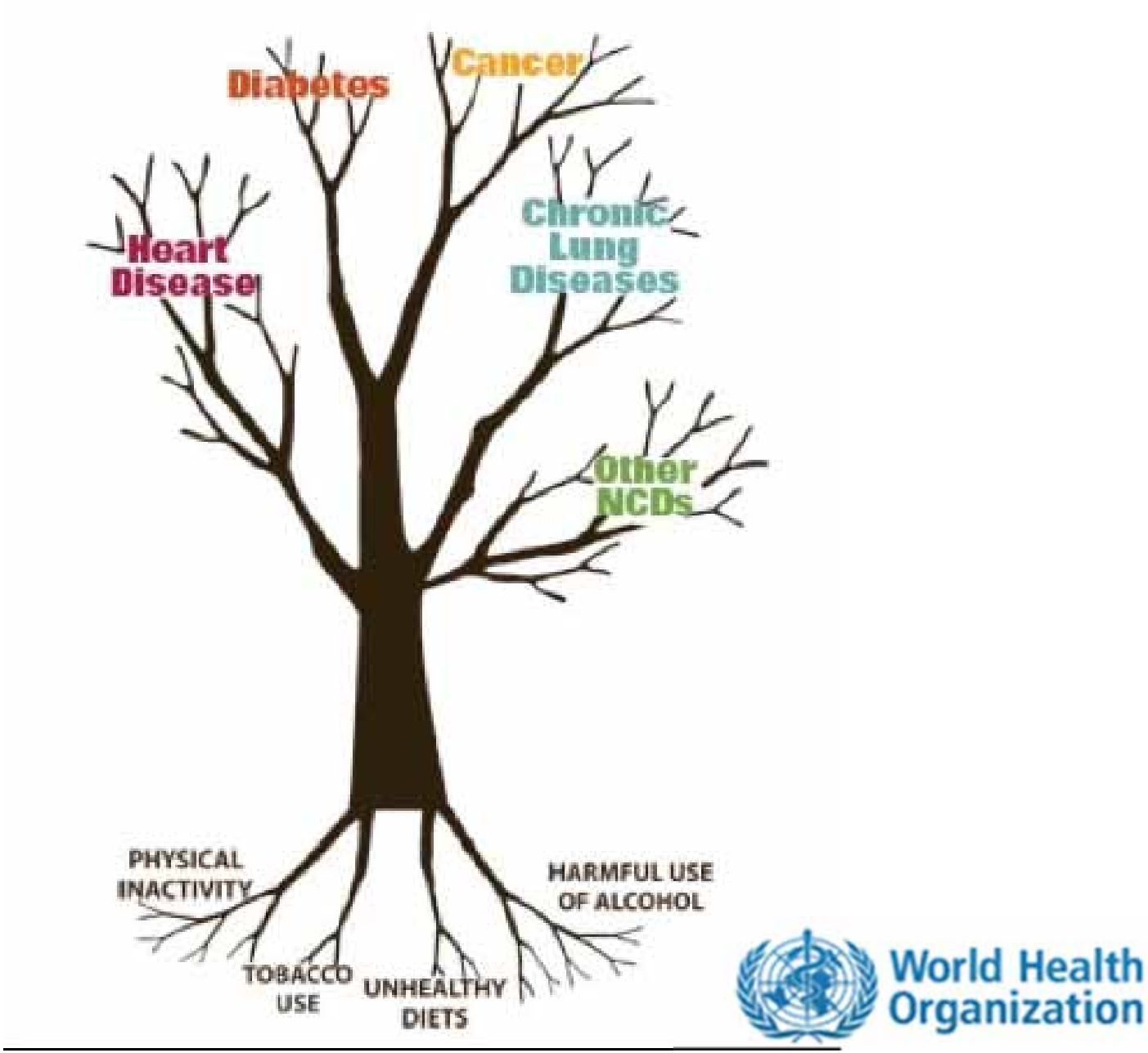
A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association

The American Academy of Neurology affirms the value of this guideline as an educational tool for neurologists.
Endorsed by the American Association of Neurological Surgeons and Congress of Neurological Surgeons

Cheryl Bushnell, MD, MHS, FAHA, Chair; Louise D. McCullough, MD, PhD, FAHA, Vice-Chair; Issam A. Awad, MD, MSc; Monique V. Chireau, MD, MPH, FAHA; Wende N. Fedder, DNP, RN, FAHA; Karen L. Furie, MD, MPH, FAHA; Virginia J. Howard, PhD, MSPH, FAHA; Judith H. Lichtman, PhD, MPH; Lynda D. Lisabeth, PhD, MPH, FAHA; Ileana L. Piña, MD, MPH, FAHA; Mathew J. Reeves, PhD, DVM, FAHA; Kathryn M. Rexrode, MD, MPH; Gustavo Saposnik, MD, MSc, FAHA; Vineeta Singh, MD, FAHA; Amytis Towfighi, MD; Viola Vaccarino, MD, PhD; Matthew R. Walters, MD, MBChB, MSc; on behalf of the American Heart Association Stroke Council, Council on Cardiovascular and Stroke Nursing, Council on Clinical Cardiology, Council on Epidemiology and Prevention, and Council for High Blood Pressure Research

DOPO IL 2014

Non-communicable diseases

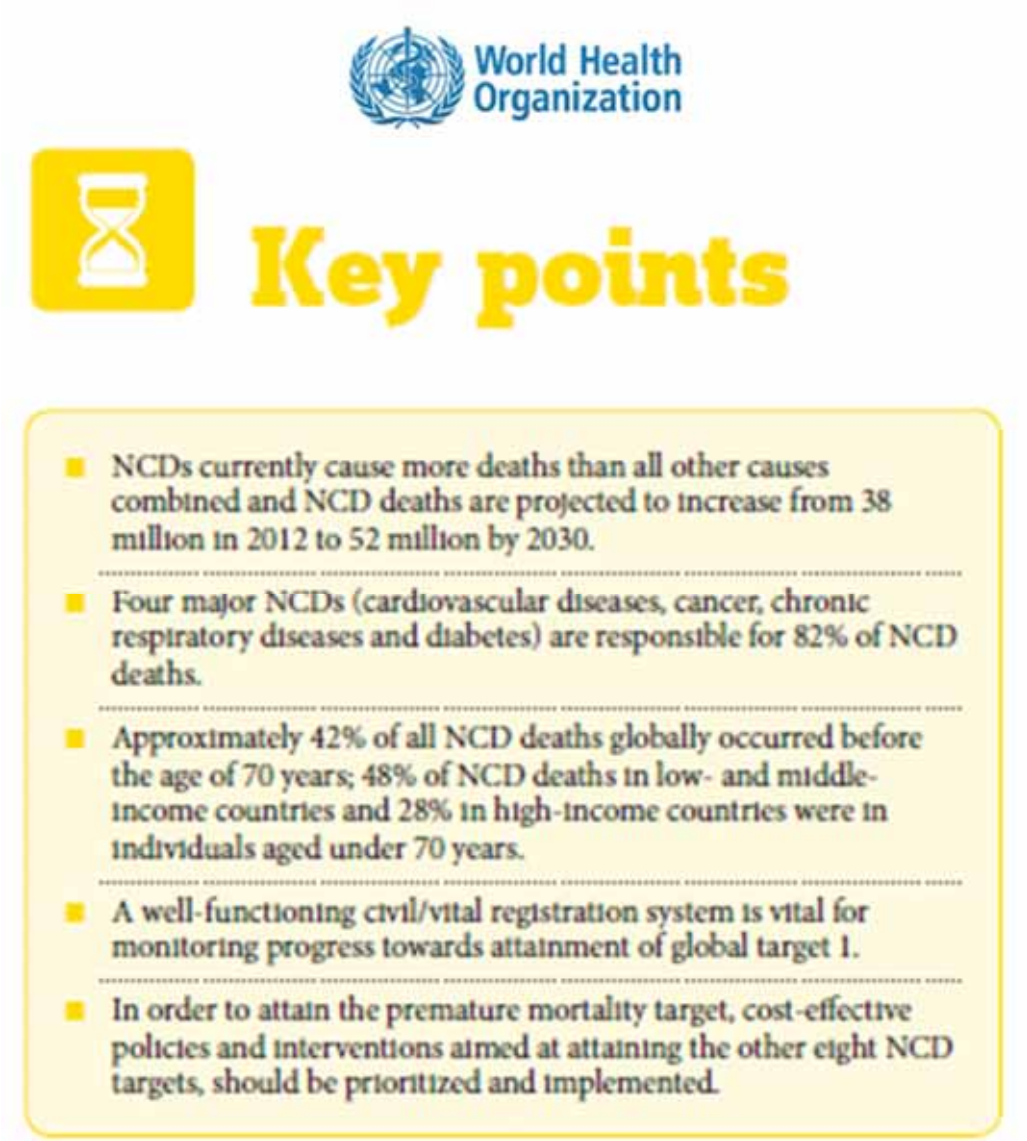


World Health Organization

Non-communicable diseases

Non-communicable disease (**NCD**) is a medical condition or disease that is **non-infectious** or **non-transmissible**. NCDs can refer to chronic diseases which last for long periods of time and progress slowly. Sometimes, NCDs result in rapid deaths such as seen in certain diseases such as autoimmune diseases, heart diseases, stroke, cancers, diabetes, chronic kidney disease, osteoporosis, Alzheimer's disease, cataracts, and others.

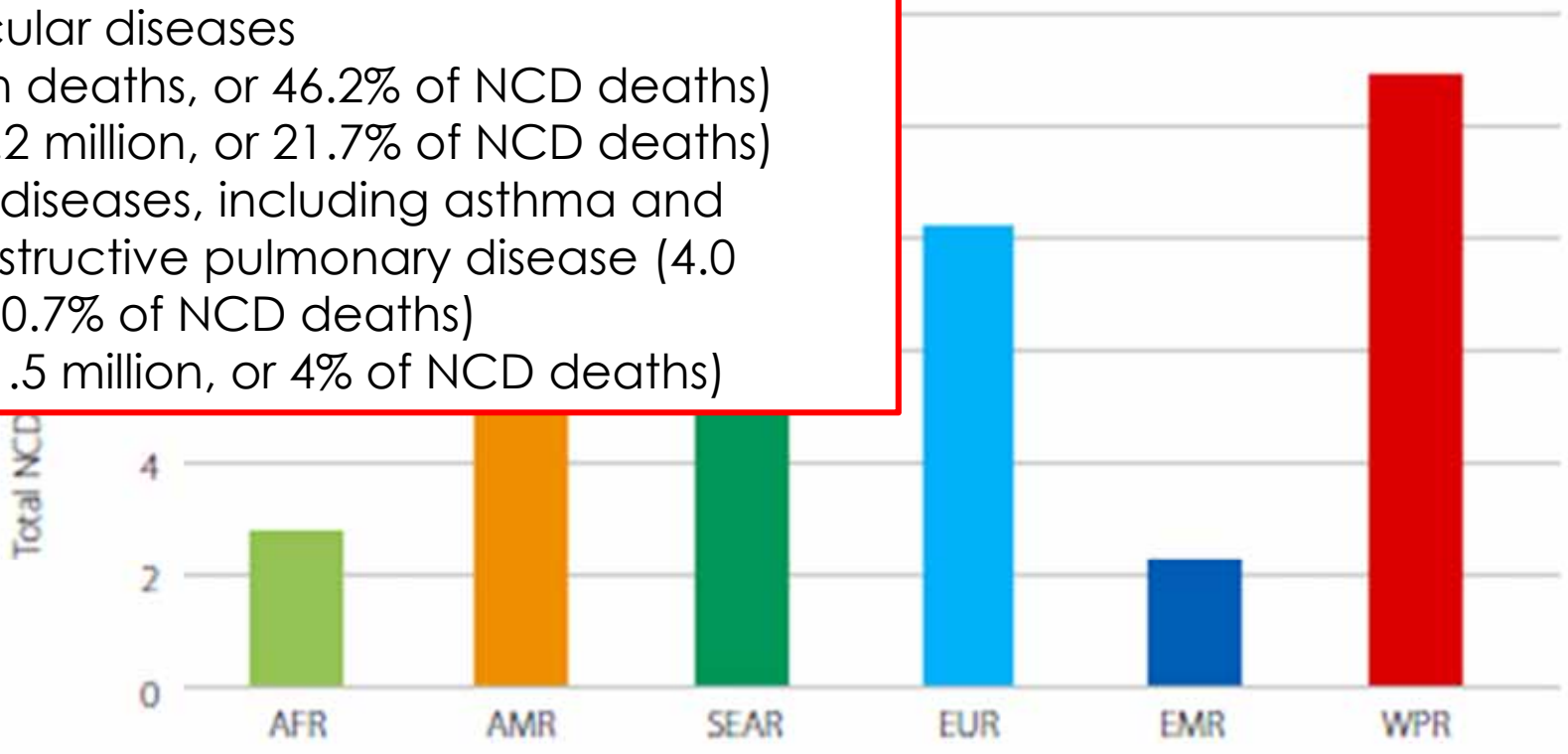
NCDs are the leading cause of death globally. *In 2012 they cause 68% of all deaths (38 million) up from 60% in 2000. About half were under age 70 and half were women.*



A total of 56 million deaths occurred worldwide during 2012. Of these, 38 million were due to NCDs, principally cardiovascular diseases, cancer and chronic respiratory diseases.

cardiovascular diseases
(17.5 million deaths, or 46.2% of NCD deaths)
cancers (8.2 million, or 21.7% of NCD deaths)
respiratory diseases, including asthma and chronic obstructive pulmonary disease (4.0 million, or 10.7% of NCD deaths)
diabetes (1.5 million, or 4% of NCD deaths)

Fig. 1.1 Total NCD deaths, by WHO region, comparable estimates, 2012



AFR=African Region, AMR=Region of the Americas, SEAR =South-East Asia Region, EUR=European Region, EMR=Eastern Mediterranean Region, WPR=Western Pacific Region

Fig. 1.3 Proportion of global deaths under the age 70 years, by cause of death, comparable estimates, 2012 (*1*)

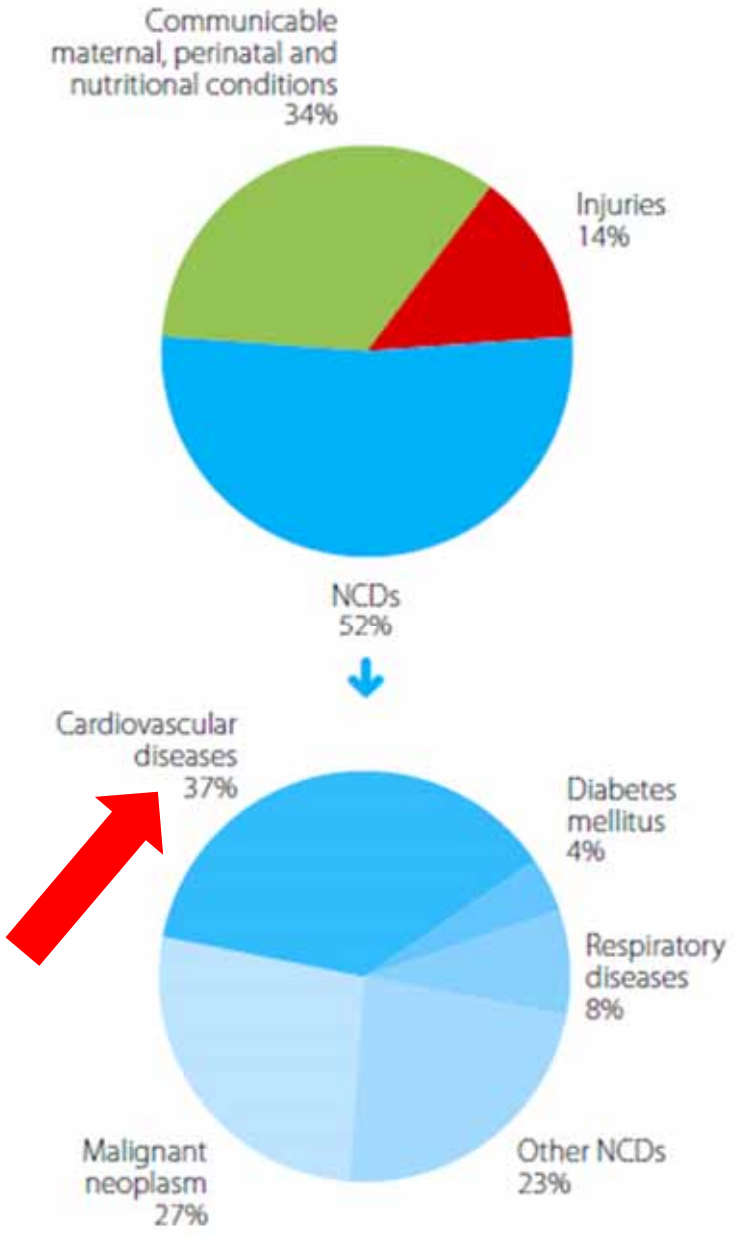
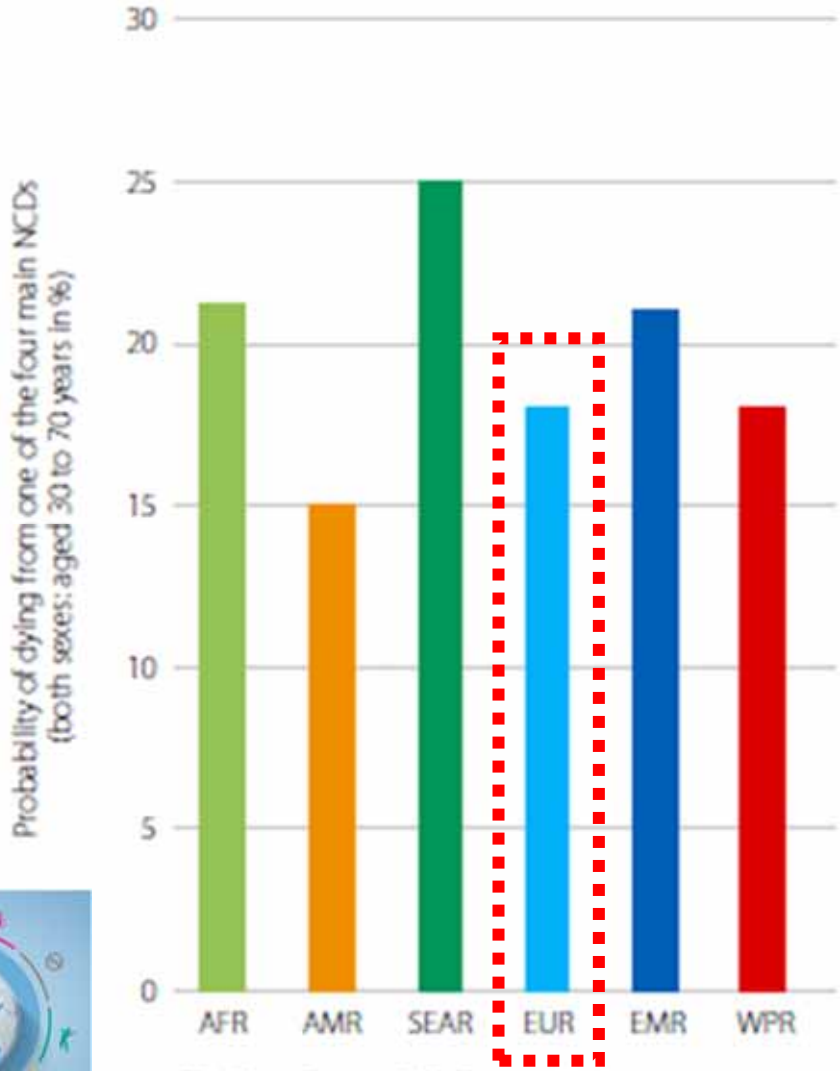


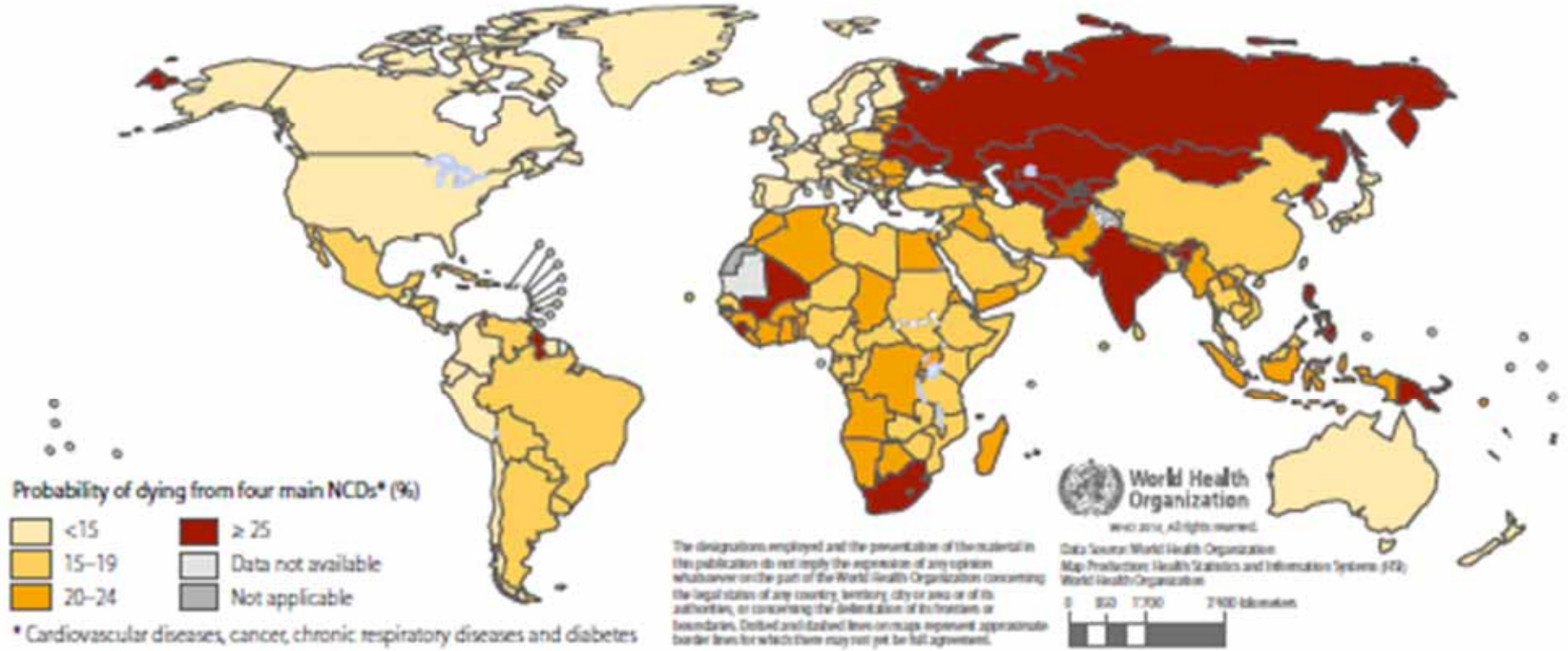
Fig. 1.4 Probability of dying from one of the four main noncommunicable diseases between the ages of 30 and 70 years, by WHO region, comparable estimates, 2012



AFR=African Region, AMR=Region of the Americas, SEAR=South-East Asia Region, EUR=European Region, EMR=Eastern Mediterranean Region, WPR=Western Pacific Region

Global target 1: A 25% relative reduction in overall mortality from cardiovascular diseases, cancer, diabetes or chronic respiratory diseases

Fig. 1.5a Probability of dying from the four main noncommunicable diseases between the ages of 30 and 70 years, comparable estimates, 2012



High-income

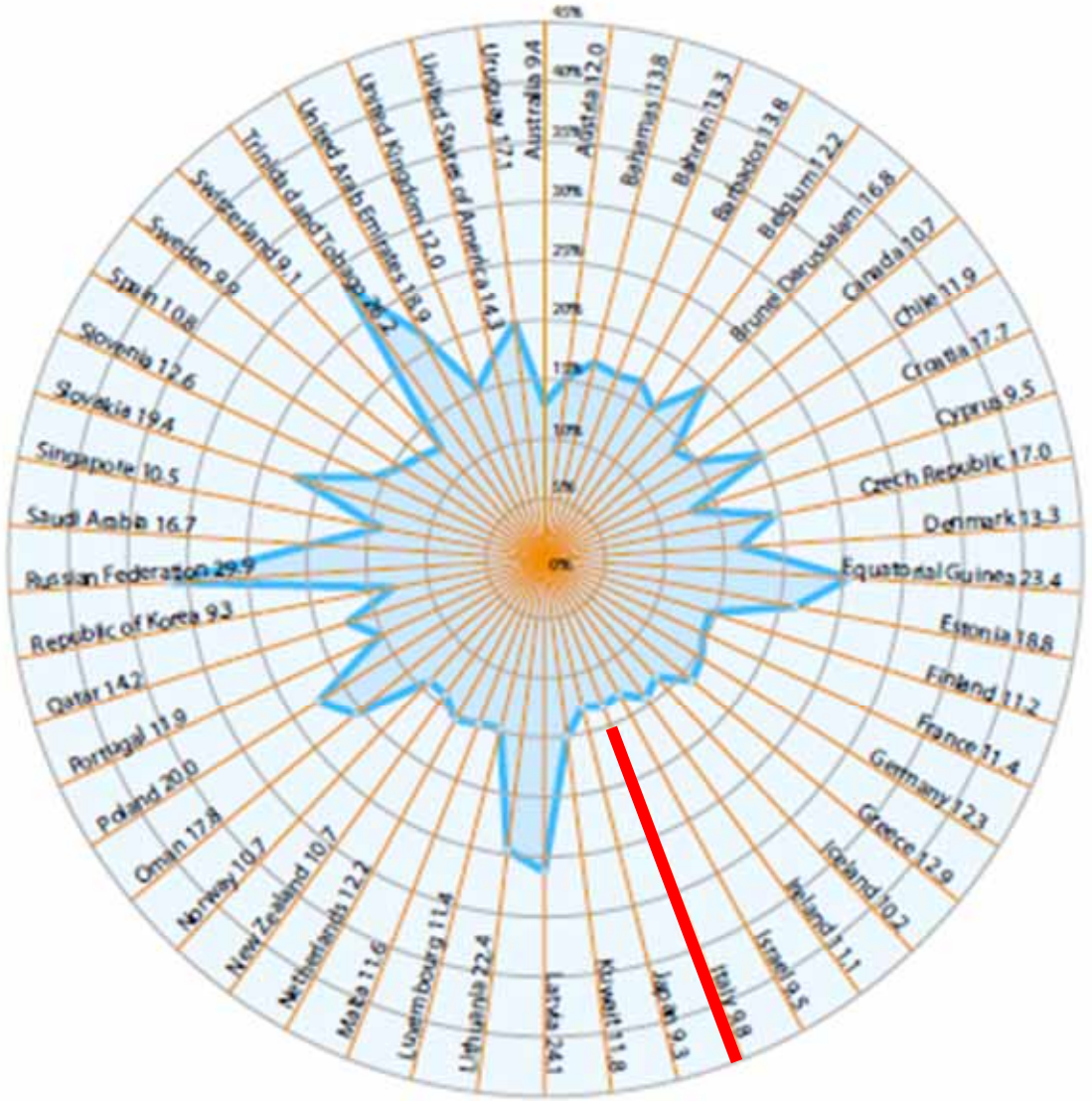
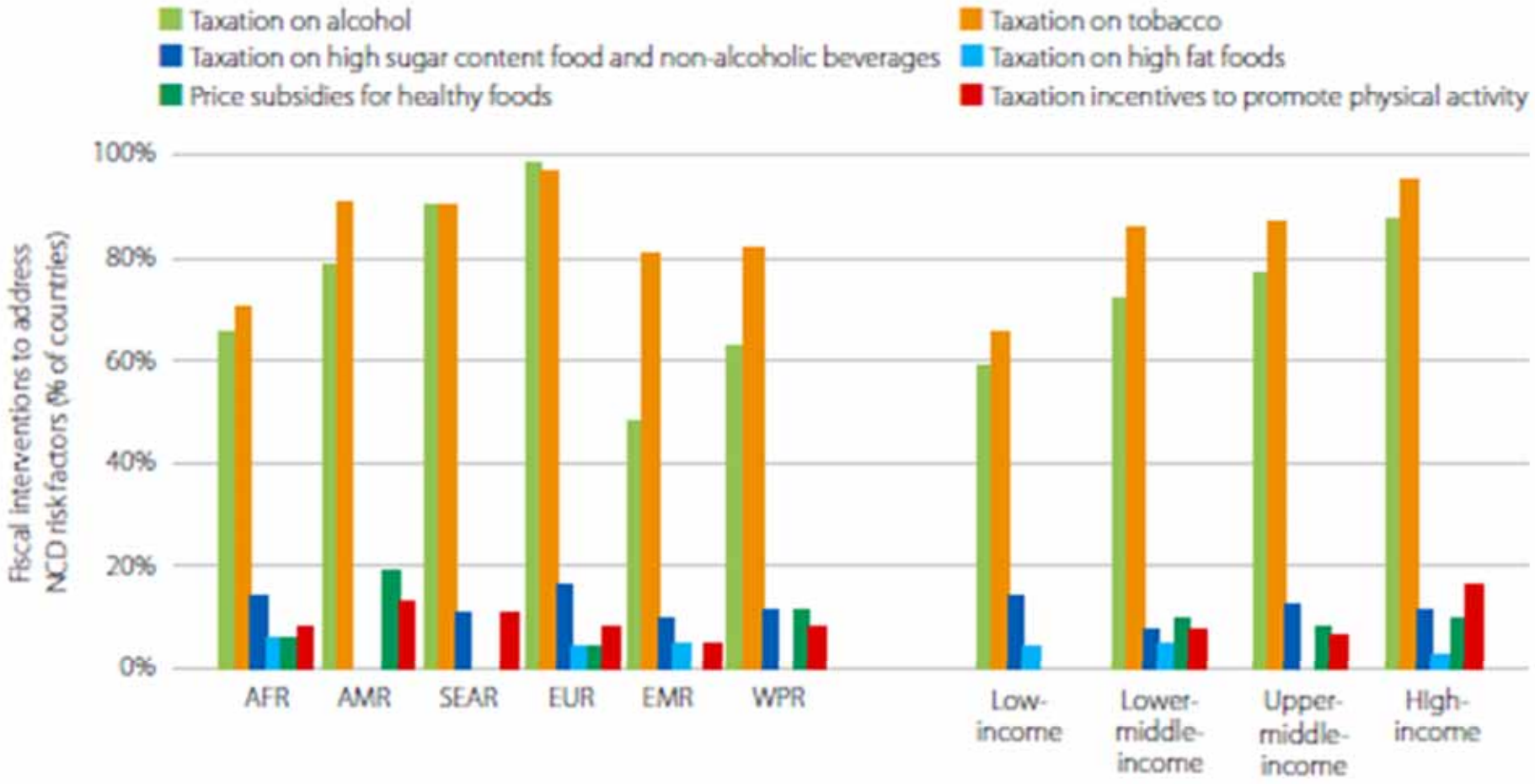


Fig. 1.5b Probability of dying from the four main noncommunicable diseases between the ages of 30 and 70 years (%), by individual country, and World Bank income group, comparable estimates, 2012

Box 1.1 WHO "best buys" – (very cost-effective interventions that are also high-impact and feasible for implementation even in resource-constrained settings) (*14–16*)

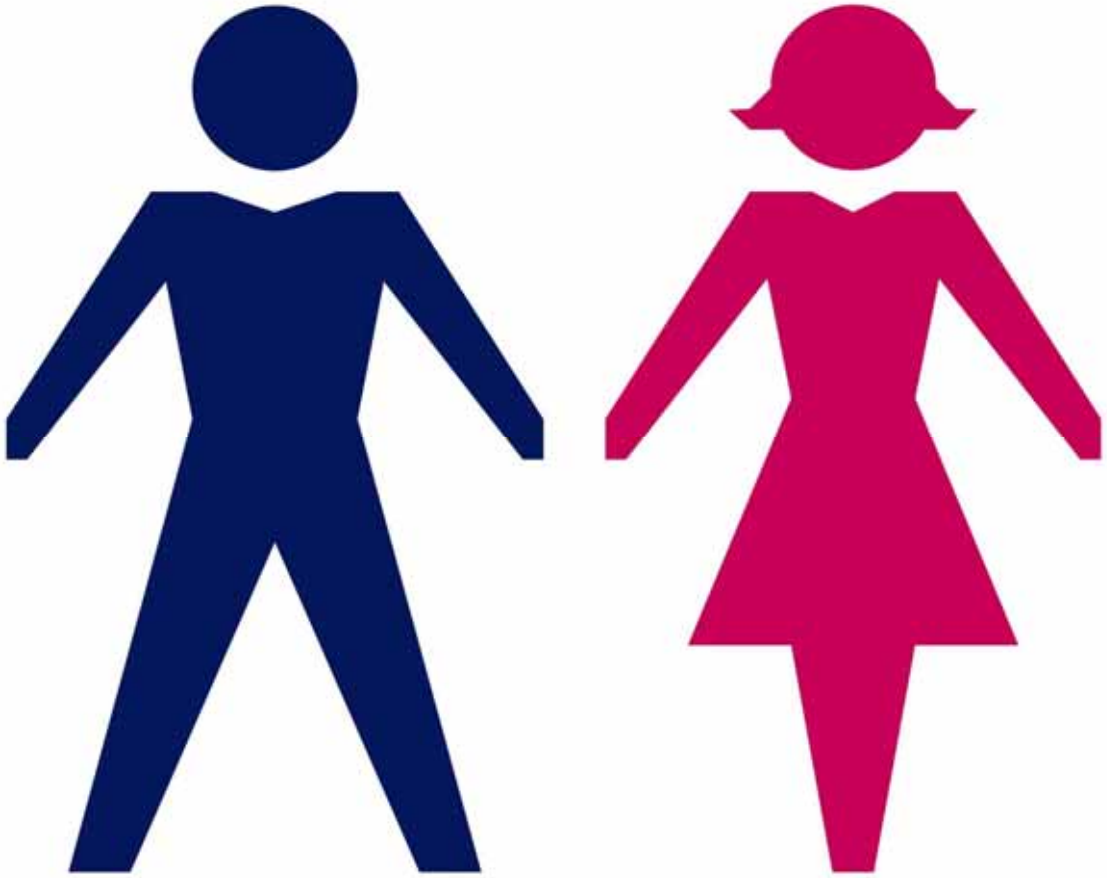
Fig. 1.9 Fiscal interventions to address NCD risk factors, 2013, by WHO region and by World Bank income group.



AFR=African Region, AMR=Region of the Americas, SEAR =South-East Asia Region, EUR=European Region, EMR=Eastern Mediterranean Region, WPR=Western Pacific Region

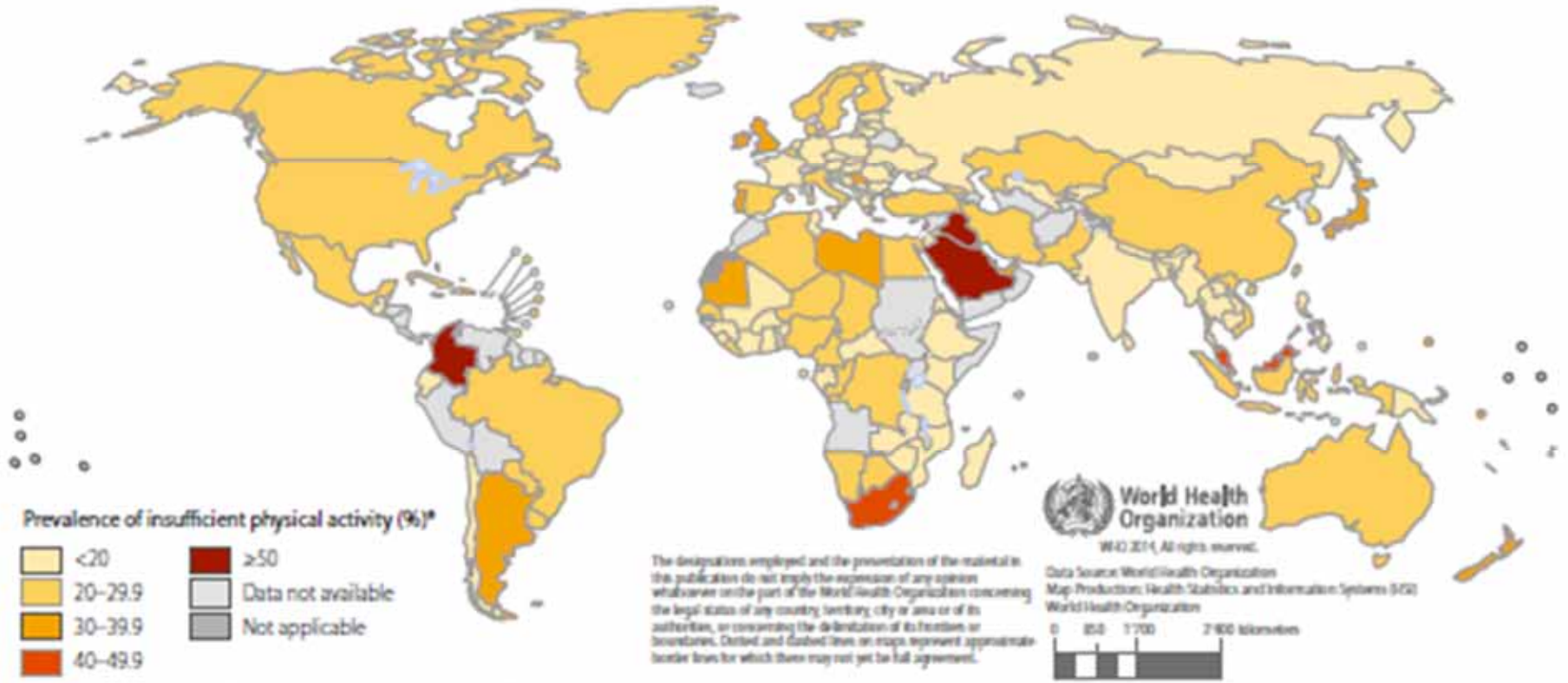
treatment of pre-cancerous lesions)

*The results show that, achieving six targets (tobacco, harmful use of alcohol, salt, raised blood pressure, raised blood glucose and obesity) by 2025 together, will reduce premature mortality from the four main NCDs to levels that are close to the 25 x 25 target (**22% in men and 19% in women**).*



Global target 3: A 10% relative reduction in prevalence of insufficient physical activity

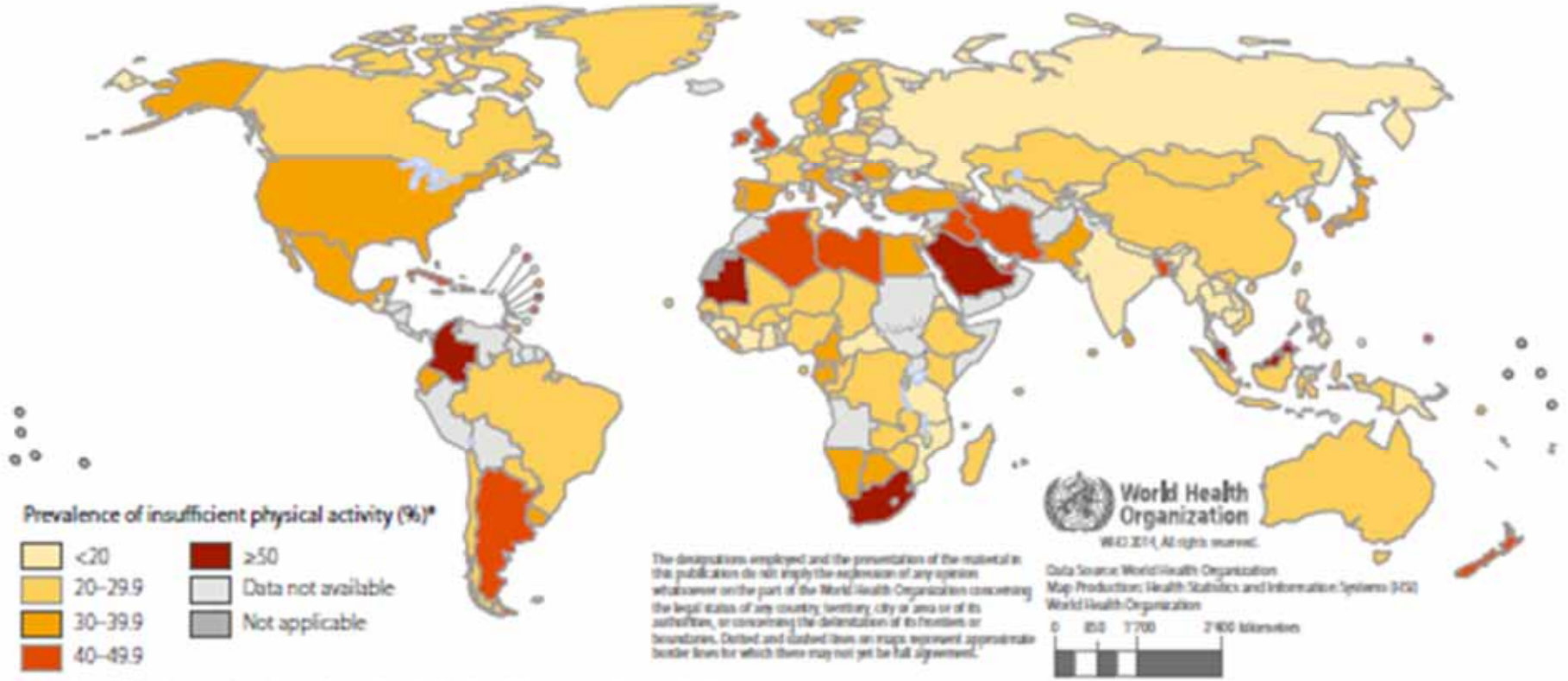
Fig. 3.1 Age standardized prevalence of insufficient physical activity in men aged 18 years and over, comparable estimates, 2010



* Less than 150 minutes of moderate-intensity physical activity per week, or equivalent

Global target 3: A 10% relative reduction in prevalence of insufficient physical activity

Fig. 3.2 Age standardized prevalence of insufficient physical activity in women aged 18 years and over, comparable estimates, 2010



* Less than 150 minutes of moderate-intensity physical activity per week, or equivalent

La donna ha un rischio di malattia cerebrovascolare maggiore dell'uomo e con una prognosi più sfavorevole

EPIDEMIOLOGIA

Epidemiologia: Incidenza, Prevalenza

AHA Statistical Update

Heart Disease and Stroke Statistics—2015 Update

A Report From the American Heart Association

❖ Gli uomini hanno una più alta incidenza (del 33%) di stroke delle donne (variabile per età).

