WHO Collaborating Centre on Population Approaches for Non-Communicable Disease Prevention

The scale of the problem of CVD In European Countries

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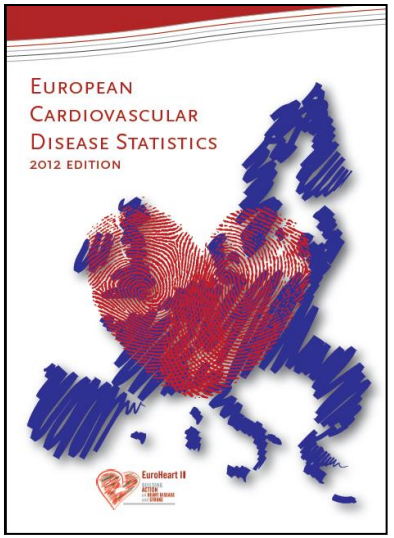
Acknowledgments

- Nick Townsend
- Peter Scarborough

- Melanie Nichols

Outline

- Is CVD still a crisis?
- How do we measure the scale of the problem of CVD?
- Are we solving the problem?
- Some causes of the problem
- EHN's CVD statistics compendia: a resource for solution generators.



Is CVD still a crisis?

CVD: a crisis for whom?

- The people affected (and their family and friends)?
- National governments (and their health services)?
- The European Union?
- Heart foundations?

A definition of a ‘crisis’ from the Collin’s English Dictionary:

1. A crucial stage or turning point in the course of something, esp. in a sequence of events or a disease
2. An unstable period, esp. one of ***extreme trouble*** *or danger in politics, economics, etc.*

- ‘Extreme trouble’
- Unexpected?
- Unpredictable?
- Unexplained?

If CVD is a problem how do we measure its scale?

- In the trouble it causes to patients, their families and friends (premature death, disability)
- In the trouble it causes to governments (health care expenditure; loss of productivity)

