

HIGHLIGHTS ON HEALTH IN BULGARIA



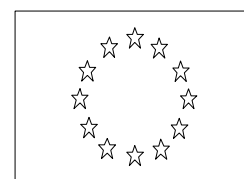
Country Highlights give an overview of the health and health-related situation in a given country and compare, where possible, its position in relation with other countries in the region. The Highlights have been developed in collaboration with Member States for operational purposes and do not constitute a formal statistical publication. They are based on information provided by Member States and other sources as listed.

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AN OVERVIEW

The number of live births per 1000 population halved from 16 to below 8 during the last two decades in Bulgaria. Despite a slight increase in the late 1990s, it is still one of the lowest birth rates in Europe. Since the crude death rate has increased during the same period, the natural growth rate became negative in the 1990s, and it is now one of the lowest among the reference countries¹.

Bulgarian life expectancy at birth for men was the highest among the reference countries and equalled the EU average in the early 1970s. The slowly declining trend accelerated in the early 1990s, when life expectancy decreased by 1.5 years. Though most of this decline was regained by 1999, it remains lower than in the 1970s and below the average of the reference countries. In 1999, Bulgaria had the second lowest female life expectancy at birth among the reference countries. Since 1970, it only increased by slightly more than one year, one of the smallest increases among the reference countries.

The standardized death rate (SDR) for cardiovascular diseases in the age group 0–64 was above the average of the reference countries in the mid-1990s. Since the mid-1980s, the Bulgarian SDR for men has increased by 20%, the highest increase among the reference countries. For women, the SDR having been stable for 25 years, increased from the mid-1990s, when a declining trend was observed in all other reference countries.

The Bulgarian SDR for cancer in the age group 0–64 was the lowest among the reference countries for both sexes in the late 1990s. Both rates, however, have increased since the 1970s, and have exceeded the EU average since 1988 for men and since 1992 for women.

¹ The following ten candidate countries for the accession to the European Union were used as reference countries: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia.

The SDR for lung cancer in the age group 0–64 is below the average of the reference countries for both sexes. The female SDR has risen only slightly since the 1970s, while the male SDR increased constantly until 1994, declining slightly during the following five years. Although mortality due to breast cancer has been relatively low by European standards, it has risen steadily for three decades. Death rates from cancer of the cervix have doubled since 1970.

The Bulgarian SDR for external causes for all ages was among the lowest for both sexes in the 1990s. The SDRs for motor vehicle traffic accidents and suicides were lower than the average of the reference countries, and the female rates were comparable to the EU rates in the late 1990s.

The SDR for diseases of the digestive system for all ages was half of the EU rate in 1970, but by 1995 had increased by more than a third, reaching and exceeding the declining EU trend. However, the Bulgarian trend started to decline in the late 1990s, and the Bulgarian and the EU rate were similar by the end of the decade.

The incidence of AIDS in Bulgaria is low, but it is the only reference country where the majority of reported cases was transmitted by heterosexual contacts (75%).

The incidences of viral hepatitis and syphilis are high compared to other reference countries and the EU average.

Following 15 years of improvement from 1970, the Bulgarian infant mortality rate has stagnated since the mid-1980, and Bulgaria had the second highest rate among the reference countries in 1999. This may be partly due to the high rate of teenage pregnancy and the low birth weight.

The consumption of alcohol – especially spirits and beer – has decreased since 1990. In 1999, the Bulgarians drank an average of 6.6 litres of pure alcohol, some 30% lower than the EU average.

Progress on the health care reforms has been slow, and Bulgaria was one of the last reference countries to introduce a health insurance based system in 1999–2001. Major reform is heralded by significant recent legislation.

Bulgaria is the only reference country, where the number of hospital beds per 100 000 population increased between the mid-1980s and

the mid-1990s. Even though this number decreased by more than a quarter in the two years following the introduction of the accreditation of hospitals, the number of hospital beds in 1999 remains above the average of the reference countries and the EU. The number of physicians per 100 000 population is also higher than the average of reference countries.

TECHNICAL NOTES

Highlights on Health provide an overview of the health of a country's population and the main factors related to it. When possible, international comparisons are used as one means of assessing the 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. The country groups used for comparison are called reference countries and are chosen based on:

- similar health and socioeconomic trends or development; and/or
- geopolitical groups such as the European Union (EU), the newly independent states, the central Asian republics or the candidate countries for EU accession.

For Bulgaria, the reference countries are ten central and eastern European candidate countries for accession to the EU (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia).

To make comparisons between countries as valid as possible, data for each indicator have, whenever possible, been taken from one common international source (such as WHO, EUROSTAT, the Organisation for Economic Co-operation and Development or the International Labour Office). This is done to ensure that they have been harmonised in a reasonably consistent way. It should also be noted, however, that other factors such as recording and classification practices and cultural differences can influence the comparability of the data. Unless otherwise mentioned, the source of all data is the health for all statistical database of the WHO Regional Office for Europe (*WHO Regional Office for Europe, 2001b*). Information on national policies has been obtained from health for all evaluation reports from national authorities and by personal communication with them and from Health in Europe 1997 (*WHO Regional Office for Europe, 1998*).

A special case of comparison is when each country is given a rank order. Although useful as a summary measure, ranking can be misleading and should be interpreted with caution, especially if used alone, as the rank is sensitive to small differences in the value of an indicator. Also, when used to assess trends (such as the table at the start of the section on health status), ranking can hide important absolute changes in the level of an individual country. Mostly bar charts (to indicate a country's position versus the reference countries according to the latest data) or line charts (usually to show time trends from 1970 onwards) have been used. Line charts present the trends for all the reference countries and for the EU, as appropriate. Only the country in focus and the appropriate group average are highlighted in bold 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 can be recognized more easily. To smooth out fluctuations in annual rates caused by small numbers, 3-year averages have been used, as appropriate. For example, this is the case for maternal mortality for all reference countries.

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

THE COUNTRY AND ITS PEOPLE²

A new constitution was adopted in July 1991. The head of state is the President, who is elected by direct election for a maximum of two five-year terms. Candidates for the presidency have to be at least 40 years old and have lived in Bulgaria for the last five years.

The 240-member National Assembly is directly elected by proportional representation. The President nominates a candidate from the largest parliamentary party as the Prime Minister.

Bulgaria is divided into 28 administrative regions and 268 municipalities. They constitute the basic administrative and organizational centres of the economic and political processes.

Bulgaria is a member of the United Nations, the Council of Europe, the Central European Initiative and the NATO Partnership for Peace and is an associated partner of the Western European Union and an associate member of the European Union (EU). In December 1999 Bulgaria was invited to start negotiations for membership in the EU.

Demography

Table 1. Bulgaria and the reference countries (1999)

	Bulgaria	Reference countries		
	Sofia	Average/total	Minimum	Maximum
Population	8 210 600	104 617 900	1 442 400	38 653 600
Population 0–14 years (%)	16.1	18.7	16.1	20.1
Population 15–64 years (%)	67.9	68.6	66.7	74.2
Population ≥ 65 years (%)	16.0	12.7	9.6	16.0
Area in km ²	111 000	1 078 066	20 000	313 000
Density per km ²	74	97	32	130
Urban population (%)	69	64	50	75
Births per 1000 population	8.8	9.7	8.0	10.5
Deaths per 1000 population	13.6	11.3	9.6	14.2
Natural growth rate per 1000 population	-4.8	-1.6	-5.5	0.1
GDP per person in US \$ PPP	5 071	8 369	5 071	15 977
GDP: gross domestic product; PPP: purchasing power parity				

² These introductory paragraphs are based on the material from *The statesman's yearbook* (Turner, 2000).

The shape of an age pyramid shows the stage of the demographic transition of a population. The overall changes in population structure, caused by changes in fertility, mortality and migration, can be easily seen when the age pyramids for two different years are compared (Fig. 1). The countries of the EU have generally reached an advanced stage of demographic transition, with the younger age groups becoming smaller in relation to the middle and, at times, older age groups. The reference countries are, in general, developing a similar population structure.

In 1999, Bulgarian cohorts below 44 years were proportionally smaller than the average of the reference countries, while the cohorts above 45 years were larger than this average.

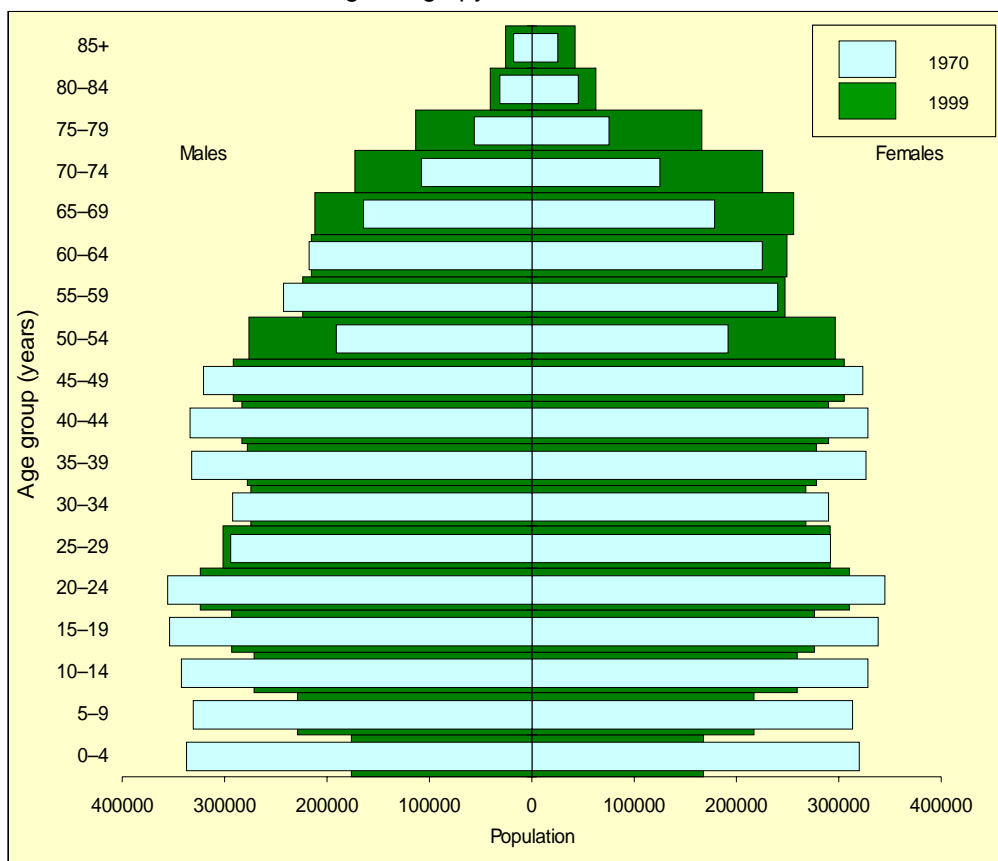
The number of live births decreased slowly from 16 per 1000 population in 1977 to 13 per 1000 in 1987. The decline then accelerated, especially in the 1990s, and the crude birth rate of 1997 – 7.4 per 1000 population – was the lowest in Europe. In the late 1990s,

the decline in the number of live births discontinued, and the crude birth rate reached 8.8 per 1000 population in 1999. The crude death rate increased from below 10 per 1000 population in the early 1970s to 14.7 in 1997, falling to 13.6 in 1999.

The decreasing number of births and increasing number of deaths have combined to create a negative natural growth rate in Bulgaria. It has declined since the early 1970s, remaining below the EU average since 1985. The Bulgarian natural growth rate became negative in 1990, and the rate in 1999 (-4.8/1000 population) was among the lowest in the reference countries (average -1.6/1000 in 1999), much lower than the EU average (+0.9/1000 in 1997) (Fig. 2).

The fertility rate has fallen under the replacement level in Bulgaria (1.2 in 1999), as in all other reference countries (average 1.3, variation from 1.1 to 1.4). The Bulgarian fertility rate was the lowest among the reference countries along with Latvia.

Fig. 1. Age pyramid, 1970 and 1999

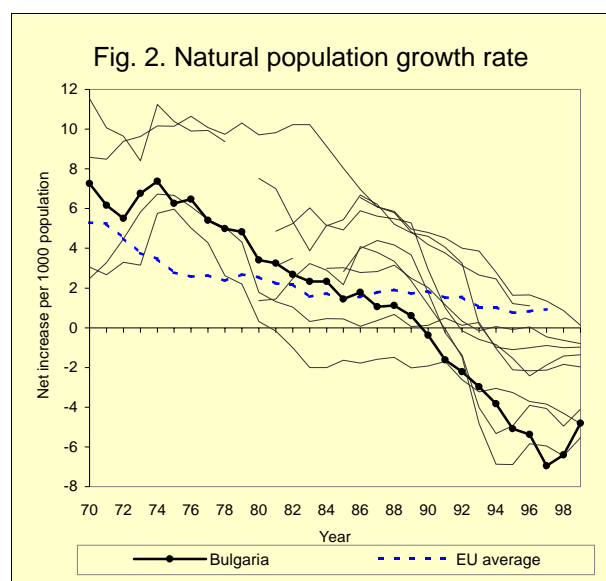


Migrant population and ethnic profile

Immigrants and ethnic minorities can have specific patterns of disease and health needs because of cultural, socioeconomic and behavioural factors and exposure to a different environment in their country of origin. Obtaining access to health care that can meet such specific needs and that is culturally and linguistically acceptable can also be difficult. Moreover, many such people have a higher risk of living in relative poverty and being marginalized, which can result in reduced health status compared with the non-ethnic minority population. Illegal immigrants, in particular, can find it difficult to obtain health care, and following up any care given can be problematic.

There are some 800 000 Turks (9.3% of the total population) and 313 000 Roma (3.6%) according to the 1992 Census (Turner, 2000).

Bulgaria, as most countries in the central and eastern Europe is in demographic crisis, not only because of negative natural growth, but also because of emigration of mainly young people. Between 1989 and 1996 some 650 000 persons emigrated from Bulgaria. The peak years were in 1989 and 1990, but international migration still had a negative balance of 46 000 in 1996. Almost 90% of this negative balance was due to emigration to other European countries, mainly Germany, Austria, Italy, Greece and Turkey (Council of Europe, 1999).



Social conditions and economy

The relevance of educational attainment to health is well documented. The literacy rate among the adult population (aged 15 or older) has often been used as an indicator, but the uniformly high adult literacy rates in Europe (all reference countries report a literacy rate of 96% or more) limit its value for comparison. As all the reference countries have universal primary education with almost all children participating, the enrolment ratio³ for primary education is also an insensitive indicator for detecting differences in educational levels.

Comparable data on enrolment ratios in secondary education (such as middle school, high school and vocational and technical schools) are more useful. In Bulgaria, enrolment in secondary education decreased in the 1980s, but it has risen since then to the level of 1980. By 1996, the net enrolment ratio for secondary education was the second lowest among the reference countries, at 74%, compared with an average of 79% (UNESCO, 1999).

