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Population-level changes to promote cardiovascular health

Najnowsze rekomendacje dotyczące interwencji populacyjnych w chorobach serca i naczyń

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Status after 60 years research in CVD epidemiology

- **We know the risk factors**
  - **No daily physical activity**
  - **Too much food high in saturated fat, salt and sugar (HFSS-food)**
  - **Too much alcohol**
  - **Too much tobacco**
- **This is caused by changes in society**
- **How do we handle it?**
  - **Tell people not to do it?**
  - **Or should we take a look at our society?**

Screening and health counselling

Less than 10 % of a population has an ideal heart health

S Ebrahim 2011

(Systematic Cochrane review)

Conclusion:

No effect of health screening on mortality from coronary heart disease

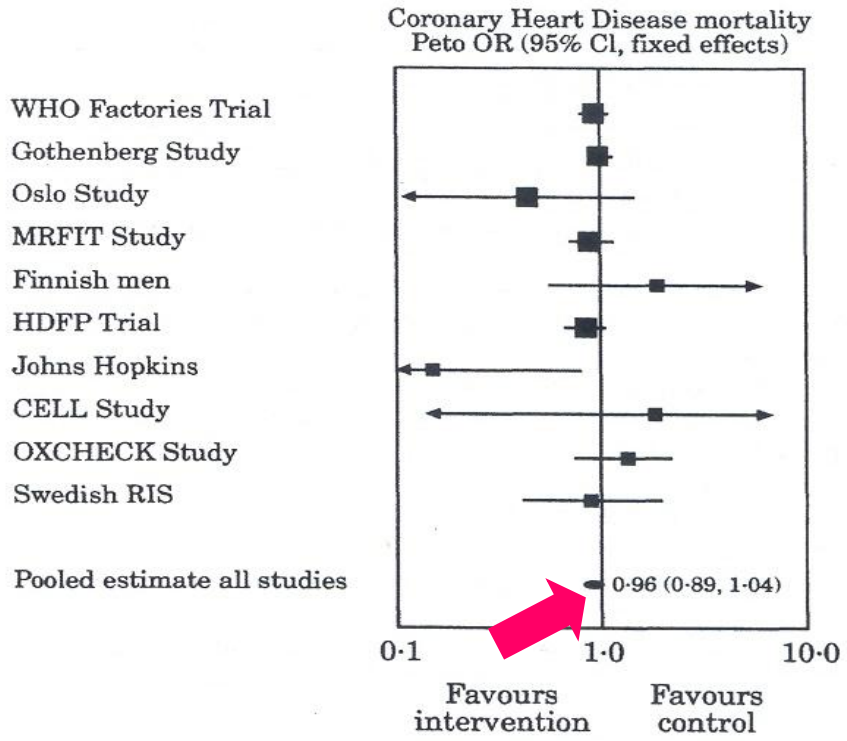

Figure 3 **Meta-analysis of trials of multiple risk factor interventions: coronary heart disease mortality. Abbreviations, see Fig. 2 legend.**

After 40 year of research in prevention

- High risk strategy (individual assessment and treatment)
  - Is of benefit for the individual patient
  - But is has no effect on a population level
  - … and it increases social inequality
- What about population level strategy?

European Journal of Preventive Cardiology

Review

Population-level changes to promote cardiovascular health

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European Journal of Preventive Cardiology
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ejpc.sagepub.com
SAGE

A group of European experts critically reviewed the literature

Evidence base very strong:

meta-analyses & natural experiments

Potentially big reductions in diseases

Surprisingly rapid

Cost Saving, Equitable & Acceptable

But there are barriers

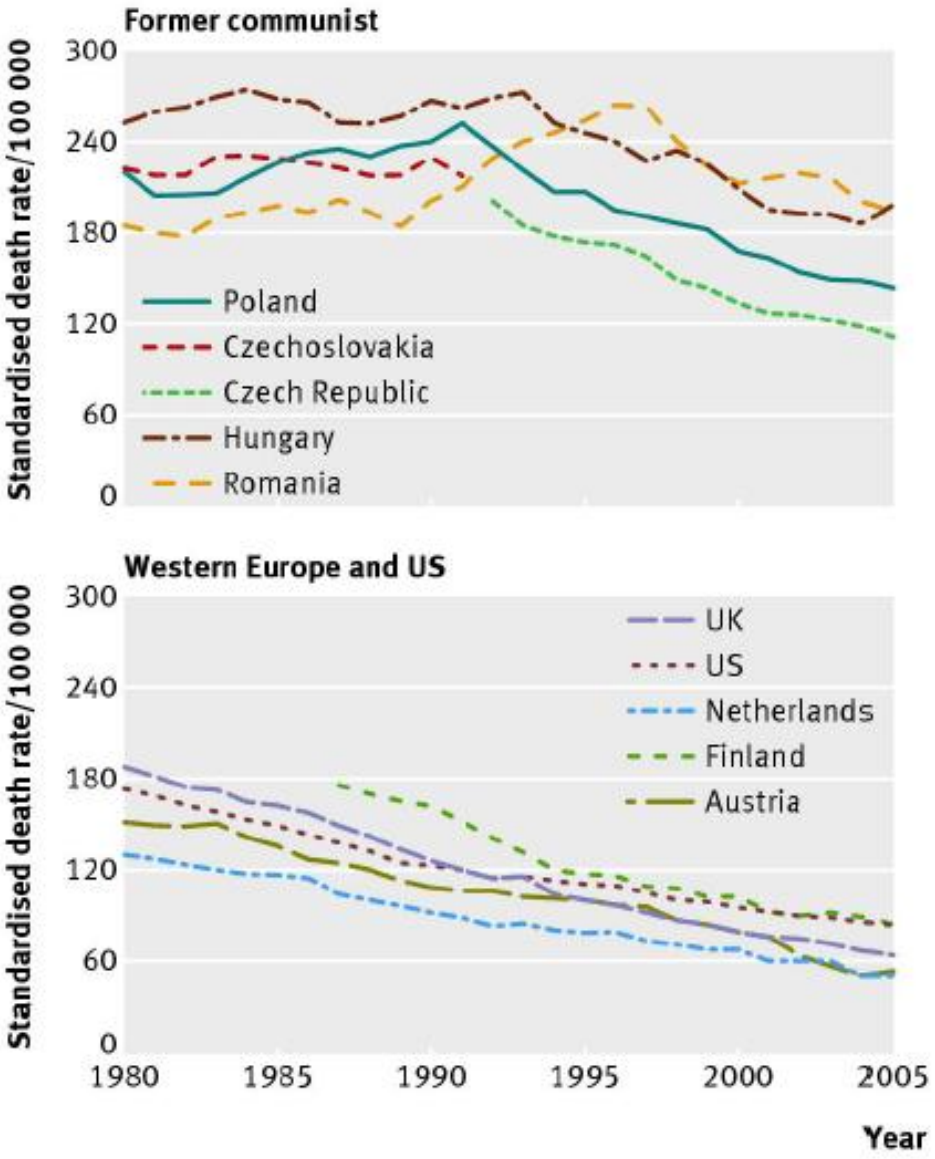


Fig 1 Trends in mortality from heart disease in Poland, other former communist countries, and western European countries in men aged ≤64 (source: WHO mortality database[3])