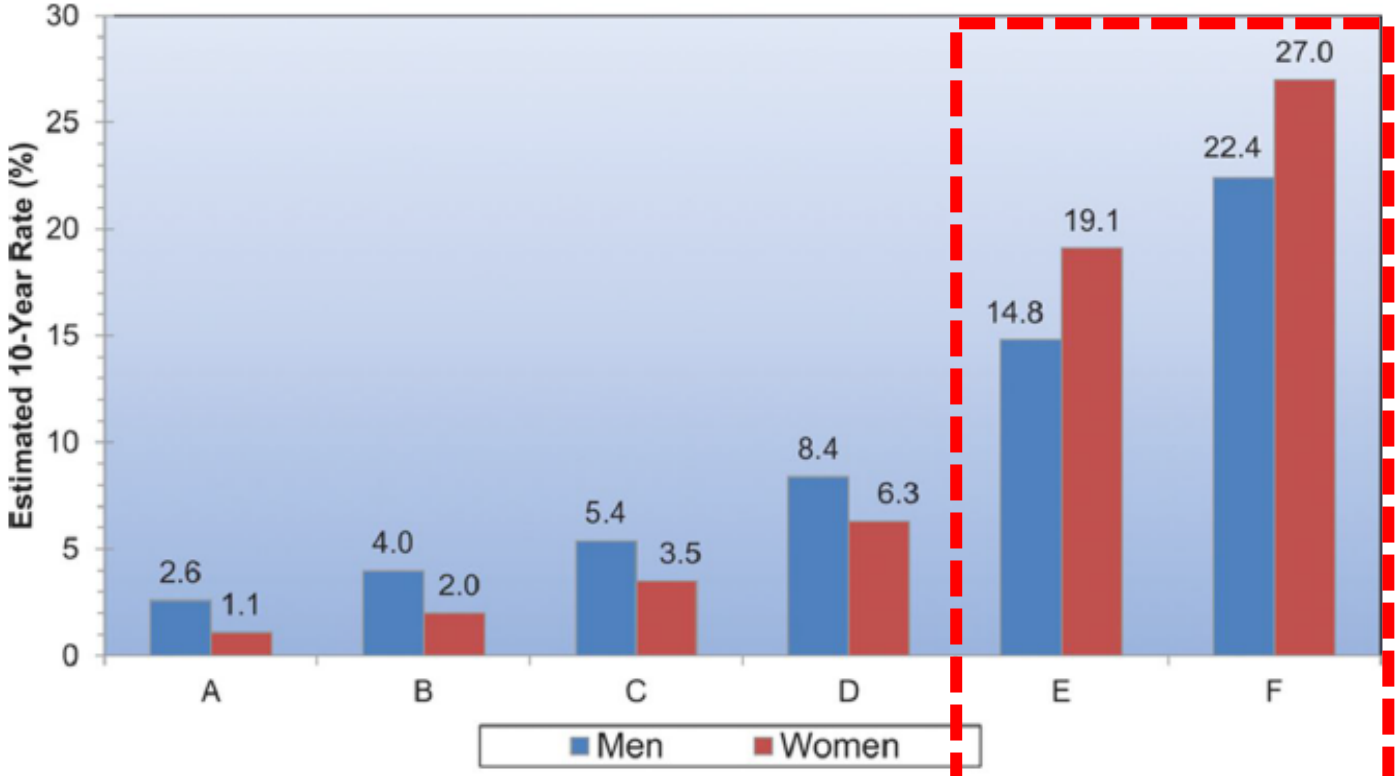
- **IS:** D> o =U per età >85 anni
- **ICH:** D < U (lievi differenze, ma dati discordanti tra diversi studi)
- **SAH:** D > U, soprattutto a partire dall'età di 55 anni (con > prevalenza di aneurismi intracerebrali soprattutto ACoP] e > rischio di rottura [soprattutto, in gravidanza e puerperio])

❖ Ma, le donne hanno una > aspettativa di vita con un rischio di stroke nel corso della vita per un'età tra i 55 e i 75 anni del 20% vs. il 17% negli uomini

❖ Età media al primo stroke: 73 D vs. 68.6 U; Gravità stroke: D > U **(Appelros et al, 2009)**

Mozzafarian et al, Circulation 2015;131:e29

Estimated 10-year stroke risk in adults 55 years of age according to levels of various risk factors (Framingham Heart Study).



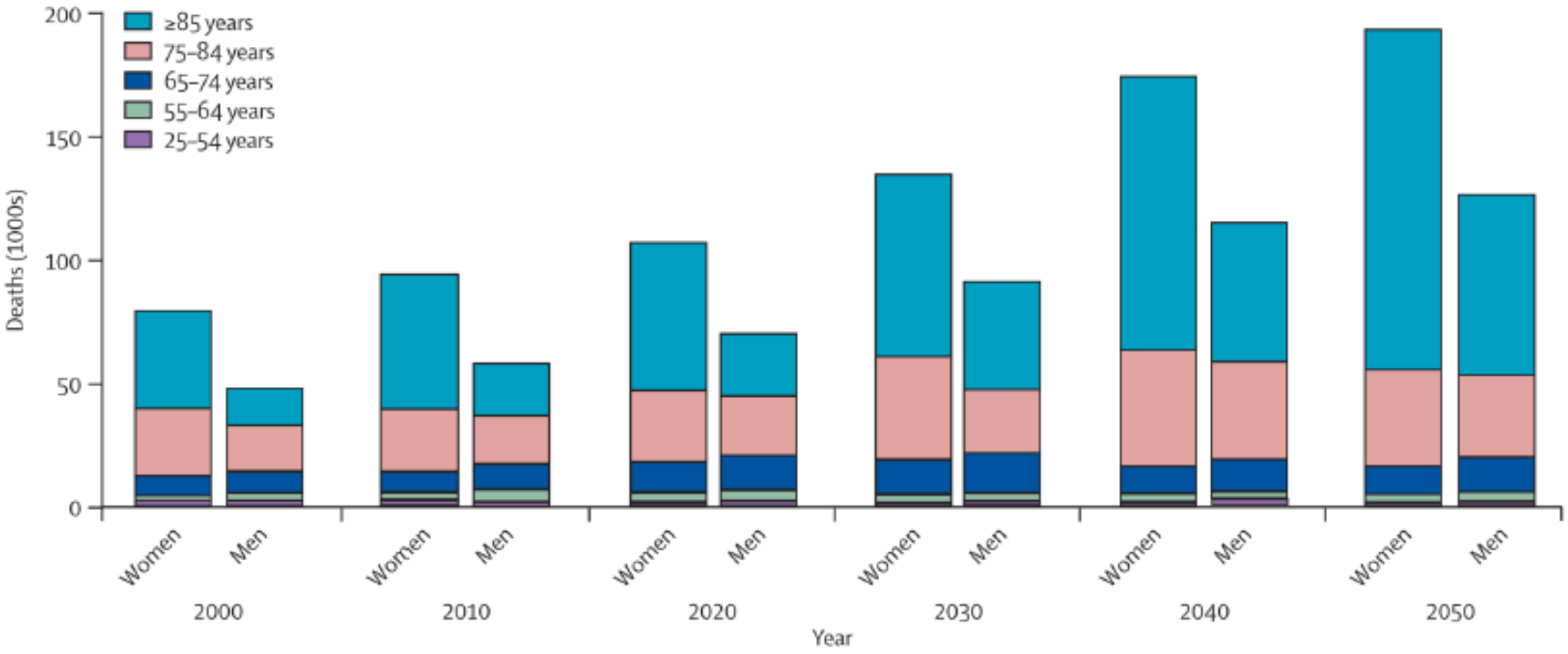
	A	B	C	D	E	F
Blood Pressure*	95-105	138-148	138-148	138-148	138-148	138-148
Diabetes	No	No	Yes	Yes	Yes	Yes
Cigarette Smoking	No	No	No	Yes	Yes	Yes
Prior AF	No	No	No	No	Yes	Yes
Prior CVD	No	No	No	No	No	Yes

* - Closest ranges for women are : 95-104 and 115-124.

American Heart Association

Mozaffarian D et al. Circulation. 2015;131:e29-e322

Epidemiologia: Proiezioni



- Proiezioni al 2050:

  - 198000 eventi di stroke nelle donne vs. 129000 negli uomini

  - un eccesso di 68000 morti per stroke nelle donne

Reeves et al, Lancet Neurol 2008

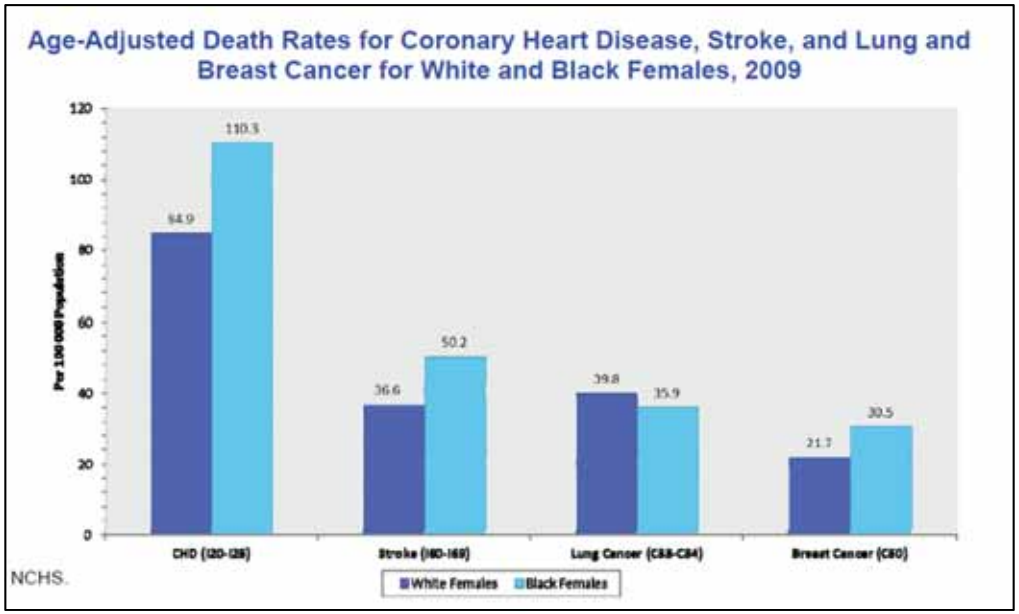
INCIDENZA DI STROKE

Tabella I - Dati di incidenza e mortalità per eventi coronarici e cerebrovascolari divisi per sesso.

Eventi Coronarici					Eventi Cerebrovascolari			
Uomini			Donne		Uomini		Donne	
Età (anni)	Tassi di incidenza per anno per 1.000	Mortalità %	Tassi di incidenza per anno per 1.000	Mortalità %	Tassi di incidenza per anno per 1.000	Mortalità %	Tassi di incidenza per anno per 1.000	Mortalità %
35-44	3,2	9,6	0,5	8,3	0,6	11,1	0,3	20,0
45-54	4,5	15,3	1,2	11,4	1,7	29,1	0,6	23,7
55-64	9,7	33,6	2,8	27,1	4,8	27,3	2,3	33,9
65-74	10,1	54,2	4,5	54,5	7,8	53,6	5,3	49,0
35-74	6,1	27,9	1,6	25,4	2,7	32,0	1,2	34,7

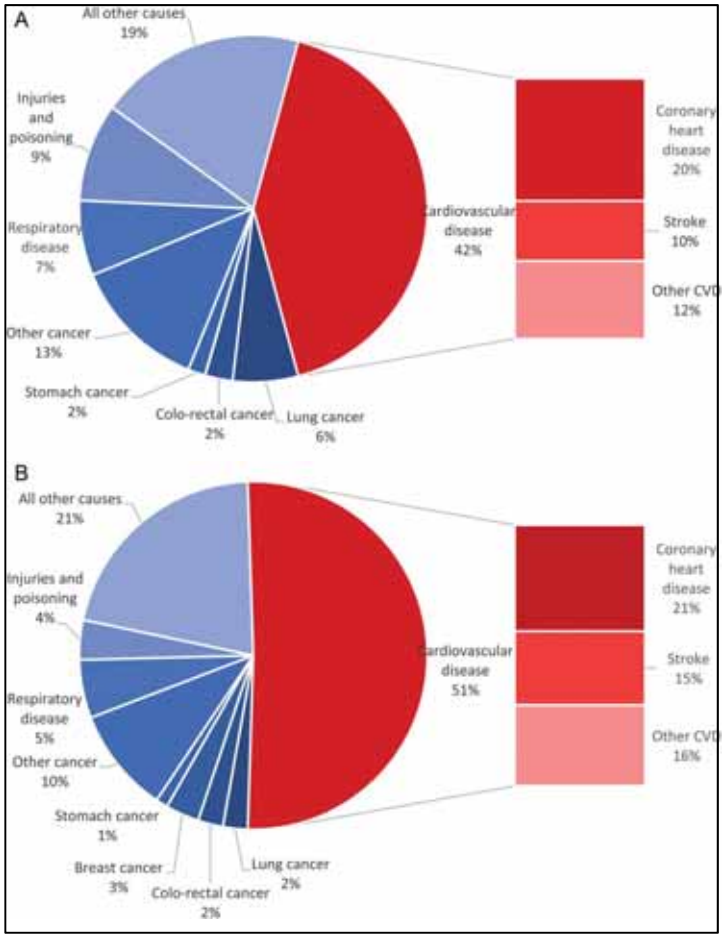
Fonte: IV Conferenza Nazionale sulla prevenzione Cardiovascolare, Istituto Superiore di Sanità, 2010.

Epidemiologia: Mortalità



2013 - AHA/ASA American Heart Association

Proportion of all deaths due to major causes in Europe, latest available year, among men (A) and women (B).

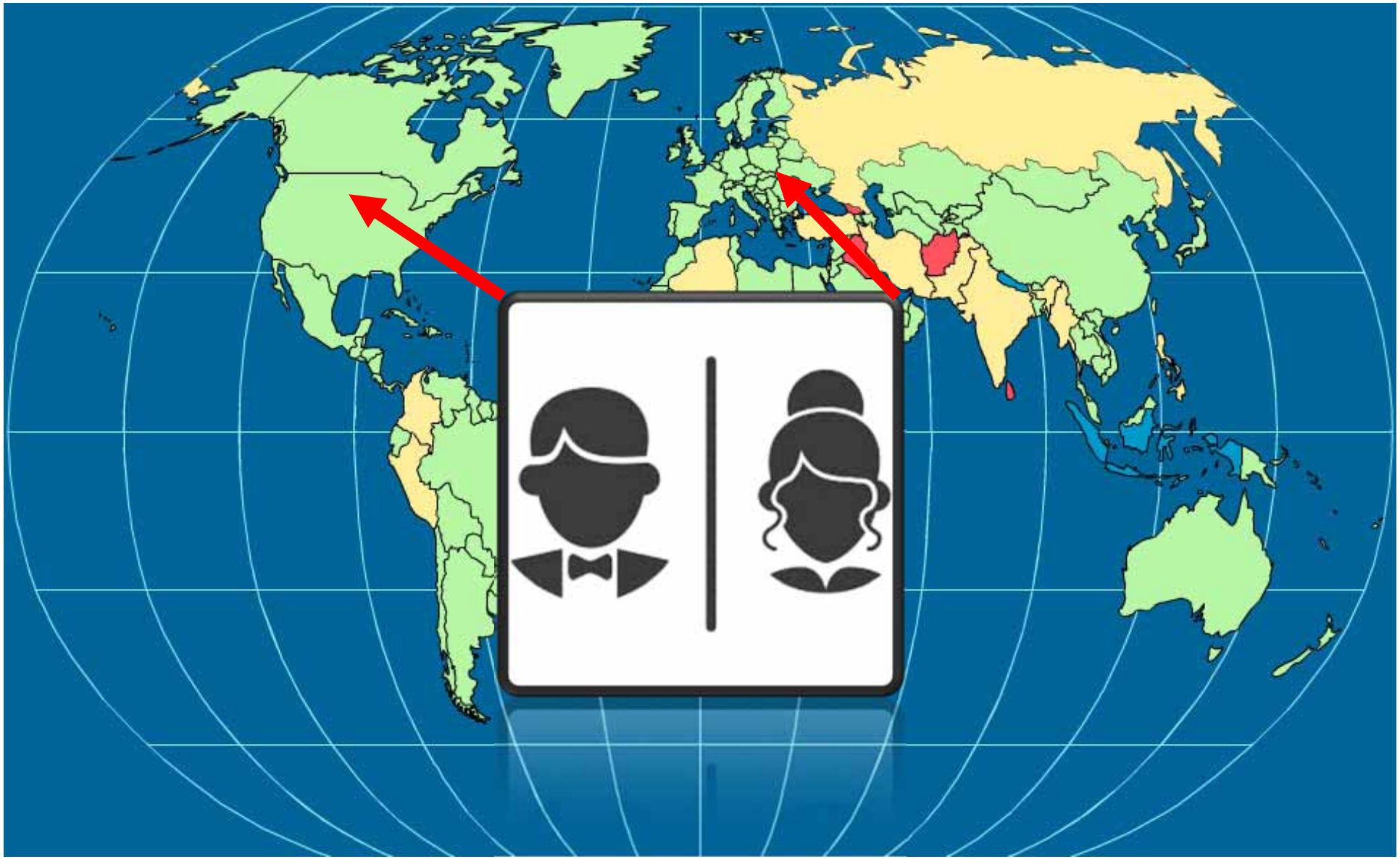


Nichols M et al. Eur Heart J 2014

Età-specifica: D 38/100,000 vs. U 39/100,000; età ≥85, D > U

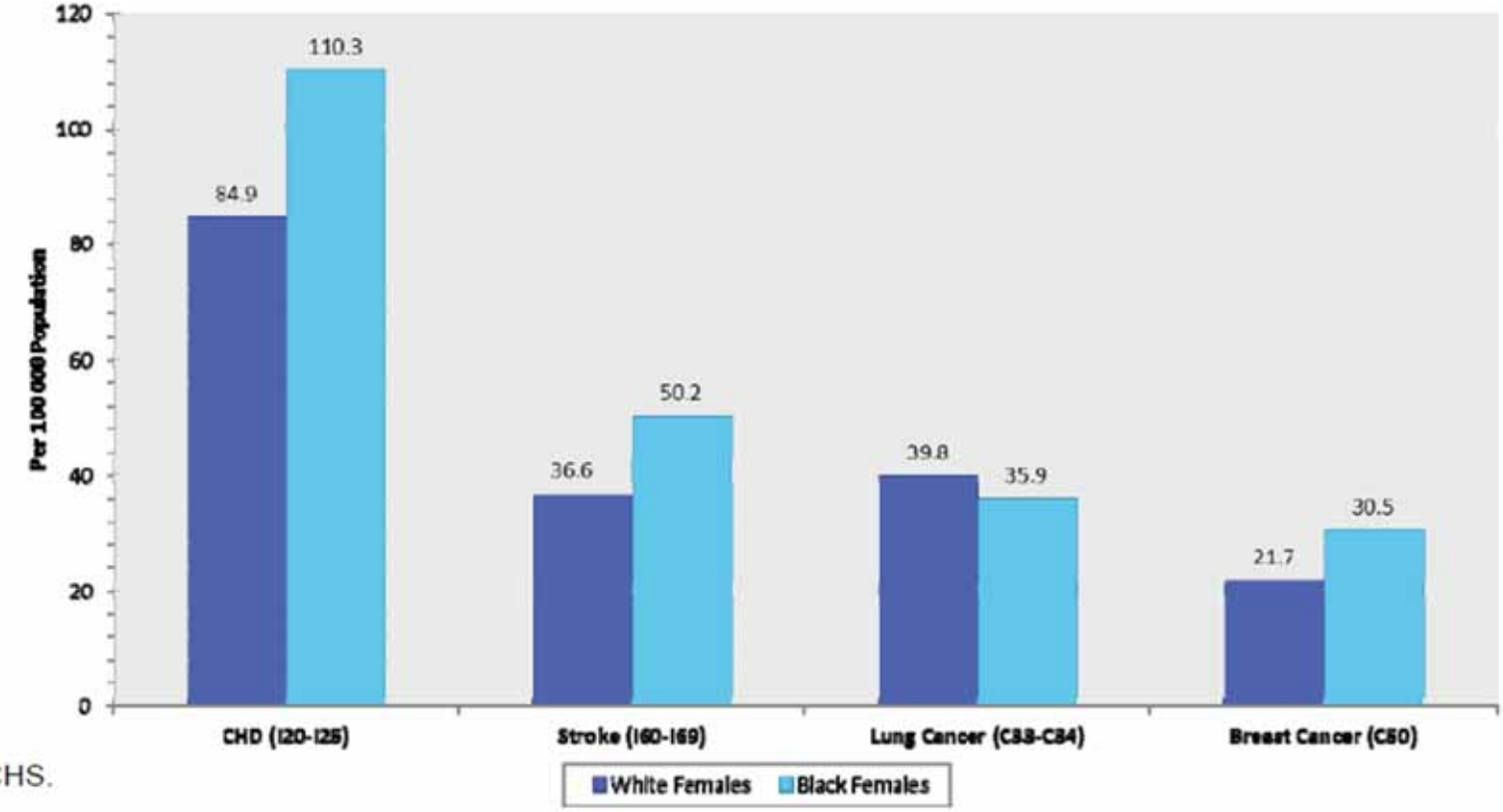
- **IS:** 74 D vs. 79/100,000 U; età ≥65 anni D > U
- **ICH:** 13 D vs. 16/100,000 U; ≥65 anni D=U
- **SAH:** 5 D vs. 3/100,000 U; aumenta con l'età

WOMEN MORTALITY



Major Causes of Death for Males and Females, 2009

Age-Adjusted Death Rates for Coronary Heart Disease, Stroke, and Lung and Breast Cancer for White and Black Females, 2009



Source: NCHS.

A indicates cardiovascular disease plus congenital cardiovascular disease (ICD-10 I00-I99, Q20-Q28), **B**, cancer (C00-C97), **C**, accidents (V01-X59,Y85-Y86); **D**, chronic lower respiratory disease (J40-J47); **E**, diabetes mellitus (E10-E14); **F**, Alzheimer disease (G30). Source: NCHS.

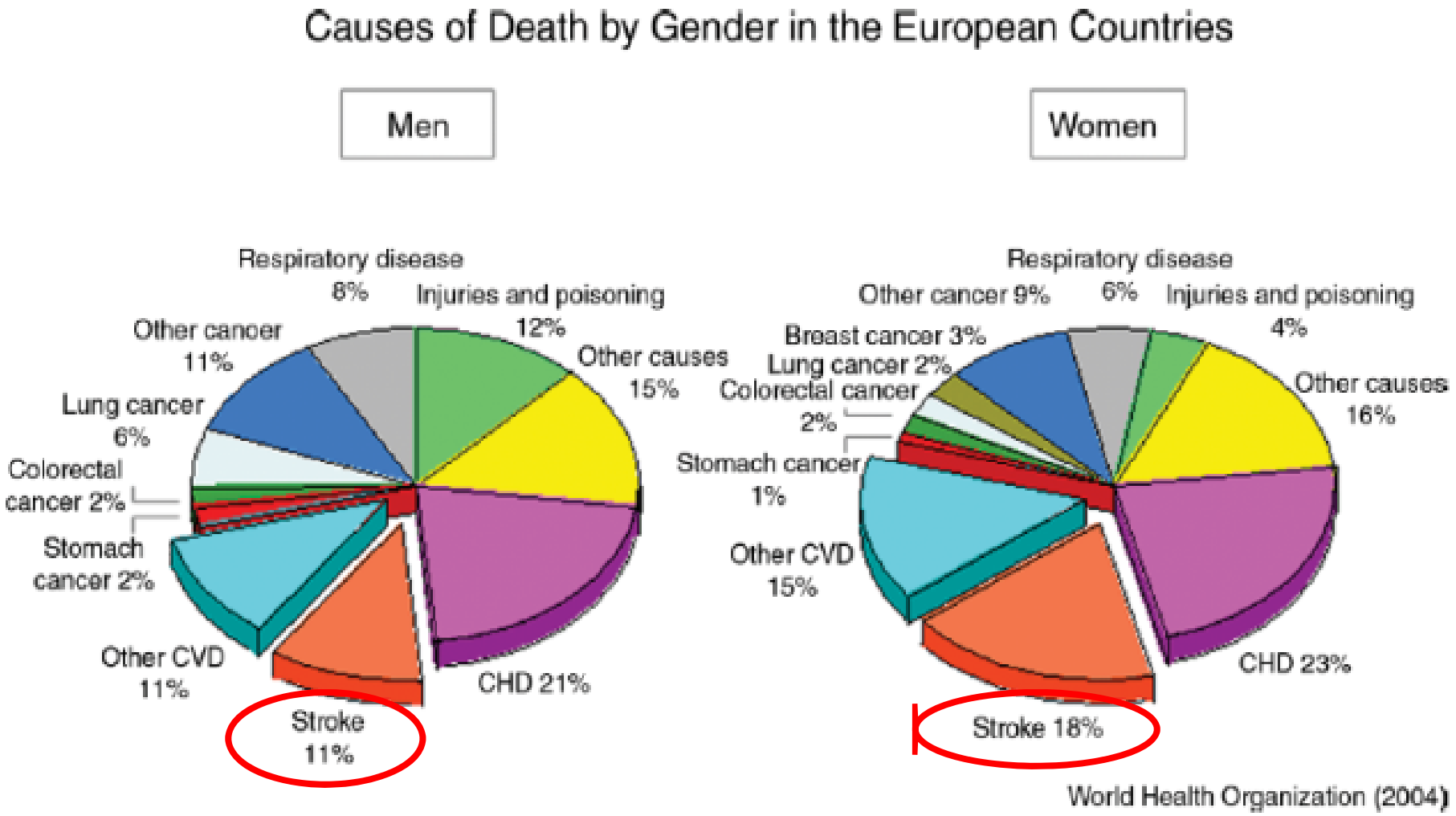
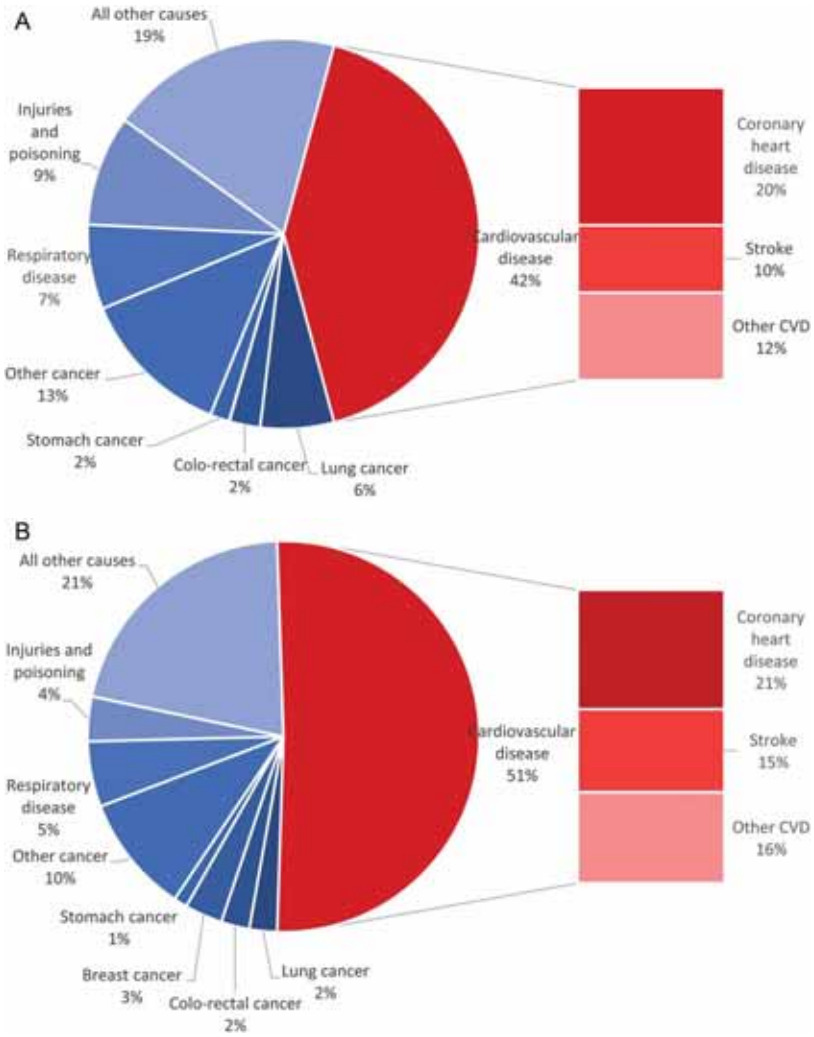


Figure 1 Causes of death in Europe. WHO, World Health Organization.

European Heart Journal (2006) 27, 994-1005

Proportion of all deaths due to major causes in Europe, latest available year, among men (A) and women (B).



Nichols M et al. Eur Heart J 2014;35:2950-2959

European Heart Journal

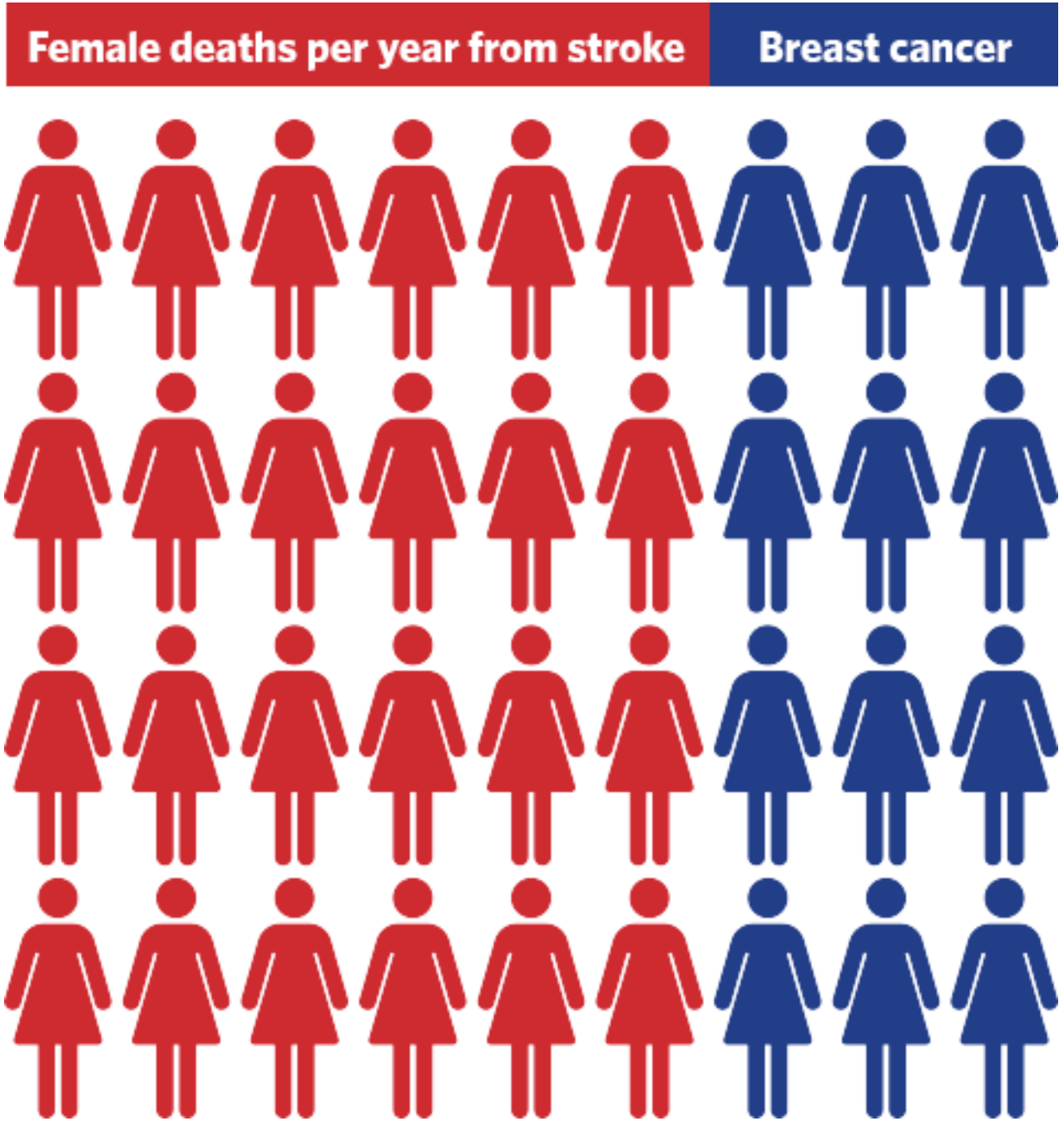
Office for National Statistics

Leading causes of death in men, England and Wales, 2012

Rank	Leading cause of death	No. of men	Percentage of men
1	Heart disease	37423	15.60%
2	Lung cancer	16698	7.00%
3	Emphysema/bronchitis	14378	6.00%
4	Stroke	14116	5.90%
5	Dementia and Alzheimer's	13984	5.80%
6	Flu/pneumonia	11063	4.60%
7	Prostate cancer	9698	4.00%
8	Bowel cancer	7841	3.30%
9	Lymphoid cancer	6301	2.60%
10	Throat cancer	4603	1.90%

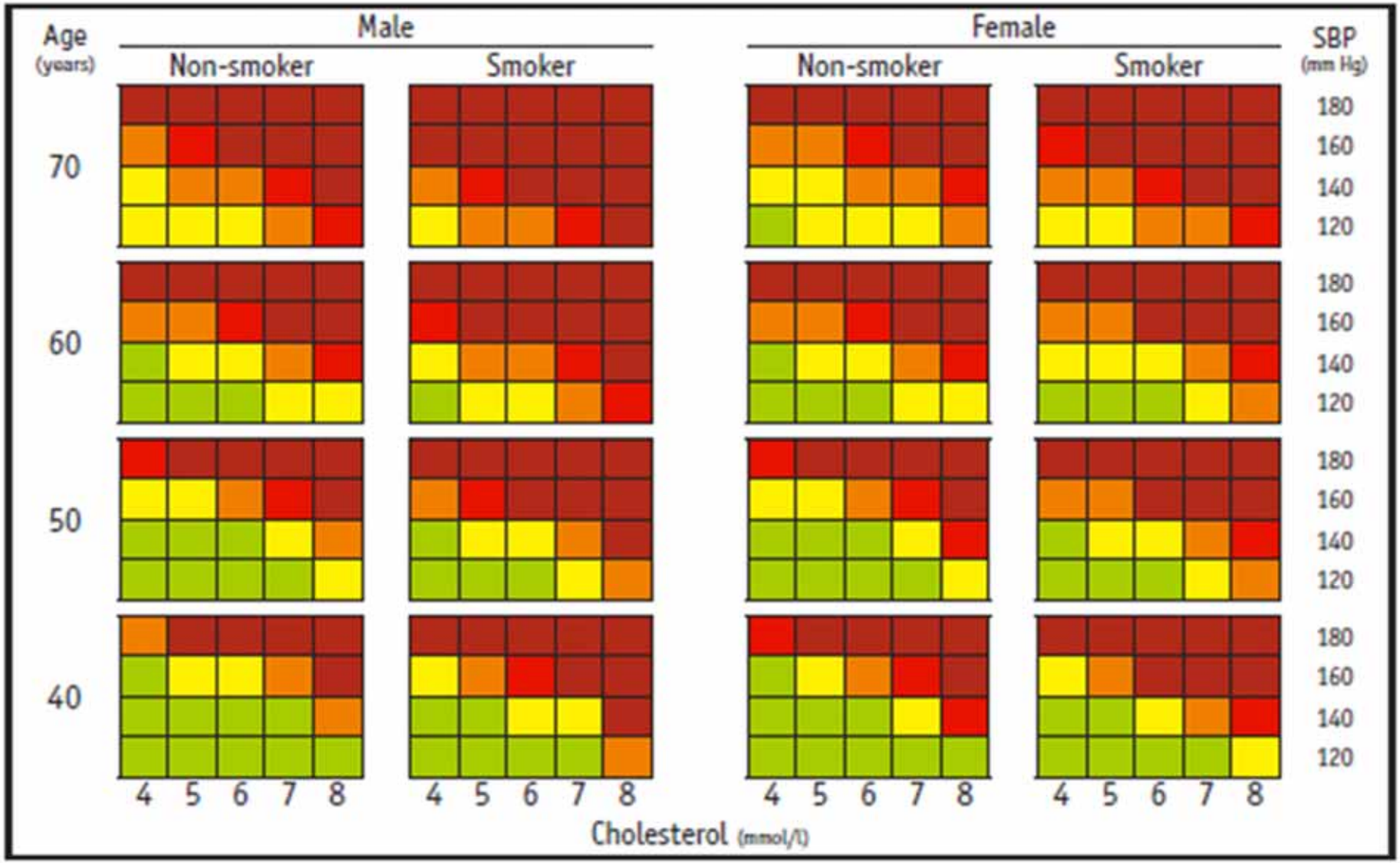
Leading causes of death in women, England and Wales, 2012

Rank	Leading cause of death	No. of women	Percentage of women
1	Dementia and Alzheimer's	29873	11.50%
2	Heart disease	26741	10.30%
3	Stroke	21730	8.40%
4	Flu/pneumonia	15075	5.80%
5	Emphysema/bronchitis	14155	5.50%
6	Lung cancer	13575	5.20%
7	Breast cancer	10311	4%
8	Bowel cancer	6600	2.50%
9	Urinary disease	5570	2.10%
10	Heart failure	5065	2%



