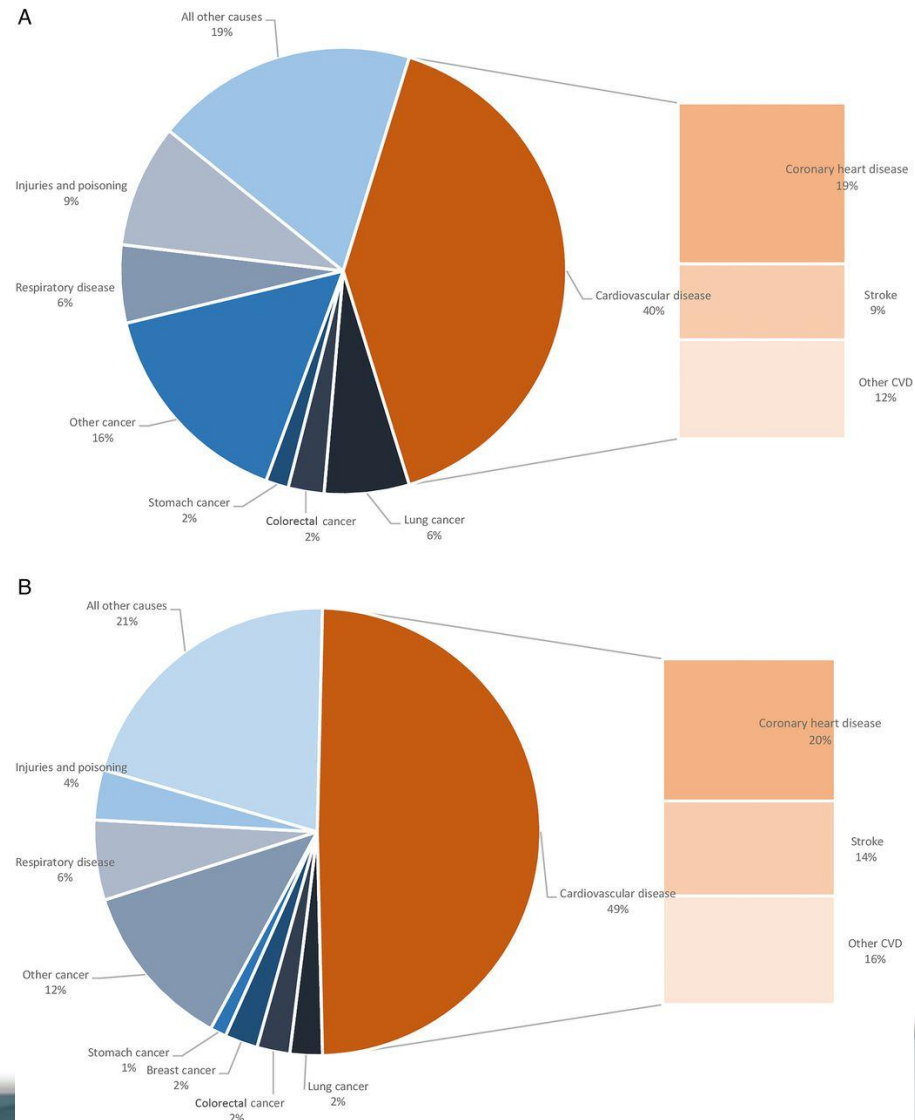


Prevention in Europe

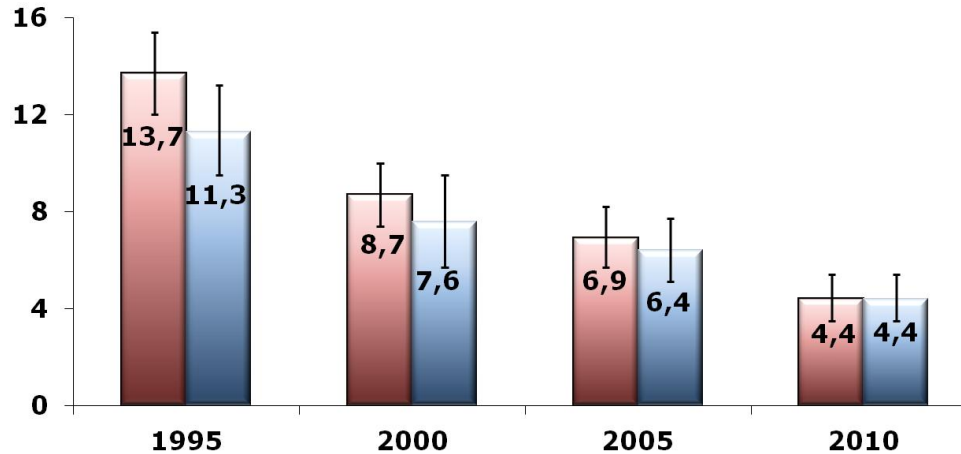
Geneviève Derumeaux
Créteil University, France

Ian M Graham
Trinity College, Dublin
ESC: 2016 Lipid guidelines
2016 Joint Prevention Guidelines

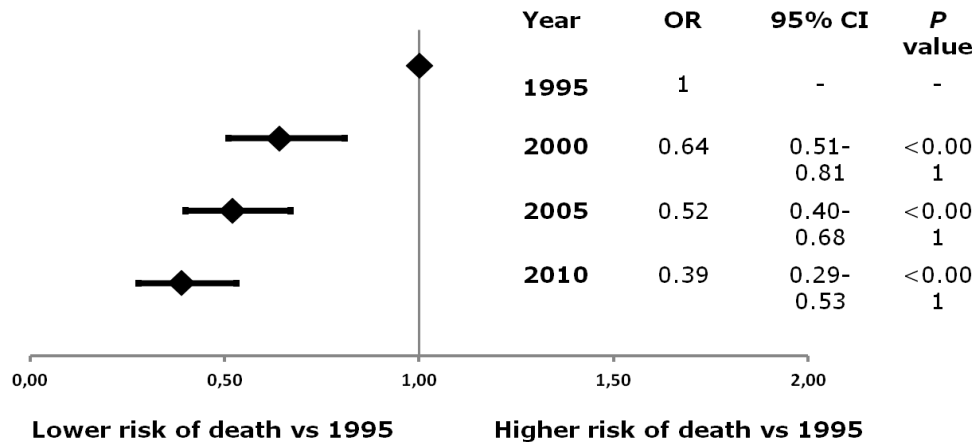
Cardiovascular disease in Europe



30-d Mortality after MI (changes over time)



Evolution



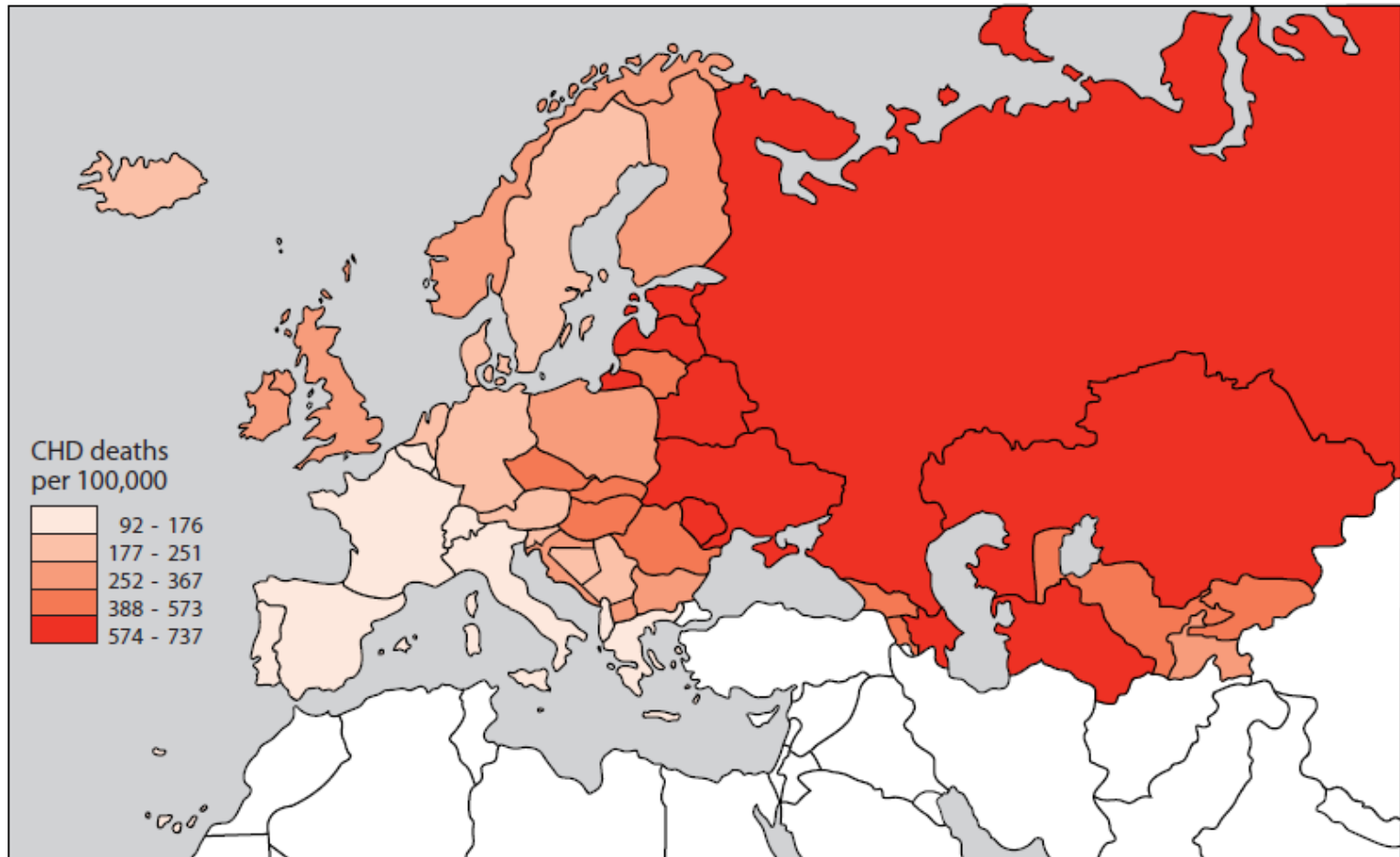
Multivariable-adjusted risk

Adjusted for age, sex, BMI, risk factors, previous history, and use and type of reperfusion therapy

The Context

- Heterogeneity of risk.
- Heterogeneity of access to / affordability of procedures.