The Bulgarian gross domestic product (GDP) adjusted for purchasing power parity (PPP) was US \$5 110 in 1988. In 1992, it reached its minimum of US \$4 250, but increased by 19% to US \$5 071 in 1999. Despite the increase, it is the lowest figure among the reference countries, only 23% of the EU average. Between 1989 and 1996 real wages in Bulgaria halved and inequalities in the distribution of earnings increased remarkably (United Nations Economic Commission for Europe, 1999). In the late 1990s, almost two out of three Bulgarians earned less than the official social minimum, and around half of population lived below the official minimum subsistence level. In 1997, 60% of all incomes were spent on food, while this share was only 32% seven years earlier (Ministry of Health, 2001).

³ The net enrolment ratio is the number of enrolled students in the official age group, divided by the population of the same age group which corresponds to a specific level of education. National regulations are used to define the level of education and, therefore, the official age group (UNESCO, 1999).

Even though the service sector is the largest component of the Bulgarian economy, the share of GDP coming from agriculture remains important, being the highest among the ten reference countries. According to preliminary figures for 1997, 26% of the GDP came from agriculture, 29% from industry and 44% from services (*United Nations Economic Commission for Europe, 1999*).

In 1999 the official unemployment rate in Bulgaria was 16%, which was the second highest among the reference countries after Slovakia and much higher than the EU average (10.6%). In total 17% of all unemployed

had been without a job for between two and three years, and 28% had been without job more than three years (*Ministry of Health, 2001*). Unemployment in most countries in central and eastern Europe may be higher than these official rates.

Inflation has caused severe problems for some countries in the central and eastern Europe and in Bulgaria the inflation reached a peak of 254% in 1991. In 1998, the Bulgarian inflation rate was 22%, which was among the highest in the reference countries, though the rate has fallen dramatically to 0.4% in 1999.

HEALTH STATUS

A summary of recent changes in Bulgaria's health position compared to the reference countries (Fig. 3) shows:

- Although Bulgaria retains the smallest difference in life expectancy between the sexes of any reference country, the good relative position in 1985 has deteriorated, largely due to increases in cardiovascular mortality;
- Bulgaria's relative position has deteriorated markedly in respect of cardiovascular disease, where it now has the highest mortality rate among the reference countries;
- Whilst it has retained or improved upon a good relative position for cancer mortality overall and external causes (particularly motor vehicle accidents), the position has deteriorated for infant and maternal mortality, lung cancer and cancer of the cervix.

Fig. 3. Bulgaria relative to reference countries in 1985 ● and 1999^e ☹

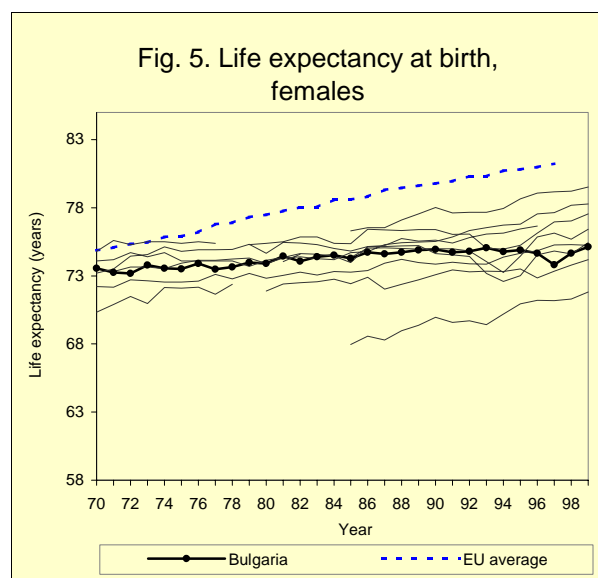
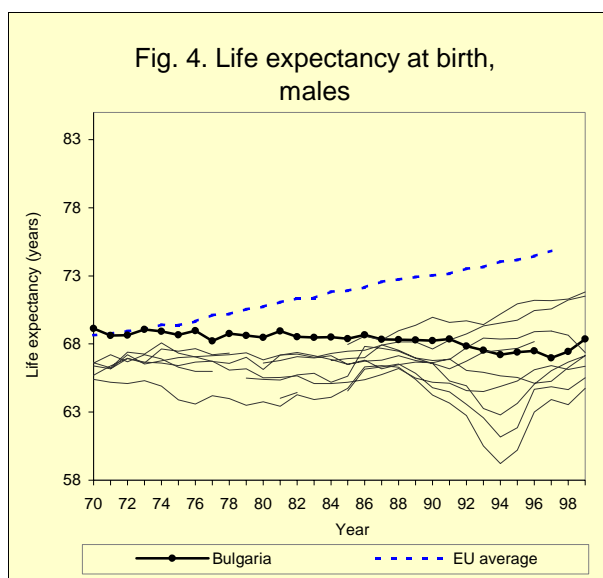
POSITION	BEST					WORST					Bulgaria	Reference country average	Minimum ^a	Maximum ^b
	1	2	3	4	5	6	7	8	9	10				
Life expectancy at birth (years)		●				☹					71.7	72.3	70.2	75.8
Male versus female difference in life expectancy at birth (years)	☺										6.8	8.2	6.8	10.9
Infant mortality rate per 1000 live births							●		☹		14.6	10.9	4.6	18.6
Maternal mortality rate from all causes per 100 000 live births ^c							●		☹		18.8	17.6	6.3	44.1
SDR ^d from cardiovascular diseases, age 0–64 years			●							☹	167.3	129.9	61.1	167.3
SDR from ischaemic heart disease, age 0–64 years			●	☹							54.4	57.5	25.3	88.0
SDR from cerebrovascular disease, age 0–64 years									☺	●	45.2	32.6	14.3	51.1
SDR from cancer, age 0–64 years	☹										92.7	107.3	92.7	145.3
SDR from trachea/bronchus/lung cancer, age 0–64 years	●		☹								21.4	26.8	19.4	42.0
SDR from cancer of the cervix among females aged 0–64 years		●				☹					6.3	7.4	3.3	11.9
SDR from breast cancer among females aged 0–64 years		☺		●							14.8	15.7	13.7	20.6
SDR from external causes of injury and poisoning	☹										52.2	74.0	52.2	156.6
SDR from motor vehicle traffic accidents	☺		●								10.2	14.5	10.2	26.0
SDR from suicide and self-inflicted injury			☹								14.1	17.3	12.0	42.1
☺	Position improved		3 (indicators)											
☹	Position unchanged		4 (indicators)											
☹	Position deteriorated		7 (indicators)											
											^a Lowest value observed among ten reference countries			
											^b Highest value observed among ten reference countries			
											^c Three-year averages			
											^d SDR: standardized death rate			
											^e Maternal mortality 1997–1999 (Poland 1994–1996)			

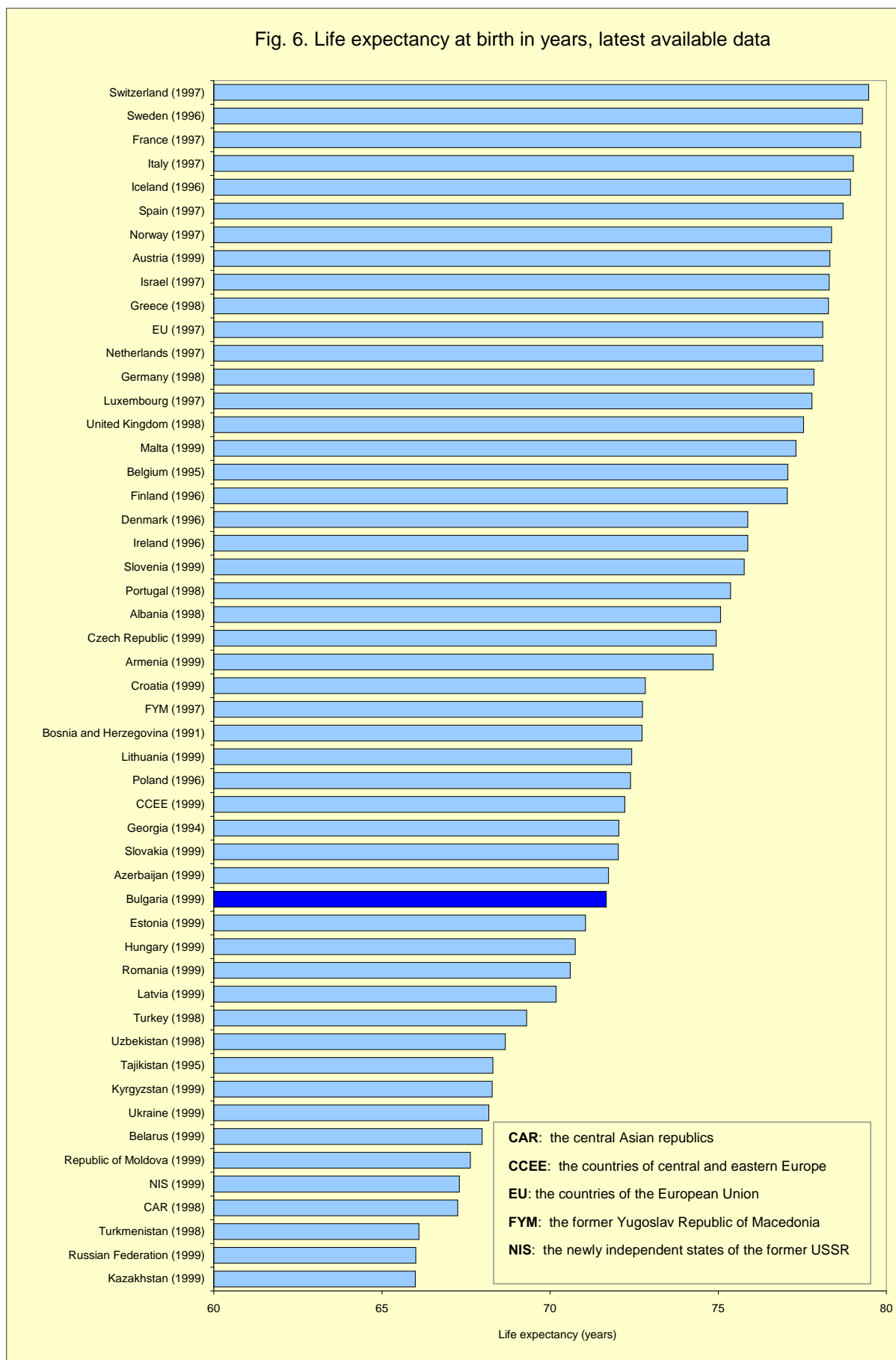
Life expectancy

Bulgarian life expectancy at birth was 68.4 years for men and 75.1 years for women in 1999. For both sexes, the difference between Bulgaria and the EU average has grown. In the early 1970s, the EU average and the Bulgarian life expectancy were equal for men and for women the difference was some 1.3 years in favour of the EU. From the mid-1990s, this difference had increased to 6.5 years for males and six years for females (Fig. 4–6). In 1997, there was a drop in life expectancy followed by improvements in 1998 and 1999. This appears to have been caused by peaks in

mortality due to cardiovascular diseases, infections, and acute respiratory infections under the age of 5 years, with subsequent falls in these major causes.

The gender difference in life expectancy has increased in almost all reference countries. In the mid-1980s, the Bulgarian difference of 5.9 years was the lowest among reference countries, but it increased to 6.8 years in 1999. Despite this increase, Bulgaria still had the smallest gender difference among the reference countries, along with the Czech Republic.



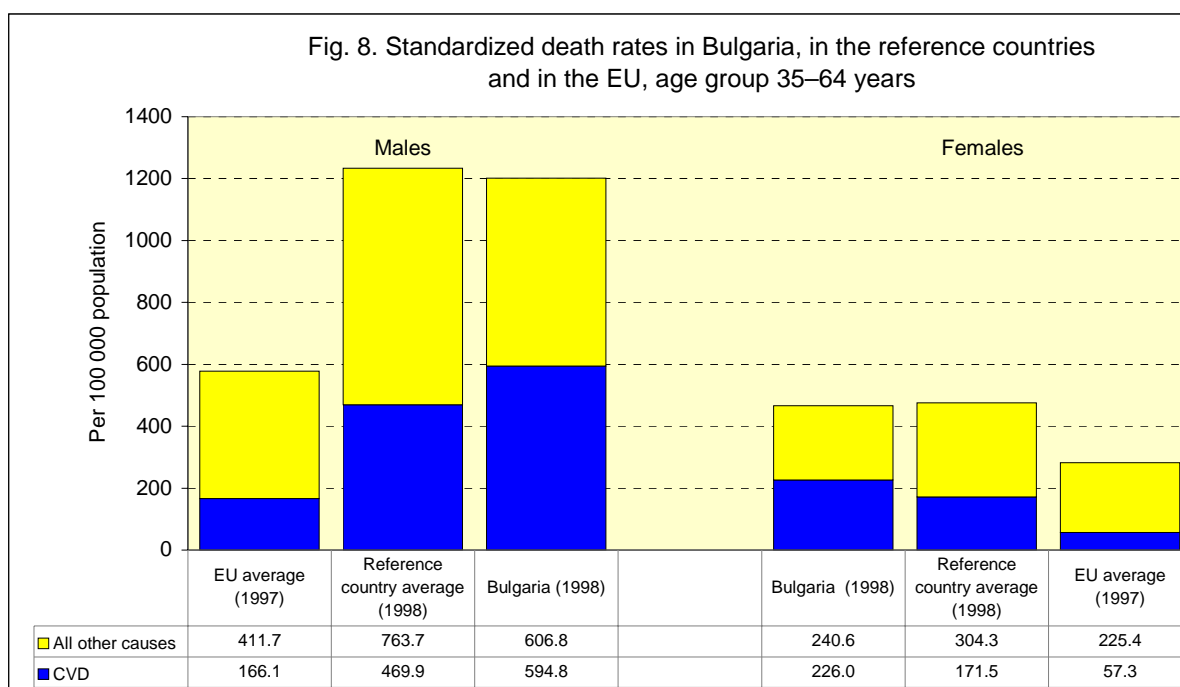
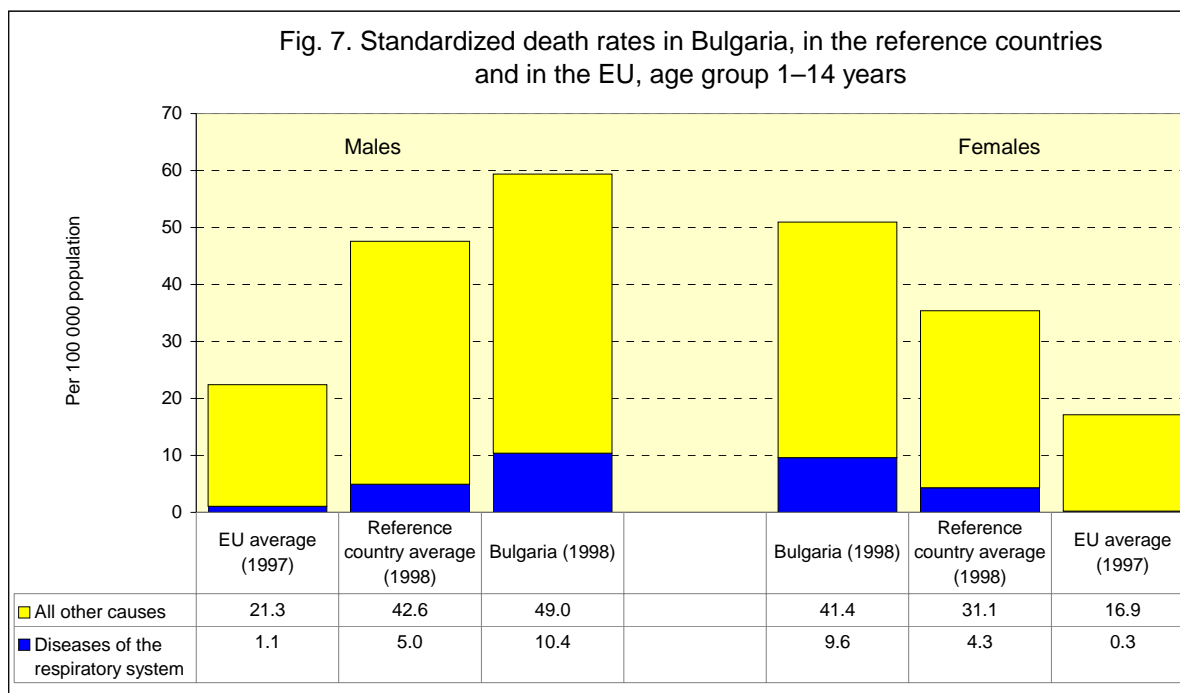


Main causes of death

Comparing the death rates from main causes between countries can indicate how far the observed mortality might be reduced. As almost all the causes underlying the deaths attributed to cardiovascular diseases, cancer and accidents are influenced by collective and individual habits and behaviour, a wide variety of health promotion and prevention measures can

bring about changes to reduce health risks and thus disease and premature deaths.