More than 4 million people in Europe die from CVD every year

≈2.2 million women

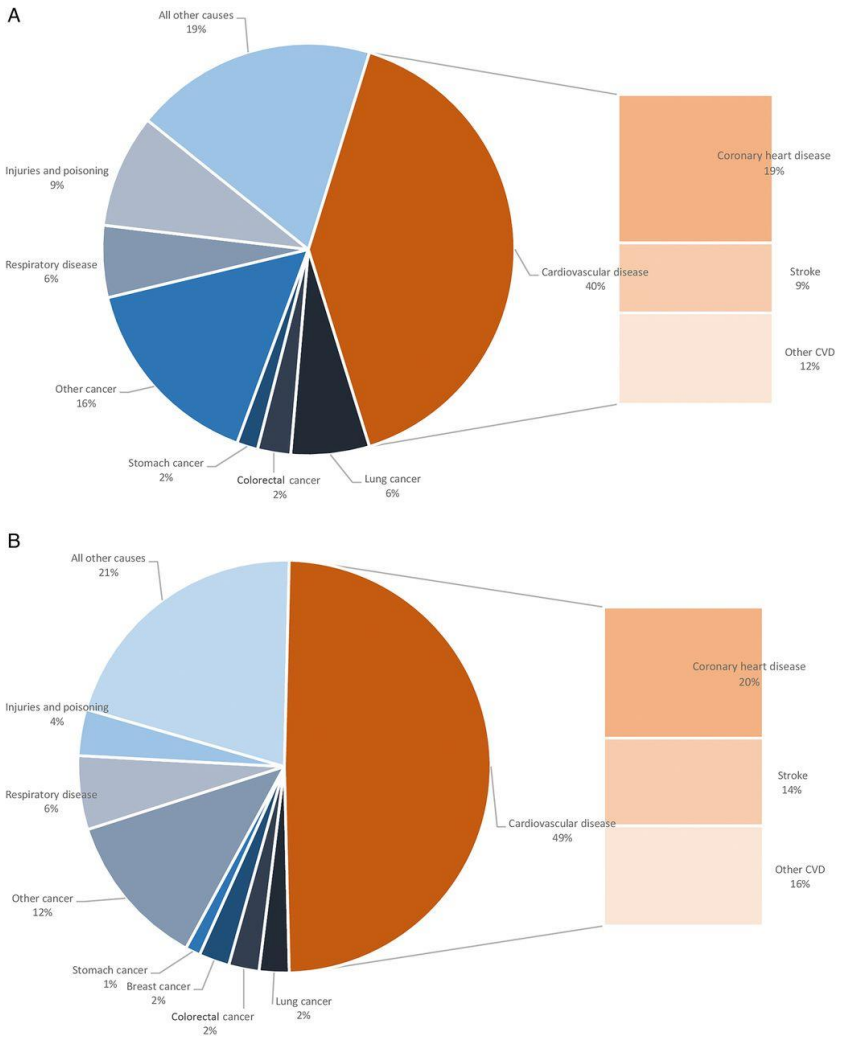
≈1.8 million men

>1.4 million people < 75 years

44% of CVD deaths = CHD

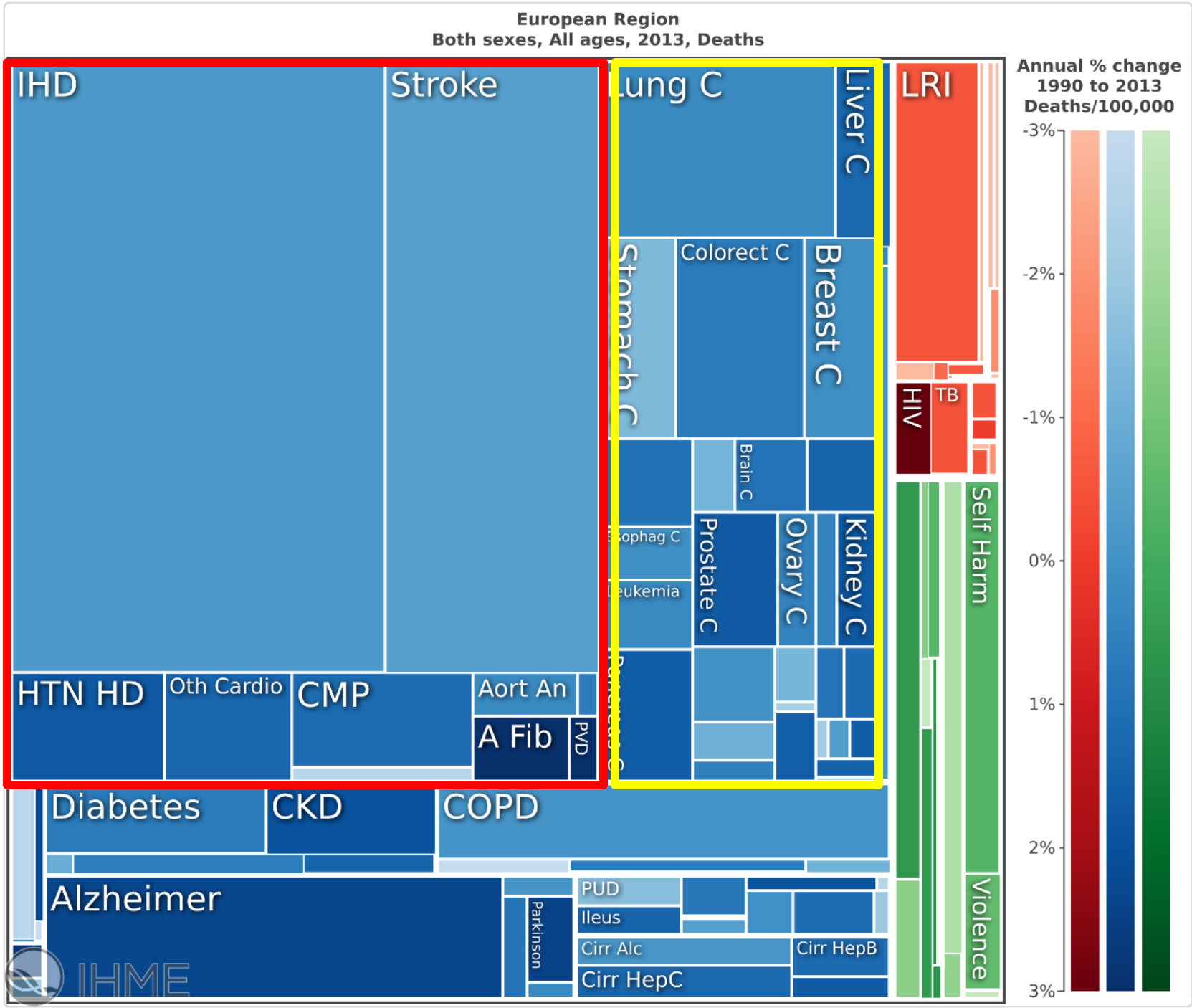
25% of CVD deaths = stroke

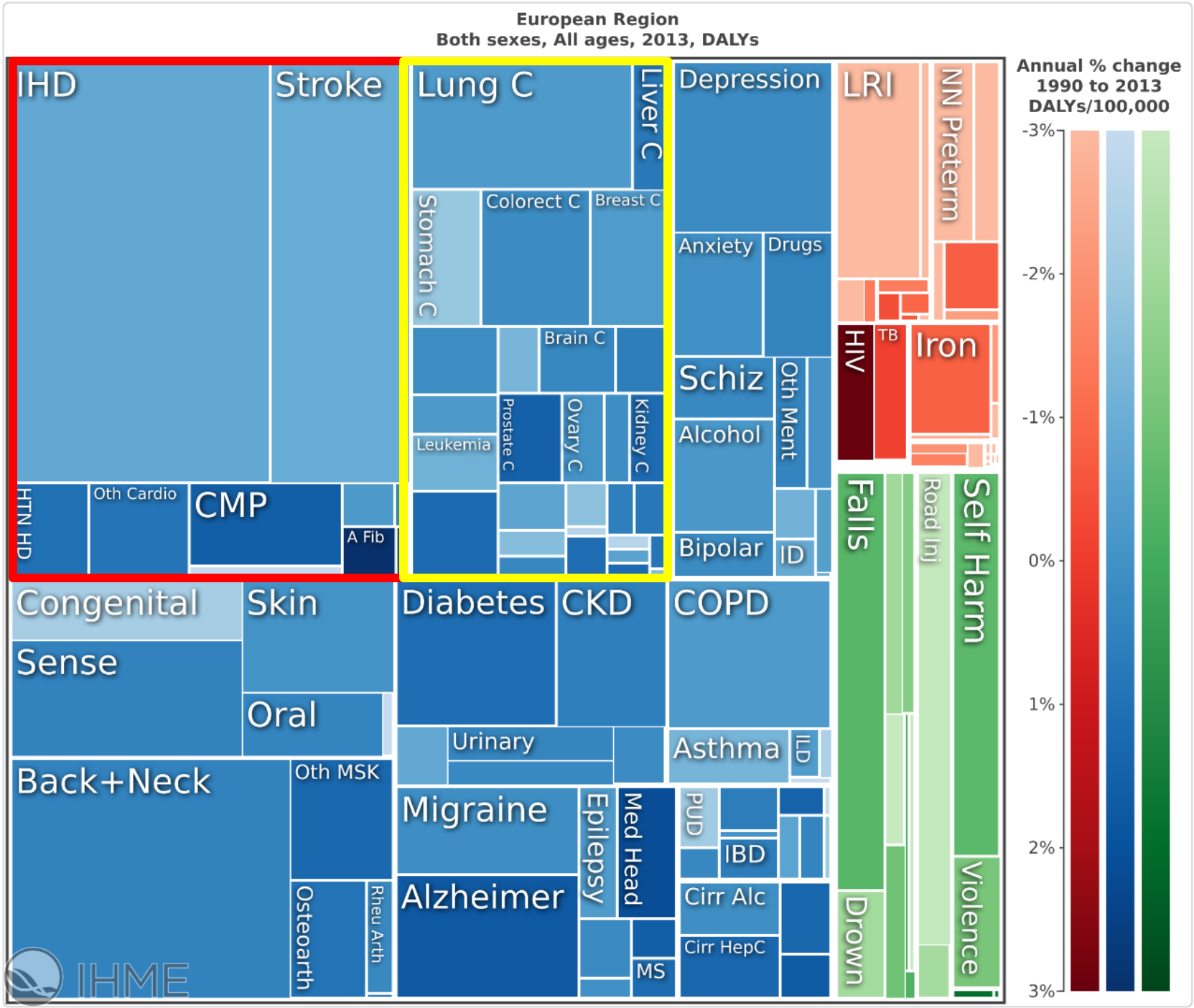
Proportion of all deaths due to major causes in Europe, latest available year, among men (A) and women (B).