CVD burden

1.8 mio. premature (< 75 years) death from CVD in Europe

34 mio. DALYs in 2005

190 billion € in 2005

10 % of the total health expenditure (5 % in Denmark – 17 % in Poland)

Bandosz P et al. BMJ 2012

Population-based strategies
What is it and who is responsible?

- **Population-based preventive strategies include**
  - **Fiscal measures (i.e. taxes and subsidies)**
  - **International, national and regional policies**
    - **Smoke-free policies, rules for marketing, food production**
  - **Environmental changes**
- **Responsibilities**
  - **International level (WHO, WTO, EU)**
  - **National levels (government department, health authorities, health agencies and industry)**
  - **Regional level (authories, such as for traffic planning, outlets, schools, built environment)**

United Nations

General Assembly

Draft resolution submitted by the President of the General Assembly

Political declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases

The General Assembly,

Adopts the Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases annexed to the present resolution.

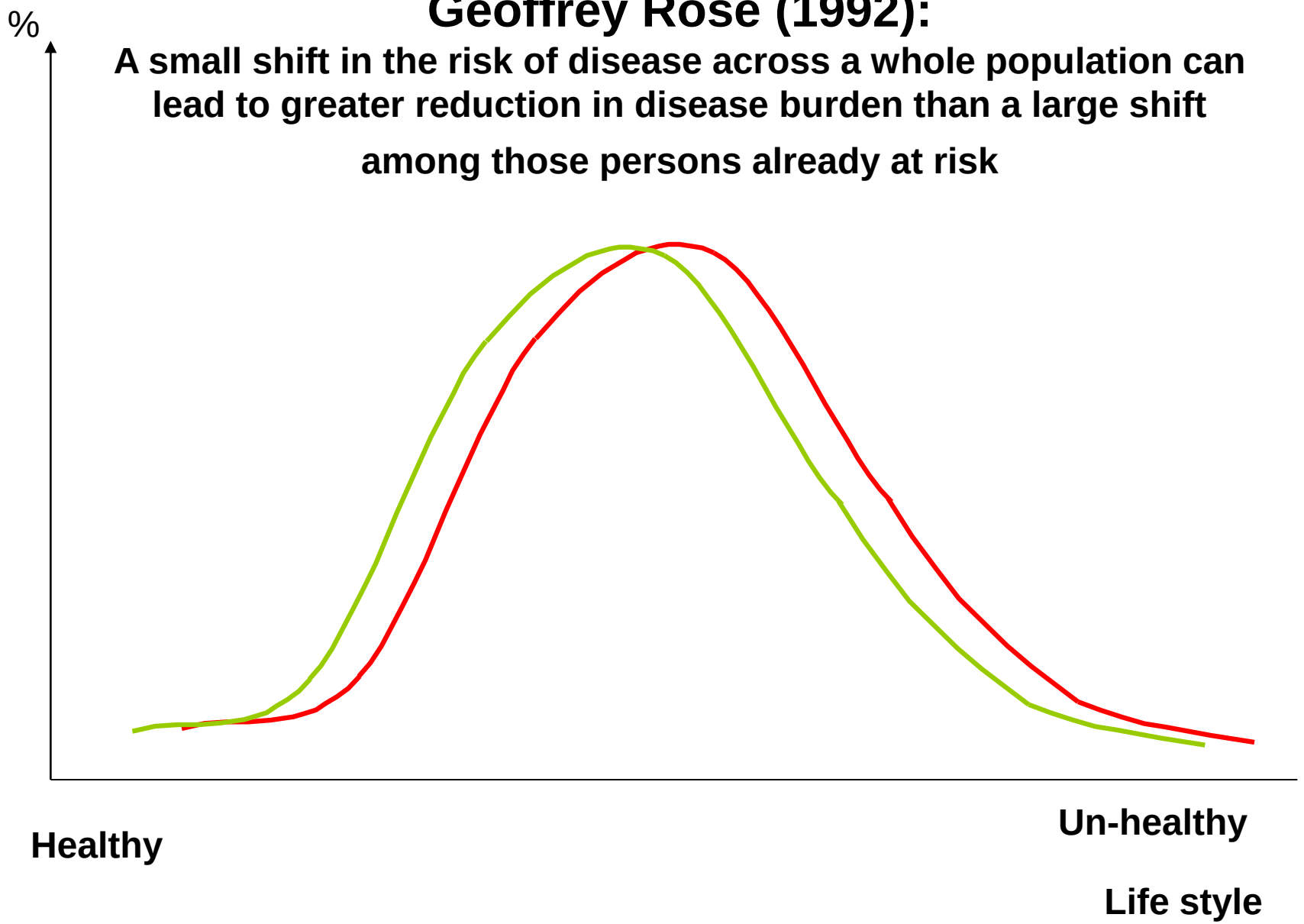
Extracts

- 2. Recognize that non-communicable diseases are ***a threat to the economy*** of many member states, and may lead to ***increasing inequality*** ..
- 33. Recognize also the critical importance of ***reducing the level of exposure*** of individuals and populations to the common modifiable risk factors for non-communicable diseases, namely ***tobacco use, unhealthy diet, physical inactivity, and the harmful use of alcohol*** …..
- 36. Recognize that effective non-communicable disease prevention and control ***require leadership and multisectoral approaches for health at the government level*** …….

