

Lifestyle

Professor David A Wood

Garfield Weston Professor of
Cardiovascular Medicine
International Centre for
Circulatory Health
Imperial College London

European Guidelines on cardiovascular disease prevention in clinical practice (version 2012)

The Fifth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice (constituted by representatives of nine societies and by invited experts)

Developed with the special contribution of the European Association for Cardiovascular Prevention & Rehabilitation (EACPR)[†]

Lifestyle and risk factor targets

Lifestyle: No smoking; making healthy food choices and being physically active

- BMI 20–25 kg/m²
- Waist circumference <94cm for men and <80cm for women
- Blood pressure 130/80 - 139/85 mmHg
- LDL cholesterol < 2.5 mmol/l (100 mg/dl) and < 1.8 mmol/l (70 mg/dl) in those at very high CVD risk or ≥ 50% LDL lowering
- Good glycaemic control in all persons with diabetes (HbA1c <7%)



- No smoking
- Make healthy food choices and limit energy intake to the amount needed to maintain a healthy weight
- Be physically active



Smoking cessation after myocardial infarction

RR (95% CI)

0.63 (0.51-0.79)

0.46 (0.23-0.92)

0.81 (0.68-0.97)

0.52 (0.32-0.83)

0.45 (0.37-0.54)

0.76 (0.51-1.12)

0.70 (0.49-1.01)

0.79 (0.58-1.06)

0.71 (0.50-1.01)

0.69 (0.49-0.98)

0.57 (0.35-0.94)

0.48 (0.27-0.84)

0.39 (0.20-0.74)

0.59 (0.39-0.91)

0.34 (0.12-0.97)

0.62 (0.33-1.15)

0.48 (0.27-0.86)

0.72 (0.61-0.85)

0.68 (0.59-0.78)

0.93 (0.62-1.38)

0.64 (0.58-0.71)

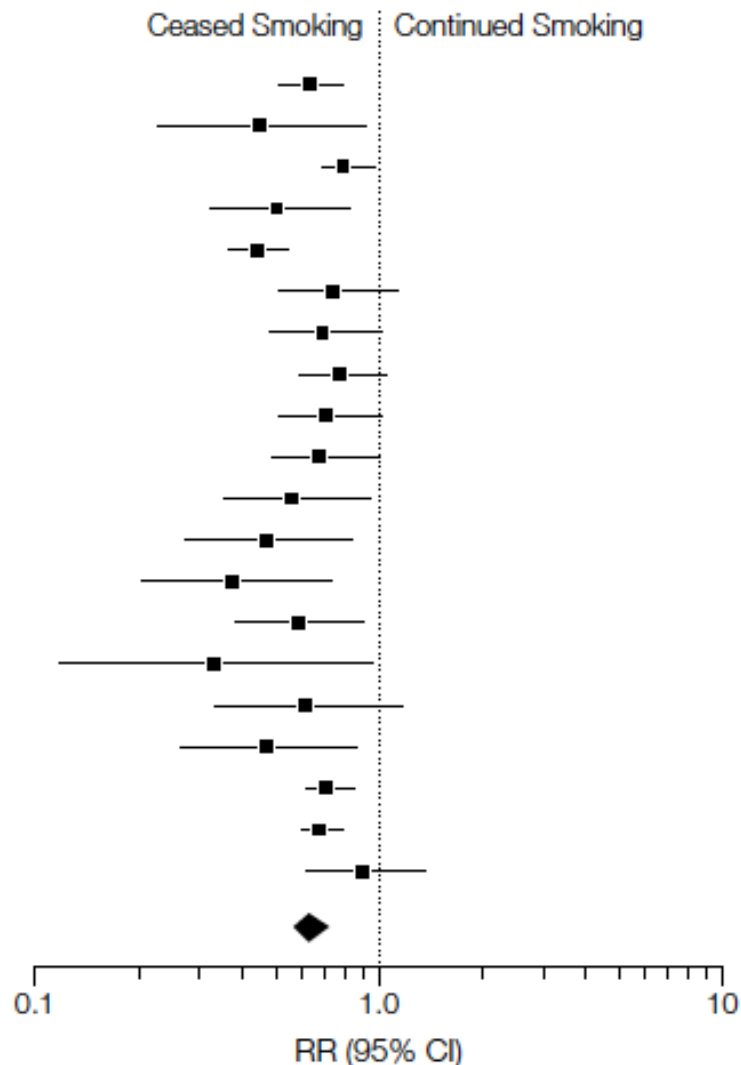
Ceased Smoking

Continued Smoking

0.1 1.0 10

RR (95% CI)

Critchley J A, et al JAMA 2003 290 86-97



Pharmacotherapy for smoking cessation

Nicotine replacement therapy

Bupropion

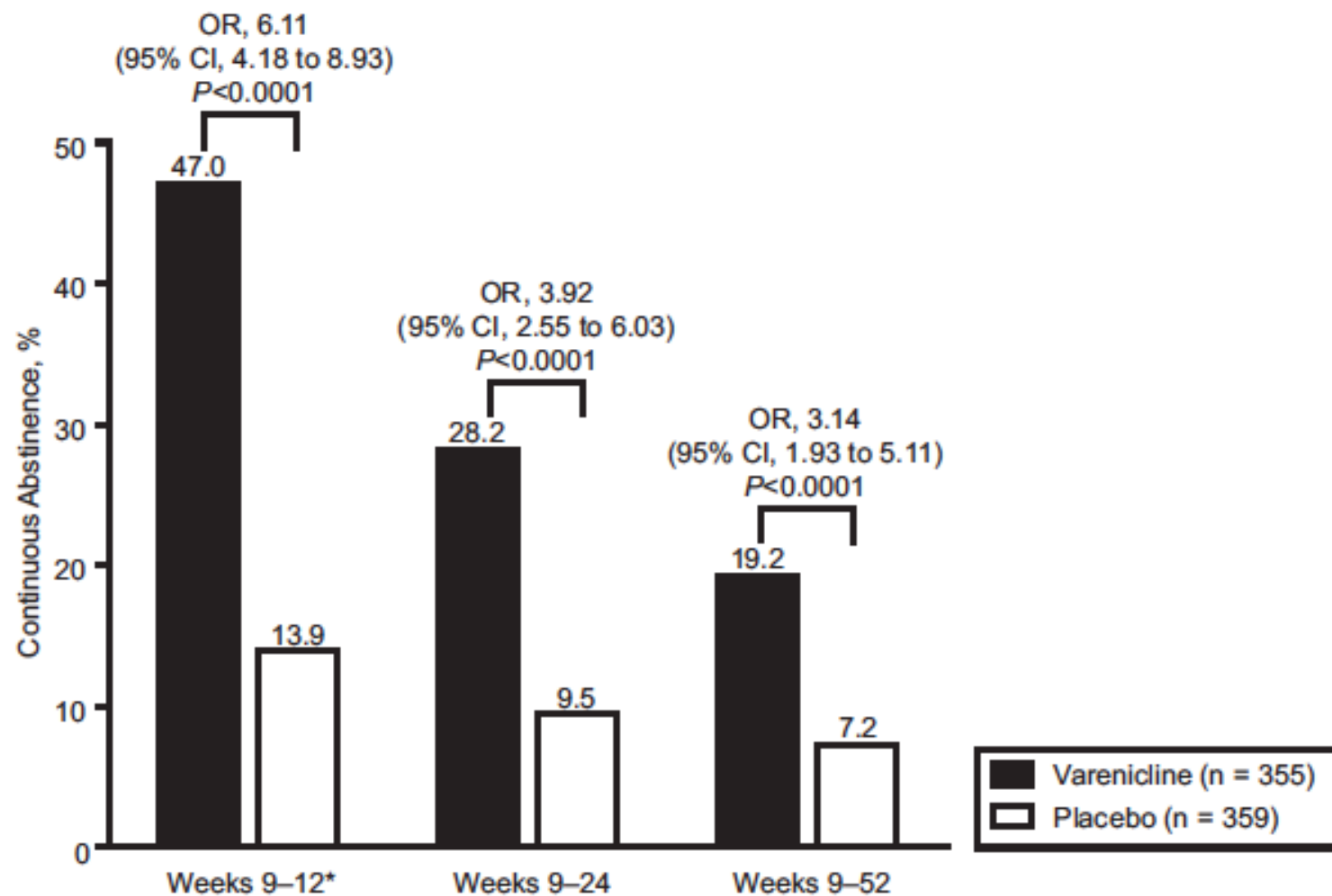
Varenicline

Varenicline binds to the alpha 4 beta 2 receptors in brain (normally stimulated by cigarettes) and partially blocks and stimulates them

