



Supporting a Healthy Nutrition Policy for Europe (EUPHA Food & Nutrition Section)

NCDs, Healthy & Unhealthy Fats: Policy Implications

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Declaration of commercial interests:

I have nothing to declare

NCDs, Healthy & Unhealthy Fats: Policy Implications

OUTLINE OF MY TALK

- *Fat/cholesterol/CVD paradigm*
- *Prevention evidence base*
- *Disease reductions?*
- *Cost-effectiveness? Speed? Inequalities?*
- *Policy options?*
- *Politics?*



CVD causal pathways







“Upstream” ⇒ **“Downstream”**
determinants **causes**

Food ⇒ **Salt** ⇒ Blood Pressure ↑

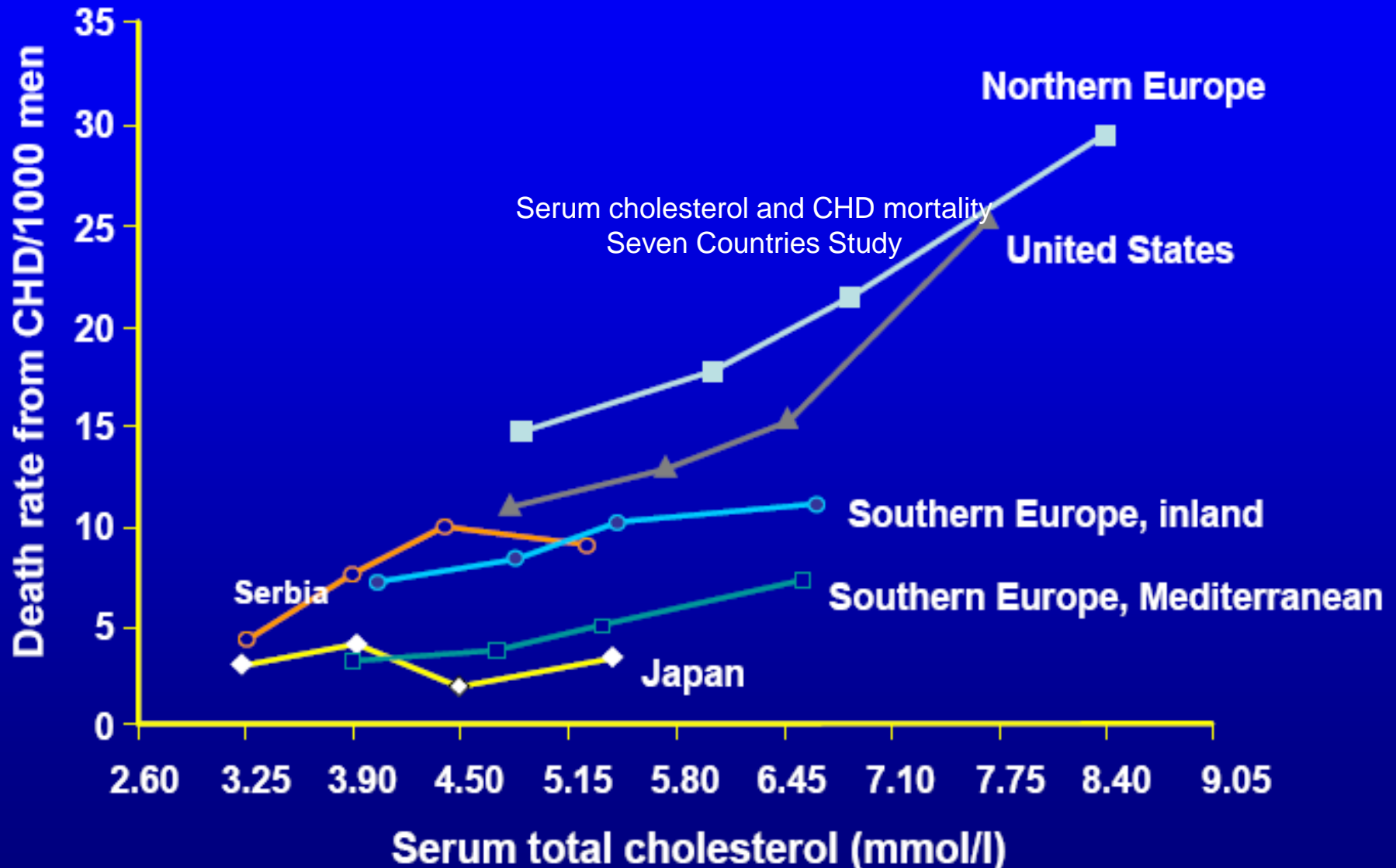
Food ⇒ **Sat Fats** ⇒ Cholesterol ↑

Food ⇒ **Trans Fat** ⇒ Cholesterol ↑

Fatty acids and cholesterol in the blood

	TOTAL	LDL (<u>L</u> ousy)	HDL (<u>H</u> ealthy)
Unsaturated fatty acids			
Saturated fatty acids			

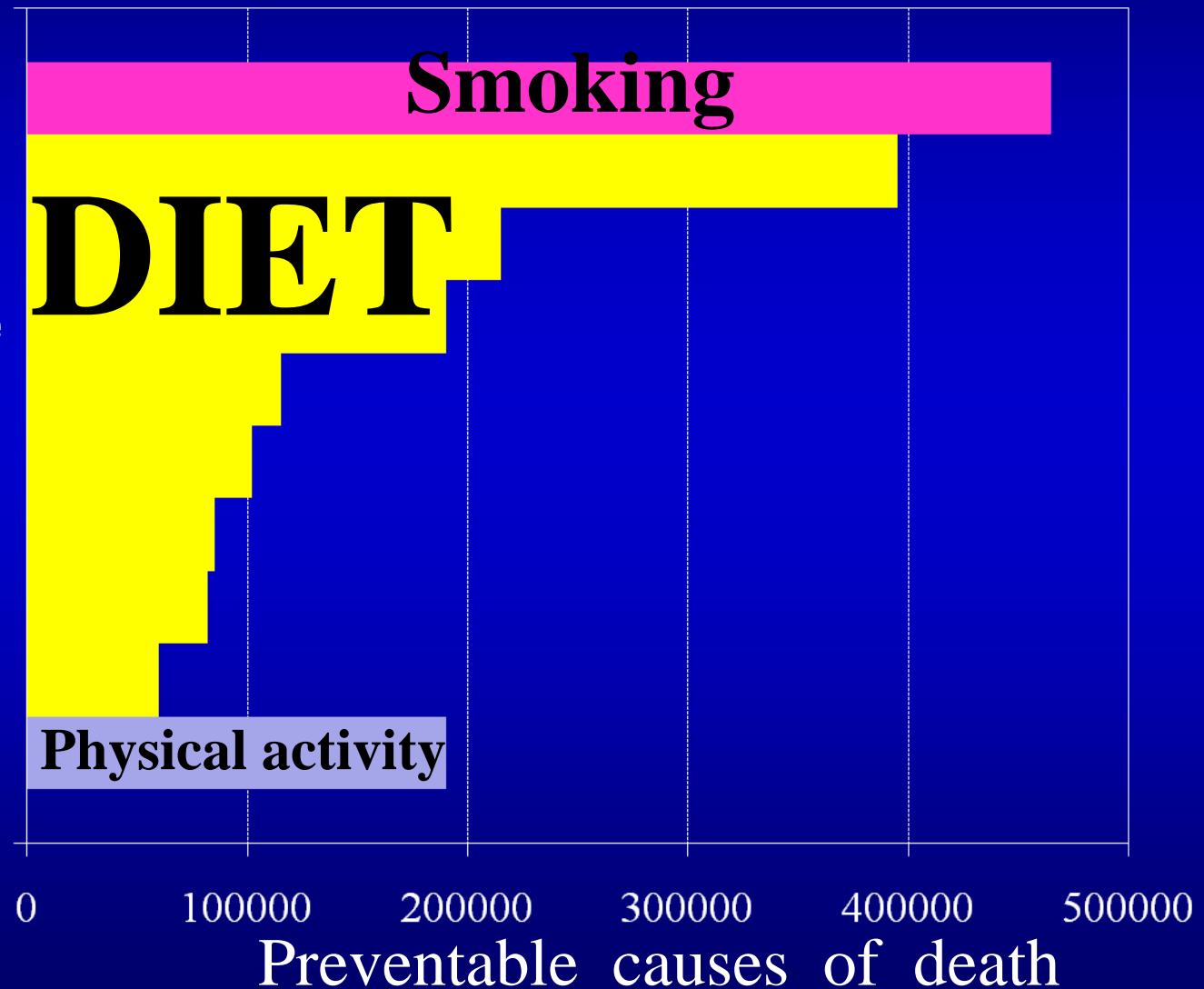
7 Countries study: Higher cholesterol, worse CHD