Population-level strategy

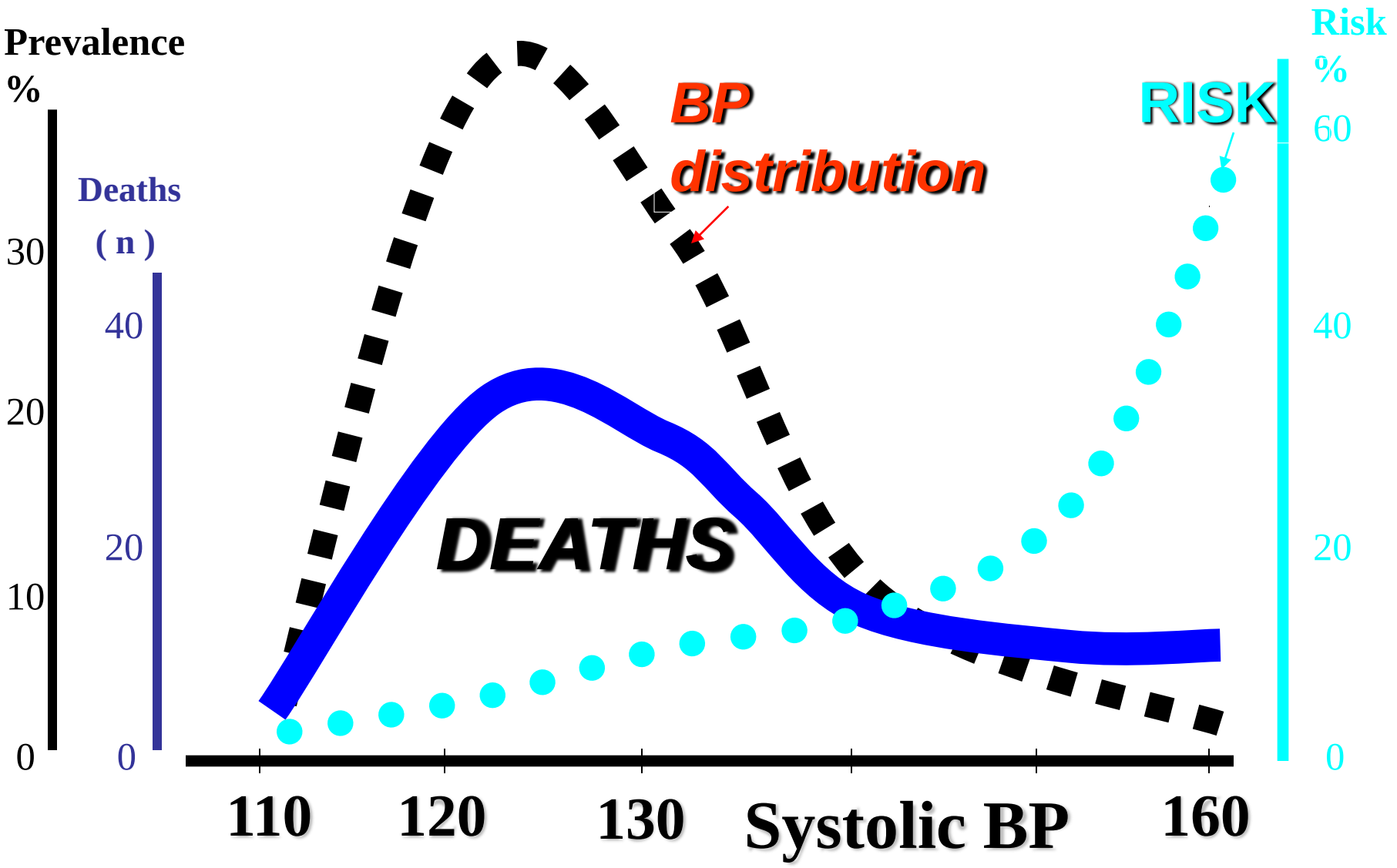
Geoffrey Rose (1992):

A small shift in the risk of disease across a whole population can lead to greater reduction in disease burden than a large shift among those persons already at risk



Blood Pressure & CHD risk vs. numbers of deaths

(13.5 years follow-up in 855 men aged 50 Wilhelmson)