Male CHD death rates 35 -74 years

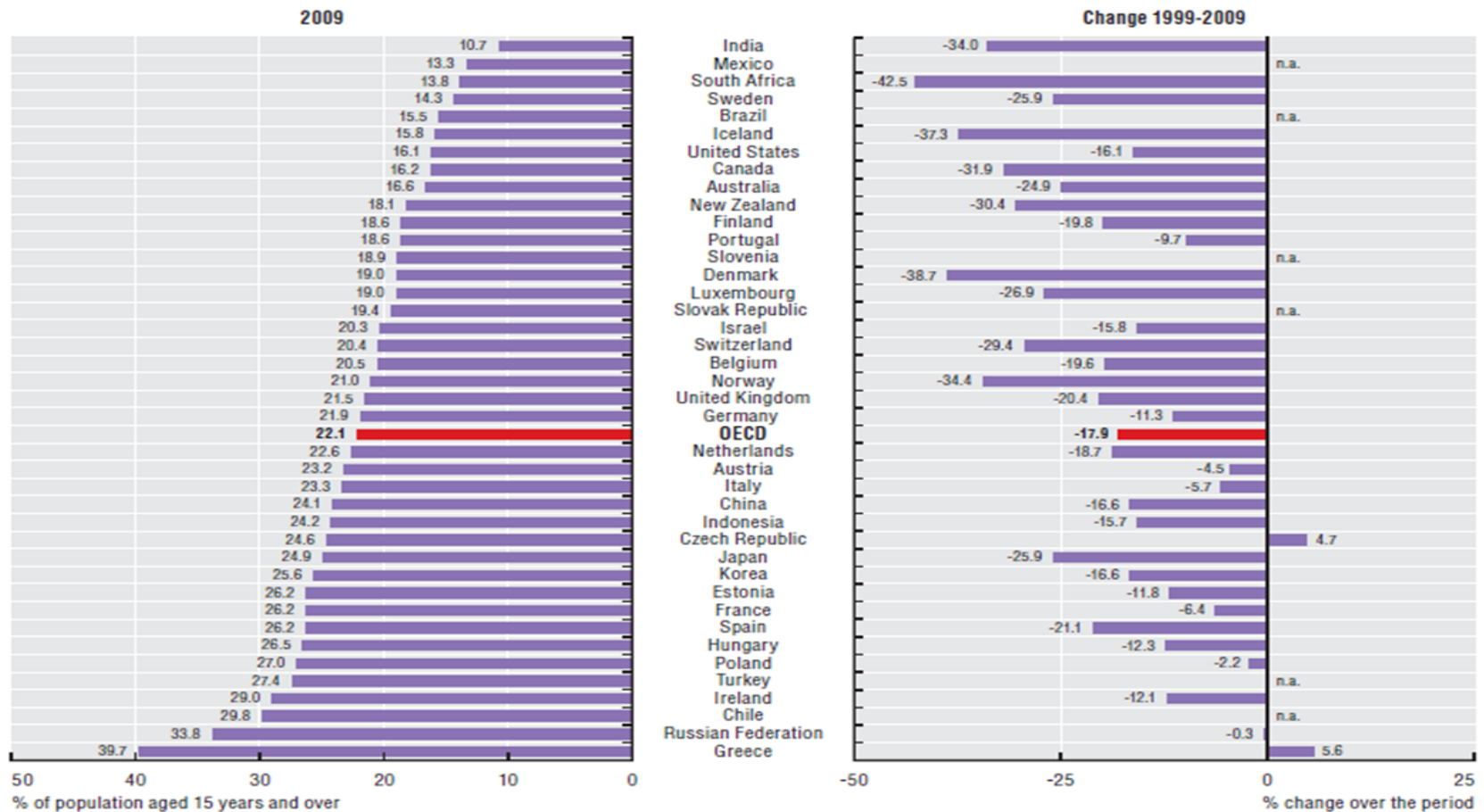


Female CHD death rates 35 – 74 years



Disparities in life-style changes

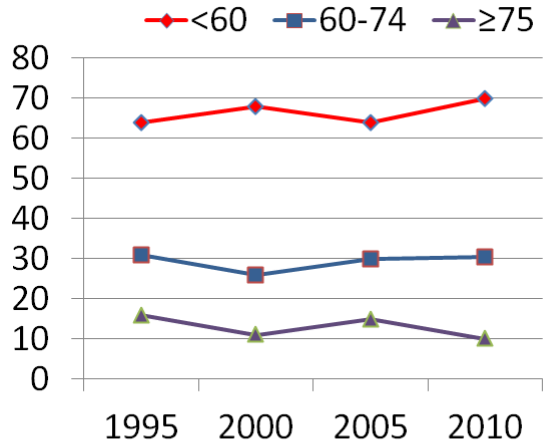
2.1.1 Adult population smoking daily, 2009 and change in smoking rates, 1999-2009 (or nearest year)



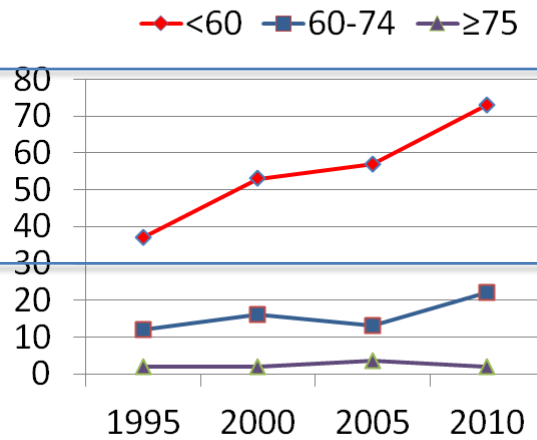
Source: OECD Health Data 2011; national sources for non-OECD countries.

StatLink <http://dx.doi.org/10.1787/888932523880>

Current smoking

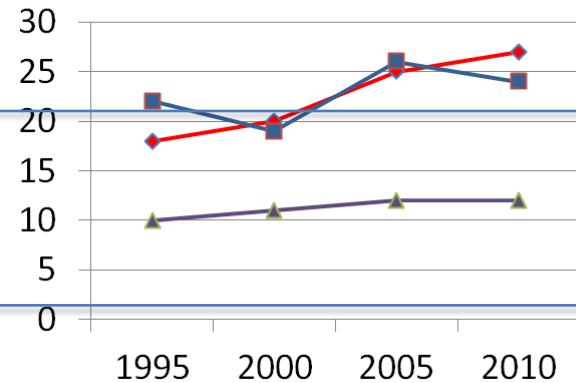
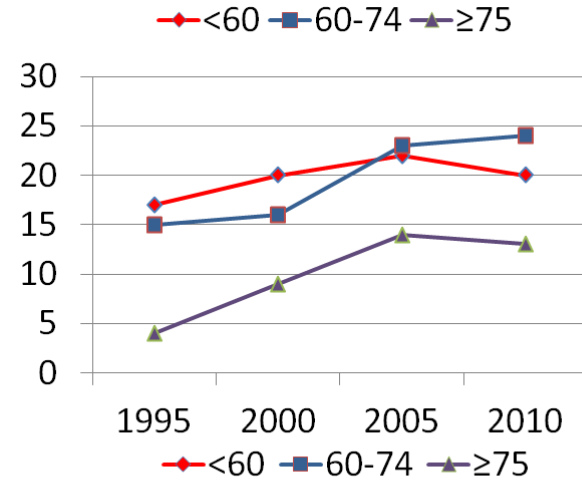


Men



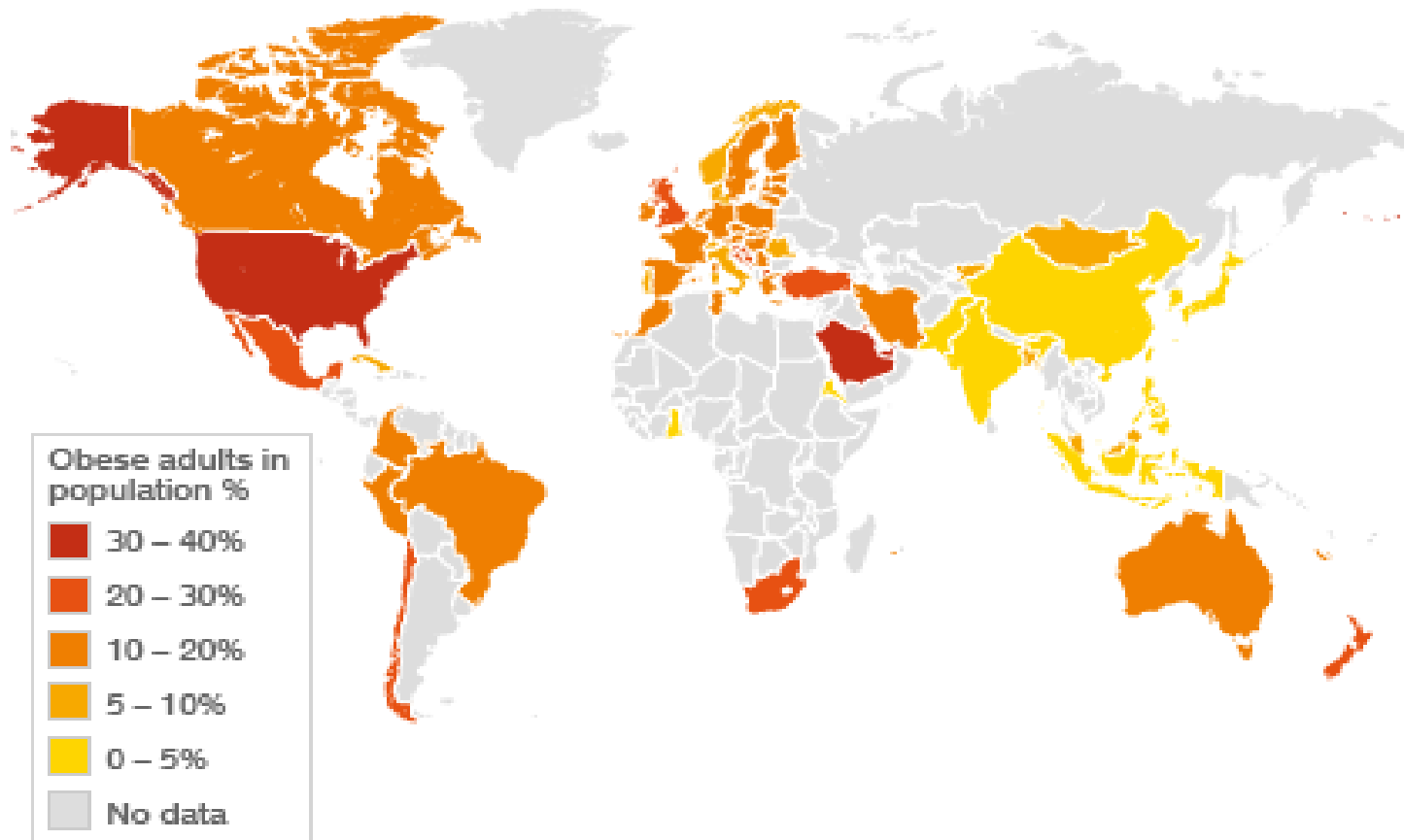
Women

Obesity



Obesity in the world

THE GLOBAL OBESITY PROBLEM



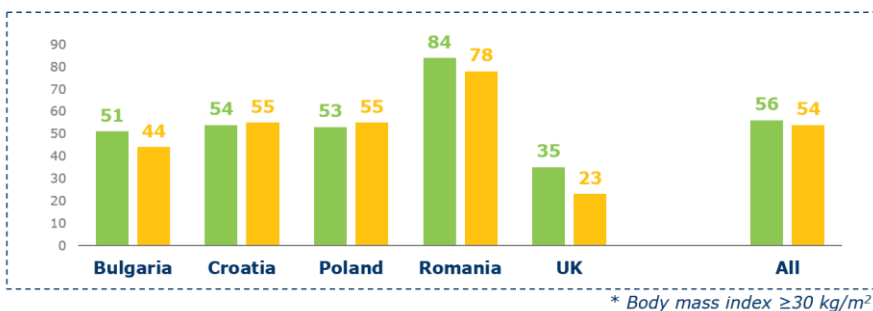
An obese adult is classified as having a Body Mass Index equal to or greater than 30

SOURCE: World Health Organization, 2005

OBESE PATIENTS EVER BEEN TOLD BY A HEALTH CARE PROFESSIONAL THAT THEIR DIET IS UNHEALTHY (%)

EUROASPIRE IV: PRIMARY CARE

Bulgaria	Croatia	Poland	Romania	UK	Overall	P
-7.6%	+0.9%	+1.5%	-6.0%	-11.3%	-3.7%	P=0.24



Lifestyles (%)	Men	Women	All
No smoking	78	87	83
Not obese	60	54	56
Physically active	34	30	32
Risk factor management			
BP <140/90 mm Hg (<140/80 if diabetes)	37	51	45
LDL-C <2.5 mmol/L (100 mg/dL)	23	15	18

