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 crude birth rate per 1000 population has decreased in the Czech Republic as in all reference countries\(^1\), and the crude natural growth rate has been negative since 1994.

The Czech Republic has the second longest life expectancy at birth among the reference countries after Slovenia, both for males and females. Male life expectancy is some seven years shorter than that for females. Among the reference countries, this gender difference has only decreased in Slovenia and the Czech Republic. The Czech Republic now has the smallest gender difference among the reference countries.

The SDR (standardized death rate) for cardiovascular diseases in the age group 0–64 is the second lowest among the reference countries, though still twice the EU average. Of particular note is the SDR for cerebrovascular diseases which has decreased by 52% between 1985 and 1999, the largest decrease among the reference countries. However, some of this decrease may be caused by changing coding practice, since the SDR for other cardiovascular diseases excluding ischaemic heart disease and cerebrovascular disease increased after the introduction of the tenth version of the International Classification of Diseases (ICD) in 1994. The decrease in overall cardiovascular mortality is connected with improving eating habits, accessibility of new medication and increased rates of coronary surgery.

The male SDR for cancer in the age group 0–64 was the highest among the reference countries in mid-1980s, but has since decreased equalling the average of the reference countries in 1999. The female SDR for cancer is among the highest among reference countries, though it has also fallen in the 1990s.

The SDR for infectious and parasitic diseases for all ages is the lowest, and the SDR for respiratory diseases for all ages is one of the lowest among the reference countries. Both rates are below the EU average. The incidence of syphilis, however, has risen throughout the 1990s.

The SDR for external causes for all ages has been decreasing since the mid-1980s, particularly for women. The SDR for homicides is one of the lowest among the reference countries.

The infant mortality rate has more than halved since 1985. The rate in 1999 was the lowest among the reference countries along with Slovenia, and even smaller than the EU average. The Czech maternal mortality rate has also declined significantly and the current rate is the lowest among the reference countries and is also below the EU average.

In the late 1990’s the proportion of smokers was one of the lowest among the reference countries, whereas the number of cigarettes consumed annually per person was amongst the highest.

Alcohol consumption has increased and the Czechs have one of the highest consumption figures among the ten reference countries. Since 1993, Czech consumption has exceeded the EU average. Surveys in 1995, repeated in 1999, show the use of cannabis by young people to be the highest among the reference countries.

The reconstruction of the health care sector in the 1990s and the introduction of a health insurance system in 1992 have been implemented without major difficulties.

The number of hospital beds per 100 000 population is higher than in the EU or in the reference countries on average. The number of physicians per 100 000 population is also higher than the average of reference countries, but lower than the EU average.

\(^1\) 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.
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 the Czech Republic, 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, 2001). 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 PEOPLE

The dissolution of the Czechoslovak state came into effect at midnight on 31 December 1992, with the consequent formation of Czech and Slovak Republics.

According to the Czech Constitution of 1 January 1993, the parliament consists of a 200-member House of Representatives and an 81-member Senate. The members of the House of Representatives are elected for four-year terms by proportional representation. There is a 5% threshold, and votes for parties failing to achieve this are redistributed on the basis of results in each of the eight electoral districts. The main function of the Senate is to scrutinise proposed legislation. The senators are elected for six-year terms in single-member districts. 27 senators are elected every second year.

Both chambers of the parliament elect the President of the Republic for a five-year term. The President has to be at least 40 years of age. The President nominates the Prime Minister at the suggestion of the Speaker.

The number of administrative regions in the countries has recently been increased from eight to fourteen. Regional authorities have the power to raise local taxes and have the responsibility for roads, schools, utilities and public health.

The Czech Republic is a member of the United Nations, the Organization for Economic Co-operation and Development, the Central European Free Trade Area, the Council of Europe and the Central European Initiative, and it is an associate member of the European Union and an associate partner.