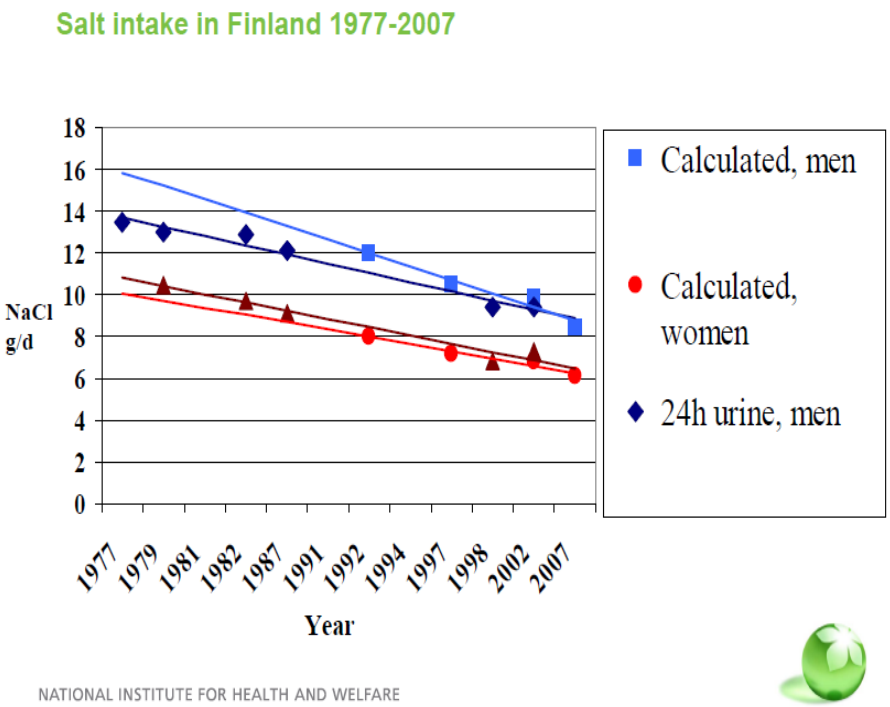
Healthy diet policies are effective

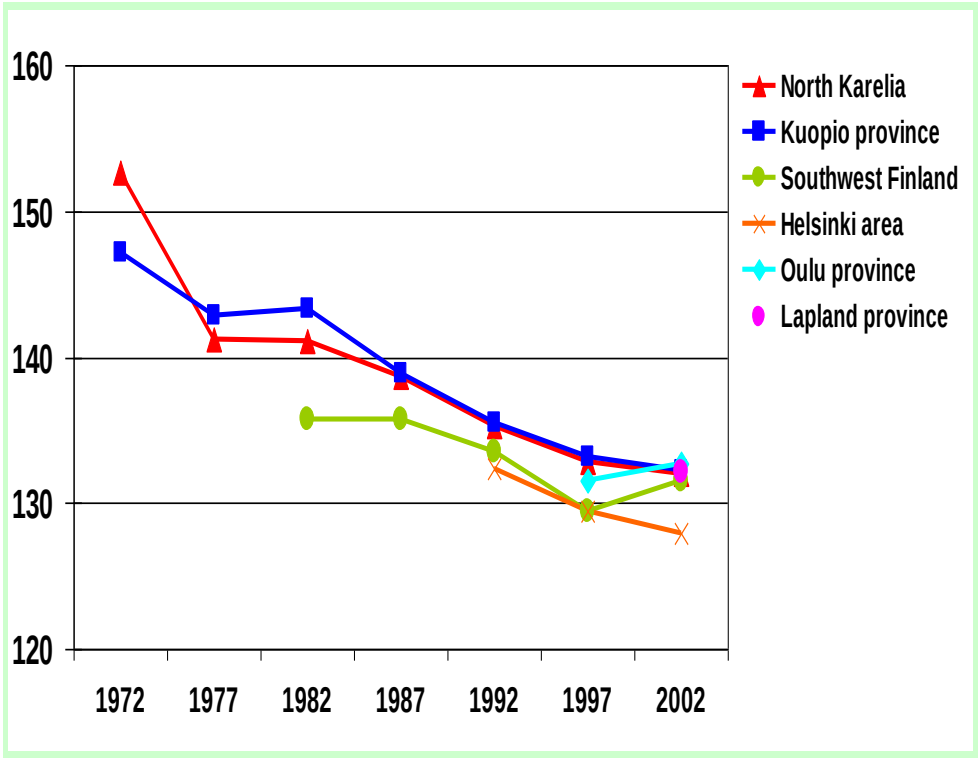
- **High intake of salt, red meat, processed meat, saturated fat, *trans*-fat, and refined grains and sugar**

- **Salt ➔ Hypertension ➔ CVD**
  - **Finland: 14 g ➔ 8 g/day**
- **Saturated fat ➔ cholesterol ➔ CVD**
- **Sugar ➔ Fatness ➔ Diabetes ➔ CVD**

- **Food *H*igh in saturated *F*at, *S*alt and *S*ugar – *HFSS* food**

Salt intake & blood pressure





85 % of the salt comes from processed food

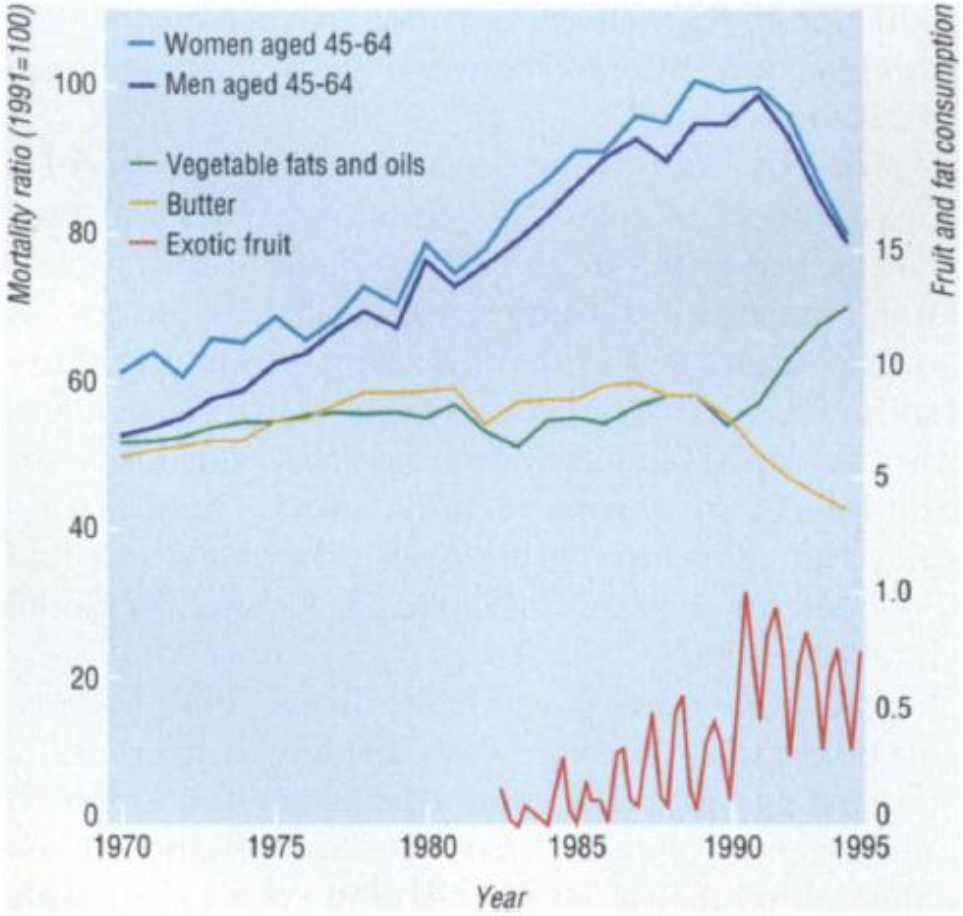
Salt intake varies from 6 to 15 g/d (high in Poland)

WHO: 5 g/d; reduction of 3 g/d ➔ 14-20,000 fewer death of CVD in UK

Sources: Karvonen et al. 1977, Nissinen et al. 1982, Pietinen et al. 1981, Pietinen et al. 1990, Valsta 1992, KTL/Nutrition Report 1995, KTL/ FINDIET 1997 and FINDIET2002 Studies, KTL/unpublished information

Mortality of heart disease in Poland

Effect of lowering saturated fat?



