WORLD HEALTH ORGANIZATION
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Highlights on health in The former Yugoslav Republic of Macedonia

2005

Highlights on health

Highlights on health give an overview of a country's health status, describing recent data on mortality, morbidity and exposure to key risk factors along with trends over time. The reports link country findings to public health policy considerations developed by the WHO Regional Office for Europe and by other relevant agencies. *Highlights on health* are developed in collaboration with Member States and do not constitute a formal statistical publication.

Each report also compares a country, when possible, to a reference group. This report uses the 25 countries with low child mortality and low or high adult mortality, designated Eur-B+C by WHO, as the reference group. Eur-B+C comprises Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Poland, Republic of Moldova, Romania, Russian Federation, Serbia and Montenegro, Slovakia, Tajikistan, The former Yugoslav Republic of Macedonia, Turkey, Turkmenistan, Ukraine and Uzbekistan.

To make the comparisons as valid as possible, data, as a rule, are taken from one source to ensure that they have been harmonized in a reasonably consistent way. Unless otherwise noted, the source of data in the reports is the European health for all database of the WHO Regional Office for Europe. Other data and information are referenced accordingly.

Keywords

HEALTH STATUS
BURDEN OF DISEASE
COMPARATIVE STUDY
THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA

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Contents

Summary: findings and policy considerations

Life expectancy

WHO estimates that a person born in the former Yugoslav Republic of Macedonia in 2002 can expect to live 72.0 years on average, four years longer than the Eur-B+C average, but almost five years shorter than the Eur-A average. Females born in 2002 are expected to live 75.1 years and males 69.0 years. Overall, people in The former Yugoslav Republic of Macedonia spend almost 12% of their lives (8.6 years) with illness.

As the length of life increases, older people can respond with lifestyle changes that can increase healthy years of life. Correspondingly, health care systems need to shift towards more geriatric care, the prevention and management of chronic diseases and more formal long-term care. Since people are living longer, measures to improve health and prevent disease need to focus on people of working age.

*Ageing and employment policies (*OECD, 2004*)*

What are the main risk factors for disability in old age and how can disability be prevented? (Health Evidence Network, 2003a)

Infant mortality

The latest available WHO-UNICEF estimate for infant mortality is 16 per 1000 live births for the year 2000, higher than the national rate reported that year, 12 per 1000. Both rates are below the Eur-B+C average for 2001 to 2003, 21 per 1000 live births.

Antenatal care is one of the most important services in health care. Nevertheless, it can be expensive, and interventions may be excessive, unneeded and unproven. A simplified model of antenatal care, based on evidence of benefit, is available.

Managing newborn problems: a guide for doctors, nurses and midwives (WHO, 2003a)

What is the efficacy/effectiveness of antenatal care? (Health Evidence Network, 2003b)

The WHO reproductive health library, version 6 (WHO, 2003)

Main causes of death

Mortality rates for males and females in the former Yugoslav Republic of Macedonia are higher than Eur-A averages, but lower than the Eur-B+C averages in all age groups for both sexes. In 2003, selected main non-communicable diseases accounted for about 81% of all deaths in The former Yugoslav Republic of Macedonia (58% were caused by diseases of the circulatory system and 16% by cancer), external causes accounted for about 3% and communicable diseases for less than 1%. People of The former Yugoslav Republic of Macedonia are at between two and four times the Eur-A average risk of dying from cardiovascular diseases.

Preventive care, delivered through a country's primary care system, can reduce all-cause mortality and premature mortality, particularly from CVD.

A strategy to prevent chronic disease in Europe: a focus on public health action: the CINDI vision (WHO Regional Office for Europe, 2004a)

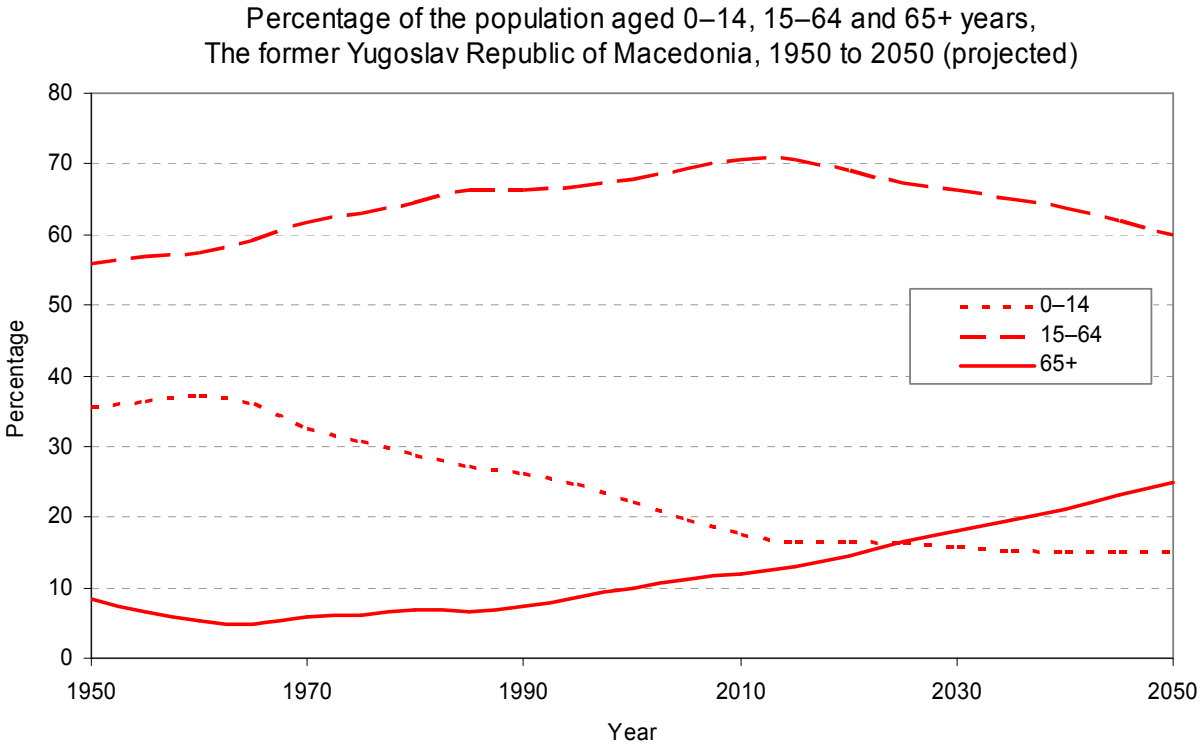
Towards a European strategy on noncommunicable diseases (WHO Regional Office for Europe, 2004b)

What are the advantages and disadvantages of restructuring a health care system to be more focused on primary health care services? (Health Evidence Network, 2004)

Selected demographic and socioeconomic information

Population profile

In mid 2003, TFYR Macedonia had approximately 2 million people. Almost 60% of the population lives in urban areas, about the average for Eur-B+C countries. The proportion of the population 0 to 14 years old was relatively steady during the 1980s but fell from about 26% of the population in 1990 to 21% by 2003, at the Eur-B+C average. The percentage of TFYR Macedonia's population 65 years old is also at the Eur-B+C average. By 2030, an estimated 18% of TFYR Macedonia's population will be over 65 (Annex. Age pyramid) (Figure. Population trends).



Source: United Nations (2005).

The birth rate in TFYR Macedonia was only slightly higher than the 2003 Eur-B+C average. The natural population increase is above the Eur-B+C average, while net migration is slightly negative (Table. Selected demographic indicators).

Selected demographic indicators in The former Yugoslav Republic of Macedonia and Eur-B+C, 2003 or latest available year

Indicators	TFYR Macedonia	Eur-B+C		
	Value	Average	Minimum	Maximum
Population (in 1000s)	2026.8	–	–	–
0–14 years (%)	20.7	–	–	–
15–64 years (%)	68.6	–	–	–
65+ years (%)	10.7	–	–	–
Urban population (%)[a]	59.4	63.7	25.0	73.3
Live births (per 1000)	13.3	12.8	8.6	27.1
Natural population growth (per 1000)	4.5	0.8	–7.5	23.0
Net migration (per 1000)[b]	–1.2	1.8	–6.6	2.1

[a] 2002; [b] 2000.

Sources: Council of Europe (2005), WHO Regional Office for Europe (2005).

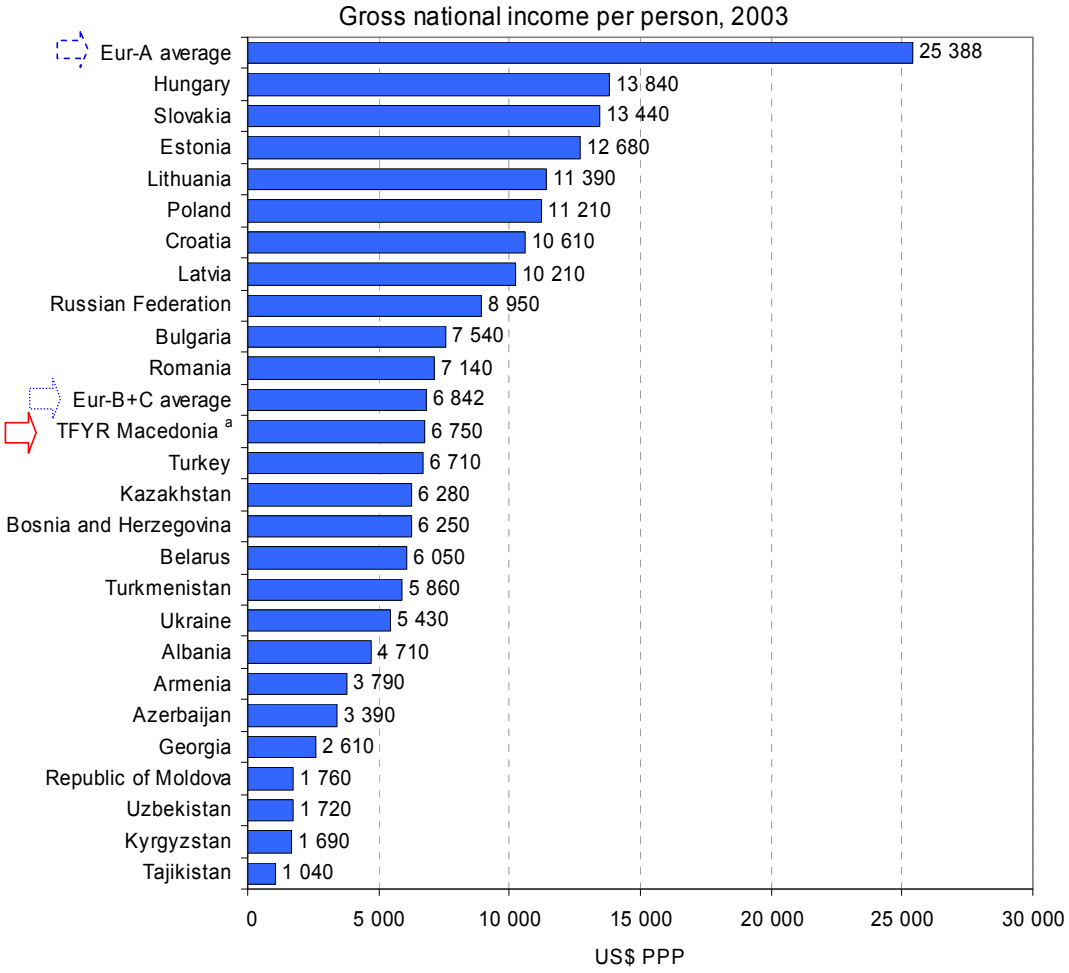
Socioeconomic indicators

Health outcomes are influenced by various factors that operate at individual, household and community levels. Obvious factors are, for example, diet, health behaviour, access to clean water, sanitation and health services. However, underlying health determinants of a socioeconomic nature also play a role in causing vulnerability to health risks. Here, the key factors are income, education and employment. Though moderately correlated and interdependent, each of these three determinants captures distinctive aspects of the socioeconomic background of a population and they are not interchangeable. Various indicators represent the key socioeconomic determinants of health.