Table 1. Czech Republic and the reference countries (1999)

<table>
<thead>
<tr>
<th></th>
<th>Czech Republic</th>
<th>Reference countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital</td>
<td>Prague</td>
<td>Average/total</td>
</tr>
<tr>
<td>Population</td>
<td>10 282 800</td>
<td>104 617 900</td>
</tr>
<tr>
<td>Population 0–14 years (%)</td>
<td>16.8</td>
<td>18.7</td>
</tr>
<tr>
<td>Population 15–64 years (%)</td>
<td>69.4</td>
<td>68.6</td>
</tr>
<tr>
<td>Population ≥ 65 years (%)</td>
<td>13.8</td>
<td>12.7</td>
</tr>
<tr>
<td>Area in km²</td>
<td>78 866</td>
<td>1 078 066</td>
</tr>
<tr>
<td>Density per km²</td>
<td>130</td>
<td>97</td>
</tr>
<tr>
<td>Urban population (%)</td>
<td>75</td>
<td>64</td>
</tr>
<tr>
<td>Births per 1000 population</td>
<td>8.7</td>
<td>9.7</td>
</tr>
<tr>
<td>Deaths per 1000 population</td>
<td>10.7</td>
<td>11.3</td>
</tr>
<tr>
<td>Natural growth rate per 1000 population</td>
<td>-2.0</td>
<td>-1.6</td>
</tr>
<tr>
<td>GDP per person in US $ PPP</td>
<td>13 125</td>
<td>8 369</td>
</tr>
</tbody>
</table>

GDP: gross domestic product; PPP: purchasing power parity

---

2 These introductory paragraphs are based on the material from The statesman’s yearbook (Turner, 2000).
of the Western European Union. An application to join the European Union was made in January 1996. Czech Republic became a full member of NATO in March 1999.

Demography
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 the age groups of 0–14 years, 25–29 years, 35–39 years and 60–64 years were proportionally smaller and the age groups of 20–24 years, 45–54 years and 70 years or more were larger than the average of reference countries. This reflects a generally older population structure than the reference country average.

The natural growth rate in the Czech Republic was higher than the EU average in 1973–1980, but it has remained below the EU average since then. Between years 1983 and 1993, the natural growth rate varied between 0.1 and 0.7 per 1000 population, but became negative in 1994. In 1999, the Czech natural growth rate (-2.0/1000 population) was smaller than the average of the reference countries (-1.1/1000), and well below the EU average (+0.9/1000 in 1997) (Fig. 2).

The fertility rate has fallen under the replacement level in the Czech Republic (1.1 in 1999) like in all other reference countries (average 1.3, variation from 1.1 to 1.4).

Fig. 1. Age pyramid, 1986 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.

According to the 1991 Census, 81.2% of the population is Czech, 13.2% Moravian and 3.1% Slovak. There are also smaller ethnic groups, such as Poles, Germans, Silesians, Roma and Hungarians, and their proportion of total population varies between 0.2% and 0.5% (Turner, 2000).

Between 1994 and 1996, the registered net migration was 10 000 persons, which may not be a reliable figure because of incomplete data. The main emigration countries have been the Slovak Republic, Germany, the United Kingdom and the United States (Council of Europe, 1997). The number of immigrants from Ukraine and Vietnam has increased during the last years (Council of Europe, 1998). Even though the number of foreigners has been increasing rapidly in the 1990s, their proportion (2%) is still relatively low in the Czech Republic (Council of Europe, 1997).

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 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 ratio 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 the Czech Republic, enrolment in secondary education was high in the 1990s, and the net enrolment ratio of 1996 for secondary education was the highest among the reference countries, at 87%, compared with an average of 79% (UNESCO, 1999).

The Czech gross domestic product (GDP) adjusted for purchasing power parity (PPP) was US $6 570 in 1991. Until 1999, it increased to US $13 125, which was the second highest GDP among the reference countries after Slovenia, though only 59% of the EU average.

National statistics show that real wages in the Czech Republic declined in the early 1990s by more than a fifth, but returned to the level of 1989 in 1996. In the same year, the distribution of earnings was reported to be the most equal in the Czech Republic among the reference countries (United Nations Economic Commission for Europe, 1999).

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).
Industry is still the main sector of the Czech economy, though the importance of services has increased during the 1990s. In 1993, 63% of employed were working in industry, 27% in services and 10% in agriculture (Turner, 2000). According to preliminary figures for 1997, 44% of the GDP came from industry, 51% from services and 5% from agriculture (United Nations Economic Commission for Europe, 1999).

The official unemployment rate in the Czech Republic was 8.7% in 1999, which was one of the lowest rates among the reference countries and below the EU average (10.3%). 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 central and eastern Europe. In the Czech Republic, inflation peaked at 57% in 1991 and again at 21% in 1993, but otherwise it has remained below 11%. By 1999, the Czech inflation rate was the lowest among the reference countries, only 2.1%.
HEALTH STATUS

A comparison with the development in the reference countries (Fig. 3) shows the following main features:

- The position of the Czech Republic in relation to the reference group of countries is generally good and has improved in almost every case. The only exception is mortality from motor vehicle traffic accidents, where the relative position has deteriorated from being the best among the group.
- Cancer (lung cancer in particular) is the only disease area where health indicators for the Czech Republic are poor in relation to the reference countries.