Preventable causes of death in USA

Danaei et al *PLoS Medicine* 2009

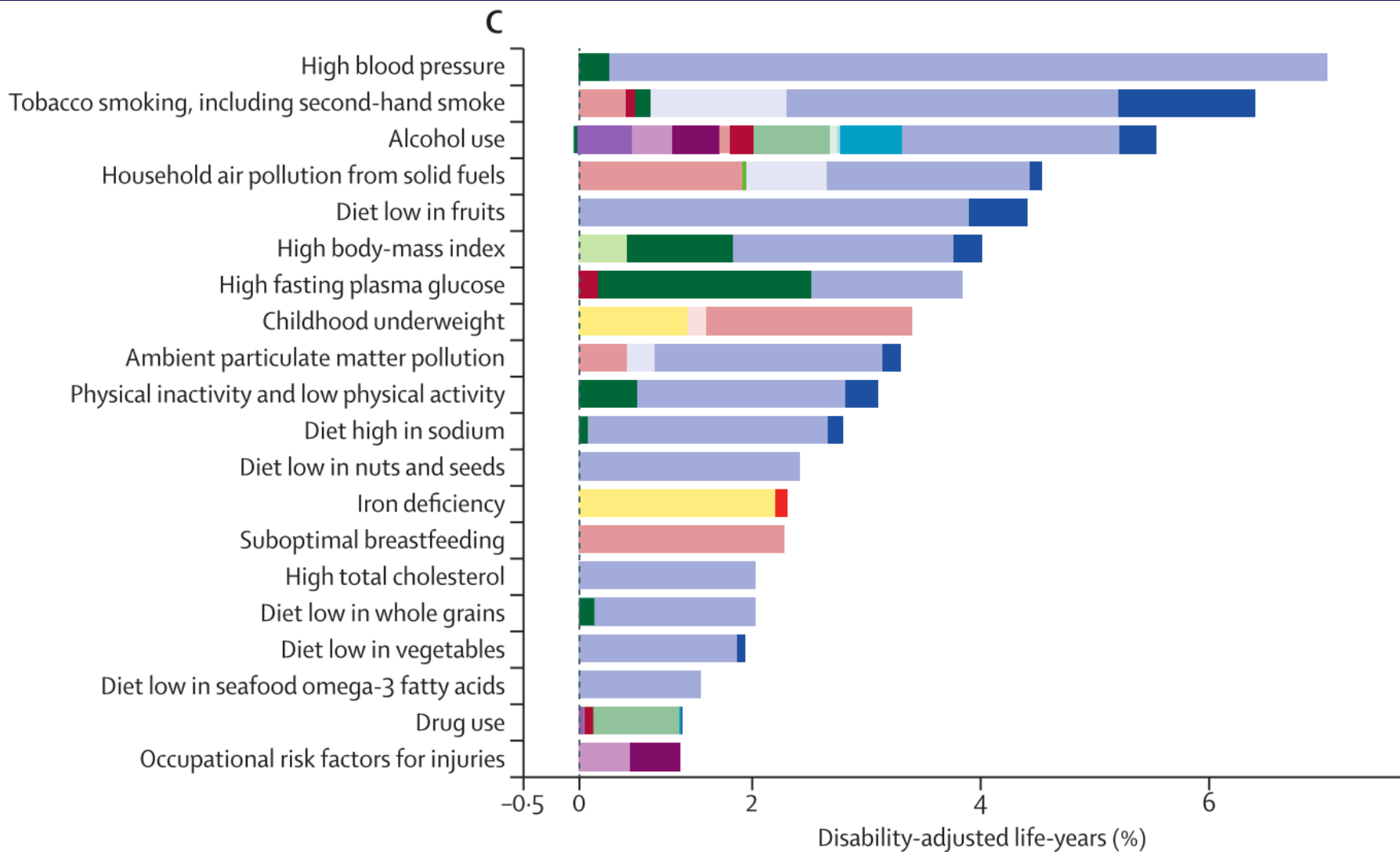
- Tobacco
- High BP
- Overweight
- High Blood Glucose
- High LDL
- Diet Salt
- Low Omega3
- TransFats
- Low Fruit&Veg
- Inactivity



Burden of disease attributable to 20 leading risk factors in 2010

expressed as a percentage of global disability-adjusted life-years

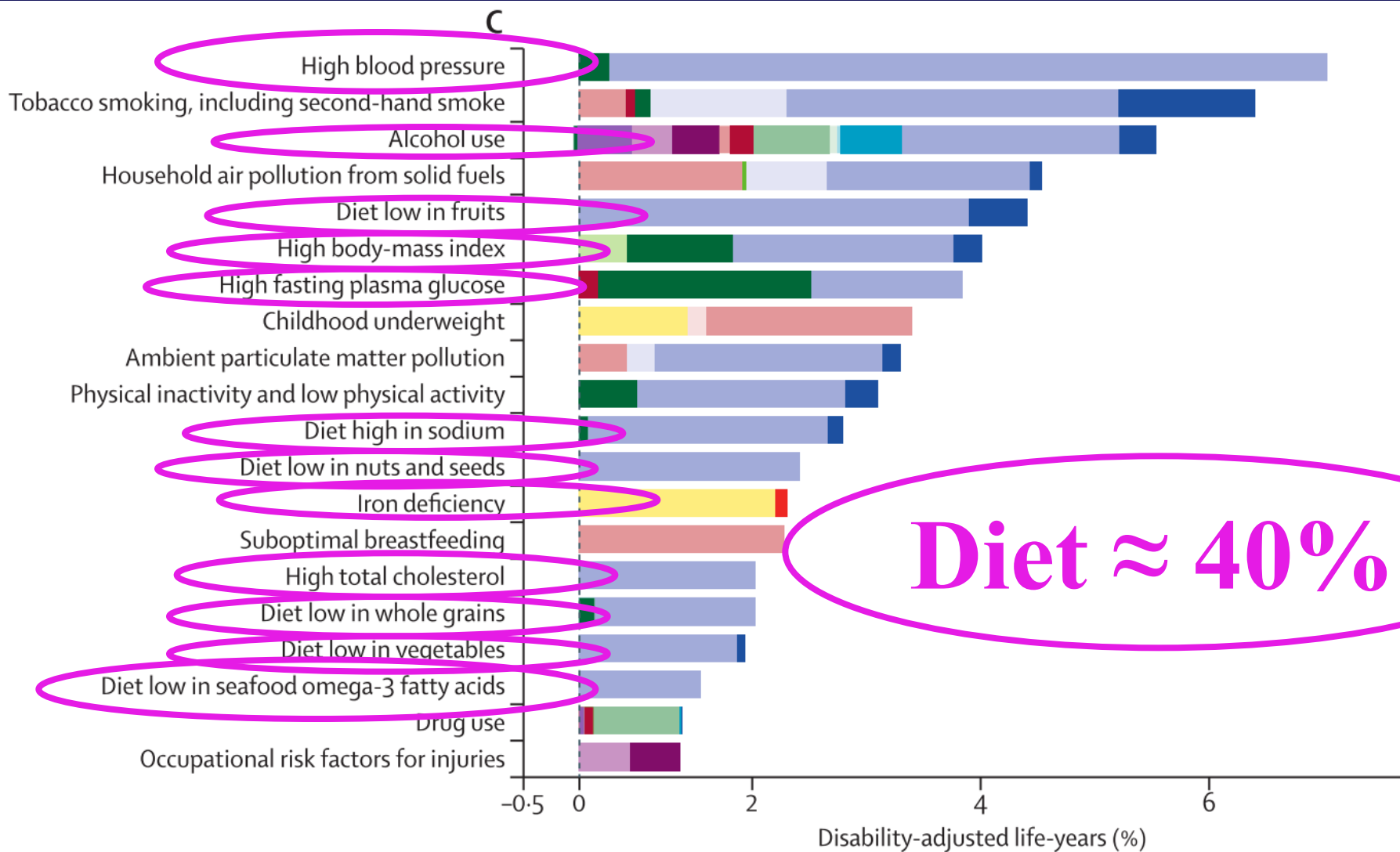
Global Burden of Disease Group. www.thelancet.com 2012 380 2245