For those aged 1–14 years in Bulgaria, it is clear that all cause mortality is above the EU and reference country averages. Respiratory mortality is particularly high, contributing one sixth of male and a fifth of female mortality (Fig. 7).



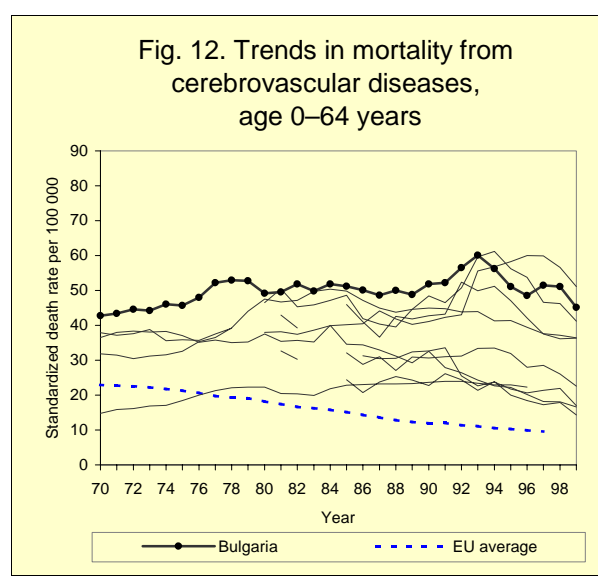
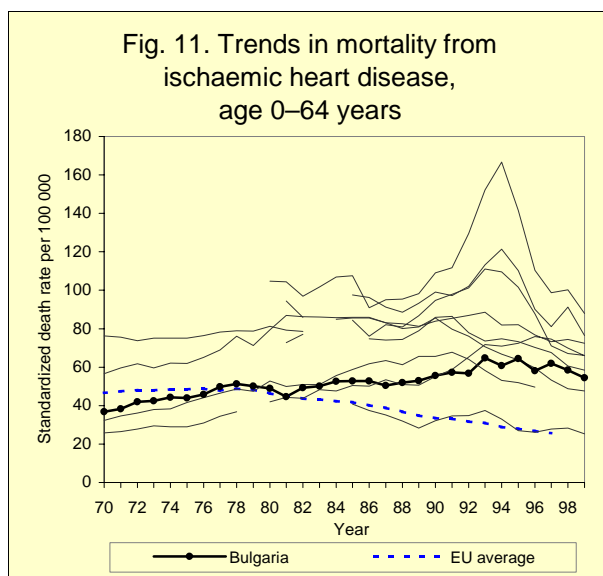
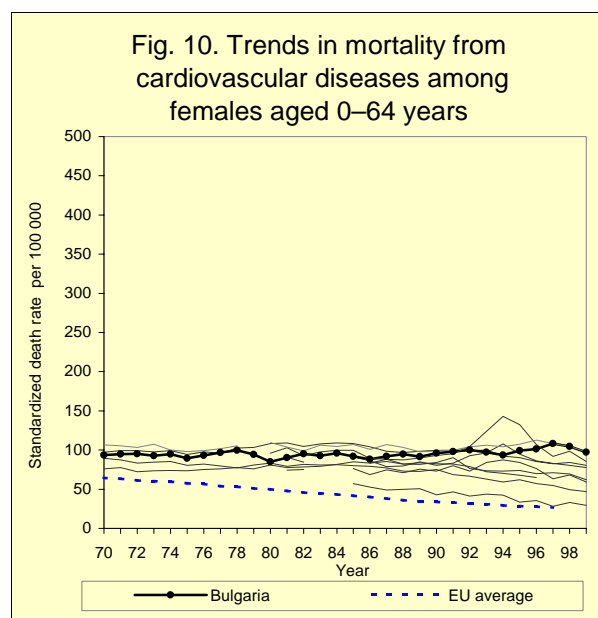
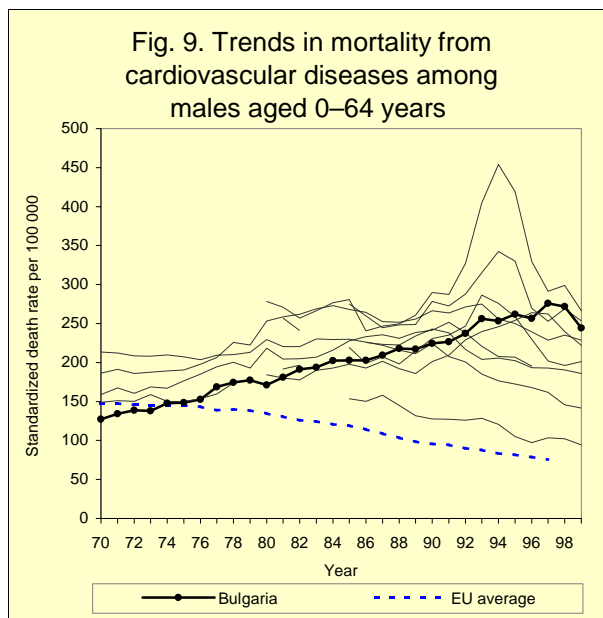
For the age group 35–64, cardiovascular disease contributes an extremely high proportion of mortality, almost half for both sexes. This is particularly the case for men, where alone it exceeds the EU average mortality for all causes (Fig. 8).

Cardiovascular diseases

The SDR for cardiovascular diseases for males aged 0–64 years in the reference countries was near to the EU average in 1970. The Bulgarian rate was the lowest among these countries at that time. Since then, however, the SDRs in most reference countries have increased, and the Bulgarian rate has almost doubled. In

1999, Bulgaria had one of the highest mortality rates among the reference countries, three times the EU rate which has halved since 1970 (Fig. 9).

In 1970, the SDR for cardiovascular diseases for females aged 0–64 years was already lower in the EU than in the reference countries. Since then, the Bulgarian rate has remained constantly high, while a declining trend was observed in the majority of reference countries, especially in the 1990s. As a result, the Bulgarian SDR for cardiovascular diseases for women in 1999 was the highest in the reference countries, almost four times the EU rate (Fig. 10).



In the early 1970s, Bulgaria had a lower SDR for ischaemic heart disease among the population aged 0–64 years than the EU. At that time both mortality rates increased, but the increase in Bulgaria was much more rapid than in the EU. These SDRs became equal in the late 1970s, when the EU rate began to fall. Even though the increase continued in Bulgaria until the mid-1990s, its SDR remained significantly below the highest among the reference countries (Fig. 11).

The SDR for cerebrovascular disease in the age group 0–64 was the highest of all reference countries from 1970 to 1993. In the early 1990s, the SDR increased by almost a fifth, but it has declined since 1993. In 1999, the Bulgarian SDR was the second highest among the reference countries, more than four times the EU rate (Fig. 12). There are noticeable regional differences in the mortality from cerebrovascular diseases.

Cancer

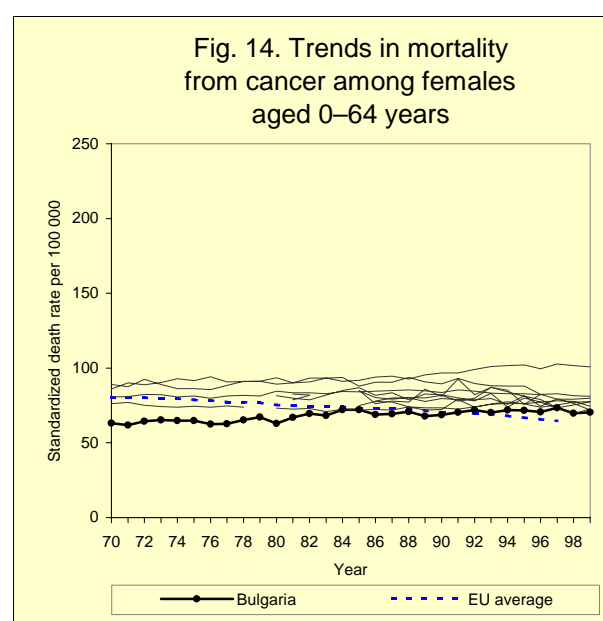
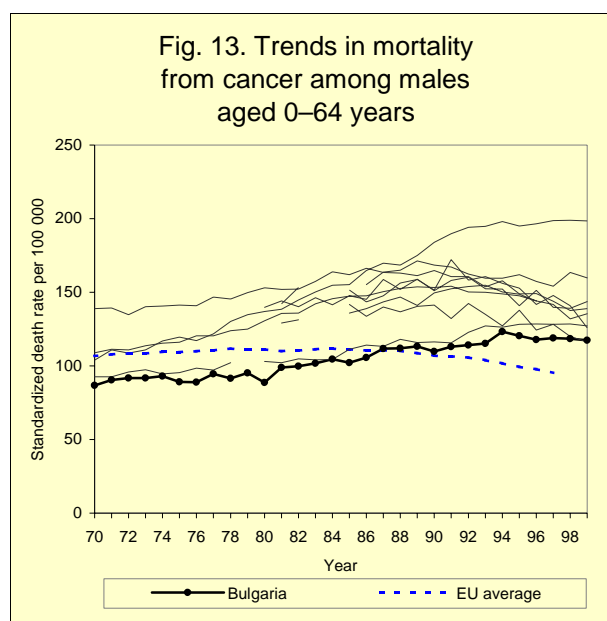
This section provides comparative data on total cancer mortality. More detailed data on breast cancer and cervical cancer among women are presented in the section on women's health, whereas that on cancer of the trachea, bronchus and lung is presented in the section on smoking.

The SDR for cancer among Bulgarian males aged 0–64 years has been the lowest of the

reference countries since the 1970s, and it was below the EU average until the late 1980s. The Bulgarian rate has, however, increased steadily. As the EU rate has fallen, the Bulgarian SDR is now almost a fifth higher than the EU rate (Fig. 13).

A similar pattern was found for women in this age group. The Bulgarian SDR for cancer was the lowest of the reference countries from 1970 to 1999, but has increased, exceeding the EU average since 1991. The differences between the female SDRs of the reference countries as well as between the EU and Bulgaria have been smaller than for men (Fig. 14).

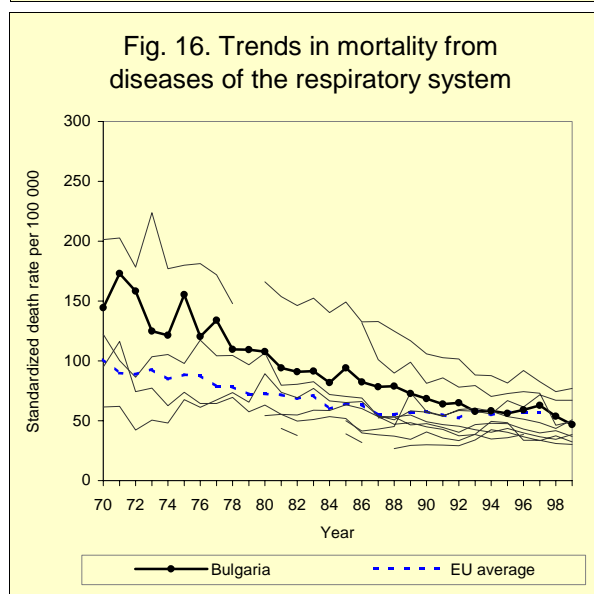
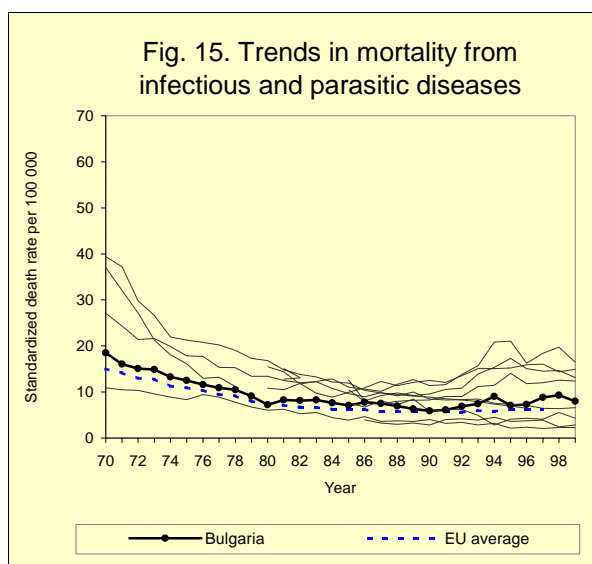
According to national cancer registrations from 1994, the most common male cancers were cancer of the trachea, bronchus and lung (22% of the 12 700 new cases), skin cancer other than melanoma (12%), stomach cancer (9%) and prostate cancer (7%). The most frequent cancers among women were breast cancer (25% of the 11 700 new cases), skin cancer other than melanoma (12%), cancer of the uterus (9%) and cancer of cervix (7%). The standardized incidences show that cancer of stomach (both sexes) and skin cancer other than melanoma (females) have declined. On the other hand, lung, prostate, rectum and colon cancers have become more frequent among males and cancers of breast, cervix, uterus, colon and ovary for females (*National Oncological Centre, 1996*).



Other natural causes of death

The SDR for infectious and parasitic diseases dropped very sharply both in the reference countries and in the EU during the 1970s and the early 1980s, when the SDR in Bulgaria and in the EU were equal. After that, the decrease stabilized in most of the reference countries. In Bulgaria the SDR increased in the 1990s and by 1999 the Bulgarian SDR was 20% above the EU level (Fig. 15).