Mortality ratios for ischaemic heart disease plus atherosclerosis and arterial diseases, with estimates of butter and vegetable fats and oils (kg/person/year)[7] and of exotic fruits (kg/person/quarter)[12] available for consumption by quarter from 1970 to 1994. Data for years are plotted to mid-year and for quarters to mid-quarter. Mortality ratios are age standardised

***Before 1990*:**

Animal fat subsidies

***After 1990*:**

No fat subsidies

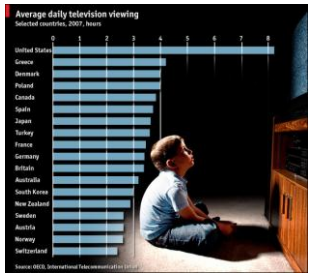
Cheap vegetable oils (rapeseed)

More fruit

Zatonski et al, BMJ 1998

Physical inactivity

- What are we talking about?
- What disappeared during the last 50 years?
  - Fitness centres?
  - Marathon running?
  - Daily activity?
- What appeared?
  - Sedentarism



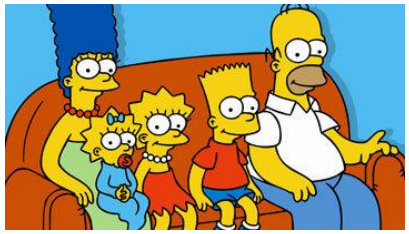
Is Homer Simpson physical active?

30 min

8 hours

30 min

30 min



6 hours

Yes (according to health authorities)

Sedentarism
prospective epidemiological studies

Katzmarzyk, MSSE 2009

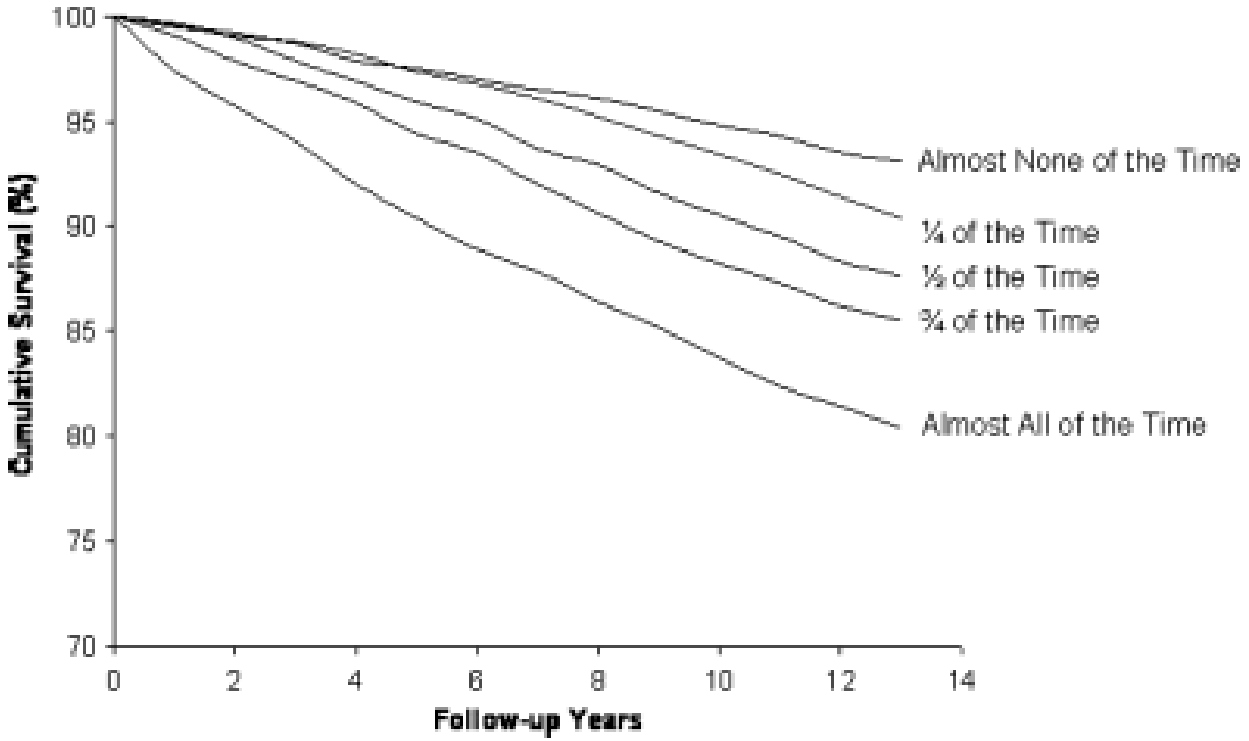


FIGURE 1—Kaplan–Meier survival curve for all-cause mortality across categories of daily sitting time in 17,013 men and women 18–90 yr of age, in the Canada Fitness Survey, 1981–1993. Log-rank $\chi^2 = 174.4$, $df = 4$, $P < 0.0001$. The sample sizes across the categories were 3022 (17.8%), 6652 (39.1%), 4379 (25.7%), 2138 (12.6%), and 822 (4.8%), for the categories of almost none of the time, one fourth of the time, half of the time, three fourths of the time, and almost all of the time, respectively.

How to regain physical activity?

- **Change environment ➔ facilitate PA in daily life**

  - **Re-allocate road space (lanes)**
  - **Create enhancing places in cities for movements**
  - **Linkage of different sites**
  - **Staircase visible – not elevators**
  - **Design school playgrounds**

- **Pricing**
  - **Road-user charge; higher parking fees; cheaper public transportation**
- **Breaks in sitting time**

Smoking
("the hard stuff")

Statements:

- ***Any reduction in smoking and second-hand smoke exposure will lead to reduced cardiovascular morbidity and mortality***
- ***There is no safe level of second hand smoke exposure and a completely smoke-free environment is the only way to protect non-smokers***