Nick Townsend et al. Eur Heart J 2015;36:2696-2705

European Heart Journal


European Region
Both sexes, All ages, 2013, Deaths
IHD
Stroke
HTN HD
Oth Cardio
CMP
Aort An
A Fib
PVD
Lung C
Liver C
Stomach C
Colorect C
Breast C
Brain C
Prostate C
Ovary C
Kidney C
Leukemia
Diabetes
CKD
COPD
Alzheimer
Parkinson
PUD
Ileus
Cirr Alc
Cirr HepC
Cirr HepB
LRI
HIV
TB
Self Harm
Violence
Annual % change
1990 to 2013
Deaths/100,000
-3%
-2%
-1%
0%
1%
2%
3%
IHME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Kidney C
Depression
Anxiety
Drugs
Schiz
Oth Ment
Alcohol
Bipolar
ID
LRI
NN Preterm
HIV
TB
Iron
Falls
Road Inj
Self Harm
Drown
Violence
Congenital
Skin
Sense
Oral
Back+Neck
Oth MSK
Osteoarth
Rheu Arth
Diabetes
CKD
COPD
Urinary
Asthma
ILD
Migraine
Epilepsy
Med Head
Alzheimer
MS
PUD
IBD
Cirr Alc
Cirr HepC
Annual % change
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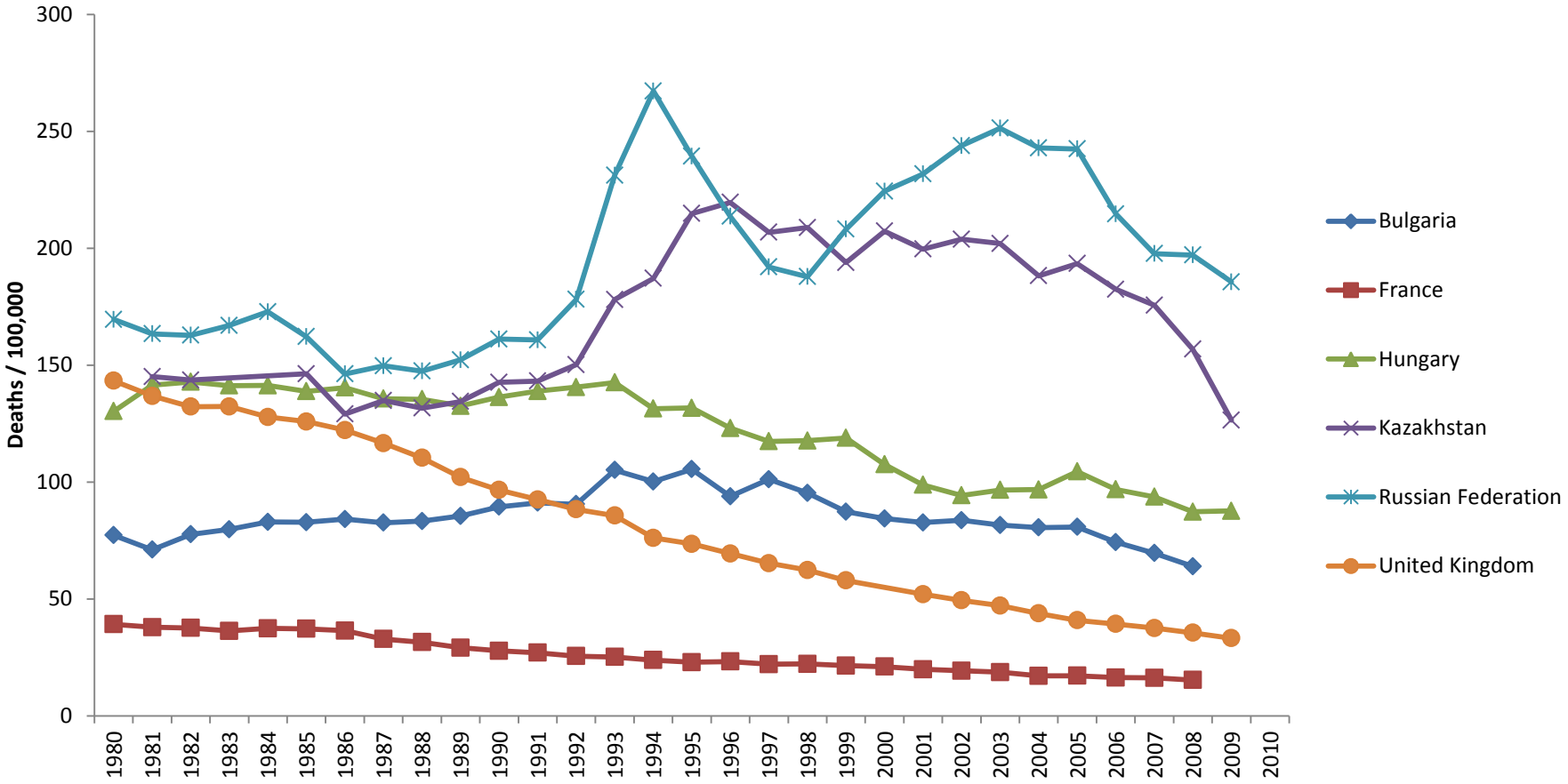
2%
3%
IHME

Economic costs of cardiovascular disease and cancer, EU, 2009.

	CVD			Cancer		
	€ millions	% of total costs for that disease	% of all costs	€ millions	% of total costs for that disease	% of all costs
Direct healthcare costs	106,157	54%	9%	50,994	40%	4%
Losses due to mortality	26,963	14%		42,565	34%	
Losses due to morbidity	18,874	10%		9,431	7%	
Informal care costs	43,560	22%		23,216	18%	
TOTAL	**195,554**			**126,205**		

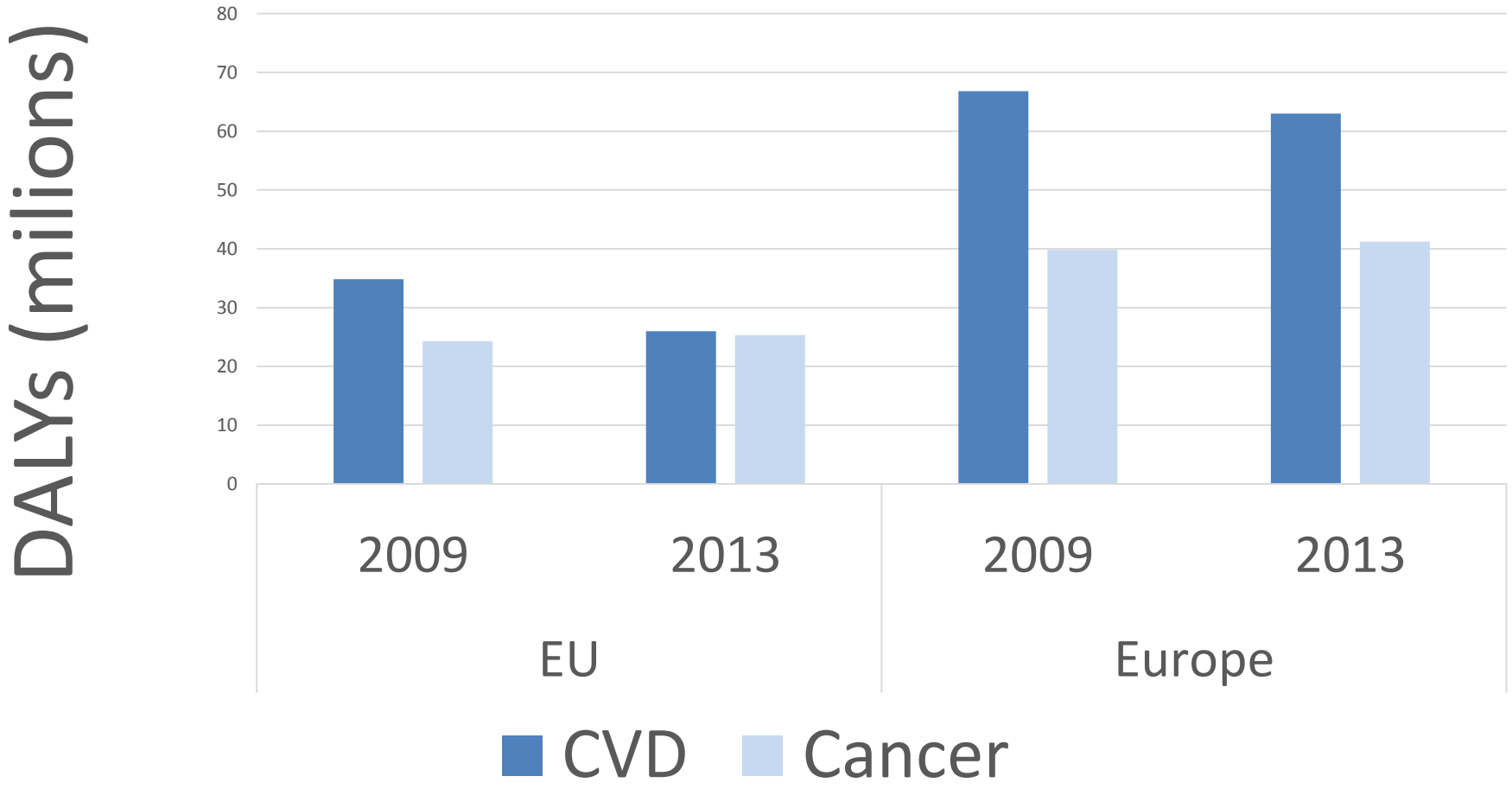
Are we solving the problem of CVD?