Income: absolute poverty, relative poverty and income distribution

There is an income gradient affecting health: the poor generally suffer worse health and die younger than people with higher incomes. For instance, the latter are better able to afford the goods and services that contribute to health, for example, better food and living conditions.

In The former Yugoslav Republic of Macedonia, per capita gross national income, adjusted for purchasing power parity, was US$ 6750 in 2003, just below the Eur-B+C average (Figure. Gross national income).



[a] The former Yugoslav Republic of Macedonia
Source: World Bank (2005).

People are considered to be in absolute poverty if their incomes are not sufficient to purchase very minimal goods and services. The World Bank currently uses an absolute poverty line of US$ 2.15 and US$ 4.30 income per capita per day to measure poverty in low- and middle-income countries of the WHO European Region (using 1993 international prices adjusted for purchasing power parity). While there is no certainty that the poverty lines measure the same degree of need across countries, the World Bank uses them as a constant to permit comparison. Many countries in the Region calculate their national poverty lines on the basis of a minimum consumption basket selected and priced according to the specific circumstances of the country.

Using the World Bank's recommended benchmarks to measure absolute poverty in Europe, a household survey in 1998 found 25.1% of the population of The former Yugoslav Republic of Macedonia living on US$ 4.30 per day or less. Four per cent of the population lived on US$ 2.15 per day or less (World Bank, 2005).

Relative poverty is an indicator of income level below a given proportion (typically 50%) of the average national income. In high-income countries, there are far more pockets of relative poverty than of absolute poverty.

Another measure of relative poverty in terms of income is the Gini index. This presents the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution. A Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.

The latest available GINI index for The former Yugoslav Republic of Macedonia is 28.2 for 1998. The GINI indices for 15 Eur-B+C countries for 2000 to 2002 range from 26.1 for Bosnia and Herzegovina (2001) to 45.6 in the Russian Federation (2000) (World Bank, 2005).

Education

Education tends to enhance an individual's job opportunities. In so doing, it can improve income, which in turn affects health positively. Education can also give more access to knowledge about healthy behaviour and increase the tendency to seek treatment when needed. A lower level of education – independent of individual income – is correlated with the inability to cope with stress, with depression and hostility and with adverse effects on health.

School enrolment is an indicator of access to education. The secondary school net enrolment represents the percentage of the total population of official school age (defined nationally) that is enrolled in secondary school.

Percent net secondary school enrolment in The former Yugoslav Republic of Macedonia in 2000 was 82.2%, compared to an 81.2% Eur-B+C average. The average net enrolment in Eur-A countries that year was 88.5% (UNESCO, 2005).

Employment

Being employed tends to be better for health than being unemployed, except for circumstances where employment exposes the individual to physical injury or psychological stress. National unemployment rates and rates for particular sub-populations are monitored to assess the extent to which people have or lack access to opportunities that would enable them to earn an income and feel secure. Vulnerability to health risk is increased by long-term unemployment, that is, continuous periods without work, usually for a year or longer; the socioeconomic status of an individual and of his/her dependents can slide as the period of unemployment increases.

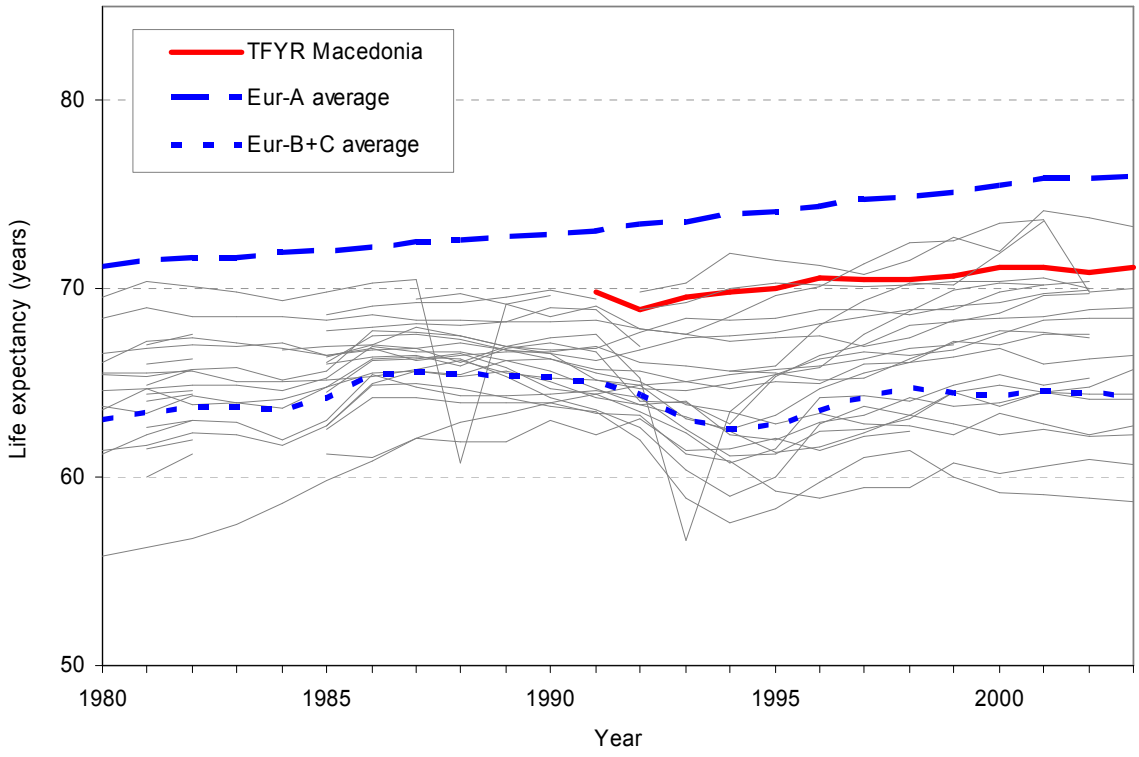
The total unemployment rate in The former Yugoslav Republic of Macedonia in 2001 was 30.5%, compared to a Eur-B+C average of 12.9%, keeping in mind that national rates are based on estimates of people available and seeking employment, and that countries have different definitions of labour force and unemployment. In 2002, the rate increased to 31.9% (ILO, 2005).

Life expectancy (LE) and healthy life expectancy (HALE)

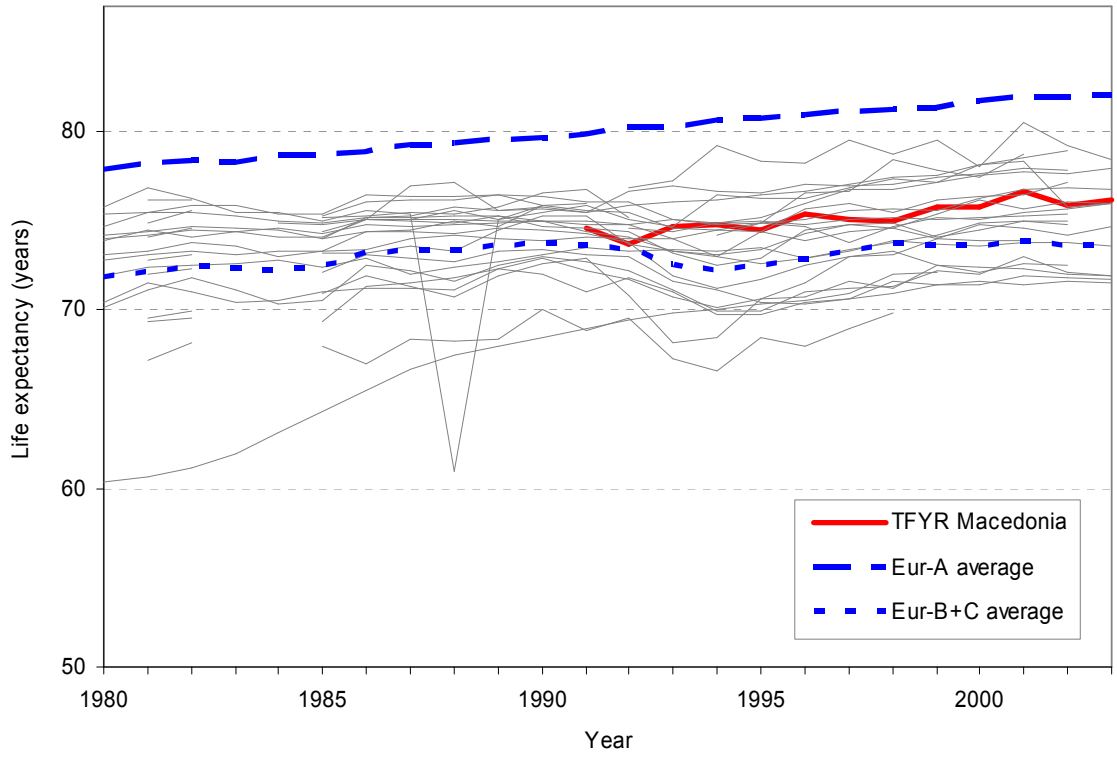
Note: Three-year averages have been partly used for age and cause-specific mortality rates in the former Yugoslav Republic of Macedonia to diminish random variation.

According to WHO (2003) estimates, a person born in the former Yugoslav Republic of Macedonia in 2002 can expect to live 72.0 years on average: 75.1 years if female and 69.0 years if male. This estimate is four years longer than the Eur-B+C average, but almost five years shorter than the Eur-A average. National mortality statistics, on which the official life expectancy (LE) figure is based, give higher estimates, for example for 1999 to 2002, 1 to 2 years higher than the WHO estimate. Under-reporting of deaths and difficulties gathering population statistics most likely explain these differences. According to the national figures, people in the former Yugoslav Republic of Macedonia gained about 1.4 years LE between 1991 and 2003. This gain was slightly greater for women (1.6 years) than men (1.2 years) (Figure. Life expectancy for males; Figure. Life expectancy for females).

Life expectancy at birth for males, The former Yugoslav Republic of Macedonia, Eur-A and Eur-B+C averages, 1980 to latest available year