→ Over 80% of high CVD risk patients were overweight or obese

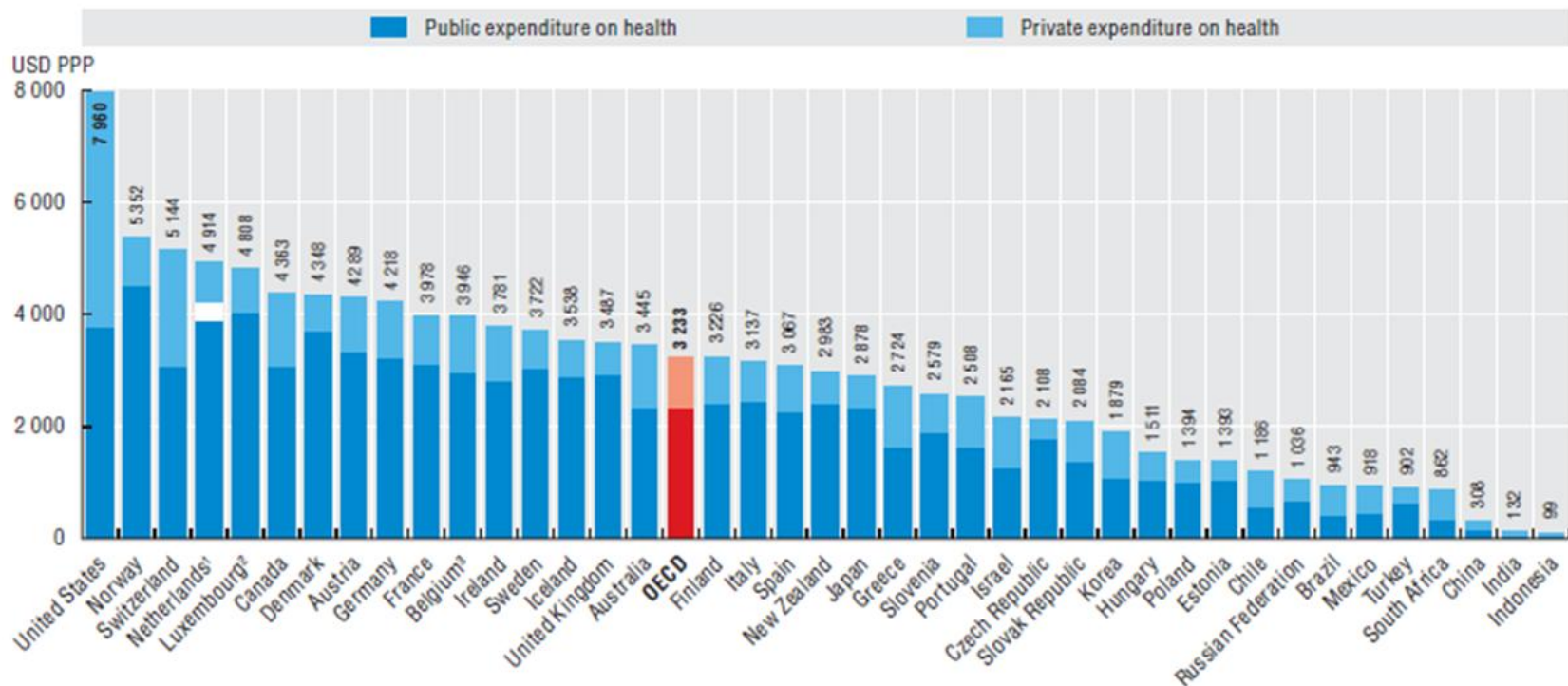
→ Proportions at goal for CVD prevention
K. Koteseva (London, GB), FP 5069

TAKE HOME MESSAGE

- Risk factors are not adequately managed in patients at high risk of cardiovascular disease.
- More concerted efforts are required to promote a healthy life style and achieve therapeutic goals.


Disparities in health care expenditure

7.1.1 Total health expenditure per capita, public and private, 2009 (or nearest year)



1. In the Netherlands, it is not possible to clearly distinguish the public and private share related to investments.
2. Health expenditure is for the insured population rather than the resident population.
3. Total expenditure excluding investments.

Source: OECD Health Data 2011; WHO Global Health Expenditure Database.

StatLink  <http://dx.doi.org/10.1787/888932526046>

The Context

- Substantial investment in sophisticated devices / procedures.
- Lack of implementation of simple prevention measures whereas chronic non communicable diseases are expanding worldwide.

EUROASPIRE IV Countries



Ireland



Netherlands



Germany



UK



France



Czech Republic



Croatia



Belgium



Spain



Slovenia



Serbia



Italy



Bosnia and Herzegovina

Europe



Finland



Latvia



Poland



Romania



Greece



Cyprus



Ukraine



Russia



Sweden



Lithuania



Hungary



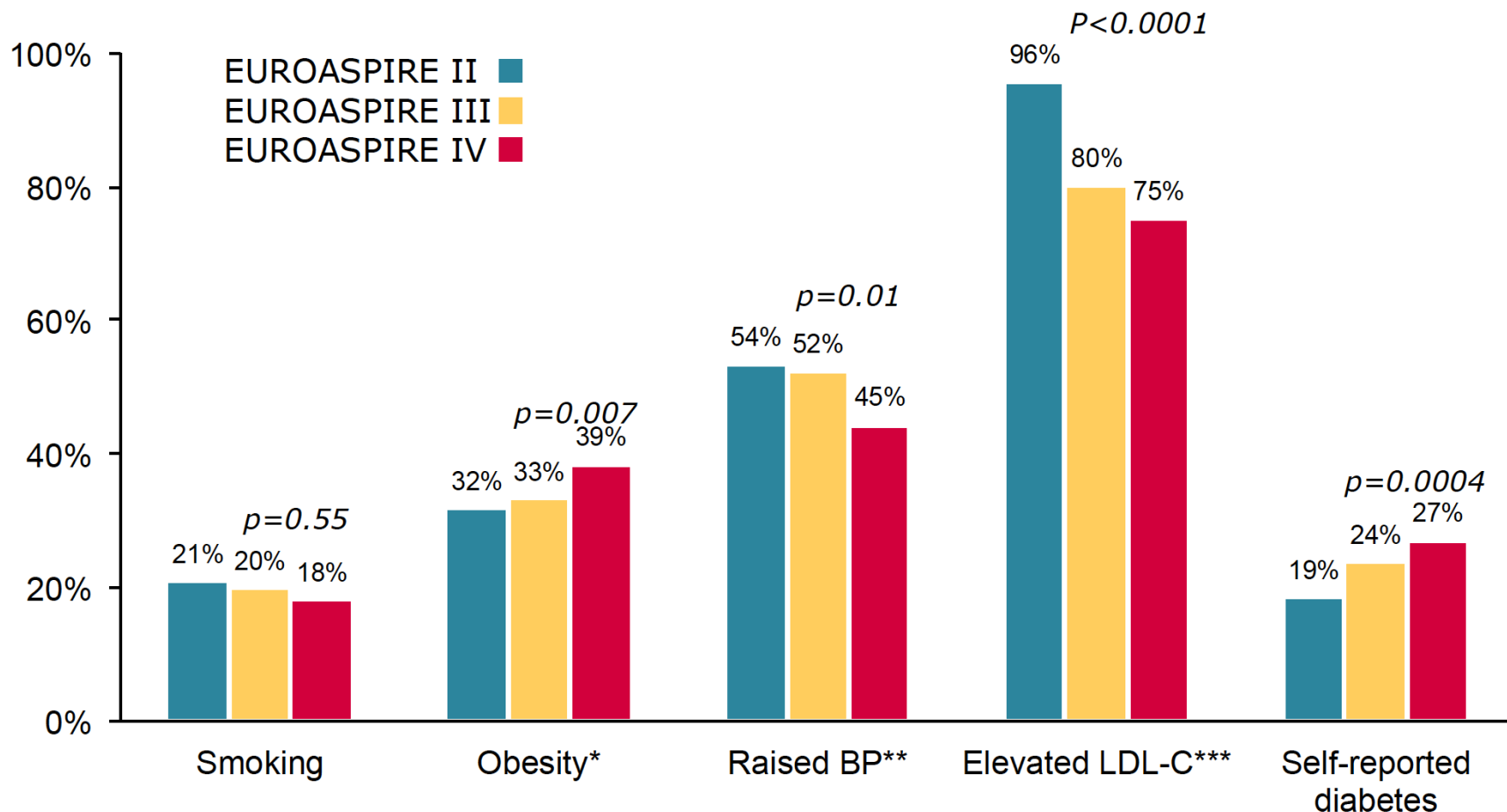
Bulgaria



Turkey

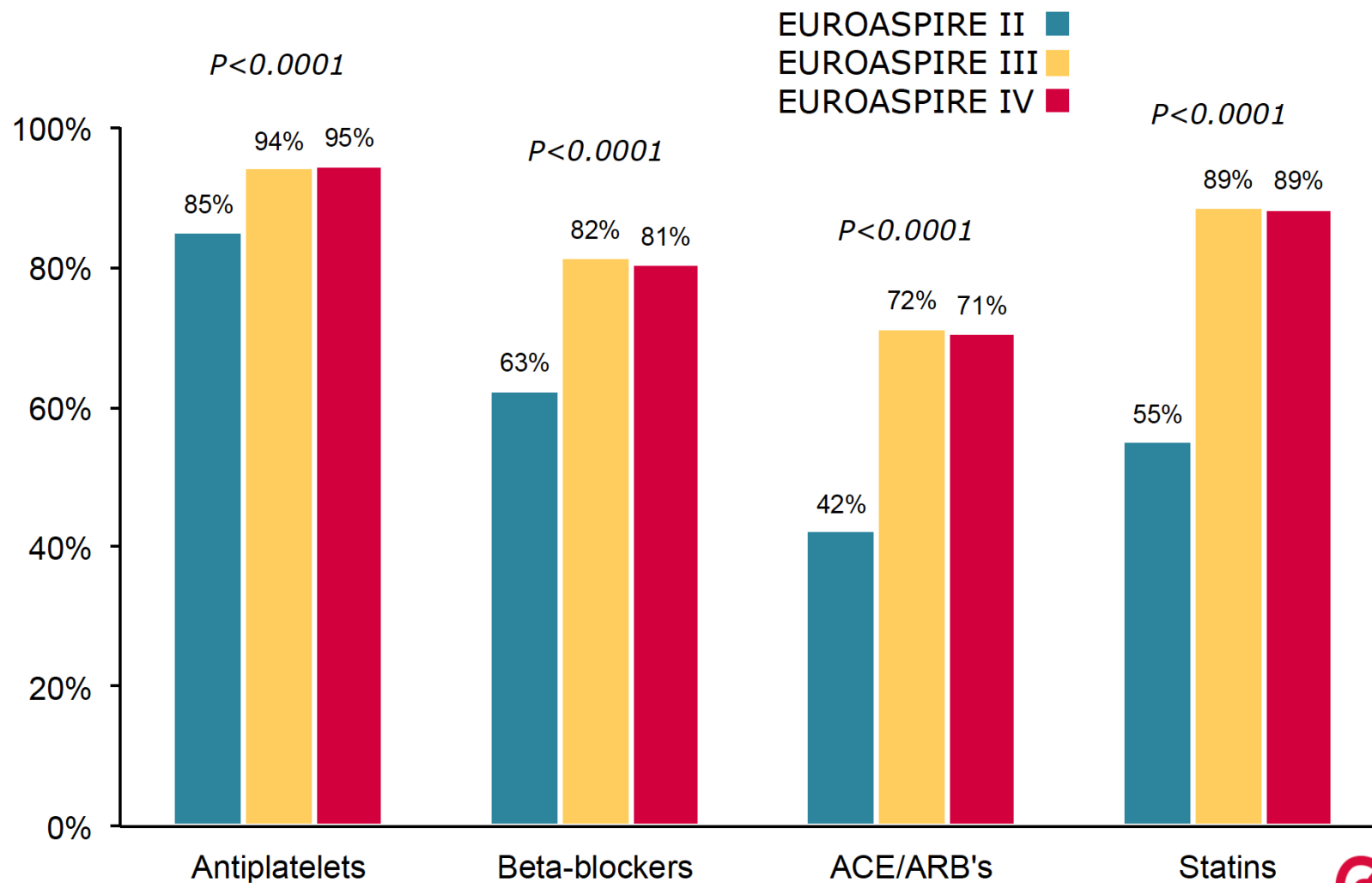


Summary of key results: Clinical reality of coronary prevention in Europe: comparison of EUROASPIRE II, III and IV surveys