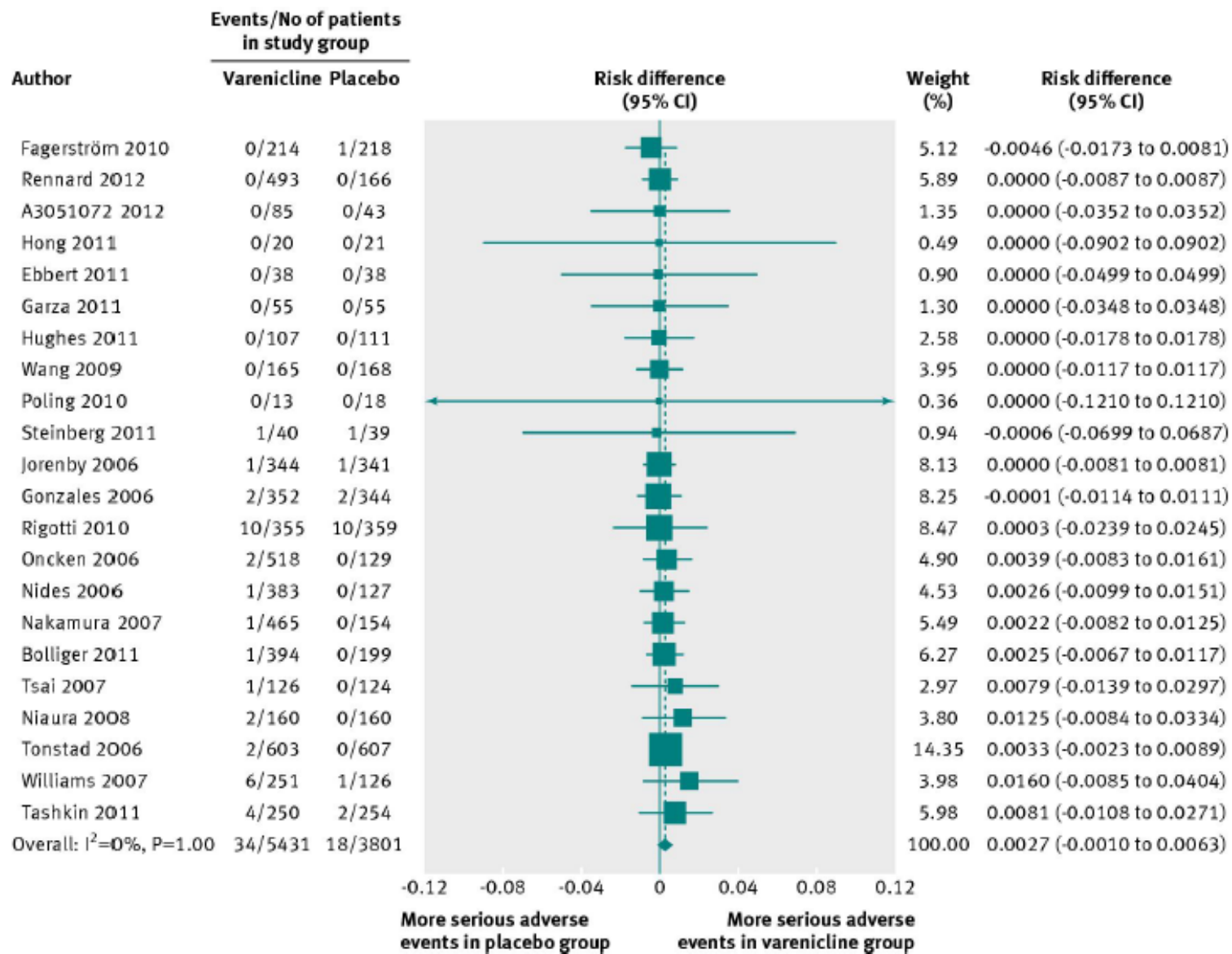
Nicotine replacement therapy and smoking cessation

| Outcome or subgroup title | No. of studies | No. of participants | Statistical method | Effect size |
|--|----------------|---------------------|---------------------------------|-------------------|
| 1 Smoking cessation at 6+ months follow up | 110 | 43040 | Risk Ratio (M-H, Fixed, 95% CI) | 1.58 [1.50, 1.66] |
| 1.1 Gum | 53 | 19090 | Risk Ratio (M-H, Fixed, 95% CI) | 1.43 [1.33, 1.53] |
| 1.2 Patch | 41 | 18237 | Risk Ratio (M-H, Fixed, 95% CI) | 1.66 [1.53, 1.81] |
| 1.3 Inhaler/ Inhalator | 4 | 976 | Risk Ratio (M-H, Fixed, 95% CI) | 1.90 [1.36, 2.67] |
| 1.4 Tablets/ Lozenges | 6 | 3109 | Risk Ratio (M-H, Fixed, 95% CI) | 2.00 [1.63, 2.45] |
| 1.5 Intranasal Spray | 4 | 887 | Risk Ratio (M-H, Fixed, 95% CI) | 2.02 [1.49, 2.73] |
| 1.6 Patch and inhaler | 1 | 245 | Risk Ratio (M-H, Fixed, 95% CI) | 1.07 [0.57, 1.99] |
| 1.7 Choice of NRT product | 2 | 496 | Risk Ratio (M-H, Fixed, 95% CI) | 2.26 [1.26, 4.05] |

Odds of continuous abstinence from smoking using Varenicline following myocardial infarction versus placebo



Risk of serious adverse cardiovascular events with Varenicline







Diet and secondary prevention of cardiovascular disease



Relationship Between Healthy Diet and Risk of Cardiovascular Disease Among Patients on Drug Therapies for Secondary Prevention : A Prospective Cohort Study of 31 546 High-Risk Individuals From 40 Countries

Mahshid Dehghan, Andrew Mente, Koon K. Teo, Peggy Gao, Peter Sleight, Gilles Dagenais, Alvaro Avezum, Jeffrey L. Probstfield, Tony Dans and Salim Yusuf
on Behalf of the Ongoing Telmisartan Alone and in Combination With Ramipril Global End Point Trial (ONTARGET)/Telmisartan Randomized Assessment Study in ACEI Intolerant Subjects With Cardiovascular Disease (TRANSCEND) Trial Investigators

Analytical longitudinal study set within the context of the ONTARGET and TRANSCEND trials

Modified alternative healthy eating index (mAHEI) and primary outcome: cardiovascular events

mAHEI

HR (95% CI)

Primary outcome

Q2 vs Q1

0.96 (0.88, 1.04)

Q3 vs Q1

0.88 (0.80, 0.97)

Q4 vs Q1

0.82 (0.74, 0.91)

Q5 vs Q1

0.78 (0.71, 0.87)