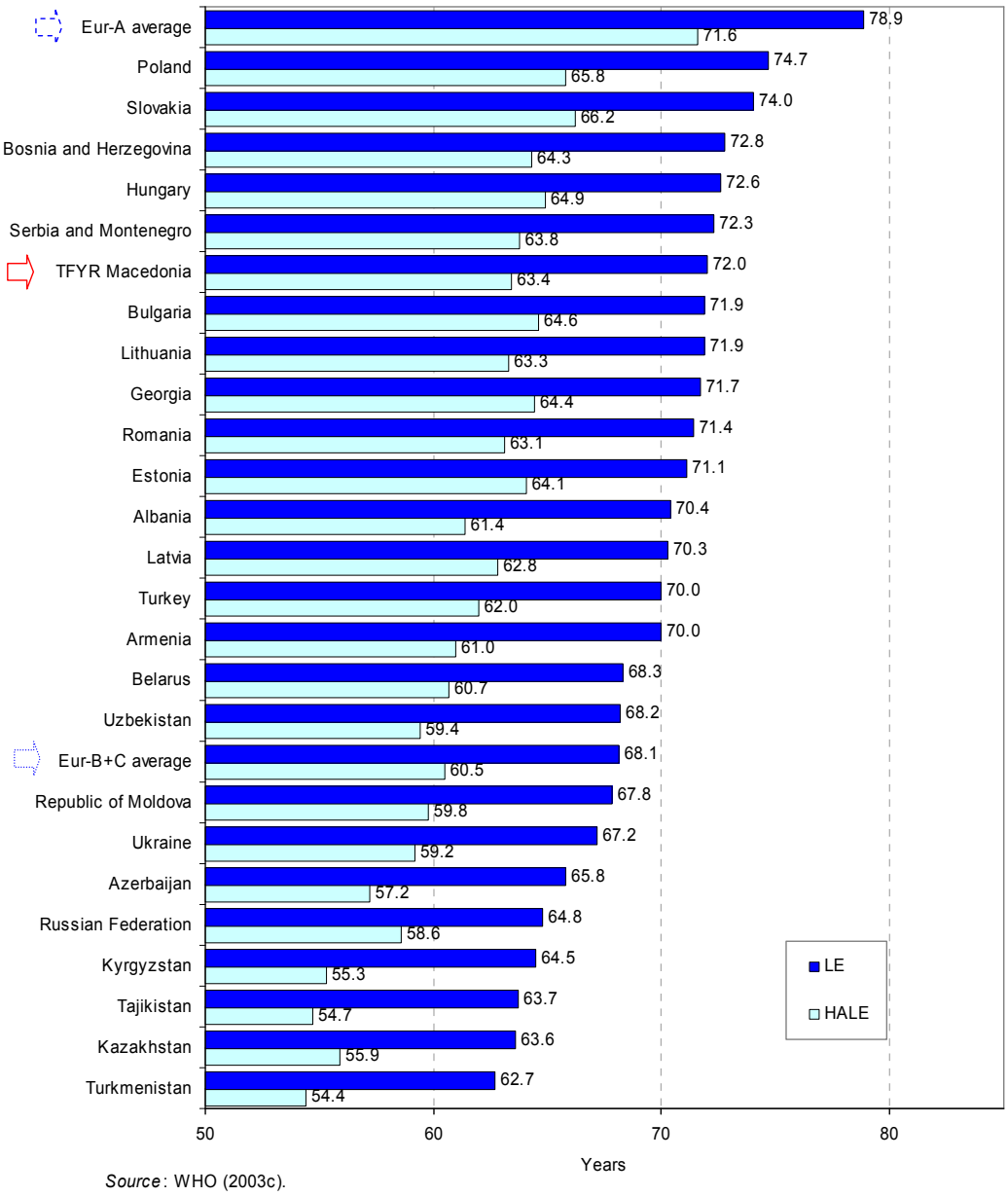


Life expectancy at birth for females, The former Yugoslav Republic of Macedonia, Eur-A and Eur-B+C averages, 1980 to latest available year



In addition to LE, it is increasingly important to know the expected length of life spent in good health. WHO uses a relatively new indicator for this purpose – healthy life expectancy (HALE), subtracting estimated years of life spent with illness and disability from estimated LE. For The former Yugoslav Republic of Macedonia, WHO (2003) estimates that people can expect to be healthy for about 88% of their lives. They lose an average of 8.6 years to illness - the difference between LE and HALE. This loss is one year larger than in the Eur-B+C countries on average (7.6 years) (Figure. LE and HALE).

LE and HALE, The former Yusgoslav Republic of Macedonia, Eur-A and Eur-B+C averages, 2002



Source: WHO (2003c).

Since women live longer and since the possibility of deteriorating health increases with age, women lose more healthy years of life (7.8 years) than men (5.6 years). Nevertheless, the longer LE for women in the former Yugoslav Republic of Macedonia gives them 3.1 more years of healthy life. Among 60 year-olds, females also live almost two years longer (14.0 years) in good health than males (12.2 years), according to the WHO estimates (2003).

Burden of disease

The burden of disease in a population can be viewed as the gap between current health status and an ideal situation in which everyone lives into old age, free of disease and disability. Causing the gap are premature mortality, disability and certain risk factors that contribute to illness. The analysis that follows elaborates on the burden of disease in the population. The disability-adjusted life-year (DALY) is a summary measure that combines the impact of illness, disability and mortality on population health.

Main conditions

The table shows the top 10 conditions, in descending order, that account for approximately 90% of the burden of disease among males and females in the former Yugoslav Republic of Macedonia. Cardiovascular diseases account for the most DALYs among both males and females, and neuropsychiatric disorders rank second. Because mortality from neuropsychiatric conditions is minor, disability in daily living comprises the bulk of their burden on the population's health (Table. Ten leading disability groups).

Ten leading disability groups as percentages of total DALYs for both sexes in The former Yugoslav Republic of Macedonia (2002)

Rank	Males		Females	
	Disability groups	Total DALYs (%)	Disability groups	Total DALYs (%)
1	Cardiovascular diseases	23.1	Cardiovascular diseases	27.0
2	Neuropsychiatric conditions	16.5	Neuropsychiatric conditions	23.2
3	Intentional injuries	15.9	Malignant neoplasms	12.0
4	Malignant neoplasms	11.6	Musculoskeletal diseases	6.4
5	Unintentional injuries	8.3	Sense organ diseases	6.0
6	Sense organ diseases	3.9	Respiratory diseases	3.0
7	Musculoskeletal diseases	3.5	Unintentional injuries	3.0
8	Perinatal conditions	3.3	Perinatal conditions	3.0
9	Digestive diseases	2.9	Digestive diseases	2.5
10	Respiratory diseases	2.8	Diabetes mellitus	2.5

Source: Background data from WHO (2003[c]).

Main risk factors

The table below shows the top 10 risk factors with their relative contributions, in descending order, to burden of disease in the male and female populations of the former Yugoslav Republic of Macedonia. According to DALYs, tobacco use and high blood pressure place the greatest burden of disease on the male population and high blood pressure and high cholesterol and high BMI on females (Table. Ten leading risk factors).

Ten leading risk factors as causes of disease burden measured in DALYs in The former Yugoslav Republic of Macedonia (2002)

Rank	Males		Females	
	Risk factors	Total DALYs (%)	Risk factors	Total DALYs (%)
1	Tobacco	15.8	High blood pressure	11.7
2	High blood pressure	10.1	High BMI	9.5
3	Alcohol	8.4	Tobacco	5.1
4	High BMI	6.2	High cholesterol	5.0
5	High cholesterol	5.7	Physical inactivity	2.9
6	Low fruit and vegetable intake	3.2	Low fruit and vegetable intake	2.6
7	Physical inactivity	2.8	Unsafe sex	2.5
8	Illicit drugs	1.3	Alcohol	1.5
9	Lead	1.2	Childhood sexual abuse	1.0
10	Urban outdoor air pollution	0.8	Lead	1.0

Source: Background data from WHO (2003[c]).

Mortality

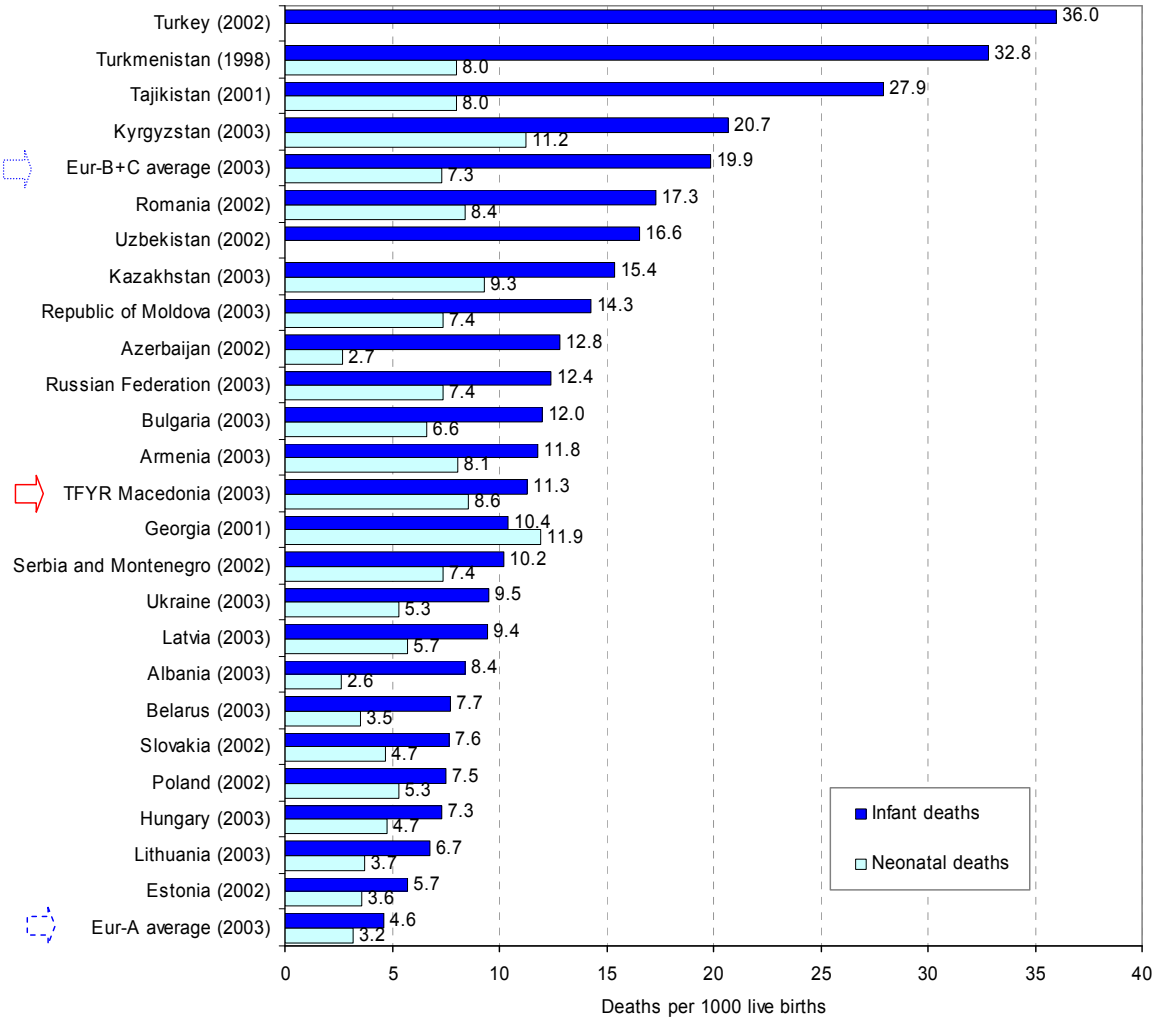
Infant, neonatal and child mortality

The official infant mortality rate in the former Yugoslav Republic of Macedonia decreased from 88 per 1000 live births in 1970 to 11 per 1000 from 2001 to 2003, and this rate has been below the Eur-B+C average (21 per 1000 from 2001 to 2003) since the early 1990s. However, the WHO-UNICEF estimate for infant mortality (16/1000 live births in 2000) is higher than the national rate for the same year (12/1000), which suggests under-reporting of deaths occurring during the first year of life. The neonatal

mortality rate, which may be more complete than infant mortality rates, remained higher in the former Yugoslav Republic of Macedonia than the Eur-B+C average in the 1990s (no data available after 2000).

WHO estimates and nationally reported deaths and births from 2002 to 2003 show that out of every 1000 live births in the former Yugoslav Republic of Macedonia, there is a probability that about 12–13 children will die before age five. The Millennium Development Goal (MDG) for the under-five mortality rate for Europe and central Asia is 15 deaths per 1000 live births by 2015. Adjusting for the known biases in national data (under-reporting of vital statistics), WHO estimates the country's latest probability at 11 deaths under-five out of every 1000 live births in 2003, which is already below the MDG target. The lowest WHO estimates for the Eur-B+C countries are for Estonia and Slovakia, each at 8 deaths per 1000 live births (Figure. Infant deaths and neonatal deaths).