* BMI ≥ 30 kg/m²; ** SBP/DBP $\geq 140/90$ mmHg ($\geq 140/80$ mmHg for patients with diabetes); *** LDL ≥ 1.8 mmol/L (≥ 70 mg/dL)

Cardiovascular protective drug therapies

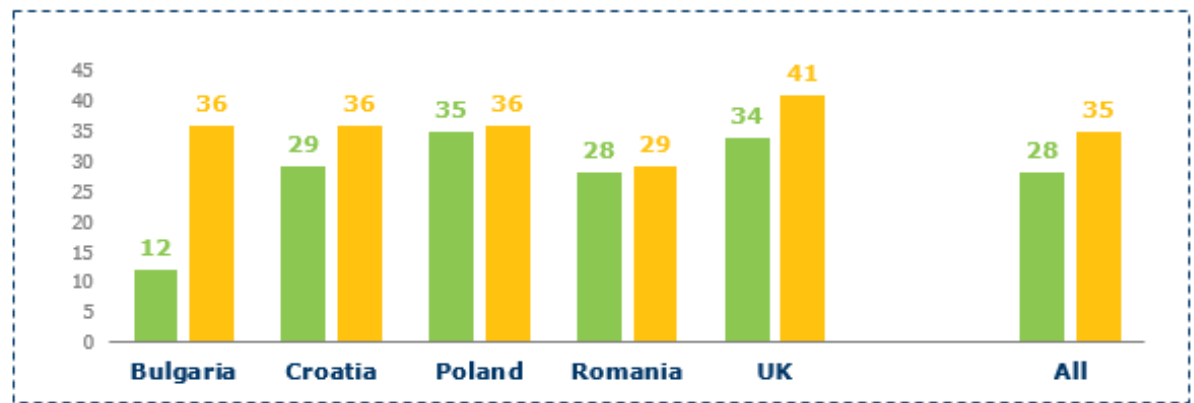


BLOOD PRESSURE CONTROL IN EUROPE

Comparing EUROASPIRE II and IV

THERAPEUTIC CONTROL OF BLOOD PRESSURE* (%) EUROASPIRE III VS. IV

Bulgaria	Croatia	Poland	Romania	UK	Overall	P
+23.5%	+6.3%	+0.9%	+0.7%	+7.0%	+8.5%	P=0.12



* SBP/DBP <140/90 mmHg in patients using blood pressure lowering drugs
140/80 mmHg in diabetes

DRUG TREATMENT OF RESISTANT HYPERTENSION

PATHWAY-2 and PATHWAY-3 show that K⁺-sparing diuretics are effective and safe for the treatment of hypertension

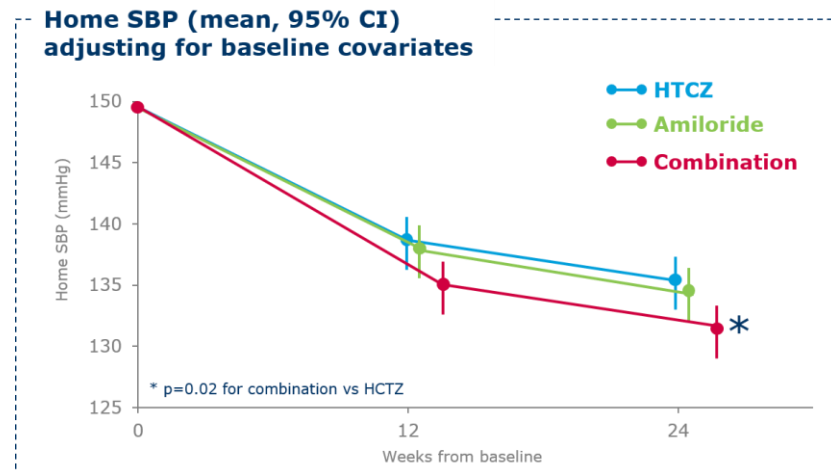


PATHWAY-2 is the first RCT to directly compare spironolactone with other active BP-lowering treatments in patients with resistant HTA



Increased risk of diabetes with thiazides appears linked to potassium-depletion – could this be avoided by using potassium-sparing diuretics such as amiloride, alone or in combination?

Comparators (N=314)	Home Systolic BP difference (mmHg)	p value
Spironolactone vs placebo	-8.70 (-9.72,-7.69)	<0.001
Spironolactone vs mean Bisoprolol/Doxazosin	-4.26 (-5.13,-3.38)	<0.001
Spironolactone vs Doxazosin	-4.03 (-5.04,-3.02)	<0.001
Spironolactone vs Bisoprolol	-4.48 (-5.50,3.46)	<0.001



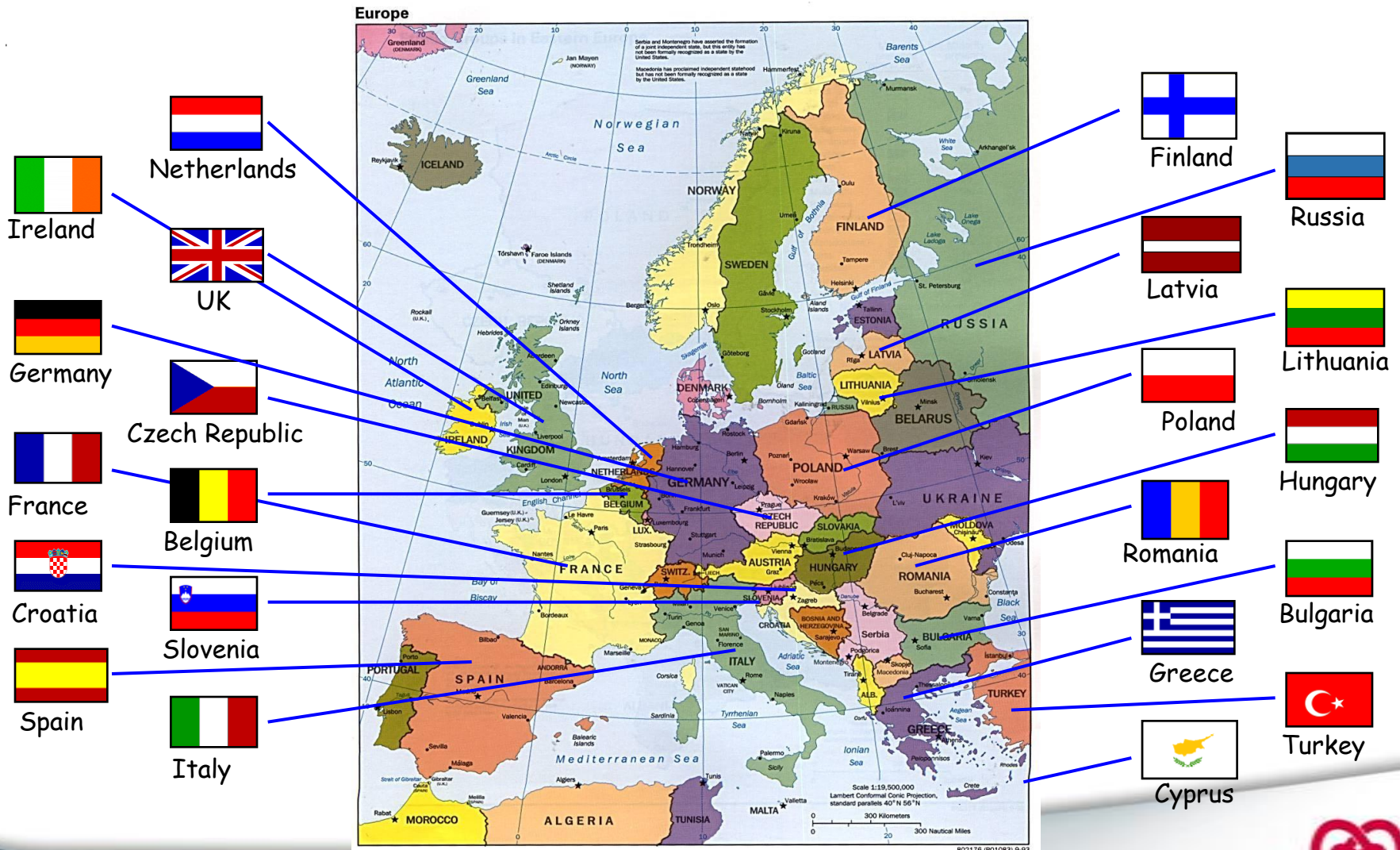
- Spironolactone is the most effective treatment for resistant hypertension
- These results should influence treatment guidelines globally
- Patients should not be defined as resistant hypertension unless their BP remains uncontrolled on spironolactone

- **The combination of amiloride and HCTZ is a 'win-win' which at equipotent doses**
 - **amplifies the desirable effects of each drug on BP,**
 - **neutralizes the undesirable changes in blood glucose and potassium**