WHO Framework Convention on Tobacco Control FCTC

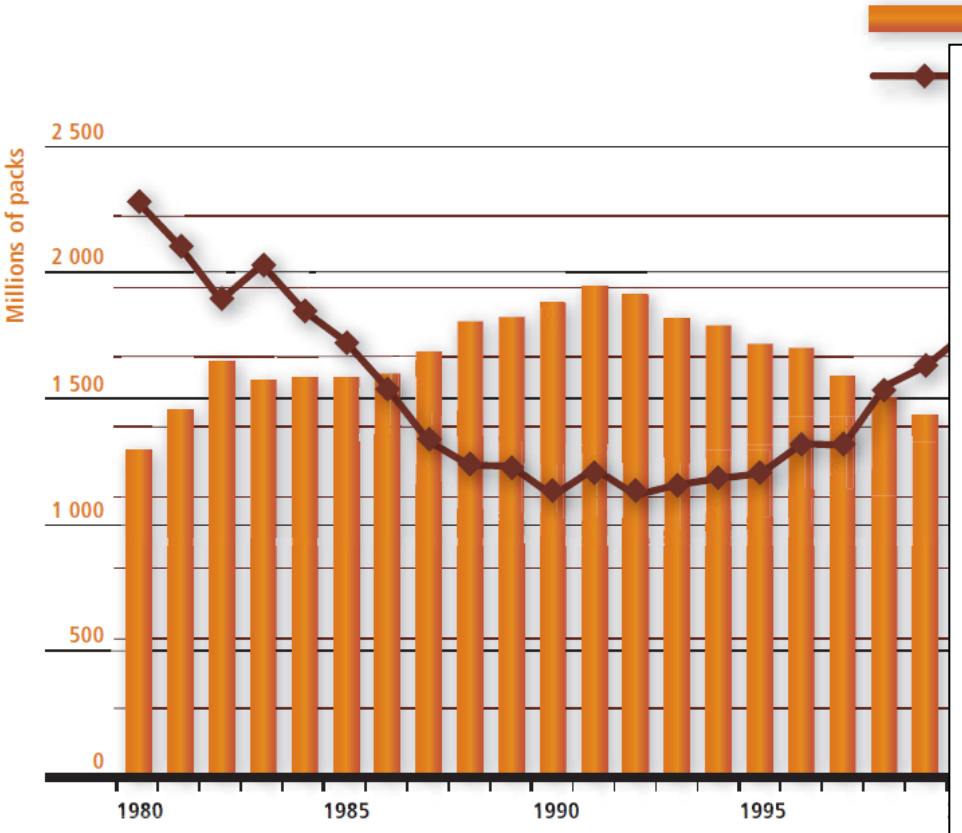
FCTC is an evidence-based treaty that reaffirms the right of all people to the highest standard of health - adopted by 174 countries (incl. Poland)

Main articles address:

- **Protection from exposure to tobacco smoke**
- **Packaging and labelling of tobacco products**
- **Price and tax measures to reduce the demand for tobacco**
- **Education, communication, training and public awareness**
- **Tobacco advertising, promotion and sponsorship**
- **Sales to and by minors**

TOBACCO TAXES REDUCE CONSUMPTION

Relationship between cigarette consumption and excise tax rate in South Africa



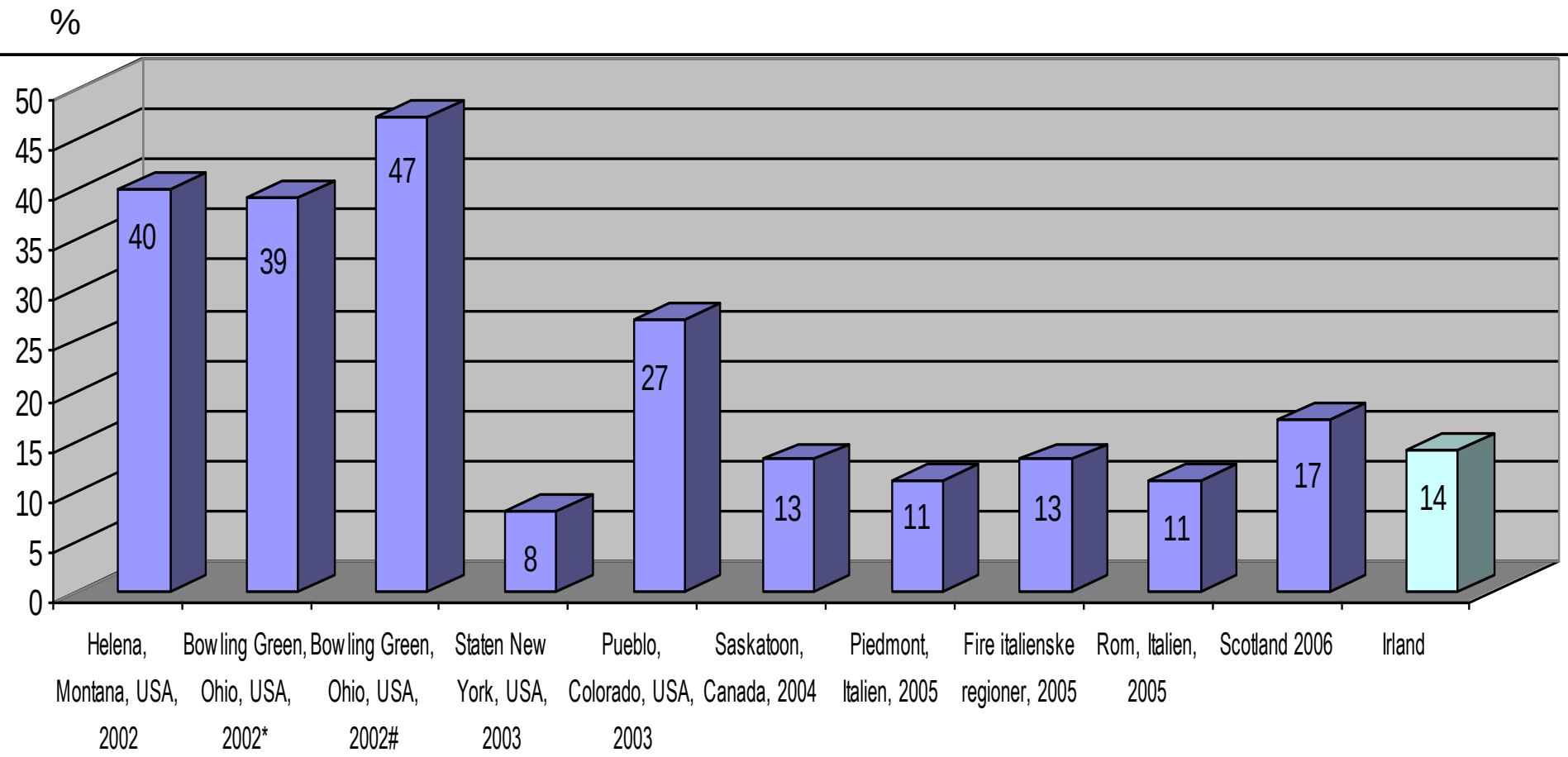
Source: van Walbeek C. *Tobacco excise taxation in South Africa: tools for advancing tobacco control in the XXIst century: success stories and lessons learned*. Geneva, World Health Organization, 2003 (http://www.who.int/tobacco/training/success_stories/en/best_practices_south_africa_taxation.pdf, accessed 6 December 2007). Additional information obtained from personal communication with van Walbeek.