The SDR for diseases of the respiratory system in Bulgaria was one of the highest among the reference countries in the 1970s. Bulgarian mortality has, however, since decreased noticeably, and in the late 1990s the Bulgarian rate was lower than the EU average and the average of the reference countries (Fig. 16).

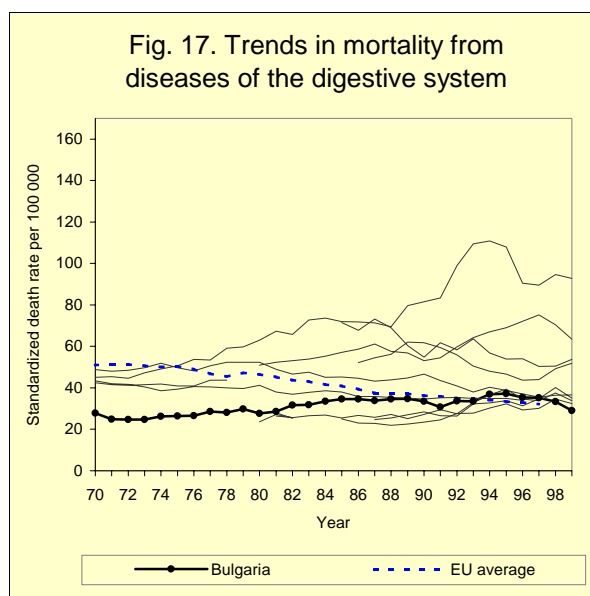


The Bulgarian SDR for diseases of the digestive system was one of the lowest among the reference countries in the 1970s, only half of the EU rate. In the period up to 1995, the Bulgarian rate increased and the EU rate decreased, with the Bulgarian rate exceeding the EU rate in 1994. Since 1995, Bulgarian mortality has started to fall (Fig. 17). The overall rate and the trend is dominated by male mortality as female mortality is lower and has been falling since 1986.

External causes of death and injuries

External causes of death and injuries covers all deaths caused by accidents, injuries, poisoning and other environmental circumstances or events such as violent acts (homicide) and suicide.

The SDR for external causes, injuries and poisoning for Bulgarian men was the lowest of the reference countries and equalled the EU average in 1970. Since then, the SDR decreased in the EU, was broadly static in Bulgaria until 1990. Following a modest rise, rates began to fall in 1995. In 1999, the Bulgarian rate, though almost 40% higher than the EU rate, is still one of the lowest among the reference countries (Fig. 18).



Women have notably lower SDRs for external causes in general. In Bulgaria, the gender difference has increased, and the Bulgarian men have now more than three-fold SDR for external causes compared to women. The Bulgarian female SDR for external causes was below the EU average in the 1970s and 1980s, but only declined slowly in the 1990s while the EU rate has almost halved. Even though the Bulgarian rate is now slightly higher than the EU average, it is still the lowest among the ten reference countries (Fig. 19).

The Bulgarian SDR for homicide and purposeful injuries has been from 1970 to 1999 one of the highest among the reference countries excluding the three Baltic states. In the early 1990s, the Bulgarian homicide rate increased dramatically, especially for males, but between 1994 and 1999 the Bulgarian SDR almost halved. Despite this improvement, the SDR for Bulgaria is almost three-times higher than the EU rate.

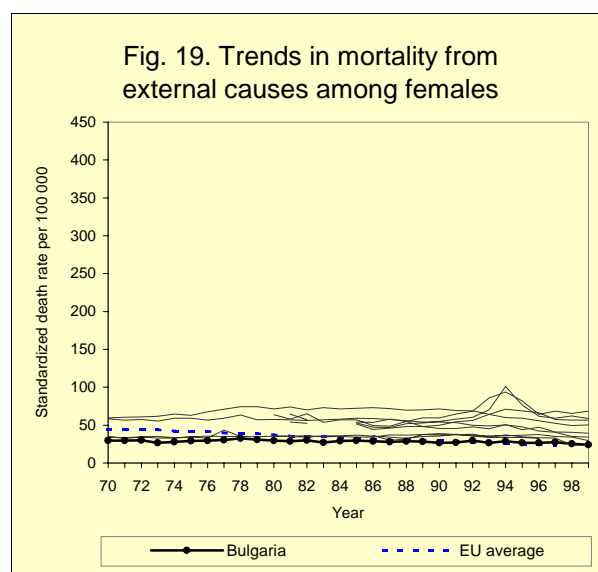
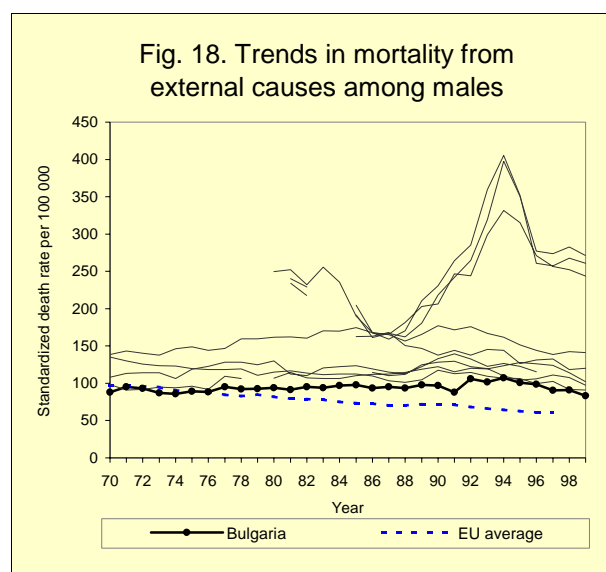
Bulgaria had one of the lowest SDR for motor vehicle traffic accidents. It has also been lower than the EU rate excluding 1990 – just after the change of regime – when the Bulgarian rate increased by 20%. This increase was, however, transient. During the 1990s, the Bulgarian rate has continued to decrease, and in 1999 it was the lowest among the reference countries, and lower than the EU average.

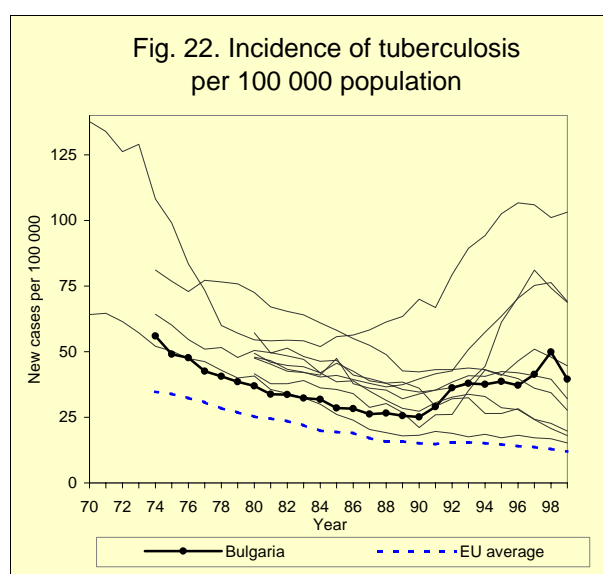
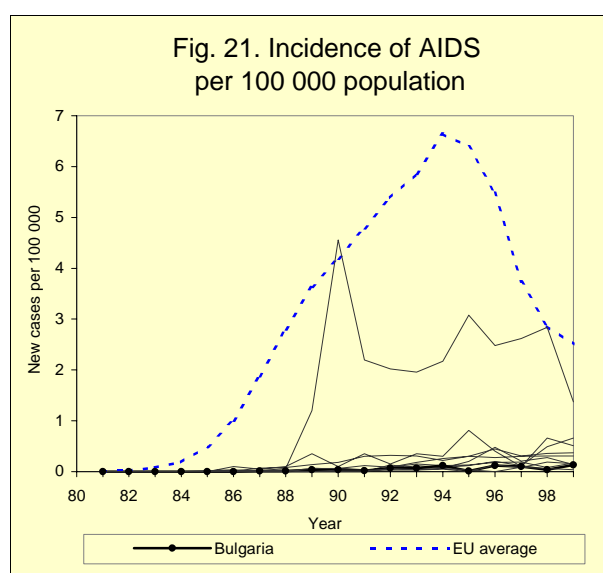
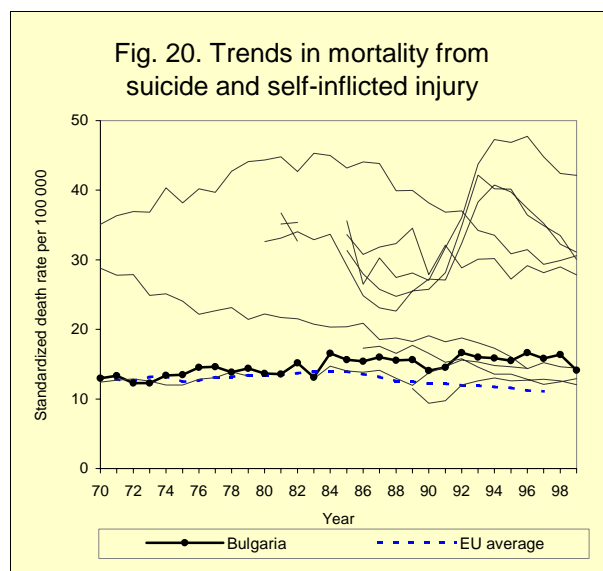
Mental health

Although mental and psychosocial wellbeing are important aspects of health-related quality of life, too little information is usually available to allow these important dimensions of the population's health to be described reliably. Suicide rates can be used as a surrogate indicator of the overall level of mental health.

The Bulgarian SDR for suicide and self-inflicted injury is one of the lowest among the reference countries for both sexes (Fig. 20). For men, the Bulgarian suicide rate followed the EU rate until 1985, after which it remained slightly above it. For women, the Bulgarian rate and the EU rate were similar in the 1970s. Since then, the Bulgarian rate has remained static, while the EU rate has fallen since the early 1980s. Even though the suicide rate of Bulgarian men is more than three times that of women, the gender difference is one of the smallest among the reference countries.

According to national statistics on the registered diseases and condition in the health care system, only 3% of all morbidity consists of mental disorders. However, their number has increased in Bulgaria, especially concerning alcoholic and drug-related psychoses, alcohol addiction syndromes, schizophrenia, manic-depressive psychoses, severe stress and adaptation reactions, and psychosomatic disorders have become more frequent (*Ministry of Health, 2001*).





Infectious diseases

The acquired immune deficiency syndrome (AIDS) is caused by the human immunodeficiency virus (HIV), which can be transmitted in three ways: sexual transmission; transfusing infected blood or blood products or using non-sterile injection equipment; or from mother to child. The incubation period between initial HIV infection and developing AIDS is about 10 years or more. The number of notified cases of AIDS is rising in central and eastern Europe, although more people have been diagnosed with AIDS in western and northern Europe.

In Bulgaria, the incidence of AIDS (0.1/100 000 population in 1999) is among the lowest in the WHO European Region, and it is significantly lower than the EU rate (2.5/100 000) (Fig. 21). Bulgaria is the only reference country, where the largest transmission group has been heterosexual contacts (75%). Homo- and bisexual contacts (15%) and blood products (3%) were reported as the other leading transmission methods. No transmissions from injected drugs or from mother-child transmissions have been reported (*European Centre for the Epidemiological Monitoring of AIDS, 2000*).

A number of the most dangerous communicable diseases in Bulgaria in the past were eliminated or reduced to sporadic cases by the 1980s. Excluding AIDS, the incidences for most infectious diseases have increased substantially since then. The Bulgarian incidence of tuberculosis declined and remained below the average of reference countries until the late 1980s, but increased significantly from 25 to 50 cases per 100 000 population between the years 1990 and 1998. This was one of the greatest increases among the reference countries, rising above the average level of the reference countries. In 1999, however, the Bulgarian incidence of tuberculosis declined again below the average of reference countries (Fig. 22). Tuberculosis incidence and prevalence have always been higher in rural communities.

The Bulgarian syphilis incidence was relatively low in the 1980s and in the early 1990s. Since then, however, the incidence has in-

creased rapidly from 5 to 32 cases per 100 000 population, which exceeded the average of reference countries and which was more than thirty times higher than the EU rate (Fig. 23).

In the early 1980s and in the early 1990s, there was a major epidemic of viral hepatitis A in Bulgaria. Even though the most recent rates have been the lowest since 1980, the Bulgarian incident rate has still been the highest among the reference countries (Fig. 24). Bulgaria has also been hit by epidemics of mumps, measles, rubella, bacillary dysentery and enterocolitis of uncertain aetiology in the 1990s, and increasing incidences of bacterial, viral or parasitic zoonoses have been observed, mainly as a result of the rapid growth of private animal

farming, uncontrolled meat production and poor enforcement of pest control (*Ministry of Health, 2001*). No epidemic of diphtheria has been reported in Bulgaria.

Long-term illness and disability

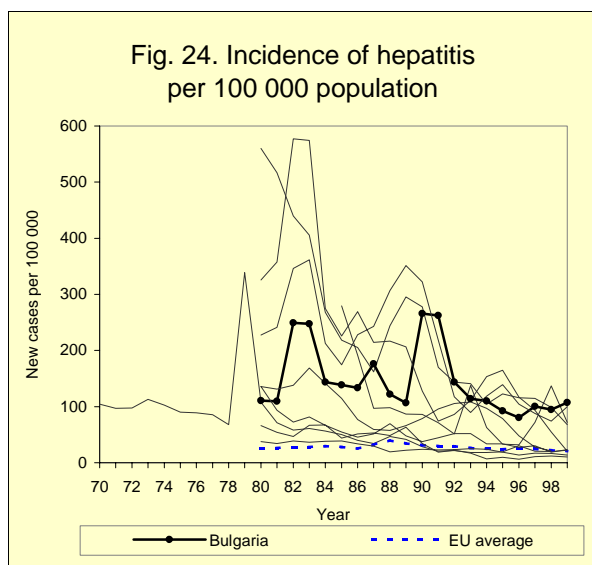
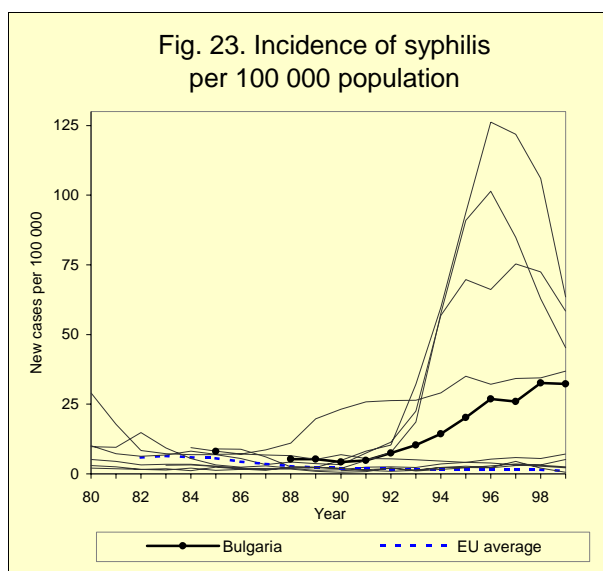
The prevalence of long-term illness and disability is an important indicator of a population's health status and health-related quality of life. Those countries which do provide data are difficult to compare because of differences in definitions, data collection methods and in national legislation on disease-related social benefits (where disability statistics are based upon those receiving such benefits).