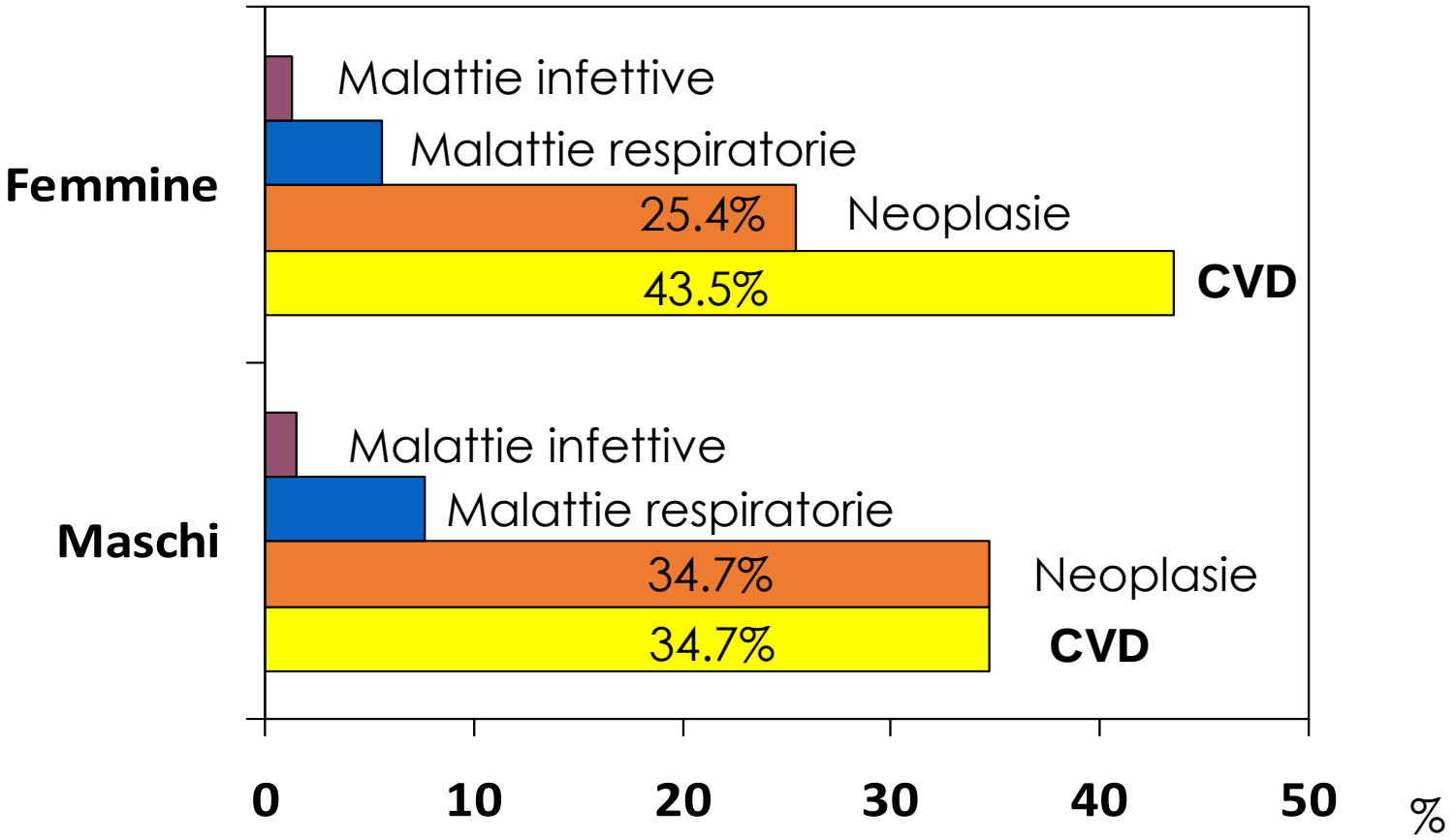
www.stroke.org

TAVOLE DEL RISCHIO CARDIOVASCOLARE WHO



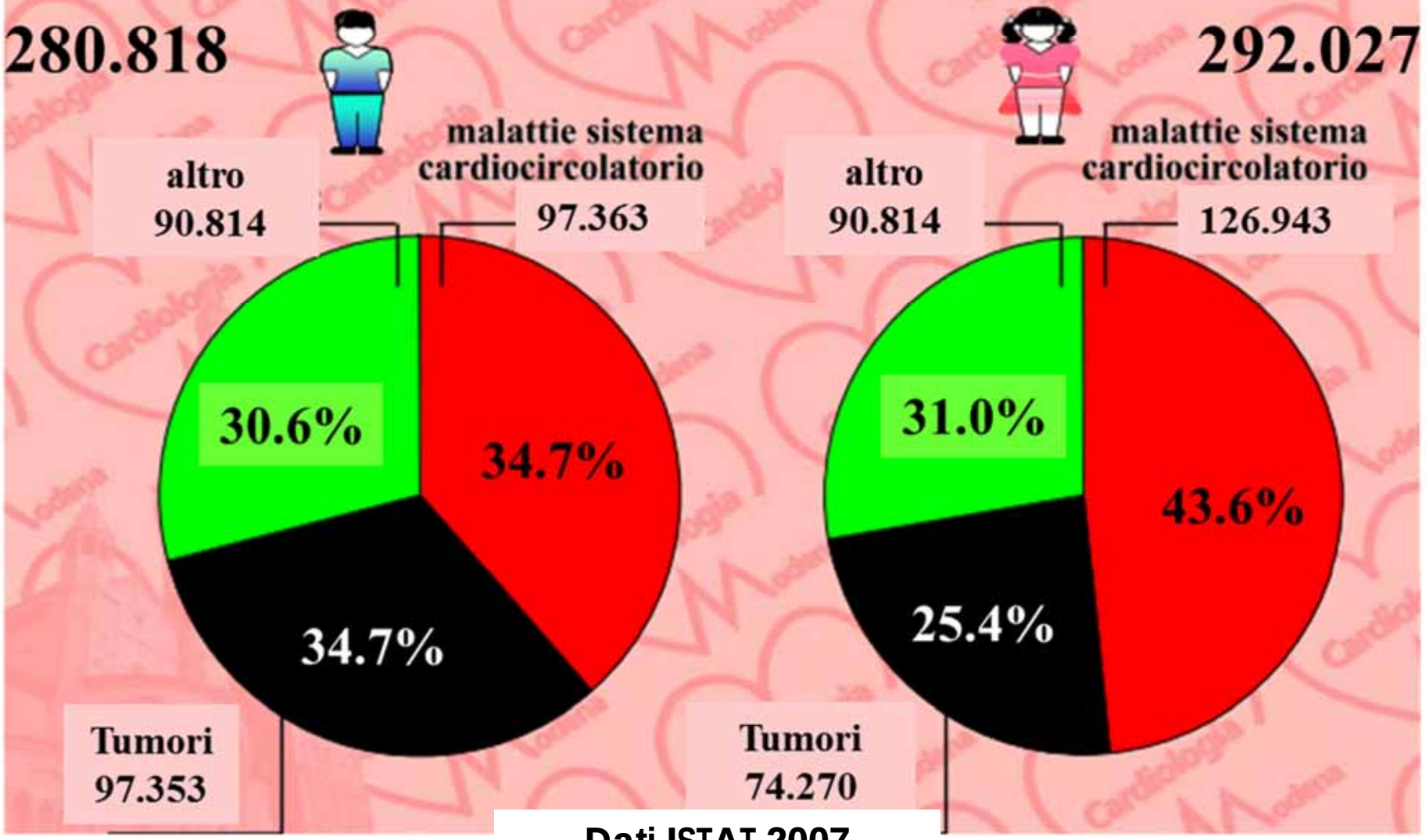
WOMEN MORTALITY

Cause di morte in Italia, dati ISTAT 2007



Principali cause di morte in Italia

Conti S et al. Rapporti ISTISAN 200



Dati ISTAT 2007

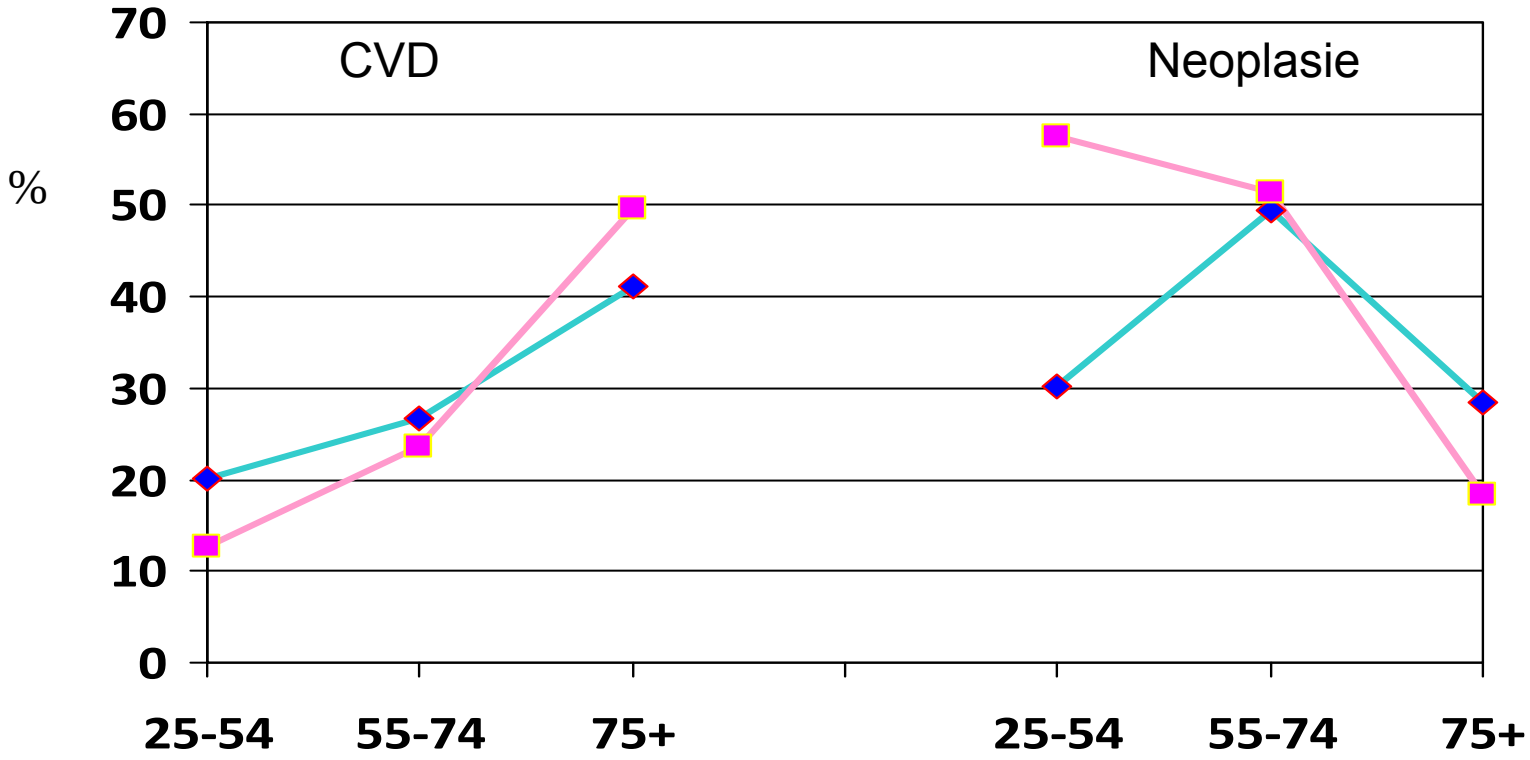
Cause di morte anno 2013

cause	2013 maschi	femmine	totale
tumori maligni	94445	73692	168137
malattie del sistema circolatorio	97251	125073	222324
malattie ischemiche del cuore	36695	34877	71572
malattie cerebrovascolari	23140	35233	58373

Dati ISTAT 2014

Mortalità per malattie cardiovascolari e neoplasie (% sul totale) per sesso
ISTAT 2007

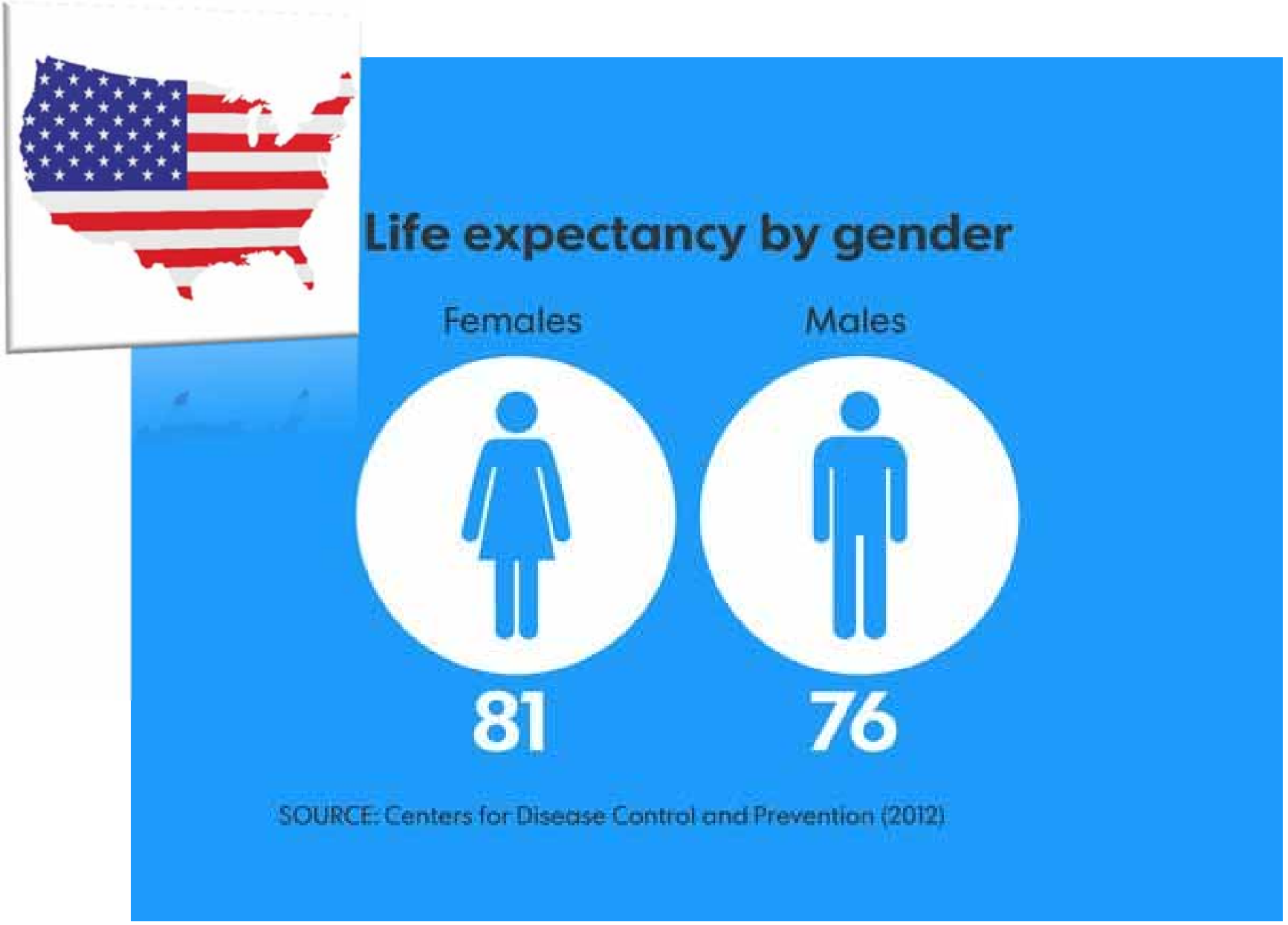
Morti cardiovascolari, >75 anni, 114.000 donne vs 70.000 uomini

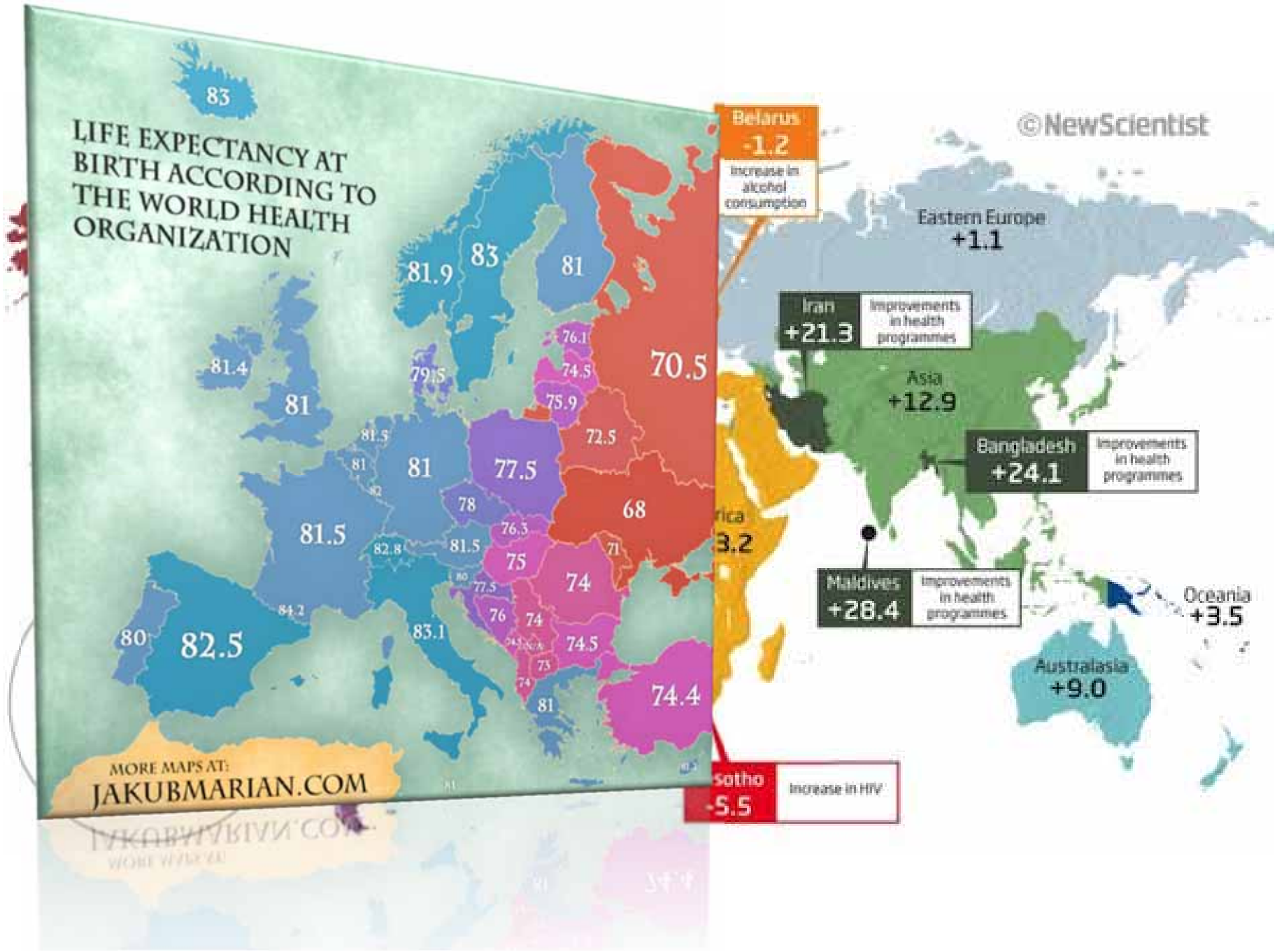


Aspettativa di vita alla nascita, dati ISTAT 2007

	Maschi	*Femmine*
2003	77,2	82,8
2004	77,9	83,7
2005	77,8	83,5
2006	78,3	83,9
2007	78,4	83,8

ASPETTATIVA DI VITA


Life expectancy by gender
Females
Males
81
76
SOURCE: Centers for Disease Control and Prevention (2012)

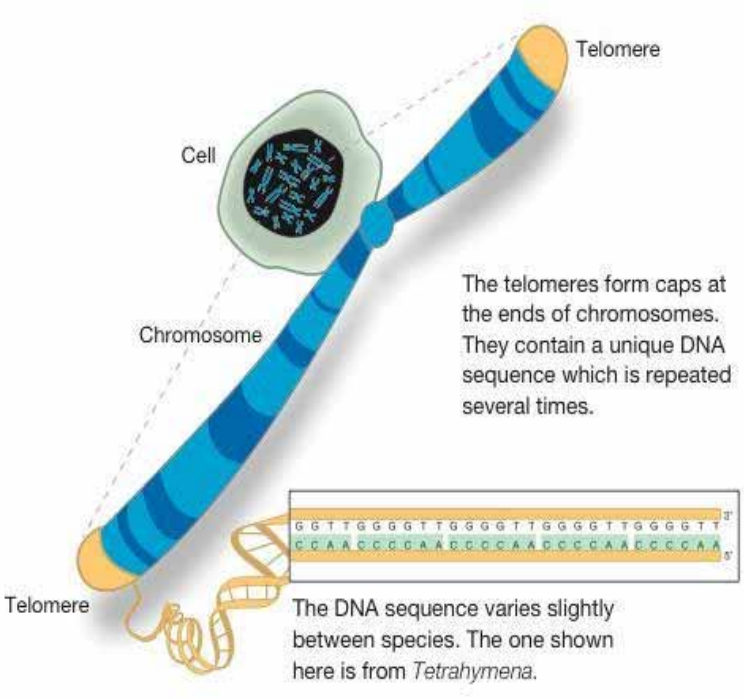

LIFE EXPECTANCY AT BIRTH ACCORDING TO THE WORLD HEALTH ORGANIZATION
MORE MAPS AT:
JAKUBMARIAN.COM
©NewScientist
Belarus
-1.2
Increase in alcohol consumption
Eastern Europe
+1.1
Iran
+21.3
Improvements in health programmes
Asia
+12.9
Bangladesh
+24.1
Improvements in health programmes
Maldives
+28.4
Improvements in health programmes
Oceania
+3.5
Australasia
+9.0
Lesotho
-5.5
Increase in HIV

Età	Sopravviventi	Probabilità di sopravvivenza	Speranza di vita
65-69	88808	0.9149797	18.906
65-69	93603	0.9539636	22.309
70-74	82924	0.8642634	15.060
70-74	90289	0.9228690	18.030
75-79	73994	0.7708847	11.558
75-79	84989	0.8534407	13.988
80-84	61198	0.6199615	8.415
80-84	76249	0.7257336	10.276
85-89	42876	0.4285403	5.895
85-89	60933	0.5335775	7.183
90-94	22248		4.053
90-94	38532		
95-99			
95-99	10		
100-104	1166		
100-104	3534		2.058

Ci sono anche 54 uomini e 245 donne nella fascia di età fra 105 e 109 anni, oltre a 0 uomini e 3 donne nella fascia di età fra 110 e 114 anni

Dati ISTAT 2014

AGING



Il telomero è la regione terminale del cromosoma, composta di DNA altamente ripetuto. E' sintetizzato da **telomerasi**

Ha un ruolo determinante nell'evitare la perdita di informazioni durante la duplicazione dei cromosomi.
La **DNA polimerasi** non è in grado di replicare il cromosoma fino alla sua terminazione; se non ci fossero i telomeri, che quindi vengono accorciati ad ogni replicazione, la replicazione del DNA comporterebbe in ogni occasione una significativa perdita di informazione genetica.
i telomeri agirebbero come una sorta di ***orologio biologico***, legato cioè ad un numero massimo di mitosi (e di replicazioni del DNA), al termine del quale la cellula sarebbe ***troppo vecchia*** per essere mantenuta in vita e prenderebbe la via dell'apoptsosi

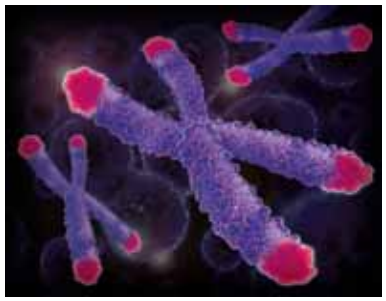
Vi sono prove che questo progressivo accorciamento dei telomeri sia associato all'invecchiamento della cellula e dell'intero organismo.

Hypertension
JOURNAL OF THE AMERICAN HEART ASSOCIATION
American Heart Association®
Learn and Liv

Telomere Length as an Indicator of Biological Aging : The Gender Effect and Relation With Pulse Pressure and Pulse Wave Velocity

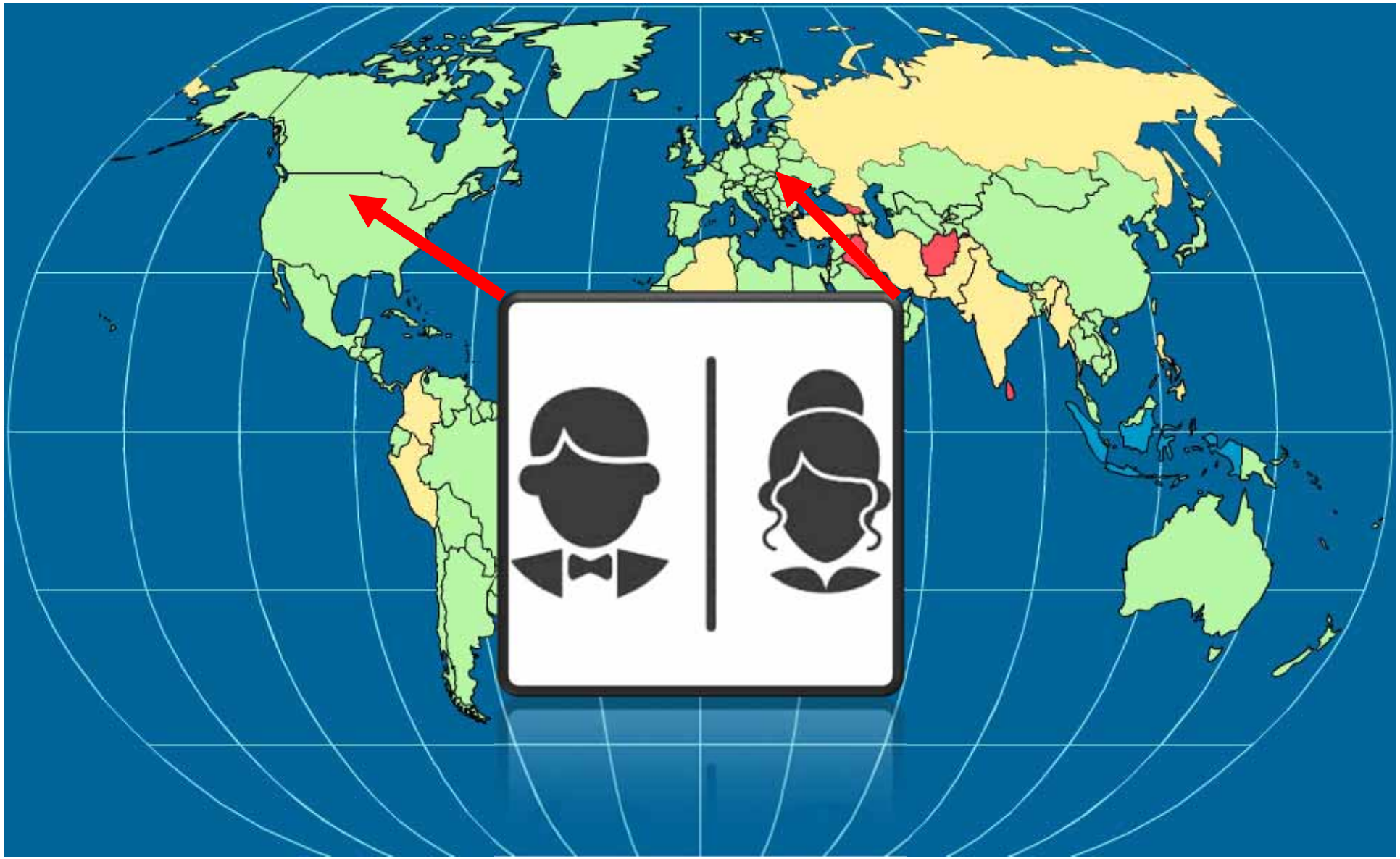
Athanase Benetos, Koji Okuda, Malika Lajemi, Masayuki Kimura, Frederique Thomas, Joan Skurnick, Carlos Labat, Kathryn Bean and Abraham Aviv

Hypertension 2001, 37:381-385

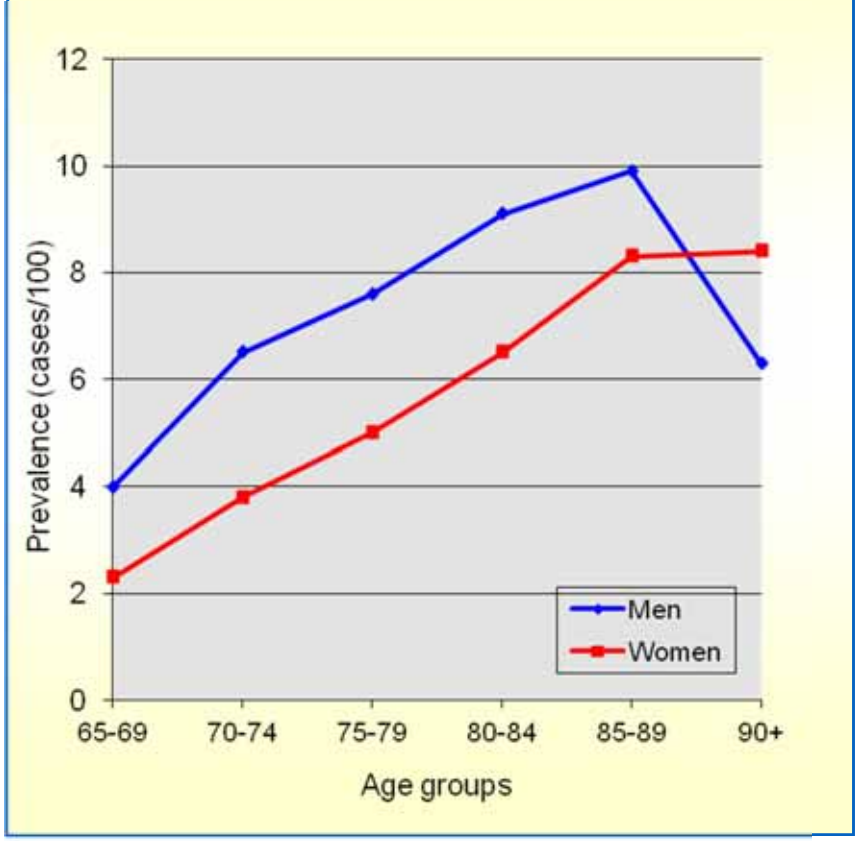


A parità di età, la lunghezza dei telomeri è < nei maschi
Associazione con marcatori surrogati di rischio cardiovascolare

STROKE PREVALENCE

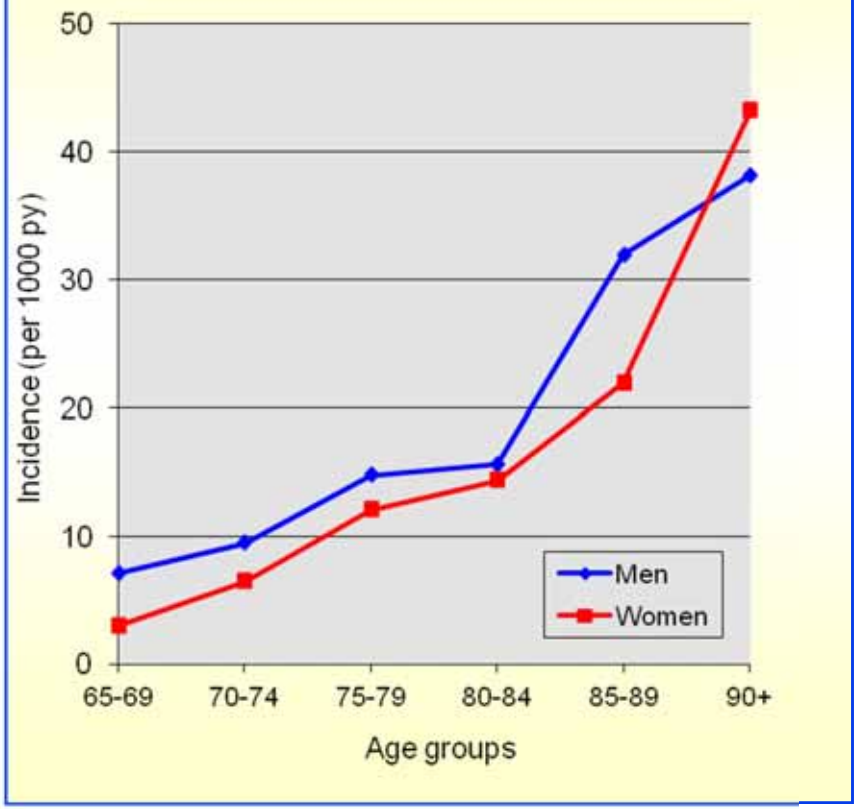


Stroke prevalence in Europe



Prevalent cases
2 700 000
M:1 250 000 W: 1 450 000

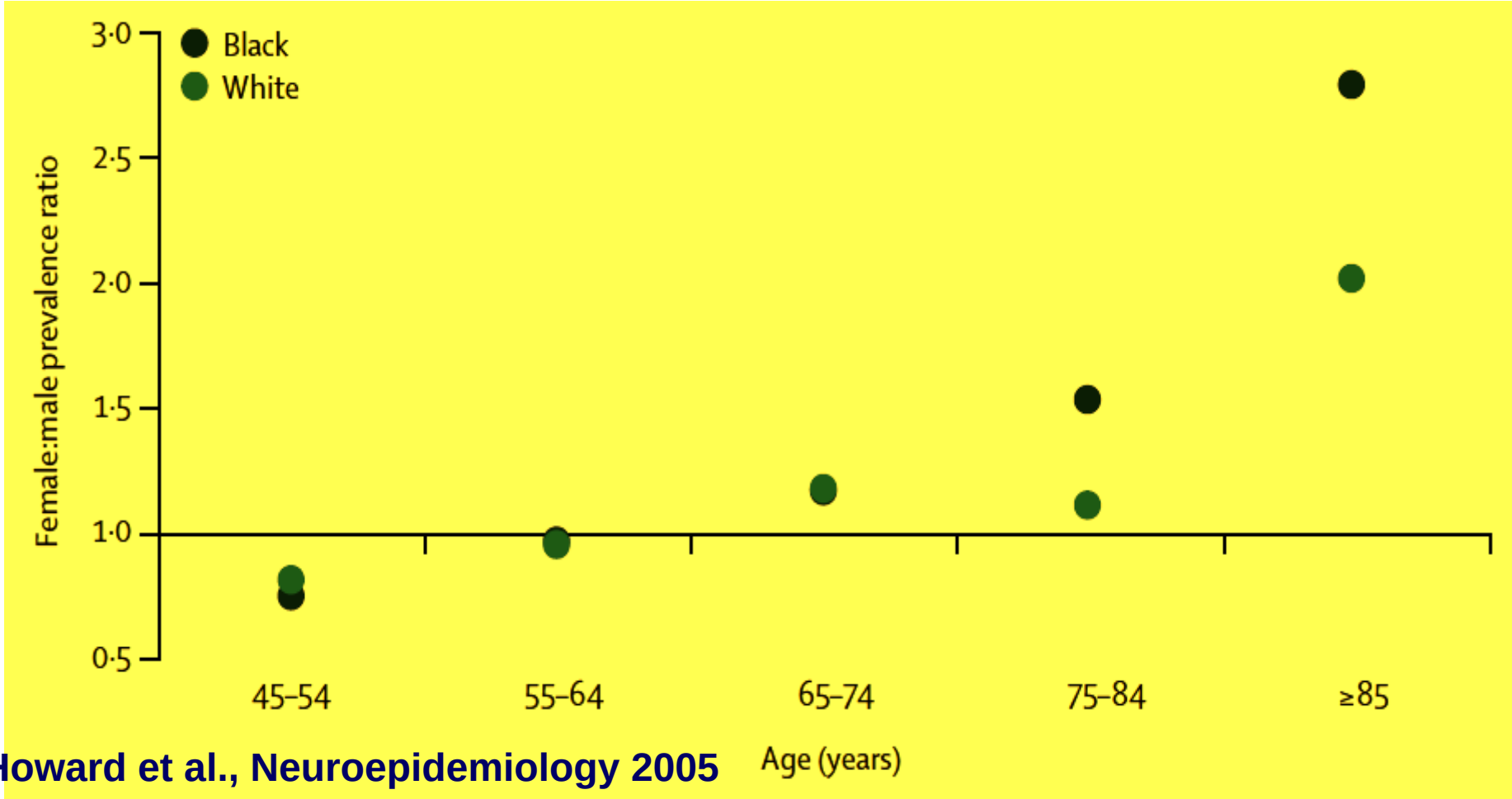
Incidence of first-ever stroke in Europe



Incident cases
536 000
M: 251 000 W: 285 000

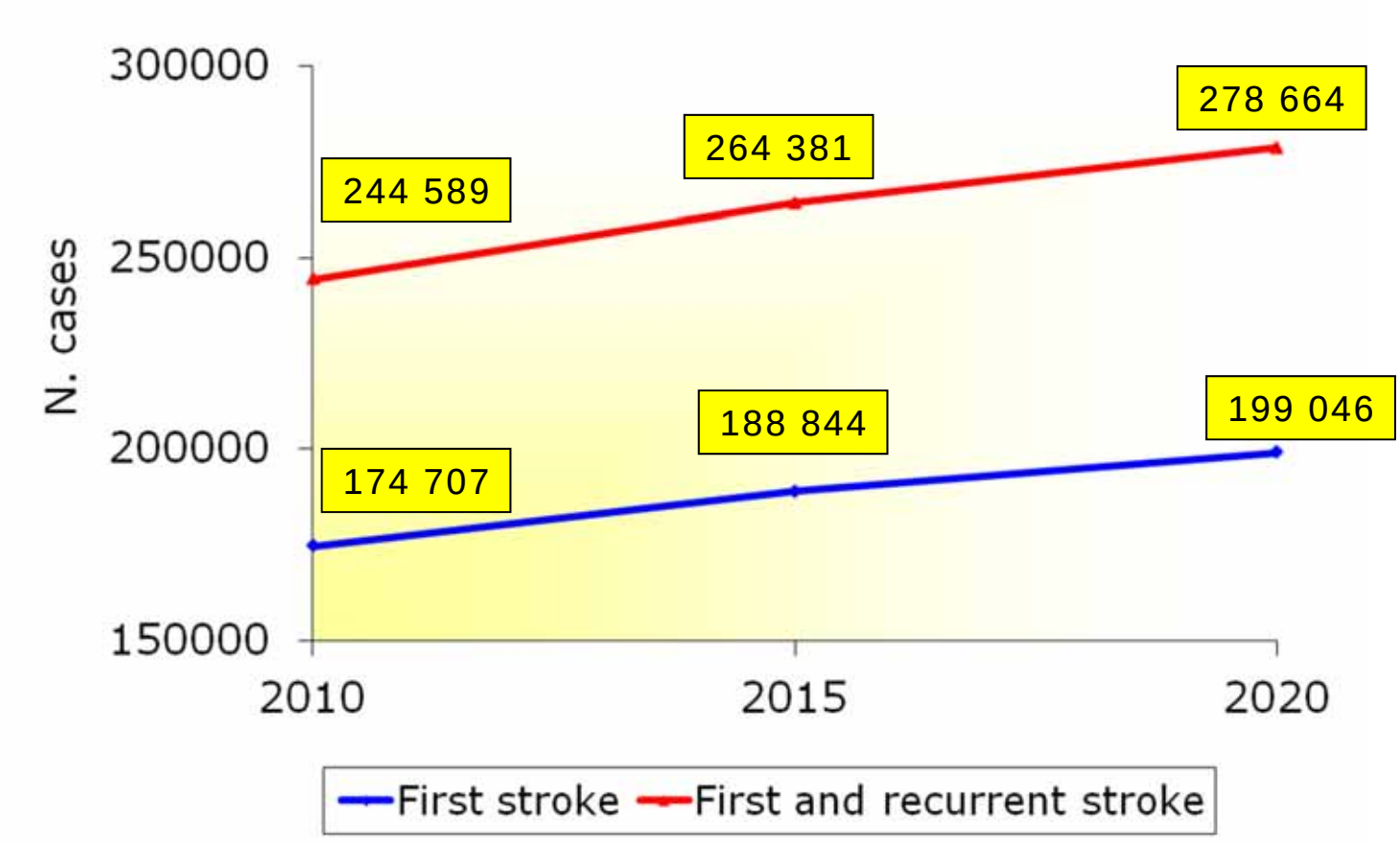
Di Carlo et al., Neurology 2000

Female/male prevalence ratios for stroke by age

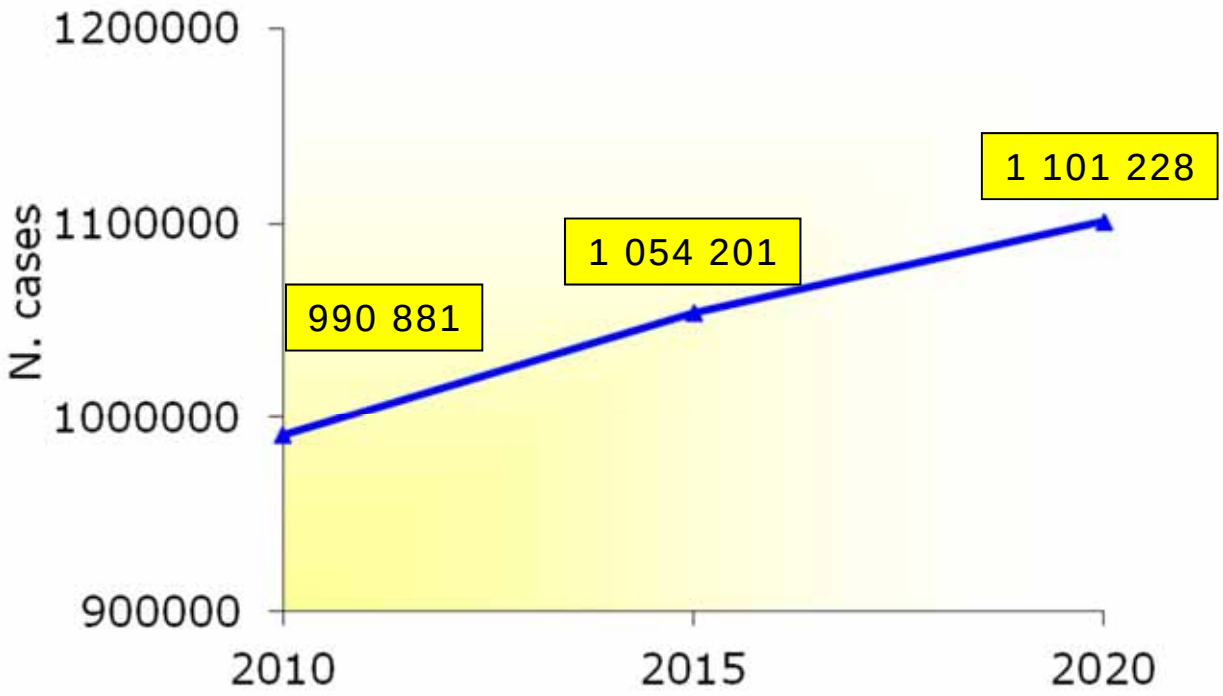


Howard et al., Neuroepidemiology 2005

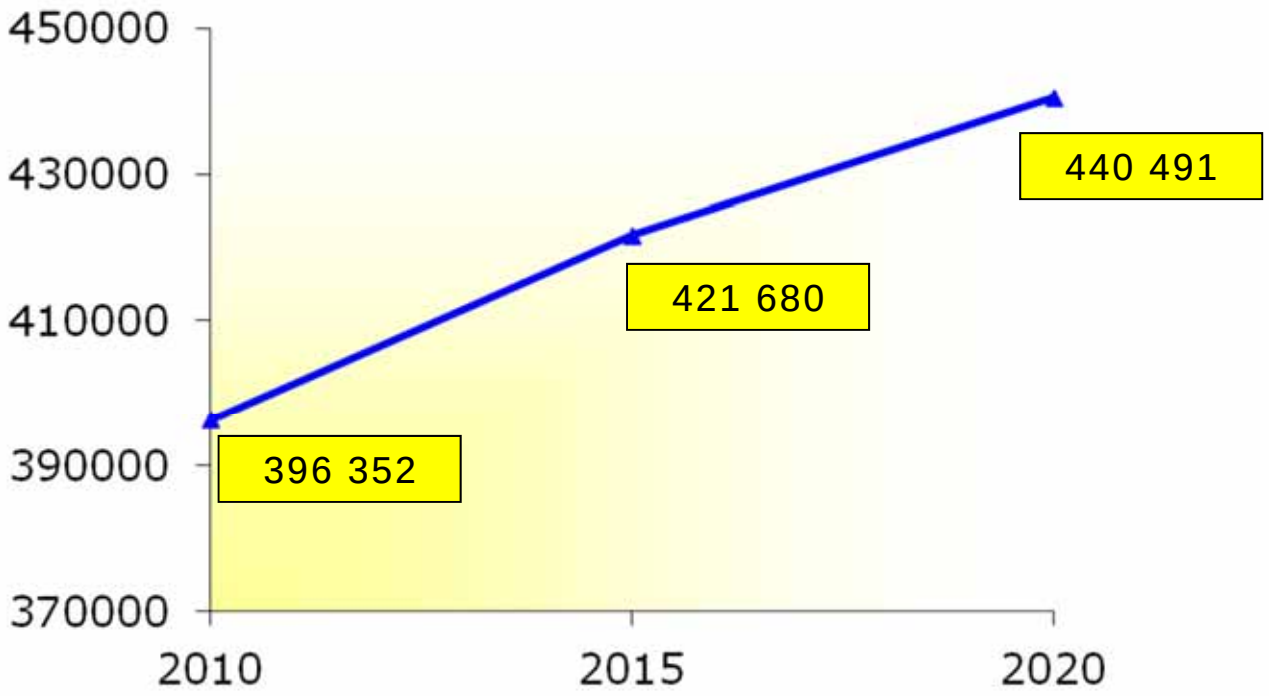
Estimates (2010-2020) of incident strokes in the Italian population



Estimates (2010-2020) of prevalent strokes in the Italian population



Estimates (2010-2020) of stroke patients with moderate-severe disability in the Italian population



Cost estimates of age-related neurological diseases (per year, million €) in the Italian elderly population.