Change in death rates from CHD over time

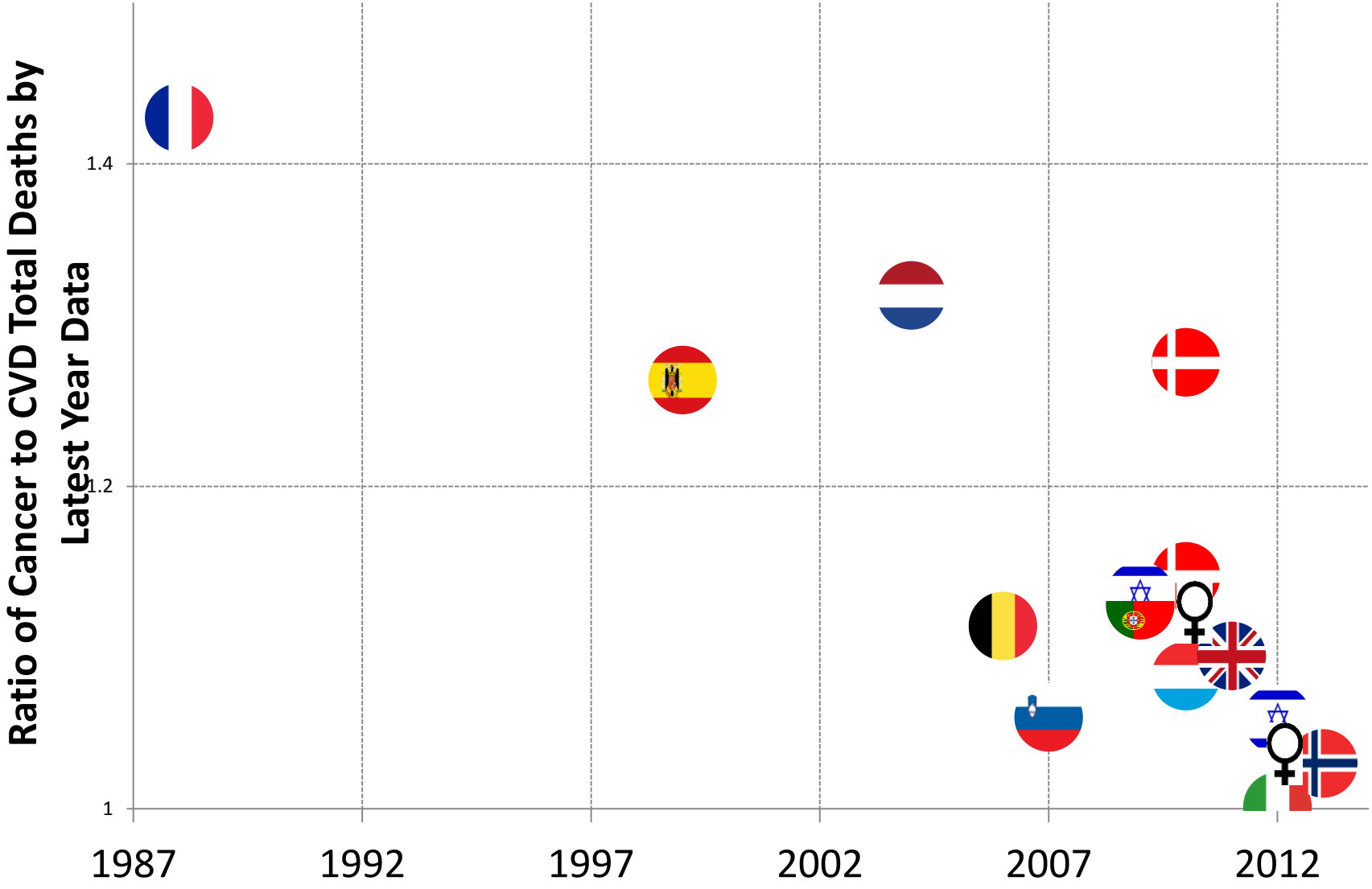


Death rates from CHD, men aged 0 to 64 years, 1980 to 2010, selected countries

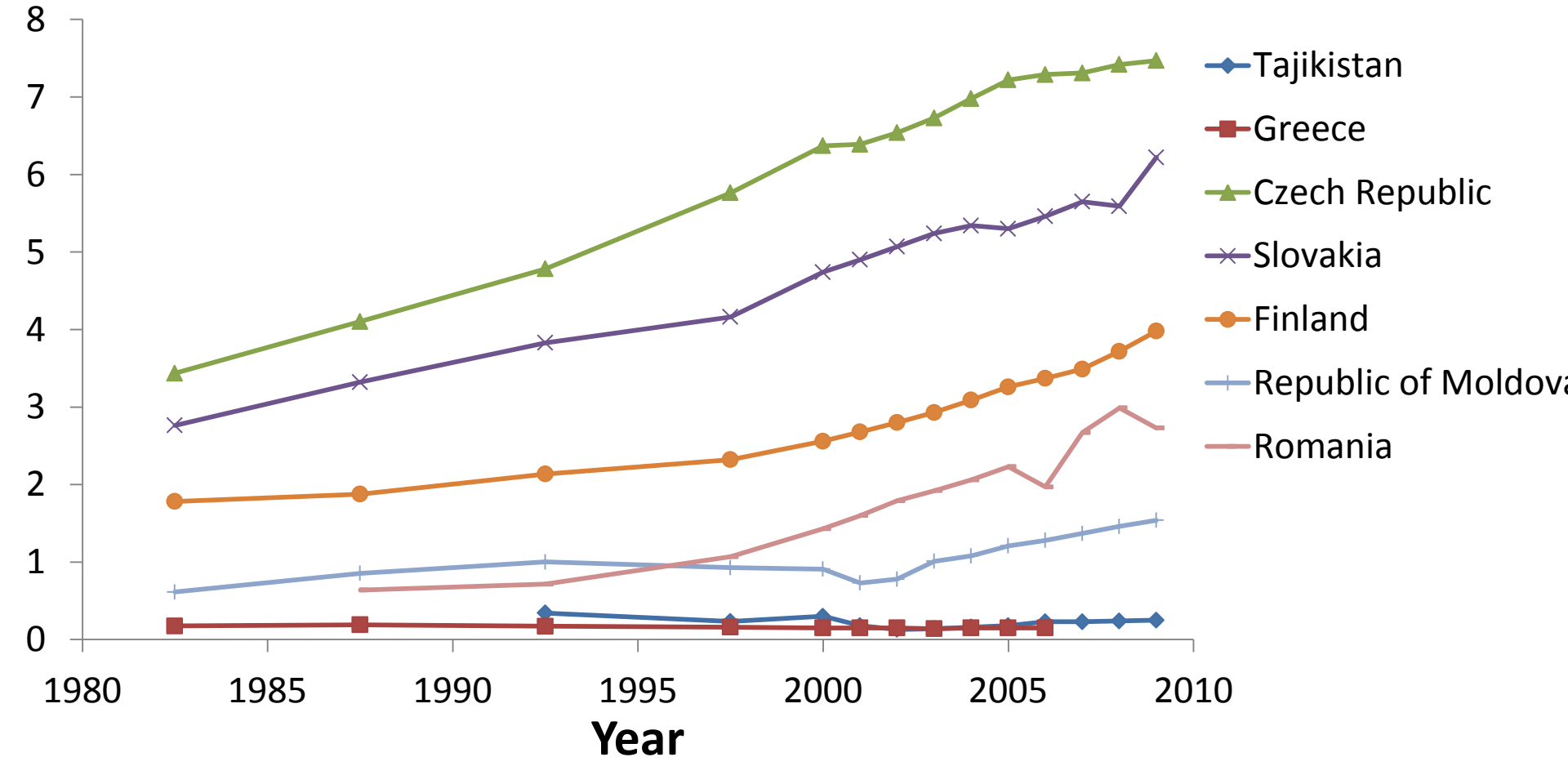
Change in the burden of disease over time