.3

.5

.7

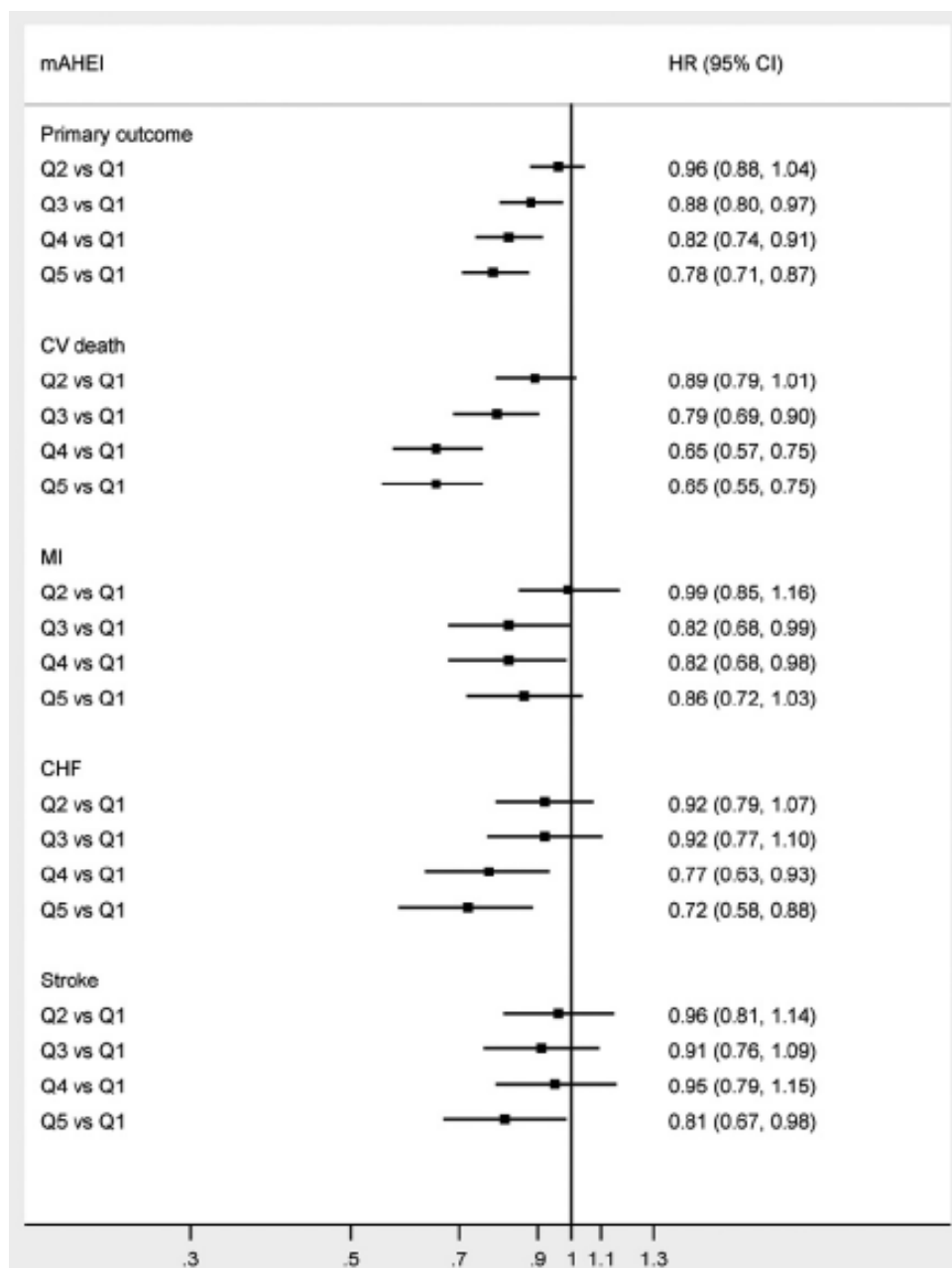
.9

1.1

1.3

Dehghan M, et al Circulation. 2012;126:2705-2712

Modified alternative healthy eating index and risk of CVD



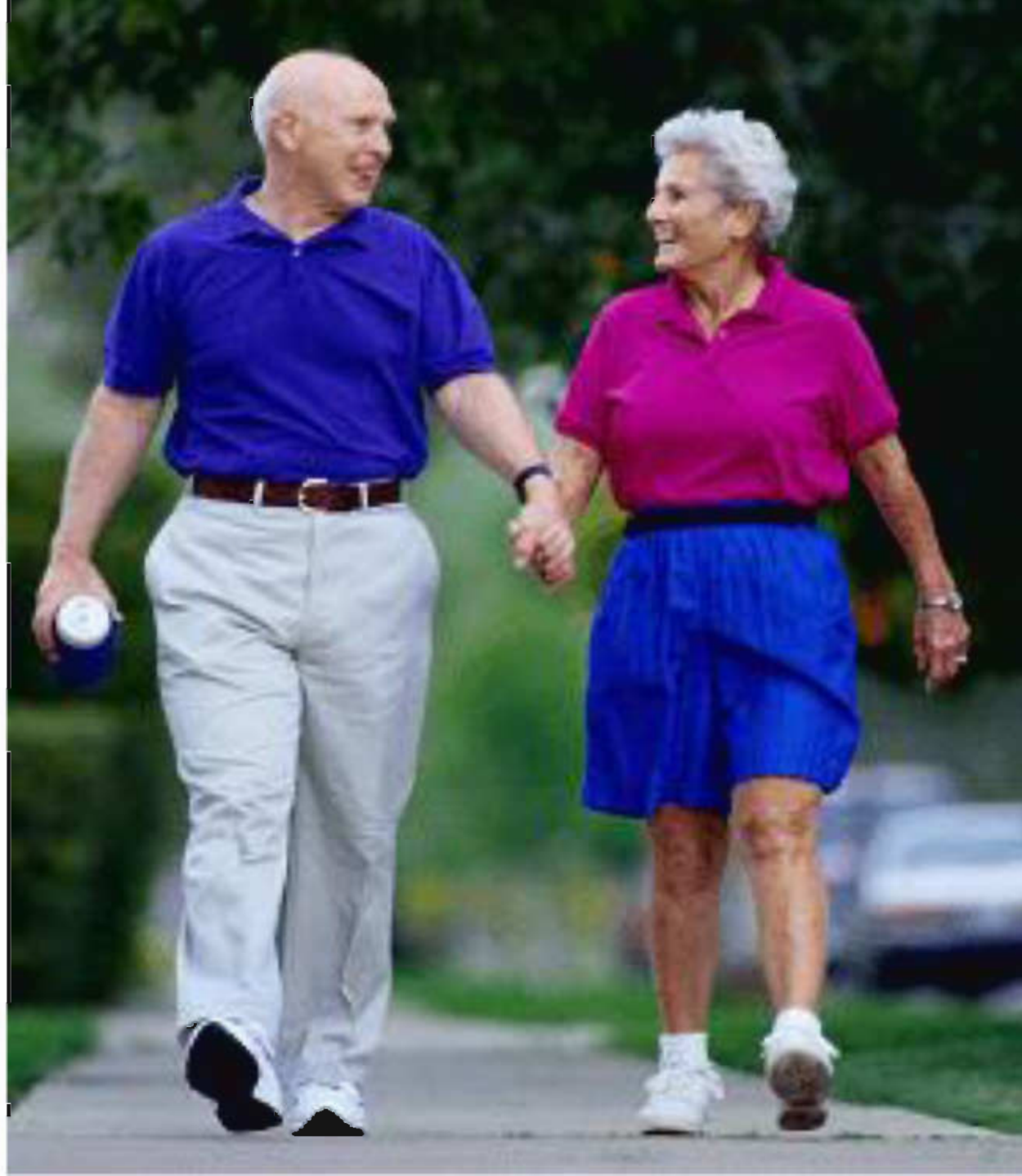
mAHEI and risk of CVD according to cardioprotective drug use

| | mAHEI | | | | <i>P</i> for Trend |
|--------------------------|------------------|------------------|------------------|------------------|--------------------|
| | Q2 vs Q1 | Q 3 vs Q1 | Q4 vs Q1 | Q5 vs Q1 | |
| Aspirin use | | | | | |
| Yes (n=23 828) | 0.96 (0.88–1.06) | 0.86 (0.77–0.95) | 0.80 (0.71–0.89) | 0.79 (0.70–0.89) | <0.001 |
| No (n=7718) | 0.92 (0.78–1.08) | 0.92 (0.78–1.10) | 0.85 (0.71–1.02) | 0.72 (0.60–0.87) | <0.001 |
| β-blocker use | | | | | |
| Yes (n=18 036) | 1.00 (0.89–1.12) | 0.85 (0.75–0.96) | 0.83 (0.72–0.95) | 0.75 (0.66–0.87) | <0.001 |
| No (n=13 510) | 0.91 (0.80–1.02) | 0.91 (0.80–1.04) | 0.80 (0.70–0.92) | 0.81 (0.71–0.93) | <0.001 |
| Statin use | | | | | |
| Yes (n=19 055) | 0.96 (0.86–1.07) | 0.85 (0.74–0.97) | 0.80 (0.70–0.92) | 0.76 (0.66–0.87) | <0.001 |
| No (n=12 491) | 0.95 (0.83–1.07) | 0.91 (0.80–1.04) | 0.83 (0.72–0.96) | 0.81 (0.71–0.94) | <0.001 |
| Combination of any drugs | | | | | |
| Any 1 drug (n=28 721)* | 0.95 (0.87–1.04) | 0.86 (0.78–0.95) | 0.81 (0.73–0.90) | 0.77 (0.70–0.86) | <0.001 |
| Any 2 drugs (n=11 192) | 0.94 (0.82–1.08) | 0.87 (0.75–1.00) | 0.81 (0.70–0.94) | 0.77 (0.65–0.90) | <0.001 |
| Any 3 drugs (n=10 503) | 1.02 (0.87–1.20) | 0.84 (0.70–0.99) | 0.79 (0.66–0.96) | 0.77 (0.63–0.93) | <0.001 |