Burden of disease attributable to 20 leading risk factors in 2010

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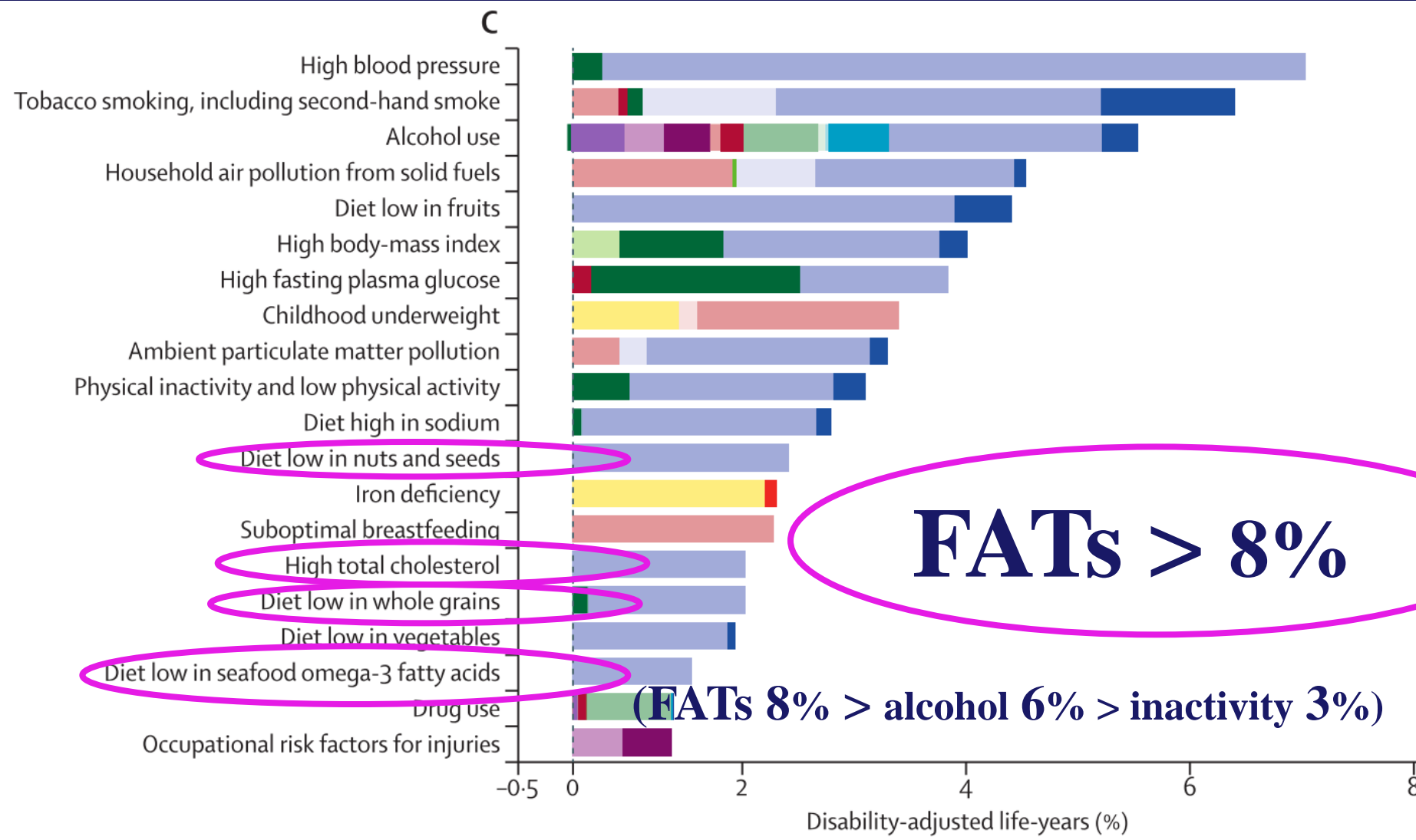
Global Burden of Disease Group. www.thelancet.com 2012 380 2245

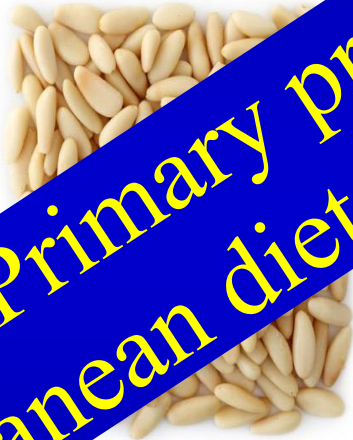


Burden of disease attributable to 20 leading risk factors in 2010

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Global Burden of Disease Group. www.thelancet.com 2012 380 2245





PREDIMED RCT: Primary prevention of CVD
with a Mediterranean diet. Estruch et al NEJM 2013

PREDIMED RCT: Primary prevention of CVD with a Mediterranean diet. Estruch et al NEJM 2013

- Mediterranean diet supplemented with
 - extra-virgin olive oil
- Mediterranean diet supplemented with
 - mixed nuts
- Control diet (advice to reduce dietary fat)



PREDIMED RCT: Primary prevention of CVD with a Mediterranean diet.

Estruch et al NEJM 2013

Results

- **7447 persons enrolled** (age 55 - 80 years); 57% women
- **good adherence** (self-reported intake & biomarkers)
- **CVD events occurred in 288** participants

The multivariable-adjusted hazard ratios

- **0.70** (0.54 to 0.92) with Mediterranean diet & extra-virgin olive oil
- **0.72** (0.54 to 0.96) (96 events) in Mediterranean diet with nuts
- No diet-related adverse effects reported.

Conclusions

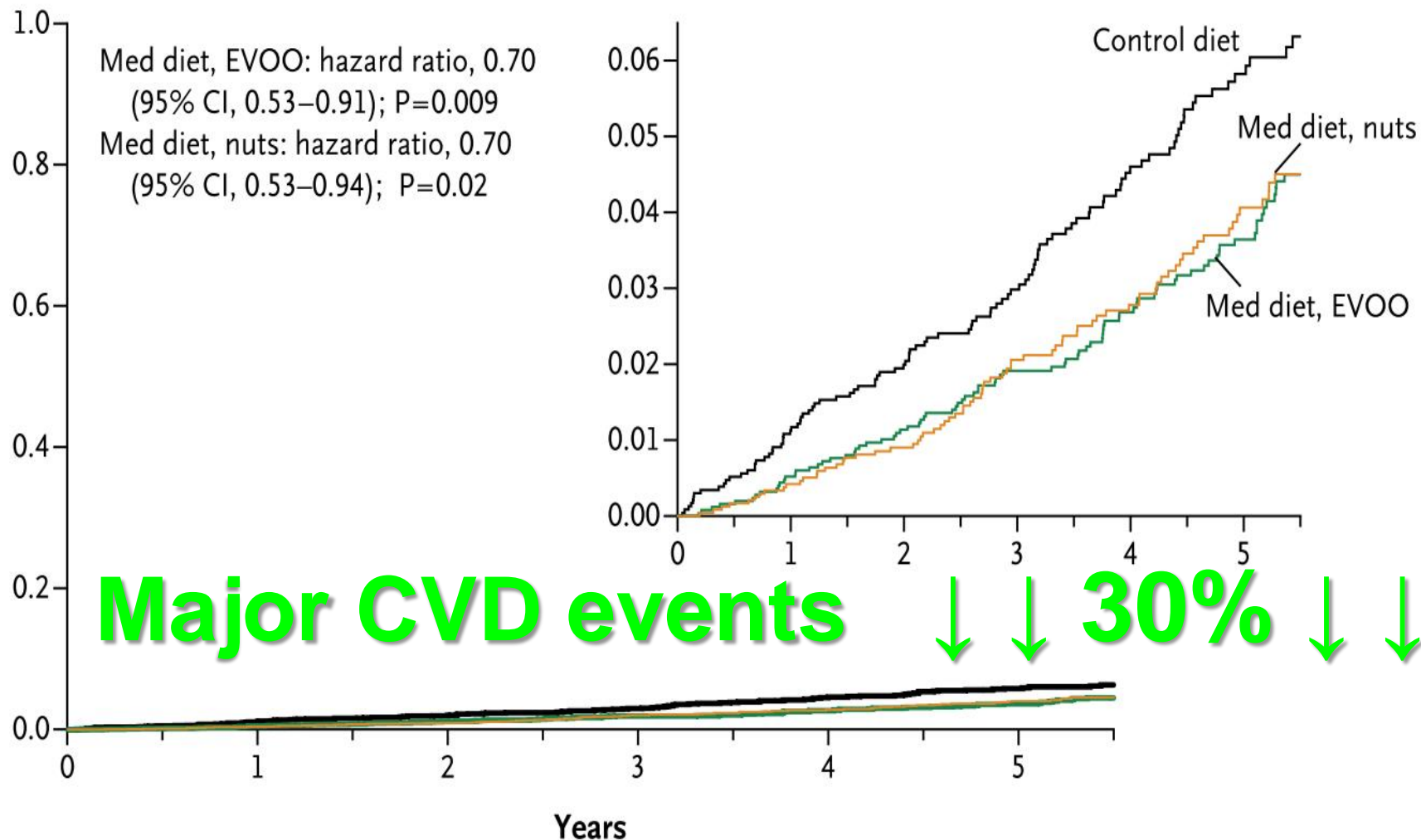
In persons at high cardiovascular risk:

- **a Mediterranean diet**
- **supplemented with extra-virgin olive oil or nuts**
- **reduced major cardiovascular events ↓ ↓ 30% ↓ ↓**



PREDIMED RCT: Primary prevention of CVD with a Mediterranean diet. Estruch et al NEJM 2013

Primary End Point (acute myocardial infarction, stroke, or death from cardiovascular causes)