Year the higher absolute number of deaths changed from CVD to cancer by ratio of cancer to CVD deaths, by sex and European country



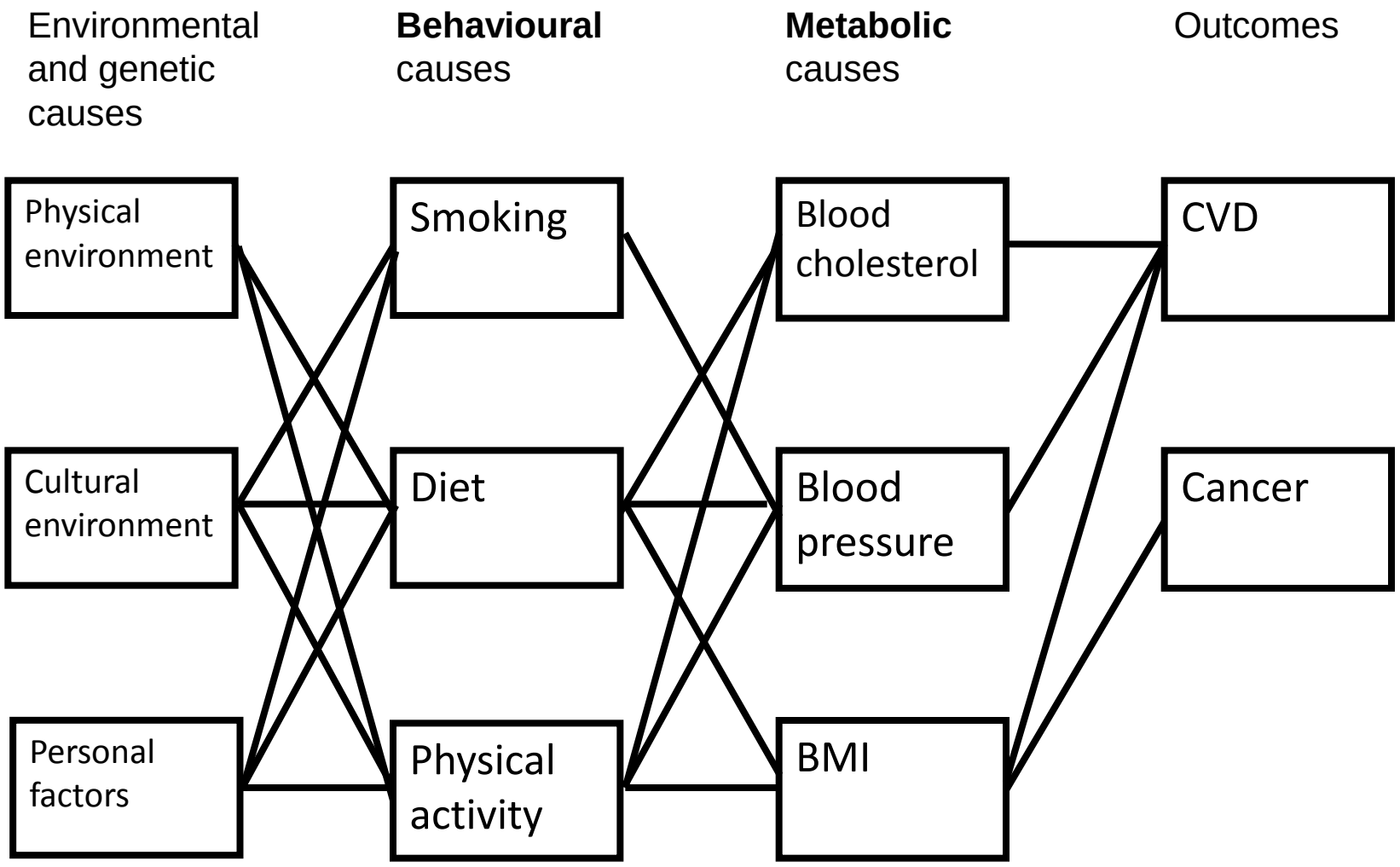
Prevalence of diabetes, 1980 to 2009, selected countries