Dehghan M, et al Circulation. 2012;126:2705-2712

Alpha Omega Trial: Primary and secondary outcomes in EPA-DHA alone vs placebo//ALA

| | | | |
|--|-------------|-------------|-------------------------|
| Major cardiovascular events* | 14.0 | 13.8 | 1.01 (0.87–1.17) |
| •Incident cardiovascular disease | 7.0 | 7.6 | 0.92 (0.75–1.13) |
| •Death from cardiovascular disease | 3.3 | 3.4 | 0.98 (0.72–1.33) |
| •Death from coronary heart disease | 2.8 | 2.9 | 0.95 (0.68–1.32) |
| •Ventricular arrhythmia-related events | 2.8 | 3.0 | 0.90 (0.65–1.26) |
| •Any death | 7.7 | 7.6 | 1.01 (0.82–1.24) |



Cardiac rehabilitation for patients with CHD

| Clinical outcomes | Statistical method | Effect size |
|--------------------------|--------------------|-------------------|
| Total mortality | OR (95%CI) | 0.87 (0.75, 0.99) |
| Cardiovascular mortality | OR (95%CI) | 0.74 (0.63, 0.87) |

Heran B S, et al Cochrane Database of Systematic Reviews 2011

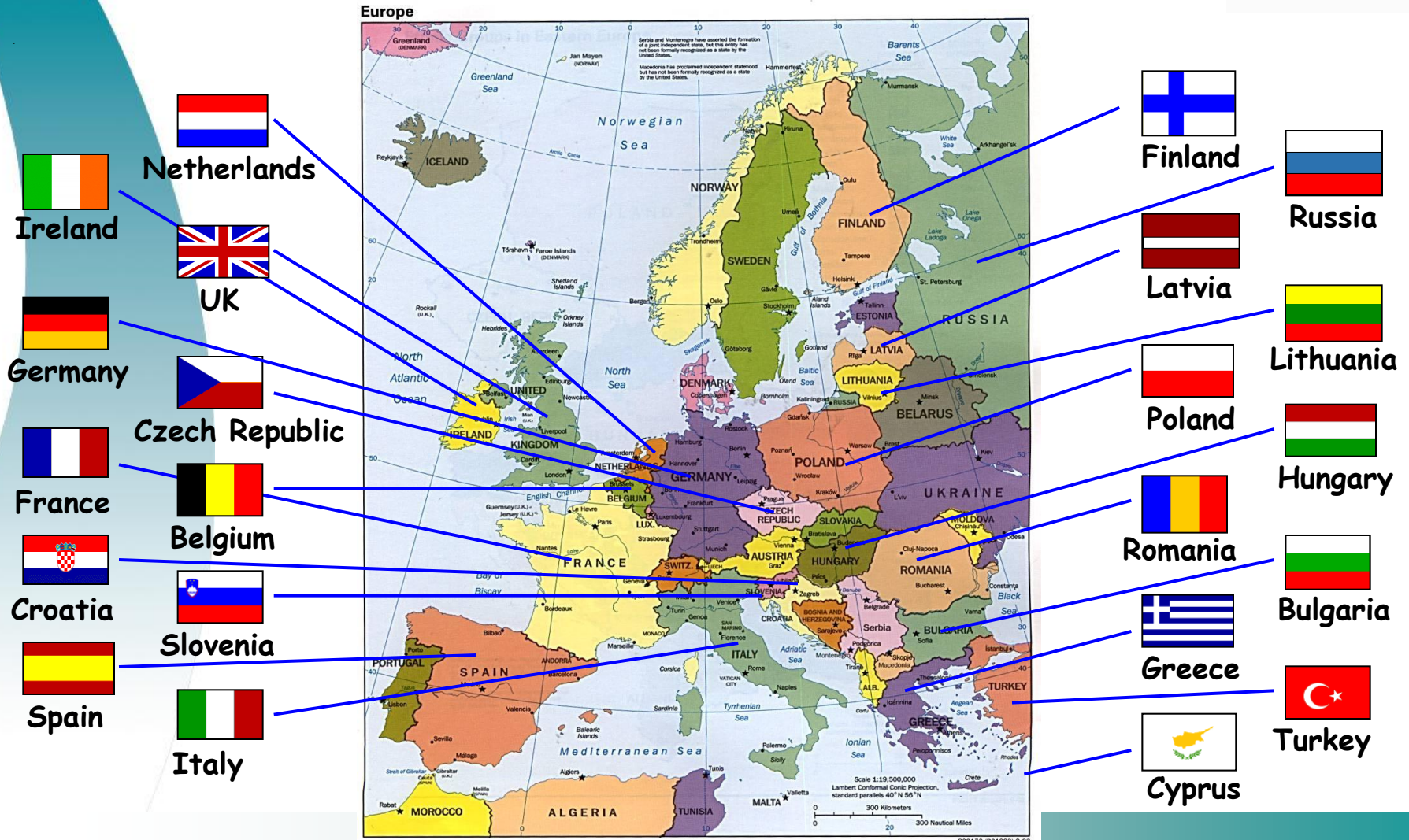


EUROASPIRE III

22 Participating countries



EUROPEAN
SOCIETY OF
CARDIOLOGY®

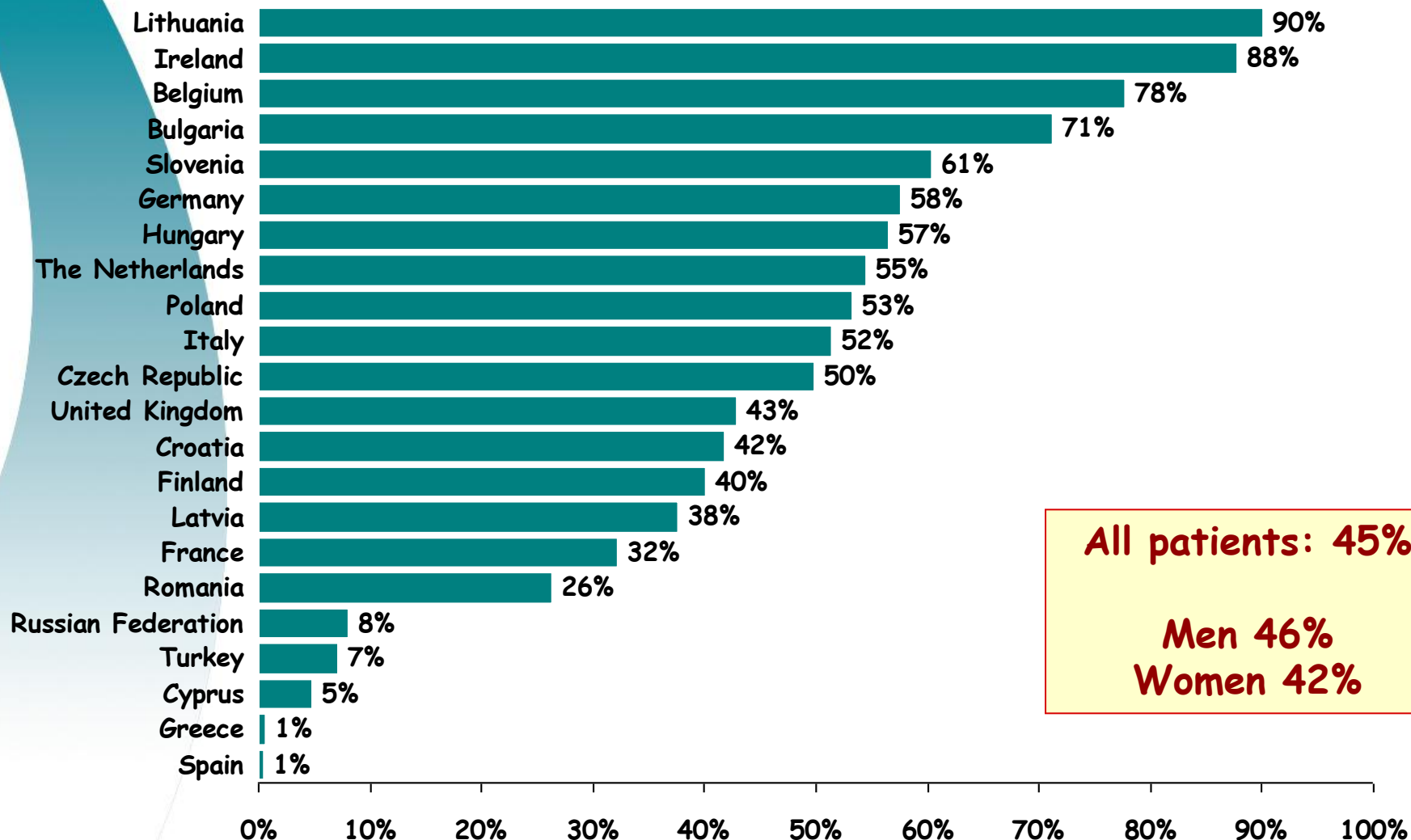


ESC - EUROASPIRE III - EHS

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



Advise to follow a CRP programme* by country

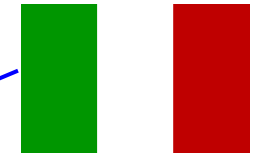
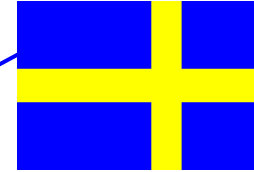
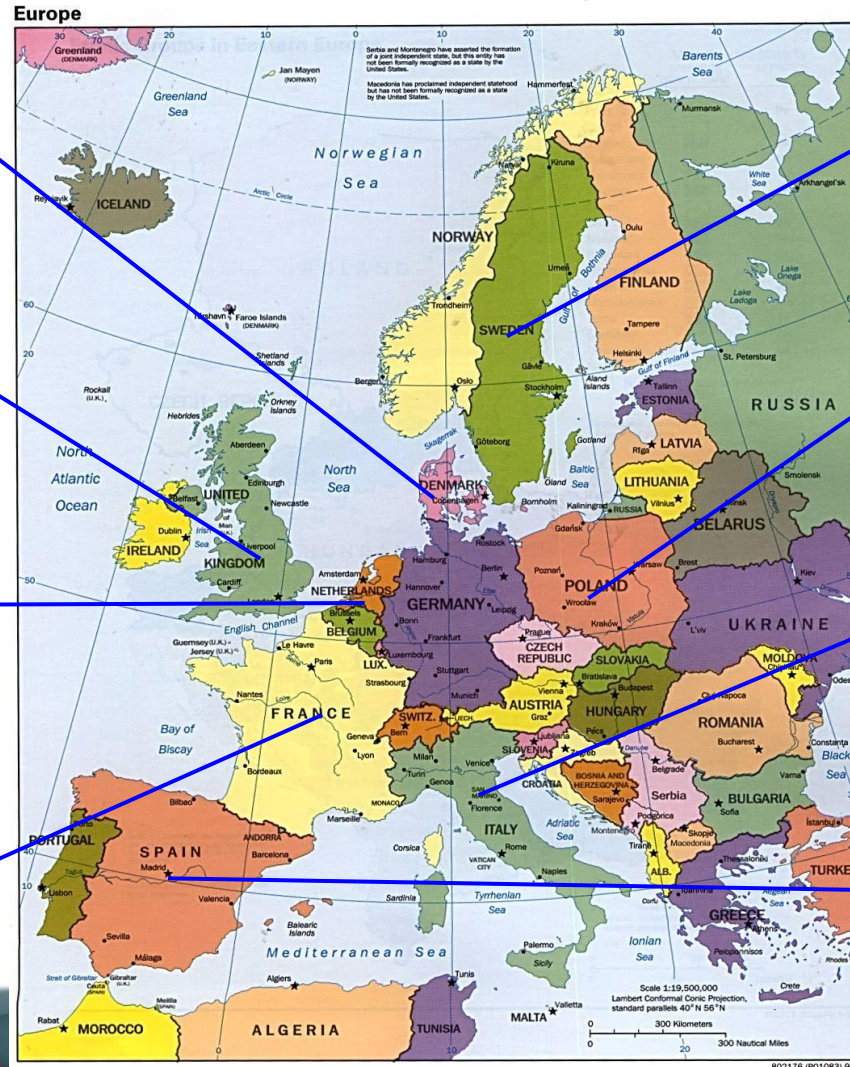
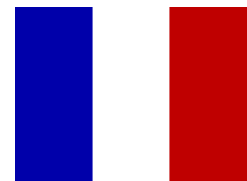
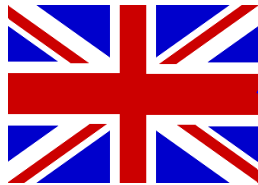
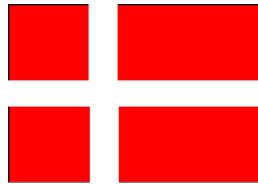


* Within 3 months of discharge following the index event or procedure



EUROACTION

8 countries and 24 hospital and general practice centres
8657 patients and their families