Infant deaths and neonatal deaths per 1000 live births, The former Yugoslav Republic of Macedonia, Eur-A and Eur-B+C averages, latest available year



Maternal mortality

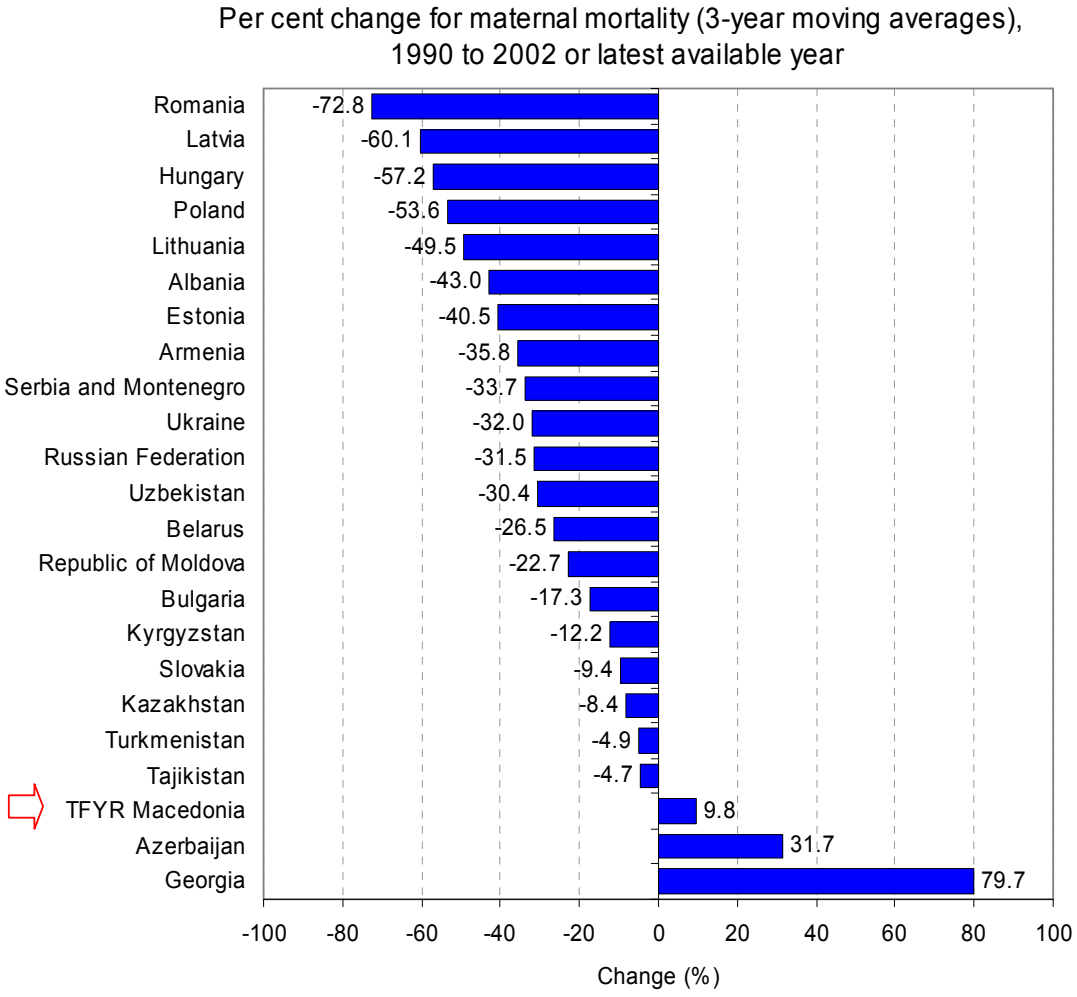
Maternal mortality rates (MMR) and the Millennium Development Goal (MDG)

Despite the difficulties in accurately measuring MMR, nationally reported figures are accepted at face value relative to the MDG to improve maternal health – to reduce the MMR by 75% between 1990 and 2015. In some countries, the 2015 target may be equal to or lower than the average current MMR for high income countries in the European Region (the Eur-A 2001 average of five maternal deaths per 100 000 live births). Countries with 2015 targets lower than the current Eur-A average can be judged as having achieved or being likely to achieve the MDG (World Bank, 2004).

However, in some countries, MMR were higher in 2002 than they had been in 1990. Applying the 75% reduction to the 1990 baseline in these countries creates in some cases a 2015 MDG target that requires dramatic reductions in MMR before 2015. In these cases, more important than reaching MMR targets is that countries take concrete action to provide women with access to adequate care during pregnancy and childbirth, initiatives that have proven to bring down MMR.

The maternal mortality ratio has consistently been reported below the Eur-B+C average, and in the late 1990s even below the Eur-A average. There is no evidence available on possible under-reporting. From 1999 to 2003, no maternal deaths due to induced or spontaneous abortion (including ectopic pregnancies) were reported.

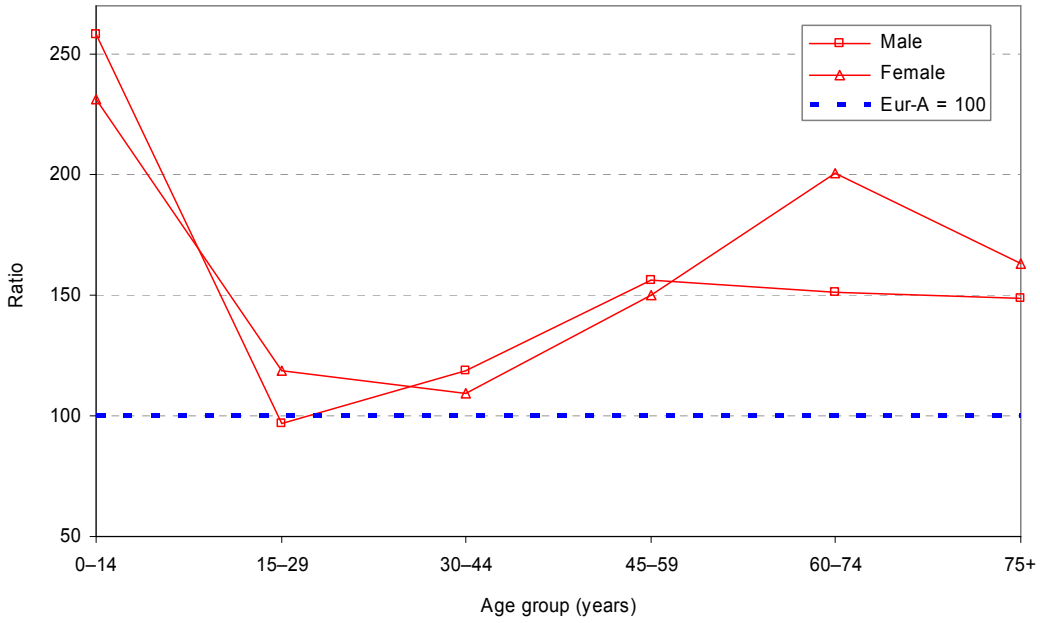
In 1992, The former Yugoslav Republic of Macedonia had lowest MMR among the Eur-B+C countries with data. But between 1992 and 2002, it increased by almost 10%. The 2002 level is still among the lowest in Eur-B+C. The relatively low 1992 rate created an MDG target well below the current Eur-A average (Figure. Per cent change for maternal mortality).



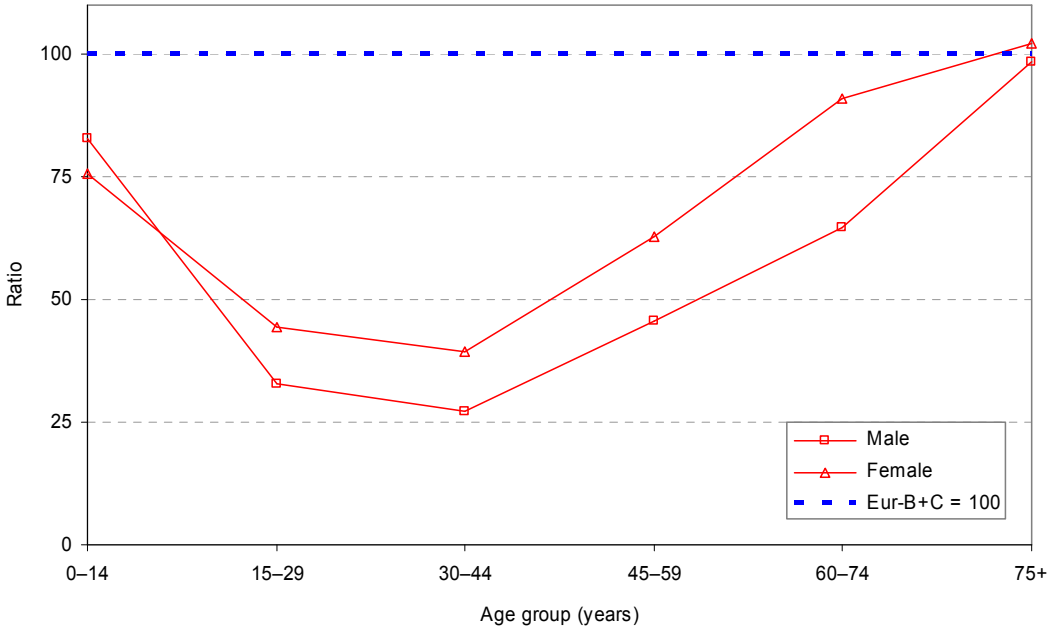
Excess mortality

In general, mortality rates for males and females in the former Yugoslav Republic of Macedonia are higher than the Eur-A average, but lower than the Eur-B+C average in all age groups for both sexes. These rates, based on national figures, are noticeably low for males aged 15–49 years and females aged 15–44 years (Figure. Total mortality by sex and age group (Eur-A); Figure. Total mortality by sex and age group (Eur-B+C)).

Total mortality by sex and age group in The former Yugoslav Republic of Macedonia
in comparison with Eur-A (Eur-A = 100), 2003



Total mortality by sex and age group in The former Yugoslav Republic of Macedonia
in comparison with Eur-B+C (Eur-B+C = 100), 2003



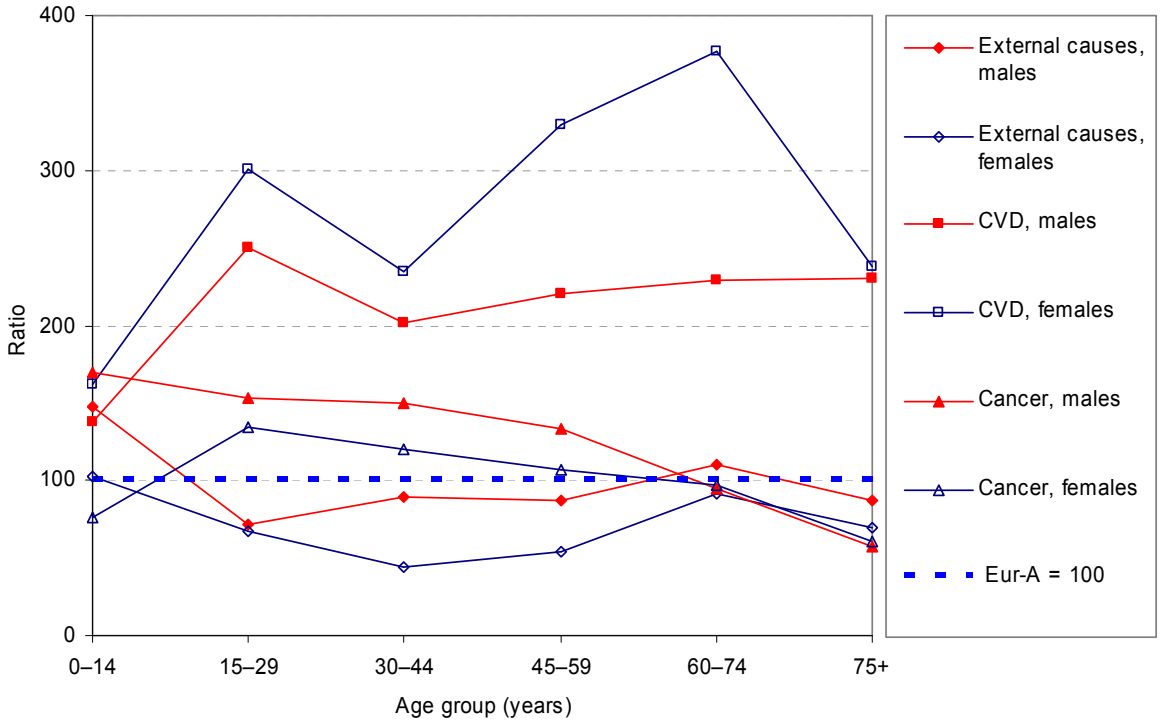
Main causes of death

In 2003, selected main non-communicable diseases accounted for about 81% of all deaths in the former Yugoslav Republic of Macedonia, external causes for about 3% and communicable diseases for less than 1%. In total, 58% of all deaths were caused by diseases of the circulatory system and 16% by cancer. Ill-defined causes – classified under symptoms, signs, abnormal findings and other ill-defined causes – contributed of 8.5% of all deaths in 2003. This hampers international comparisons of cause-of-death statistics, especially for cardiovascular diseases (Annex. Selected mortality. Annex. Mortality data).