**SATURATED
fats are BAD**

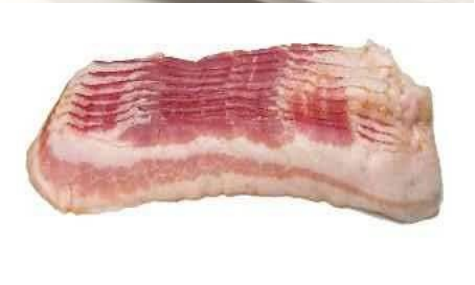
Dietary sources of “BAD” saturated fats

ANIMAL FATS

- ♥ Fried food
- ♥ Red meat
- ♥ Sausages, Salami
- ♥ Pies

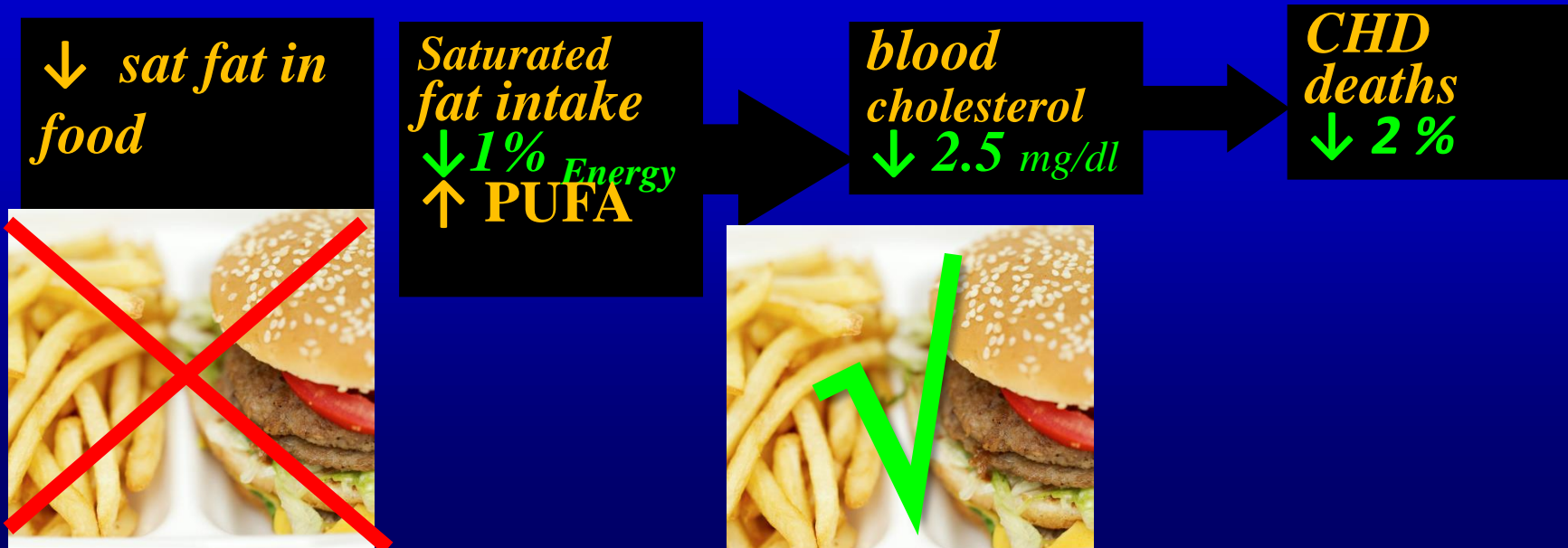
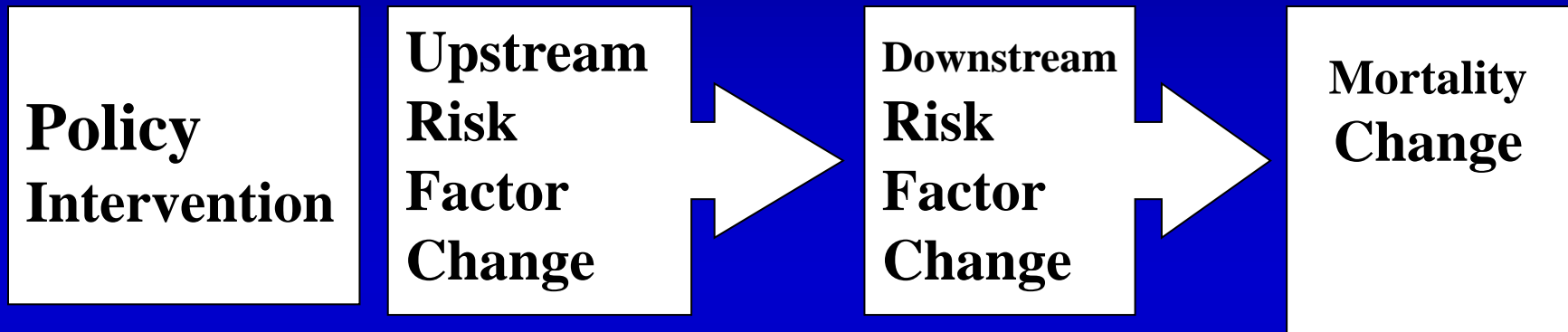
DAIRY FATS

- ♥ Processed foods
eg ready meals
- ♥ Most takeaways & pizzas
- ♥ Butter & Cheese
- ♥ Cakes, Pastry, Biscuits



Evidence : Saturated fats effect size

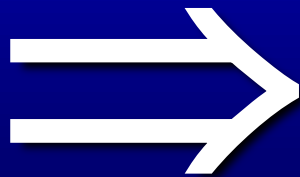
Mozaffarian et al. Effects on CHD of Increasing Polyunsaturated Fat in Place of Saturated Fat. *PLoS Medicine* 2010 7 e1000252



Healthy Diet Policies are effective & RAPID

From (BAD) Saturated Fats
to (GOOD) Polyunsaturated Fats

Poland, Czech Republic & East Germany



Capewell & O'Flaherty
Lancet 2011

CHD mortality trends in Poland

Zatonski & Willett BMJ 2005 331 187



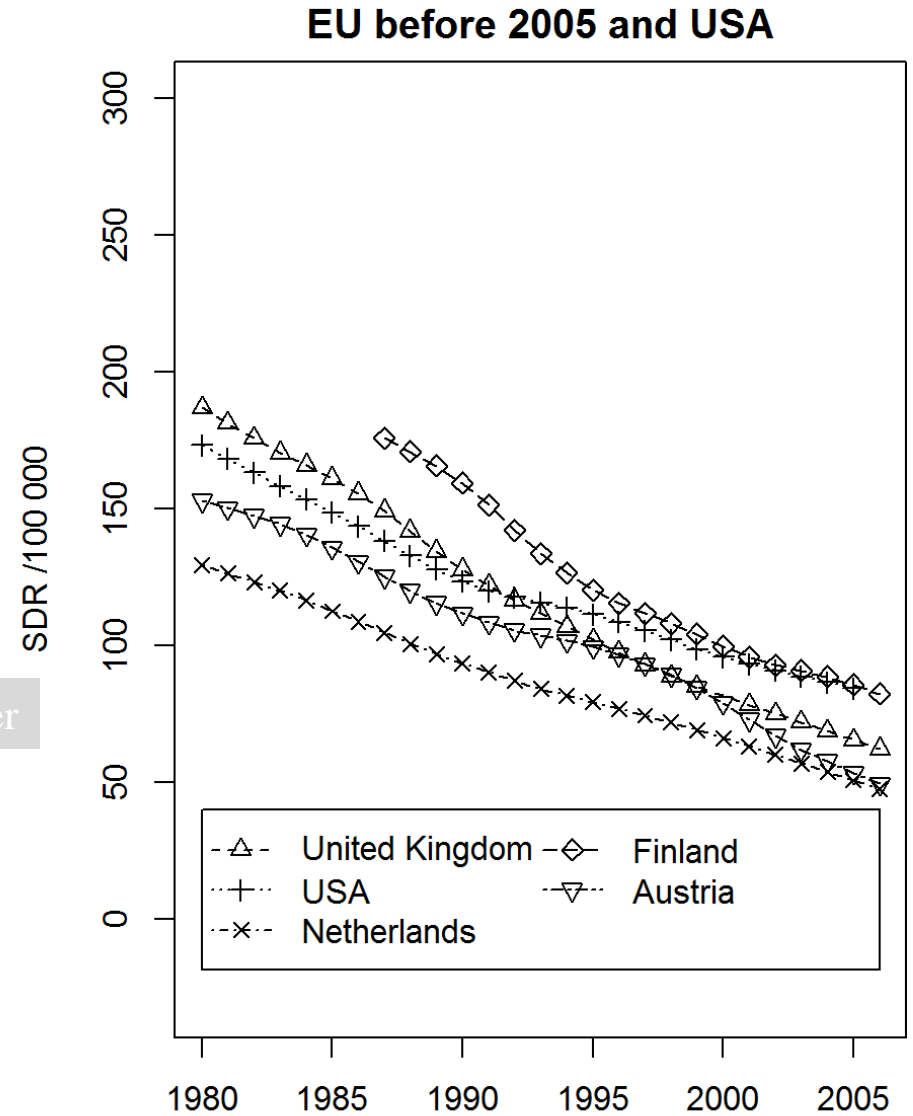
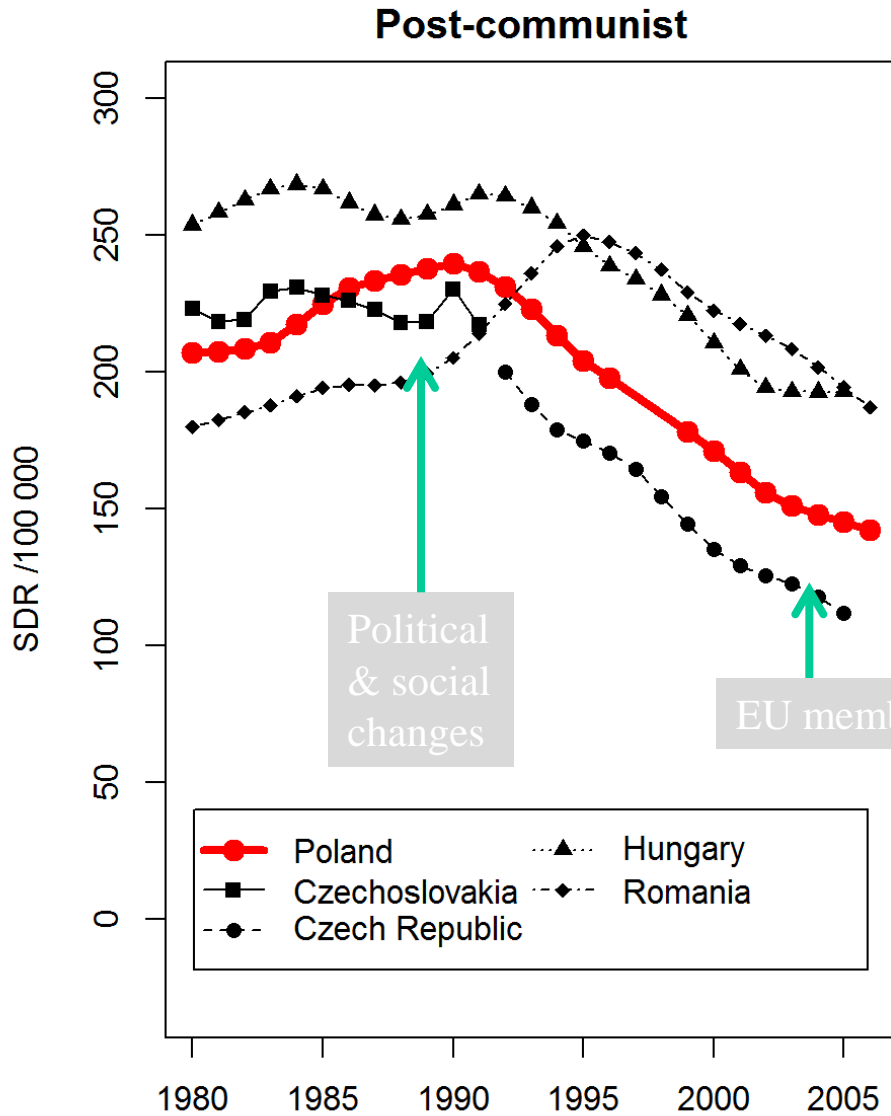
Deaths
per
100,000