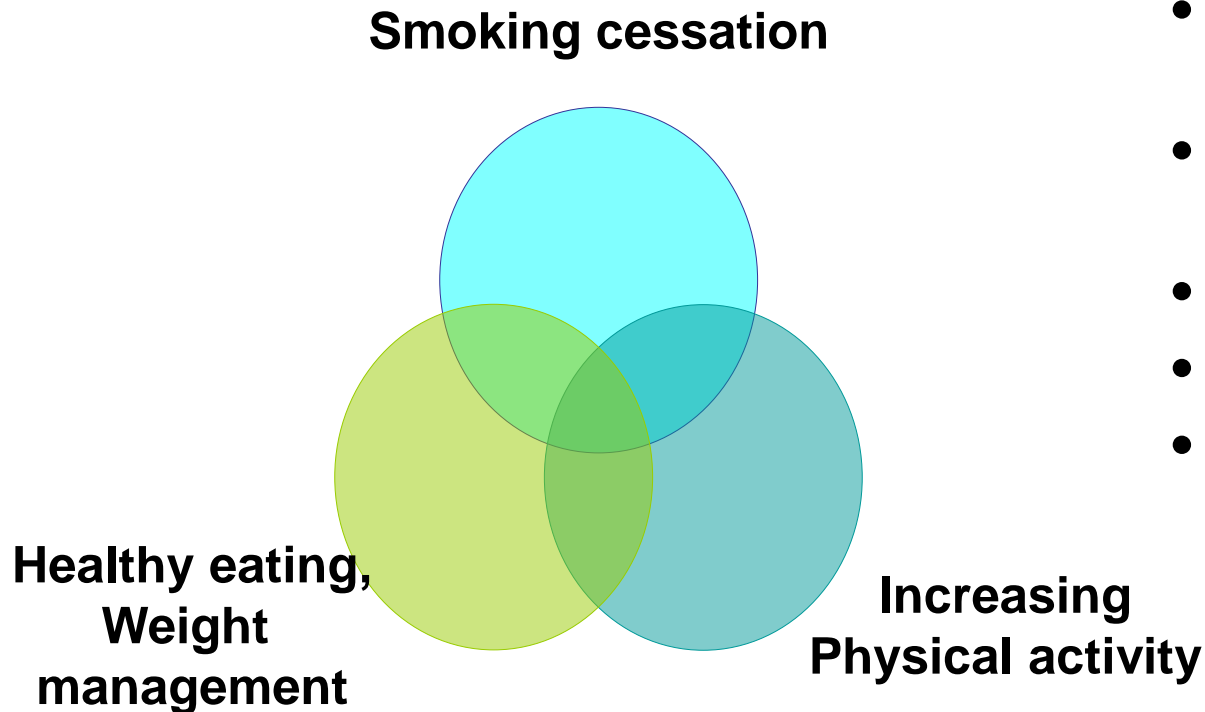


Nurse coordinated multidisciplinary approach to reduce total CVD risk



The multidisciplinary team
with Dr Martini in
Boldrini Hospital, Thiene, Italy

Lifestyle change in families



- *No smoking*
- *Saturated Fat: <10% total Energy*
- *Fruits and vegetables: >400g/day*
- *Fish: >20g/day*
- *Oily Fish: >3 times/week*
- *30-45 minutes of physical activity at 60–75% of the average maximum heart rate on four-five days of the week*
- *Weight reduction $\geq 5\%$*
- *Waist <94 cm in men and <80 cm in women*