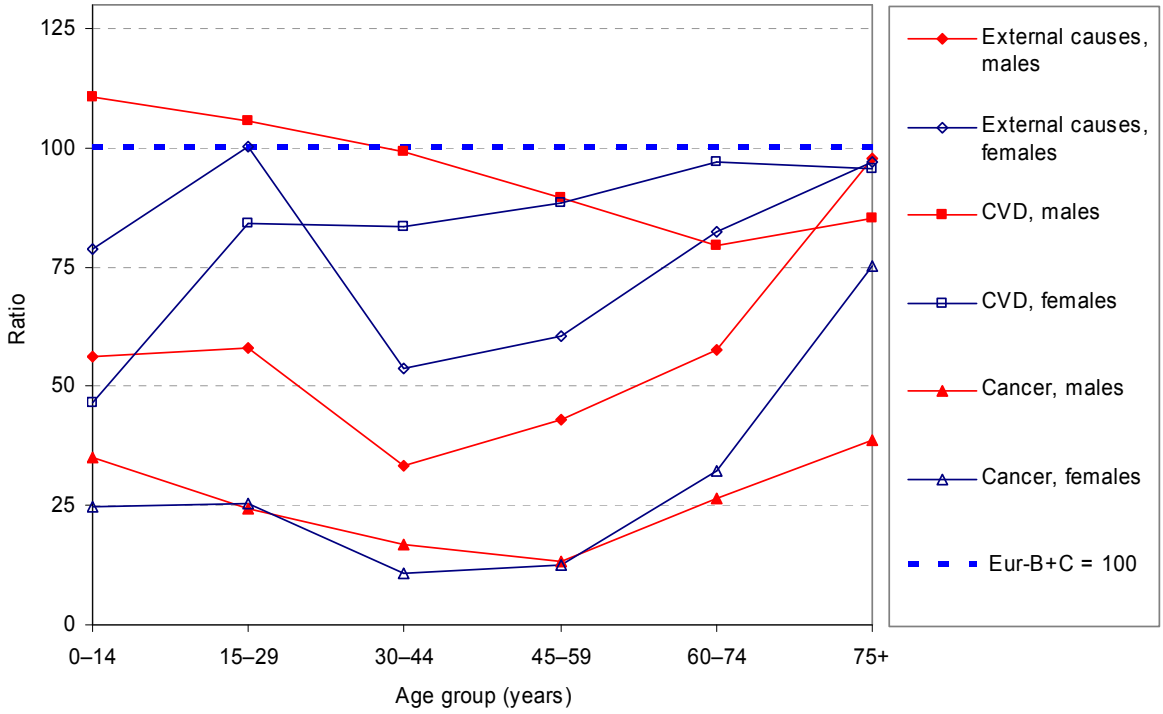
The cause-specific death rates are lower in the former Yugoslav Republic of Macedonia than the Eur-B+C average for cardiovascular diseases (CVD), cancers and external causes and poisoning, excluding the risk from CVDs among females under 15 years old.

There is two and four times greater risk of dying of CVDs in the former Yugoslav Republic of Macedonia than the Eur-A average. The degree of excess risk depends on sex and age, but proportionally females have higher excess risk than males. The cancer death risk is higher among men and women under 60 years old, but the elderly population (75 years and over) has 40% lower mortality than the Eur-A average. In addition, these national figures show that people of The former Yugoslav Republic of Macedonia have a low death risk for external causes and poisoning among males aged 15–29 years and females aged 15–59 years and 75 years and over. On the other hand, young boys have a high mortality from these causes (Figure. Main causes of mortality by sex and age group (Eur-A); Figure. Main causes of mortality by sex and age group (Eur-B+C)).

Main causes of mortality by sex and age group in The former Yugoslav Republic of Macedonia in comparison with Eur-A (Eur-A = 100), 2003



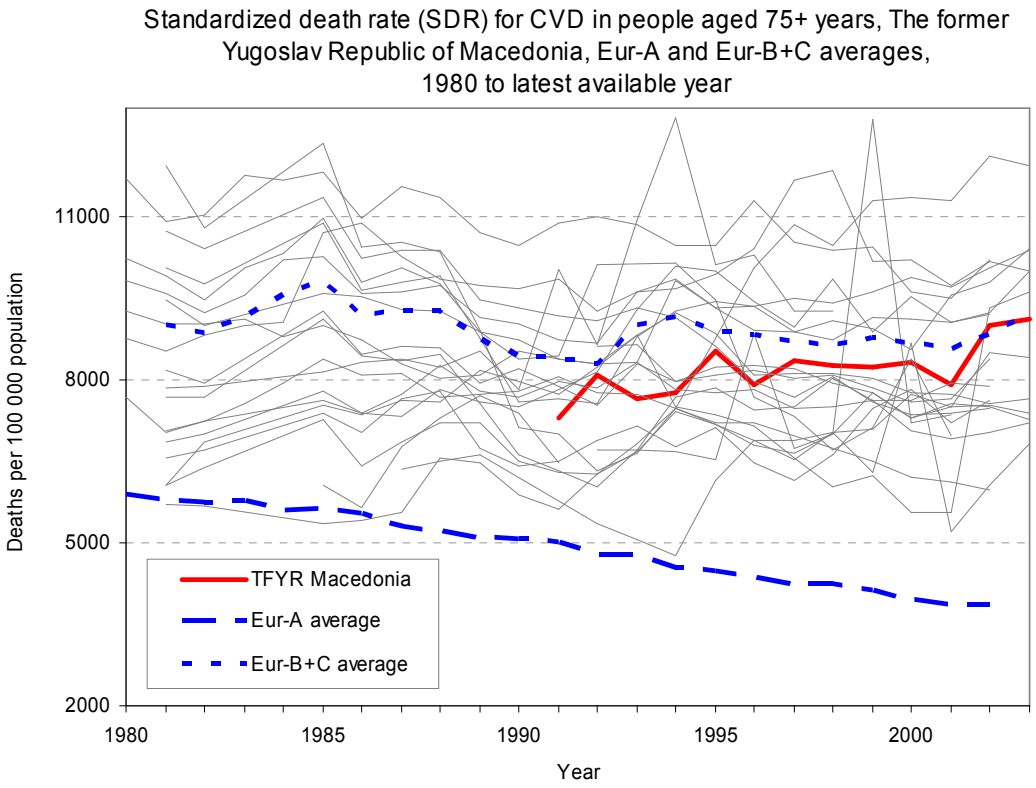
Main causes of mortality by sex and age group in The former Yugoslav Republic of Macedonia in comparison with Eur-B+C (Eur-B+C = 100), 2003



CVD

Cardiovascular diseases cause almost three out of five deaths in the former Yugoslav Republic of Macedonia. The biggest single killers are diseases of pulmonary circulation and other heart diseases (21.7% of all deaths in 2003), cerebrovascular diseases (19.3%) and ischemic heart disease (10.9%).

Mortality for CVD is declining in all age groups under 60, both for males and for females. Among men 60–74 years old the rates are stagnant, but they are decreasing for women in the same age group. People 75 and over have increasing death rates, which are already at the Eur-B+C average. The development is similar for both sexes and for deaths from ischemic heart disease and cerebrovascular diseases excluding females 30–44 years old, who have increasing (ischemic heart disease) or stagnating (cerebrovascular diseases) death rates (Figure. SDR for CVD in people aged 75+ years).

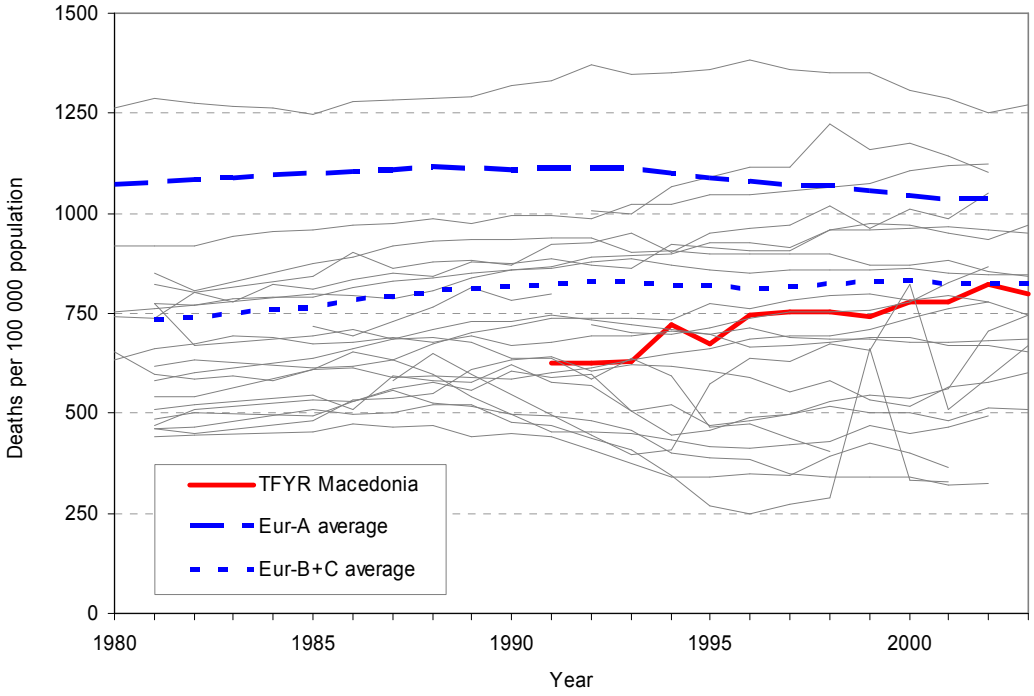


Cancer

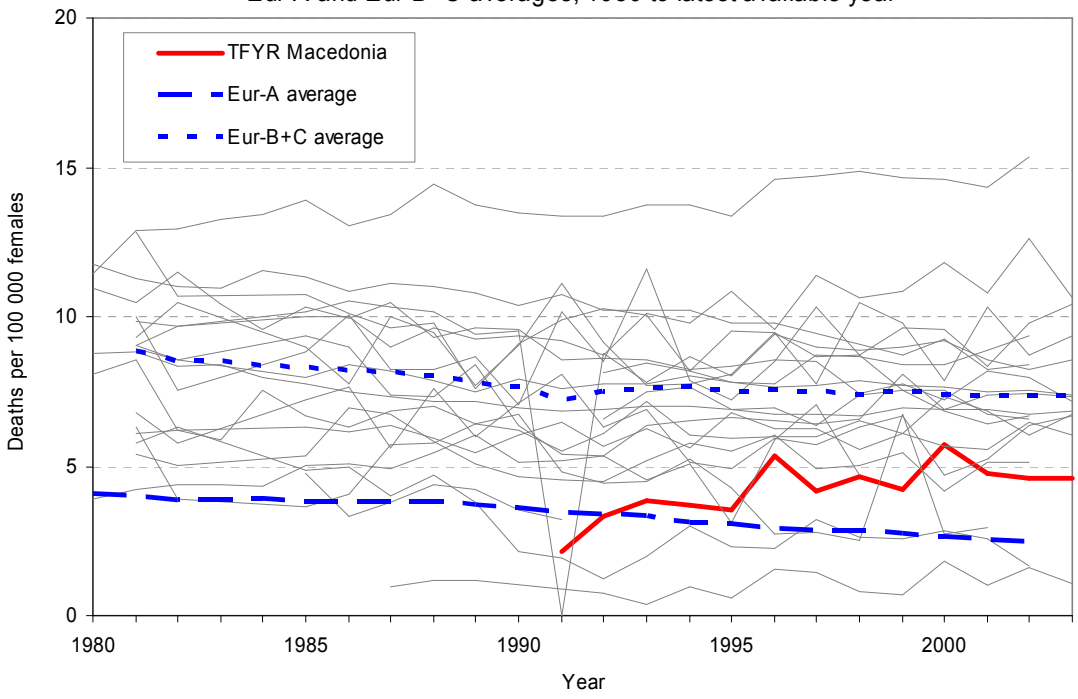
Cancer causes only every sixth death in the former Yugoslav Republic of Macedonia, but the total age-standardized cancer mortality rate is increasing. Among males under 45 and females under 60, however, the death rates are decreasing (excluding men 15–29 years old, whose death rates have remained unchanged). Middle-aged and elderly males as well as elderly females have increasing cancer mortality. In these age groups, the distance to the high Eur-B+C average is diminishing. As for general cancer mortality, cause-specific death rates are increasing. Only those for lip and stomach cancers are decreasing. For other causes, the rates have either stagnated (oesophagus, pancreas, larynx, trachea, bronchus and lung cancers) or are increasing (all other main causes).