	Men	Women	Total
Stroke	1409.5	1680.4	3089.9
Dementia	1847.5	3866.0	5713.5
Parkinsonisms	347.1	495.8	842.9
Peripheral neuropathy	826.3	1408.0	2234.3

STROKE IN WOMEN

Stroke in women, a neglected oncoming epidemic

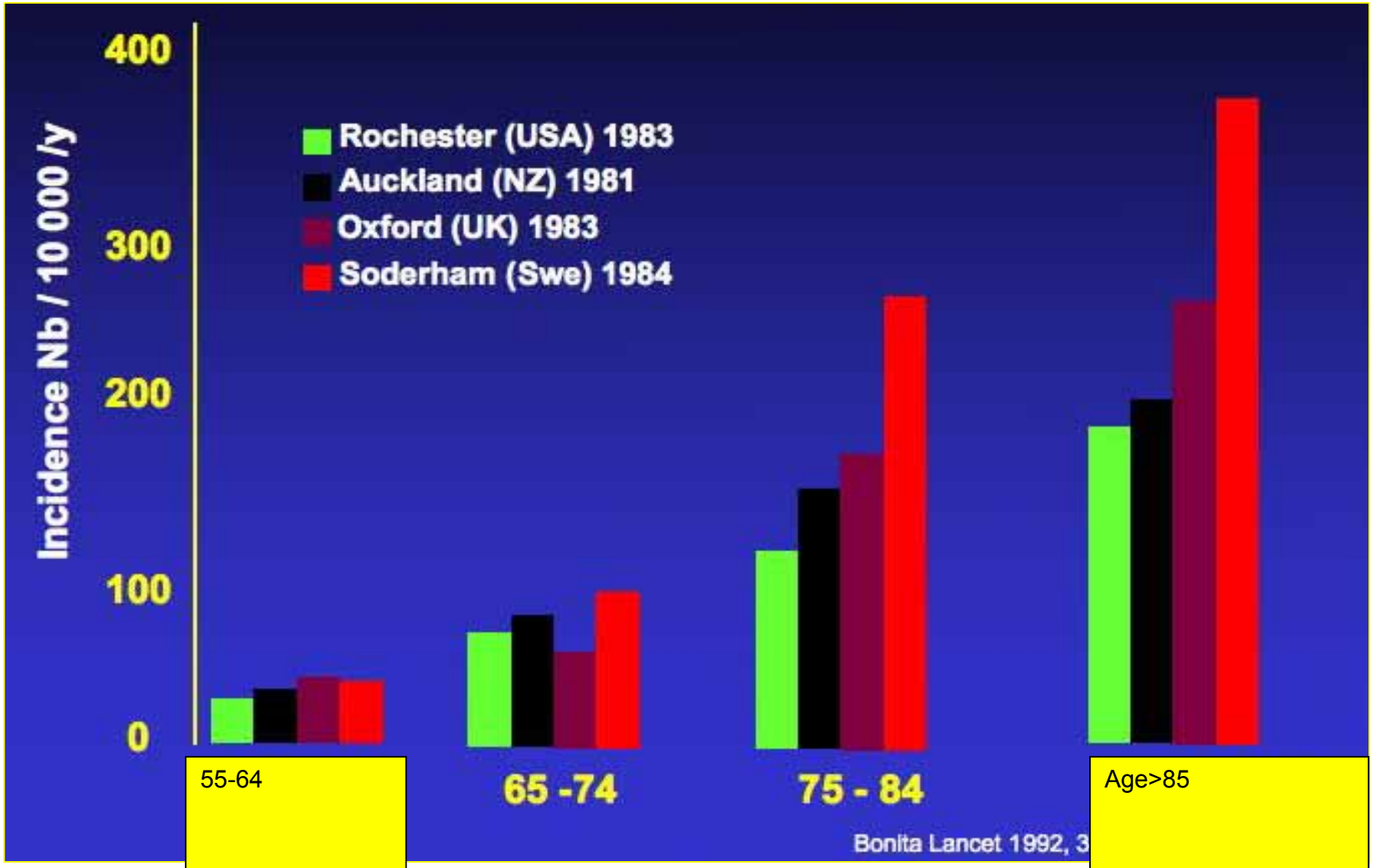
Il rischio percepito è globalmente basso, non solo nella popolazione, ma anche nella classe medica

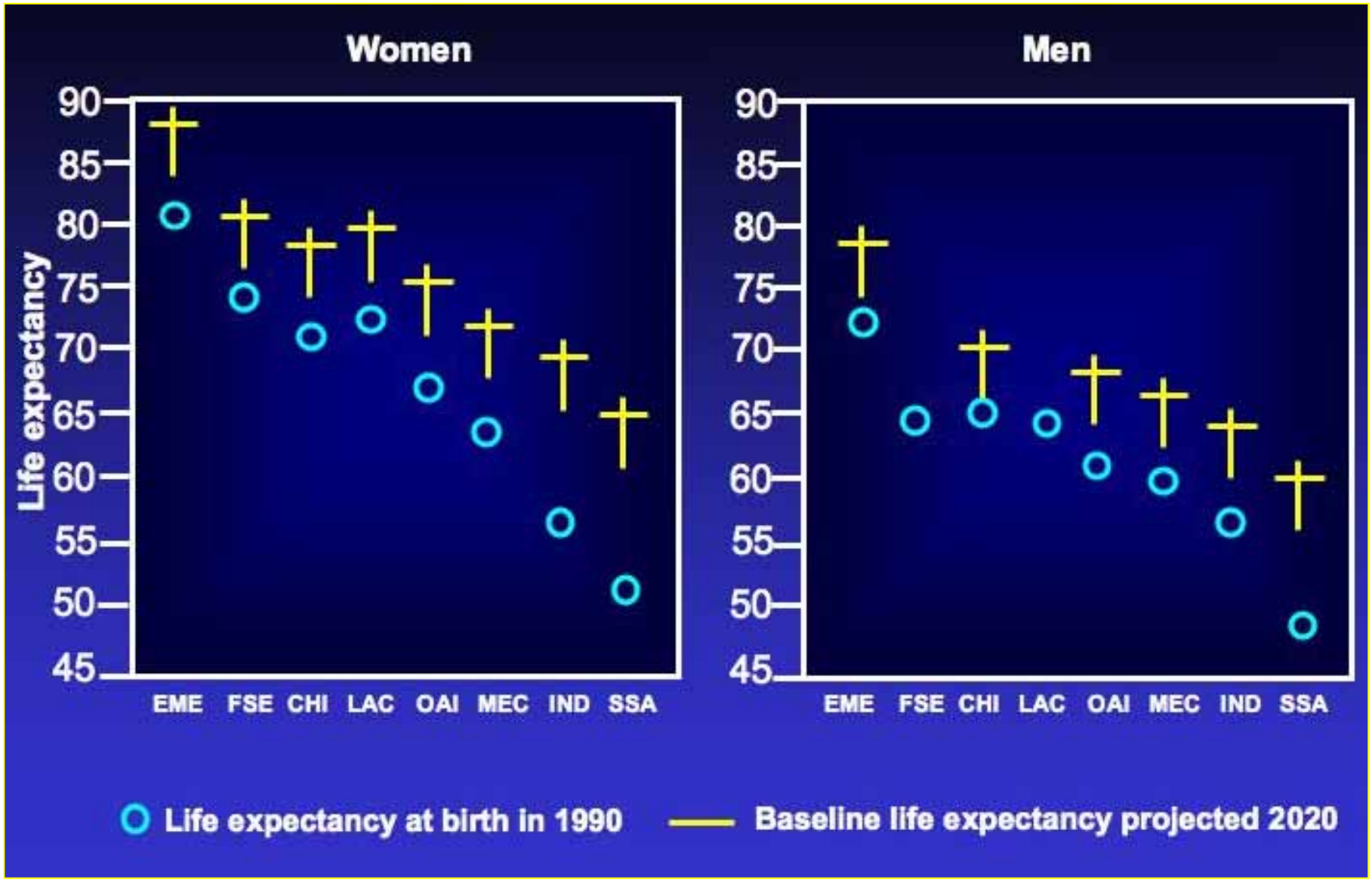
- **L'incidenza dell'ictus aumenta con l'età**
- **La popolazione mondiale sta ineluttabilmente invecchiando**
- **Le donne hanno una longevità di 8-10 anni maggiore degli uomini**

=> F/M ratio : 1.56 a 80 anni, 2.70 a 90 anni

=> età media al primo ictus: 68.6 aa nell'uomo, 72.9 nella donna

(Appelros et al, systematic review Stroke 2009)


Incidence Nb / 10 000 /y
400
300
200
100
0
Rochester (USA) 1983
Auckland (NZ) 1981
Oxford (UK) 1983
Soderham (Swe) 1984
55-64
65 -74
75 - 84
Age>85
Bonita Lancet 1992, 3


Women
Men
Life expectancy
90
85
80
75
70
65
60
55
50
45
EME FSE CHI LAC OAI MEC IND SSA
Life expectancy at birth in 1990
Baseline life expectancy projected 2020

Stroke in women, a major social impact

- **L'ictus nella donna è più grave e con un impatto funzionale peggiore**
  - **mortalità a 1 mese: 24.7% (19.7% nell'uomo)** *(Stroke 2009)*
  - **maggiore dipendenza fisica e cognitiva**
  - **maggiori limitazioni nella ADL**
  - **maggiore depressione**

    => peggiore qualità di vita

- **Outcome e QOL peggiori persistono persino dopo correzione per età, gravità, disabilità pre stroke …**

- **Maggiore isolamento sociale**

negli USA 8 milioni di donne vs 2.7 milioni di uomini vivono da sole

- **Maggiore probabilità di istituzionalizzazione**

RR 3.5 (Framingham, 56 aa follow up)

(Stroke 2009;40:1032)

FATTORI DI RISCHIO

INTERSTROKE: 10 fattori di rischio sono associati con il 90% del rischio di stroke

	Prevalence			All stroke	
	Control	Ischemic	Hemorr.	OR (99%CI)	PAR
Hypertension	37%	66%	83%	3.89 (3.33-4.54)	51.8%
Current smoking	24%	37%	31%	2.09 (1.75-2.51)	18.9%
Waist-to-hip ratio T2/T1	33%	33%	41%	1.42 (1.18-1.71)	26.5%
Diet risk score T2/T1	36%	37%	41%	1.35 (1.12-1.61)	18.8%
Physical activity	12%	8%	7%	0.69 (0.53-0.90)	28.5%
Diabetes	12%	21%	10%	1.36 (1.10-1.68)	5%
Alcohol > 30 drinks/m	11%	16%	16%	1.51 (1.18-1.92)	-
Depression	14%	21%	16%	1.35 (1.10-1.66)	5.2%
Cardiac causes	5%	14%	4%	2.38 (1.71-3.20)	6.7%
Ratio Apo B/Apo A	33%	30%	29%	1.13 (0.90-1.42)	24.9%

INTERSTROKE study : risk factors for ischemic and hemorrhagic stroke in 22 countries *(Lancet 2010;376:112)*

I classici fattori di rischio vascolari sono simili in entrambi i sessi, ma ± differiscono in prevalenza

Mosca et al Sex/gender differences in CVD prevention, Circulation 2011;124:2145-54

- **Fattori di rischio con maggiore prevalenza nelle donne (USA)**
  - Ipertensione arteriosa > 65 aa
  - Diabete: 8.3% vs 7.2% ≥ 20 aa
  - Colesterolo totale ≥ 240 mg/ dL : 16.2% vs 13.5% ≥20 aa
  - Inattività fisica: 34.5% vs 30.3%
  - Emicrania 3/1 (emicrania con aura)

- **Fattori di rischio con maggiore prevalenza negli uomini (USA)**
  - Fumo di sigaretta e consumo di alcool: 23.1% vs 18.1%
  - Obesità e sovrappeso: 72% vs 64%

- **Aderenza ai tre principali comportamenti suggeriti per modificare lo stile di vita**

  (no smoking, physical activity,fruit and vegetable intake)

  bassa in entrambi i sessi ma maggiore del 50% nelle donne

Risk factor modification with proven (RCT) benefit in secondary stroke prevention in both sexes

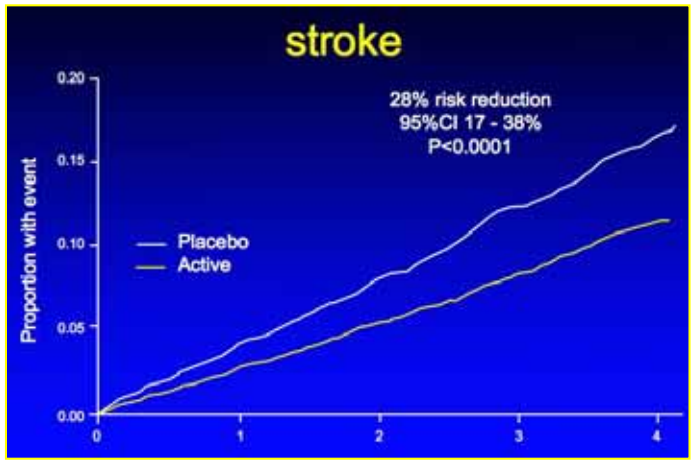
- **Blood pressure lowering: PROGRESS (Women: 30%)**

  Perindopril ± Indapamide

  BP reduction: 9/4 mmHg in 4 years

  => 28% stroke risk reduction

  24% ischemic stroke, 50% hemorrhagic



- **Cholesterol lowering: SPARCL (Women: 40%)**

  Atorvastatin 80 vs placebo

  4731 patients ischemic stroke and LDL-CT: 2.6-4.9 mmol/L

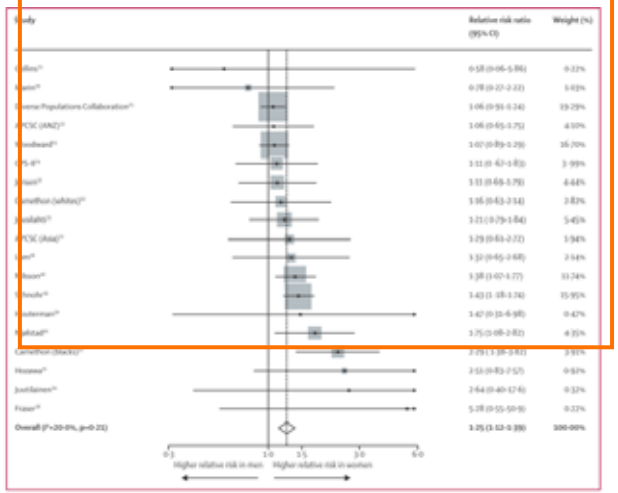
  > 4.9 years => LDL-CT: Atorvastatine: 1.9, placebo: 3.3 mmol/L

Cigarette smoking as a risk factor for coronary heart disease in women compared with men: a systematic review and meta-analysis of prospective cohort studies

Rachel R Huxley, Mark Woodward

Huxley R, Lancet 2011

Circa 4 milioni di persone incluse in metanalisi



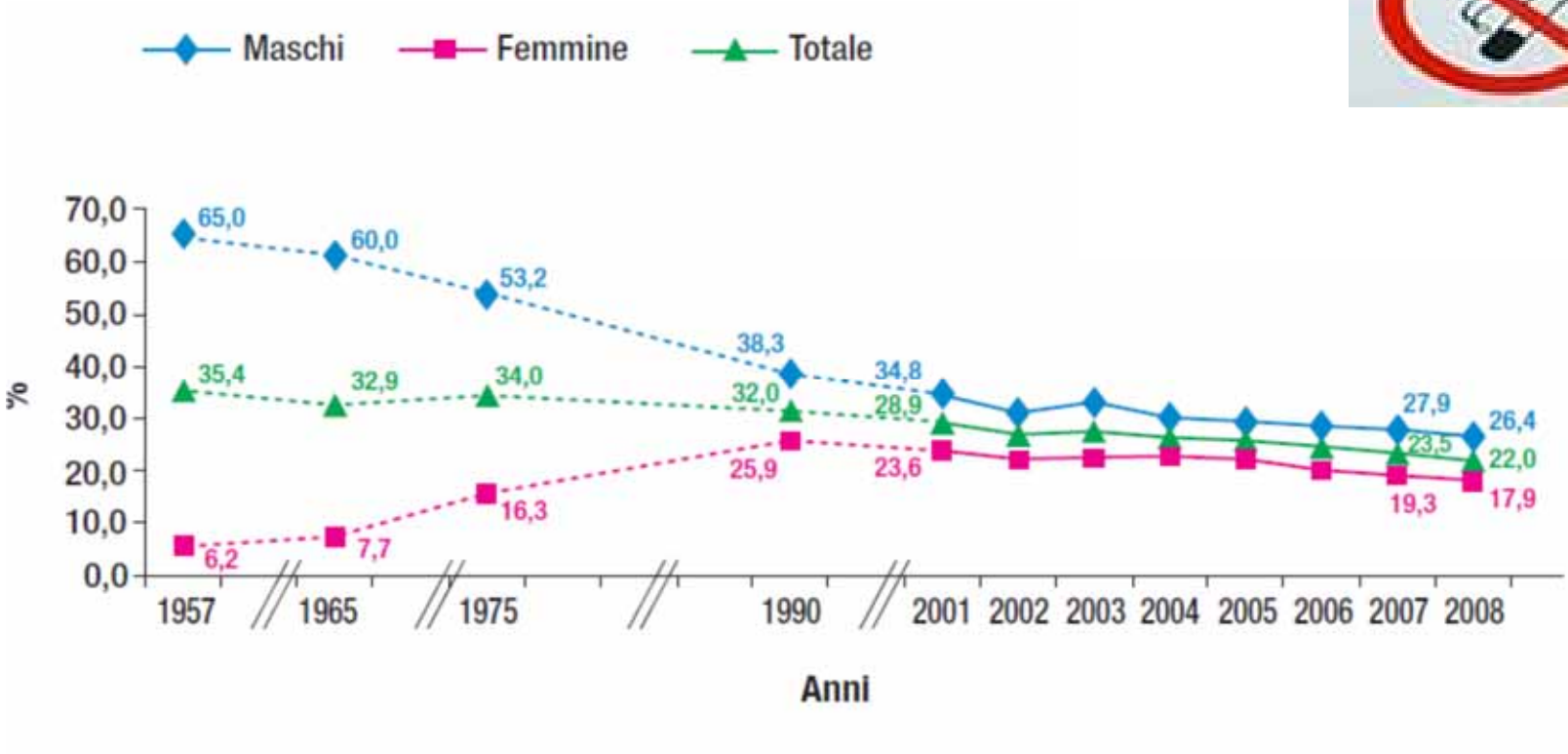
RR =1.25 femmine vs maschi, indipendentemente da altri fattori di rischio

Il numero di sigarette fumate da maschi è mediamente più alto--> il RR di 1.25 è sottostimato

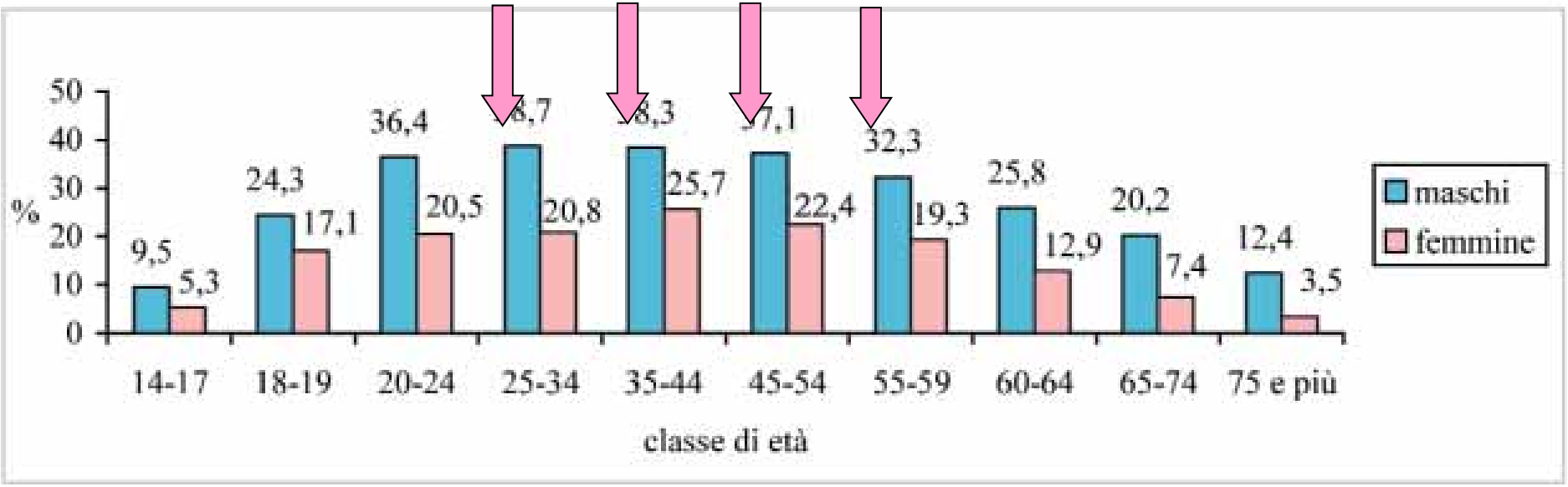
in femmine eccesso di rischio del 2% vs maschi per ogni anno di osservazione (proxi di durata del fumo)

> assorbimento polmonare in femmine vs maschi?

Andamento temporale della prevalenza del fumo in Italia, per sesso

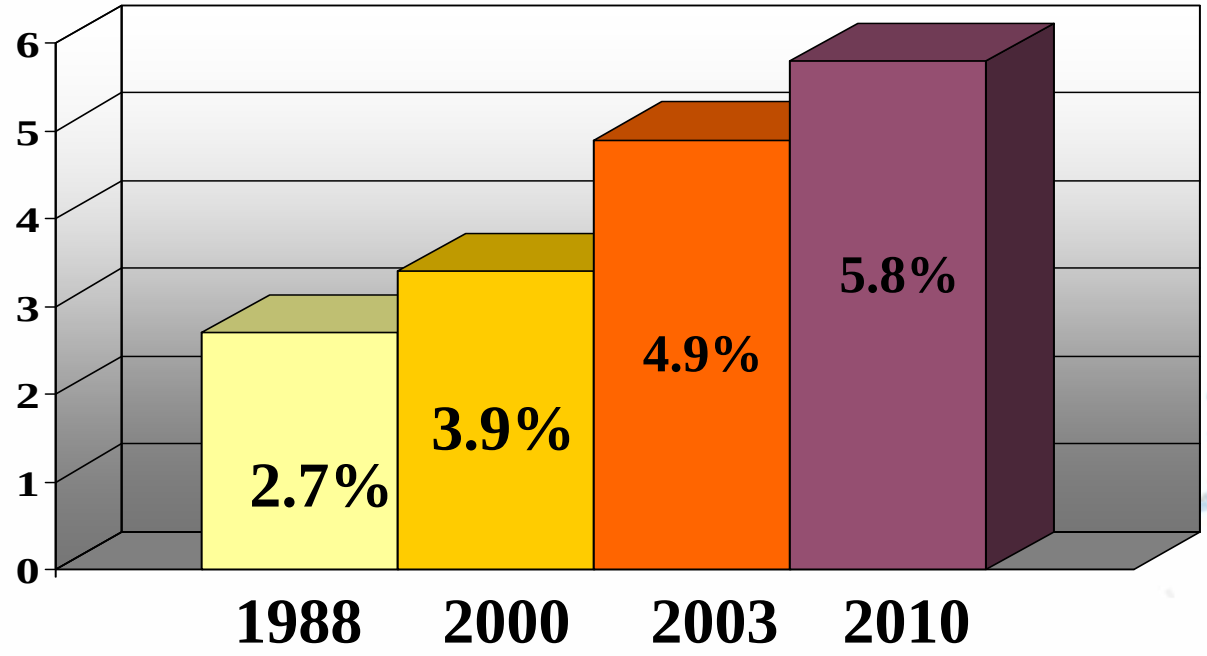


Fumo in Italia, ISTAT



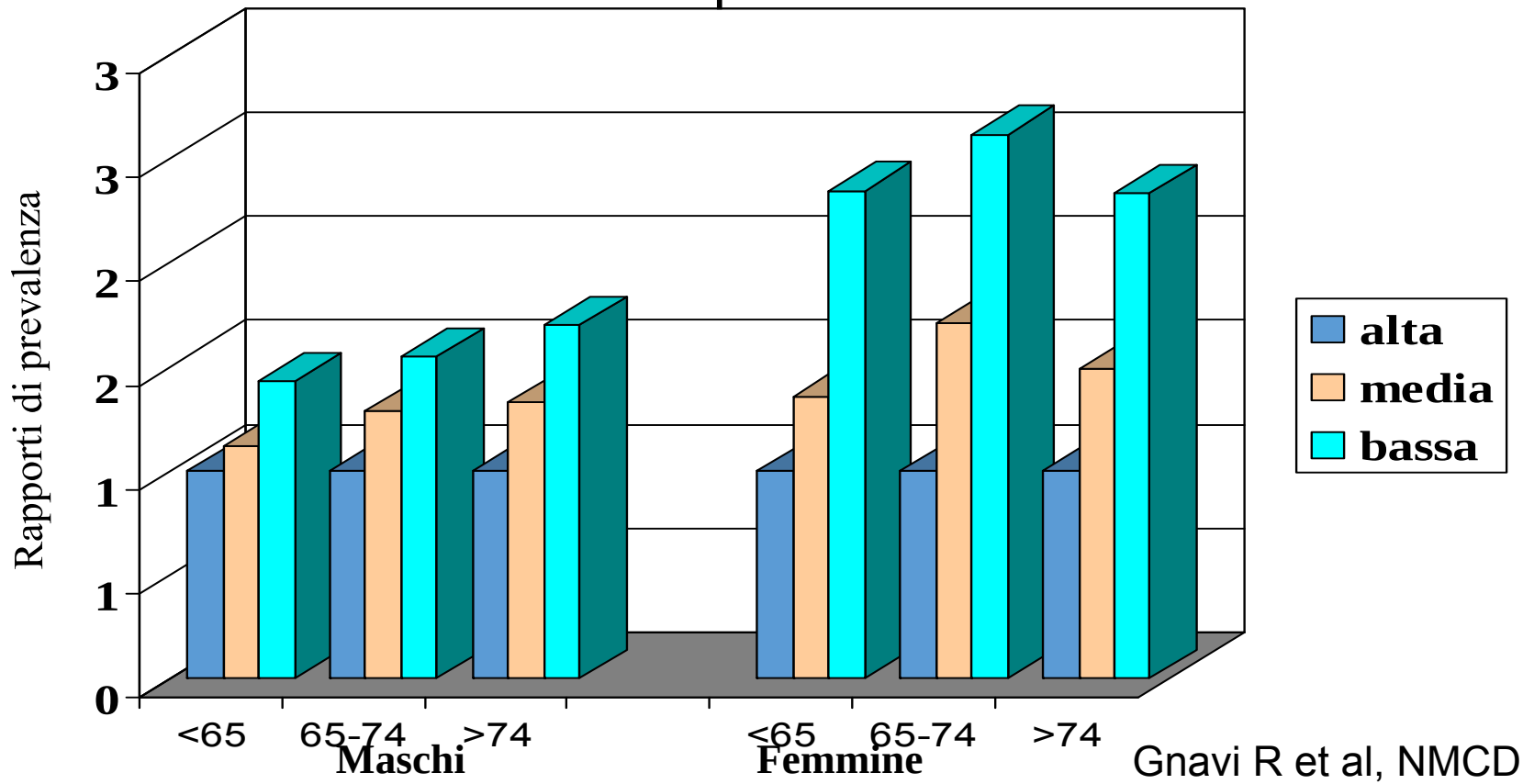
L'incremento di prevalenza del diabete noto

CASALE MONFERRATO STUDY, TORINO STUDY, ARNO



Bruno G et al, Diabetologia 199
Bruno G et al , NMCD 2008
Gnavi et al, NMCD 2008

La prevalenza di diabete è più alta nelle donne di classe sociale più bassa



Gnavi R et al, NMCD 2008

diabete come malattia epidemica

obesità

>età media

inattività

Relation between age and cardiovascular disease in men and women with diabetes compared with non-diabetic people: a population-based retrospective cohort study

Gillian L Booth, Moira K Kapral, Kinwah Fung, Jack V Tu

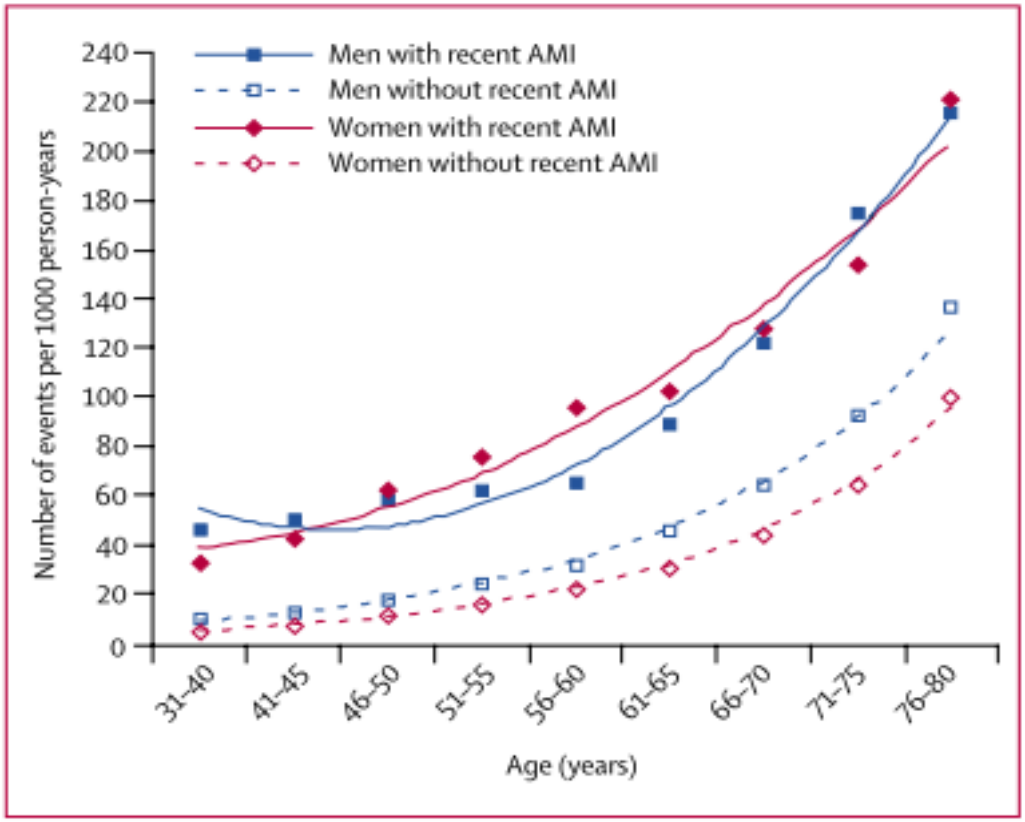
Background Adults with diabetes are thought to have a high risk of cardiovascular disease (CVD), irrespective of their age. The main aim of this study was to find out the age at which people with diabetes develop a high risk of CVD, as defined by: an event rate equivalent to a 10-year risk of 20% or more; or an event rate equivalent to that associated with previous myocardial infarction.

Findings The transition to a high-risk category occurred at a younger age for men and women with diabetes than for those without diabetes (mean difference 14·6 years). For the outcome of acute myocardial infarction (AMI), stroke, or death from any cause, diabetic men and women entered the high-risk category at ages 47·9 and 54·3 years respectively. When we used a broader definition of CVD that also included coronary or carotid revascularisation, the ages were 41·3 and 47·7 years for men and women with diabetes respectively.

Interpretation Diabetes confers an equivalent risk to ageing 15 years. However, in general, younger people with diabetes (age 40 or younger) do not seem to be at high risk of CVD. Age should be taken into account in targeting of risk reduction in people with diabetes.

Booth, Lancet 2006

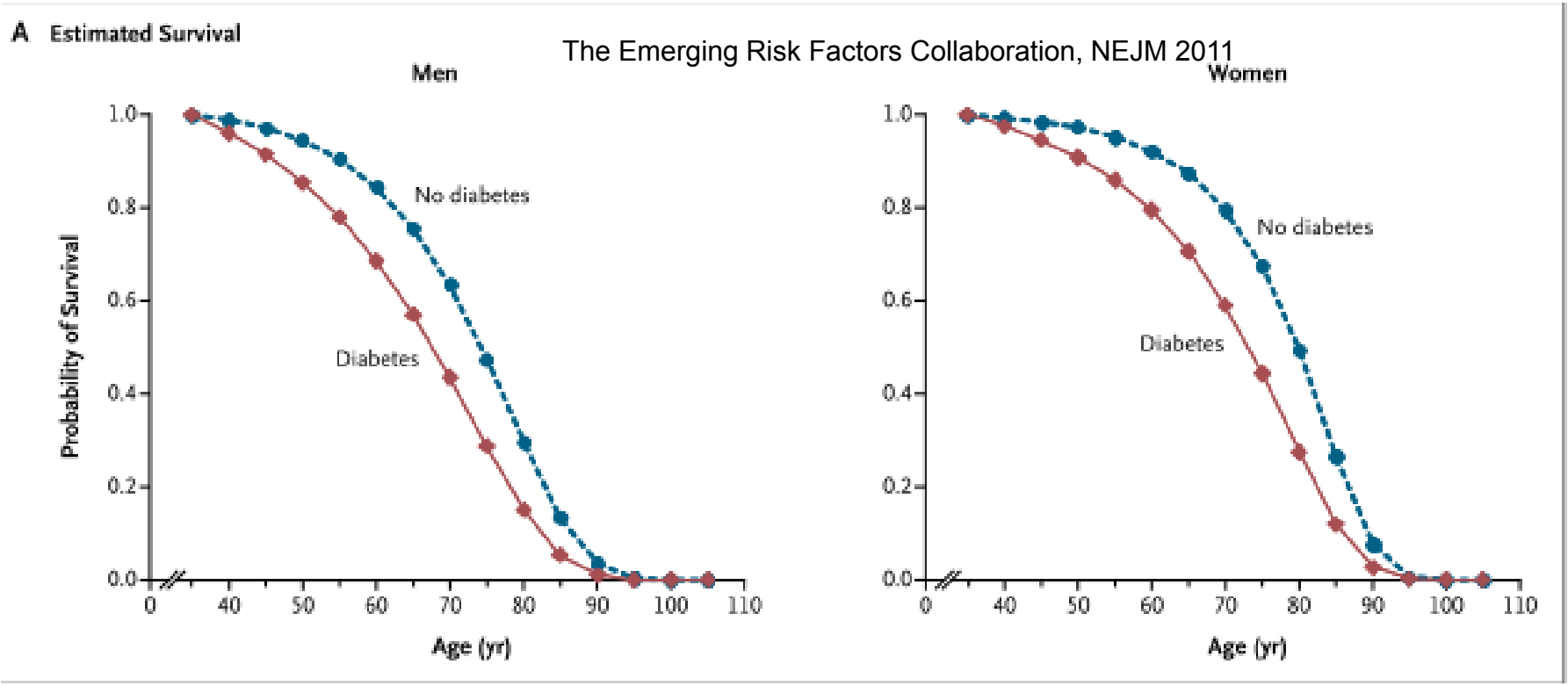
Diabetici e rischio di eventi cardiovascolari



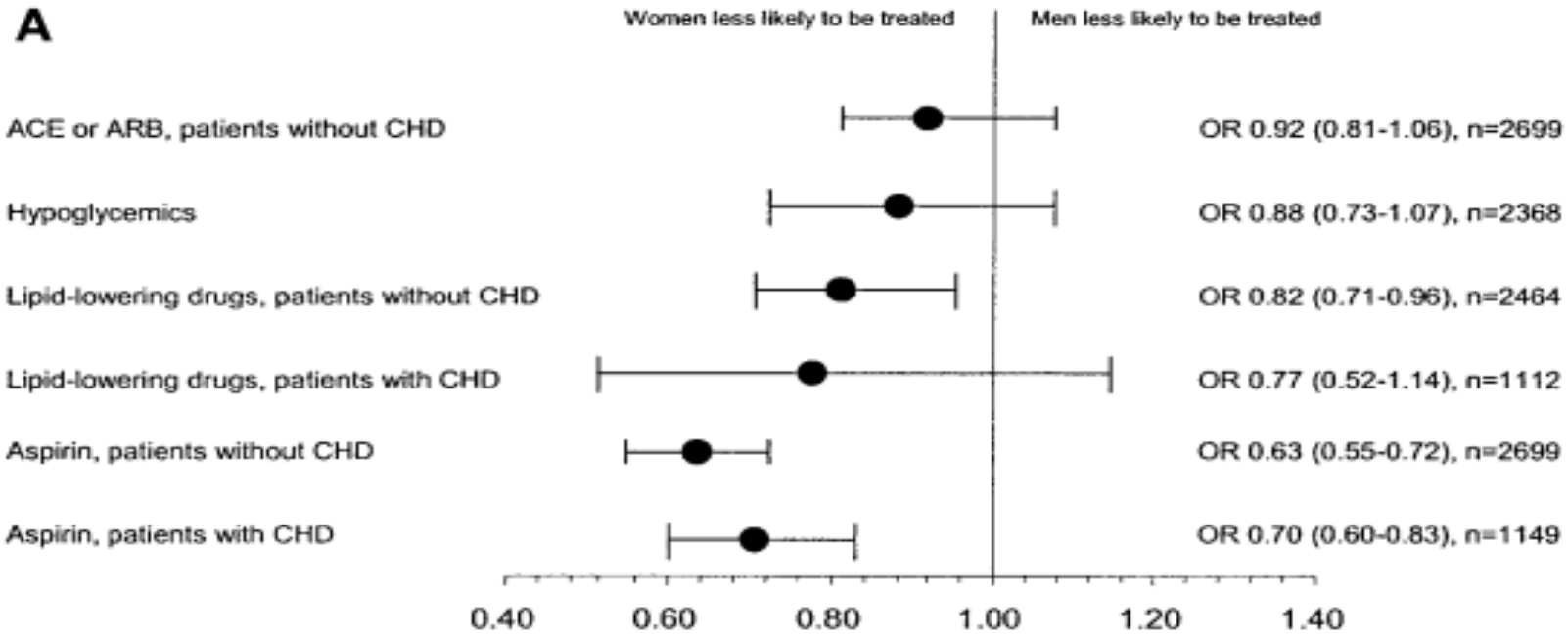
Diabete è equivalente di rischio dopo 50 anni
Riduzione di vantaggio in femmine

Booth, Lancet 2006

In media un diabetico senza malattia cardiovascolare a 50 anni, ha aspettativa di vita 6 anni inferiore a un non diabetico