Family based lifestyle programme

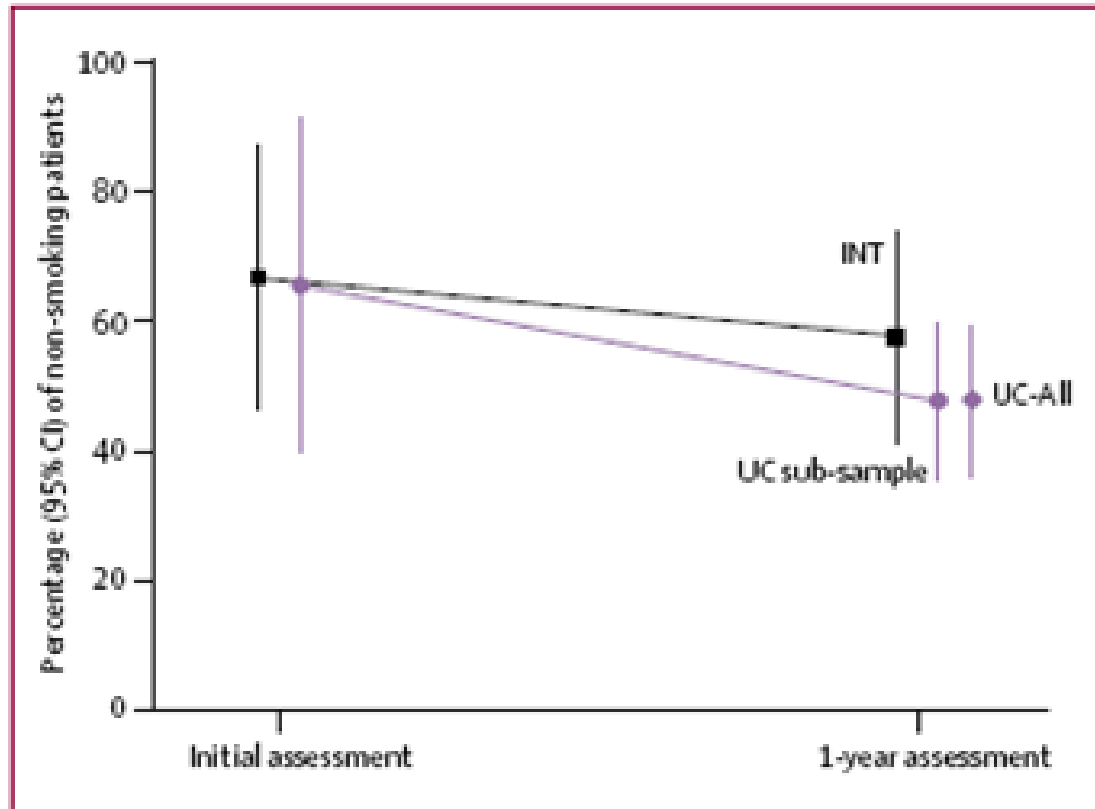
Sweden



Poland

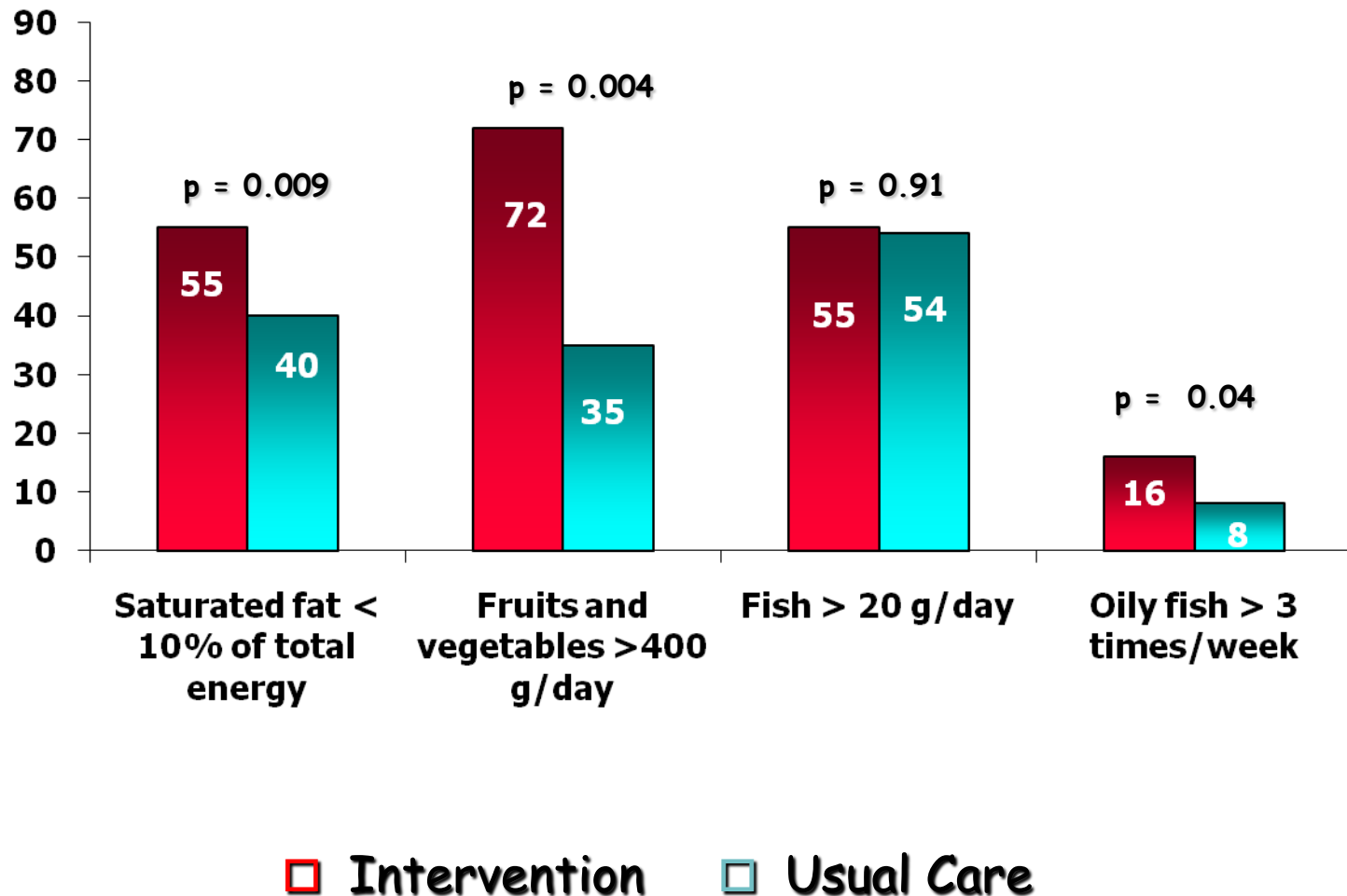


Proportions of patients who were non-smokers at one year