Animal
Fats
Subsidies

No Fat Subsidies.
Cheap vegetable
oils (*Soya & rapeseed*)
More Fruit



CHD mortality Trends in Central & Western Europe



Graph shows standardized death rates due to all CVDs, people aged 25-74

CVD can change fast

CVD death rates are DYNAMIC

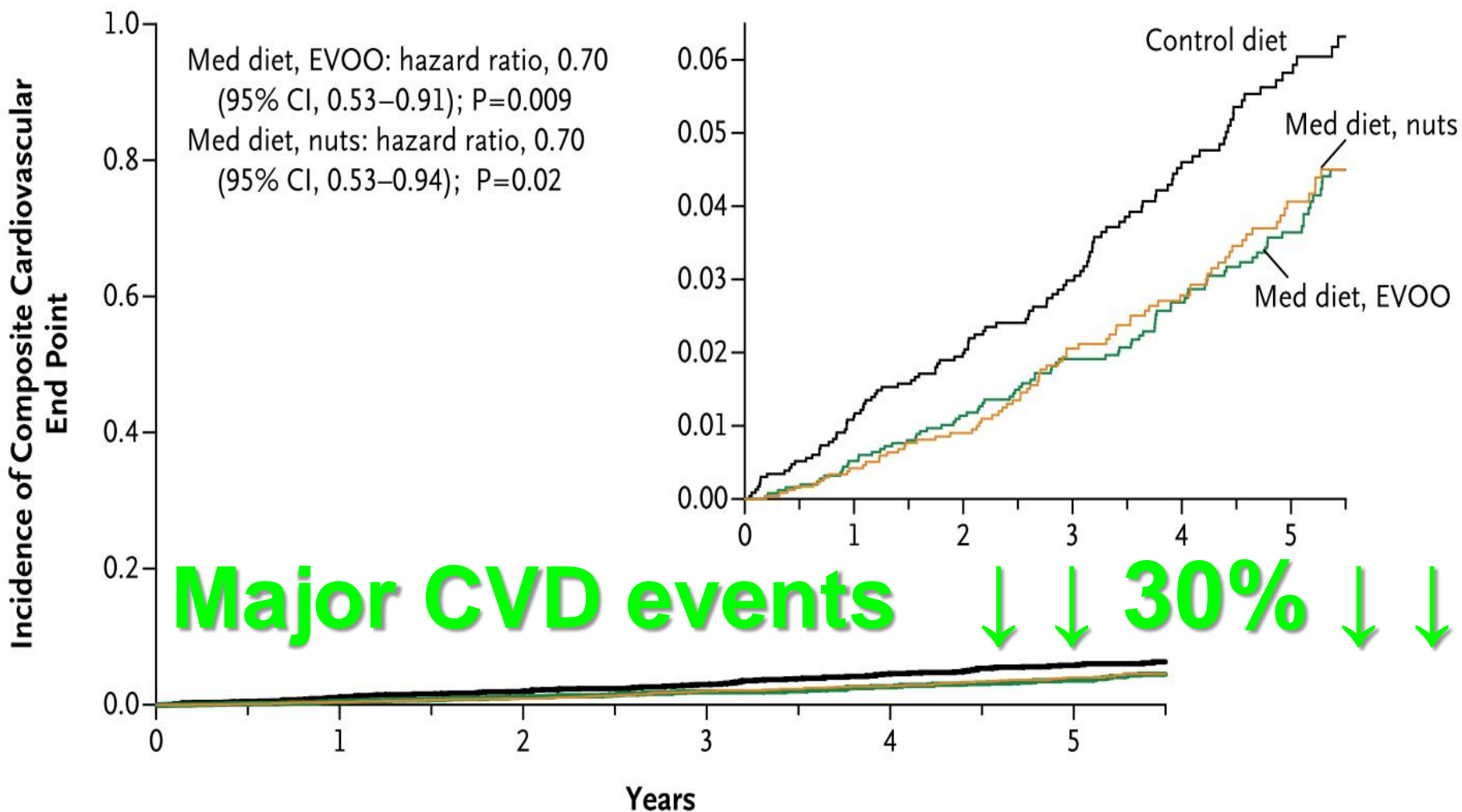
Evidence for rapid effects

- **DIET: Poland, Czech, E Germany, Cuba**
- **BP & CHOLESTEROL: tablet trials (6 months)**
- **↓↓ cholesterol effect (1- 5 years) *Law BMJ 1994***
- **MONICA analyses *Lancet 2000***
- **1940s Hunger Winters (1- 2 years)**
- **PrediMed RCT (Mediterranean diet RCT (3 months))**

Capewell & O'Flaherty Lancet 2011

PREDIMED RCT: Primary prevention of CVD with a Mediterranean diet. Estruch et al NEJM 2013

Primary End Point (acute myocardial infarction, stroke, or death from cardiovascular causes)