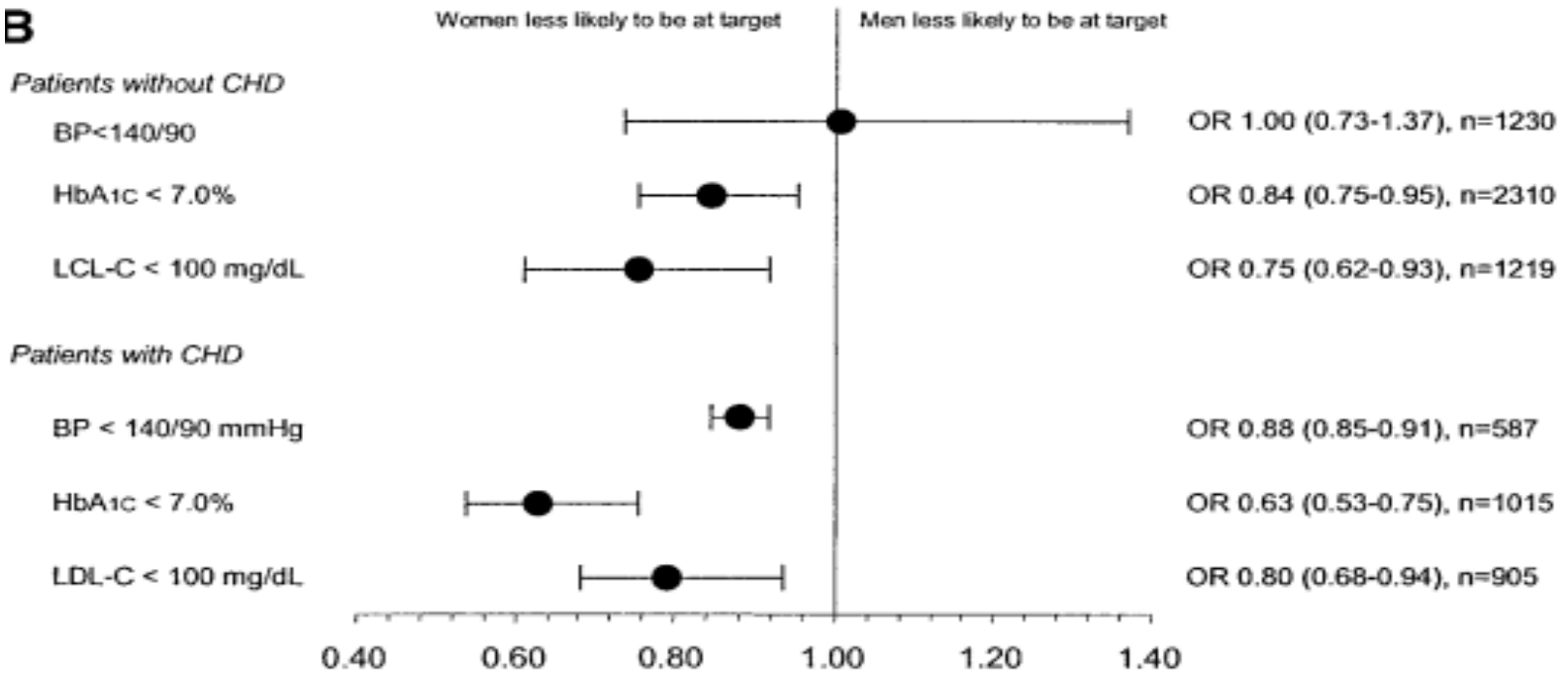


Le donne diabetiche hanno minor probabilità di ricevere trattamento ottimale



Wexler, Diabetes Care 2005

Le donne diabetiche hanno una minore probabilità di raggiungere il valore ottimale dei fattori di rischio



Wexler, Diabetes Care 2005

Eterogeneità di risposta a farmaci, maggior risposta a rosuvastatina in donne, regressione placca con ecografia intravascolare, rosuvastatina 40 mg vs atorvastatina 80 mg

Characteristic	No.	Median (95% CI)	P Value for Treatment	P Value for Interaction
Age				0.22
<Median			0.95	
Atorvastatin	252	−1.06 (−1.43 to −0.46)		
Rosuvastatin	253	−1.12 (−1.60 to −0.73)		
≥Median			0.07	
Atorvastatin	267	−0.84 (−1.28 to −0.46)		
Rosuvastatin	267	−1.35 (−1.68 to −0.90)		
Sex				0.03
Male			1.00	
Atorvastatin	386	−1.03 (−1.32 to −0.70)		
Rosuvastatin	379	−1.09 (−1.44 to −0.72)		
Female			0.01	
Atorvastatin	133	−0.71 (−1.38 to −0.25)		
Rosuvastatin	141	−1.76 (−2.39 to −1.02)		
Diabetes				0.63

Nicholls NEJM 2011

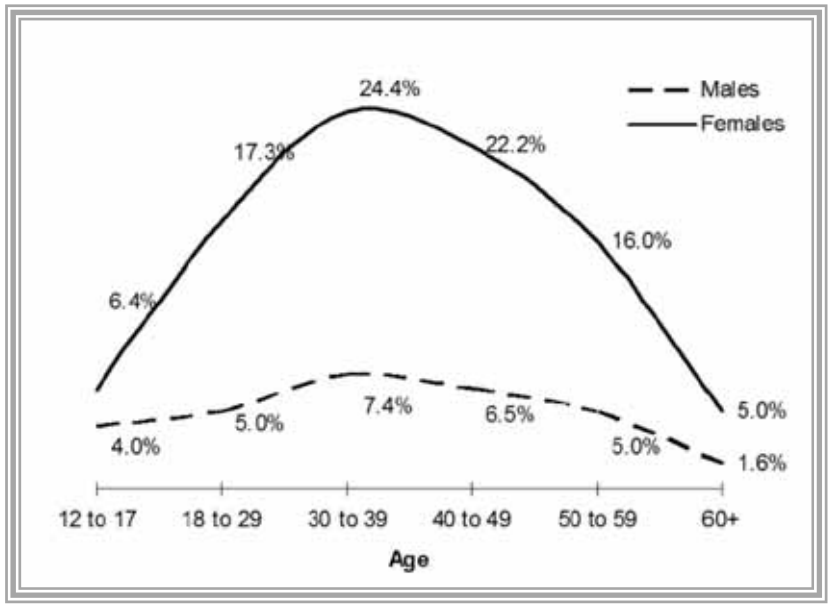
FATTORI DI RISCHIO

Genere-specifici

Emicrania con Aura

Emicrania e stroke

Prevalence of migraine by age and gender



Neurology 2007;68:343–349

Incidence of stroke by age and gender

L'Aquila Stroke Registry

Relazioni fra emicrania e stroke

Type	Definition
Migraine as a risk factor for stroke	A clearly clinically defined stroke syndrome must occur remotely in time from a typical attack of migraine
Migraine caused by stroke (symptomatic migraine)	An acute vascular event in the central nervous system (ischemic or hemorrhagic stroke or TIA) produces episodes of headache with the characteristics of migraine with or without aura; to be coded as ICHD-II 6.1
Migraine as a cause of stroke (migrainous infarction)	A documented infarct in a relevant area during the course of an attack of migraine with aura, in a patient with a history of migraine with aura, with symptoms that are those of the aura and in the absence of other possible causes at an extensive workup; to be coded as ICHD-II 1.5.4
Migraine and stroke sharing a common cause	A syndrome (usually of genetic origin) in which both migraine and stroke are major clinical features (e.g. CADASIL [ICHD-II 6.7.1] or MELAS [ICHD-II 6.7.2])
Migraine associated with subclinical stroke	Evidence at brain neuroimaging of small areas compatible with brain ischemia in patients without a history of any clinical symptom indicating a stroke syndrome
Migraine mimicking stroke (and viceversa: stroke mimicking migraine)	Symptoms of migraine attacks (particularly aura without headache) and of stroke (particularly TIAs) may overlap causing problems in the differential diagnosis

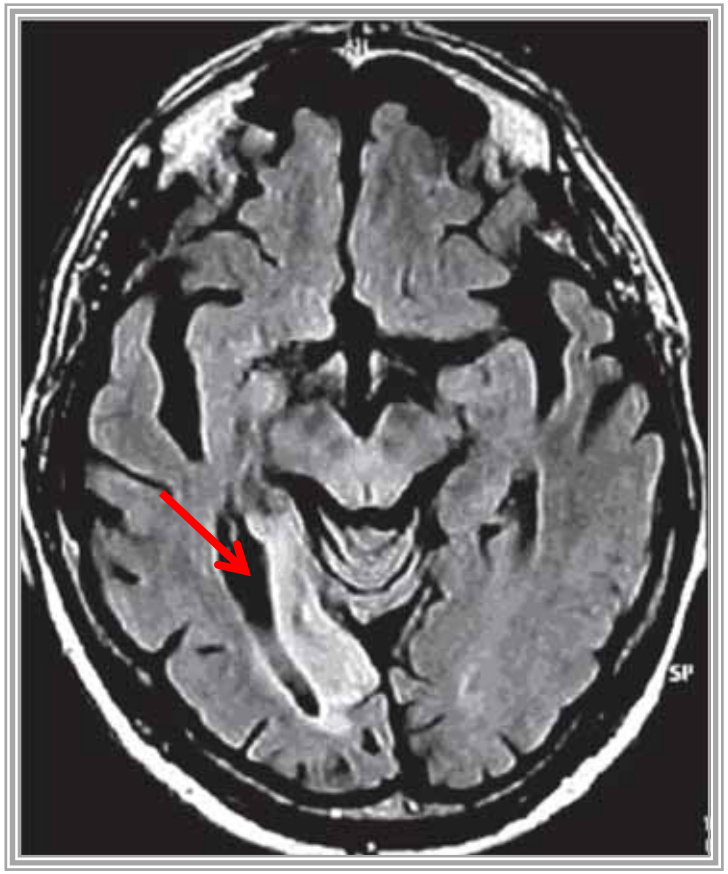
TIA transient ischemic attack, *ICHD-II* International Classification of Headache Disorders, Second Edition; *CADASIL* Cerebral Autosomal Dominant Arteriopathy with Subcortical Infarcts and Leucoencephalopathy; *MELAS* Mitochondrial Encephalopathy, Lactic Acidosis and Stroke-like episodes

Sacco et al., J Headache Pain 2008;9:237-248

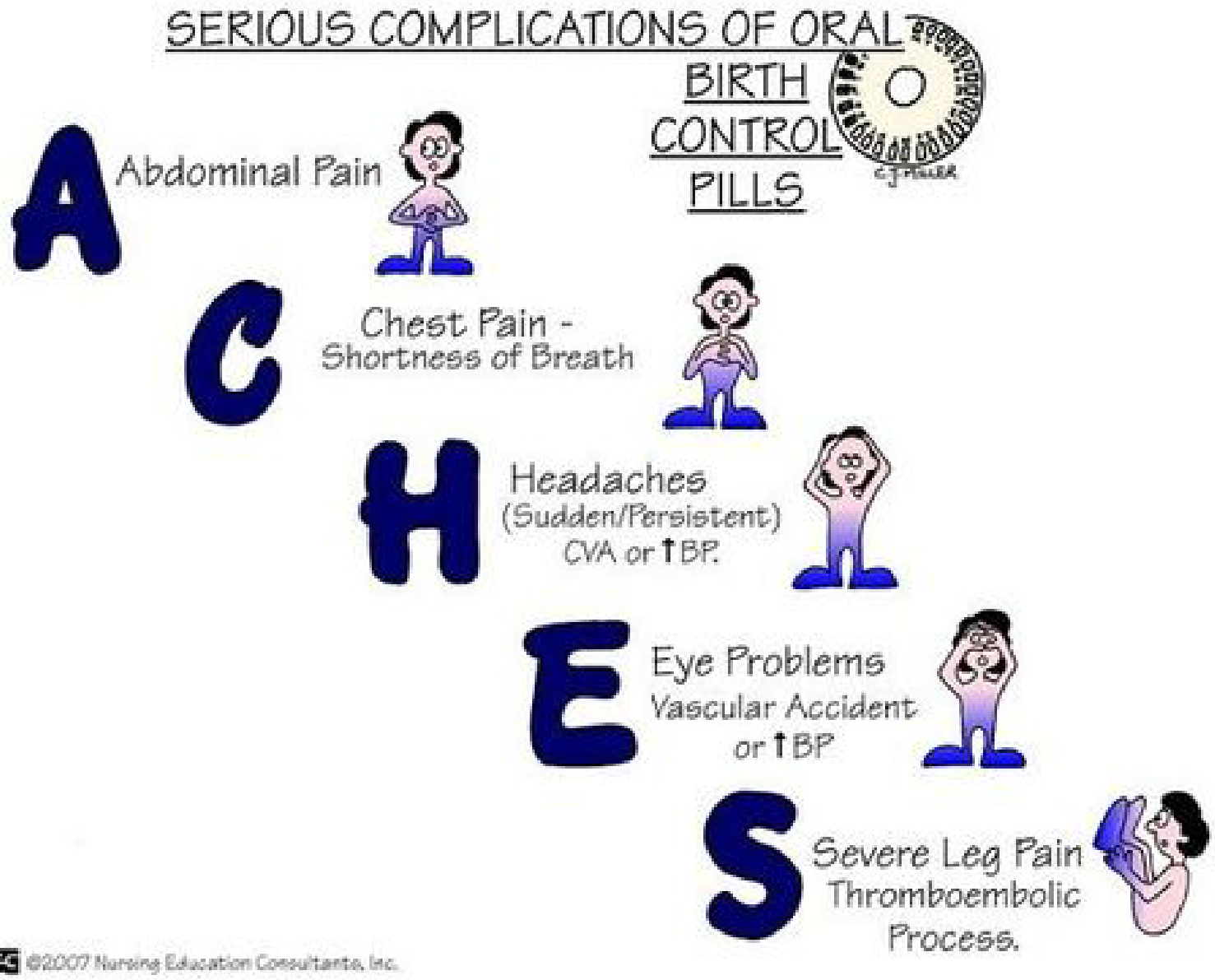
Ictus emicranico

- L'ictus emicranico è una condizione molto rara causata da una grave ipoperfusione che si verifica durante la fase dell'aura

- Per diagnosticare questa condizione il paziente deve riportare una storia pregressa di emicrania con aura, l'evento deve verificarsi durante un attacco di emicrania con aura con sintomi che sono quelli dell'aura ma non reversibili, il neuroimaging deve documentare un infarto in un'area rilevante ed altre cause dell'evento devono essere escluse da un workup completo



Terapia estroprogestinica



WHI: Estrogen plus progestin ages 50-79 y (2003)

Stroke, all types	HR = 1.3 (1.0 – 1.7)
Stroke, ischemic	HR = 1.4 (1.1 – 1.9)
Stroke, hemorrhagic	HR = 0.8 (0.4 – 1.6)

Consistent findings in:

- All age groups and all times since menopause
- All categories of baseline stroke risk
- Independent of hypertension, prior CVD, and use of hormones, statins, or aspirin
- Other risk factors for stroke did not modify the effects

Wassertheil-Smoller et al., *JAMA* 2003

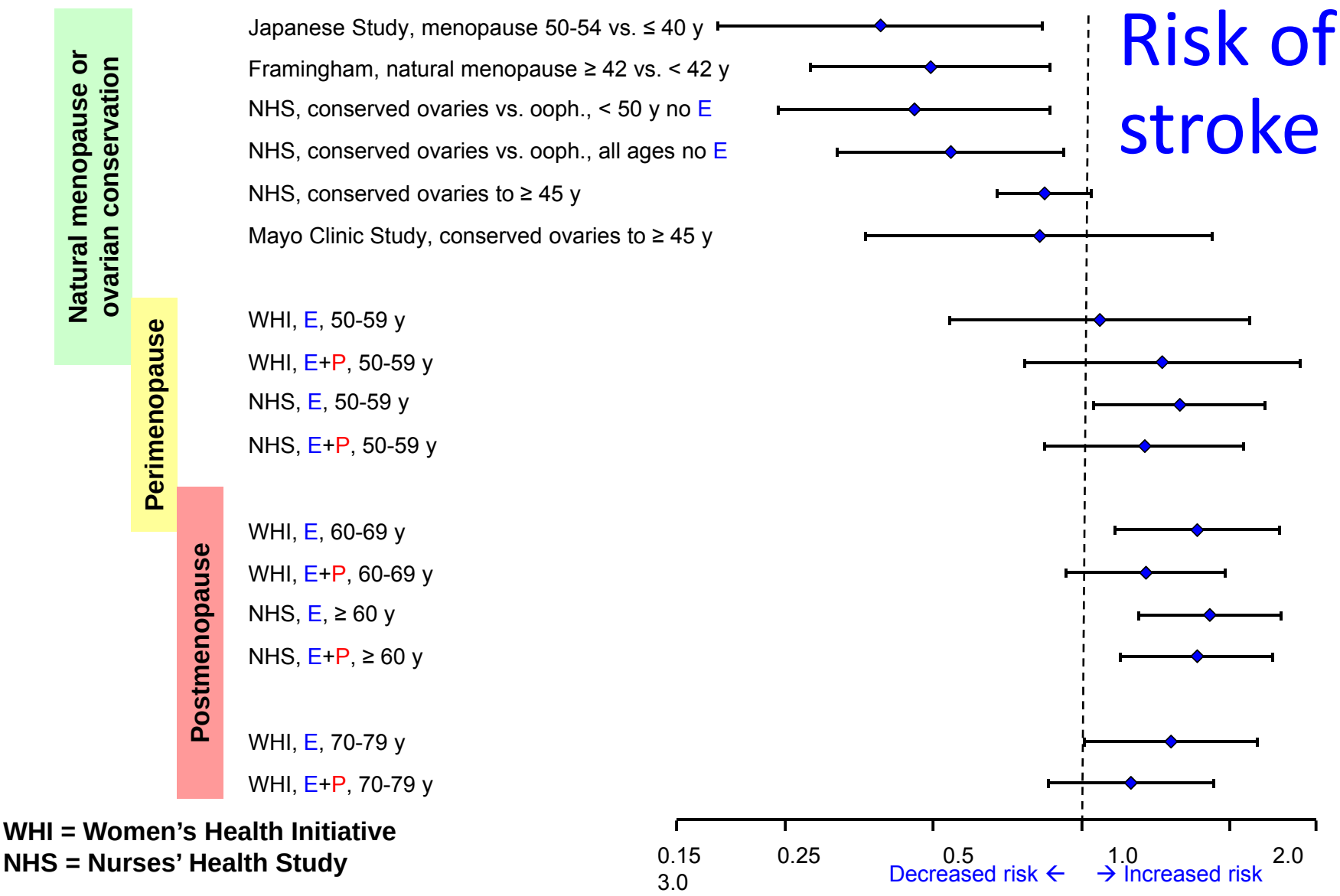
WHI: Estrogen alone ages 50-79 y (2006)

Stroke, all types	HR = 1.4 (1.1 – 1.7)
Stroke, ischemic	HR = 1.6 (1.2 – 2.0)
Stroke, hemorrhagic	HR = 0.6 (0.4 – 1.2)

Consistent findings in:

- All age groups and all times since menopause
- All categories of baseline stroke risk
- Independent of use of statins or aspirin

Hendrix et al., *Circulation* 2006



WHI = Women's Health Initiative
NHS = Nurses' Health Study

- Estrogen treatment at ages 50-59, 60-69, and 70-79 y is a risk factor for stroke (not for transdermal low dose)

- Oophorectomy < 45 y (Mayo Clinic Study) or < 50 y (Nurses' Health Study) is a risk factor for stroke
- Premature natural menopause (age < 40 y) or early natural menopause (40-45 y) are risk factors for stroke

- Estrogen may protect against stroke before age 50 y but may be detrimental after that age

- Further research is needed

Table 8. Odds of Ischemic Stroke With the Presence of Genetic or Acquired Prothrombotic Factors With and Without OC Use in the RATIO Cohort

Study	Case/Control, n	Biomarker (Genetic or Acquired)	Adjusted OR (95% CI)	
			Non-OC Users	OC Users
Slooter et al[225]	193/767	FVL	0.4 (0.1–1.9)*	11.2 (4.3–29.0)*
		MTHFR 677TT	1.1 (0.5–2.4)*	5.4 (2.4–12.0)*
Pruissen et al[226]	190/767	FXIII Tyr204Phe	8.8 (4.3–18)†	20 (9–46)†
Urbanus et al[227]	175/628	Lupus anticoagulant ($Ratio_{s/c}$ ≥1.15)	33.6 (6.8–167)*	201.0 (22.1–1828.0)*
Andersson et al[228]	175/638	vWF >90th percentile	1.6 (0.8–3.5)‡	11.4 (5.2–25.3)‡
		ADAMTS13 ≤10th percentile	1.8 (0.8–4.3)‡	5.1 (2.4–11.2)‡

ADAMTS13 indicates a disintegrin and metalloproteinase with the thrombospondin type I repeat 13; CI, confidence interval; FVL, factor V Leiden mutation; FXIII, factor XIII; MTHFR, methylenetetrahydrofolate reductase; OC, oral contraceptive; OR, odds ratio; RATIO, Risk of Arterial Thrombosis in Relation to Oral Contraceptives; $Ratio_{s/c}$, normalized ratios for lupus anticoagulant screen and lupus anticoagulant–confirm coagulation times; and vWF, von Willebrand factor.

*Adjusted for age, residence area, and index year.

†Adjusted for age at index date, index year, area of residence, hypercholesterolemia, hypertension, diabetes mellitus, and smoking.

‡Adjusted for age, year of event/index year, area of residence, hypercholesterolemia, hypertension, diabetes mellitus, and smoking.

Women with migraine with aura who also smoked cigarettes and used OCs had **7.0-fold** higher odds (95% CI, 1.3–22.8) of stroke than women with probable migraine with visual aura who did not smoke or use OCs; however, women with probable migraine with visual aura who were OC users but nonsmokers did not have a significantly increased odds of stroke, which suggests the risk with both OC use and smoking in women with probable migraine with visual aura is additive.

OCs: Recommendations

1. **OCs may be harmful in women with additional risk factors (eg, cigarette smoking, prior thromboembolic events) *(Class III; Level of Evidence B)*.[224,225]**
2. **Among OC users, aggressive therapy of stroke risk factors may be reasonable *(Class IIb; Level of Evidence C)*.[224,225,231]**
3. **Routine screening for prothrombotic mutations before initiation of hormonal contraception is not useful *(Class III; Level of Evidence A)*.[229]**
4. **Measurement of BP before initiation of hormonal contraception is recommended *(Class I; Level of Evidence B)*.[220,235,236]**

Gravidanza e Puerperio

Table 6. Adverse Pregnancy Outcomes and Risk for Stroke

Study Date and Author	Total No. of Subjects	Study Design	Pregnancy Outcome	Cerebrovascular Outcome	Follow-up, y	HR or OR for Outcome (95% CI)
Mannistö et al,	10314	Prospective	Gestational	Ischemic cerebrovascular disease	40	1.67 (1.13–2.45)
				Cerebrovascular events (infarction, hemorrhage, subarac		Preterm birth 2.41 (1.4–4.17); SGA birth 1.68 (1.46–2.06); preterm and SGA birth
				TIA		
				St		
				St		
				Cerebı		
				Stroke		3.07 (2.18–4.33)
2003[178]		study		Cerebrovascular disease		2.53 (1.70–3.77)
Lykke et al, 2009[179]	782287	Retrospective cohort	Gestational hypertension, mild preeclampsia, severe preeclampsia	Stroke	12.9–14.6	Gestational hypertension 1.58 (1.32–1.89); mild preeclampsia 1.50 (1.36–1.66); severe preeclampsia 1.66 (1.29–2.14)

CI indicates confidence interval; HR, hazard ratio; OR, odds ratio; SGA, small for gestational age; and TIA, transient ischemic attack.
*Defined as preeclampsia between 16 and 36 weeks.

Prevention of Stroke in Women With a History of Preeclampsia

1. **Because of the increased risk of future hypertension and stroke 1 to 30 years after delivery in women with a history of preeclampsia *(Level of Evidence B)*, it is reasonable to (1) consider evaluating all women starting 6 months to 1 year post partum, as well as those who are past childbearing age, for a history of preeclampsia/eclampsia and document their history of preeclampsia/eclampsia as a risk factor, and (2) evaluate and treat for cardiovascular risk factors including hypertension, obesity, smoking, and dyslipidemia *(Class IIa; Level of Evidence C)*.**

Preeclampsia and Pregnancy Outcomes: Recommendations

Prevention of Preeclampsia

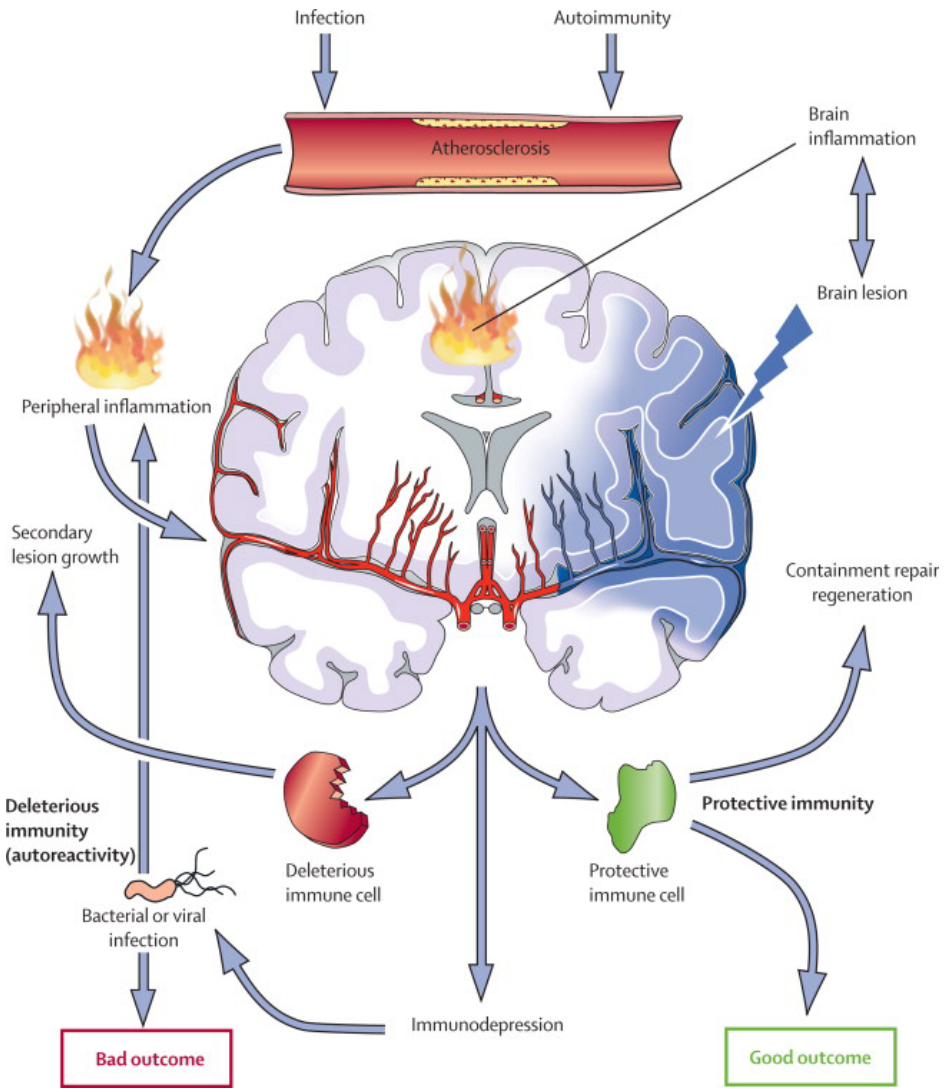
1. **Women with chronic primary or secondary hypertension or previous pregnancy-related hypertension should take low-dose aspirin from the 12th week of gestation until delivery *(Class I; Level of Evidence A)*.**

Guidelines for the Prevention of Stroke in Women

A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association

STROKE AND WOMEN

FISIOPATOLOGIA



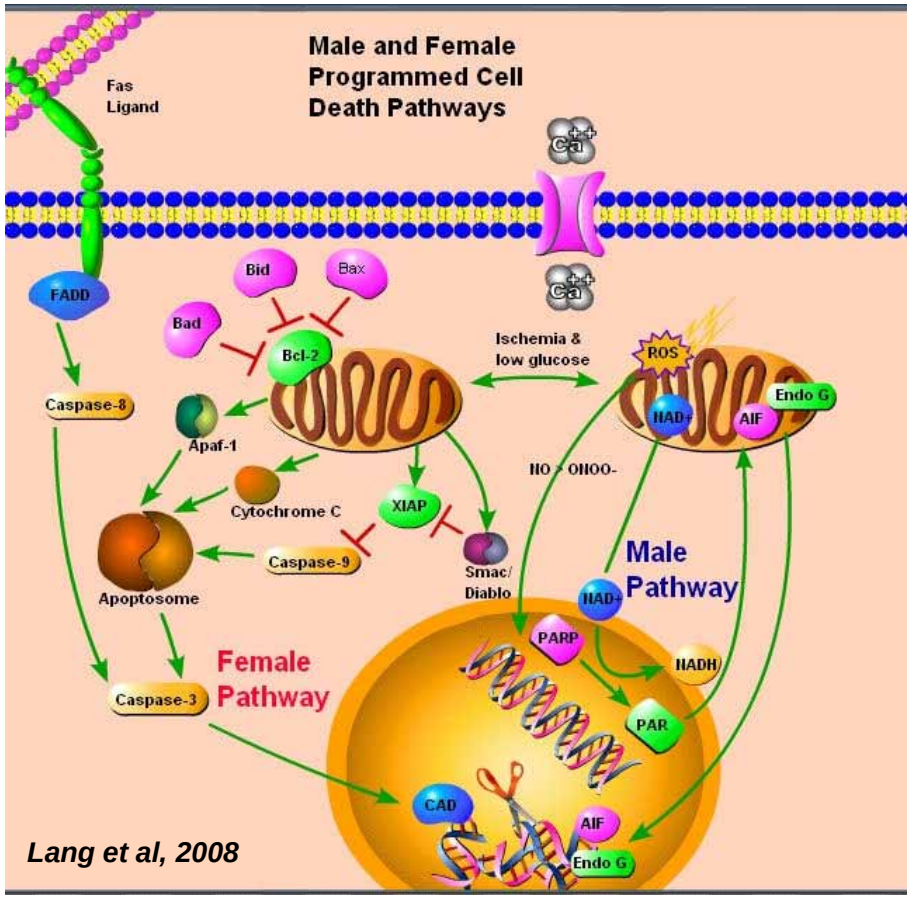
Differenze biomolecolari, anatomiche e fisiopatologiche cerebrali

	Parameters	F/M
TISSUE VOLUME	-Gray matter	F>M
	-Broca's area	F>M
	-Hippocampus	F>M
	-Caudate and thalamus	F>M
	-Frontal and medial paralimbic cortices	F>M
	-Frontomedial cortex	F<M
	-Amygdala	F<M
	-Hypothalamus	F<M
	-Amount of CSF	F<M
	-Cerebrum size	F<M
	-White matter	F<M
	-Number of neurons	...
GENETICS	• 2.6% of the genes expressed in the human CNS show differential expression by sex in at least one brain region with • Functional consequences relevant to human disease	

	Parameters	F/M
PHYSIOLOGY & NEUROCHEMISTRY	-Global CBF	F>M
	-5-HT transporter availability	F>M
	-Dopamine release	F>M
	-Cortical GABA level	F>M
	-Cortical muscarinic acetylcholine receptors	F>M
	-Cortical μ-opioid binding	F>M
	-N-acetyl-aspartate	F>M
	-Receptor affinity of glucocorticoids	F<M
	-Glutathione/reduced glutathione ratio	F<M (rat)
	-Cerebral metabolic rate of glucose utilization	...

(adapted from Liu et al, 2009; Trabzuni et al, 2013)

Proposta di differente modello di cascata ischemica per F e M e Ruolo neuroprotettivo degli estrogeni

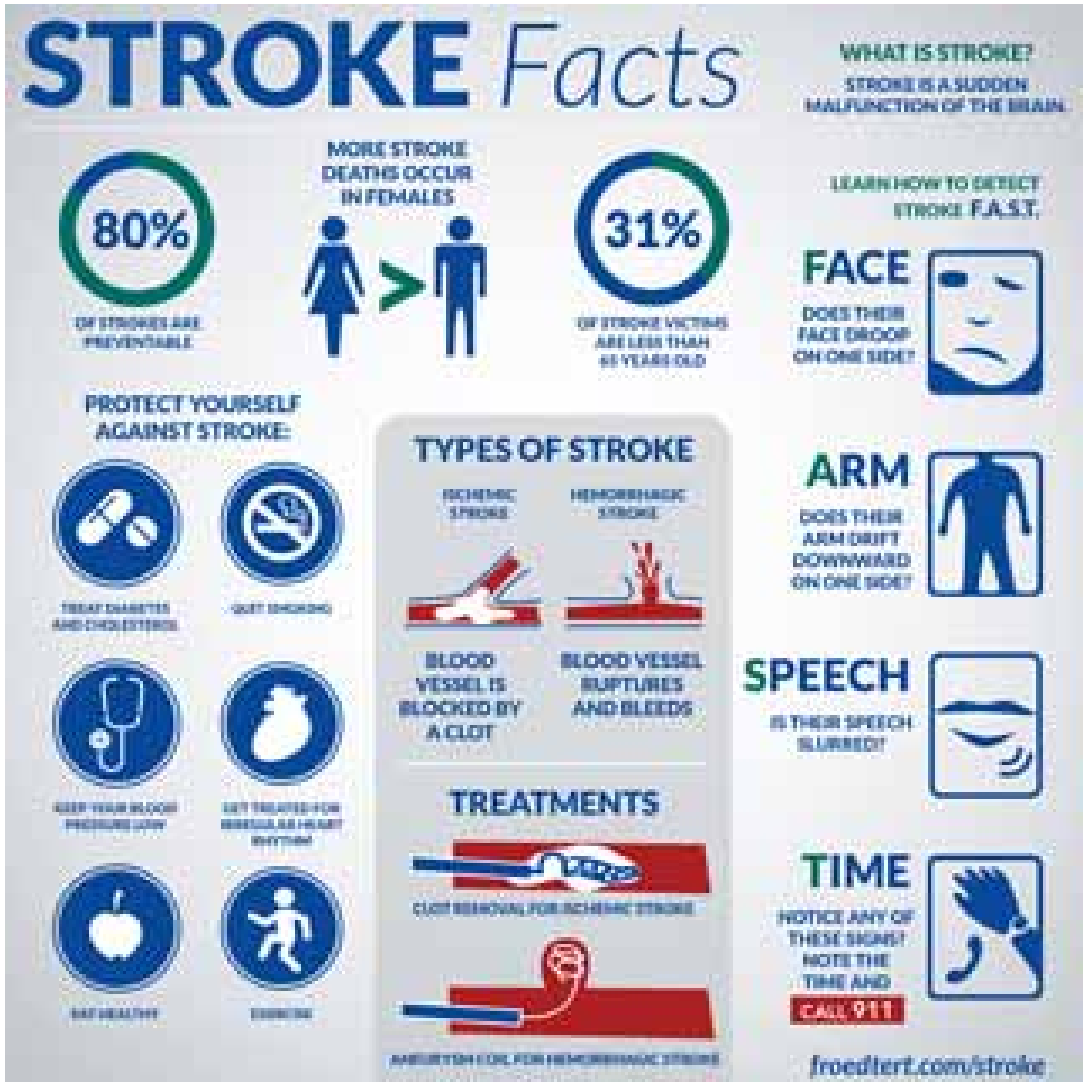


Potential Estrogenic Mechanisms of Neuroprotection in Ischemic Brain Injury

- Preservation of intraischemic blood flow
- Improvement of postichemic reperfusion
- Stabilization of BBB
- Reduction of cerebral edema
- Antioxidant activity
- Amelioration of excitotoxicity
- Up-regulation of cell-survival mediators
- Increase of neurite outgrowth and spine density
- Increase of neurotrophic factors
- Reduction of leukocyte adhesion after transient global ischemia
- Suppression of microglia activation
- Reduction of reactive gliosis
- Increase of neuronal stem cell proliferation

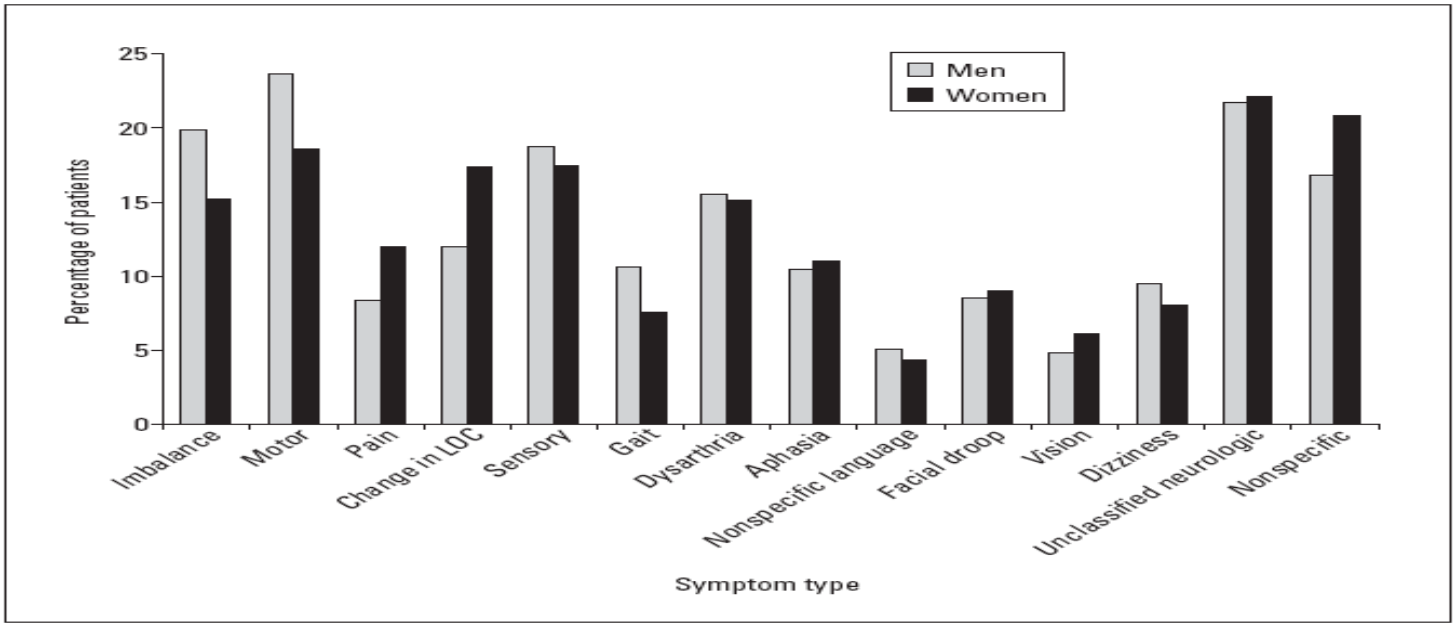
(adapted from Vagnerova et al, 2008)

GESTIONE ACUTA



Sex and Acute Stroke Presentation

Lise A. Labiche, MD
Wenyaw Chan, PhD
Kamaldeen R. Saldin, MD
Lewis B. Morgenstern, MD



Differenze di genere in 4 categorie di sintomi:
- Disequilibrio ed emiparesi più frequenti negli uomini
- Dolore e alterazioni della coscienza più frequenti nelle donne

Ann Emerg Med. 2002;40:453-460.

Lise A. Labiche, MD
Wenyaw Chan, PhD
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Lewis B. Morgenstern, MD

Sex and Acute Stroke Presentation

Symptom	Men, No. (%) (n=467)	Women, No. (%) (n=657)	OR*	95% CI†	99.7% CI‡
Sensory	88 (18.8)	115 (17.5)	1.02	0.75–1.40	0.64–1.65
Gait	50 (10.7)	50 (7.6)	0.67	0.44–1.01	0.35–1.26
Imbalance	93 (19.9)	100 (15.2)	0.70	0.51–0.97	0.43–1.13
Dysarthria	73 (15.6)	100 (15.2)	0.94	0.68–1.32	0.57–1.57
Aphasia	49 (10.5)	73 (11.1)	1.06	0.72–1.56	0.59–1.93
Nonspecific language	24 (5.1)	29 (4.4)	0.80	0.45–1.40	0.34–1.91
Motor	110 (23.6)	122 (18.6)	0.76	0.57–1.02	0.49–1.19
Pain	39 (8.4)	79 (12.0)	1.78	1.17–2.70	0.96–3.41
Facial droop	40 (8.6)	60 (9.1)	1.06	0.70–1.62	0.56–2.05
Change in level of consciousness	56 (12)	114 (17.4)	1.42	1.00–2.01	0.84–2.44
Vision	23 (4.9)	41 (6.2)	1.42	0.84–2.42	0.65–3.29
Dizziness-vertigo	45 (9.6)	53 (8.1)	0.89	0.59–1.36	0.47–1.71
Nonclassifiable neurologic	102 (21.8)	146 (22.2)	1.01	0.76–1.35	0.65–1.58
Nonspecific	79 (16.9)	137 (20.9)	1.36	1.00–1.86	0.86–2.20

*OR adjusted for age and study phase; women are the referent group.
†Unadjusted CI.
‡Conservative adjustment for multiple comparisons.