B. Williams (London, UK) FP 4137

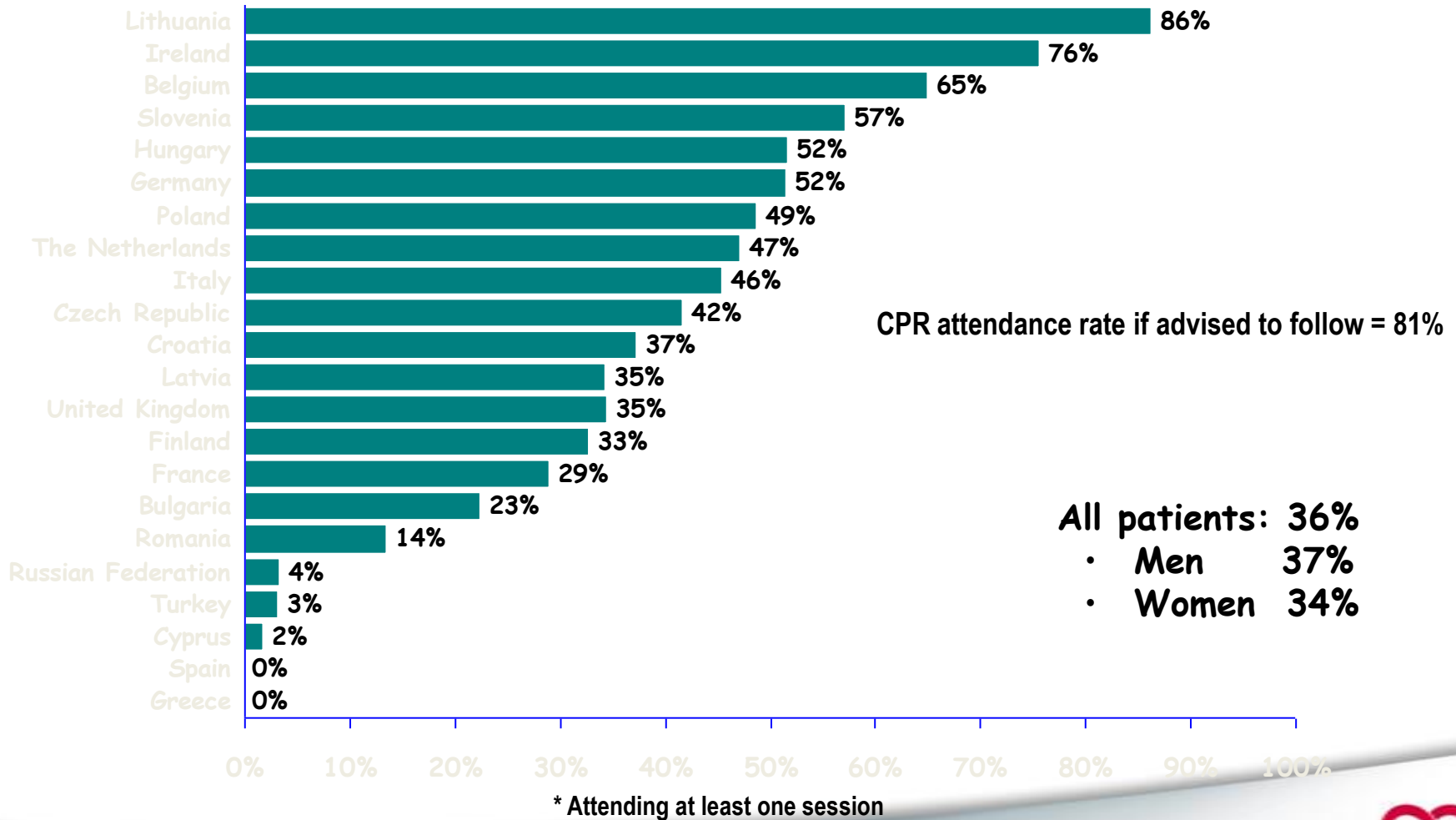
M. J. Brown (Cambridge, UK) FP 4140

EUROASPIRE III Hospital



K Kotseva, et al Lancet 2009; 373; 929-940

Attendance to a CPR programme among all patients* by country

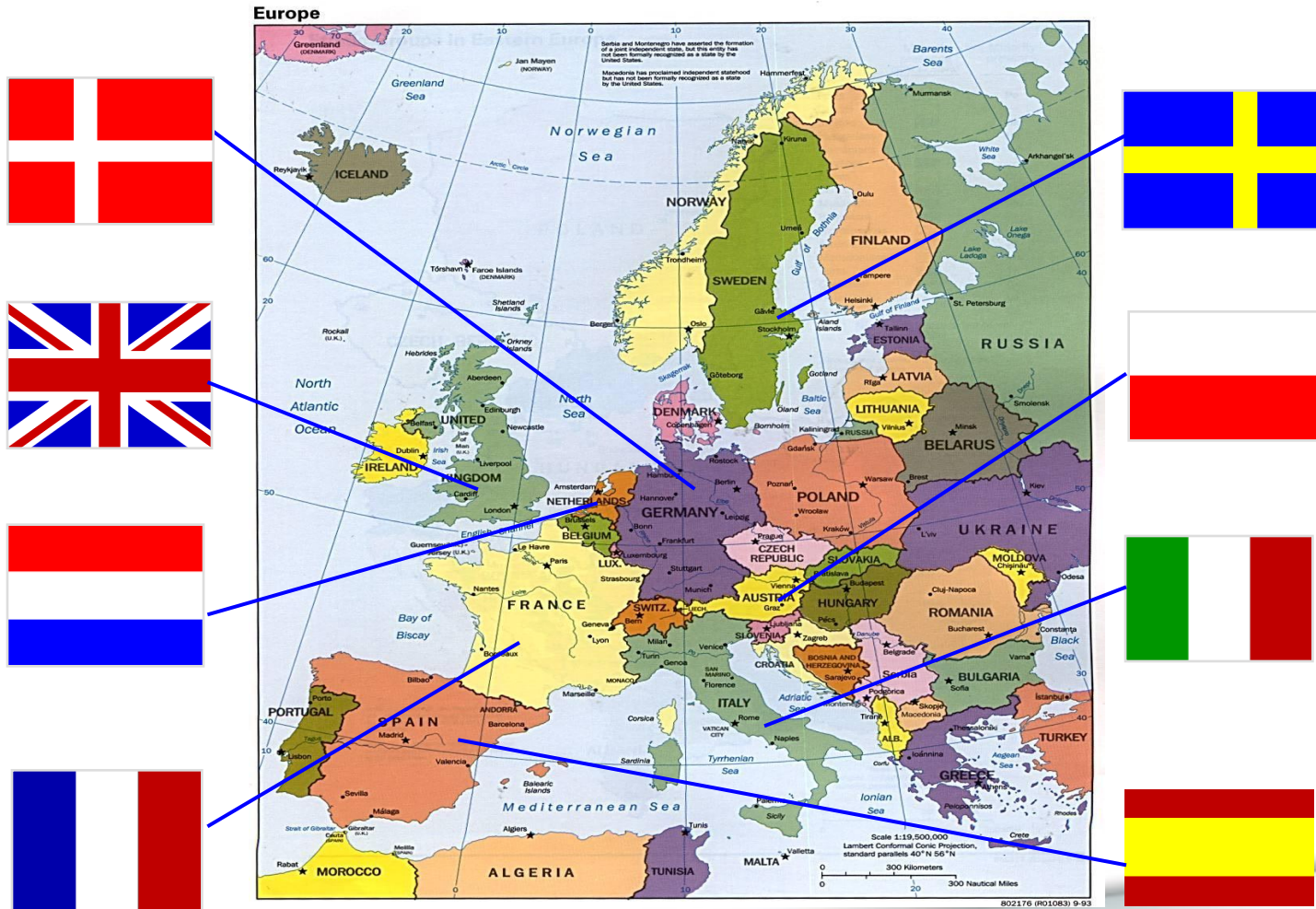


WHY IS IT SO ?

- **Different stakeholders with different perspectives :**
 - **Hospitals (fee for service) vs social security systems.**
 - **Private vs Public systems.**
- **Lack of proper collaboration between professionals: GPs dieteticians, nurses, rehabilitation, cardiologists (... ..)**
- **Polypharmacy**

EUROACTION

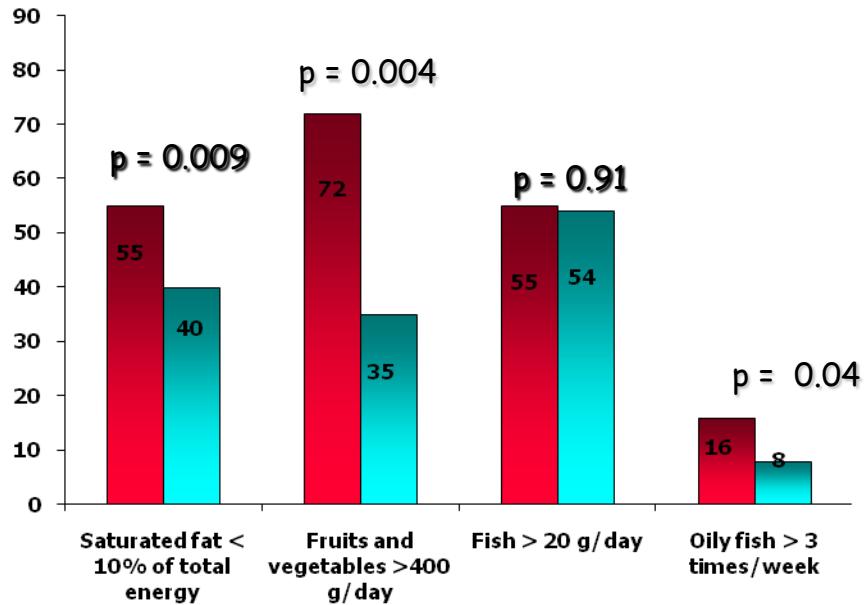
ESC demonstration project in preventive cardiology



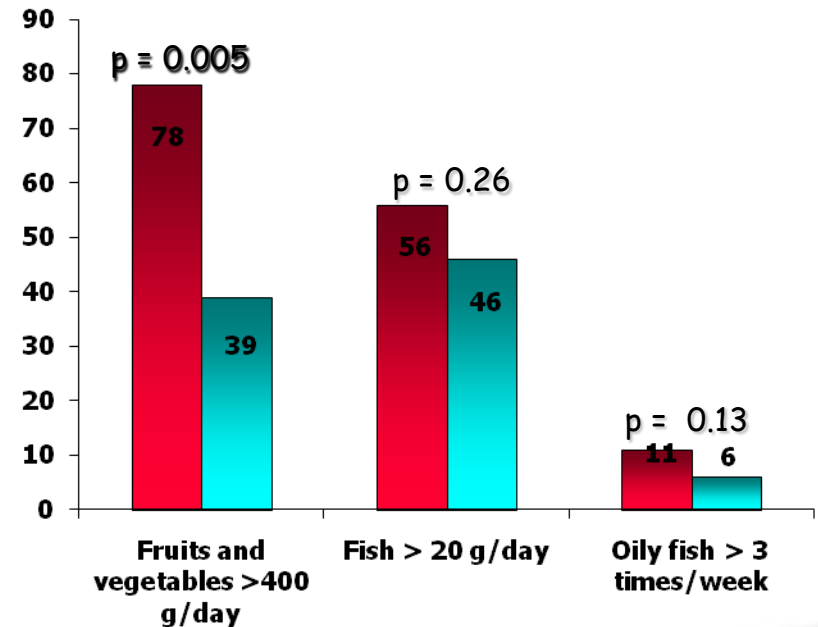
Proportions of patients achieving the European targets for a healthy diet

Intervention  Usual Care 

Hospital



General Practice

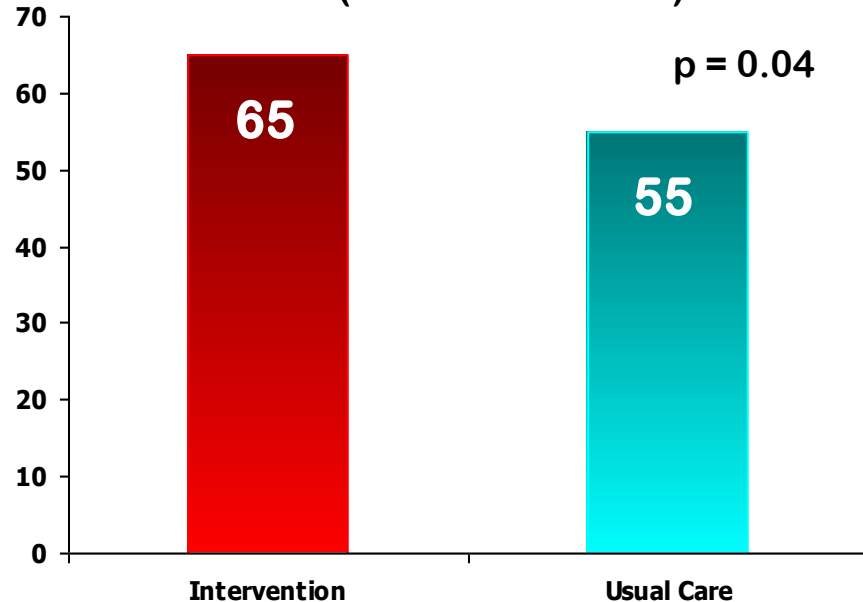


Proportion of patients achieving the European target for BP

Intervention  Usual Care 

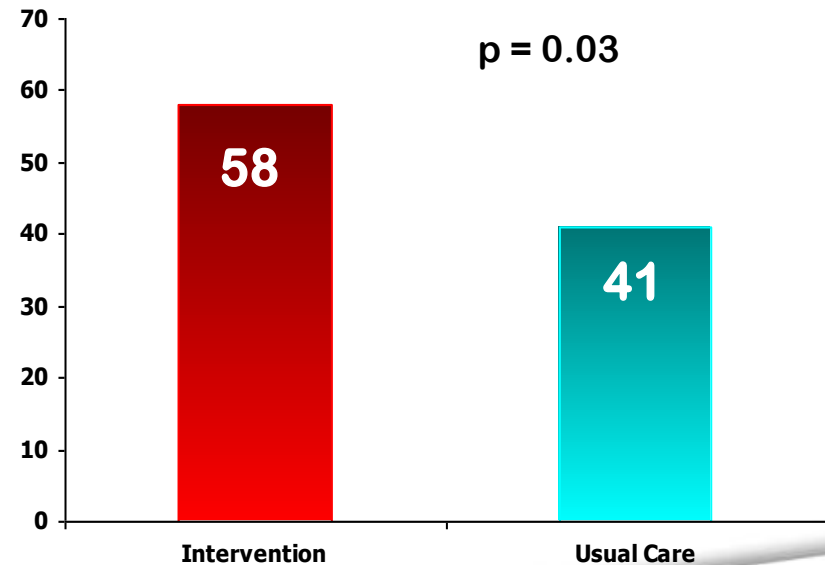
Hospital

+ 10% (+ 0.6% to + 20%)