Is the problem

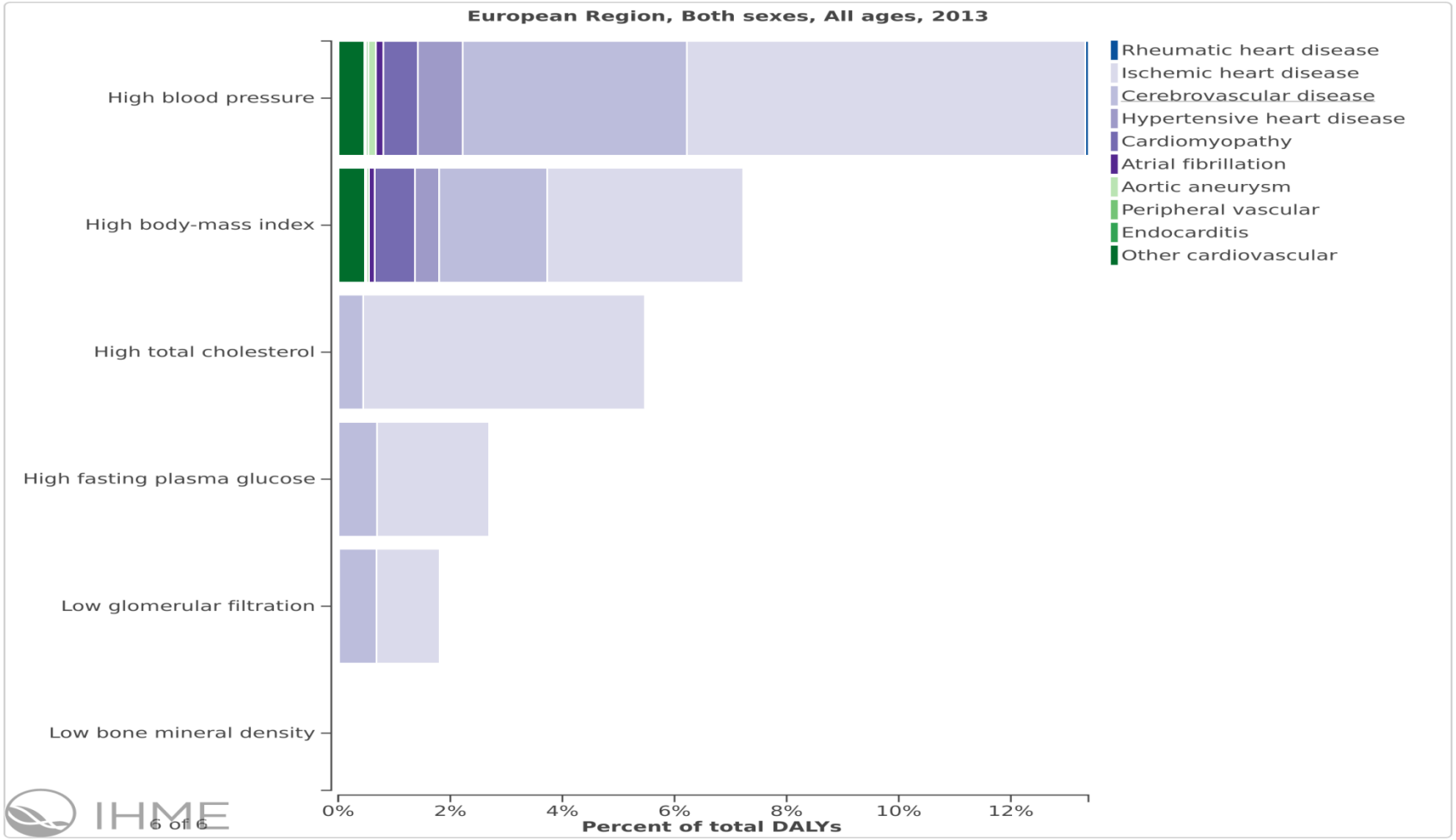
- Unexpected?
- Unpredictable?
- Unexplained?

Causal webs: the most simplest

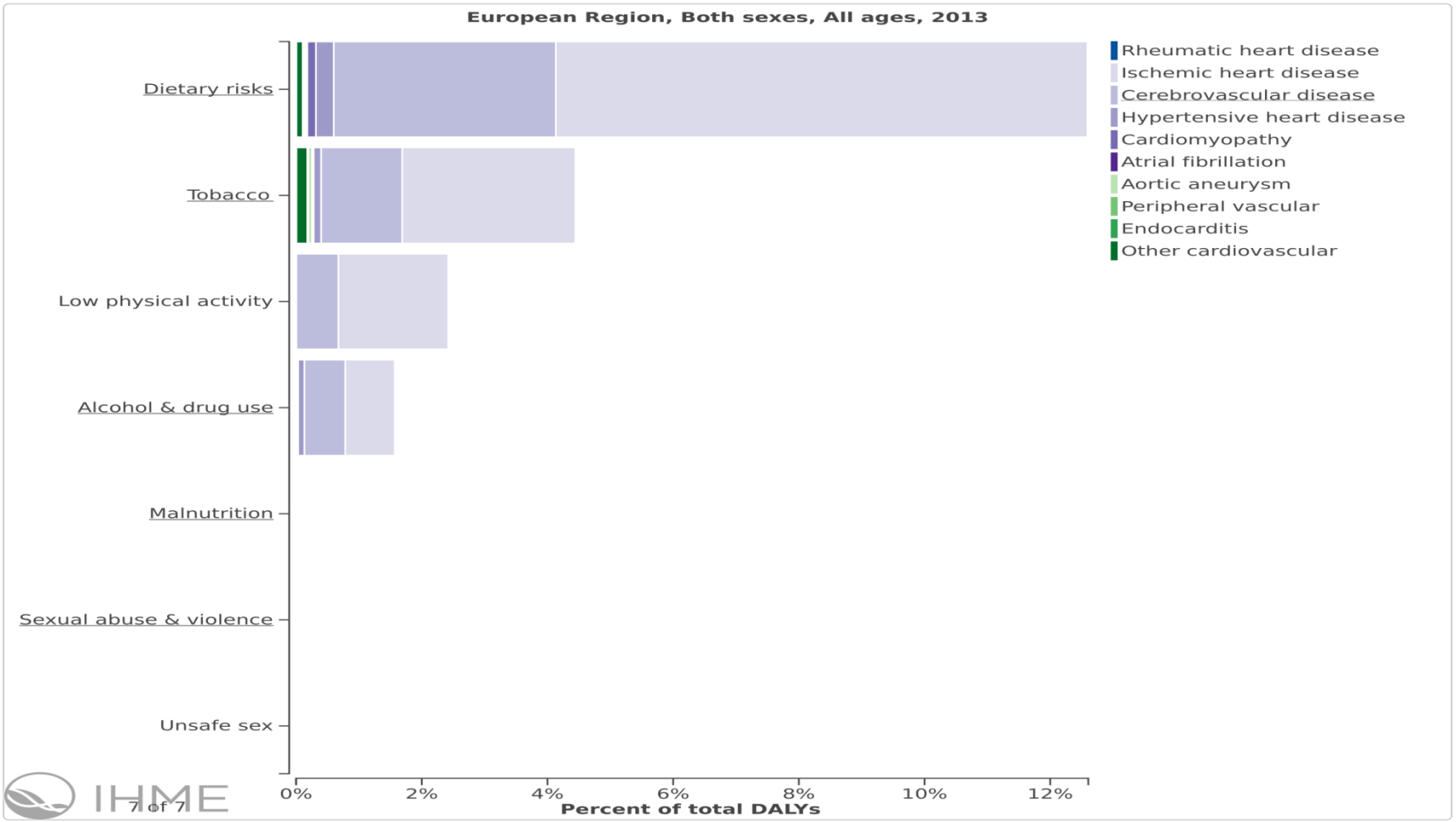


Murray C et al, Comparative quantification of health risks: Conceptual framework and methodological issues Popul Health Metr. 2003; 1: 1.