In general, the mortality rates are at the Eur-B+C average or below. Exceptions are liver, skin and uterine cancers, for which the most recent rates are at least 50% (uterine), but up to 100% (liver and skin) higher than the Eur-B+C averages. A further example of this unfavourable trend is the mortality from cervical cancer, which – even though below the Eur-B+C average – has doubled since the early 1990s (Figure. SDR for cancer in people aged 65+ years; Figure. SDR for cancer of the cervix in females of all ages.

SDR for cancer in people aged 65+ years, The former Yugoslav Republic of Macedonia, Eur-A and Eur-B+C averages, 1980 to latest available year



SDR for cancer of the cervix, females, all ages, The former Yugoslav Republic of Macedonia, Eur-A and Eur-B+C averages, 1980 to latest available year

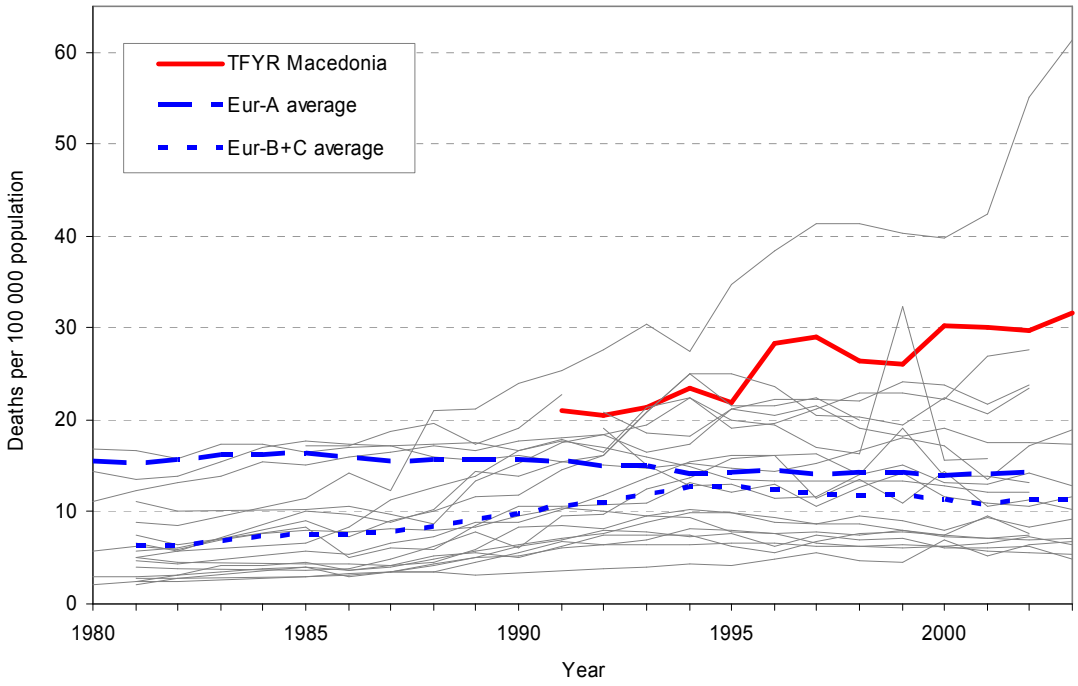


Other causes of death (diseases and medical conditions)

Mortality from endocrine, nutritional and metabolic diseases has significantly increased in the former Yugoslav Republic of Macedonia since the early 1990s. The trend is similar for both sexes, and is caused by the growing mortality from diabetes among people 45 and over.

Mortality from for diseases of genitourinary system has also increased, in contrast to declining rates in Eur-A and Eur-B+C. The increase affects mortality rates among people 60 and over, of both sexes. National coding practices may explain this development, which is mainly caused by the increasing number of deaths due to acute and chronic renal failure (Figure. SDR for diabetes mellitus).

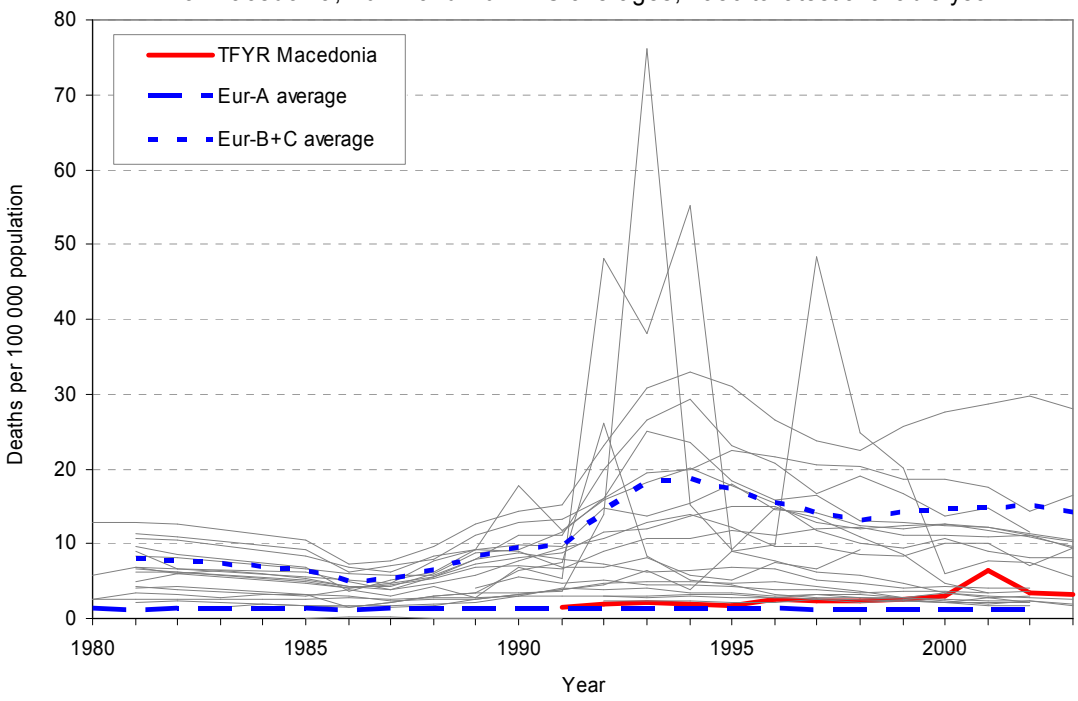
SDR for diabetes mellitus in people of all ages, The former Yugoslav Republic of Macedonia, Eur-A and Eur-B+C averages, 1980 to latest available year



External causes

Mortality from external causes has decreased slowly and remained low in the former Yugoslav Republic of Macedonia, even under the Eur-A average. Furthermore, female death rates for external causes in general, as well as for transport accidents, motor vehicle transport accidents, accidental falls and suicides have remained substantially below the Eur-A averages. The only exception is mortality from homicide and assault, which has increased above the Eur-A level, peaking in 2001. The development has been more prominent among males, but females 60–74 years old have a high and increasing rate (Figure. SDR for homicide and assault in people of all ages).

SDR for homicide and assault in people of all ages, The former Yugoslav Republic of Macedonia, Eur-A and Eur-B+C averages, 1980 to latest available year



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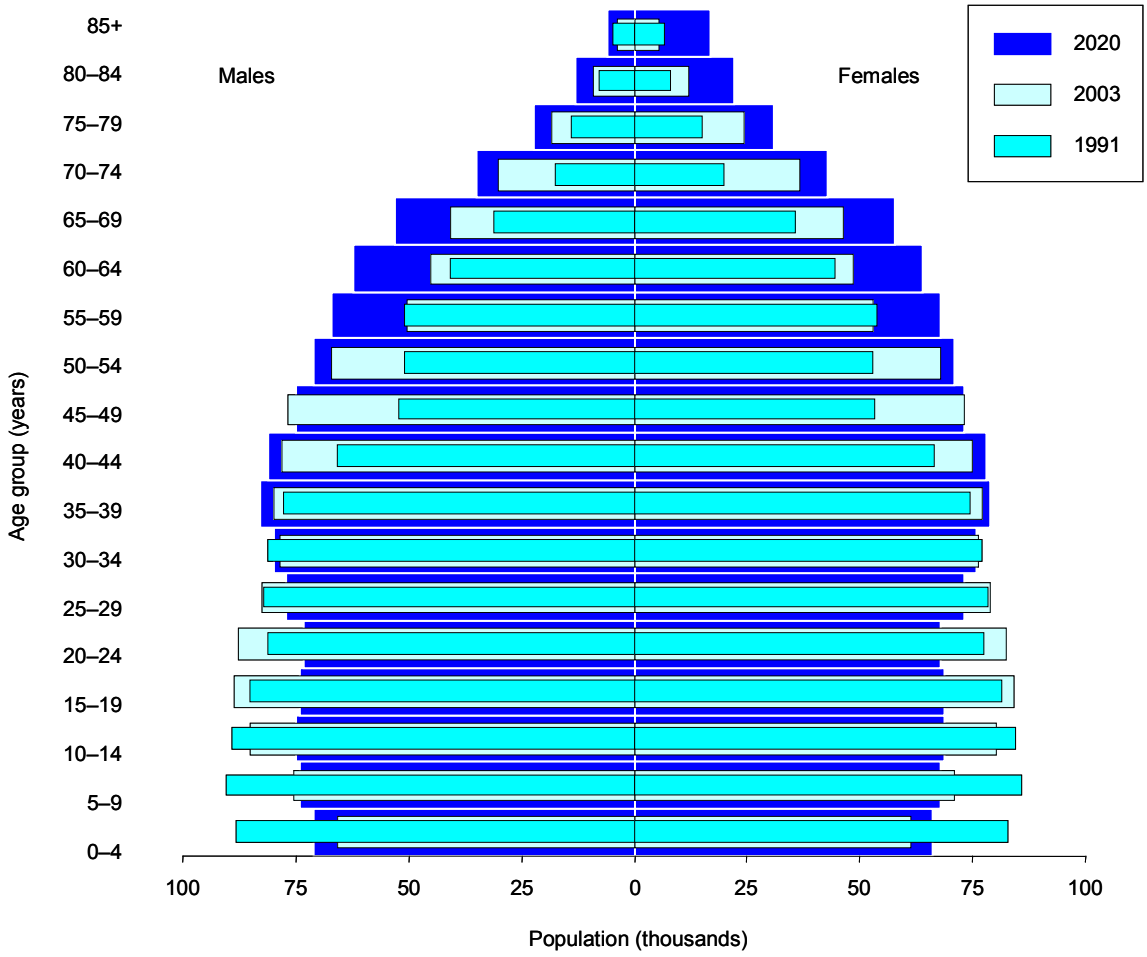
Annexes

Annex. Age pyramid

Age pyramid for The former Yugoslav Republic of Macedonia



Sources: WHO Regional Office for Europe (2005) and United Nations (2005).