10 % increase in price:
➔ 4 % reduction in high-income countries
➔ 8 % reduction in low-income countries

Chaloupka et al 2000

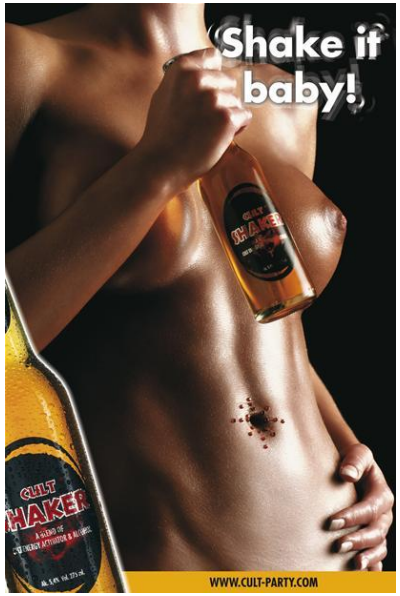
WHO mpower policy package 2008

Reduction in heart attacks (acute coronary syndrome) first year after smoking ban



Alcohol

- **Pricing**
  - **10 % rise ➔ 5.1 % reduction (4.6-8.0)**
- **Restriction**
  - **Age-limits with consequences**
  - **Drink-driving strategies**
  - **Advertising**
- **Regional level**
  - **Policies in schools, workplaces etc.**
  - **Number of outlets and reduction in hours of sale**
  - **Education of children/adolescents: Very little or no effect**

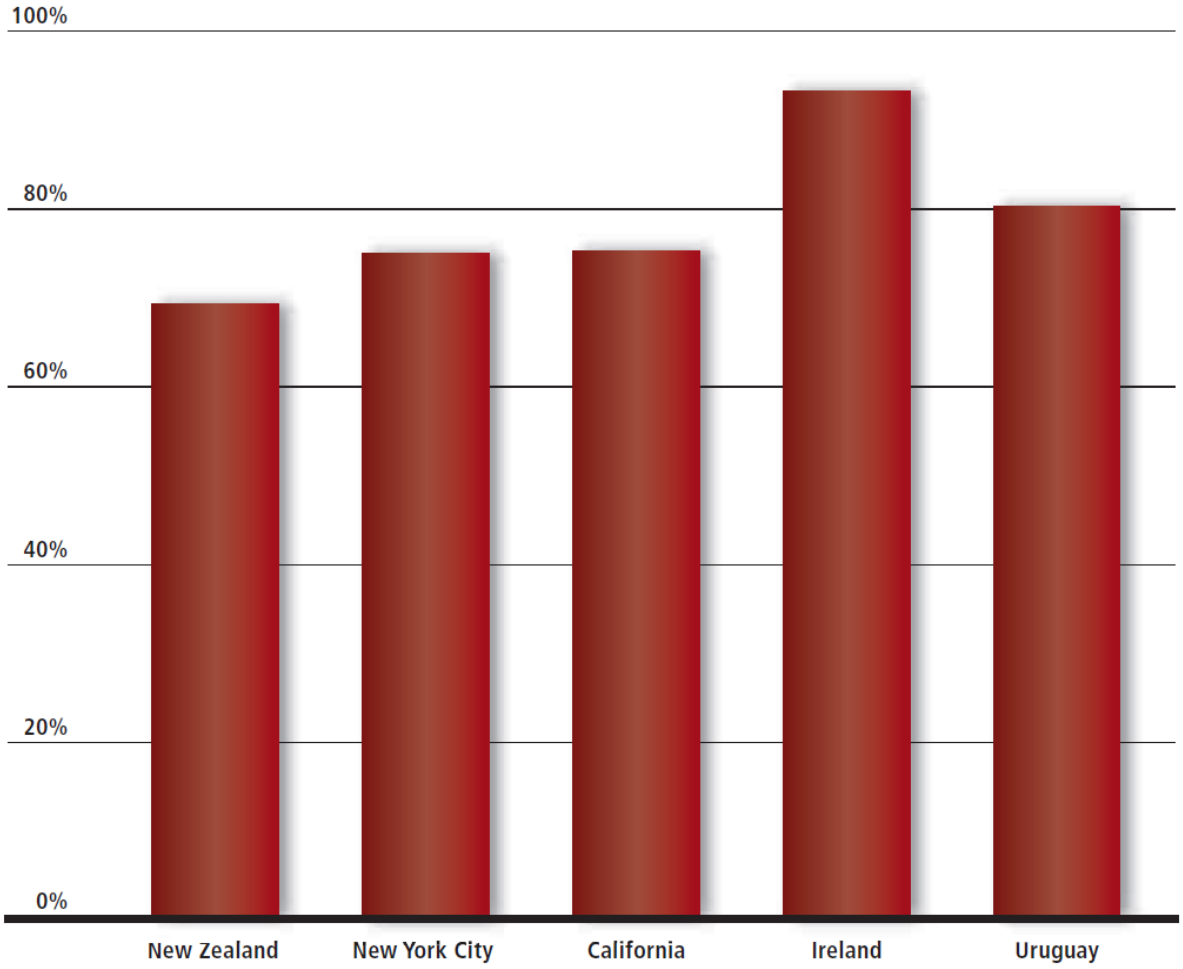


Where are the barriers?

- **Among people?**
  - **High degree of acceptance**
- **Regulations means less sale of**
  - **Tobacco, alcohol, HFSS-”food” etc.**
  - **Corporation are not interested**

SMOKE-FREE AREAS ARE POPULAR

Support for comprehensive smoking bans in bars and restaurants after implementation



WHO mpower policy package 2008

The epidemiological cascade

Level	Determinant	Unit of analysis	Out-come
1	Political factors Corporate pressures	Government	Government policies
2	Government policies Market opportunities	Corporation	Corporate decisions aimed at increasing sales and profits
3	Corporation decisions	Conduits	Corporate pressures on the environment
4	Corporate pressures on the environment	Environment of the hosts; retailers	Modified environment
5	Modified environment; sales pressure	Hosts	Consumption of product and corporate profits
6	Consumption of product	Hosts	Disease outcome