Trans fats

are VERY BAD



Industrial trans fats

50% hidden in muffins, cakes, biscuits, cookies & wafers

25% hidden in fast food, popcorn





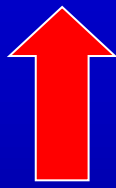


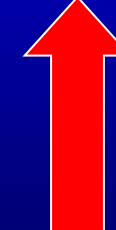



Steen Stender

**Industrial trans fats are artificial,
made by adding hydrogen to cheap vegetable oils:**



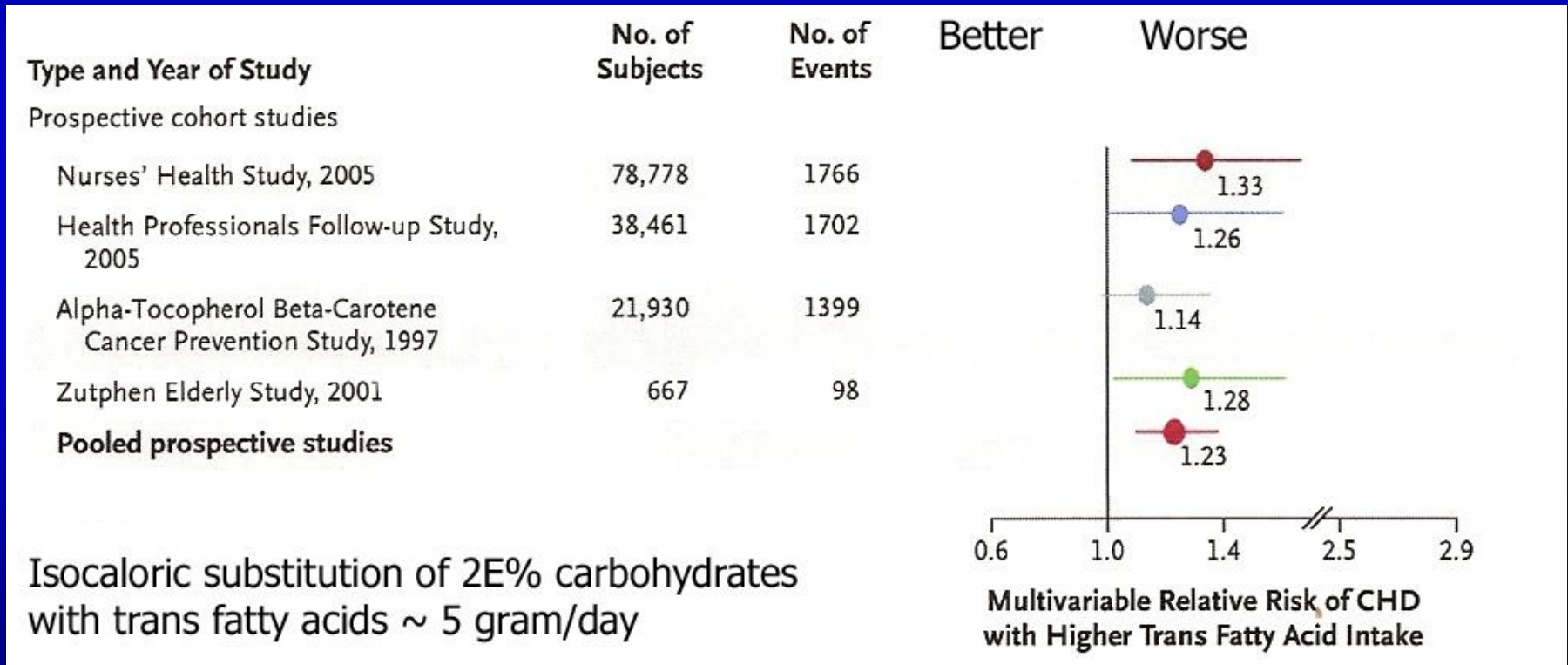
Fatty acids and cholesterol in the blood

	TOTAL	LDL (<u>L</u> ousy)	HDL (<u>H</u> ealthy)
Unsaturated fatty acids			
Saturated fatty acids			
Trans fatty acids			

Stender

Multivariable adjusted relative risk of heart disease associated with trans fatty acid intake

Isocaloric substitution of 2E% carbohydrates with trans fatty acids ~ 5 gram/day



CHD +12% per +1%_E trans fat intake

TRANSFEDTSYRERS BETYDNING FOR SUNDHEDEN

Ernæringsrådet

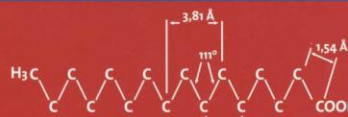


Transfedtsyrers betydning for sundhed

Opdatering år 2001



2

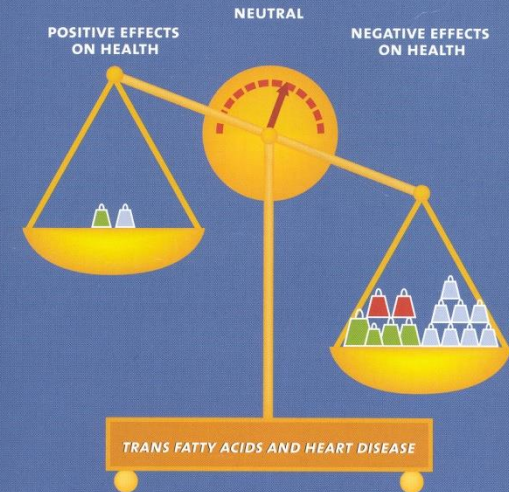


Ernæringsrådet



The influence of *trans* fatty acids on health

Fourth edition



In light of the Danish Nutrition Council's reports on trans fatty acids from 1994, 2001, 2003, and the present update, the Danish Nutrition Council recommends the following:

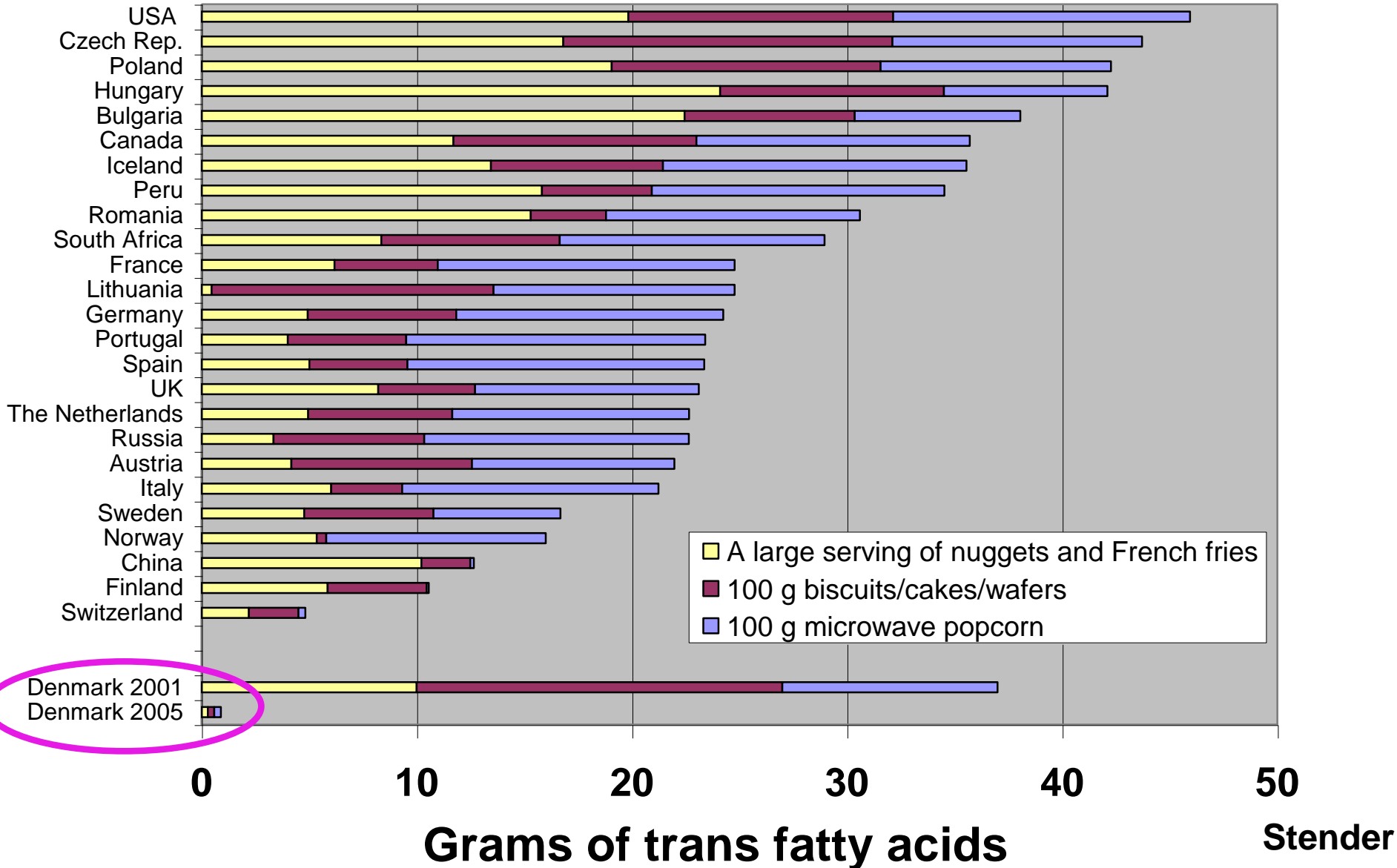
That industrially produced trans fatty acids should not be used in food.