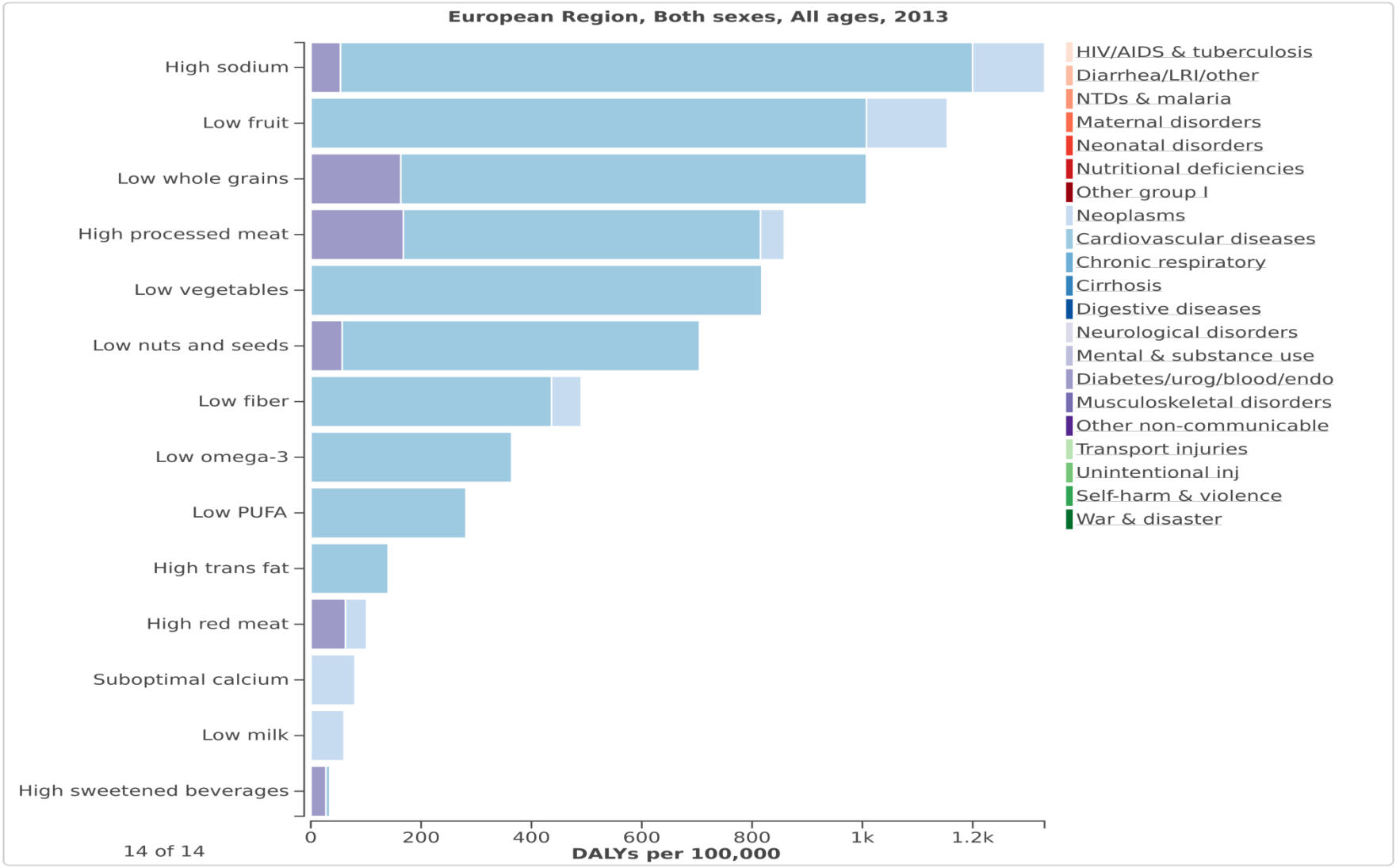
What are the most significant metabolic causes of CVD in Europe?



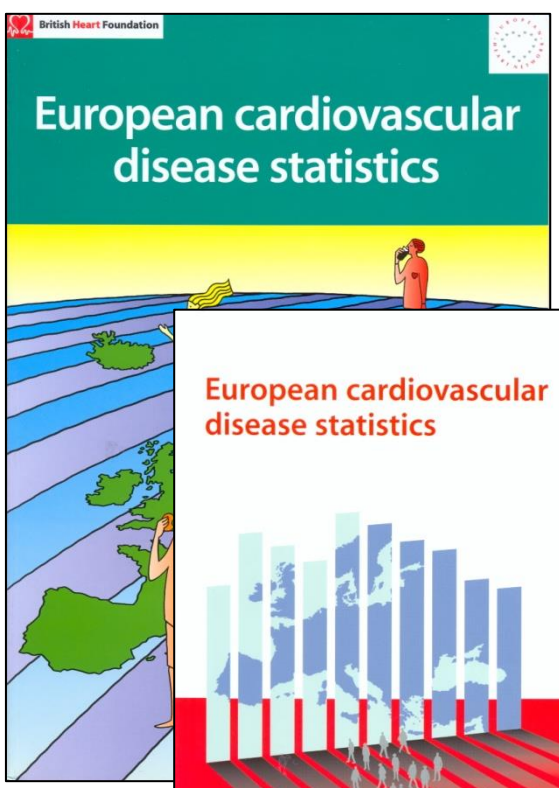
What are the most significant behavioural causes of CVD in Europe?

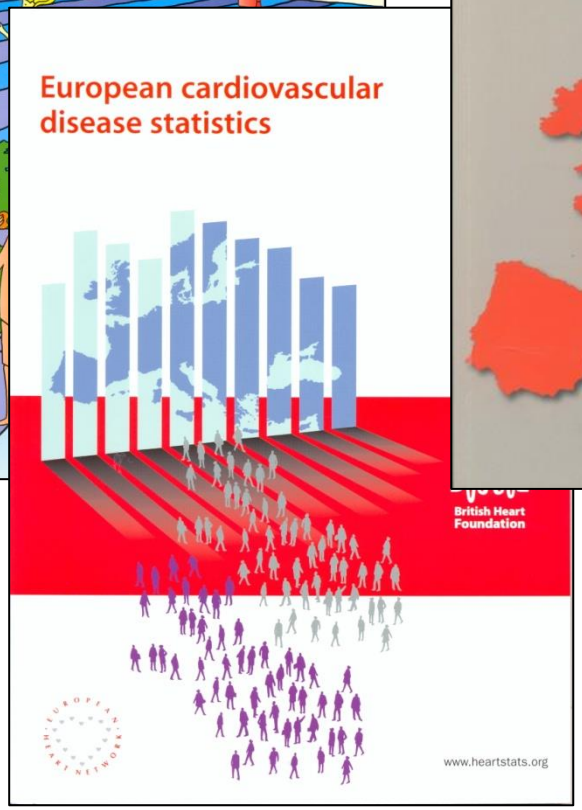


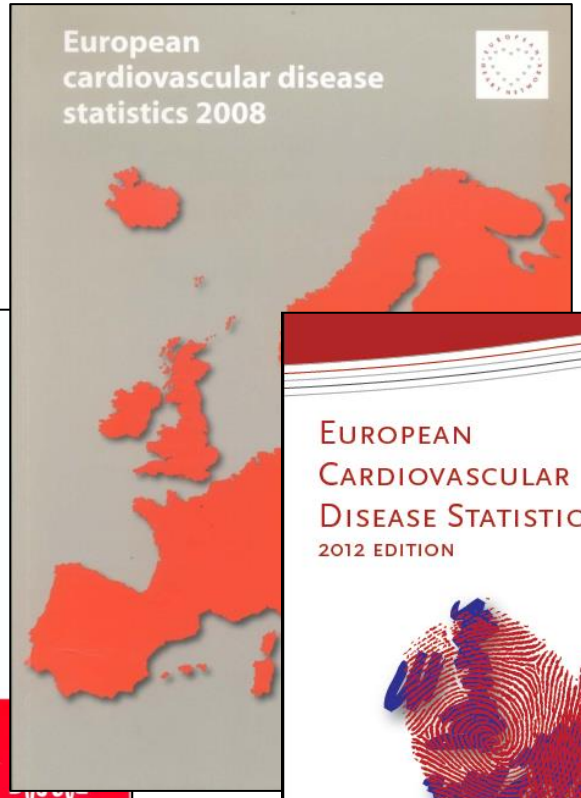
What are the most significant dietary causes of CVD in Europe?