-Nessuna differenza fra i sessi nel riferire disartria, deficit del VII nc, dizziness-vertigo, disturbi di sensibilità, del linguaggio e del campo visivo o sintomi neurologici non classificabili

-Trend per le donne nella presentazione di sintomi non neurologici e per gli uomini nella presentazione con disturbi della deambulazione

Ann Emerg Med. 2002;40:453-460.

Lise A. Labiche, MD
Wenyaw Chan, PhD
Kamaldeen R. Saldin, MD
Lewis B. Morgenstern, MD

Sex and Acute Stroke Presentation

L'aumentata frequenza di donne che riferiscono dolore, cambiamenti nel livello di coscienza, disorientamento e sintomi non neurologici può portare ad una RITARDATA presentazione e ad un SOTTORICONOSCIMENTO delle pazienti donne con stroke e conseguente ***RITARDATO E MENO FREQUENTE USO DELLE TERAPIE PER L'ICTUS ACUTO NELLE DONNE***

Ann Emerg Med. 2002;40:453-460.

Do Presenting Symptoms Explain Sex Differences in Emergency Department Delays Among Patients With Acute Stroke?

Julia Warner Gargano, MS; Susan Wehner, MSN; Mathew J. Reeves, PhD

Stroke 2009; 40:114-1120

- 1922 pazienti con ictus acuto
- Le donne hanno una probabilità significativamente minore degli uomini di presentarsi con qualunque sintomo di allarme per stroke o sospetto stroke (87.5% vs 91.4%) o di riferire disturbi della deambulazione, dell'equilibrio o dizziness (9.5% vs 13.7%)
- Le donne hanno intervalli door to doctor del 11% e intervalli door to image del 15% **più lunghi** rispetto agli uomini
- Il maggiore ritardo nel workup delle donne con stroke rispetto agli uomini non è attribuibile a differenze nei sintomi di presentazione, sebbene una più lenta valutazione in ED possa avere delle implicazioni per l'eligibilità delle donne per un trattamento fibrinolitico sistemico e possa in parte spiegare perché i tassi di somministrazione di rtPA siano più bassi nelle donne

Differenze in stroke awareness e sintomi

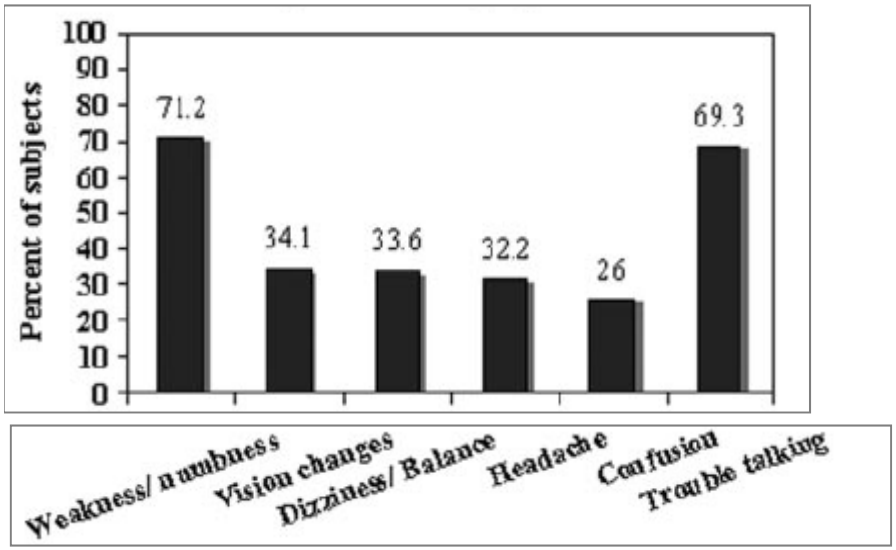
- Alcuni studi suggeriscono una maggiore consapevolezza dei sintomi dello stroke da parte delle donne **(Reeves, 2008)**

- Le donne tendono ad avere sentito parlare di t-PA maggiormente rispetto agli uomini ma sanno di meno che deve essere somministrato entro 3 ore **(Anderson, 2009)**

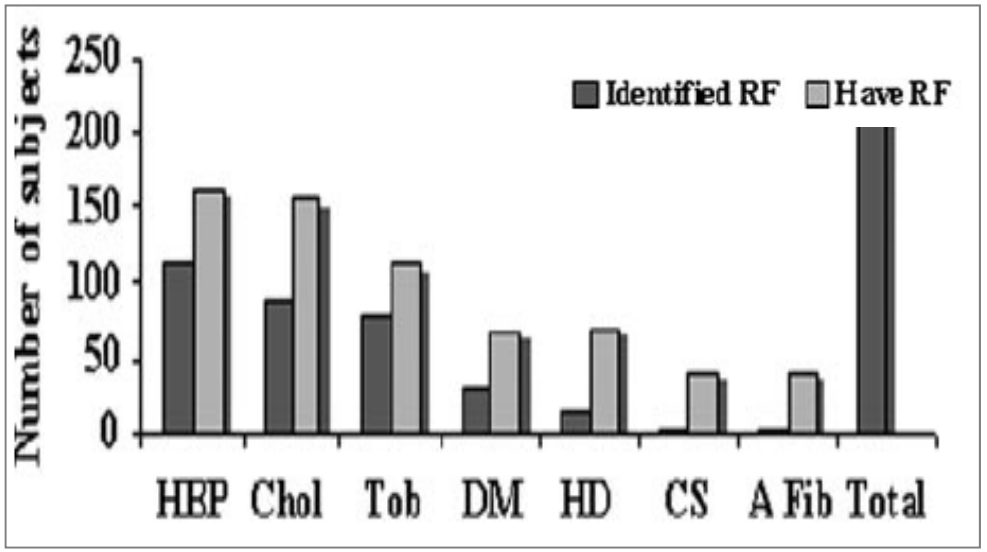
- Non ci sono differenze tra uomini e donne nei sintomi di presentazione dello stroke, le donne tendono solo ad avere sintomi prodromici non specifici **(Stuart-Shor, 2009)**

Perception of Risk and Knowledge of Risk Factors in Women at High Risk for Stroke

Jennifer L. Dearborn, BA; Louise D. McCullough, MD, PhD



Conoscenza dei sintomi di allarme



Identificazione di fattori di rischio personali

Le donne sono state più spesso incapaci di identificare le loro condizioni di salute come fattori di rischio per ictus

Stroke 2009; 40:1181-1186

Trombolisi: Utilizzo del t-PA

❖ Le donne sono sottoposte meno a terapia trombolitica con t-PA rispetto agli uomini (5% vs. 9%, p=0.001; adjusted OR 0.55, 0.38-0.80) **(Reid, 2008, studio di registro ospedaliero)**

Meta-analysis on sex difference in the use of t-PA: women had a 30% lower odds of receiving t-PA

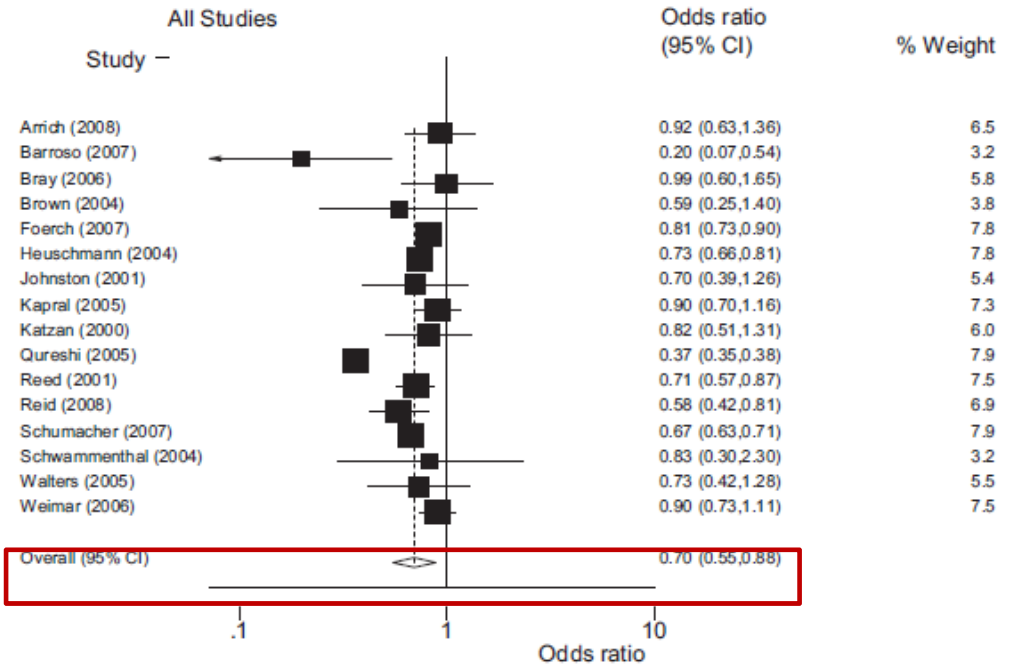


Figure 1. Forest plot of the unadjusted OR of IV–rt-PA use in women compared to men in all acute ischemic stroke admissions. Random effects model (n=16 studies). OR<1 indicates lower rt-PA use in women compared to men.

Reeves, 2009

Trombolisi: Cause di ridotto uso di t-PA nelle donne

❖ Le donne tendono ad avere sintomi aspecifici, sono più anziane, più gravi, con più comorbidità, meno indipendenti prima dello stroke, spesso vivono da sole; tutti fattori che possono causare un pre-hospital delay **(Reid, 2008; Stuart-Shor, 2009)**

❖ Il tempo di valutazione prima della terapia con t-PA è più lungo nelle donne che negli uomini **(Reid, 2008)**

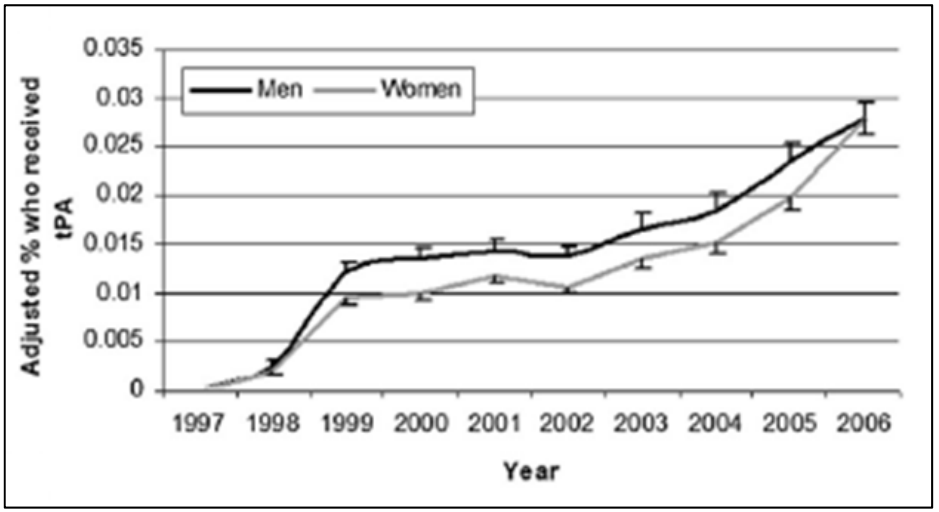
Table 3. Timing of Admission to the Emergency Department, CT Scan, and tPA Use in tPA-Treated Patients by Gender

	Female (n=48)	Male (n=87)	*P* Value
Onset to emergency department time	53 (45–67)	66 (40–107)	0.167
Emergency department to CT time	33 (18–50)	27 (16–40)	0.321
CT to treatment time*	73 (56–93)	56 (37–82)	0.014
Emergency department to treatment time†	107 (88–121)	94 (64–120)	0.039
Onset to treatment time	165 (153–178)	170 (140–184)	0.573

Data expressed as median (interquartile range).
*P=0.044 after adjustment for the 5 confounding variables: age, prestroke Oxford handicap score, stroke severity score, stroke subtype, AF (adjusted means 73 vs 62 minutes, analysis of covariance).
†P=0.107 after adjustment for the 5 confounding variables (adjusted means 115 vs 105 minutes).

Reid, 2008

❖ **Le differenze nell'uso di t-PA tra uomini e donne tendono a diminuire nel tempo**



Towfighi, 2013

Trombolisi: Cause di ridotto uso di t-PA nelle donne

❖ Survey di pazienti ambulatoriali con e senza storia di malattie cerebrovascolari in cui si prefigurava un ipotetico scenario per la trombolisi con t-PA e per l'intervento di TEA.

TABLE 2. Decision to Accept Thrombolysis or Carotidendarterectomy in Women and Men

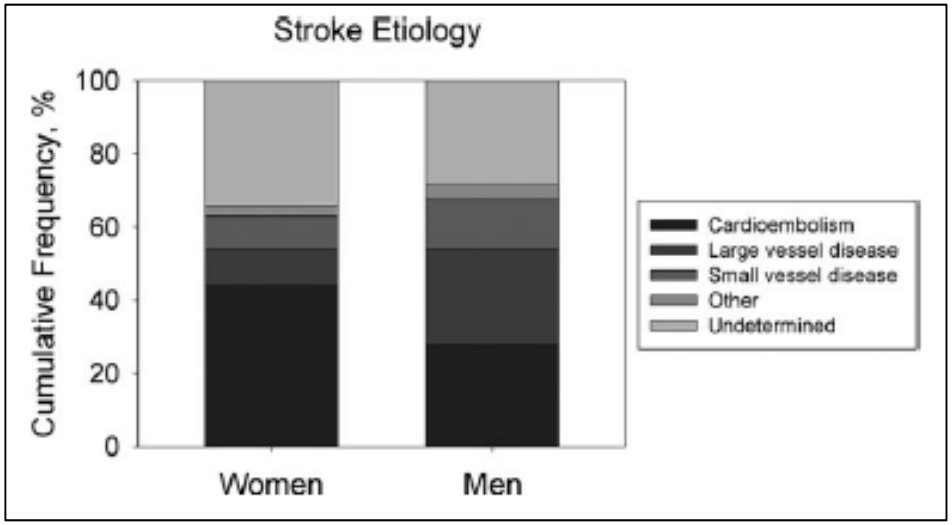
	Total	Women	Men	Adjusted OR (95% CI)*	*P*
n	586	263	323		
Choose to take thrombolysis, n (%)	486 (83)	207 (79)	279 (86)	0.58 (0.37–0.92)	0.020
Certain or very certain about decision, n (%)	424 (72)	177 (67)	247 (76)		0.014
Choose to have carotid endarterectomy, n (%)	488 (83)	216 (82)	272 (84)	0.94 (0.58–1.53)	0.808
Certain or very certain about decision, n (%)	464 (79)	195 (74)	269 (83)		0.007

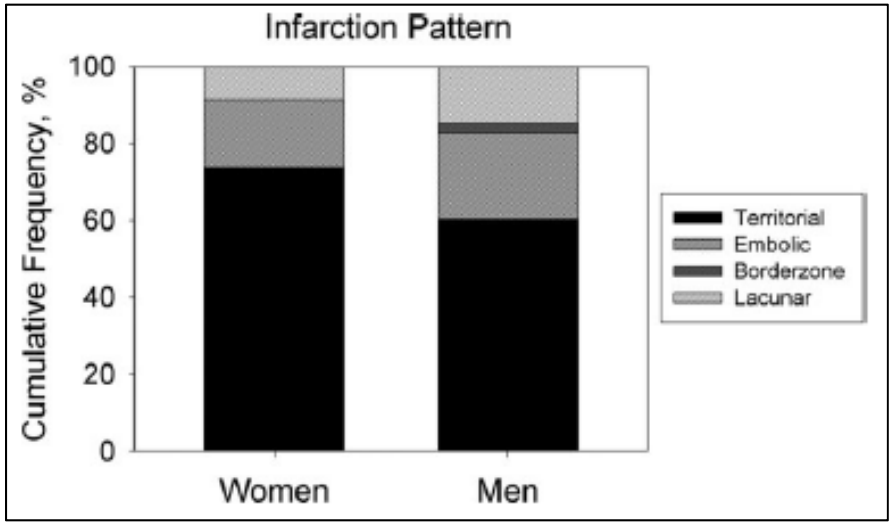
*Indicates odds ratio and 95% confidence interval for women versus men adjusted for age, marital status, living situation, education, comorbid illness, and depressed mood. R^2 for full model for tPA = 0.07 and R^2 for full model for carotid endarterectomy = 0.10.

❖ Le donne sembrano essere meno sicure delle loro decisioni (67% vs. 76%, p=0.014), temono di più i rischi e tendono a volere più informazioni che possano aiutarle a decidere.

Kapral, 2006

Trombolisi: Differenze per Eziologia e Stroke Patterns





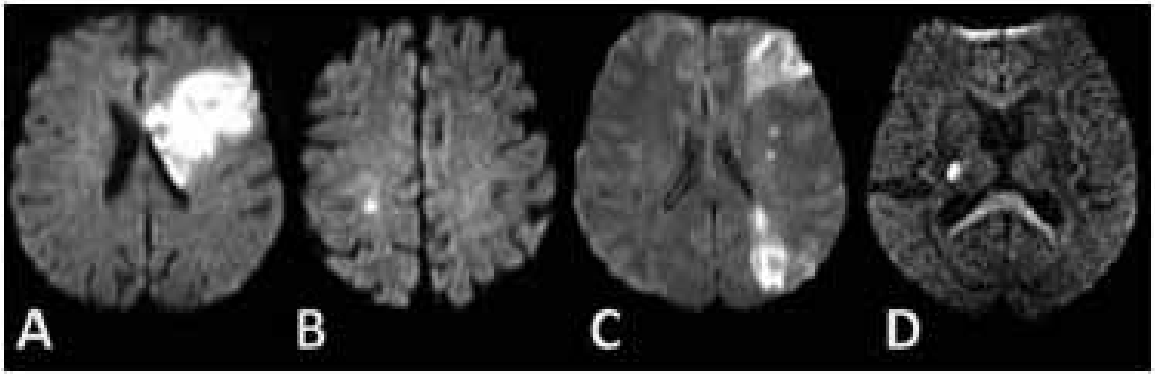
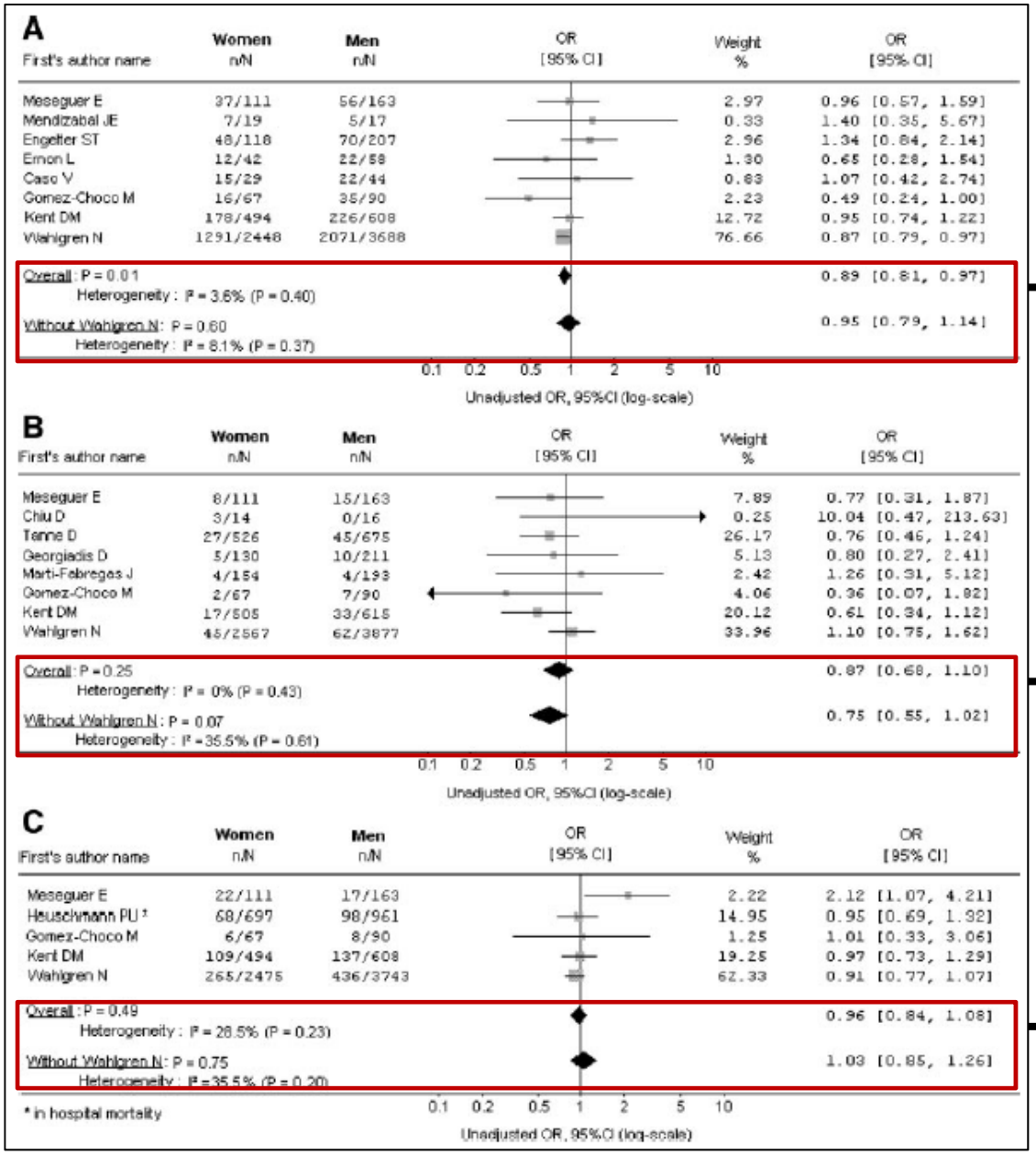


Figure 1. Examples of different ischemic stroke patterns: Territorial (A), embolic (B), borderzone (C), and lacunar (D) infarction.

Foster, 2009

Trombolisi: Outcome



90-day favorable outcome

OR 0.95 (95% CI 0.79-1.14); p=0.060

sICH

OR 0.95 (95% CI 0.79-1.14); p=0.25

Mortality

OR 0.96 (95% CI 0.84-1.08); p=0.49

Meseguer, 2009

Trombolisi: Outcome

Does Sex Influence the Response to Intravenous Thrombolysis in Ischemic Stroke?

Answers From Safe Implementation of Treatments in Stroke-International Stroke Thrombolysis Register

Svetlana Lorenzano, MD, PhD, MSc; Niaz Ahmed, MD, PhD; Anne Falcou, MD, PhD; Robert Mikulik, MD, PhD; Turgut Tatlisumak, MD, PhD; Christine Roffe, MD; Nils Wahlgren, MD, PhD; Danilo Toni, MD, PhD, FESO; on behalf of the SITS Investigators

Background and Purpose—Women are more likely to have a worse outcome after an acute stroke than men. Some studies have suggested that women also benefit less from intravenous thrombolysis after an acute ischemic stroke, but others found no sex differences in safety and efficacy. We aimed to evaluate differences in 3-month outcome between sexes in intravenous tissue-type plasminogen activator–treated patients registered in the Safe Implementation of Treatments in Stroke-International Stroke Thrombolysis Register.

Methods—A total of 45 079 patients treated with intravenous alteplase were recorded from 2002 to 2011. Main outcome measures were symptomatic intracerebral hemorrhage, functional independence (modified Rankin Scale score, 0–2), and mortality at 3 months.

Results—Among 25 777 (57.2%) men and 19 302 (42.8%) women, we found no difference in the rate of symptomatic intracerebral hemorrhage (P=0.13), a significantly higher likelihood of functional independence at 3 months in men (P<0.0001) and a higher mortality in women when compared with men (P<0.00001). After adjustment for confounding variables, we did not observe any difference between sexes in functional outcome (odds ratio, 1.03; 95% confidence interval, 0.97–1.09; P=0.39), whereas male sex was related to a higher risk of mortality (odds ratio, 1.19; 95% confidence interval, 1.10–1.29; P=0.00003) and symptomatic intracerebral hemorrhage (odds ratio, 1.25, 95% confidence interval, 1.04–1.51; P=0.02).

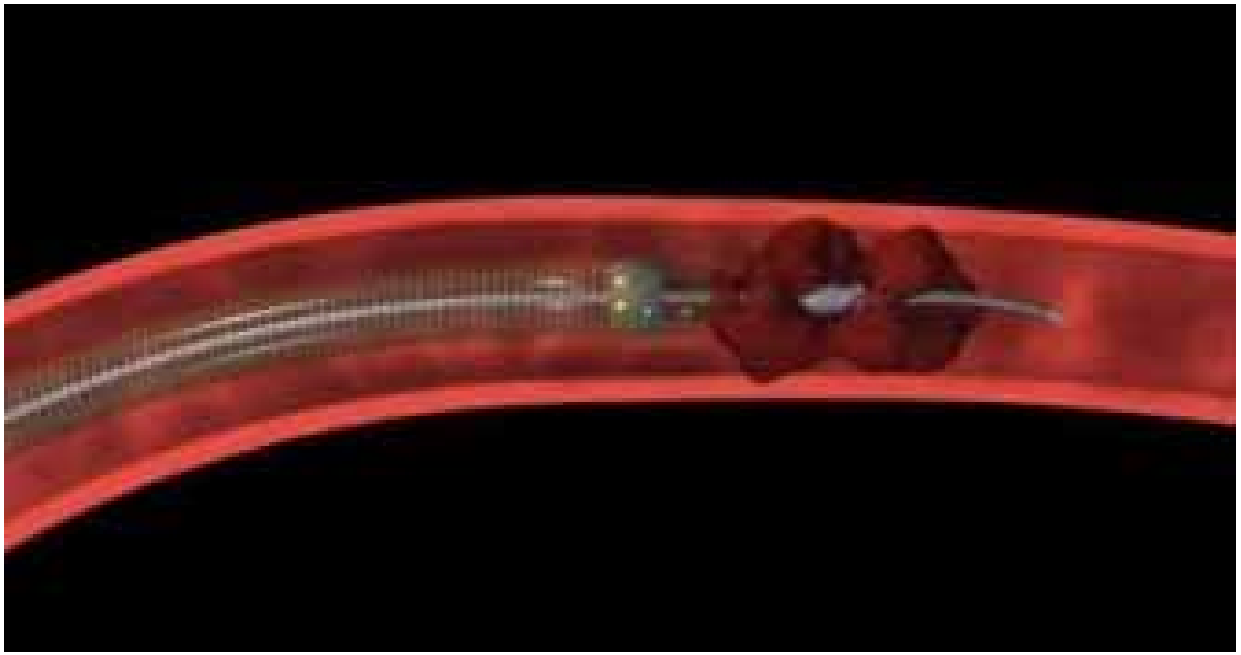
Conclusions—Data from Safe Implementation of Treatments in Stroke-International Stroke Thrombolysis Register suggest that intravenous thrombolysis may modify the observed survival and recovery advantage for men expected in the natural course of an ischemic stroke, with a possible larger beneficial treatment effect in women when compared with men. (***Stroke*. 2013;44:3401-3406.**)

Trombolisi: Ricanalizzazione

- IV t-PA: Le donne hanno un tasso di ricanalizzazione del 94% vs. il 59% nei maschi **(Savitz, 2005)**

- I.A. thrombolysis:
  - alcuni studi suggeriscono che nelle donne l'effetto del trattamento con IA pro-urokinase è due volte maggiore rispetto agli uomini **(Hill, 2006)**

  - Case series non mostrano alcuna differenza nel tasso di ricanalizzazione **(Shah, 2006)**



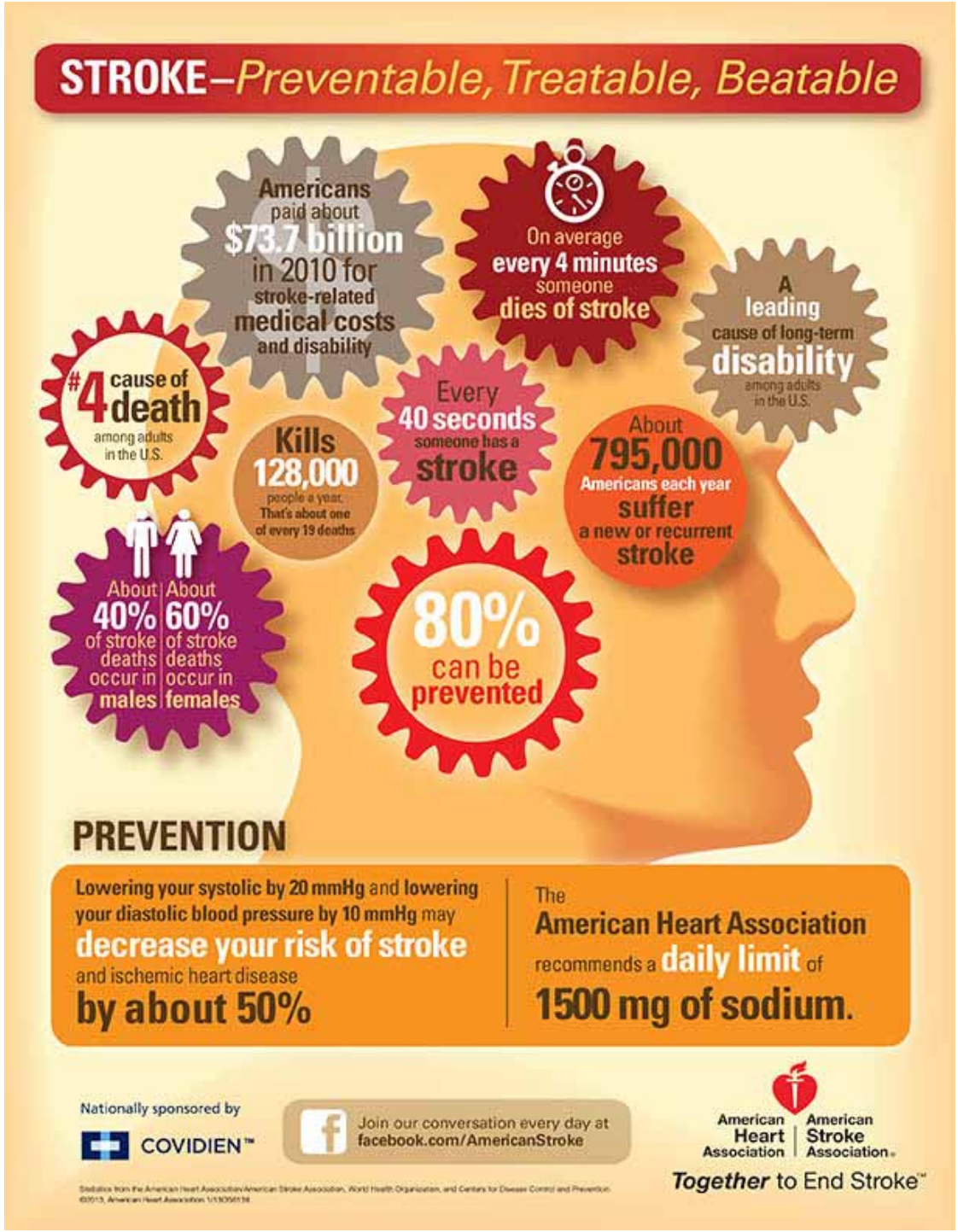
Metanalisi: Differenze gestione stroke ischemico acuto

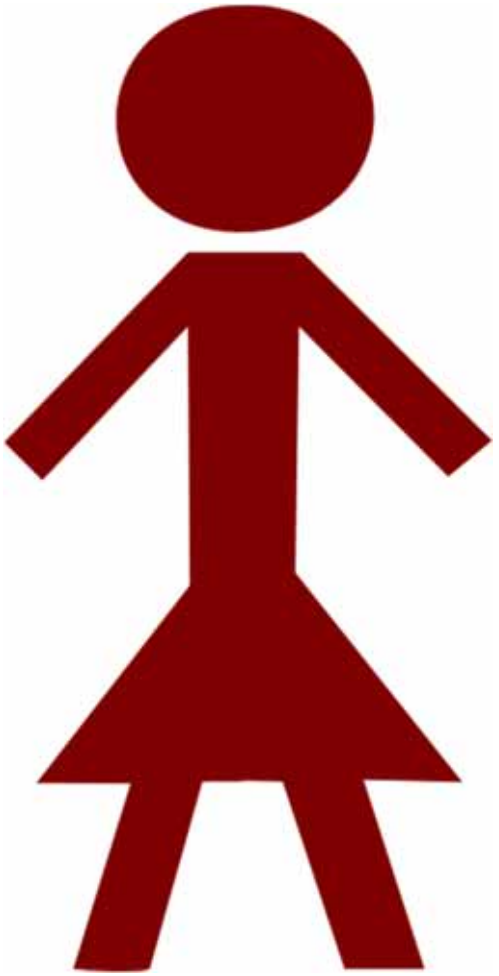
Table 2 Meta-analysis of the effect of several variables on the sex differences observed in ischemic stroke management

Variables	Number of studies	I^2% (IQ)	Women		Men		OR (95% CI)	*P*-value	OR removing large studies	*P*-value
			Event	Total	Event	Total				
Risk factors										
Alcohol *†	6	98 (97–99)	11,545	17,755	14,254	19,013	0.29 (0.16–0.51)	<0.001	–	
Cigarette smoking *†	27	97 (67–97)	40,369	250,913	57,132	227,879	0.51 (0.44–0.59)	<0.001	0.49 (0.4–0.61)	<0.001
Hyperlipidemia *†	19	84 (76–89)	76,623	224,690	75,462	201,926	0.9 (0.82–0.99)	0.033	0.9 (0.8–1.02)	0.09
Hypertension*†	33	93 (90–95)	214,728	309,163	187,858	288,504	1.15 (1.07–1.24)	<0.001	1.1 (1.07–1.13)	<0.001
Diabetes *†	36	80 (67–88)	82,657	314,521	81,428	293,084	0.88 (0.84–0.93)	<0.001	0.89 (0.8–0.98)	0.02
Atrial fibrillation *†	29	83 (77–88)	55,954	287,669	40,556	269,374	1.31 (1.24–1.4)	<0.001	1.31 (1.21–1.43)	<0.001
Myocardial infarction *†	11	95 (92–96)	50,412	216,671	60,025	193,904	0.76 (0.62–0.94)	0.013	0.76 (0.55–1.05)	0.99
Peripheral vascular disease†	8	94 (91–96)	2,202	33,967	2,245	32,806	0.76 (0.53–1.08)	0.121	–	
Stroke subtype and severity										
Transient cerebral ischemia†	6	74 (42–89)	2,513	9,881	2,052	9,455	1.1 (0.92–1.33)	0.305	–	
PACI†	7	74 (45–88)	2,265	6,116	2,302	6,514	1.03 (0.91–1.16)	0.671	–	
TACI†	7	81 (61–90)	3,447	14,119	3,171	15,777	1.16 (0.98–1.37)	0.084	–	
POCI*†	7	63 (16–84)	924	6,012	1,206	6,514	0.76 (0.66–0.87)	<0.001	–	
LACI†	11	54 (10–77)	3,612	16,101	4,551	18,423	0.96 (0.87–1.05)	0.363	–	
Cardioembolic *†	12	67 (39–82)	1,017	3,855	908	4,218	1.32 (1.08–1.62)	0.007	–	
Atherothrombotic *†	8	74 (48–87)	793	2,715	1,079	3,061	0.68 (0.51–0.91)	0.008	–	
Diagnosis tests										
Cranial MRI†	5	79 (49–91)	11,560	16,058	12,924	17,344	0.83 (0.67–1.03)	0.091	–	
Angiography†	6	68 (23–86)	996	6,165	1,117	6,123	0.85 (0.68–1.07)	0.159	–	
Ecocardiography†	7	78 (53–89)	3,492	7,680	3,772	7,802	0.86 (0.72–1.03)	0.109	–	
Carotid imaging†	3	75 (16–92)	1,816	2,499	2,063	2,688	0.76 (0.57–1.02)	0.068	–	
Holter†	2	81 (19–96)	459	2,838	497	3,210	1.01 (0.71–1.44)	0.952	–	
Lipids test†	4	91 (81–96)	2,735	6,982	2,949	6,685	0.91 (0.69–1.19)	0.488	–	
Acute-phase treatments and secondary prevention										
Antiplatelets *†	15	62 (33–78)	31,558	45,458	32,621	45,599	0.89 (0.84–0.94)	<0.001	–	
Warfarin *	6	40 (0–85)	1,972	8,654	2,101	8,141	0.93 (0.79–1.09)	0.373	–	
ACE-Inhibitors	2	20 (–)	1,340	5,298	1,605	4,817	0.78 (0.34–1.81)	0.563	–	
Statins *†	6	74 (41–89)	3,759	10,030	4,191	9,095	0.71 (0.6–0.84)	<0.001	–	
tPA*	7	45 (0–77)	9,573	232,889	10,596	213,772	0.8 (0.73–0.87)	<0.001	0.76 (0.65–0.87)	<0.001

ACE, angiotensin-converting enzyme.
**P*-value statistically significant.
†Consistency between studies.