According to national data, the number of newly granted invalidity pensions decreased between 1992 and 1999 from 22 300 to 16 200, a decline from 7.0 to 5.7 per 1000 insured persons (*Ministry of Health/National Center of Health Informatics, 2000*). The major causes recorded are diseases of the circulatory system (28%), neoplasms (15%), diseases of the nervous system (11%), psychoneurotic disorders (9%) and trauma including poisoning (9%) (*Ministry of Health, 2001*).

According to a health interview survey performed in 1996, 15% of men and 20% women reported some long-term physical disability. As expected, older people reported more disability: while 6% of respondents below 45 years were disabled, the figure was 13% in the age group 45–54 years, 24% in the age group 55–64 years, 43% in the age group 65–74 years and 69% in the age group 75 years or more. Major disability was reported by 28% of both male and female respondents with any disability (*National Statistical Institute of Bulgaria, 1997*).

Self-assessed health

Data are also not routinely available on the proportion of the population assessing their own health positively. Among the reference countries, seven of the countries had some national level data with Bulgaria having the largest proportion of adult respondents assessing their health as being good (62%) and Latvia the least (26%). The large observed variation



may be caused by the differences in study settings, in data collection or by cultural differences.

In all countries, men assessed their health as being good more often than women did. In Bulgaria, 68% of males, but 56% of females assessed their health as good in 1996. This was similar across all age groups, excluding those below 15 years (*National Statistical Institute of Bulgaria, 1997*).

Health of children and adolescents

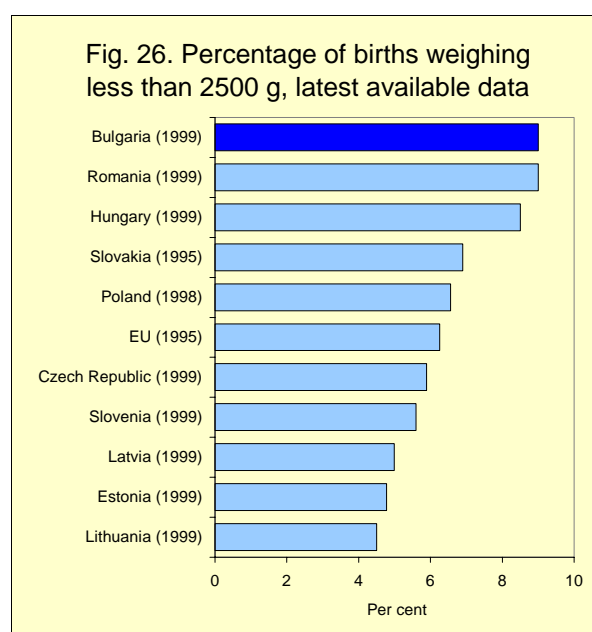
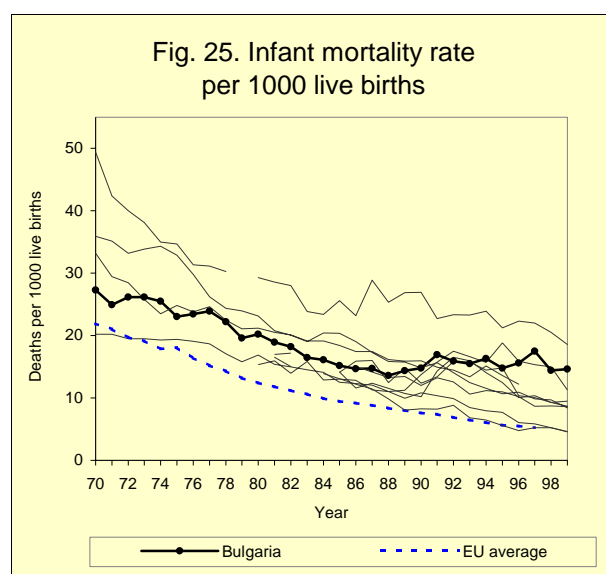
The infant mortality rate decreased in almost all reference countries between 1985 and 1999. The Bulgarian infant mortality rate decreased only slightly, from 15.2 to 14.6 per 1000 live births during this period, and the most recent rate was the second highest rate among the reference countries after Romania (Fig. 25). Noticeable regional differences in the infant mortality rate have been reported: the lowest infant mortality rate was observed in Kyustendil Region (7.4 in 1999) and the highest in the Sliven Region (27.1) (*Ministry of Health/National Center of Health Informatics, 2000*). The infant mortality rate in the rural area has been some 20% higher than in the urban area, and this difference has increased (*Ministry of Health, 2001*).

The main causes of infant mortality in Bulgaria generally follow the pattern in western

Europe, with the most frequent cause being malformations and perinatal conditions, which cause 82% of all infant deaths in the EU. The third most common cause is sudden infant death syndrome (11%), whereas external causes, infectious and parasitic diseases and diseases of the respiratory system are responsible for 2–3% of death. In Bulgaria, the main causes of death are also related to perinatal conditions and malformations (70%), but the proportions of diseases of the respiratory system (20%) and infectious and parasitic diseases (7%) are much higher than in the EU.

Sudden infant death syndrome is not diagnosed according to mortality statistics, but these cases may be classified under diseases of the respiratory system.

The proportion of children that weighed less than 2500 grams at birth has, inter alia, often been used as an indicator of the health of the newborn and the quality of perinatal care. In the EU, 6.3% of all children were of low-birth weight in 1995. This proportion was on average higher in the reference countries (7.3%), particularly so in Bulgaria (9.0% in 1999) (Fig. 26). This may be associated with the high teenage birth rate in Bulgaria (see below) and early marriage, heavy smoking, poor nutrition and poor knowledge of contraception and sexual health (*WHO, Regional office for Europe, 2000*).



Children in most of the reference countries have good immunisation coverage. This is also true for Bulgaria, where the coverage equalled the average of reference countries and varied between 96% and 99% for all diseases. Despite this good coverage, major epidemics of measles and rubella, for example, have occurred in the 1990s.

In general, children's oral health has improved in the reference countries in the 1990s like in the EU. The Bulgarian DMFT-index (the number of decayed, missing or filled teeth) was relatively good in the mid-1980s (4.5), and it has further declined to 3.1 in 1993. No more recent data are available.

Children with disabilities and others who experience difficulty in learning are often marginalized within or even excluded from school systems. In the countries of central and eastern Europe, the dominance of a traditional medicalized approach resulted in such children being educated in separate special institutions. In the 1990s, most of the ten reference countries had moved towards integrating these children in the normal school system, even though progress was slowed by economic problems (*Ainscow & Haile-Giorgis, 1998*).

One of the few routinely available indicators for adolescents' sexual health and behaviour is the rate of teenage childbirth, which can reflect social factors as well as access to and use of contraception. In 1999, the birth rate per 1000 women aged 15–19 years was 48, which was the highest among the reference countries, and much higher than the EU average of 8 per 1000 (*Council of Europe, 2000*). The birth rate in this age group has been declining in all the reference countries since 1980. In Bulgaria this decrease was 40%.

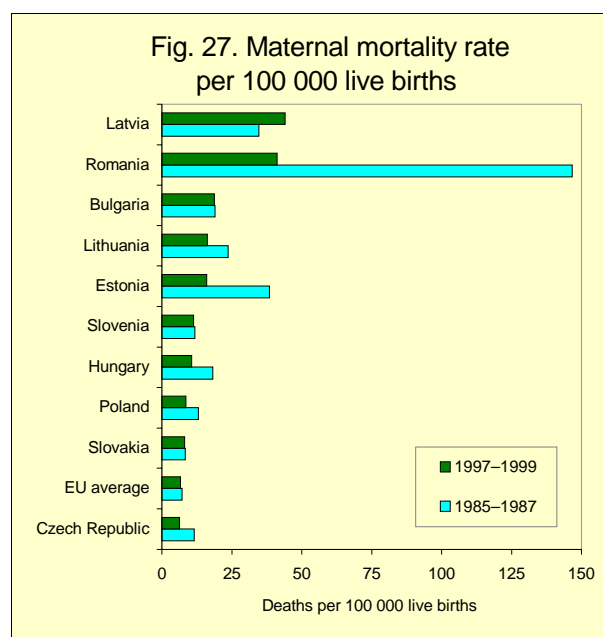
Women's health

Women as a group live longer than men and have lower mortality rates for all the main causes of death. For example in 1999 in Bulgaria, the SDR for diseases of the circulatory system in the age group 0–64 was 60% lower and the SDR for cancer in the same age group 40% lower for women than for men. However, women have higher reported rates of morbidity

and utilization of health care services (especially around childbirth), and they can be more affected by social welfare policies than men.

Since the 1980s the maternal mortality rate has declined noticeably in almost all reference countries. In Bulgaria it remained stable, varying between 19.0 and 18.8 per 100 000 live births between the mid-1980 and the late 1990s. The current rate is slightly higher than the average of reference countries but almost three times the EU rate of 6.6 per 100 000 live births (Fig. 27).

In the countries of central and eastern Europe and in the newly independent states, induced abortion was commonly used as a contraceptive method due to lack of modern contraceptives. In 1997, the contraceptive prevalence rate was only 31%, the condom being the main method (*WHO, Regional office for Europe 2000*). As a consequence, the number of induced abortions in Bulgaria was much higher than in western European countries. The annual number of abortions declined by 45% from 144 600 in 1990 to 79 800 in 1998. However, the proportional decline in the number of live births has been almost as large, so the number of induced abortions per 1000 live births has remained at the same level, being one of the highest among the reference countries and the entire WHO European Region.



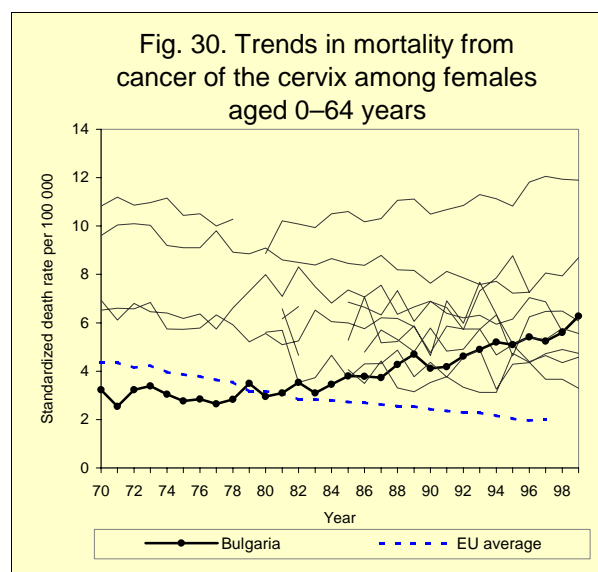
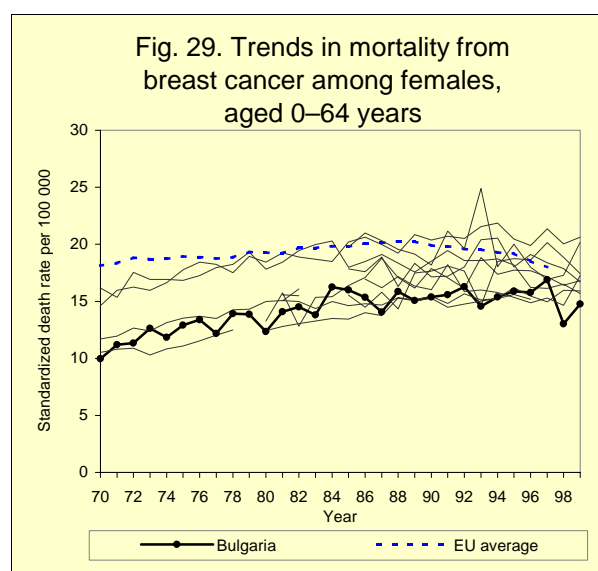
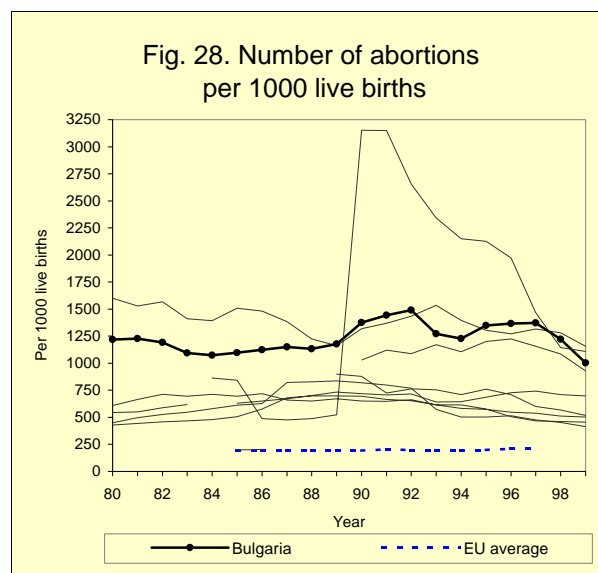
Data for Poland is 1985–1987 and 1994–1996.
Data for EU average is 1985–1987 and 1995–1997.

The most recent figures show an increase in both live births and terminations, both increasing by 10% in 1999 over the previous year, and the number of abortions equalled the number of live births. Only Estonia and Romania had higher numbers of induced abortions per 1000 live births in 1999 (Fig. 28).

Since 1970, the Bulgarian SDR for breast cancer among females has been one of the lowest among the reference countries. It has, however, increased constantly until 1997, with particularly low rates in 1998 and 1999 perhaps representing the start of a change in this trend. Bulgaria still has the lowest SDR among the reference countries with a rate which is almost 20% lower than the EU average (Fig. 29).

The Bulgarian SDR for cancer of the cervix was the lowest among the reference countries in the 1970s, much lower than the EU rate. The Bulgarian rate has increased and the EU rate decreased, and the Bulgarian rate has exceeded the EU rate since the early 1980s. The increase in Bulgaria has continued, and Bulgaria now has a mortality rate near to the average of reference countries, approximately three times the EU rate (Fig. 30).

Violence against women has received limited attention as a public health issue. Data on the incidence and type of such violence are lacking. The SDR for homicide and purposeful injury for women can be used as a surrogate indicator. Between 1987 and the mid-1990s, the Bulgarian female SDR for homicide increased by more than 50%, but declined after that by a quarter. The current Bulgarian rate (1.4 per 100 000 women) is one of the lowest among the reference countries, but still more than double the EU rate.



LIFESTYLES

Among the factors (including genetics and the physical and social environments) influencing health, behaviour substantially affects the health and wellbeing of each individual and the population. Lifestyle patterns such as nutritional habits, physical activity and smoking or heavy alcohol consumption together with the prevalence of such risk factors as elevated blood pressure, high serum cholesterol or overweight influence premature mortality, especially from cardiovascular diseases and cancers. These diseases are the main causes of death in Europe. Unhealthy behaviour also contributes to a wide range of other chronic illnesses and thus affects the quality of life in general.