Places where “a high trans fat menu” was purchased 2006

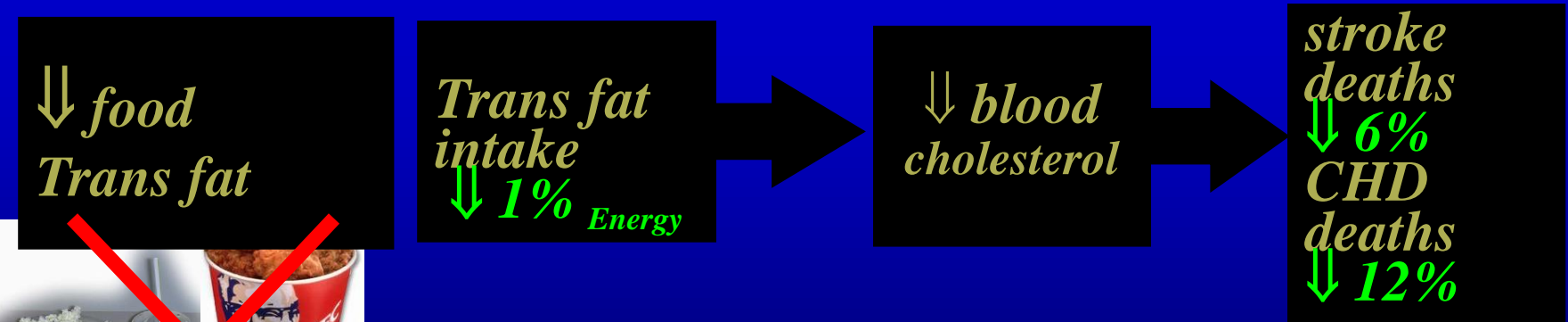
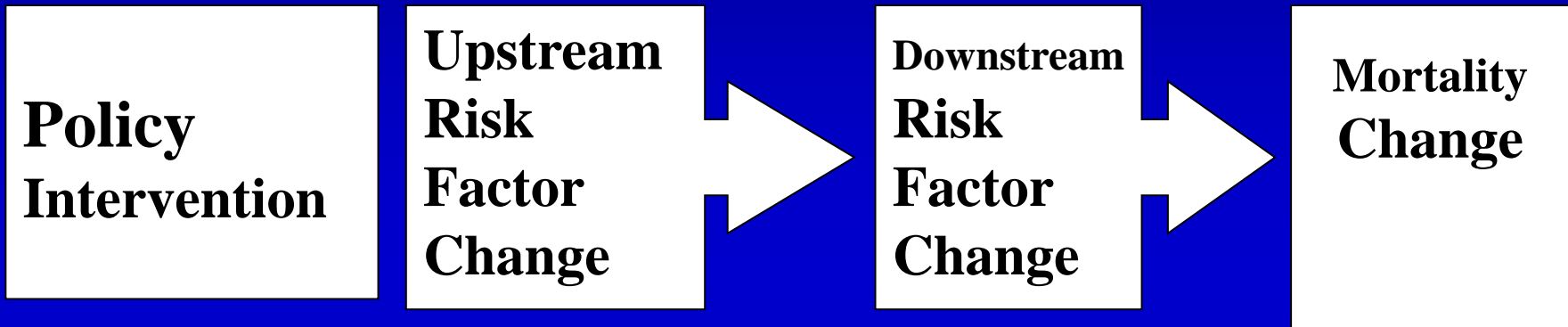


Trans fatty acids in "a high trans fat menu" 2006

Stender *et al* *Atherosclerosis Supplements* 7:47



Evidence : Trans fats effect size



Healthy Diet Policies are beneficial

IF UK transfat consumption: $1\%_E \downarrow 0\% /day$

Eliminating industrial trans fats in UK

Prevent $\cong 5,000$ deaths /year

Savings £230 million/year



BMJ 2010 340 c1826 & BMJ 2011 343 d4044

Powerful
Population
Benefits

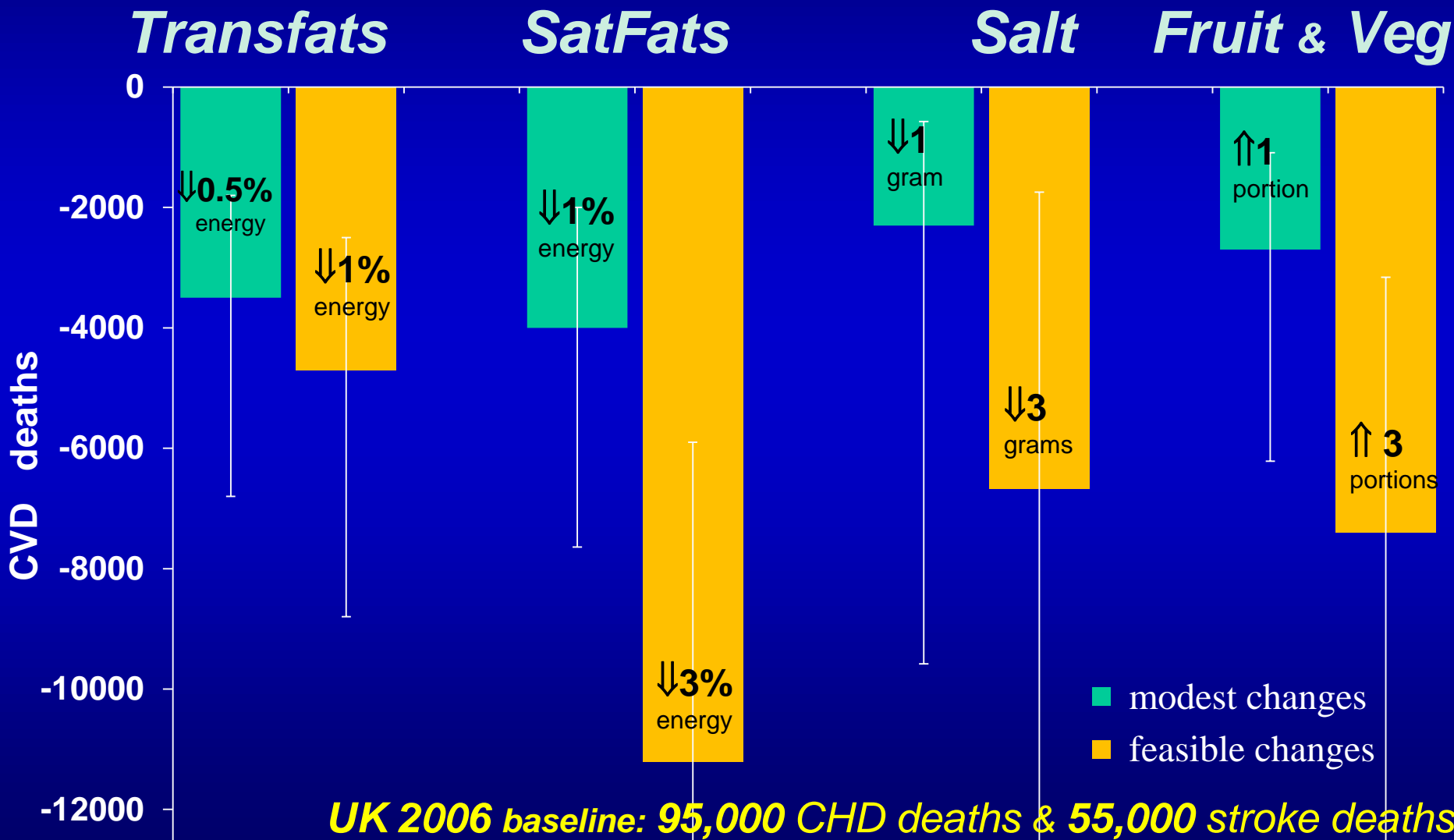
*CVD prevention
in populations is powerful*

M O'Flaherty et al WHO Bulletin 2012

Mozaffarian & Capewell BMJ 2011

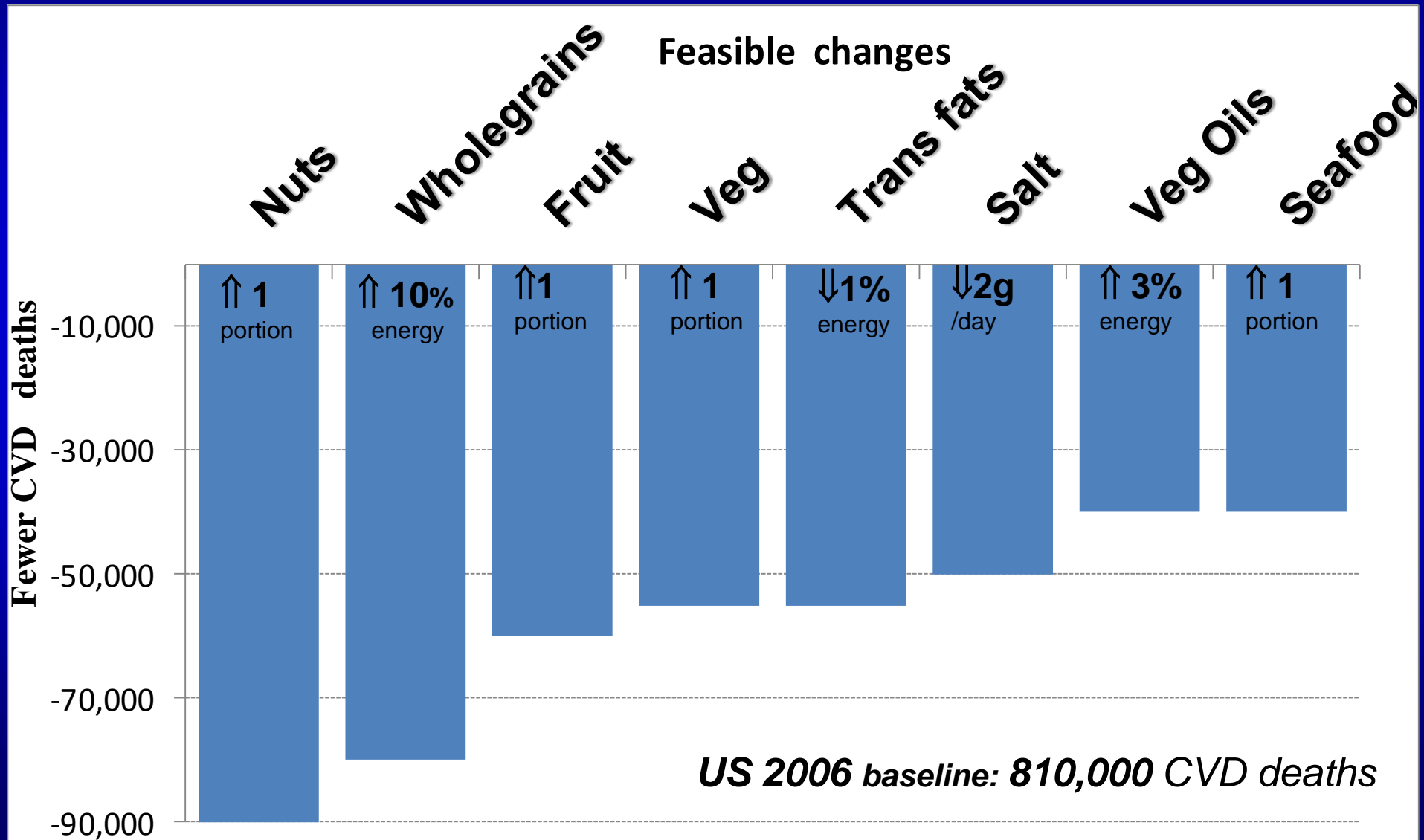
CVD mortality reductions with different UK food policy options