Annex. Selected mortality

Selected mortality in The former Yugoslav Republic of Macedonia compared with Eur-A or B+C averages

Condition	SDR per 100 000		Excess mortality in TFYR Macedonia (%)	Total deaths in TFYR Macedonia (%)	Total deaths in Eur-B+C (%)	Eur-A average	Excess TFYR Macedonia to Eur-A (%)	Total deaths in Eur-A (%)
	TFYR Macedonia (2003)	Eur-B+C average (2003)						
Selected non-communicable conditions	834.7	1044.9	–20.1	80.7	79.6	533.8	56.4	82.4
Cardiovascular diseases	599.1	741.8	–19.2	58.0	56.5	243.4	146.1	37.6
Ischaemic heart disease	112.3	362.7	–69.0	10.9	27.6	95.9	17.1	14.8
Cerebrovascular diseases	199.6	221.7	–10.0	19.3	16.9	61.1	226.7	9.4
Diseases of pulmonary circulation and other heart disease	224.6	68.9	226.0	21.7	5.3	56.6	296.8	8.7
Malignant neoplasms	165.1	172.0	–4.0	16.0	13.1	181.5	–9.0	28.0
Trachea/bronchus/lung cancer	33.2	33.9	–2.1	3.2	2.6	37.1	–10.5	5.7
Female breast cancer	24.2	22.1	9.5	2.3	1.7	27.0	–10.4	4.2
Colon/rectal/anal cancer	17.5	19.0	–7.9	1.7	1.4	20.7	–15.5	3.2
Prostate	13.2	14.3	–7.7	1.3	1.1	25.1	–47.4	3.9
Respiratory diseases	41.6	63.1	–34.1	4.0	4.8	47.8	–13.0	7.4
Chronic lower respiratory diseases	22.9	31.2	–26.6	2.2	2.4	20.2	13.4	3.1
Pneumonia	6.7	23.6	–71.6	0.6	1.8	16.2	–58.6	2.5
Digestive diseases	19.1	52.3	–63.5	1.8	4.0	30.8	–38.0	4.8
Chronic liver disease and cirrhosis	7.0	32.0	–78.1	0.7	2.4	12.6	–44.4	1.9
Neuropsychiatric disorders	9.8	15.7	–37.6	0.9	1.2	30.3	–67.7	4.7
Communicable conditions	7.9	20.8	–62.0	0.8	1.6	8.4	–6.0	1.3
AIDS/HIV	0.0	0.8	–100.0	0.0	0.1	1.1	–100.0	0.2
External causes	32.9	139.6	–76.4	3.2	10.6	40.3	–18.4	6.2
Unintentional	22.7	102.2	–77.8	2.2	7.8	28.7	–20.9	4.4
Road traffic injuries	6.2	14.7	–57.8	0.6	1.1	9.9	–37.4	1.5
Falls	2.6	7.5	–65.3	0.3	0.6	6.1	–57.4	0.9
Intentional	10.2	37.4	–72.7	1.0	2.9	11.6	–12.1	1.8
Self-inflicted (suicide)	7.0	23.2	–69.8	0.7	1.8	10.6	–34.0	1.6
Violence (homicide)	3.2	14.2	–77.5	0.3	1.1	1.0	220.0	0.2
Ill-defined conditions	87.6	64.0	36.9	8.5	4.9	20.9	319.1	3.2
All causes	1033.7	1312.2	–21.2	100.0	100.0	647.8	59.6	100.0

Annex. Mortality data

Table 1. Selected mortality for the group 0–14 years by sex in The former Yugoslav Republic of Macedonia and Eur-B+C: SDR per 100 000 population and percentage changes from 1995 to latest available year

Causes of death	Sex	The former Yugoslav Republic of Macedonia (2003)		Eur-A (2002)		Eur-B+C (2003)	
		Rate	Change (%)	Average	Change (%)	Average	Change (%)
All causes	Both	121.0	–5.2	49.4	–2.4	151.7	–3.8
	M	141.1	–4.3	55.3	–2.5	170.5	–3.9
	F	99.6	–6.2	43.3	–2.4	131.9	–3.8
Infectious and parasitic diseases	M	7.4	–9.1	1.4	–1.1	10.9	–7.0
	F	7.7	–9.4	1.1	–3.0	9.5	–6.6
Intestinal infectious diseases	M	4.1	–10.3	0.2	–0.7	5.1	–8.2
	F	2.6	–11.3	0.1	–7.3	4.7	–7.9
Malignant neoplasms	M	5.7	–2.3	3.3	–1.8	5.1	–1.9
	F	2.0	–6.2	2.6	–1.8	4.2	–1.9
Cardiovascular diseases	M	1.8	–7.5	1.4	–3.1	3.3	1.1
	F	2.1	–2.4	1.3	–2.5	2.6	0.1
Respiratory diseases	M	8.2	–7.1	1.4	–4.3	35.9	–5.0
	F	3.2	–10.6	1.0	–4.2	30.7	–5.0
Pneumonia	M	7.2	–7.5	0.5	–6.0	20.9	–4.9
	F	2.6	–11	0.4	–5.1	17.9	–4.7
Certain conditions originating in perinatal period	M	826.8	–3.4	255.3	–2.1	607.6	–2.7
	F	597.8	–5.2	202.3	–1.6	427.5	–2.7
Congenital malformations & chromosomal abnormalities	M	27.7	6.4	11.6	–2.9	24.2	–2.8
	F	18.8	2.7	10.0	–3.3	21.0	–2.6
Ill-defined causes	M	16.5	–6.2	5.0	–3.9	5.6	–0.6
	F	14.9	–7.3	3.4	–4.2	4.6	–1.0
External causes of injury & poisoning	M	10.1	–1.1	7.0	–4.0	29.0	–3.4
	F	4.5	–5.3	4.6	–3.2	18.1	–3.1
Road traffic injuries	M	2.4	7.0	2.5	–4.5	4.7	–2.6
	F	0.9	–8.2	1.7	–4.8	3.0	–1.6

Table 2. Selected mortality for the group 15–29 years by sex in The former Yugoslav Republic of Macedonia and Eur-B+C: SDR per 100 000 population and percentage changes from 1995 to latest available year

Causes of death	Sex	The former Yugoslav Republic of Macedonia (2003)		Eur-A (2002)		Eur-B+C (2003)	
		Rate	Change (%)	Average	Change (%)	Average	Change (%)
All causes	Both	57.6	0.2	56.0	–2.3	161.0	–0.9
	M	78.9	0.8	82.0	–2.3	241.7	–1.0
	F	35.0	–1.2	29.3	–2.2	79.0	–0.6
Infectious and parasitic diseases	M	1.2	5.5	1.2	1.5	12.3	3.0
	F	0.9	0.0	0.8	1.9	5.1	2.5
Malignant neoplasms	M	9.3	1.9	6.2	–1.0	8.8	–1.9
	F	6.5	–2.3	4.7	–1.4	7.7	–1.9
Cardiovascular diseases	M	10.2	2.8	4.1	–2.4	17.6	0.0
	F	7.3	–0.2	2.3	–2.0	7.3	–0.9
Respiratory diseases	M	0.4	0.7	1.4	–3.6	6.9	0.2
	F	1.7	36.9	0.9	–2.7	3.8	–1.1
Digestive diseases	M	0.4	–9.3	0.9	–3.5	8.0	3.0
	F	1.7	–3.2	0.5	–3.8	3.7	3.1
Ill-defined causes	M	11.4	–2.8	4.0	–3.1	11.6	7.1
	F	3.4	–6.4	1.4	–1.3	3.3	5.8
External causes	M	39.6	1.9	58.3	–1.4	162.4	–1.6
	F	9.4	1.6	14.4	–1.6	36.9	–0.2
Road traffic injuries	M	10.4	2.3	28.5	–1.3	27.8	–1.5
	F	1.7	36.3	7.3	–1.4	8.0	0.3
Accidental drowning	M	1.2	0.3	1.3	–2.2	10.8	–3.9
	F	0.0		0.2	–2.1	1.9	–2.2
Accidental poisoning	M	1.2		2.8	0.0	19.1	3.3
	F	0.4		0.7	0.8	4.4	2.5
Self-inflicted (suicide)	M	4.8	1.8	12.7	–1.8	36.8	0.0
	F	3.8	–1.6	3.1	–2.2	5.8	–1.3

Table 3. Selected mortality for the group 30–44 years by sex in The former Yugoslav Republic of Macedonia and Eur-B+C: SDR per 100 000 population and percentage changes from 1995 to latest available year

Causes of death	Sex	The former Yugoslav Republic of Macedonia (2003)		Eur-A (2002)		Eur-B+C (2003)	
		Rate	Change (%)	Average	Change (%)	Average	Change (%)
All causes	Both	138.5	–2.0	120.3	–2.5	453.8	–0.7
	M	189.9	–1.1	161.6	–2.6	700.0	–0.8
	F	85.2	–3.6	78.5	–2.1	215.6	–0.2
Malignant neoplasms	M	39.9	–2.7	27.6	–2.3	40.2	–2.8
	F	36.7	–3.3	31.3	–2.0	43.8	–1.4
Trachea/bronchus/lung cancer	M	15.5	2.9	5.0	–3.4	7.3	–4.2
	F	1.8	–4.4	2.8	–0.6	2.2	–1.0
Female breast cancer							
	F	11.0	–3.9	10.0	–2.6	10.0	–2.3
Cardiovascular diseases	M	52.8	–0.4	26.1	–2.5	158.6	–0.4
	F	24.3	–1.2	10.4	–2.1	45.3	0.0
Ischaemic heart disease	M	27.0	–0.9	11.8	–3.1	73.7	–2.2
	F	9.6	3.5	2.4	–2.7	14.4	–1.3
Cerebrovascular diseases	M	14.6	3.5	4.4	–3.2	24.6	–0.4
	F	9.6	–0.3	3.6	–2.5	10.6	–1.3
Respiratory diseases	M	2.7	5.6	3.9	–3.5	34.3	0.9
	F	2.3	2.8	2.2	–2.0	9.8	0.8
Digestive diseases	M	8.0	–5.5	12.6	–2.4	50.2	1.4
	F	0.5	–10.4	5.4	–1.7	19.4	4.1
External causes	M	50.3	1.8	58.8	–1.2	299.5	–1.9
	F	6.4	–5.1	15.1	–1.8	58.9	–1.0
Road traffic injuries	M	12.3	15.8	16.0	–0.5	31.4	–1.7
	F	2.3	2.8	3.9	–2.0	7.1	–0.5
Self-inflicted (suicide)	M	10.6	–1.6	21.2	–1.5	54.9	–2.4
	F	1.4	–7.4	5.8	–2.2	7.9	–2.5

Table 4. Selected mortality for the group 45–59 years by sex in The former Yugoslav Republic of Macedonia and Eur-B+C: SDR per 100 000 population and percentage changes from 1995 to latest available year

Causes of death	Sex	The former Yugoslav Republic of Macedonia (2003)		Eur-A (2002)		Eur-B+C (2003)	
		Rate	Change (%)	Average	Change (%)	Average	Change (%)
All causes	Both	668.8	–0.5	435.6	–1.3	1294.9	–0.6
	M	901.9	–0.5	580.1	–1.4	1981.7	–0.6
	F	439.0	–0.6	293.3	–1.0	698.9	–0.5
Malignant neoplasms	M	289.5	1.0	218.2	–1.2	323.2	–1.9
	F	164.6	0.8	155.0	–1.0	186.1	–0.5
Trachea/bronchus/lung cancer	M	92.3	–0.3	65.9	–1.5	101.4	–2.9
	F	11.5	16.2	21.8	3.4	15.4	1.0
Female breast cancer							
	F	40.5	–0.2	44.0	–2.2	45.3	0.1
Cardiovascular diseases	M	339.7	–1.5	156.4	–2.6	793.1	–0.1
	F	164.2	–1.7	50.9	–2.5	271.7	–0.6
Ischaemic heart disease	M	163.5	–0.7	86.2	–3.3	435.3	–0.7
	F	53.1	–0.7	17.8	–3.4	111.1	–0.6
Cerebrovascular diseases	M	101.2	–2.1	23.7	–2.6	168.6	–0.9
	F	68.4	–0.1	14.5	–2.1	88.4	–1.4
Respiratory diseases	M	20.0	–4.2	20.3	–1.7	108.7	–1.4
	F	8.3	–5.9	10.2	–1.3	24.5	–0.7
Digestive diseases	M	40.0	–0.7	49.6	–0.8	129.7	0.7
	F	12.2	0.2	20.3	–0.7	57.3	1.9
External causes	M	53.8	–1.8	62.8	–1.0	409.2	–0.9
	F	11.2	–3.2	20.9	–0.9	89.1	–1.1
Road traffic injuries	M	11.7	–1.0	13.0	–1.3	28.5	–1.8
	F	1.5	1.9	4.1	–2.1	7.5	–1.4
Self-inflicted (suicide)	M	13.9	3.1	23.1	–1.1	68.1	–2.4
	F	4.8	–4.6	8.5	–1.2	10.2	–3.4