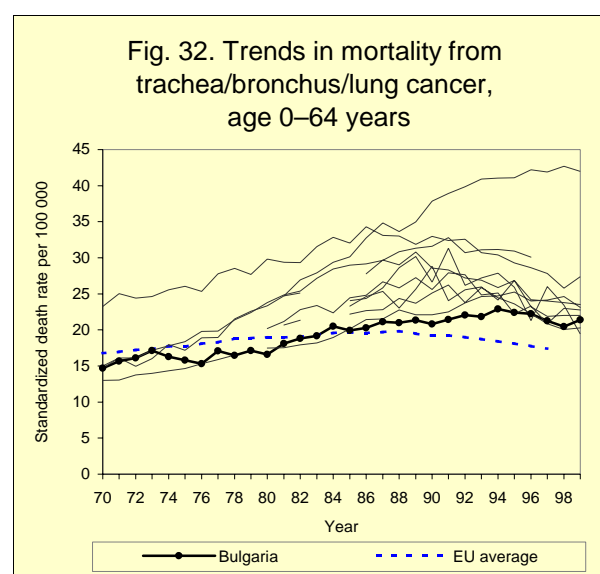
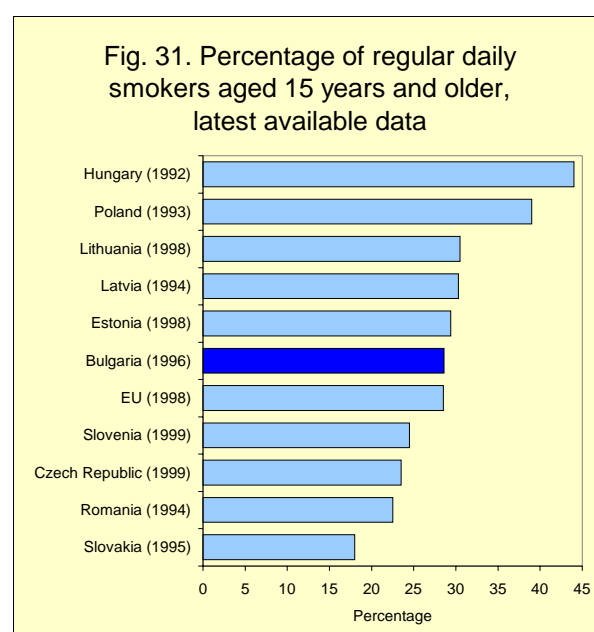
Lifestyle, however, is also influenced by behavioural patterns common to a person's social group and by more general socioeconomic conditions. Evidence is growing that, at least in most western European countries, improvements in lifestyles have largely been confined to the more socially and economically privileged population groups, who are better placed to adopt health-promoting changes in behaviour (*WHO Regional Office for Europe, 1993 and 1999*).

Tobacco consumption

The smoking prevalence among the population aged 15 years or more in Bulgaria equalled the average of reference countries and the EU average in the mid-1990s, when 41% of Bulgarian men and 17% of women smoked regularly (Fig. 31). The proportion of male smokers has decreased, but for female smokers the proportion has remained unchanged since the health interview surveys were started in 1986 (*WHO Regional Office for Europe, 1997*). According to the Bulgarian CINDI programme (Countrywide Integrated Noncommunicable Disease Intervention), smoking rates and smoking intensity were higher in 1996/1997 than in 1986/1987. In 1996/1997, the proportion of regular smokers varied between 29% and 58%

for men and between 17% and 25% for women aged 25–64 across the eight study regions (*Vassilevsky, 2000*).

In the 1970s and 1980s, there was large variation – between 1300 and 2100 – in the annual consumption of cigarettes per person. In the late 1990s, consumption has stabilized at around 2200 cigarettes, one of the highest among the reference countries, a third higher than the EU average of 1650 cigarettes.



Increased black market sale or increased import of tobacco products may, however, explain some of the observed decline in the consumption figures in the reference countries.

According to an expert estimation, smoking causes directly or indirectly some 20% of all Bulgarian deaths (*Ministry of Health, 2001*).

Mortality for trachea, bronchus and lung cancer can be used as an indicator to measure the trends and country positions related to the deaths caused by smoking. Even though the Bulgarian SDR has decreased by almost 10%, the current rate is still more than a fifth higher than the EU average (Fig. 32). The Bulgarian rate for men has been among the lowest in the reference countries, but has exceeded the EU rate since 1985. The Bulgarian rate continued to increase until 1994 and started to decrease after the mid-1990s.

For women, the Bulgarian SDR for trachea, bronchus and lung cancer is low, and it has remained static since 1970, while rates in several reference countries and the EU average have increased above the Bulgarian rate. Since men smoke more than women, there are large gender differences in SDR for lung cancer. The Bulgarian men had death rates almost seven-times higher than Bulgarian women.

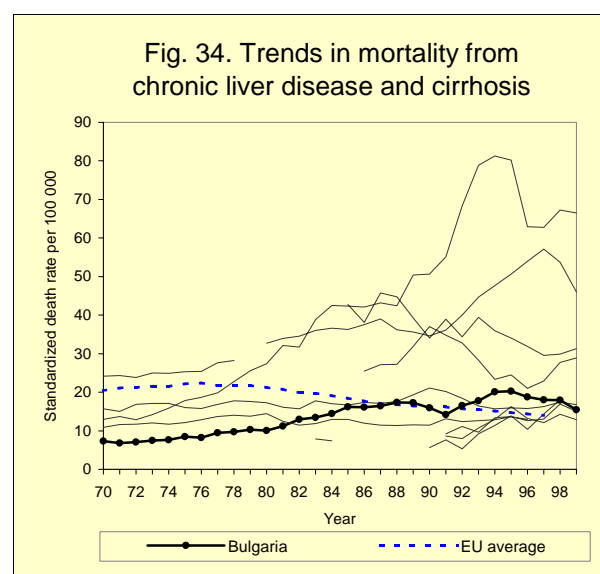
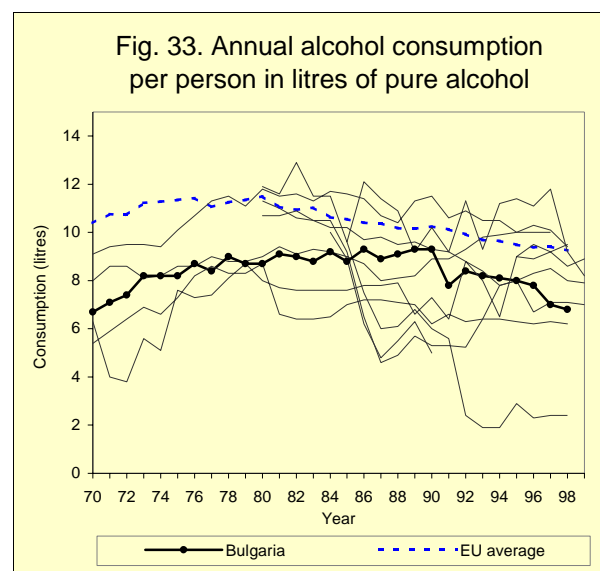
Alcohol consumption

Registered alcohol consumption in Bulgaria based on sales has fallen by 15% from 8.8 to 6.8 litres of pure alcohol per person since the mid-1980s

(Fig. 33). A similar trend was observed in the EU, but the level of consumption is higher in the EU (9.3 litres in 1998). However, it may be difficult to get reliable data on alcohol consumption in central and eastern Europe. For example, some Baltic states recorded a remarkable decrease of up to 65% in the 1990s, but local studies reported very high levels of unrecorded consumption as well as illegal importation and production. This could also explain the sudden decline of almost 20% in the Bulgarian consumption figure in 1991 (*WHO Regional Office for Europe, 1997*).

According to the sales data, the registered consumption of spirits has decreased in Bulgaria from 3.2 litres to 2.4 litres and the consumption of beer from 63 litres to 33 litres. The consumption of wine has increased slightly from 20 litres to 21 litres since the mid-1980s (*Produktschap voor Gedistilleerde Dranken, 2000*).

In 1986, 76% of men and 34% of women reported themselves as alcohol consumers, but ten year later these proportions increased to 82% and 50%, respectively. Experts have estimated that there are some 280 000–300 000 alcohol abusers in Bulgaria, which equals



some 4.3% of the population aged 15 years or more and 5.2% of the population aged 15–64 years (*Ministry of Health, 2001*). A small pilot study among schoolchildren aged 14–18 years in Sofia in 1993 found that two thirds of the teenagers drank alcohol, one fifth of them regularly (*WHO Regional Office for Europe, 1997*).

According to the 1996/1997 CINDI data only a small proportion (10–20% in the eight study regions) of men aged 25–64 years consumed no alcohol, while proportions were higher for women (39–68%). Men also reported higher daily alcohol intakes than women. Significant variation was also observed in the percentage of respondents reporting high consumption (more than 280 ml of alcohol per week for men and 140 ml for women) by study region, both for men (19–39%) and women (5–22%) (*Vassilevsky, 2000*).

The number of deaths from chronic liver disease and cirrhosis can be used to estimate the harmful effect of long-term alcohol consumption. In the 1970s and 1980s, the Bulgarian SDR for chronic liver disease and cirrhosis was among the lowest in the reference countries, well below the EU average. However, the Bulgarian rate increased, reaching the EU average in the late 1980s. The latest figures showed that the Bulgarian rate has decreased, but they still remain some 10% higher than the EU rate (Fig. 34). The trend was similar for both sexes in all reference countries, but men have consistently higher mortality risk than women. In Bulgaria, the SDR for men was four times the female rate.

Illicit drug use

Comparable data on drug use are rare. In general, the reference countries have reported increased drug use in the 1990s, even though the level is still lower than in the EU.

The use of cannabis and heroin (especially imported heroin) has increased in Bulgaria. In 1995, the number of drug addicts using

opiates was estimated to be 3 000–5 000. Most of them used injected heroin. The number of cocaine users and solvent users has estimated to be 1 000–3 000 and 10 000, respectively. Cocaine is mainly used by marginal groups, while children and marginalized adolescents are the main users of solvents. In addition, there were estimated to be some 10 000–15 000 experimenters of drugs in Sofia and other cities. Legal drugs, particularly benzodiazepines are used more frequently, often with alcohol (*WHO Regional Office for Europe, 1997*).

In a school questionnaire survey, more than a fifth of pupils aged 14–18 years in large urban communities reported that they had experimented with drugs (*Ministry of Health, 2001*).

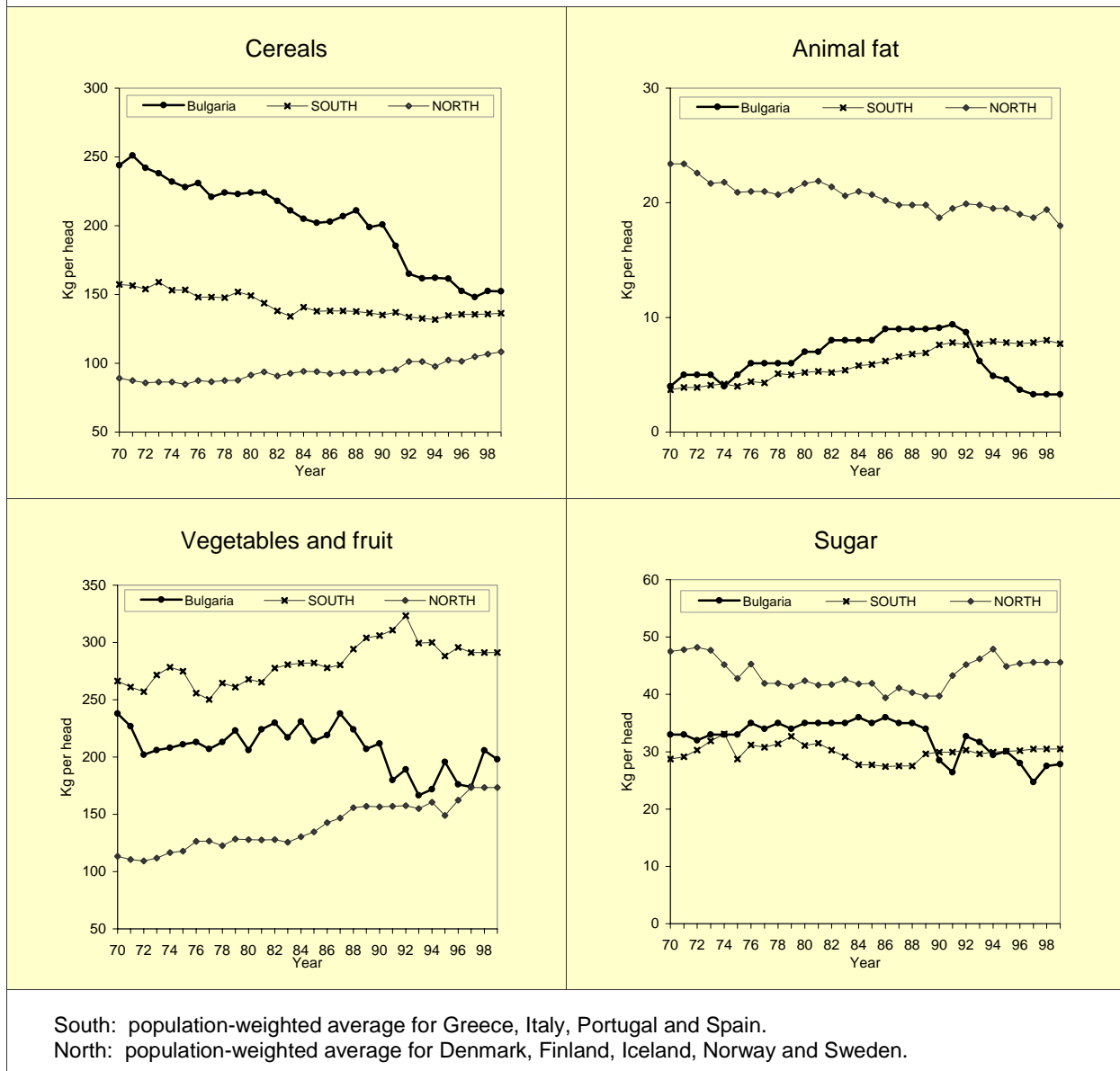
According to the 1999 ESPAD survey (European School Survey report on alcohol and other drug use among 15–16 year olds), some 12% of respondents in Bulgaria reported that they had used cannabis at least once and 5% reported use of other drugs. The use of illicit drugs was generally less common in Bulgaria than in the other participating reference countries. (*Hibell et al., 2000*).

Nutrition

Nutritional habits are rooted in cultural traditions and food production. Nevertheless, in recent decades changes have occurred with increasing globalization, as global food markets have opened up, transport has become more rapid and more efficient techniques for conserving food have been developed. These factors together with increased mobility and increases in purchasing power are some of the reasons why the historically different nutrition patterns in Europe appear to converge.

The historical differences in western Europe between the northern and southern dietary patterns are confirmed by data relating to the amount of food available (national food balance sheets) in each country collected since the 1960s by the Food and Agriculture

Fig. 35. Food consumption patterns, 1970–1999



Organization (FAO) of the United Nations.⁴ Typical of northern Europe is a high availability of saturated fat and a low availability of fruit and vegetables. This pattern is reversed in southern Europe.