R. Jahiel 2008

Information to the citizen

Health authorities

Information on

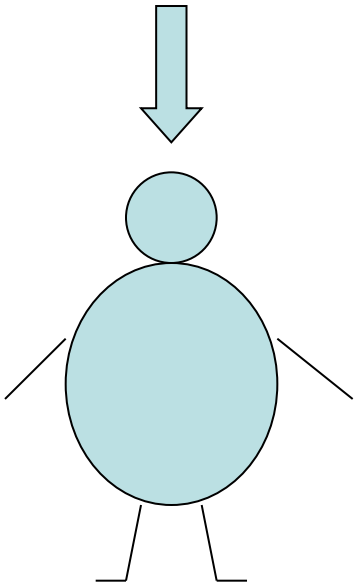
Alcohol

Tobacco

Diet

Physical activity

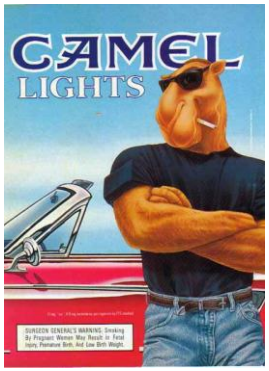
Healthy life



Change habits

Corporations

commercials



Each time health authorities use one € on information, corporations use 10 € on commercials

WHO: FCTC

"Principle 1: There is a fundamental and irreconcilable conflict between the tobacco industry's interests and public health policy interests."

"Principle 2 & 3: Focus on transparencies in all relations to tobacco industry

"Principle 4: Because their products are lethal, the tobacco industry should not be granted incentives to establish or run their businesses."

Corporation epidemic


The New York Times

NEW YORK, FRIDAY, APRIL 15, 1994

Tobacco Chiefs Say Cigarettes Aren't Addictive

Top executives from seven tobacco companies, at a hearing on smoking. They are identified on page A20.

Tactics **(Identical pattern for all)**

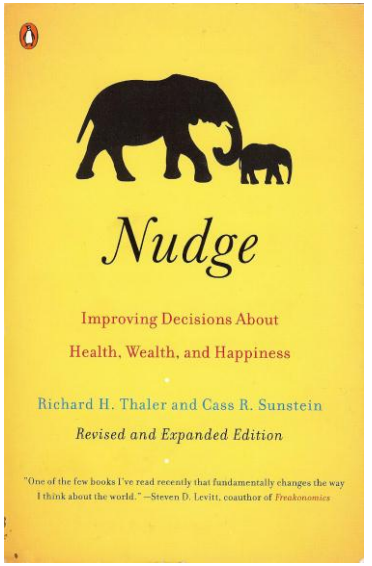
- Influencing government decisions
- Advertising
- Spread doubt: “doubt is our product”
- Manufactured “evidence”
- Legal trials to delay healthy decisions
- “nanny state”, “big government”, “our free choice”

B. Majnoni d’Intignano 1995; R. Jahiel 2008

The free choice

- **Does ”big corporation” “nanny” the population by setting a wrong default?**

- **Nudge – to push mildly – by setting the default**
  - **Default is an option that will be obtained if the chooser does nothing**
  - **Large number of people will end up with that option whether or not it is good for them**
- **A balance**
  - **Corporation secure products (makes profit, working places etc.)**
  - **Health authorities secure healthy environments**



Main messages

- **This position papers have shown many possibilities**
- **Any intervention achieving even a modest population-wide reduction in any major cardiovascular risk factor would produce a net cost saving for health care system as well as improving health**

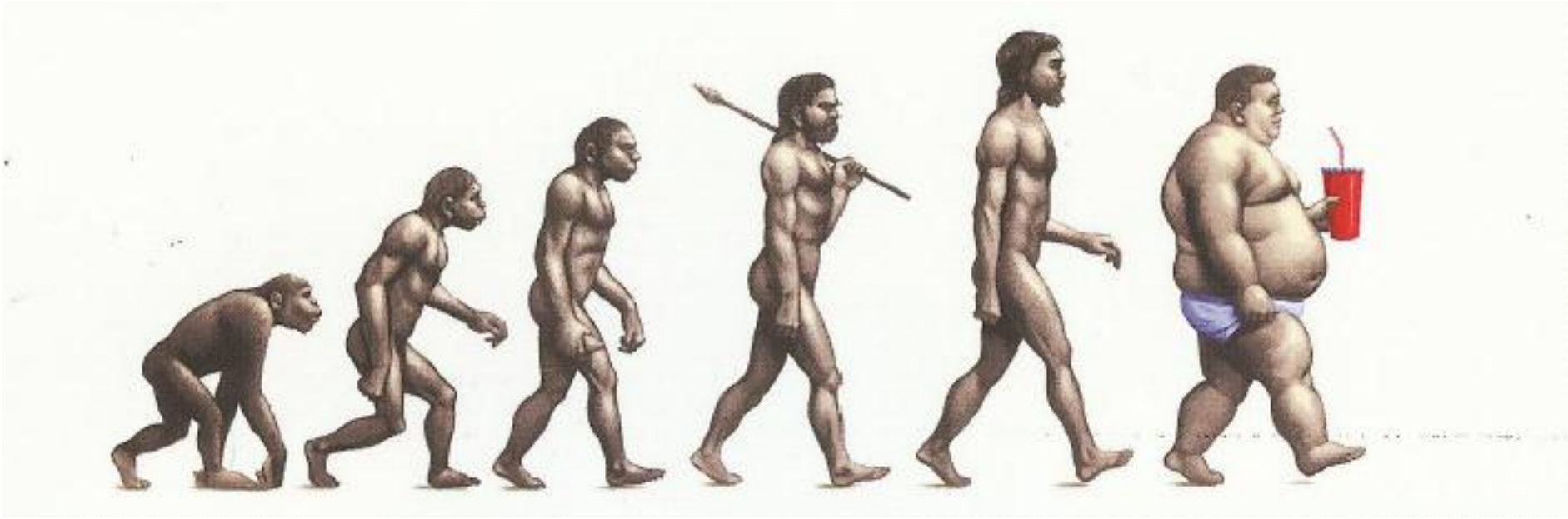
- **Overwhelmed? Go for two major things:**
  - **Smoking**
  - **Salt**

Summary

- **High burden of CVD – social inequality**
- **Structural changes → small positive changes in unhealthy life style in the whole population**
- **Structural changes are the responsibility of politicians, administrative authorities and health professionals - observe interests of corporations**
- **Real free choice if health authorities secure healthy defaults and balance the vested interests of corporations**
- **Could lead to a marked reduction in CVD mortality (halving?)**

Conclusion

- **It is not a natural law that cardiovascular diseases are still the leading cause of morbidity and mortality in the world**
- **It is a choice - It is a political choice**
- **It calls for a collaboration between politicians, administrative authorities and health professionels**



Dziekuje bardzo