Table 5. Selected mortality for the group 60–74 years by sex in The former Yugoslav Republic of Macedonia and Eur-B+C: SDR per 100 000 population and percentage changes from 1995 to latest available year

Causes of death	Sex	The former Yugoslav Republic of Macedonia (2003)		Eur-A (2002)		Eur-B+C (2003)	
		Rate	Change (%)	Average	Change (%)	Average	Change (%)
All causes	Both	2643.5	–0.7	1570.9	–1.9	3411.7	–0.1
	M	3230.8	–0.6	2156.9	–2.1	4996.4	0.1
	F	2128.4	–1.0	1069.2	–1.9	2339.0	–0.6
Malignant neoplasms	M	798.1	1.3	851.3	–1.4	1002.5	–0.8
	F	425.4	2.0	439.8	–1.1	438.9	–0.7
Trachea/bronchus/lung cancer	M	251.0	4.3	261.8	–1.9	321.7	–1.5
	F	35.4	–1.3	59.0	0.2	37.1	–1.4
Female breast cancer							
	F	78.8	3.1	79.7	–1.6	68.7	1.3
Cardiovascular diseases	M	1673.6	–1.1	744.9	–3.6	2903.0	0.6
	F	1240.5	–1.8	335.7	–3.9	1507.8	–0.3
Ischaemic heart disease	M	487.6	–1.6	381.3	–4.2	1582.2	1.2
	F	275.4	0.3	133.5	–4.6	731.4	0.5
Cerebrovascular diseases	M	624.1	0.1	143.3	–3.7	833.7	0.2
	F	516.5	–0.8	86.7	–4.1	528.9	–0.8
Respiratory diseases	M	136.6	–2.8	144.0	–3.5	303.0	–2.4
	F	75.4	–0.7	62.5	–2.4	68.6	–3.6
Digestive diseases	M	86.1	–2.2	111.6	–1.6	193.0	0.1
	F	40.3	–0.6	54.1	–1.7	94.2	0.2
External causes	M	84.9	2.9	79.3	–1.4	320.0	1.0
	F	28.6	–1.2	32.1	–2.1	88.7	–0.5
Road traffic injuries	M	18.0	9.9	14.8	–3.0	24.3	–1.5
	F	2.9	–4.2	5.9	–3.4	9.5	–1.0
Self-inflicted (suicide)	M	18.7	0.3	24.5	–1.6	60.5	–0.8
	F	9.6	1.0	8.7	–2.6	12.7	–3.1

Table 6. Selected mortality for the group 75+ years by sex in The former Yugoslav Republic of Macedonia and Eur-B+C: SDR per 100 000 population and percentage changes from 1995 to latest available year

Causes of death	Sex	The former Yugoslav Republic of Macedonia (2003)		Eur-A (2002)		Eur-B+C (2003)	
		Rate	Change (%)	Average	Change (%)	Average	Change (%)
All causes	Both	12874.2	0.7	8059.6	–1.0	12338.8	0.0
	M	14604.9	0.9	9832.0	–1.1	14838.0	0.1
	F	11660.3	0.6	7112.5	–0.9	11421.7	0.0
Malignant neoplasms	M	1267.9	3.1	2231.1	–0.4	1489.3	1.2
	F	690.5	3.8	1136.2	–0.4	721.7	0.8
Trachea/bronchus/lung cancer	M	224.9	2.9	457.1	–0.7	323.5	1.0
	F	37.4	–2.9	102.7	1.5	55.6	0.5
Female breast cancer							
	F	108.0	3.8	159.6	–0.4	92.0	3.1
Cardiovascular diseases	M	9979.6	1.4	4356.2	–2.1	10221.2	0.4
	F	8541.8	0.6	3577.9	–1.9	8805.6	0.4
Ischaemic heart disease	M	1330.9	5.1	1708.0	–2.2	4925.6	1.4
	F	817.4	3.4	1150.0	–2.2	4028.6	1.2
Cerebrovascular diseases	M	3008.5	2.2	1119.8	–2.5	3004.4	0.7
	F	2633.1	1.5	1026.9	–2.4	2967.6	0.5
Respiratory diseases	M	767.0	0.3	1156.5	–2.4	824.1	–2.1
	F	497.9	2.4	591.9	–2.1	302.3	–3.2
Digestive diseases	M	162.9	–0.5	340.3	–1.1	270.4	0.3
	F	109.7	6.6	279.8	–0.4	175.0	1.1
External causes	M	233.9	3.9	275.0	–0.6	604.2	0.1
	F	130.0	7.9	187.8	–1.2	172.4	–1.2
Road traffic injuries	M	23.0	12.0	28.1	–2.2	34.6	–3.1
	F	4.3	–7.4	10.0	–3.1	14.7	–1.7
Self-inflicted (suicide)	M	53.3	–0.3	49.5	–1.6	86.6	–1.1
	F	17.6	–2.0	11.8	–3.2	22.4	–1.9

Technical notes

Calculation of averages

Averages for the reference group, when based on data in the European health for all database of the WHO Regional Office for Europe, are weighted by population. Some countries with insufficient data may be excluded from the calculation of averages. Otherwise, for data from other sources, simple averages have been calculated where required.

To smooth out fluctuations in annual rates caused by small numbers, three-year averages have been used, as appropriate. For example, maternal mortality, usually a small number, has three-year moving averages calculated for all countries. When extreme fluctuations are known to be due to population anomalies, data have been deleted, as appropriate.

Data sources

To make the comparisons as valid as possible, data for each indicator have, as a rule, been taken from one source to ensure that they have been harmonized in a reasonably consistent way. Unless otherwise noted, the source of data for figures and tables in this report is the January 2005 version of the European health for all database of the WHO Regional Office for Europe. The health for all database acknowledges the various primary sources of the data.

In cases where current census data for national population are unavailable, coupled with ongoing migrations of people in and out of countries, UN estimates or provisional figures supplied by the country are used to approximate national population. Such population figures create uncertainty in standardized death rates.

Disease coding

Case ascertainment, recording and classification practices (using the ninth and tenth revisions of the International Statistical Classification of Diseases and Related Health Problems: ICD-9 and ICD-10, respectively), along with culture and language, can influence data and therefore comparability across countries.

Healthy life expectancy (HALE) and disability-adjusted life-years (DALYs)

HALE and DALYs are summary measures of population health that combine information on mortality and non-fatal health outcomes to represent population health in a single number. They complement mortality indicators by estimating the relative contributions of different causes to overall loss of health in populations.

DALYs are based on cause-of-death information for each WHO region and on regional assessments of the epidemiology of major disabling conditions. The regional estimates have been disaggregated to Member State level for the highlights reports.

National estimates of HALE are based on the life tables for each Member State, population representative sample surveys assessing physical and cognitive disability and general health status, and on detailed information on the epidemiology of major disabling conditions in each country.

More explanation is provided in the statistical annex and explanatory notes of *The world health report 2003*[1].

Limitations of national-level data

National-level averages, particularly when they indicate relatively good positions or trends in health status, as is the case in most developed countries, hide pockets of problems. Unless the health status of a small population is so dramatically different from the norm that it influences a national indicator, health risks and poorer health outcomes for small groups will only become evident through subnational data.

Reference groups for comparison

[1] WHO (2003). *The world health report 2003 – Shaping the future.* Geneva, World Health Organization (http://www.who.int/whr/2003/en, accessed 10 June 2005).

When possible, international comparisons are used as one means of assessing a country's comparative strengths and weaknesses and to provide a summary assessment of what has been achieved so far and what could be improved in the future. Differences between countries and average values allow the formulation of hypotheses of causation or imply links or remedies that encourage further investigation.

The country groups[1] used for comparison are called reference groups and comprise:

- countries with similar health and socioeconomic trends or development; and/or
- geopolitical groups.

The 27 countries with very low child mortality and very low adult mortality are designated Eur-A by WHO. Eur-A comprises Andorra, Austria, Belgium, Croatia, Cyprus, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Luxembourg, Malta, Monaco, the Netherlands, Norway, Portugal, San Marino, Slovenia, Spain, Sweden, Switzerland and the United Kingdom. However, data for most indicators are unavailable for two of the 27 countries: Andorra and Monaco. Therefore, unless otherwise indicated, Eur-A and averages for Eur-A refer to the 25 countries for which data are available.

The 25 countries with low child mortality and low or high adult mortality are designated Eur-B+C by WHO. Eur-B+C comprises Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Poland, Republic of Moldova, Romania, Russian Federation, Serbia and Montenegro, Slovakia, Tajikistan, The former Yugoslav Republic of Macedonia, Turkey, Turkmenistan, Ukraine, and Uzbekistan. Unless otherwise indicated, Eur-B+C and averages for Eur-B+C refer to these countries.

Comparisons should preferably refer to the same point in time, but the countries' latest available data are not all for the same year. This should be kept in mind as a country's position may change when more up-to-date data become available.

Graphs have usually been used to show time trends from 1980 onwards. These graphs present the trends for all the reference countries as appropriate. Only the country in focus and the group average are highlighted and identified in the legend. This enables the country's trends to be followed in relation to those of all the reference countries, and performance in relation to observable clusters and/or the main trend or average to be recognized more easily.

[1] WHO (2004). *The world health report 2004 – Changing history.* Geneva, World Health Organization (http://www.who.int/whr/2004/en, accessed 26 August 2004.

Glossary

Causes of death	ICD-10 code
Cerebrovascular diseases	I60–I69
Chronic liver disease and cirrhosis	K70, K73, K74, K76
Chronic obstructive pulmonary disease	J40–J47
Colon/rectal/anal cancer	C18–C21
Diseases of pulmonary circulation and other heart disease	I26–I51
Falls	W00–W19
Female breast cancer	C50
Ischaemic heart disease	I20–I25
Pneumonia	J12–J18
Prostate cancer	C61
Neuropsychiatric disorders	F00–99, G00–99, H00–95
Road traffic injuries	V02–V04, V09, V12–V14, V19–V79, V82–V87, V89
Self-inflicted (suicide)	X60–X84
Trachea/bronchus/lung cancer	C33–C34
Violence	X85–Y09

Technical terminology

Disability-adjusted life-year (DALY)	The DALY combines in one measure the time lived with disability and the time lost due to premature mortality. One DALY can be thought of as one lost year of healthy life.
GINI index	Measures inequality over the entire distribution of income or consumption. A value of 0 represents perfect equality; a value of 100, perfect inequality. Low levels in the WHO European Region range from 23 to 25; high levels range from 35 to 36.[1]
Healthy life expectancy (HALE)	HALE summarizes total life expectancy into equivalent years of full health by taking account of years lived in less than full health due to diseases and injuries.
Income poverty line (50% of median income)	The percentage of the population living below a specified poverty line: in this case, with less than 50% of median income.
Life expectancy at birth	The average number of years a newborn infant would live if prevailing patterns of mortality at the time of birth were to continue throughout the child's life.
Natural population growth	The birth rate less the death rate
Neuropsychiatric conditions	Mental, neurological and substance use disorders
Population growth	(The birth rate less the death rate) + (immigration less emigration)
Standardized death rate (SDR)	The age-standardized death rate calculated using the direct method: that is, it represents what the crude rate would have been if the population had the same age distribution as the standard European population.

[1]WHO Regional Office for Europe (2002). *The European health report 2002*. Copenhagen, WHO Regional Office for Europe:156 (http://www.euro.who.int/europeanhealthreport, accessed 28 May 2004).