⁴ The rapid increase in international trade accelerated in 1994, when food was incorporated into international free trade agreements (the GATT Uruguay Round). This has affected the reliability of national food statistics, making international comparisons more difficult.

The FAO data suggest that Bulgaria follows the pattern for southern Europe except that the availability of fruit and vegetables appears to be low (Fig. 35). However, home-grown fruit and vegetables may not be recorded in this data, and the actual intake can best be verified by dietary intake surveys.

The moderate use of animal fat is confirmed by the fact that the average proportion of energy derived from fat is estimated to be 30%, which equals the average of reference countries (29%), but which is less than in the EU (39%). The consumption of animal fats is,

however, thought to be increasing. There are also other deteriorating nutritional habits in Bulgaria. The consumption of food containing protective elements has decreased, especially during winter and spring. In addition, the intake of salt has traditionally been high, which may contribute towards the higher cerebrovascular mortality in Bulgaria (*Ministry of Health, 2001*).

The 1996/1997 CINDI survey supports these findings. Consumption of fish, fruit and vegetables was deemed insufficient and wholemeal bread was poorly represented in the diet. About 60% of respondents added salt to food after tasting and some 10% added salt without tasting food. Between 3% and 7% reported some level of malnutrition (*Vassilevsky, 2000*).

Physical activity

As physical activity in daily life and at work declines, exercise in leisure time becomes more important in maintaining an activity level beneficial to health. Data from Bulgaria suggest that only one in every three Bulgarians practices physical activity on a regular bases (*Ministry of Health, 2001*). Another health interview survey gave more encouraging results: 50% of men and 43% of women were active regarding physical exercise in their leisure time (*National Statistical Institute of Bulgaria, 1997*).

According to national CINDI data from 1996/1997, the proportion of Bulgarian respondents undertaking exercise outside work to maintain fitness levels varied between 8–15% and the proportion regularly undertaking sports varied between 4–8%. These rates had declined since the survey ten years earlier. Frequently, low physical activity was combined with other cardiovascular risk factors, such as high blood pressure, obesity and smoking (*Vassilevsky, 2000*).

Overweight

Overweight and obesity are commonly assessed with the body mass index (BMI), calculated as weight in kilograms/(height in metres)².

The prevalence of moderate overweight is estimated to be 58% for men and 54% for women (BMI 25 or more), while 11% of men and 16% of women were obese (BMI 30 or more) (*Ministry of Health, 2001*).

CINDI data for 1996/1997 indicated that two-thirds of Bulgarians aged 25–64 were overweight (BMI 25 or more) and obesity (BMI 30 or more) varied between 12% and 24% for men and 14% and 39% for women (*Vassilevsky, 2000*).

High blood pressure

A systolic blood pressure exceeding 160 mmHg and diastolic pressure exceeding 95 mmHg are considered as levels where treatment is indicated to reduce the risk of cardiovascular disease.

National studies have estimated that some 12–16% of population, increasingly affecting younger age groups, have raised blood pressure. It has been estimated that probably more than 400 000 persons, who suffer from hypertension, receive inadequate treatment or no treatment at all.

The 1986/1987 CINDI data for Bulgaria indicated that 21% of respondents had high blood pressure, but this level had almost doubled by the 1996/1997 survey. Some 65% of male respondents and 72% of females had their blood pressure measured during the 12 months preceding the latest survey and a third were told that they had high blood pressure (*Vassilevsky, 2000*).

ENVIRONMENT AND HEALTH

Environmental conditions affect humans through short-term and long-term exposure to noxious factors. In the long term the main objective is to promote sustainable development compatible with good health, and especially to protect the food chain (water, agricultural products) from the effects of harmful substances. Short-term environmental protection means avoiding or at least reducing potentially harmful situations, bearing in mind that people are not exposed equally to adverse environmental conditions and not all people and social groups are equally vulnerable to them. Thus, children, pregnant women, elderly people and ill people are more likely to be affected by polluted air or contaminated food. Also, specific population groups tend to experience more adverse environmental conditions. Low income, for instance, is often associated with exposure to environmental hazards at work (noxious substances and risk of accidents) and poor housing conditions (such as crowding, air pollution and noise). These situations may affect health and wellbeing either directly by causing discomfort and stress, or indirectly by giving rise to unhealthy coping behaviour such as the use of drugs or heavy drinking.

The increased recognition of the importance of the effects of the environment on health and the need for intersectoral action at all levels has been demonstrated by the development and implementation by nearly all European countries of national environment and health action plans (NEHAP). Bulgaria was one of the pilot countries for NEHAP. The development was initiated by the Council of Ministers in 1995, and the Ministry of Health and the Ministry of Environment and Waters became the leading institutions taking the responsibility of the development together with 12 other ministries and national committees. The Bulgarian NEHAP was accepted by the Council of Ministers in 1998 (*Council of Ministers, 1998*).

Microbial foodborne diseases

The number of microbial foodborne outbreaks and the number of people who have suffered from these diseases can be used to indicate the quality of food and its production, even though some of the observed variation can be caused by differences in definitions and data-collection methods. There are no comparable data from Bulgaria, but national sources estimate that morbidity due to salmonellosis, staphylococcus, enterotoxigenesis, botulism and trichinelosis has increased in the 1990s (*Council of Ministers, 1998*).

Air quality

Bulgaria had the highest emission of sulphur dioxide and ammonia per person among the reference countries in 1995. These emission levels also exceeded the EU level. The emission of nitrogen dioxide was at the EU level and exceeded the average level of the reference countries. The emission of carbon monoxide was at the average level of the reference countries, but exceeded the EU level, while the emission of carbon dioxide was lower in Bulgaria than in the reference countries in general and in the EU. For methane, Bulgaria had emission levels between the average of reference countries and the EU average (*United Nations Economic Commission for Europe, 1999*).

Table 2. Emission of selected air pollutants in kg per person in Bulgaria, in the reference countries and in the EU in 1995

	Bulgaria	Reference countries	EU countries
Sulphur dioxide	178.2	68.3	31.5
Nitrogen dioxide	31.7	25.3	32.4
Ammonia	16.2	10.7	9.4
Carbon monoxide	100.5	99.1	119.3
Carbon dioxide	6 858	7 555	8 499
Methane	60.2	56.5	61.4

Some 11% of Bulgarian territory is under the threat of severe industrial pollution, and around 40% of the population live in these areas. More than half of all agricultural land is estimated to be damaged to some degree. In 1990, almost 80% of the total length of the river network was classified as polluted (*Ministry of Health, 2001*).

There is evidence that high pollution is connected with higher morbidity in Bulgaria. For example, those areas with the highest reported total morbidity are towns with intensive pollution from industry (especially chemical plants) and road traffic. Higher incidences of bronchial asthma, cardiovascular diseases, neurological diseases, neoplasms or perinatal problems, including also congenital malformations, have been observed in the more polluted areas (*Council of Ministers, 1998*).

Housing

The average estimated size of dwellings in Bulgaria is 64 m², which is larger than the average of the reference countries (54 m²), but smaller than the EU average (89 m²). In 1995, 93% of Bulgarian dwellings were owner-occupied. This was the highest percentage among the reference countries and higher than in any EU country (*United Nations Economic Commission for Europe, 1999*).

One aspect of the quality of housing is the proportion of the population with connection to water and with access to hygienic sewage disposal. According to data from 1996, 89% of Bulgarians had a water connection, compared to an average 81% for the reference countries. (*United Nations Economic Commission for Europe, 1999*). The quality of drinking water failed to meet European standards in 8% of all samples, but in the poorest districts this proportion was 25% (*Council of Ministers, 1998*). In 1989, 99% of the population had access to hygienic sewage disposal.

Between 40% and 50% of urban residents are affected by noise pollution (*Council of Ministers, 1998*).

Whereas housing conditions, such as quality, location and infrastructure, affect people's health and wellbeing, lack of housing is even

more crucial. Homeless people are more vulnerable to health problems, such as malnutrition, infectious diseases and psychosocial stress caused by solitude and insecurity, than the rest of the population. Whereas data on the quality of housing (albeit not always comparable) are increasingly becoming available, reliable data on homelessness are lacking.

Occupational health and safety

Exposure to health hazards at the workplace is still an important cause of ill health and death. However, information about exposure in terms of the type, frequency and intensity of hazards and the number of workplaces or people affected is not always available and comparable data are scarce.

The rates of injuries from work-related accidents per 100 000 population varied substantially among the reference countries, which suggests that the figures may describe different phenomena in the countries. Nevertheless, the number of such injuries has declined in all reference countries by an average of 51%, from 592 to 292 per 100 000 population between 1985 and 1999. In Bulgaria, this decline was 56% from 1985 to 1995.

The data on deaths from work-related accidents may be more comparable than the data on injuries. The number of deaths has decreased in all reference countries indicating improvements in occupational safety. Between 1985 and 1999, the number of deaths in work-related accidents decreased from 3.8 to 1.8 per 100 000 population in the reference countries (a decrease of 53%). The latest figure for Bulgaria dates from 1995. At that time, the official Bulgarian rate of work-related accidental deaths (0.02 per 100 000, a decrease of 71% since 1985) was the lowest among the reference countries and lower than the EU average (1.6 per 100 000, a decrease of 28% since 1985).

In total, 14 per 10 000 workers are estimated to be exposed to risk at work. However, national experts have suggested that most occupational health problems in Bulgaria are not recorded (*Council of Ministers, 1998*).

HEALTH CARE SYSTEM⁵

Health care reform

Collectively funded health care services started in Bulgaria at the end of the 19th century. Between 1879 and 1903, health care laws were enacted and facilities were built. District and municipal physicians were appointed from among the local private physicians for all towns with more than 4 000 inhabitants, but in villages feldshers also worked partly on a private basis. State-funded hospital care, free at the point of care, was established for the poor.

In 1903, the first law on public health care was passed and the first social and health insurance scheme was set up twenty years later. This system was similar to the Bismarckian insurance system, and it covered all employees in government, in public and private enterprises and in farms. Maternity care and retirement pensions were also included in the law. Responsibility for the maintenance of health facilities was passed from the state to the municipalities after the 1929 Law on the Health of the Nation. The rural community gradually got better access to health care, and the health insurance was widened so that nearly 70% of the population was covered by 1948.

From 1948 until the end of the era of communism, the Bulgarian health care system was based on the Semashko model. The health insurance system was abolished and private hospitals and pharmacies were nationalised and brought under central state control. The sole funder and provider of health care services became central government. The family doctor network, which was introduced after 1929, was replaced by polyclinics which were integrated with hospitals.

Despite many achievements, the Bulgarian health care system has inflexibilities. It lacked the capacity to respond to citizens' worsening health status and it contained only few incentives for providing good quality and efficient health care. Economic decline meant that demand for services exceeded supply, though this was not officially acknowledged.

The Bulgarian health care reform of the early-1990s was based on prioritising primary health care, separation between primary and secondary care, introduction of a general practitioner system, elaboration of guidelines and stan-

Table 3. Health care resources in Bulgaria and in the reference countries (1999 or latest available)

	Bulgaria	Reference countries	Minimum	Maximum
Hospital beds per 100 000 population	749	716	555	938
Physicians per 100 000 population	344	265	191	394
Hospital admissions per 100 population	15.8	18.1	13.8 ^a	25.4
Average length of hospital stay in days	11.9	10.3	9.0	11.9
Total health care expenditure as a percentage of GDP	4.7^b	5.6	2.6 ^a	7.7
^a 1998, ^b 1994				

⁵ This section is largely based on *Health care systems in transition. Bulgaria (WHO Regional Office for Europe, 2001a)*.

dards for good medical practice as well as decentralisation, corporatisation and privatisation of medical facilities.

Until recently, Bulgaria has experienced constant crises with the existing health care system and with the reforms. The shortage of money to maintain an old-fashioned, extensively developed and expensive system have created a number of problems, such as lack of pharmaceuticals and materials in the hospitals, low salaries for the medical staff, development of black market of medical services, and poor quality of health care. The goals for the future reforms includes a public/private mix of services to ensure quality of care, efficient self-government, system sustainability, promoting the principle of equity in the health care system and higher patient satisfaction (*Ministry of Health, 2001 and WHO Regional Office for Europe, 1999*).

A comprehensive range of measures are now being developed and implemented⁶, aiming to address the full range of challenges faced by the Bulgarian health care system. An important aspect is the clear responsibility for local government to address public health issues. Reforms support this by ensuring free access to a range of health services, including emergency care, inpatient psychiatry, blood transfusion, compulsory immunisation and treatment, certification of disability, costly treatments outside insurance and targeted funds for public health priorities, such as prevention, treatment and rehabilitation for cardiovascular disease, cancers, diabetes, accidents, and occupational diseases.

Reform of the health care system began with the enactment by the National Assembly of three Acts: the Health Insurance Act (HIA) in 1998, the Physicians' and Dentists' Professional Associations Act (PDPA) in 1998, and the Curative Establishments Act (CEA) in 1999. These Acts now regulate the organisa-

⁶ The remainder of this section is based on *National Health Strategy. Better health for a better future of Bulgaria. (Ministry of Health. Sofia, 2001)*.

tion of the medical and dental care. Reform of the curative services is being performed in two stages. From July 2000, outpatient medical and dental care will be reformed, with preparations for reform of inpatient care proceeding in parallel, with changes starting in July 2001.

Following these changes, ambulatory care in Bulgaria will be provided by curative establishments for primary medical care and for specialised outpatient medical care. Establishments for primary care are individual and group practices for medical or dental care. Those for specialised outpatient care are:

- individual and group practices for specialised medical or dental care;
- medical centre, dental centre and combined centre;
- diagnostic and consultation centre (DCC);
- stand-alone medical-diagnostic and medical-technical laboratories.

Inpatient care covers both general and specialised hospitals, emergency medical care centres (EMCC), transfusion haematology centres (THC), dispensaries, nursing homes and hospices, providing acute care, chronic and long term care, and rehabilitation. According to the geography of the area served, the hospitals may be district, inter-regional or national.

The geographical deployment of the public treatment network is planned and regulated according to national and regional plans, updated every five years. They specify the number of the various types of public institution in each region and municipality. Providers can conclude contracts with the Regional Health Insurance Funds for the provision of health care to the respective population. Equal treatment of public (state and municipal) and private establishments is provided for by the legislation.

The principal feature of this reform is the radically changed ownership of provider establishments, with individual practices now owned by the physician or dentist, and a range of other institutions are established as commercial partnerships, co-operatives, with components of individual, private ownership. The following remain state-owned: emergency

medical care centres, transfusion haematology centres, psychiatric hospitals, care intended for medical surveillance, specific care for children, as well as the curative establishments under certain Ministries (Defence, Interior, Transportation, Justice). State ownership of the infrastructure of care has been the main disadvantage of the health system, and these reforms diversify ownership. The reforms aim to stimulate professional initiative and the professional development of physicians and dentists.

Patient autonomy has been strengthened, with guaranteed freedom of choice of primary care physician and dentist, outpatient care, or for inpatient care.