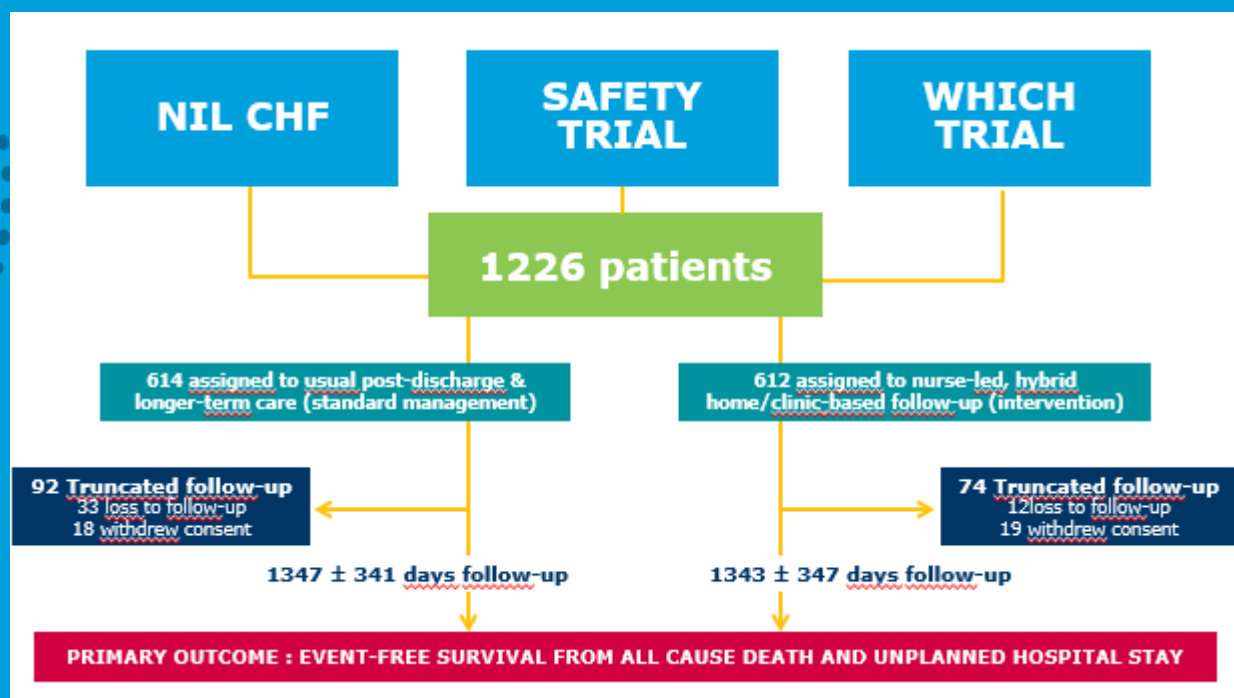
General Practice

+ 17% (+ 2% to + 32%)



PROLONGED EVENT-FREE SURVIVAL IN HEART DISEASE: OUTCOME DATA FROM 1,226 PTS FROM 3 RANDOMISED TRIALS OF NURSE-LED, MULTIDISCIPLINARY HOME-BASED INTERVENTION

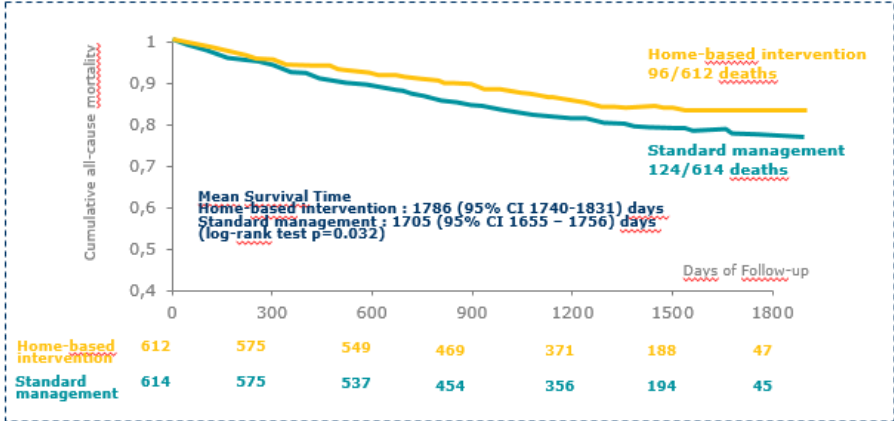
S Stewart, JF Wiley, YK Chan, J Ball, DR Thompson & MJ Carrington



ADJUSTED ALL-CAUSE MORTALITY

DAYS ALIVE & OUT-OF-HOSPITAL

- Adjusted HR 0.56, 95% CI 0.41-0.78; p=0.001 for HBI versus standard management



TAKE HOME MESSAGE

- Over long-term follow-up, Home Based Intervention is associated with a high number of days alive and out of hospital, shorter hospitalisation stays, better overall survival in patients with high comorbidity scores.

ARE THERE SOLUTIONS ?

- 1. Invest in prevention.**
- 2. Create alliances with sister societies for the management of chronic diseases.**
- 3. Create alliances with other professionals :**
 - **GPs**
 - **Nurses**
 - **Declining medical demography.**
- 4. Poly pill.**

To treat or prevent?

“It is better to be healthy than ill or dead. That is the beginning and the end of the only real argument for preventive medicine. It is sufficient.”

Geoffrey Rose.

“The Strategy of Preventive Medicine”.

Oxford University Press 1992

The 2012 European Guidelines on Cardiovascular Disease Prevention in Clinical Practice

Chairperson

Joep Perk

Linneaus University
Institute for Health and Caring Sciences
Campus Kalmar, Sweden

On behalf of :

The 5th Joint European Societies' Task Force on Cardiovascular Disease Prevention in Clinical Practice



European Society of
Cardiology (ESC)



European Society of General Practice/
Family Medicine (ESGP/FM/Wonca)



European Association for
Cardiovascular Prevention &
Rehabilitation (EACPR)



European Artherosclerosis Society
(EAS)



European
Society of
Hypertension

European Society of
Hypertension (ESH)



European Association for the Study
of Diabetes (EASD)



International Society of
Behavioural Medicine (ISBM)



International
Diabetes
Federation

International Diabetes Federation
Europe (IDF-Europe)



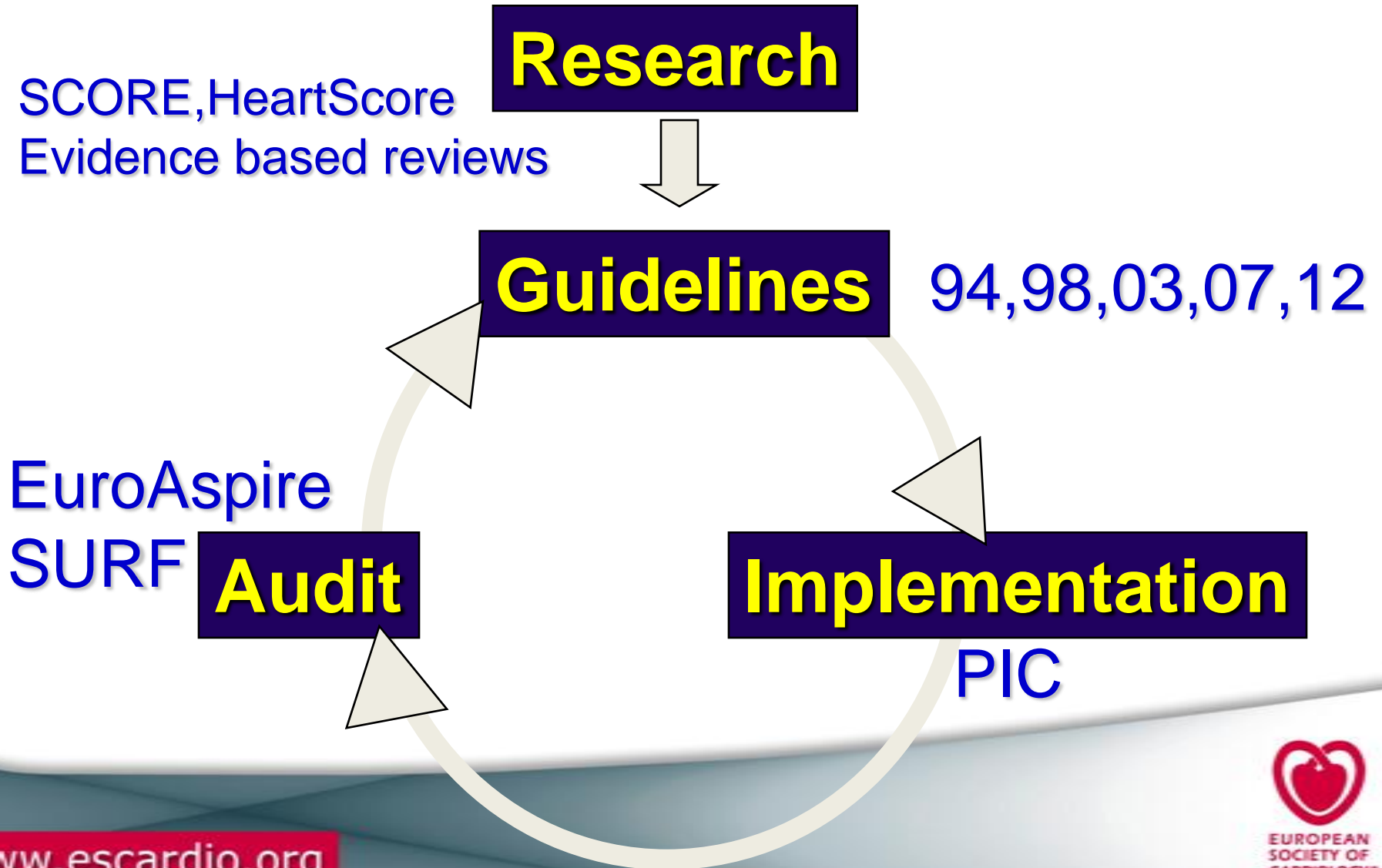
European Heart Network (EHN)



European Stroke Organization (ESO)



Guidelines on Prevention



2102 ESC Guidelines on CVD Prevention in Clinical Practice

Who should benefit from Preventive Cardiology?