M O'Flaherty et al WHO Bulletin 2012



HALVING USA CVD mortality with healthier food policy options

Mozaffarian & Capewell BMJ 2011 343 d5747



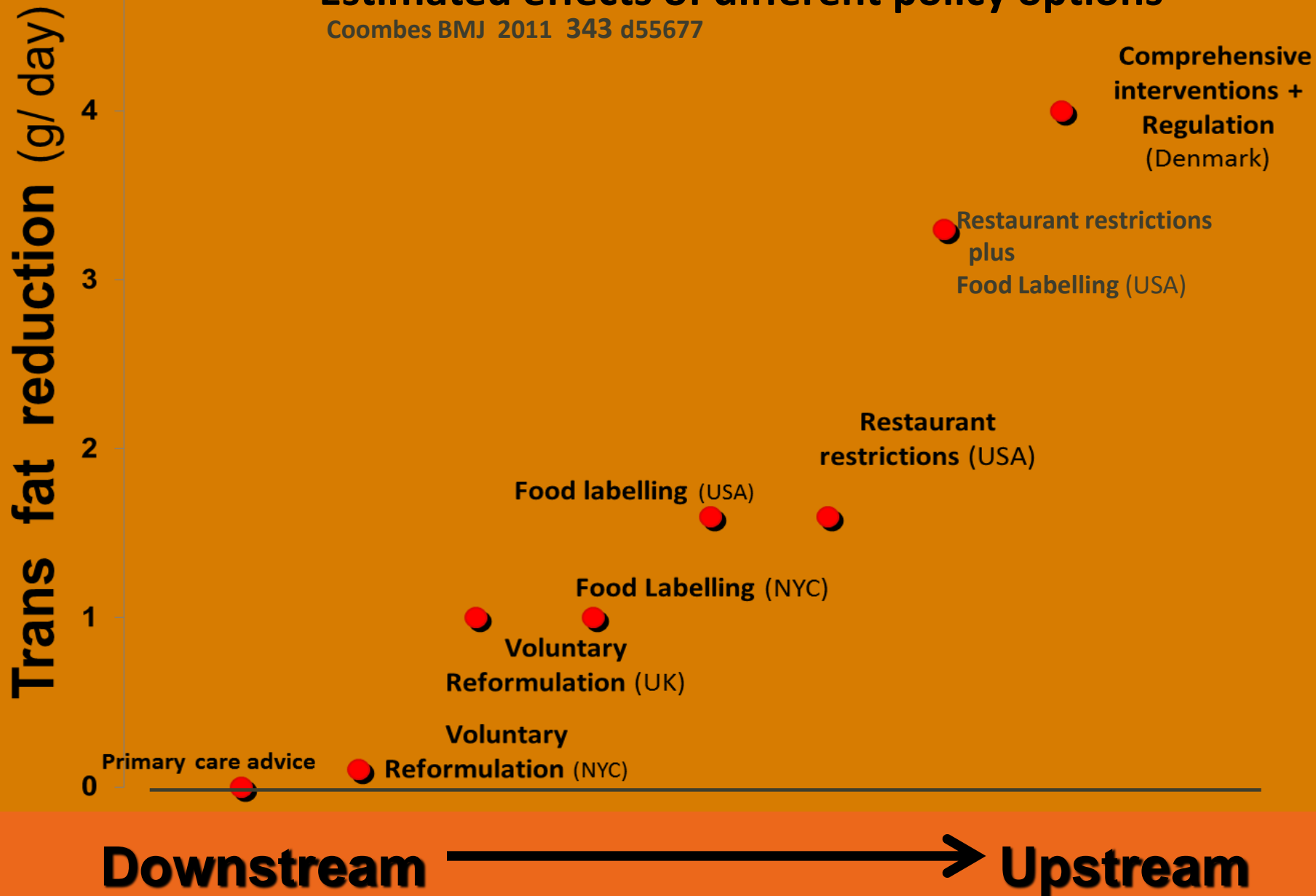
Policy

Recommendations

Fig 3. Dietary Industrial Transfat reduction

Estimated effects of different policy options

Coombes BMJ 2011 343 d55677



DIET, PHYSICAL ACTIVITY AND CARDIOVASCULAR DISEASE PREVENTION IN EUROPE



NOVEMBER 2011



European Heart Network 2011



fighting heart disease
and stroke
european heart network

Component

**Intermediate
targets**

Longer-term goals

Saturated fat

Intermediate target
is less than 10% of
energy.

Ambitious longer-term goal is
less than 7% of energy.

European Heart Network 2011

*Diet Physical Activity and
CVD Prevention in Europe*

Trans fats Recommendations

Trans fats

Intermediate target is less than 1% of energy.

Ambitious longer-term goal is less than 0.5% of energy.

European Heart Network 2011

*Diet Physical Activity and
CVD Prevention in Europe*

Prevention of cardiovascular
disease at population level

June 2010



NICE Guidance

Prevention of cardiovascular disease at population level

www.nice.org.uk/guidance/PH25

Saturated fats: NICE Recommendations

- **Substantially reduce** the amount of saturated fat in all food products
- Encourage the production of dairy products low in saturated fat
- Ensure lower saturated fat products are **cheaper** than those high in saturated fat
- Continue to promote semi-skimmed milk for children aged over 2 years

Trans fats: NICE Recommendations

- **Eliminate the use of industrially-produced trans fatty acids (IPTFAs) for human consumption**
- **Introduce legislation** to ensure IPTFA levels do not exceed 2% of the fats used in food manufacturing and cooking
- Direct bodies responsible for **national surveys to measure consumption** of IPTFAs by different population subgroups
- Establish guidelines for **local authorities to monitor** IPTFA levels in local food provision (*using existing statutory powers*)

US moves to ban trans fats

Mike McCarthy

Seattle

The US Food and Drug Administration announced Thursday 7 November that it had reached a “preliminary determination” that partially hydrogenated oils, the primary source of artificial trans fats in processed foods, “are not recognized as safe” for

manufacturers would need to make the new determination be made. Trans fats are commonly used to improve the flavor, texture, and shelf life

Industry dirty tricks



Rob Moodie, David Stuckler, Carlos Monteiro, Nick Sheron, Bruce Neal,
Thaksaphon Thamarangsi, Paul Lincoln, Sally Casswell, on behalf of
The Lancet NCD Action Group

Profits & Pandemics: prevention of harmful effects of tobacco, alcohol, & ultra-processed food & drink industries

Transnational corporations

- major drivers of non-communicable disease (NCD) epidemics
- profit from ↑ consumption of tobacco, alcohol, & processed food & drink

Alcohol & ultra-processed food & drink industries

- use similar strategies to tobacco industry
- to undermine effective public health policies & programmes

Unhealthy commodity industries deserve NO role in NCD prevention policies

- Current fashion for industry self-regulation & public–private partnerships
- Is foolish, not effective & does NOT improve public health

The only **evidence-based mechanisms**
to prevent harm caused by unhealthy commodity industries
are **public regulation & market intervention**

SUPPORT: Implementation path for effective public health interventions

eg. clean water, sanitation, pollution, immunisation, seatbelts, smokefree etc

- **S**CIENTIFIC evidence emerges
- **U**NDERSTANDING spreads
- **P**ROFESSIONALS accept paradigm
- **P**UBLIC & **P**OLITICIANS become aware, then supportive
- **O**PPPOSITION from vested interests is slowly **O**vercome
- **R**EGULATION is introduced, often strengthened by
- **T**AXATION to reinforce regulations (eg Tobacco & alcohol control)



NCDs, Healthy & Unhealthy Fats: Policy Implications

CONCLUSIONS

- ***Fat/cholesterol/CVD paradigm still solid***
- ***Prevention evidence base surprisingly strong:
meta-analyses & natural experiments***
- ***Potentially big disease reductions***
- ***COST SAVING, RAPID, EQUITABLE, ACCEPTABLE***

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meta-analyses & natural experiments***
- ***Potentially big disease reductions***
- ***COST SAVING, RAPID, EQUITABLE, ACCEPTABLE***
- ***Junk Food Industry opposition (like tobacco)***
- ***Powerful tools are available:
legislation, regulation, tax & subsidies***