By the end of June 2000, 87% of the adult population had chosen a primary care physician (family practitioner). Of those who had not chosen by then, only 4% stated no intention of choosing one. A representative survey undertaken in June 2000 suggested that the population had confidence in these changes.

Of the expected numbers of specialists at the start of the new outpatient medical and dental care system, 98% of the primary medical care physicians, 86% of the primary dental care dentists and 38% of the specialised dental care dentists had contracts with the territorial divisions of NHIF. Indeed, there were 10% more specialised care physicians than expected with contracts. This indicates that these reforms enjoy the support of physicians and dentists in Bulgaria.

Organizational structure

The latest proposals for reform, the Public Health Care Act, is planned to establish a system of accreditation for health care institutions, overseen by National and Regional Health Care Inspectorates. There will be diversification of the ownership of all types of health care provision, which has been almost exclusively state-owned. There will be Regional Health Care Centres – effectively local Ministries, with a Director appointed by the Minister of Health. The Act gives municipal councils responsibilities for public health policy and protection.

Health care finance and expenditure

A health insurance system was introduced in 2000 for outpatient care and in 2001 for inpatient/hospital care. In this new system, the National Health Insurance Fund is a single statutory insurer and the compulsory contributions are based on a payroll tax. The insured will pay a percentage of their gross income with contributions divided equally between the employer and the employee (3% from both). An additional percentage of the income has to be paid, if the dependent family members are covered by the insurance. The self-employed will pay their own insurance contributions, and the contributions of those who are not belonging to the work force will be paid by the state (e.g. pensioners) or by the municipalities (e.g. the unemployed).

A key feature of the new system is the legal contractual system between caregivers, and the National Health Insurance Fund (NHIF) and the public limited companies providing voluntary health insurance. All Bulgarian citizens have mandatory insurance covering a specified medical care package, paid for by NHIF. Care is provided under a contract between the provider and the NHIF divisions - the Regional Health Insurance Funds (RHIF). The principal obligations of the signatories to the contract, the rates, payment terms and processes are specified in the National Framework Contract, which is concluded between NHIF and representatives of the professional associations of the physicians and dentists in Bulgaria. Similar contracts exist for voluntary health insurance.

The statutory independence of the three parties to health care – user, service provider and funder – along with the introduction of the contractual relations, are the principal prerequisites for the setting up of a health care market, with elements of competition among providers, in the interest of the patient.

This system is intended to relate the funding of hospitals to their performance and the quality of care, whilst ensuring their independent operation.

International comparisons of health care expenditure are extremely difficult because the definitions underlying health statistics as well

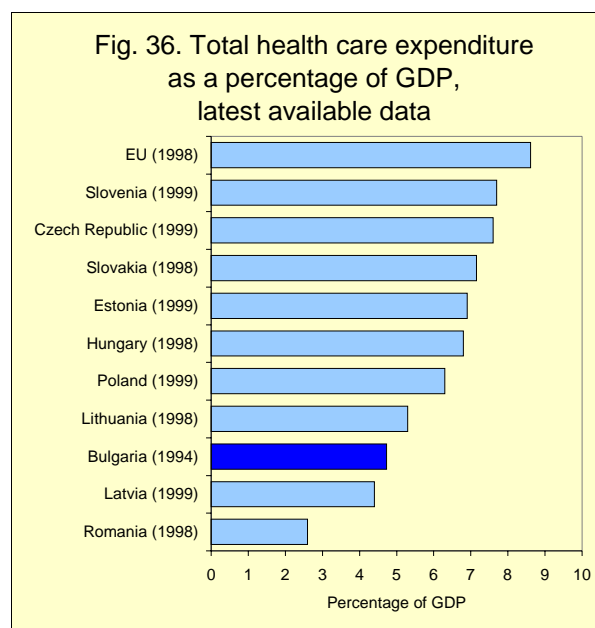
as accounting practices vary from one country to another. The following data on health care expenditure should therefore be used with caution, as the boundaries of what constitutes health care can vary substantially between countries.

According to the data from 1998, the proportion of health expenditure of total GDP was below the EU average of 8.6% in all reference countries. Bulgaria (4.7%) reported one of the lowest proportions among the reference countries (data from 1994) (Fig. 36).

Data on health care expenditure adjusted in purchase power parity (PPP) from 1998 showed that the average of reference countries (US \$480) is one third of the EU average (US \$1 848). Bulgaria had one of the lowest expenditures US \$214, though it should be noted that these data are from 1994.

Primary health care

Every Bulgarian has been entitled to free primary care, which is provided by various outpatient facilities. There are four different systems of primary health care delivery: care of the general population organized on a district bases, and special health care system for schoolchildren, military personnel and transport workers (including their families). In towns, care is organised in free-standing polyclinics or in polyclinics attached to hospitals.



The largest polyclinics provide also services by specialists, e.g. by dermatologists, ophthalmologists and neurologists. Single practices are most common in villages. The number of private practices is low.

The implementation of gate-keeping for referring patients to the specialised level has started slowly, even though the required amendments were included in the Health Act already in 1996. Family medicine is emphasised in the current reforms.

Municipal hospital dental parlours, village or workers' health care units provide dental care. At regional level there are almost one hundred outpatient dental polyclinics and at national level the clinics of the School of Dentistry provide specialized care.

Secondary and tertiary care

Specialized care is provided within a three-tier system of local, district and national hospitals. Most hospitals have a polyclinic attached. There are separate hospitals for military personnel and transport workers. Patients are in practice free to choose the hospital they go to.

The municipal hospitals, which account for one fourth of all hospital beds, provide care in internal medicine, surgery, paediatrics and obstetrics/gynaecology. Smaller, mostly rural municipalities have village outpatient centres, health units or consulting rooms and, in all cases, dental surgery.

At regional level, there are 32 general district hospitals accounting for one third of all hospital beds. They provide specialised consultations and hospital care for the local population as well as primary health care for the residents of the municipality where the hospital is located. There are also dispensaries for oncological, psychiatric, dermal, venereal and chronic pulmonary diseases, and they account some 5% of all hospital beds. Regional facilities with special profile – maternity and hospitals for lung diseases or mental diseases – account for some 10% of all hospital beds.

At the national level, there are five medical universities and 12 university hospitals, the clinics of the National Medical Centres (spe-

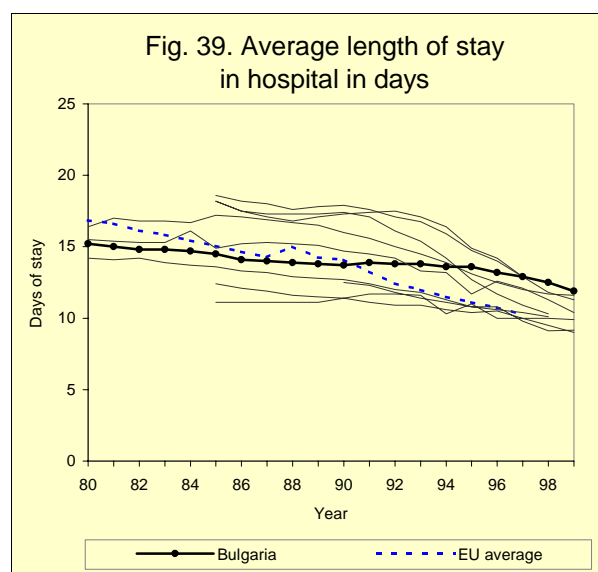
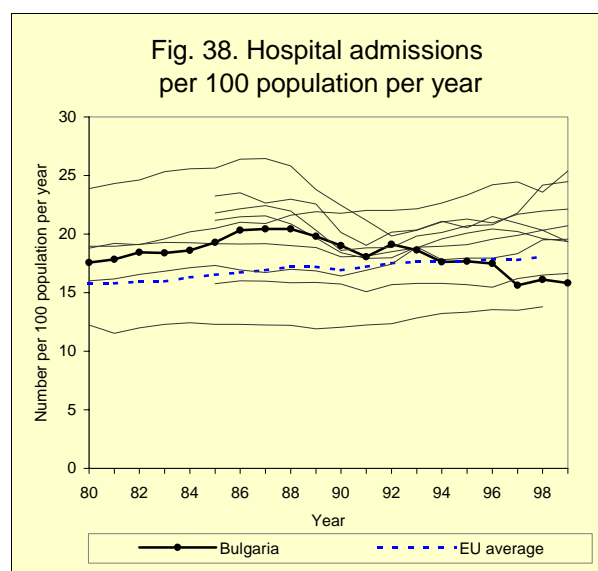
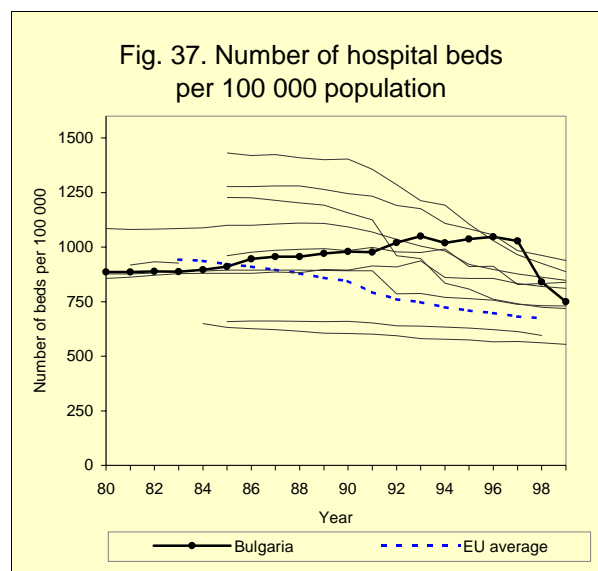
cialised e.g. in cardiovascular diseases, haematology, oncology or drug addictions) and the Pirogov Institute of Emergency Medical Aid provide high-level specialised medical care to the whole population. These facilities account for 15% of all hospital beds.

There are 136 sanatorium centres and 28 special regional emergency care centres. In addition, some large industrial establishments have their own hospitals accounting for 1% of all hospital beds, but these services have been closed down and moved to municipal hospitals since 1998.

Since 1985, the number of hospital beds per 100 000 population has decreased in all reference countries except in Bulgaria, where the rate increased by 13%. This increase was partly due to the significant reduction in population over the same period. By 1997, the Bulgarian figure (1 027/100 000) was the highest among the reference countries, significantly above the EU average (687/100 000). In 1998 and 1999, however, the number of hospital beds decreased by almost 27% to 749 per 100 000 after the mandatory accreditation of hospitals was introduced (Fig. 37).

There are large differences in the reported number of outpatient contacts among the reference countries with a variation from 4.9 to 16.4 annual contacts per person in 1999. During the last 13 years, the Bulgarian figure has decreased by more than 25% to 5.4 contacts, which remained substantially below the average of reference countries (8.0 contacts in 1999).

The number of hospital inpatient admissions also varies significantly among the reference countries from 13.8 to 25.4 admissions per 100 population in 1999. Since 1985, the Bulgarian number declined by 18%, which was among the largest decreases among the reference countries. The Bulgarian number of inpatient admissions – 15.8/100 – was second lowest among the reference countries and lower than EU average (18.1/100 in 1998) (Fig. 38).



The average length of hospital stay has decreased in all reference countries since the 1980s, but least in Bulgaria. In 1985, the Bulgarian average was 14.5 days, but it only decreased to 11.9 in 1999. This was the longest length of hospital stay among the reference countries, almost two days longer than both the average of the reference countries (10.3 days in 1999) and the average of the EU (10.2 days in 1997) (Fig. 39).

Pharmaceuticals and pharmacies

The monopolistic State Pharmaceutical Company was closed in 1991, ending the monopoly position, and the process of decentralization started. There are now some 30 separate, state-owned companies, which deal with production, supply and distribution of pharmaceuticals. These companies are under a process of privatisation.

In 1997, there were some 800 state-owned or municipal pharmacies, and more than 1 600 new, privately owned pharmacies had been registered. Qualified pharmacists owned only 38% of these private pharmacies. Also chains of pharmacies have emerged of which some are owned by non-resident individuals or foreign entities.

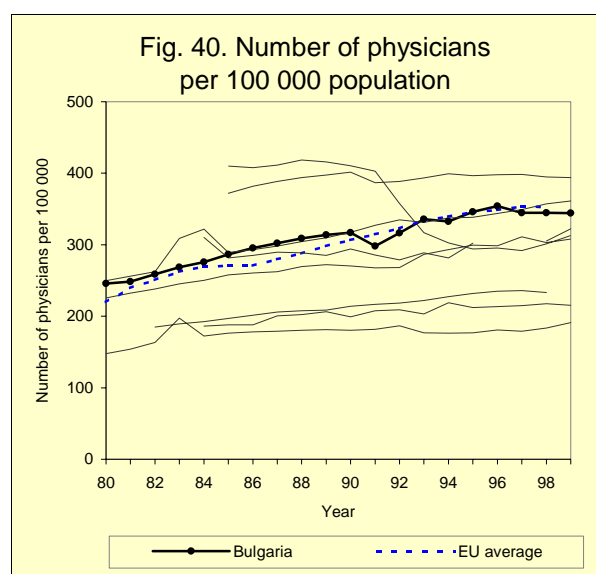
Human resources

The Bulgarian number of physicians (344/100 000 population in 1999) was equal to the EU average (353/100 000 in 1998) and among the highest in the reference countries. Since 1985, the Bulgarian number has increased by 20%, which was approximately as large as the average increase among the reference countries (Fig. 40).

In 1999, Bulgaria had 56.7 dentists per 100 000 population, which was one of the highest among the reference countries (average 45.4/100 000 on 1999), but still lower than the EU average (68.6/100 000 in 1998).

There were 16.5 pharmacists per 100 000 population in Bulgaria in 1999. This was among the lowest figures in the reference countries being half of the average of reference countries (35.9/100 000 in 1999) and only one fifth of the EU average (81.7/100 000 in 1998).

The number of nurses in Bulgaria – 683 per 100 000 population in 1999 – is above the average of reference countries (572/100 000 in 1999). The number of midwives was higher in almost all reference countries (average 48.1/100 000 in 1999) than in the EU (average 19.5/100 000 in 1998). The largest number of midwives was reported for Bulgaria (66.9/100 000 in 1999).



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GLOSSARY

Incidence rate: the number of new cases of a disease occurring in a population per 100 000 people during a specified period (usually 1 year).

Infant mortality rate: the yearly number of deaths of children aged less than 1 year per 1000 live births.

Life expectancy at birth: an estimate of the average number of years a newborn child can expect to live provided that the prevailing age-specific patterns of mortality at the time of birth were to stay the same throughout the child's life.

Prevalence rate: the total number of people in a population who have a disease or any other attribute at a given time or during a specified period per 100 000 of that population.

Purchasing power parity (PPP): a standardized measure of the purchasing power of a country's currency, based on a comparison of the number of units of that currency required to purchase the same representative basket of goods and services in a reference country and its currency (usually US dollars). The EU uses the purchasing power standard to measure this.

Standardized death rate (SDR): a death rate (usually per 100 000 population) adjusted to the age structure of a standard European population.

Total fertility rate: the average number of children that would be born alive per woman during her lifetime if she were to bear children at each age in accordance with prevailing age-specific birth rates.

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