Giralt et al, 2012





PREVENZIONE

Fattori di rischio

AHA/ASA Guideline

Guidelines for the Prevention of Stroke in Women

A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association

Comuni a Uomini e Donne	Specifici o più prevalenti nelle Donne
• Età • Ipertensione • Pregresso stroke/TIA • Diabete • Fumo di sigaretta • Pregresso evento cardiovascolare • Dislipidemia • Dieta/Inattività fisica • Sindrome metabolica	• Gravidanza/Preeclampsia • Contraccettivi orali • Terapia ormonale sostitutiva • Diabete gestazionale • Emicrania con aura • Fibrillazione atriale • Depressione e stress psico-sociale

Bushnell et al, Stroke 2014

Fattori di rischio specifici nelle donne

Gravidanza	• **Rischio di stroke più alto vs. non gravidanza (34 vs. 21/100,000)** • **Rischio più alto nel 3° trimestre e nel post-partum** • **Causa più frequente:** ipertensione/pre-eclampsia/eclampsia; aumento del doppio del rischio di stroke • **Prevenzione:** aspirina a basse dosi dalla 12° settimana fino al parto (calcio, se indicato) •**Trattamento:** labetalolo, nifedipina, se indicati (bilancio R/B per il feto); nel post-partum, misure di prevenzione per il rischio di stroke incluso trattamento fattori di rischio. • **Gap:** Studi di migliore qualità (prospettici, RCTs), identificazione biomarkers di rischio
Contraccettivi orali	• **Aumentano il rischio di stroke da 1.4 a 2 volte** (dal 3.4 tra 15-19 aa a 64.4/100,000 tra i 45-49 aa) • **Fattori che aumentano il rischio:** pregressi eventi tromboembolici, ipertensione, fumo, iperlipidemia, diabete e obesità, familiarità per CVD, biomarkers molecolari (alterazioni del vWF) • **Gap:** migliore caratterizzazione del rischio (D di età media), studi più grandi su biomarkers molecolari
Menopausa	• **Probabile aumento del rischio, soprattutto in caso di menopausa precoce** (RR 2.03, 1.16-3.56), ma ci sono poche evidenze
Th ormonale sostitutiva	• **Associata con un aumento del rischio di stroke** (HR da 1.1 a 1.4); non è raccomandata per la prevenzione primaria e secondaria • **Gap:** migliore definizione delle dimensioni del rischio e valutazione del rapporto R/B (tempo di inizio, dosaggio, tipo e via di somministrazione ottimali per garantire un beneficio a livello vascolare senza aumentare il rischio di stroke)

Bushnell et al, Stroke 2014

Fattori di rischio prevalenti nelle donne

Emicrania con aura	• **Aumento del rischio di stroke ischemico di 2.5 volte** (OR 2.51, 1.52-4.14), soprattutto per età <55 anni e frequenza elevata degli attacchi • Effetto sinergistico con fumo • Cautela nell'uso di CO, trattamento preventivo dell'emicrania, astensione dal fumo • **Gap:** Studi su approcci terapeutici mirati a ridurre il rischio di stroke
Depressione e stress psico-sociale	• **Associati a aumento del rischio di stroke dal 25% al 45% nelle D** (dati non conclusivi)

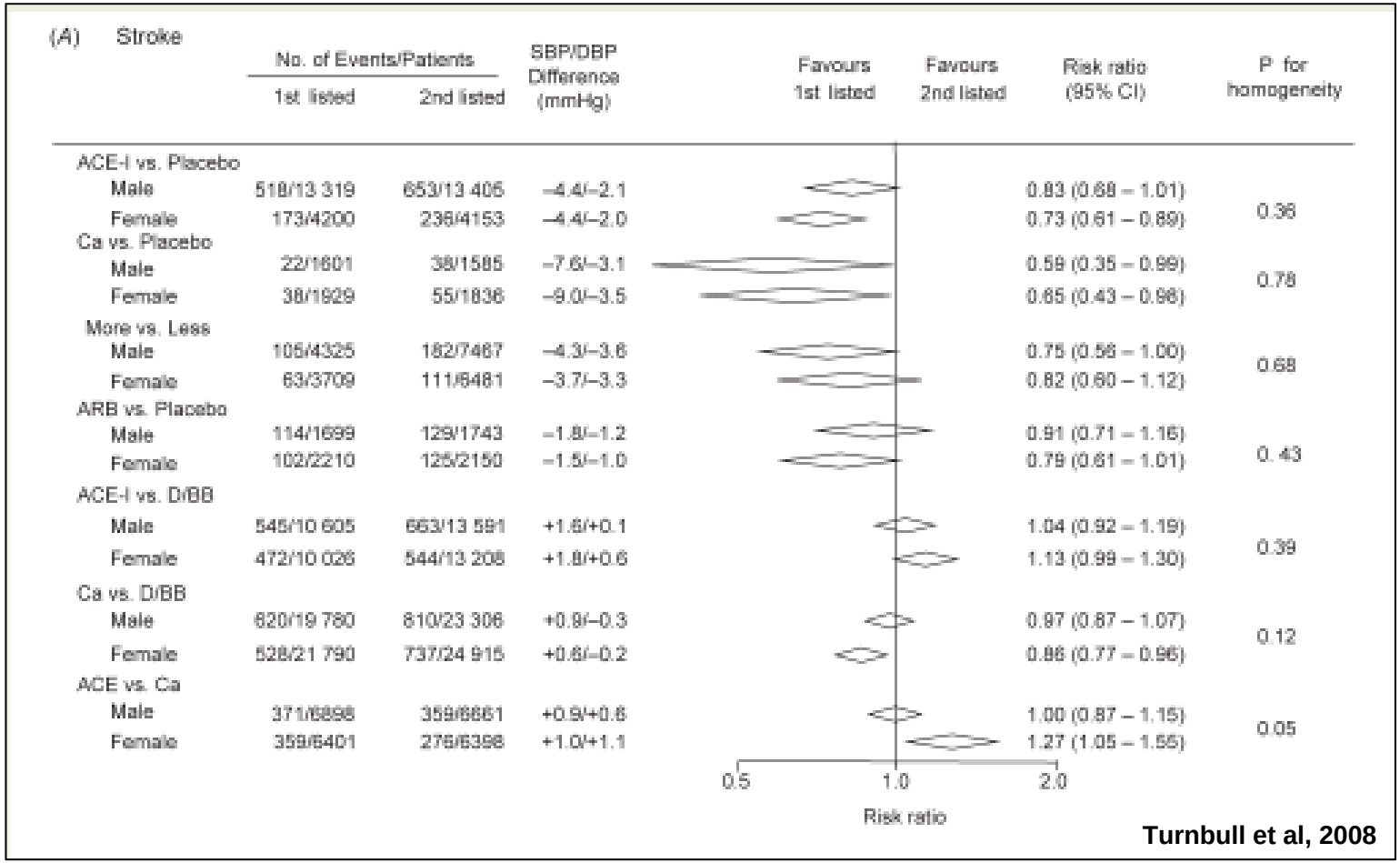
Bushnell et al, Stroke 2014

Fattori di rischio prevalenti nelle donne

Meta-analysis evaluating risk factor differences between men and women with IS					
	Number of studies	Women, n (% of total)	Men, n (% of total)	OR (95% CI)	p-value
Hypertension	33	214,728 (69)	187,858 (65)	1.15 (1.07-1.24)	<0.001
AF	29	55,954 (19)	40,556 (15)	1.31 (1.21-1.43)	<0.001
Hyperlipidemia	19	76,623 (34)	75,462 (37)	0.90 (0.82-80.99)	0.033

Giralt et al, 2008

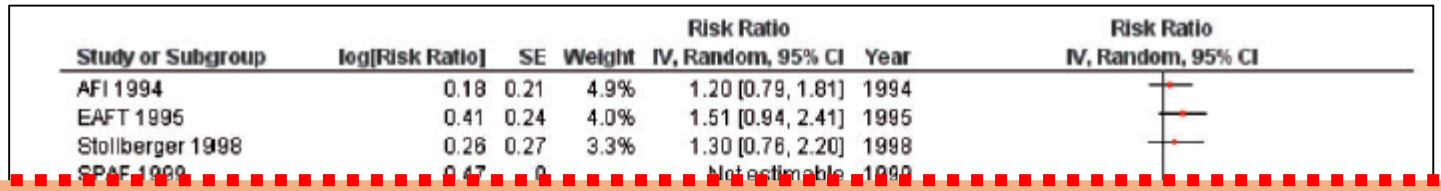
Ipertensione



Turnbull et al, 2008

In donne con età >55 anni, il trattamento dell'ipertensione è associato al 38% (95% CI 27%-47%) di riduzione del rischio di eventi CBV fatali e non fatali e al 25% (17%-33%) di eventi CV fatali e non fatali

Fibrillazione atriale



Study or Subgroup	log[Risk Ratio]	SE	Weight	Risk Ratio IV, Random, 95% CI	Year	Risk Ratio IV, Random, 95% CI
AFI 1994	0.18	0.21	4.9%	1.20 [0.79, 1.81]	1994	
EAFT 1995	0.41	0.24	4.0%	1.51 [0.94, 2.41]	1995	
Stollberger 1998	0.26	0.27	3.3%	1.30 [0.76, 2.20]	1998	
SPAF 1999	0.47	0		Not estimable	1999	

DOAC

- **Donne non ben rappresentate nei trials sui DOAC**
- **Nessuna differenza statisticamente significativa di efficacia tra uomini e donne**
- **Ma, analisi senza power necessario per rilevare una differenza di efficacia tra uomini e donne dei DOAC rispetto al warfarin**
- **Donne tendono ad avere in media una concentrazione di dabigatran più alta del 30% rispetto agli uomini, nessuna differenza per rivaroxaban e apixaban**
- **Dati mancanti o non conclusivi su donne anziane, con peso <50 kg, o insufficienza renale (CrCl <15 mL/min) o epatica grave**

- ❖ età >7
- ❖ De
- ❖ Il sesso femminile come predittore indipendente di stroke in pz con FA è stato incorporato nel CHA2DS2-VASc (estensione del CHADS2) attualmente utilizzato dall'ESC per la classificazione del rischio)
- ❖ Donne tendono a ricevere meno th con ACO rispetto agli uomini (88% vs. 90%, adjusted OR 0.93, 95% CI 0.88-0.98)

Wagstaff et al, 2014

Dislipidemia e statine

Relative Effects of Statin Therapy on Stroke and Cardiovascular Events in Men and Women

Secondary Analysis of the Stroke Prevention by Aggressive Reduction in Cholesterol Levels (SPARCL) Study

Larry B. Goldstein, MD; Pierre Amarenco, MD; Marian LaMonte, MD; Steven Gilbert, PhD; Michael Messig, PhD; Alfred Callahan, MD; Michael Hennerici, MD, PhD; Henrik Sillesen, MD, MSc; K. Michael A. Welch, MB, ChB; on behalf of the SPARCL Investigators

Background and Purpose—In SPARCL, treatment with atorvastatin 80 mg daily reduced stroke risk in patients with recent stroke or TIA and no known coronary heart disease by 16% versus placebo over 4.9 years of follow-up. The purpose of this secondary analysis was to determine whether men and women similarly benefited from randomization to statin treatment.

Methods—The effect of sex on treatment-related reductions in stroke and other cardiovascular outcomes were analyzed with Cox regression modeling testing for sex by treatment interactions.

Results—Women (n=1908) constituted 40% of the SPARCL study population. At baseline, men (n=2823) were younger (62.0±0.21versus 63.9±0.27 years), had lower systolic BPs (138.1±0.35 versus 139.5±0.47 mm Hg), higher diastolic BPs (82.2±0.20 versus 81.0±0.25 mm Hg), more frequently had a history of smoking (73% versus 38%), and had lower total cholesterol (207.0±0.54 versus 218.9±0.67 mg/dL) and LDL-C levels (132±0.45 versus 134±0.57 mg/dL) than women. Use of antithrombotics and antihypertensives were similar. After prespecified adjustment for region, entry event, time since event, and age, there were no sex by treatment interactions for the combined risk of nonfatal and fatal stroke (treatment Hazard Ratio, HR=0.84, 95% CI 0.68, 1.02 in men versus HR=0.84, 95% CI 0.63, 1.11 in women; treatment×sex interaction P=0.99), major cardiac events (HR=0.61, 95% CI 0.42, 0.87 in men versus HR=0.76, 95% CI 0.48, 1.21 in women; P=0.45), major cardiovascular events (HR=0.78, 95% CI 0.65, 0.93 in men versus HR=0.84, 95% CI 0.65, 1.07 in women; P=0.63), revascularization procedures (HR=0.50, 95% CI 0.37, 0.67 in men versus HR=0.76, 95% CI 0.46, 1.24 in women; P=0.17), or any CHD event (HR=0.54, 95% CI 0.41, 0.72 in men versus 0.67 95% CI 0.46, 0.98 in women; P=0.40).

Conclusion—Stroke and other cardiovascular events are similarly reduced with atorvastatin 80 mg/d in men and women with recent stroke or TIA. (***Stroke*. 2008;39:2444-2448.**)

Aspirina nelle donne: Metanalisi

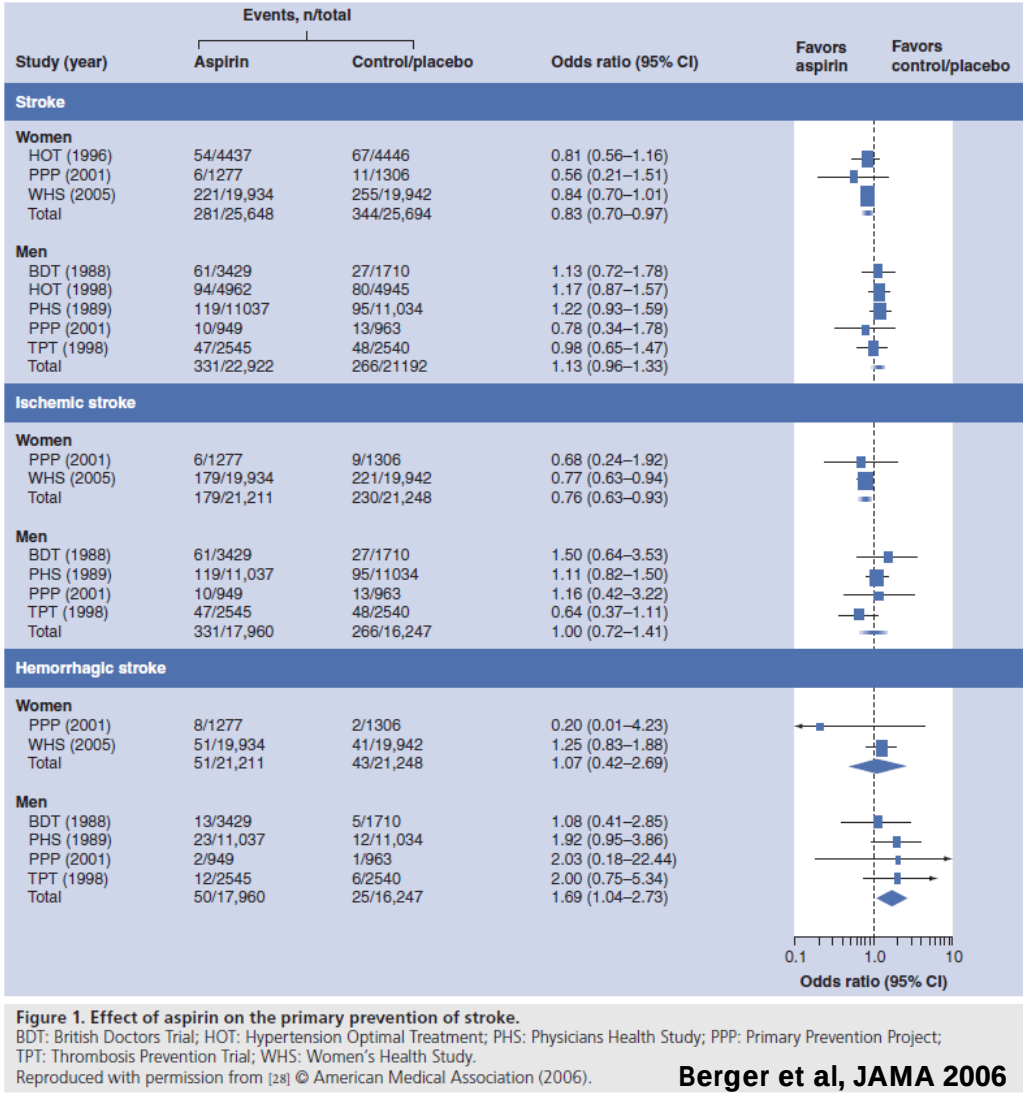


Figure 1. Effect of aspirin on the primary prevention of stroke.
BDT: British Doctors Trial; HOT: Hypertension Optimal Treatment; PHS: Physicians Health Study; PPP: Primary Prevention Project; TPT: Thrombosis Prevention Trial; WHS: Women's Health Study.
Reproduced with permission from [28] © American Medical Association (2006).

Berger et al, JAMA 2006

PRIMARIA

(Berger, JAMA 2006)

- Negli uomini, l'aspirina riduce eventi CV del 14% e MI del 32% con nessun beneficio significativo per lo stroke

- Nelle donne, l'aspirina riduce eventi CV del 12%, con un 17% di riduzione di stroke e 34% di riduzione di stroke ischemico, con nessun beneficio per MI o mortalità CV.

(Antithrombotic Trialists, Lancet 2009)

- Riduzione del rischio simile per uomini e donne nell'outcome composito (soltanto un trend positivo per le donne)

SECONDARIA

- 19% di riduzione del rischio senza differenze tra uomini e donne

Stenosi e placche carotidee

- Stenosi carotidea più frequente nelle donne a tutte le età vs. gli uomini

- ACI di più piccolo calibro **(Rothwell, 1996)** e una più bassa incidenza di stenosi gravi **(Poisson, 2010)** nelle donne

- Gli uomini tendono ad avere un'area totale della placca più grande rispetto alle donne

- Sia nelle donne che negli uomini, l'area della placca, al contrario della stenosi, è risultato un predittore indipendente di stroke, MI, o morte **(Iemolo, Stroke 2004)**

- Da analisi delle placche post-TEA: le donne hanno un minor contenuto ateromatoso e più bassi livelli di citochine pro-infiammatorie degli uomini **(Hellings, J Vasc Surg, 2005)**

Iemolo, 2004; Hellings, 2005

TEA vs. terapia medica per stenosi carotidee sintomatiche e non

- Le donne con stenosi carotidea sintomatica tendono a essere più anziane, con PAS più elevata, meno fumatrici, con meno frequente storia di CAD e DM
- Le donne sono meno sottoposte a TEA (36.4% vs. 53.6% negli uomini) (OR 0.85, 0.76-0.95, p=0.004)
- Tra le donne sottoposte a TEA il tempo alla chirurgia è più lungo rispetto agli uomini (35 vs. 18 gg, p=0.03)
- In analisi di sottogruppo, le donne con stenosi sintomatica o asintomatica dell'ACI tendono a ricevere meno beneficio dalla TEA rispetto agli uomini **(ECST, Lancet 1998; ACAS, JAMA 1995; ACST, Lancet 2004)**
- Il genere è un predittore indipendente di TEA (OR 0.89, 0.80-0.99; p=0.04)

Poisson et al, Stroke 2010

TEA vs. CAS

Influence of sex on outcomes of stenting versus endarterectomy: a subgroup analysis of the Carotid Revascularization Endarterectomy versus Stenting Trial (CREST)

Virginia J Howard, Helmi L Lutsep, Ariane Mackey, Bart M Demaerschalk, Albert D Sam II, Nicole R Gonzales, Alice J Sheffet, Jenifer H Voeks, James F Meschia, Thomas G Brott, for the CREST investigators

Lancet Neurol 2011; 10: 530–37

Summary

Background In the randomised Carotid Revascularization Endarterectomy versus Stenting Trial (CREST), the primary

- RCT su TEA vs. CAS per stenosi carotidea sintomatica e asintomatica
- Analisi prespecificata sulle differenze per sesso nei due gruppi
- 2502 pz randomizzati; 35% donne

TEA vs. CAS

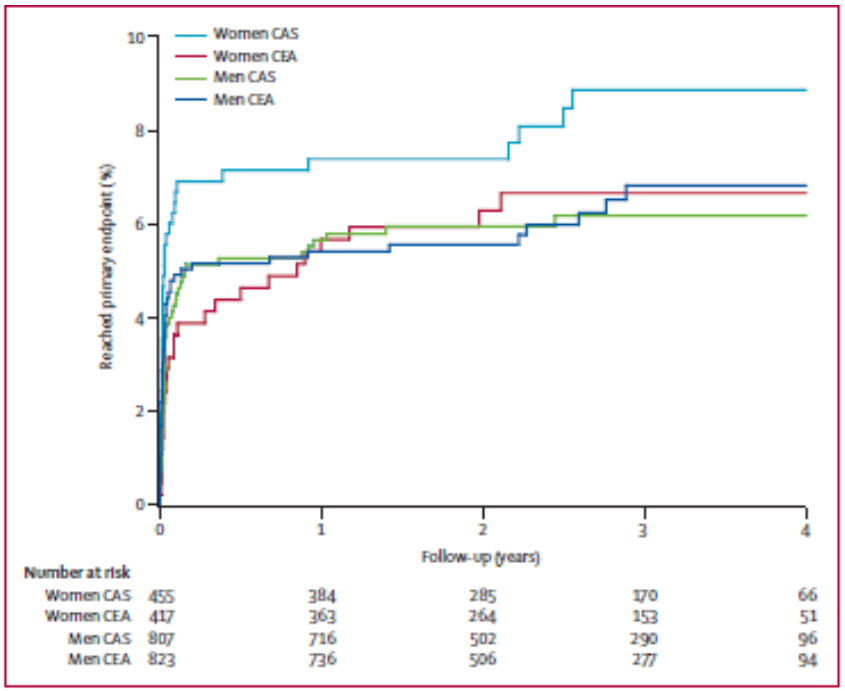


Figure: Kaplan-Meier curves of the primary endpoint
CAS=carotid artery stenting. CEA=carotid endarterectomy.

(Howard et al, Lancet 2011)

→

- Le donne sottoposte a CAS avevano il più alto rischio di stroke, MI, o morte nei 30 gg del periodo periprocedurale, soprattutto se presente una storia di pregresso stroke/TIA

- Le donne sintomatiche avevano un rischio aumentato di 2.33 volte di raggiungere l'endpoint primario (interaction p=0.04)

- Stenosi sintomatiche >70%: sia donne che uomini beneficiano della TEA ma le donne sono sottoposte a TEA più tardi.

- Stenosi 50-69%: le donne hanno un piccolo beneficio dalla TEA (ARR 8.9%), nelle categorie a rischio più elevate

- **Al momento non ci sono dati sufficienti, sono necessarie conferme da altri trials, quindi non ci sono raccomandazioni specifiche in base al sesso**

RIABILITAZIONE

Outcome a lungo termine e Riabilitazione

Revisione sistematica di outcomes a ≥12 mesi dallo stroke **(Gall, Stroke 2012)**:

- Le donne hanno un outcome funzionale peggiore ma le differenze con gli uomini si riducono dopo aggiustamento per fattori confondenti come: età, gravità dello stroke, depressione, attività funzionale pre-stroke, comorbidità.

- Possibili cause: in generale in soggetti senza stroke, le donne hanno una più bassa QOL ; depressione; uno status socio-economico più basso; disabilità preesistente; demenza; limitazioni nella funzionalità muscolare.

Riabilitazione **(Paolucci, Stroke 2006):**

- Gli uomini hanno un odds 3 volte più alto di essere indipendenti nel salire le scale rispetto alle donne

- Le donne hanno un odds di 1.7 volte più alto rispetto agli uomini di camminare con il bastone o con aiuto.

La popolazione femminile è sottorappresentata nei trial clinici e negli studi osservazionali sullo stroke pur rappresentando la categoria a maggior rischio

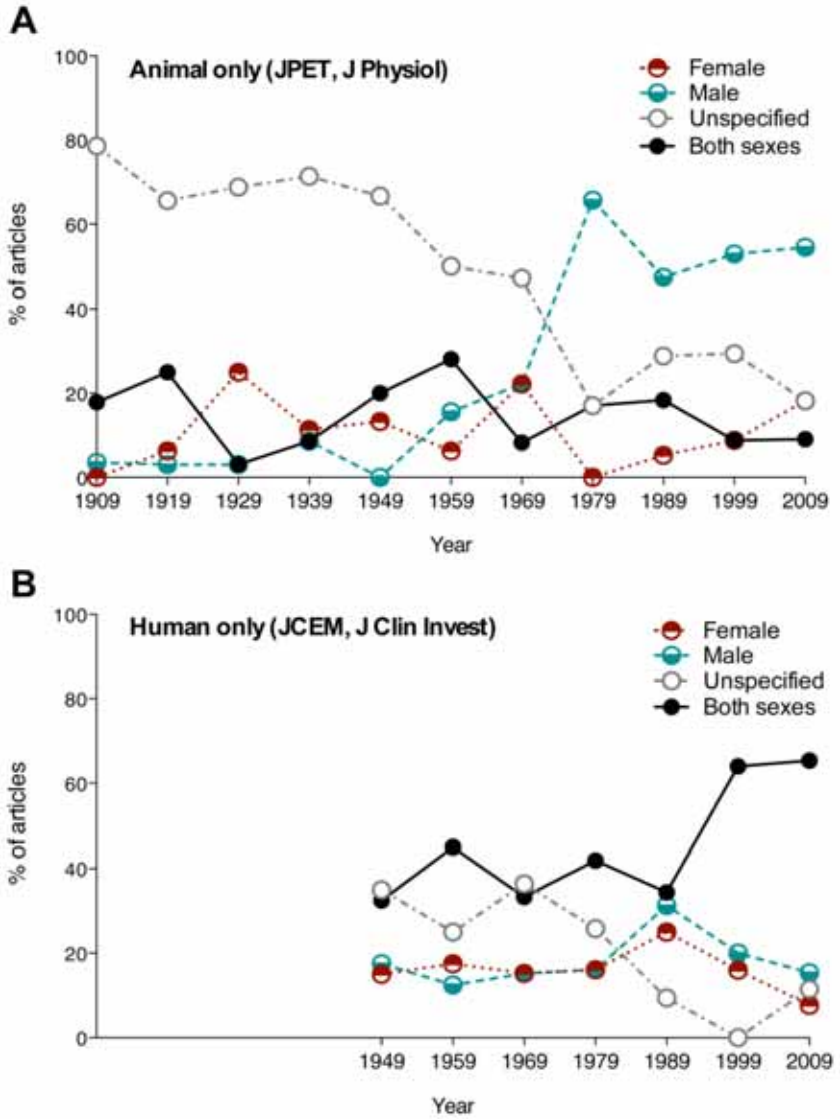
TRIALS CLINICI

PRATICA CLINICA

GENDER IMBALANCE

RICERCA PRECLINICA

Ricerca preclinica



RICERCA PRECLINICA IN GENERALE

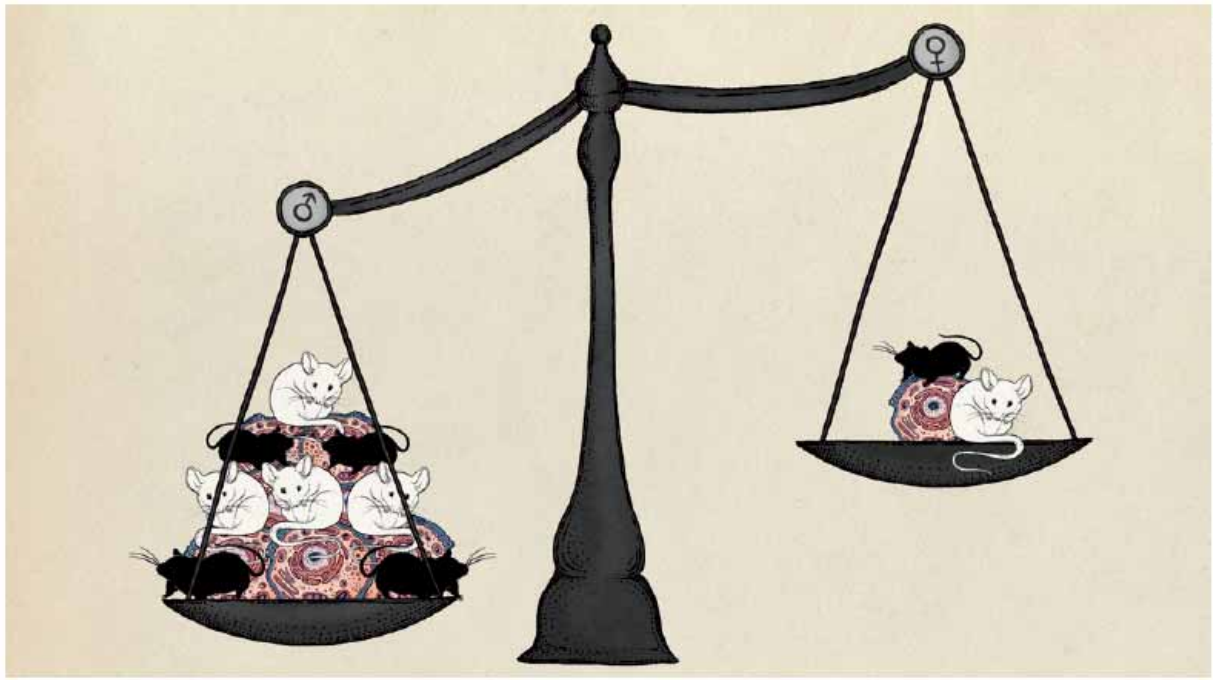
- Riduzione del numero di studi pubblicati in cui il sesso non è specificato
- Negli ultimi decenni, aumento del numero degli studi sugli animali maschi
- Neuroscienze: M/F ratio: 5.5:1

ICTUS SPERIMENTALE

- 65% degli studi pubblicati descrive ricerche su animali maschi
- 10% degli studi include entrambi i sessi
- 25% degli studi non specifica il sesso degli animali

Beery et al, Neurosci Biobehav Rev 2011

Ricerca preclinica



NIH to balance sex in cell and animal studies

Janine A. Clayton and **Francis S. Collins** unveil policies to ensure that preclinical research funded by the US National Institutes of Health considers females and males.

Nature, 2014

Guidelines for the Review of Inclusion on the Basis of Sex/Gender, Race, Ethnicity, and Age in Clinical Research

As required by federal law (42 USC 289a-2) and NIH policy, applications that propose to involve human subjects must address:

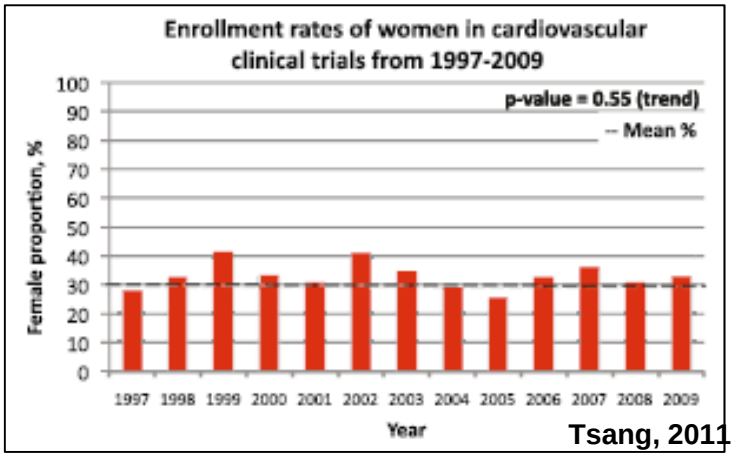
1. the inclusion of women, minorities, and children in the proposed research
2. for an NIH-defined Phase III clinical trial, plans for the valid design and analysis of group differences on the basis of sex/gender, race, and/or ethnicity as appropriate for the scientific goals of the study.

Background Information

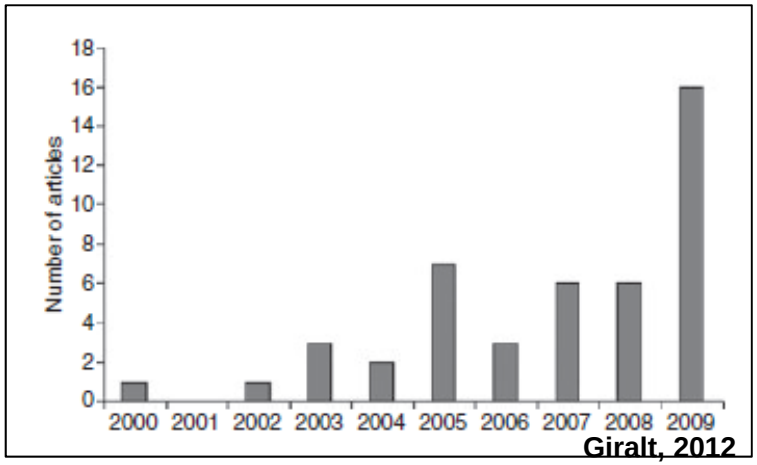
- Federal law requires that women and minorities be included in all clinical research studies, as appropriate for the scientific goals of the work proposed.
- Additionally, for NIH-defined Phase III clinical trials, applicants must also consider whether the study can be expected to identify potential differences by sex/gender, race, and/or ethnicity and, unless there is clear evidence that such differences are unlikely to be seen, they must include plans describing how potential group differences will be evaluated. Further information about valid analysis is available here.

Partecipazione ai trials clinici

- Nel 1993 call to action da parte dell'NIH per la ricerca clinica ma senza sostanziale effetto
- Le donne non sono adeguatamente rappresentate nei trial clinici, questo limita la generalizzazione dei risultati nei due sessi
- A tutt'oggi il rate di enrollment complessivo delle donne nei trials resta intorno al 25%
- Nei trials neurologici si arriva al 45% ma a solo il 24% nei trials farmacologici
- La % di donne arruolate nei trials sulle stenosi carotidee e sui farmaci antiaggreganti è in media del 34% che è al di sotto dei tassi di prevalenza dello stroke per sesso.
- Le classiche analisi di sottogruppo sono suscettibili di Type II error
- Non è chiaro quindi se l'attuale pratica medica evidence-based è pienamente applicabile alle donne e rappresentare quindi la metà delle vittime dello stroke



Tsang, 2011



Giralt, 2012

IN ITALIA ....

WOMEN STROKE association

ISO
ITALIAN STROKE ORGANIZATION

Selezionare un'area : Medicina di Genere SUBMIT

Gruppo : Medicina di Genere
Coordinatore Prof.ssa Rosanna Abbate

Paola Santalucia	Milano (Vice Coordinatore)
Monica Acciaresi	Perugia
Sabrina Anticoli	Roma
Valeria Caso	Perugia
Elisabetta Giugni	Roma
Francesca Romana Pezzella	Roma
Simona Sacco	L`Aquila
Maria Sessa	Milano
Rita Vadalà	Roma
Maria Luisa Zedde	Reggio Emilia
Marco Stramba-Badiale	Milano
Maurizio Paciaroni	Perugia
Alessandro Pezzini	Brescia

forward 20
1997/2017

SPREAD
Stroke Prevention And Educational Awareness Diffusion

Women Stroke Association statement on stroke

Francesca Romana Pezzella[1]*, Paola Santalucia[2], Rita Vadalà[3], Elisabetta Giugni[4], Maria Luisa Zedde[5], Maria Sessa[6], Sabrina Anticoli[1], and Valeria Caso[7] on behalf of the Women Stroke Association

We describe the current and future objectives of the Women Stroke Association, a nonprofit multidisciplinary organization promoting research awareness on medical, psychological, and social issues concerning women affected by cerebrocardiovascular disease. In this paper, we deal with only cerebrovascular disease, whereas cardiovascular disorders will be addressed in a future paper. Gender differences in the clinical presentation of cerebrovascular diseases have been repeatedly suggested, and some treatment options may not be as effective and safe in men and women. For many years, women have either been underrepresented or excluded from randomized clinical trials, and the majority of therapeutic research has been carried on predominantly male populations. Furthermore, gender differences have been shown to contribute to different responses to cerebrovascular drugs in women when compared with men, regarding pharmacokinetics, pharmacodynamics, and physiology. In this statement, we discuss main research fields relevant to Women Stroke Association's mission and commitment, highlighting opportunities and critical from the women's health perspective. Future directions and goals of the Women Stroke Association arise from these considerations and represent the association's commitment to combating stroke.

Key words: epidemiology, gender medicine, methodology, risk factors, stroke, therapy

cerebrovascular (CVD) and cardiovascular disease (CAD) in women. Here, we will address only CVD, whereas CAD will be addressed in a future paper. We have founded WSA for the following reason: women are often underrepresented or excluded from clinical studies on CVD, thereby study results tend to be biased. Possible reasons might be that women are generally older than men at stroke onset, live alone, and have less access to caregivers. In addition, women are more frequently afflicted by depression before and after stroke contributing to their poor outcome compared with men (1). The WSA was founded in 2010 and, to date, has published papers in several international peer-reviewed journals (2–5).

Epidemiology of stroke in women

Population-based studies have shown that postmenopausal women, especially after >65 years of age, have a higher risk of stroke than men (6). A recent review has reported a 33% higher stroke incidence in men, compared with 41% higher stroke preva-

ed to have

REVIEW

Giornale Italiano dell'Arteriosclerosi 2015; 6 (3): XX-XX

POSITION PAPER ICTUS E GENERE

Position Paper Stroke and Gender

MARIALUISA ZEDDE[1], FRANCESCA ROMANA PEZZELLA[2], SABRINA ANTICOLI[2], SIMONA SACCO[3], ELISABETTA GIUGNI[4], MONICA ACCIARESI[5], RITA VADALÀ[6], MARIA SESSA[7], VALERIA CASO[5], ROSANNA ABBATE[8], PAOLA SANTALUCIA[9, 10]

SUMMARY

Cerebrovascular diseases have a high prevalence in the female gender. Risk factors, symptoms and stroke outcomes are very different between sexes and a major cause of mortality and morbidity in women. Many aspects of the relationship between cerebrovascular disease and female gender have been overlooked. Indeed, vascular risk factors present significant gender differences and specificities. Stroke prevalence is higher in women than in men, the symptoms are more often non-specific in women, the time interval between symptoms onset and both the presentation to hospital and the beginning of treatment is longer in women than in men. Women have an increased thromboembolic risk and an overall worse outcome in comparison with men. Despite this, women benefit less by an adequate care than men, especially in secondary prevention. It is important that the scientific community pays more attention to the issue of gender-difference in cerebrovascular disease in order to improve stroke prevention and limit its burden in both sexes.

Keywords: *stroke, gender, women, cerebrovascular risk, pregnancy, migraine.*

IN EUROPA ....

WISE

Women Initiative for Stroke in Europe

ESO

EUROPEAN STROKE ORGANISATION

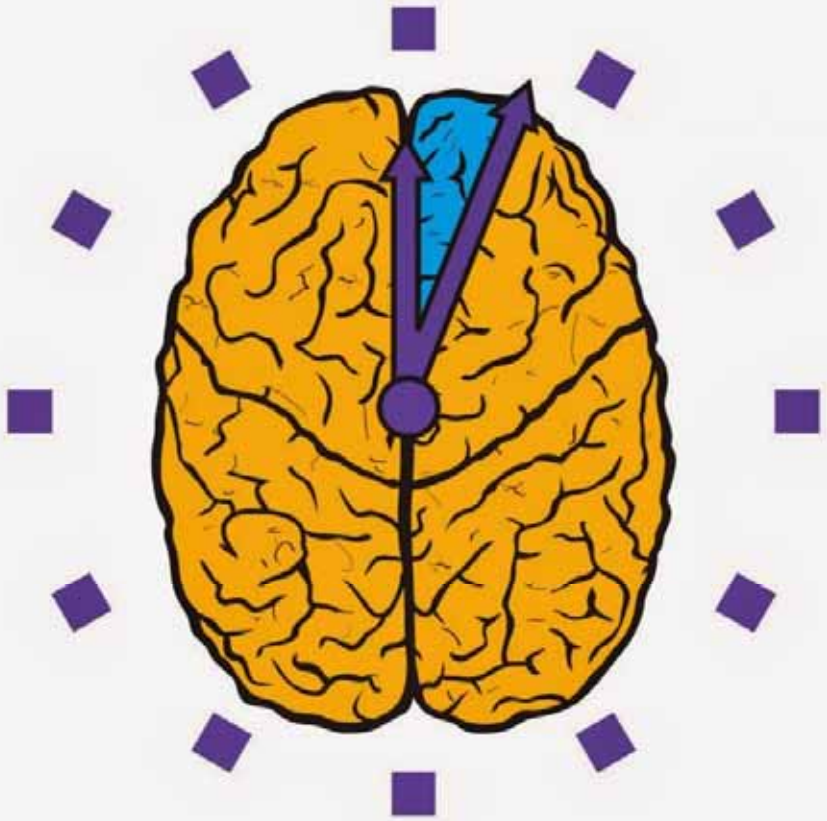
WISE (Women Initiative for Stroke in Europe)

WISE – Women Initiative for Stroke in Europe ESO working Group was formally constituted in 2014.

Sex and gender differences in cardio-cerebrovascular disease represent a main scientific and social issue that deserve a dedicated attention by the scientific community. WISE in ESO could represent the ideal European context to join efforts and scientific initiatives to face this important topic. Europe is a multifaceted country, the known diversities in health-care systems, economical and social settings, and multi-ethnicity, all might affect the cardiovascular risk profile and cerebrovascular disease, translating potentially in differences in terms of outcome and social aspects gender-related, in this context,

STROKE in WOMEN

PUBLIC CAMPAIGNS



Stroke strikes every

3½ minutes in the UK.

#strokemonth

Stroke association

1 in 5 women

and

1 in 6 men

will have a stroke by the age of 75.

World Stroke Campaign

World Stroke Organization

Thank You for your Support in the Global Fight Against Stroke

Save a Life – Know the Warning Signs
Act Now! Spot a Stroke
F A S T
Get the Facts Here...

World Stroke Campaign 2014 - 2016

日本の Deutsch Français Español

I am woman: Stroke affects me

The World Stroke Organization (WSO), its members and partners worldwide launched a global campaign around women and stroke on World Stroke Day 2014 - **Wednesday, 29 October 2014**. We thank you for your support in making this another successful campaign. Please visit this website regularly and contact your local WSO member stroke organization - ask them how you can continue to help. For a list of WSO member organizations, please visit ...

Why Women and Stroke? Here are some quick facts:

Women have a higher stroke mortality rate than men. Six in ten strokes deaths occur in women, largely due to stroke occurring later in life in women, when strokes are more dangerous.

World Stroke Campaign

"I am Woman"

Emma

Stroke Survivor

"Stroke does happen to young people – it needs to be spoken about."

Stroke affects me.

World Stroke Campaign

"I am Woman"

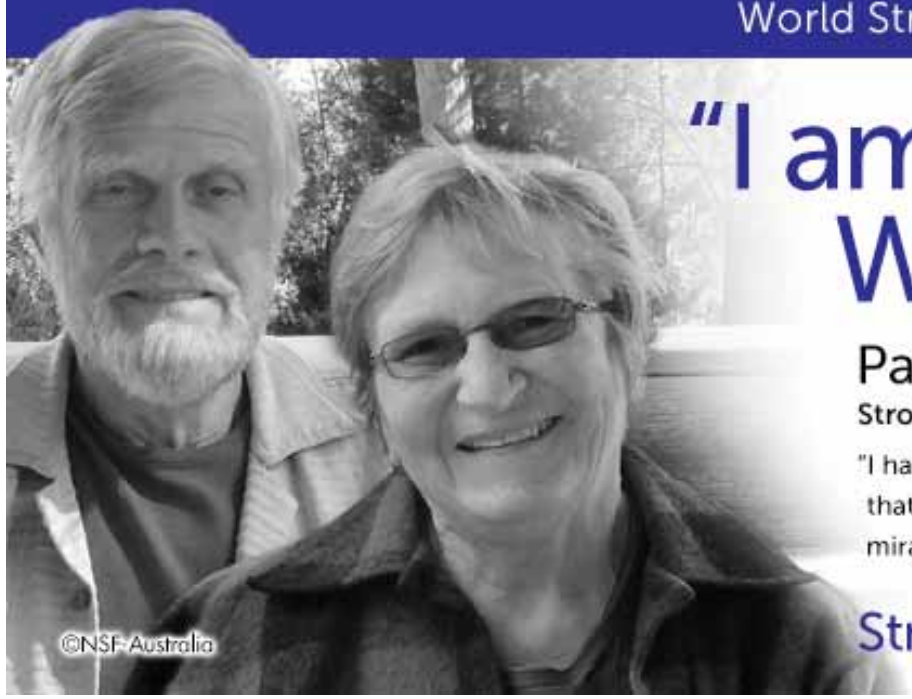
Amy

Stroke Survivor

"As a young stroke survivor, my stroke left me determined to change the way others view stroke and its survivorship to enrich our lives"

Stroke affects me.

World Stroke Campaign



"I am Woman"

Patsy

Stroke Survivor

"I had to learn to walk again, but given that I wasn't expected to survive - it's a miracle I'm alive - which is very exciting."

Stroke affects me.

World Stroke Campaign

"I am Woman"

Jen & Jackie

Stroke Survivors

"I was young and healthy. It just happened all of a sudden with no warning." Jen

"Time with my 8-year-old granddaughter. For that, and much more I am grateful." Jackie

Stroke affects me.