1. Strategies and risk estimation:

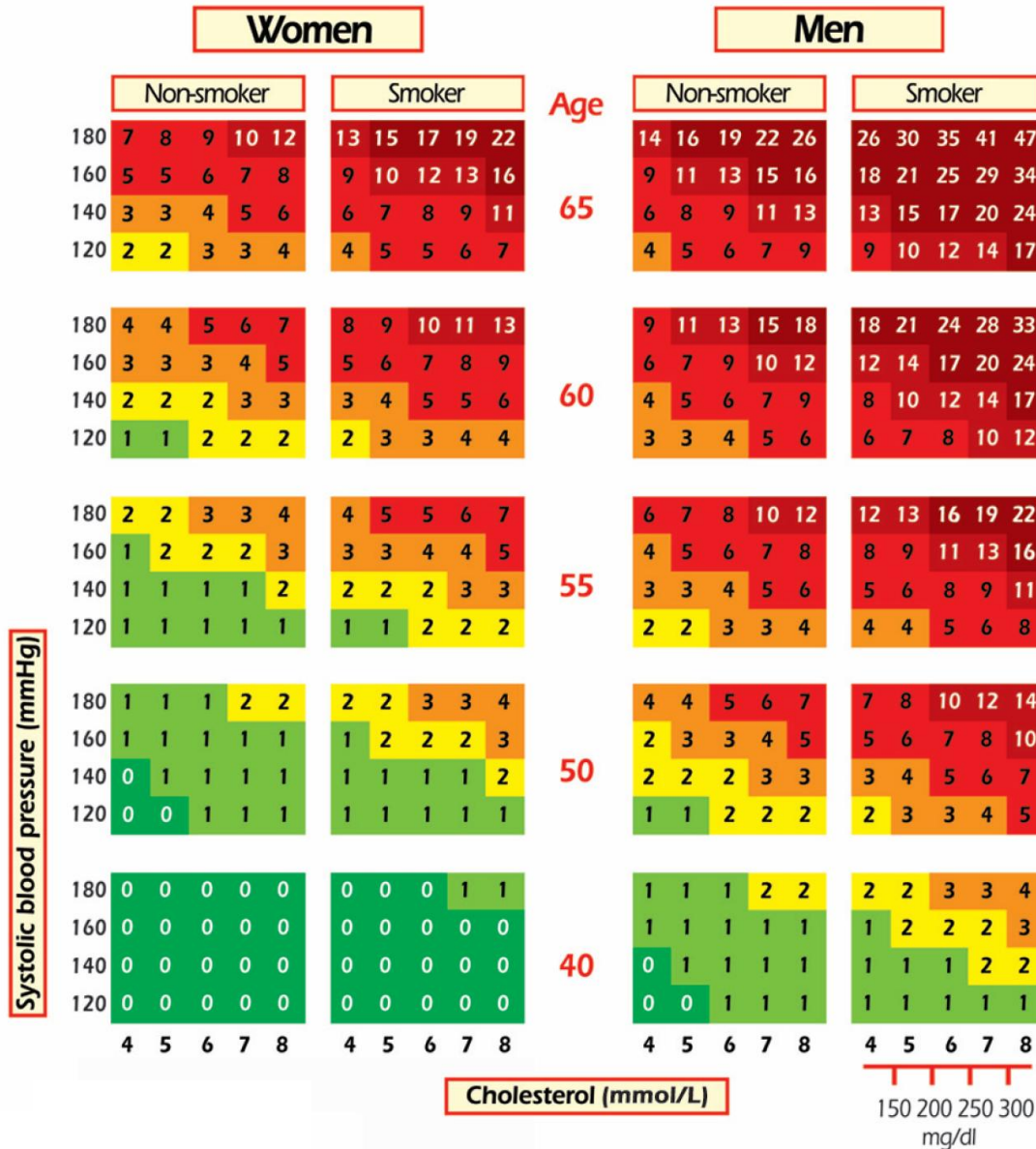
Key messages

1. In apparently healthy people, CVD is usually the result of multiple interacting risk factors
2. Therefore a risk estimation system such as SCORE can assist in decision making, and to avoid over- or under-treatment. More information on HDL-C
3. Low and high risk countries have been re-defined, and a group of very high risk countries defined
4. SCORE is not needed in those who declare themselves to be at very high risk
5. Young people may be at low absolute but very high relative risk. Two approaches: the relative risk chart and the adoption of risk age
6. While women appear to be at lower risk than men this is misleading because risk is deferred by 10 years rather than avoided

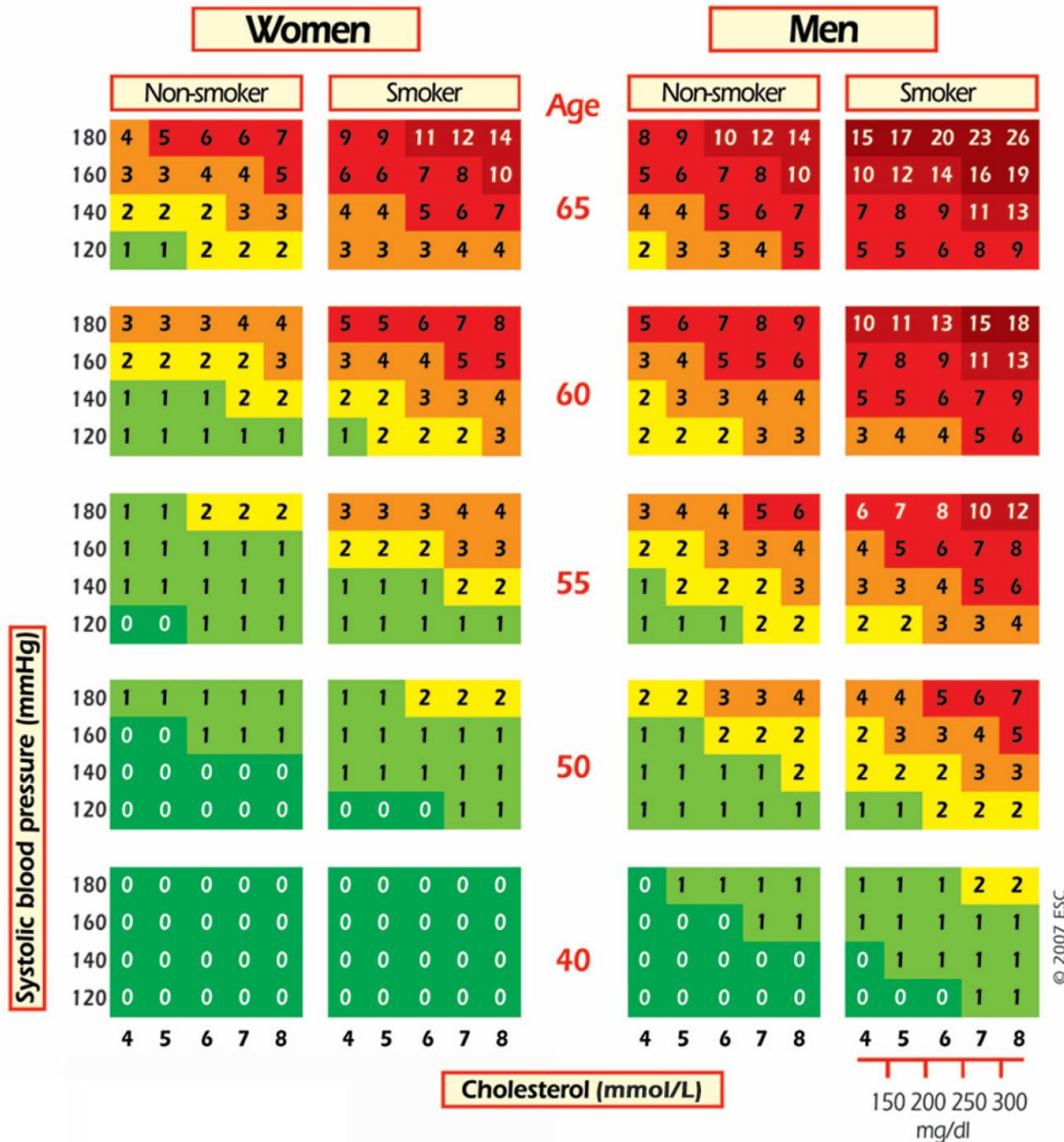
Impact of combinations of risk factors on 10 year risk of CVD death- who gets the statin?

SEX	AGE	CHOL	BP	SMOKE	RISK %
F	60	8	120	NO	2
F	60	7	140	YES	5
M	60	6	160	NO	8
M	60	5	180	YES	21

10 year risk of fatal CVD in high risk regions



10 year risk of fatal CVD in low risk regions



Increased discordance between HeartScore and coronary artery calcification score after introduction of the new ESC prevention GL.

Until 2012 Germany and Denmark were considered to be high-risk countries but have now been defined as low-risk countries.

To address the consequences of this downgrading, a screening of 3932 individuals from Germany and Denmark free of CVD (mean age 56 years, 46% male) was performed. HeartScore was measured using both the low-risk and the high-risk country models. A non-contrast Cardiac-CT scan was performed to detect coronary artery calcification (CAC).

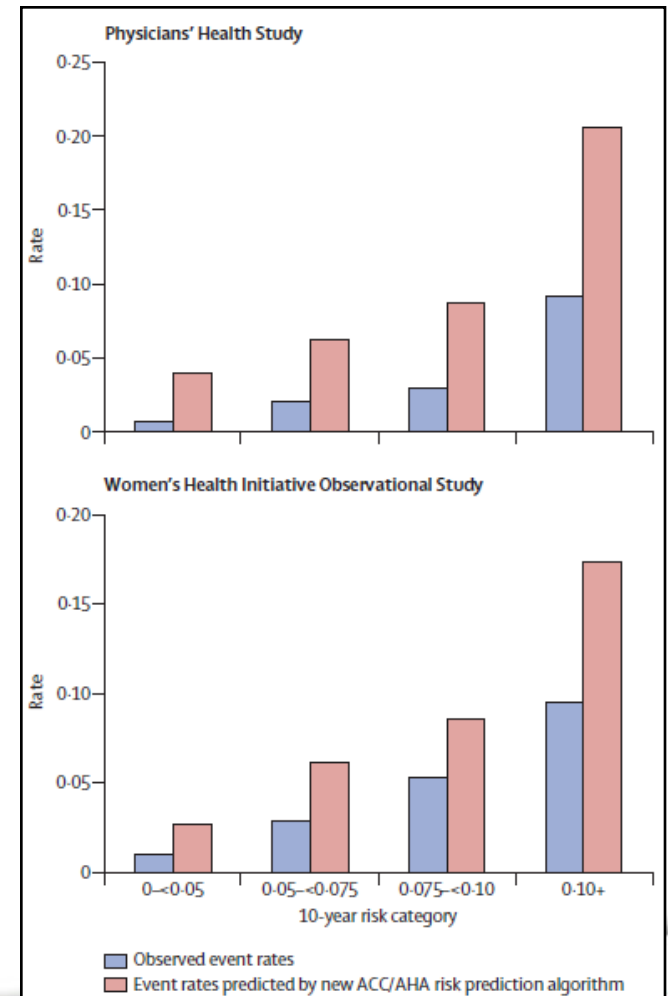
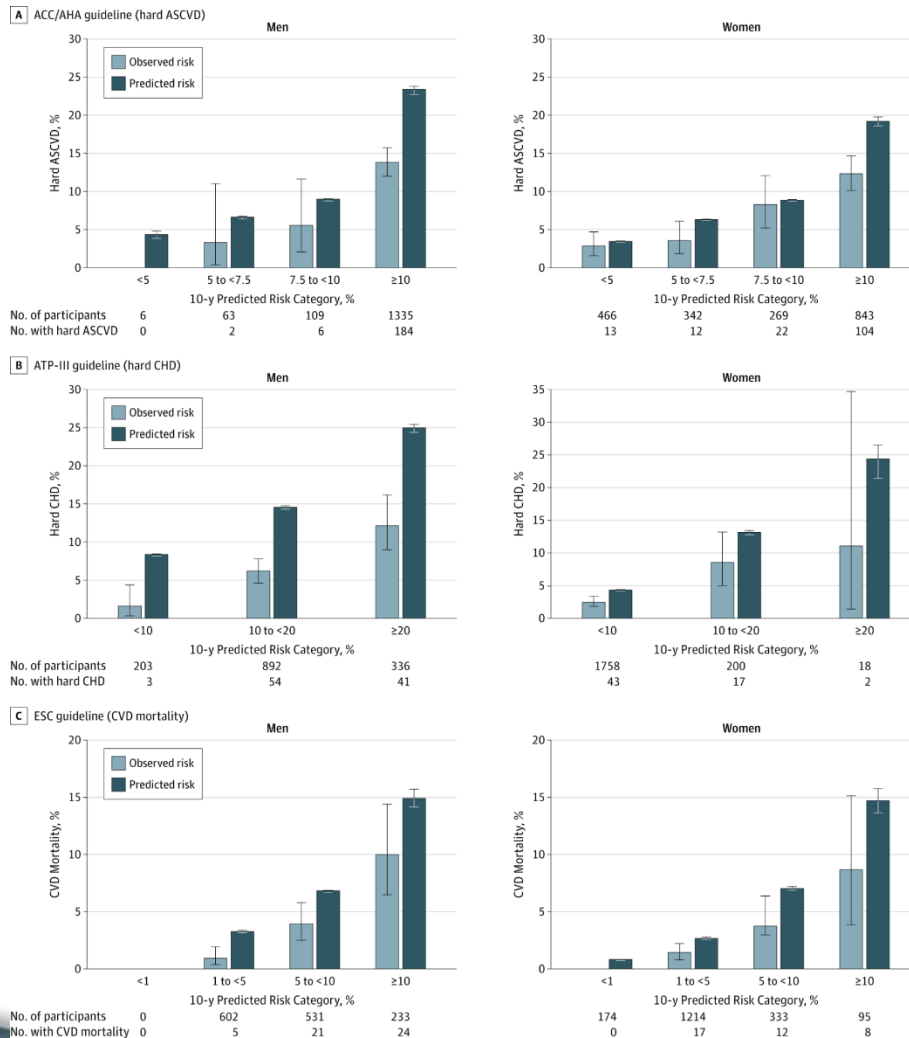
Agreement of HeartScore risk groups with CAC groups was poor, but higher when applying the algorithm for the low-risk compared to the high-risk country model (agreement rate: 77% versus 63%, and weighted Kappa: 0.22 versus 0.15).