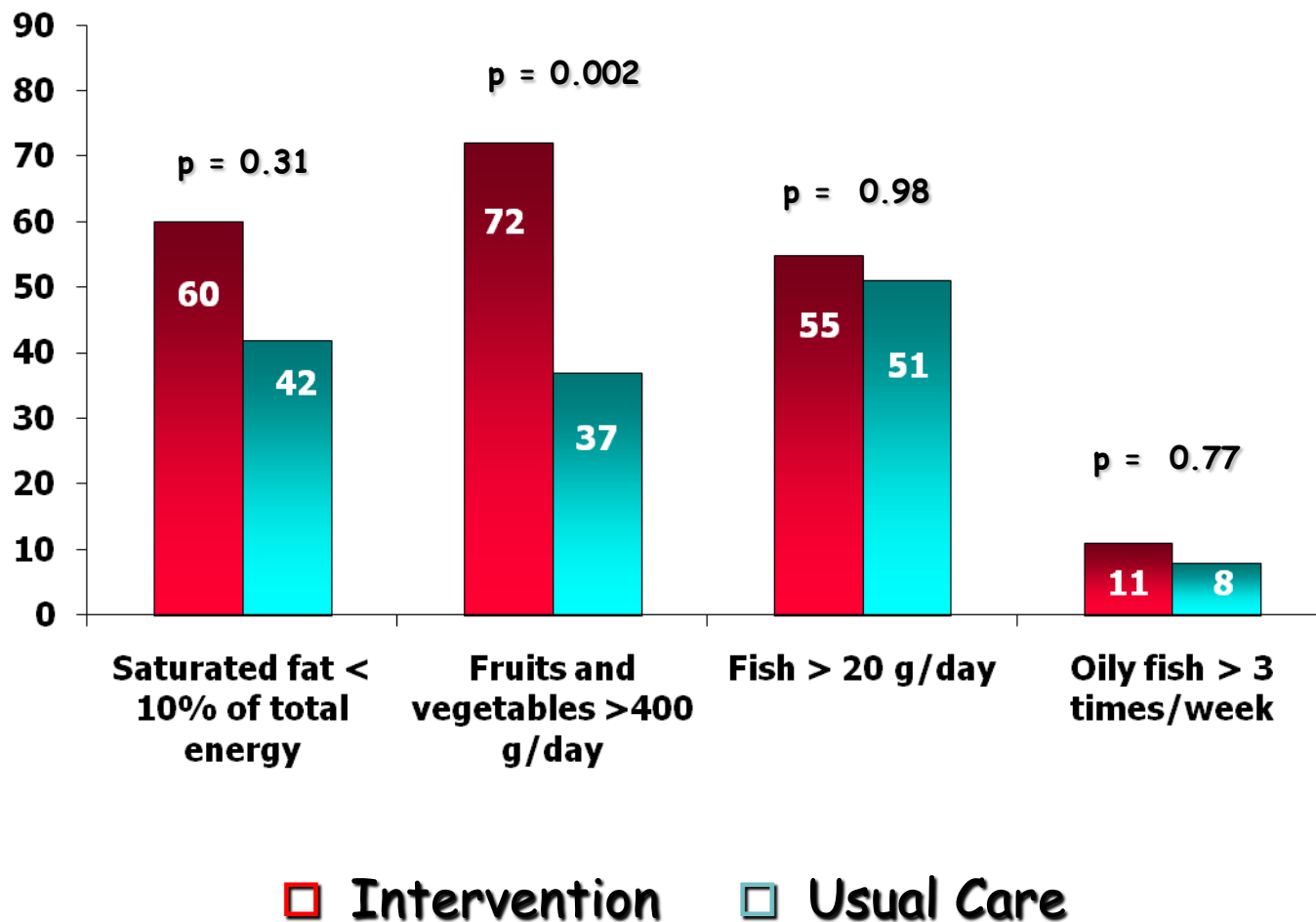


Absolute difference of 10% in favour of intervention

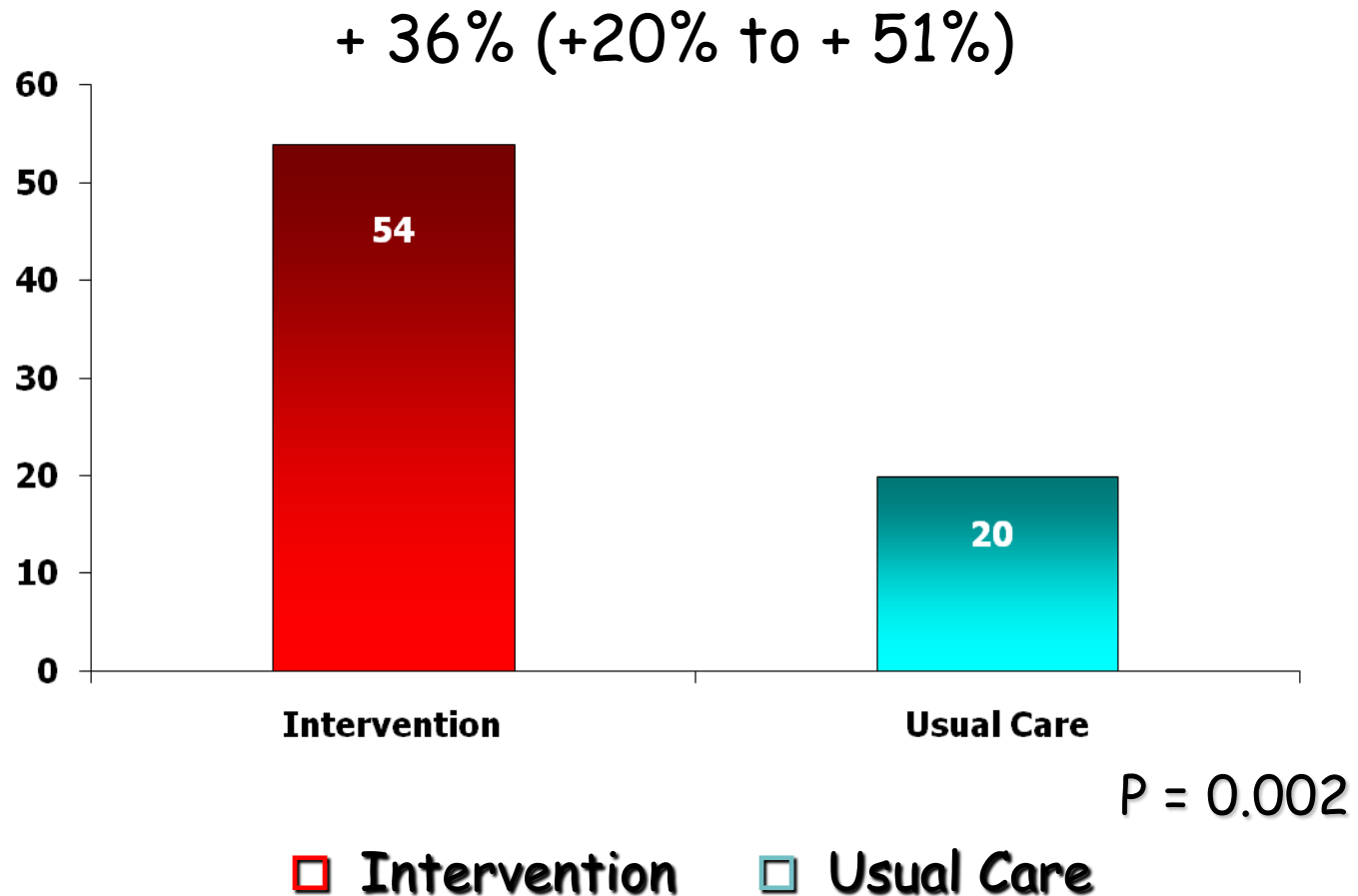
Proportions of coronary patients achieving the European targets for a healthy diet