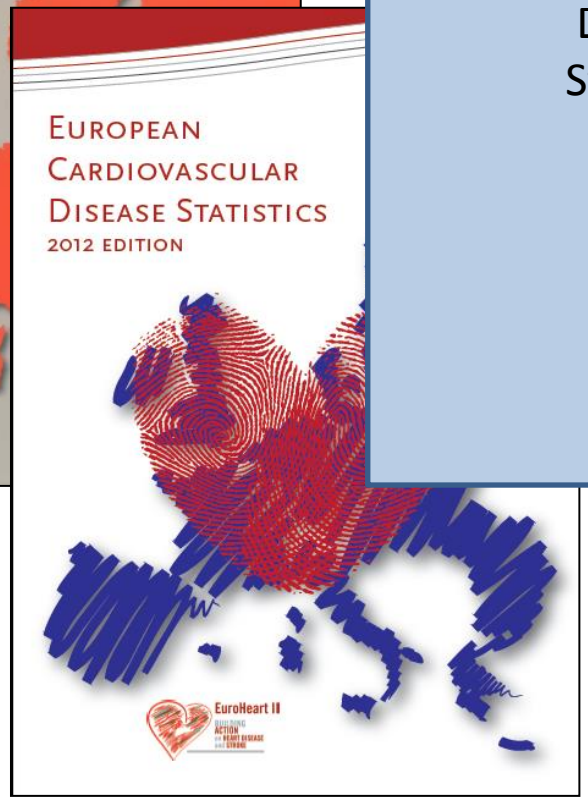


European CVD Statistics









European Cardiovascular Disease Statistics 2017

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CLINICAL RESEARCH

Trends in age-specific coronary heart disease mortality in the European Union over three decades: 1980–2009

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Aims Recent decades have seen very large declines in coronary heart disease (CHD) mortality across most of Europe, partly due to declines in risk factors such as smoking. Cardiovascular diseases (predominantly CHD and stroke), remain, however, the main cause of death in most European countries, and many risk factors for CHD, particularly obesity, have been increasing substantially over the same period. It is hypothesized that observed reductions in CHD mortality have occurred largely within older age groups, and that rates in younger groups may be plateauing or increasing as the gains from reduced smoking rates are increasingly cancelled out by increasing rates of obesity and diabetes. The aim of this study was to examine sex-specific trends in CHD mortality between 1980 and 2009 in the European Union (EU) and compare trends between adult age groups.

Methods Sex-specific data from the WHO global mortality database were analysed using the joinpoint software to examine trends and significant changes in trends in age-standardized mortality rates. Specific age groups analysed were: under 45, 45–54, 55–64, and 65 years and over. The number and location of significant joinpoints for each country by sex and age group was determined (maximum of 3) using a log-linear model, and the annual percentage change within each segment calculated. Average annual percentage change overall (1980–2009) and separately for each decade were calculated with respect to the underlying joinpoint model.

Results Recent CHD rates are now less than half what they were in the early 1980s in many countries, in younger adult age groups as well as in the population overall. Trends in mortality rates vary markedly between EU countries, but less so between age groups and sexes within countries. Fifteen countries showed evidence of a recent plateauing of trends. In at least one age group for men, as did 12 countries for women. This did not, however, appear to be any more common in younger age groups compared with older adults. There was little evidence to support the hypothesis that mortality rates have recently begun to plateau in younger age groups in the EU as a whole, although such plateaus and even a small number of increases in CHD mortality in younger subpopulations were observed in a minority of countries.

Conclusion There is limited evidence to support the hypothesis that CHD mortality rates in younger age groups in the member states of the EU have been more likely to plateau than in older age groups. There are, however, substantial and persistent inequalities between countries. It remains vitally important for the whole EU to monitor and work towards reducing preventable risk factors for CHD and other chronic conditions to promote wellbeing and equity across the region.

Keywords Coronary heart disease • Mortality • Trends • Young adults

Introduction

Recent decades have seen very large declines in cardiovascular disease (CVD), and coronary heart disease (CHD) mortality specifically, across the European Union (EU), with rates of CVD mortality falling by >30% in both sexes and CHD mortality falling by a third in men and over a quarter in women between 1985–89 and

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FASTTRACK CLINICAL RESEARCH
Prevention and epidemiology

Cardiovascular disease in Europe — epidemiological update 2015

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This article provides an update for 2015 on the burden of cardiovascular disease (CVD), with a particular focus on coronary heart disease (CHD) and stroke, across the countries of Europe. Cardiovascular disease is still the most common cause of death within Europe, causing almost two times as many deaths as cancer across the continent. Although there is clear evidence, where data are available, that mortality from CHD and stroke has decreased substantially over the last 5–10 years, there are still large inequalities found between European countries, in both current rates of death and the rate at which these decreases have occurred. Similarly, rates of treatment, particularly surgical intervention, differ widely between those countries for which data are available, indicating a range of inequalities between them. This is also the first time in the series that we use the 2013 European Standard Population (ESP) to calculate age-standardized death rates (ASDRs). This new standard results in ASDRs around two times as large as the 1976 ESP for CVD conditions such as CHD but changes little the relative rankings of countries according to ASDR.

Keywords Cardiovascular disease • Epidemiology • Coronary heart disease • Mortality • Morbidity • Treatment

Introduction

Cardiovascular disease (CVD) is the most common cause of death globally. The 2010 Global Burden of Disease study estimated that CVD caused 15.6 million deaths worldwide, 29.6% of all deaths. This was two times as many deaths as was caused by cancer and was more than all communicable, maternal, neonatal, and nutritional disorders combined.[1] Statistics presented in this journal over the last 2 years[2,3] report that CVD is also the most common cause of death among Europeans and that despite steady decreases in CVD mortality rates across the continent, >4 million Europeans die of CVD every year. This overview updates work published, presenting statistics describing the burden of CVD, in particular coronary heart disease (CHD) and stroke, within Europe. It also presents new data in relation to mortality, morbidity, and treatment for the European countries, and for the first time in the series, we calculate age-standardized mortality rates using the new European Standard Population (ESP).[4]

Methods

In this article, we describe data from a number of data sources. Data sources and data are chosen with consideration of data quality, date of most recent update, and coverage of the European region (with data for as many European countries as possible). To obtain data on CVD throughout Europe, with a particular focus on the two most common forms of CVD, CHD and stroke, international sources were used that collect and report comparable data for a number of countries. These sources are updated relatively frequently through routine and administrative data collections and they allow for an overview of the burden and distribution of CVD in Europe through the mortality, morbidity, and treatment associated with CVD in the continent. As these data sources are often reliant on individual countries to provide the data they collate, in some instances, the data that are centrally available in a consistent and comparable format may not be as up to date as found in some individual countries' databases.

Throughout this article, Europe is defined as the 53 member states of the World Health Organization (WHO) European region. Comparability and quality of the data varies by topic, and there were no 'ideal' data sources that provided complete, up-to-date, high-quality, and representative information for all 53 countries for any topic in this overview. Where possible, data are standardized, using the 2013 ESP. The 2013 ESP was developed by the European Commission for the EU27 + European Free Trade Association countries, as an update to the 1976 ESP, to reflect better the current age structure of the present European population, which, with increasing life expectancies, now includes a larger proportion of older adults.[4] As CVD affects older age groups more than younger age groups, the larger number of older people in the

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