However, the number of subjects with severe coronary calcification (CAC score ≥ 400) increased in the low and intermediate HeartScore risk group from 78 to 147 participants (from 2.7 % to 4.2 %, $p = 0.001$), when estimating the risk based on the algorithm for low-risk countries.

CONCLUSION:

As a consequence of the reclassification of Germany and Denmark as low-risk countries more people with severe atherosclerosis will be classified as having a low or intermediate risk of fatal cardiovascular disease.

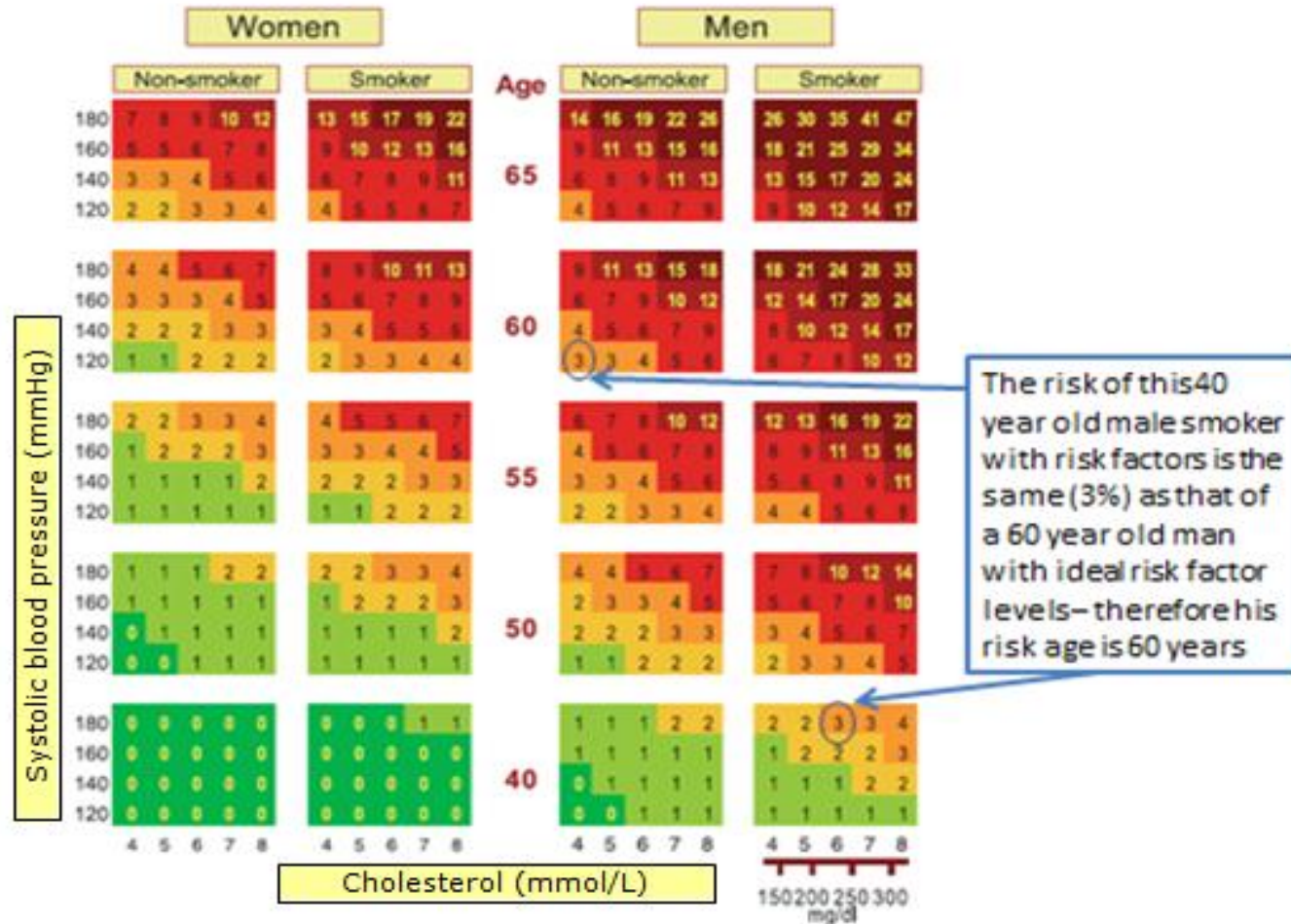
Overestimation of Risk



Kavousi et al, JAMA 2014

Ridker et al, Lancet, 2013

Risk age, a new concept



See also: www.heartscore.org: HDL charts now included

Priorities: New: 4 categories of risk:

Very high Risk:	Subjects with any of the following: <ul style="list-style-type: none"> • Documented CVD • Diabetes (1 or 2) with one or more RFs &/or target organ damage • Patients with moderate to severe CKD (GFR <30ml/min/1.73m²) • SCORE $\geq 10\%$
High Risk:	Subjects with : <ul style="list-style-type: none"> • Markedly elevated single risk factors such as: <ul style="list-style-type: none"> • familial dyslipidaemias • severe hypertension. • SCORE of $\geq 5\%$ and <10% • Diabetes (1 or 2) without CV RFs or target organ damage • Mod CKD (GFR 30-59)
Moderate Risk:	SCORE is ≥ 1 and <5% at 10 years, further modulated by: <ul style="list-style-type: none"> • family history of premature CAD, • abdominal obesity, • physical activity pattern • HDL-C, • TG, • hsCRP • social class
Low Risk:	SCORE less than 1% and free of qualifiers

Targets

Smoking	No exposure to tobacco in any form
Diet	Healthy diet- low in saturated fat with a focus on wholegrain products, vegetables, fruit and fish
Physical Activity	2.5 to 5 hours moderately vigorous physical activity per week or 30-60 minutes most days
Body weight	BMI 20-25. Waist circumference <94 cm (men) or <80 cm (women)
Blood pressure	BP <140/90
Lipids	Very high risk: LDL<1.8mmol/l or >50% reduction High risk: LD <2.5mmo/l Low to moderate risk: LDL<3mmol/l HDL cholesterol: No target, but >1.0mmol/l in men and >1.2mmol/l in women indicates lower risk Triglycerides: No target but <1.7mmol/l indicates lower risk and higher levels indicate a need to look for other risk factors
Diabetes	HbA1C: <7% , BP< 140/80

Major new key messages since the 2012 prevention guidelines:

Four levels of CVD risk
More European countries at low risk
The risk-age concept
The importance of psychosocial risk factors
Limited role of novel risk biomarkers

No exposure to passive smoking
The role of specific diet patterns
Underweight, a possible risk factor
Multimodal behavioural intervention effective

Major new key messages continued

Blood pressure

Lifestyle measures needed for hypertensive patients

All major antihypertensives equal for clinical use

Target blood pressure < 140/90 mmHg

Threshold values for ambulatory and home measurement

Diabetes mellitus

Target HbA1c for CVD prevention: < 7.0% (<53 mmol/mol)

Target blood pressure < 140/80 mmHg

Blood lipids

Target LDL-cholesterol:

<1.8 mmol/L for very high risk patients

<2.5 mmol/L for high risk patients

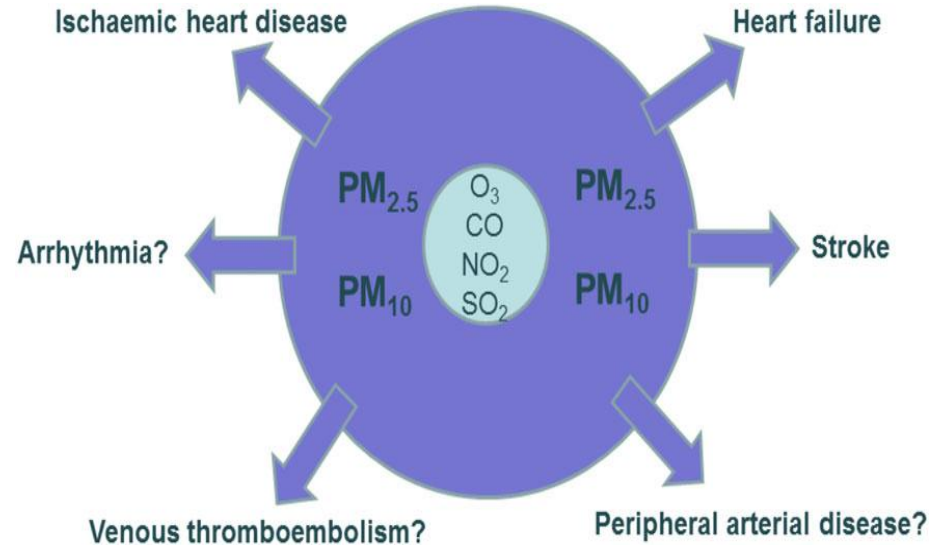
<3.0 mmol/L for all others

JTF5: Who should benefit?

1. Strategies and risk estimation: SCORE, new definitions of low and high risk countries, risk age, 4 categories of risk, targets defined
2. Genetics: Check relatives if premature CVD!
3. Age and gender: Deserve the same treatment!
4. Psychosocial risk factors: The poor DO die young and stress and deprivation impede adherence
5. Other biomarkers of risk: Modest effects in re-classifying persons at intermediate risk close to intervention thresholds
6. Imaging in CVD prevention: The bridge between primary and secondary prevention
7. Other diseases associated with increased risk: High risk in CKD affirmed. Assess risk in sleep apnoea and erectile dysfunction. Inflammatory states increase risk

Expert position paper on air pollution and cardiovascular disease

Air pollution has wide-ranging and deleterious effects on human health and is a major issue for the global community. The Global Burden of Disease study has described the worldwide impact of air pollution with as many as 3.1 million of 52.8 million all-cause and all-age deaths being attributable to ambient air pollution in the year 2010.¹ Moreover, ambient air pollution ranked ninth among the modifiable disease risk factors, being listed above other commonly recognized factors, such as low physical activity, a high-sodium diet, high cholesterol, and drug use. Finally, air pollution accounts for 3.1% of global disability-adjusted life years, an index that measures the time spent in states of reduced health.¹



CVD Prevention: Current and Future Guidelines: Theme:

- The new ESC Guidelines on CVD prevention and the ESC/EAS lipid guidelines are due in 2016
- Are the present categories of risk appropriate?
- Should we retain the target-based approach?

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ROME 2016

27 – 31 August



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www.escardio.org/ESC2016



Thank you