Proportions of **partners** achieving the European targets for a healthy diet

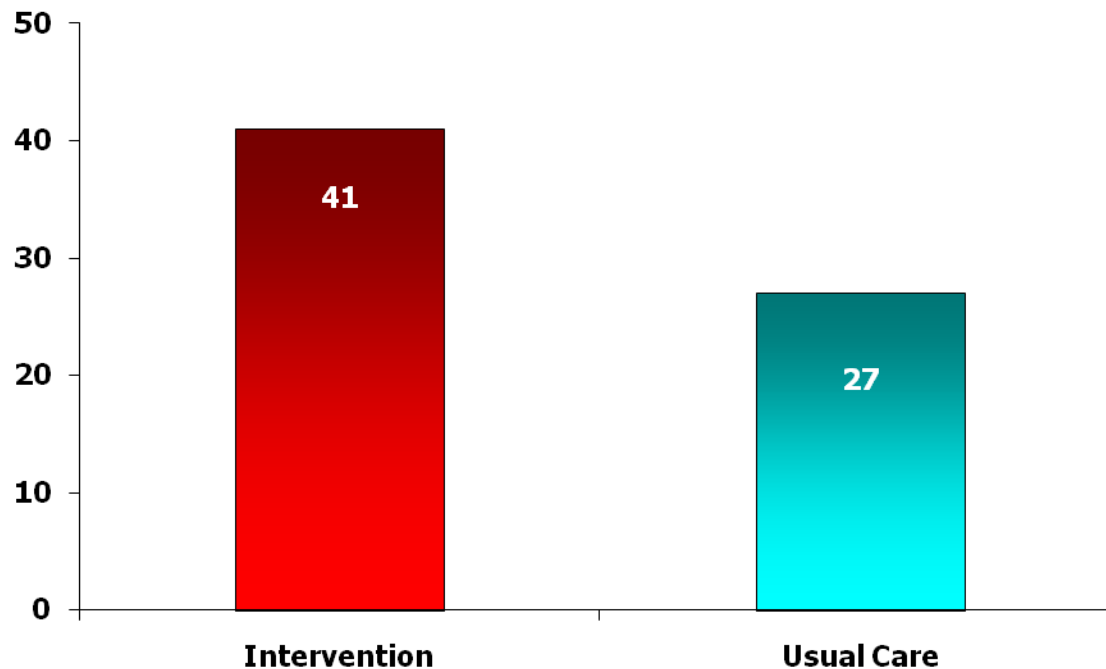


Proportion of coronary patients achieving European Guidelines for physical activity



Proportion of **partners** achieving European Guidelines for physical activity

+ 19% (- 0.6% to + 38%)



P = 0.06

□ Intervention □ Usual Care

Nurse-coordinated multidisciplinary, family-based cardiovascular disease prevention programme (EUROACTION) for patients with coronary heart disease and asymptomatic individuals at high risk of cardiovascular disease: a paired, cluster-randomised controlled trial

*D A Wood, K Kotseva, S Connolly, C Jennings, A Mead, J Jones, A Holden, D De Bacquer, T Collier, G De Backer, O Faergeman, on behalf of EUROACTION Study Group**

Summary

Background Our aim was to investigate whether a nurse-coordinated multidisciplinary, family-based preventive cardiology programme could improve standards of preventive care in routine clinical practice.

Methods In a matched, cluster-randomised, controlled trial in eight European countries, six pairs of hospitals and six pairs of general practices were assigned to an intervention programme (INT) or usual care (UC) for patients with coronary heart disease or those at high risk of developing cardiovascular disease. The primary endpoints—measured at 1 year—were family-based lifestyle change; management of blood pressure, lipids, and blood glucose to target concentrations; and prescription of cardioprotective drugs. Analysis was by intention to treat. The trial is registered as ISRCTN 71715857.

Lancet 2008; 371: 1999-2012

See [Comment](#) page 1973

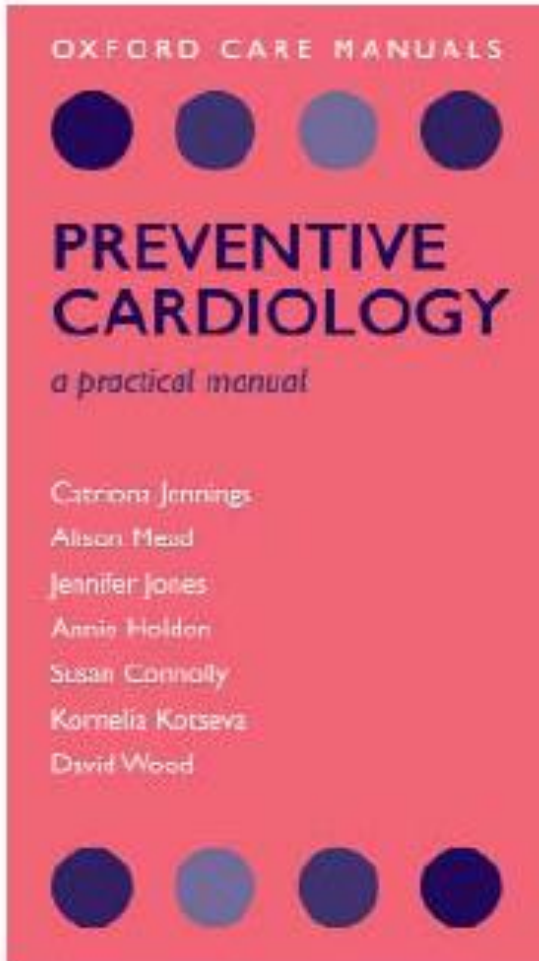
*Members listed at end of paper

Department of Cardiovascular Medicine, National Heart and Lung Institute at Charing Cross Campus, Imperial College, London, UK (Prof D A Wood MSc, K Kotseva MD, S Connolly MD, C Jennings BA, A Mead BSc, J Jones MSc, A Holden MSc);

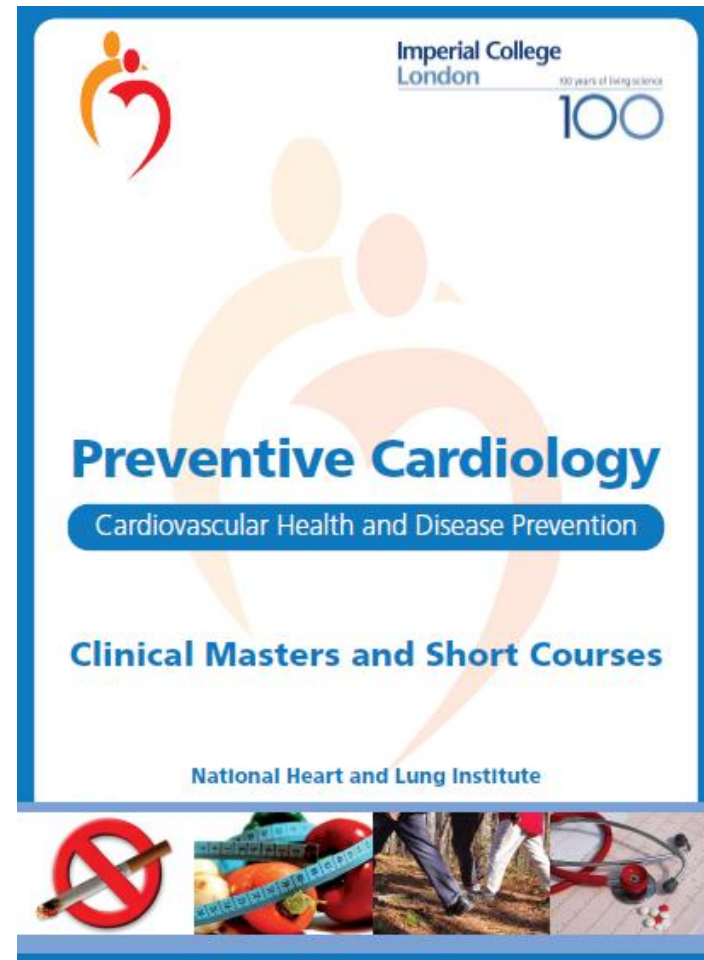


- No smoking
- Make healthy food choices and limit energy intake to the amount needed to maintain a healthy weight
- Be physically active

Preventive Cardiology



Oxford University Press
www.oup.ac.uk



MSc Preventive Cardiology
www.imperial.ac.uk