World Stroke Campaign

- **Many of the major stroke risk factors occur more frequently in women or are sex-specific to women.** As a result, one in five women is at risk for stroke, as opposed to one in six men. Women over the age of 85 have the highest stroke rates of any other demographic.
- **Women have elevated stroke risk factors.** Some stroke risk factors such as diabetes, migraines with visual aura, atrial fibrillation, depression, and hypertension occur more frequently in women, and many more stroke risk factors are sex-specific to women, such as pregnancy, preeclampsia, use of birth control pills (especially in the case of women with high blood pressure), hormone replacement after menopause, hormone changes, and gestational diabetes. As a result, one in five women is at risk for stroke, as opposed to one in six men.
- **Women tend to have worse stroke outcomes than men.** They experience a more severe decline in cognitive function, an increased likelihood of institutionalization, and a higher risk of post-stroke depression. Women with stroke do not receive care that is comparably suitable to their health needs compared with men with stroke.
- **Women and stroke subtypes.** Some stroke subtypes, such as cerebral vein thrombosis and subarachnoid hemorrhage, are much more common in women.
- **Women and depression.** Women tend to have worse stroke outcomes than men as indicated by more severe decline in cognitive function, an increased likelihood of institutionalization, and a higher risk of post-stroke depression.
- **Women as caregivers.** The burden of care giving falls predominantly on women, an important issue to women and stroke, as research shows that women caregivers of spouses who have suffered trauma such as stroke tend to report a decrease in mental health after becoming caregivers. Furthermore, women with depression have a higher stroke risk.
- **Women experience a decrease in mental health after becoming caregivers.** Female caregivers of spouses who have suffered trauma such as stroke tend to report lower quality of mental health, such as increased depression.
- **Isolation and loneliness.** Women are more likely to be living alone and widowed before stroke; they are more often institutionalized after stroke and have poorer recovery from stroke than men.
- **Women with stroke do not receive comparable care to men with stroke.** Women tend to be treated less than men, despite responding equally well to treatments.
- **There is a gender gap in stroke education.** Despite the fact that women tend to be more aware of be more aware of the stroke signs and treatments than men, women delay going to the hospital after stroke onset and are less likely to be aware of the 4.5 hour window for stroke treatment.

World Stroke Campaign

"I am Woman"

Stroke affects me, Stroke affects everyone.

World Stroke Organization

- 1 in 5 women will have a stroke in their lifetime, compared to 1 in 6 men.
- 60% of people who die from stroke will be women.
- Around 50% of all strokes could be prevented.

What Reduces Women's stroke risk

- Eating healthily
- Staying active
- Controlling your weight
- Stopping smoking
- Moderating your alcohol consumption
- Reducing stress
- Getting a health check - so you and your health professional can assess your risk.

What Increases Women's stroke risk

- Pregnancy and preeclampsia
- Birth control pills
- Hormone replacement therapy (HRT)
- Atrial Fibrillation

Talk to your health professional about stroke

- High blood pressure
- Obesity
- Depression
- Atrial fibrillation (irregular heartbeat)
- Diabetes
- Transient ischemic attack (mini-stroke)

All increase your risk of stroke. If you are diagnosed with any of these conditions, talk to you health professional about prevention steps and treatments that can help you reduce your risk.

Know the signs

Knowing the signs of stroke and acting quickly can save lives and improve recovery.

Face-is the face drooping to one side?

Arms-is one arm weak or numb?

Speech-is speech slurred or confused?

Time-get emergency help as quickly as possible.

Find out more about women and stroke at: www.worldstrokecampaign.org

UNDERSTANDING
STROKE RISK IN WOMEN

ARE YOU AT RISK?

In the United States, **1 in 5** women will have a stroke.

Each year, stroke kills **2x as many** women as breast cancer.

Not all women are equally affected by stroke.

African-American women are more likely than other groups of women to have a stroke, mainly because of having high blood pressure, being overweight or obese, and having diabetes.

Women have UNIQUE RISK FACTORS for stroke.

- Stroke risk increases with **age**, and women often live longer than men. This is largely why **6 in 10** people who die from stroke are women.
- Stroke risk doubles in women at **midlife** and roughly doubles during the 10 years after **menopause.**
- Stroke risk increases during **pregnancy.**
- Taking **birth control pills** may double stroke risk, especially in women with high blood pressure.

All women can take 5 steps to reduce their risk for high blood pressure.

1. Know your family history.
2. Be physically active.
3. Eat a healthy diet that's low in sodium.
4. Limit alcohol intake.
5. Avoid smoking.

High blood pressure is a major risk factor for stroke.

1 in 3 women has high blood pressure.

Check your blood pressure frequently. If you have high blood pressure, work with your doctor to keep it under control.

TALK TO YOUR DOCTOR ABOUT REDUCING YOUR RISK OF STROKE

When a stroke happens, every minute counts. If you think you or someone you know may be having a stroke, **act F.A.S.T.** and do the following simple test:

F—Face Ask the person to smile. Does one side of the face droop?

A—Arms Ask the person to raise both arms. Does one arm drift downward?

S—Speech Ask the person to repeat a simple phrase. Is their speech slurred or strange?

T—Time If you observe any of these signs, call 911 immediately.

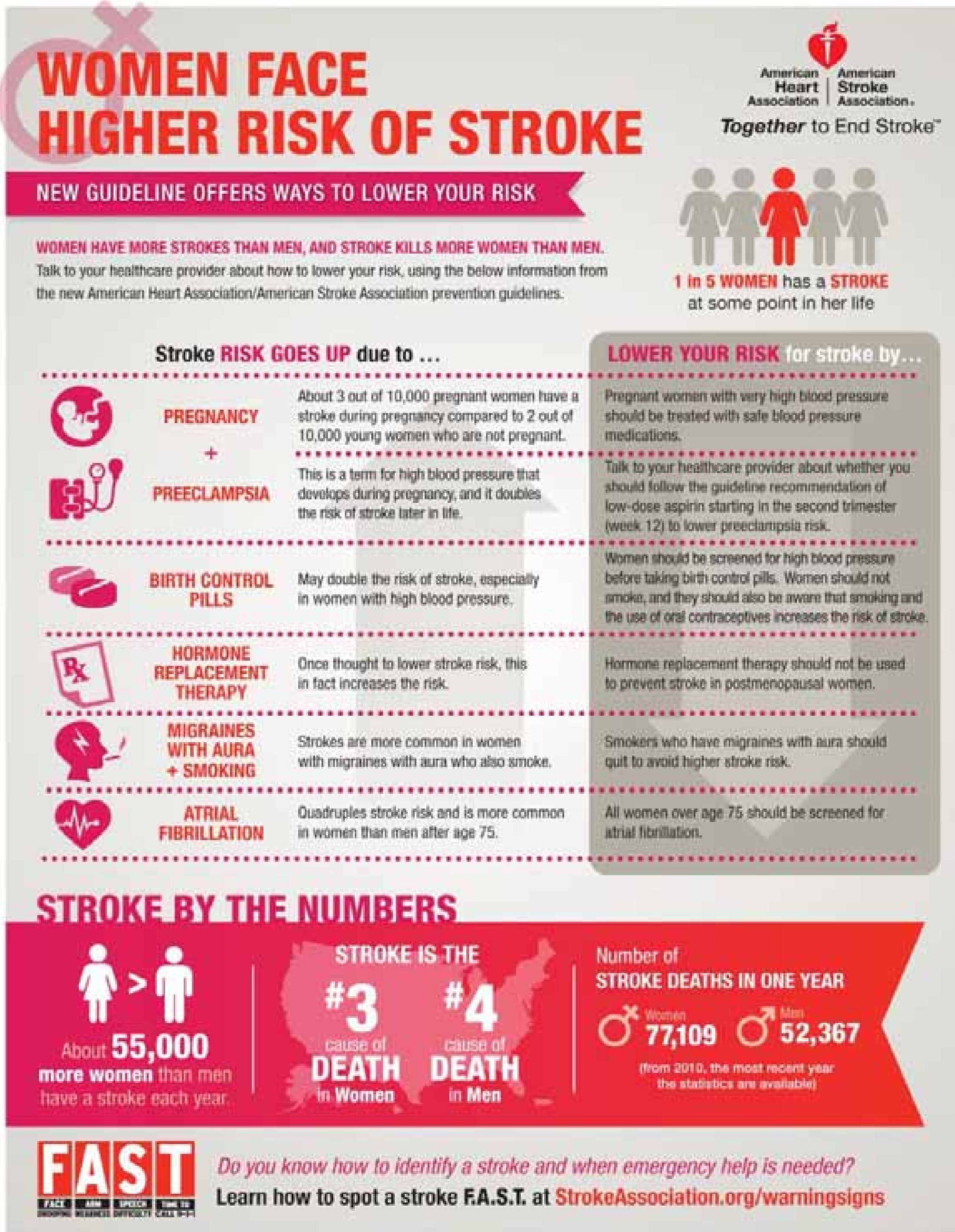
Million Hearts®

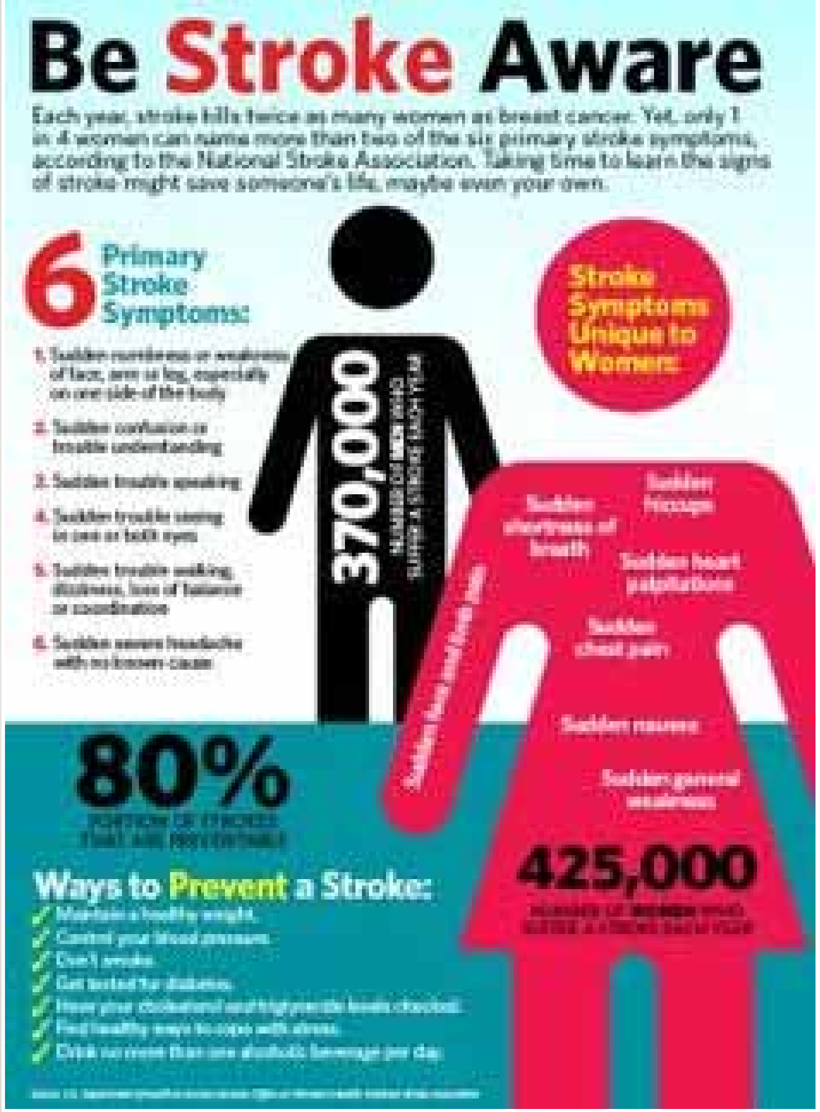
Learn more by visiting www.cdc.gov/stroke.

National Center for Chronic Disease Prevention and Health Promotion
Division for Heart Disease and Stroke Prevention

CDC

Seshadri S, Beiser A, Kelly-Hayes M, Kase CS, Au R, Kannel WB, et al. The lifetime risk of stroke: estimates from the Framingham Study. Stroke. 2006;37:345–50. (Data also available on the American Heart Association website. Retrieved from [illegible]. Accessed March [illegible], 2015.)
Bushnell C, McCullough LD, Awad IA, Chireau MV, Fedder WN, Furie KL, et al. Guidelines for the prevention of stroke in women: a statement for healthcare professionals from the American Heart Association/American Stroke Association. Stroke. 2014;45(5):1545–88.
George MG. October 29 is World Stroke Day [online]. Retrieved from [illegible]. Accessed March 18, 2015.


WOMEN FACE
HIGHER RISK OF STROKE
American Heart Association | American Stroke Association.
Together to End Stroke™
NEW GUIDELINE OFFERS WAYS TO LOWER YOUR RISK
WOMEN HAVE MORE STROKES THAN MEN, AND STROKE KILLS MORE WOMEN THAN MEN.
Talk to your healthcare provider about how to lower your risk, using the below information from the new American Heart Association/American Stroke Association prevention guidelines.
1 in 5 WOMEN has a STROKE at some point in her life
Stroke RISK GOES UP due to ...
LOWER YOUR RISK for stroke by...
PREGNANCY
+
PREECLAMPSIA
About 3 out of 10,000 pregnant women have a stroke during pregnancy compared to 2 out of 10,000 young women who are not pregnant.
Pregnant women with very high blood pressure should be treated with safe blood pressure medications.
This is a term for high blood pressure that develops during pregnancy, and it doubles the risk of stroke later in life.
Talk to your healthcare provider about whether you should follow the guideline recommendation of low-dose aspirin starting in the second trimester (week 12) to lower preeclampsia risk.
BIRTH CONTROL PILLS
May double the risk of stroke, especially in women with high blood pressure.
Women should be screened for high blood pressure before taking birth control pills. Women should not smoke, and they should also be aware that smoking and the use of oral contraceptives increases the risk of stroke.
HORMONE REPLACEMENT THERAPY
Once thought to lower stroke risk, this in fact increases the risk.
Hormone replacement therapy should not be used to prevent stroke in postmenopausal women.
MIGRAINES WITH AURA + SMOKING
Strokes are more common in women with migraines with aura who also smoke.
Smokers who have migraines with aura should quit to avoid higher stroke risk.
ATRIAL FIBRILLATION
Quadruples stroke risk and is more common in women than men after age 75.
All women over age 75 should be screened for atrial fibrillation.
STROKE BY THE NUMBERS
About 55,000 more women than men have a stroke each year.
STROKE IS THE
#3 cause of DEATH in Women
#4 cause of DEATH in Men
Number of STROKE DEATHS IN ONE YEAR
Women 77,109
Men 52,367
(from 2010, the most recent year the statistics are available)
FAST
Do you know how to identify a stroke and when emergency help is needed?
Learn how to spot a stroke F.A.S.T. at StrokeAssociation.org/warningsigns


Be Stroke Aware
Each year, stroke kills twice as many women as breast cancer. Yet, only 1 in 4 women can name more than two of the six primary stroke symptoms, according to the National Stroke Association. Taking time to learn the signs of stroke might save someone's life, maybe even your own.
6 Primary Stroke Symptoms:
1. Sudden numbness or weakness of face, arm or leg, especially on one side of the body
2. Sudden confusion or trouble understanding
3. Sudden trouble speaking
4. Sudden trouble seeing in one or both eyes
5. Sudden trouble walking, dizziness, loss of balance or coordination
6. Sudden severe headache with no known cause
370,000
Stroke Symptoms Unique to Women:
Sudden shortness of breath
Sudden hiccups
Sudden heart palpitations
Sudden chest pain
Sudden nausea
Sudden general weakness
80%
425,000
Ways to Prevent a Stroke:
Maintain a healthy weight.
Control your blood pressure.
Don't smoke.
Get tested for diabetes.
Have your cholesterol and triglyceride levels checked.
Find healthy ways to cope with stress.
Drink no more than one alcoholic beverage per day.

Women and Stroke:

Knowing the Risks, Taking Preventive Steps

Male Female

The lifetime risk of stroke is **1 in 5** for women, and 1 in 6 for men.

% Lifetime risk of strokes

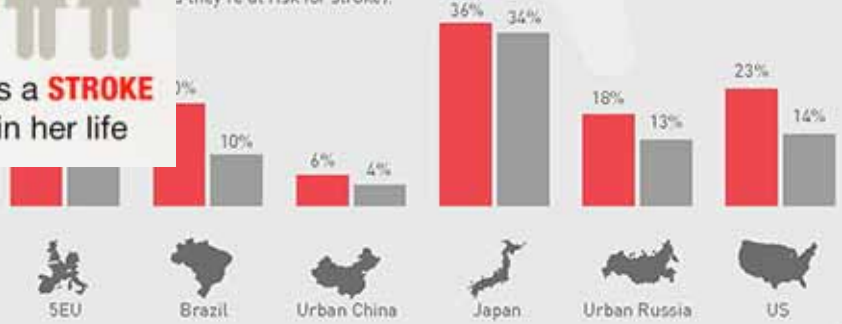
Women have a higher stroke mortality rate than men.
Six in 10 strokes cause death in women, largely due to stroke occurring later in life in women, when strokes are more dangerous[1].

1 in 5 WOMEN has a **STROKE** at some point in her life

Women are much more likely to report a family history of stroke.

Women are less likely to be told they are at risk of stroke.

likely to know their stroke risk.
d they're at risk for stroke].



Stroke is largely preventable through lifestyle management, yet to beat stroke, women need sex-specific information on their risks and preventive practices.

[1]World Stroke Campaign 2014-2016. World Stroke Organization. http://www.worldstrokecampaign.org/about-the-world-stroke-campaign.html.
Kantar Health. National Health and Wellness Survey, 2013 [5EU (France, Germany, Italy, Spain, UK), US, Japan, China, Russia]. Princeton, N.J.
Kantar Health. National Health and Wellness Survey, 2012 [Brazil]. Princeton, N.J.

A.L.I.Ce. Onlus
EMILIA ROMAGNA

Associazione per la Lotta all'Ictus Cerebrale

"Le Donne,
su cui grava l'onere
dell'assistenza ai malati cronici,
sono a rischio ICTUS
più degli uomini:
aiutiamole a prevenirlo"

Iniziativa promossa da
A.L.I.Ce. Reggio Emilia Onlus

COMUNICATO STAMPA

Successo della giornata di prevenzione contro l'ictus cerebrale.

Centinaia di persone hanno effettuato i controlli gratuiti presso i Poliambulatori.

Iniziativa organizzata da A.L.I.Ce. Reggio Emilia Onlus, in collaborazione con il Reparto di Neurologia del Santa Maria Nuova IRCSS di Reggio Emilia.

Nei giorni scorsi si è svolta a **Reggio Emilia** l'iniziativa di prevenzione legata alla **Giornata Mondiale contro l'Ictus Cerebrale,** organizzata nel nostro territorio da A.L.I.Ce. Reggio Emilia Onlus (Associazione per la Lotta all'Ictus Cerebrale), in collaborazione con il Reparto di Neurologia del Santa Maria Nuova IRCSS di Reggio Emilia.

Sono stati **398** i reggiani che si sono recati domenica 30 novembre presso i Poliambulatori dell'Ospedale Santa Maria Nuova per sottoporsi **gratuitamente** ai **controlli** dei più importanti parametri: **pressione arteriosa**, **fibrillazione atriale**, **glicemia** e **colesterolo**.

E' **stato riscontrato nel 20% dei casi** un **rischio cardio-vascolare elevato**, per cui sono stati effettuati **ulteriori approfondimenti**.

In particolare le persone che presentavano fattori di rischio quali l'ipertensione e la fibrillazione atriale sono stati visitati dal cardiologo e sottoposte ad elettrocardiogramma.

I soggetti in sovrappeso, con tendenza a iperglicemia o a ipercolestorolomia, sono stati visitati dal nutrizionista.

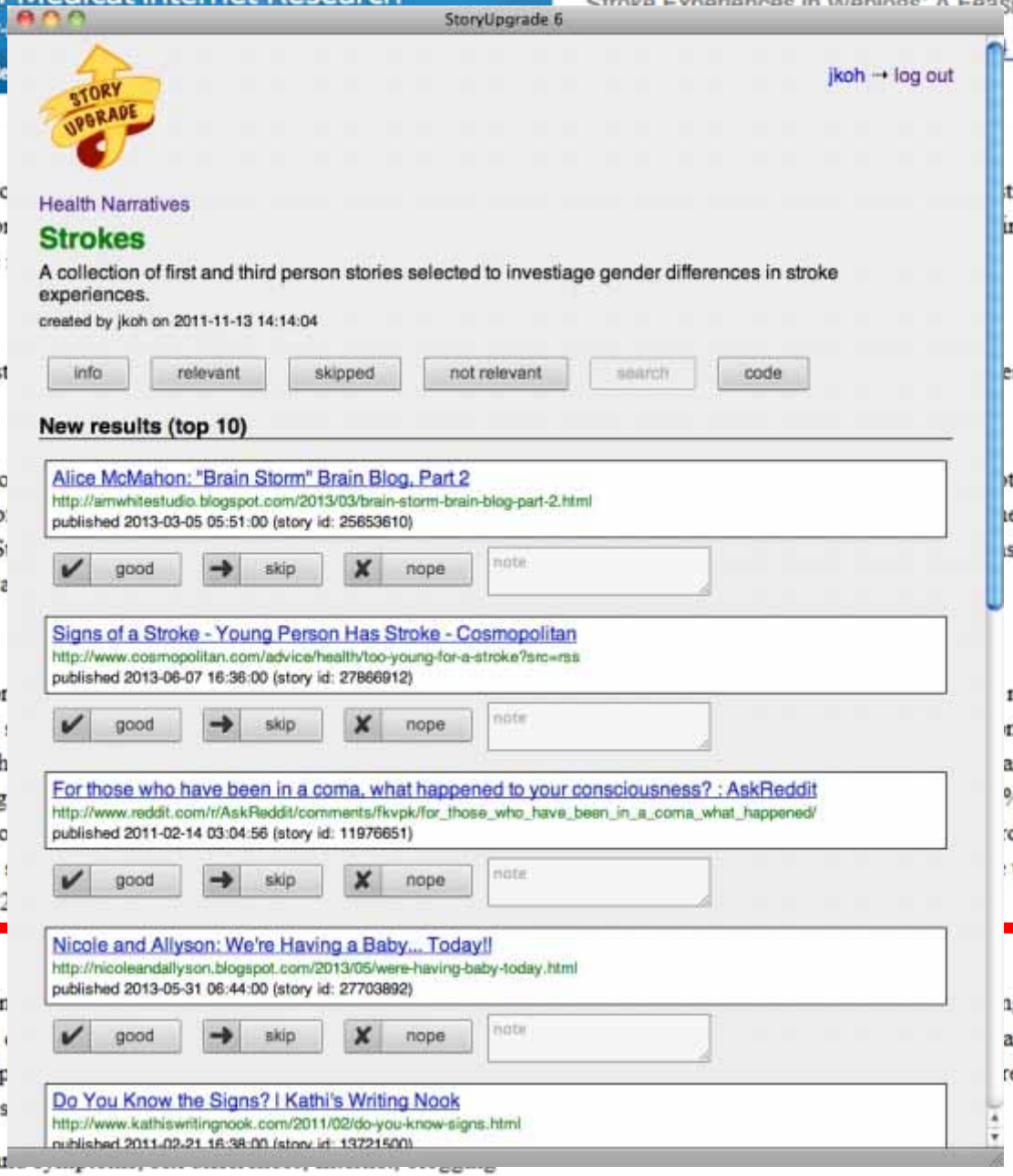
Infine coloro che hanno riscontrato negli esami valori elevati di colesterolo sono stati visitati dal neurologo e sottoposti ad eco color doppler dei tronchi sovra aortici.

Un approccio di revisione sistematica è sostanzialmente impossibile considerata la mole e l'eterogeità estrema dei dati.

JMIR Publications
Journal of Medical Internet Research ISSN 1438-8871
The leading peer-
About Search Re

Stroke Experiences in Weblogs: A Feasibility Study of Sex Differences

Mar; 16(3): e84.



Background

Research on cerebral stroke sympto
pain) than men do. This is an impor
diagnosis. In the present study, we

troke (eg, mental status change,
increase the difficulty of correct

Objective

The goal of this study was to invest

es.

Methods

Stroke experiences described in blo
prototype story was a description o
stories using relevance feedback. S
age, delay before seeking medical a

totype story. In this study, the
e search query and retrieve more
s, type of stroke, patient sex and

Results

There were 191 relevant stroke stor
traditional or nontraditional stroke
Female first-person narrators (ie, th
marginally significant effect by log
patients. There were more reports o
P=.006). Ischemic or hemorrhagic
symptoms reported for 79.3% (23/

no sex differences for each
nal and nontraditional symptoms.
arrators (36.4%, 16/44), a
%, 12/43) and men (28.2%, 11/39)
d-person reports (25.6%, 21/82,
type with 1 or more nontraditional

Conclusions

The results replicate previous findi
versus third-person narrator on sex
future studies. A fragmentary data p
feasibility of using the Internet for s

ngs include the effect of first-
ant variable to be examined in
reported. Age trends strengthen the

Keywords: cerebral stroke, signs a

A volte l’apparenza può ingannare, soprattutto gli inesperti


UNDERSTANDING
STROKE RISK IN WOMEN
ARE YOU AT RISK?
In the United States,
1 in 5
women will have a stroke.
Not all women are equally affected by stroke.
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Million Hearts®
Learn mo
www.cdc.
National Center for Chronic Disease Prevention and Health Pro
Division for Heart Disease and Stroke Prevention
Talk to yo
professio
• High blood pr
• Obesity
• Depression
• Atrial fibrillatio
• Diabetes
• Transient isch
All increase you
with any of thes
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Find out m
UNDERSTANDING
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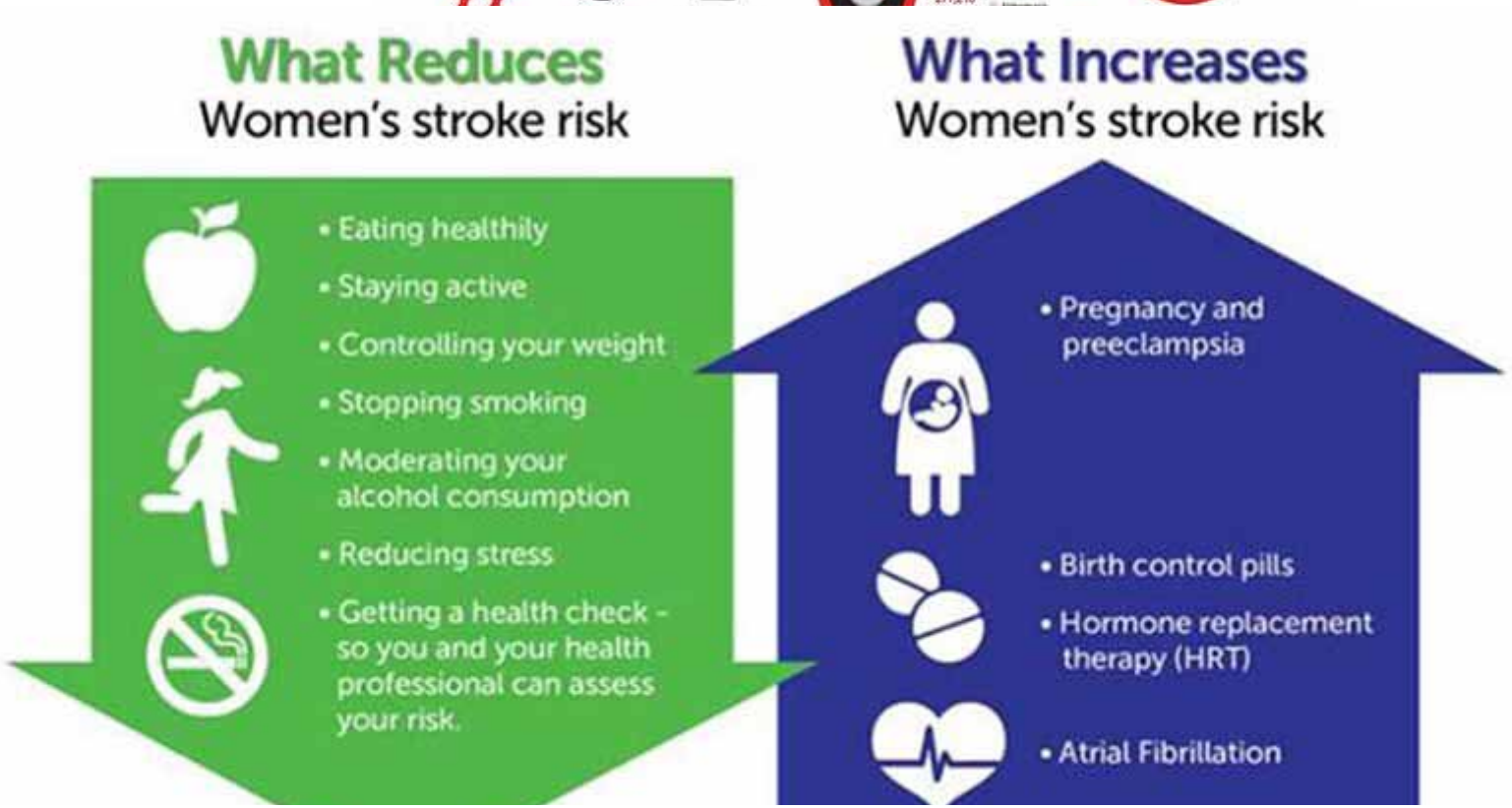
Table 2 10 Strategies for Preventing Stroke in Women

Recommendation	Class	Level of Evidence
Women with asymptomatic carotid stenosis should be screened for other treatable risk factors for stroke, and appropriate lifestyle changes and medical therapies should be instituted.	I	C
In women who are to undergo CEA, aspirin is recommended unless contraindicated, because aspirin was used in every major trial that demonstrated efficacy of CEA.	I	C
Prophylactic CEA performed with <3% morbidity/mortality can be useful in highly selected patients with an asymptomatic carotid stenosis (minimum 60% by angiography, 70% by validated Doppler ultrasound).	IIa	A
For women with recent TIA or IS within the past 6 months and ipsilateral severe (70%-99%) carotid artery stenosis, CEA is recommended if the perioperative morbidity and mortality risk is estimated to be <6%.	I	A
For women with recent TIA or IS and ipsilateral moderate (50%-69%) carotid stenosis, CEA is recommended depending on patient-specific factors, such as age and comorbidities, if the perioperative morbidity and mortality risk is estimated to be <6%.	I	B
When CEA is indicated for women with TIA or stroke, surgery within 2 weeks is reasonable rather than delaying surgery, if there are no contraindications to early revascularization.	IIa	B
Aspirin therapy (75-325 mg/d) is reasonable in women with diabetes mellitus unless contraindicated.	IIa	B
If a high-risk (ie, 10-year predicted CVD risk ≥10%) woman has an indication for aspirin but is intolerant of aspirin therapy, clopidogrel should be substituted.	I	B
Aspirin therapy can be useful in women ≥65 years of age (81 mg/d or 100 mg every other day) if BP is controlled and the benefit for IS and MI prevention is likely to outweigh the risk of gastrointestinal bleeding and hemorrhagic stroke.	IIa	B
Aspirin therapy may be reasonable for women <65 years of age for IS prevention.	IIb	B

Abbreviations: BP, blood pressure; CEA, carotid endarterectomy; CVD, cardiovascular disease; MI, myocardial infarction; TIA, transient ischemic attack; IS, ischemic stroke.

Source: Adapted from: Bushnell C, et al. *Stroke.* 2014;44:1545-1588.


WOMEN AND HEART DISEASE:
MYTHS VS. REALITIES
The facts are clear. More women die of heart disease than all forms of cancer combined. Unfortunately, the killer isn't easy to see. Heart disease is often silent, hidden and misunderstood.
MYTH
Heart disease is something that only men need to be concerned about.
FACT
Heart disease is the No. 1 killer of women, CAUSING 1 IN 3 DEATHS EACH YEAR.
MYTH
Cancer is more deadly to women.
FACT
More women die from heart disease than from the next three causes of death combined, including all forms of cancer.
Heart Disease 410,730
Cancer 271,210
Chronic Lower Respiratory Disease 73,960
MYTH
Men and women have the same heart attack symptoms.
64%


What Reduces
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• Controlling your weight
• Stopping smoking
• Moderating your alcohol consumption
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• Getting a health check - so you and your health professional can assess your risk.
What Increases
Women's stroke risk
• Pregnancy and preeclampsia
• Birth control pills
• Hormone replacement therapy (HRT)
• Atrial Fibrillation

WSA Stroke Registry

WOMEN STROKE association

SINOSSI

Studio osservazionale retrospettivo-prospettico multicentrico
Registro dei pazienti per lo studio della malattia cerebrovascolare nella donna

VERSIONE FINALE 11 GIUGNO 2013

WOMEN STROKE association

Titolo	STUDIO OSSERVAZIONALE RETROSPETTVO E PROSPETTICO MULTICENTRICO REGISTRO DEI PAZIENTI PER LO STUDIO DELLA MALATTIA CEREBROVASCOLARE NELLA DONNA
Sponsor	Women Stroke Association- WSA-
Indicazione	Malattia cerebrovascolare nella donna
Disegno dello Studio	Studio multicentrico, ossservazionale, retrospettivo-prospettico Registro dei pazienti affetti dal malattia cerebrovascolare che afferiscono alle UO dei Centri partecipanti. Lo studio prevede l'inclusione nel registro di circa 300 pazienti per centro. La durata del periodo di inclusione dei dati è di 12 mesi, ciascun paziente sarà seguito per 12 mesi dalla data di registrazione nello studio.
Centri Partecipanti	Circa 10 (Stroke Units, Neurologie)

WOMEN STROKE association

Obiettivi dello Studio I	• **Identificazione di un profilo di rischio vascolare della donna in relazione alle fasce di età, in particolare pre- e post-menopausa** • **Valutazione dell'impatto dello stile di vita sulla popolazione dei migranti residenti in Italia nella prospettiva delle differenze di genere** • **Valutazione dell'interazione dei diversi fattori di rischio nella prospettiva delle differenze di genere al fine di migliorare le strategie di prevenzione** • **Studio del comportamento dei fattori di rischio emergenti nella popolazione dei pazienti affetti da ictus nella prospettiva del genere** • **Stratificazione del rischio e possibili differenze di genere** • **Studio di prevalenza sesso-correlata di fattori di rischio vascolare non tradizionali** • **Correlazione del rischio vascolare in rapporto all'età della menopausa**

WOMEN STROKE association

Obiettivi dello Studio II	• **Identificazione di possibili differenze di genere nella somministrazione di terapie mediche in prevenzione primaria e secondaria** • **Risposta alla terapia in acuto durante evento cerebrovascolare e possibili differenze di genere** • **Eventuali differenze di genere nella diagnostica cardiovascolare** • **Differenze di genere nel deterioramento cognitivo post-ictus** • **Differenze di genere nella destinazione alla dimissione** • **Favorire la ricerca scientifica di base per l'individuazione di meccanismi ezio-patogenetici specifici attraverso l'analisi di campioni ematici** • **Disporre di un numero adeguato di campioni ematici per studi di biomarcatori**

WOMEN STROKE association

Risultati Attesi	• **Acquisire informazioni circa i fattori di rischio vascolari prevalenti o esclusivi del genere femminile** • **Valutare il peso relativo di ciascun fattore di rischio sullo sviluppo della malattia cerebrovascolare nella donna** • **Acquisire informazioni relative alla risposta alla terapia di prevenzione e alla terapia in acuto** • **Acquisire informazioni relative all'impatto sulla qualità della vita della donna colpita da ictus e risvolti socio-sanitari**

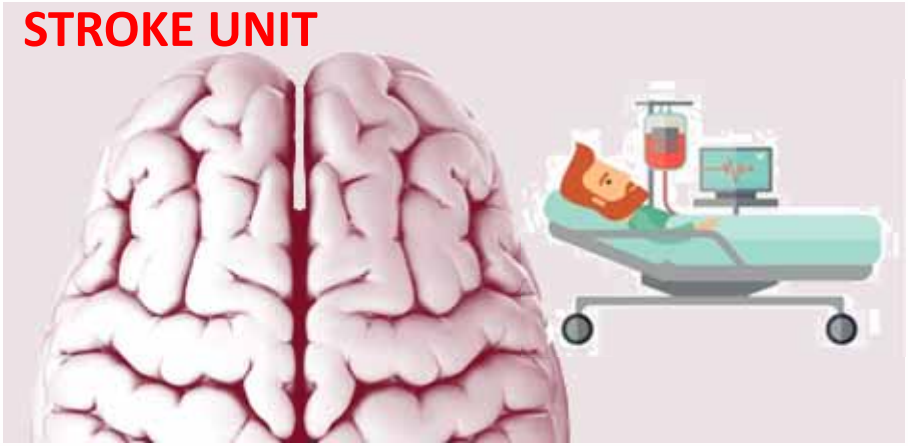
MANAGEMENT DEL PAZIENTE CON STROKE

Pronto Soccorso

Neurologo vascolare

Neuroradiologia

Fisiatra
Fisioterapista
Logopedista



Infermiere

Cardiologia

Operatore
Socio-Sanitario

Chirurgia
Vascolare

IL PERCORSO LOCALE

PRECISION MEDICINE

Modello della medicina che propone l'individualizzazione del percorso di cura, con decisioni, procedure e attività mediche adeguate al singolo paziente.
In questo modello i test diagnostici sono spesso utilizzati per selezionare le terapie appropriate ed ottimali sulla base del contest genetico del paziente o di altre analisi molecolari o cellulari.

SPERIMENTAZIONE

PRIMARY NURSING

ORGANIZZATIVA

E' un sistema di erogazione dell'assistenza che si focalizza sulla relazione paziente-infermiere e sugli importanti elementi della comunicazione e della continuità, essenziali per una pratica sicura. Promuove il ruolo naturale degli Infermieri quali responsabili dell'assistenza all'interno del processo di presa in carico dell'assistito e della sua famiglia.

Il modello organizzativo dell'assistenza

assistenza infermieristica

basata su un modello organizzativo (Primary Nursing), che permette la presa in carico della persona ricoverata e la continuità delle cure

Lei verrà assistito/a dal Suo Infermiere di Riferimento (I.R.) e, in sua assenza, da un Infermiere "associato" che garantirà la continuità assistenziale

L'Infermiere di Riferimento

Cosa fa l'infermiere?

· Assiste in base ai bisogni della persona

Cosa fa l'Infermiere di Riferimento?

· Parla con Lei e le persone a Lei care per identificare i suoi bisogni

· Identifica con Lei le priorità assistenziali

· Si relaziona con le altre figure professionali per garantire un continuo aggiornamento del suo stato di salute

· Effettuerà interventi di educazione sanitaria, qualora riterrà sia necessario, a Lei ed alle persone a Lei care

· Pianifica ed organizza la Sua dimissione

SERVIZIO SANITARIO REGIONALE
EMILIA-ROMAGNA
Azienda Ospedaliera di Reggio Emilia
Arcispedale S. Maria Nuova
Istituto in tecnologie avanzate e modelli assistenziali in oncologia
Istituto di Ricovero e Cura a Carattere Scientifico

Neurologia e Stroke Unit

Direttore F.F.
Dott.ssa Luisa Motti

Tel. 0522 296504

Coordinatore Infermieristico
Sabrina Paglia

Tel. 0522 295568
Dalle ore 12.30

Infermieri di Riferimento ed Infermieri Associati

Neurologia Degenza

Tel. 0522 296274
Dalle ore 12.30

Stroke Unit

Tel. 0522 296519
Dalle ore 12.30

Il modello organizzativo dell'assistenza

assistenza infermieristica

basata su un modello organizzativo (Primary Nursing), che permette la presa in carico della persona ricoverata e la continuità delle cure

Lei verrà assistito/a dal Suo Infermiere di Riferimento (I.R.) e, in sua assenza, da un Infermiere "associato" che garantirà la continuità assistenziale

L'Infermiere di Riferimento

Cosa fa l'infermiere?

· Assiste in base ai bisogni della persona

Cosa fa l'Infermiere di Riferimento?

· Parla con Lei e le persone a Lei care per identificare i suoi bisogni

· Identifica con Lei le priorità assistenziali

· Si relaziona con le altre figure professionali per garantire un continuo aggiornamento del suo stato di salute

· Effettuerà interventi di educazione sanitaria, qualora riterrà sia necessario, a Lei ed alle persone a Lei care

· Pianifica ed organizza la Sua dimissione

La Mission della Neurologia e della Stroke Unit

- promuovere una "presa in carico globale e tempestiva" del malato con problematiche neurologiche acute e croniche che sia realmente in grado di superare la frammentarietà degli interventi
- offrire al paziente prestazioni efficaci ed appropriate attraverso un approccio multidisciplinare tra le diverse componenti professionali
- migliorare continuamente la qualità delle cure e la tempestività degli interventi tramite l'attività di Ricerca e la sperimentazione di nuovi modelli assistenziali
- favorire il raggiungimento ed il mantenimento, per quanto possibile, della migliore qualità di vita possibile e dell'autonomia globalmente intesa
- recuperare il ruolo agito dalla persona, antecedente la malattia, per ridurre significativamente il livello di sofferenza e di fragilità, disabilità

STROKE UNIT

Neurologo Vascolare

Team Multidisciplinare

Servizi Sociali

P.U.A.

Preparazione del rientro a domicilio

Famiglia

Caregiver

Infermiere di Riferimento

Scheda Infermieristica dedicata

Infermiere Associato

E D U C A Z I O N E S A N I T A R I A

STROKE UNIT

S.C. NEUROLOGIA ASMN IRCCS Reggio Emilia

Grazie per l'attenzione