### Fig. 3. Czech Republic relative to reference countries in 1985 and in 1999

<table>
<thead>
<tr>
<th>BEST</th>
<th>WORST</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>POSITION</strong></td>
<td>1</td>
</tr>
<tr>
<td>Life expectancy at birth (years)</td>
<td>😊</td>
</tr>
<tr>
<td>Male versus female difference in life expectancy at birth (years)</td>
<td>😊</td>
</tr>
<tr>
<td>Infant mortality rate per 1000 live births</td>
<td>😊</td>
</tr>
<tr>
<td>Maternal mortality rate from all causes per 100 000 live births&lt;sup&gt;c&lt;/sup&gt;</td>
<td>😊</td>
</tr>
<tr>
<td>SDR&lt;sup&gt;d&lt;/sup&gt; from cardiovascular diseases, age 0–64 years</td>
<td>😊</td>
</tr>
<tr>
<td>SDR from ischaemic heart disease, age 0–64 years</td>
<td>😊</td>
</tr>
<tr>
<td>SDR from cerebrovascular disease, age 0–64 years</td>
<td>😊</td>
</tr>
<tr>
<td>SDR from cancer, age 0–64 years</td>
<td>😊</td>
</tr>
<tr>
<td>SDR from trachea/bronchus/lung cancer, age 0–64 years</td>
<td>😊</td>
</tr>
<tr>
<td>SDR from cancer of the cervix among females aged 0–64 years</td>
<td>😊</td>
</tr>
<tr>
<td>SDR from breast cancer among females aged 0–64 years</td>
<td>😊</td>
</tr>
<tr>
<td>SDR from external causes of injury and poisoning</td>
<td>😊</td>
</tr>
<tr>
<td>SDR from motor vehicle traffic accidents</td>
<td>😊</td>
</tr>
<tr>
<td>SDR from suicide and self-inflicted injury</td>
<td>😊</td>
</tr>
</tbody>
</table>

- 😊 Position improved 12 (indicators)
- 😐 Position unchanged 1 (indicators)
- 😞 Position deteriorated 1 (indicators)

<sup>a</sup> Lowest value observed among ten reference countries

<sup>b</sup> Highest value observed among ten reference countries

<sup>c</sup> Three-year averages

<sup>d</sup> SDR: standardized death rate

Life expectancy

Czech life expectancy at birth has been one of the highest among the reference countries since 1970 and the Czech Republic was placed second after Slovenia in 1999. The difference between the EU and the Czech Republic, which arose in the 1970s and 1980s due to slow progress in the Czech Republic, has decreased again in the 1990s. In 1997, EU average life expectancy was some four years longer than the Czech Republic (Fig. 4–6).

The gender difference in life expectancy has increased in all reference countries except in the Czech Republic and Slovenia. In 1999, the difference was somewhat below seven years in the Czech Republic. This was the smallest gender difference among the reference countries and only slightly higher than the EU average of 6.4 years (1997).

National statistics have shown that there are significant differences in health between the regions, so that the worst health – for example measured by life expectancy – is recorded in heavily industrialized areas and in large city conurbations (Ministry of Health, 1997).
Fig. 6. Life expectancy at birth in years, latest available data

- Switzerland (1997)
- Sweden (1996)
- France (1997)
- Italy (1997)
- Iceland (1996)
- Spain (1997)
- Norway (1997)
- Austria (1999)
- Israel (1997)
- Greece (1998)
- EU (1997)
- Netherlands (1997)
- Germany (1998)
- Luxembourg (1997)
- United Kingdom (1998)
- Malta (1999)
- Belgium (1995)
- Finland (1996)
- Denmark (1996)
- Ireland (1996)
- Slovenia (1999)
- Portugal (1998)
- Austria (1998)
- Czech Republic (1999)
- Armenia (1999)
- Croatia (1999)
- FYM (1997)
- Bosnia and Herzegovina (1991)
- Lithuania (1999)
- Poland (1996)
- CCEE (1999)
- Georgia (1994)
- Slovakia (1999)
- Azerbaijan (1999)
- Bulgaria (1999)
- Estonia (1999)
- Hungary (1999)
- Romania (1999)
- Latvia (1999)
- Turkey (1998)
- Uzbekistan (1998)
- Tajikistan (1995)
- Kyrgyzstan (1999)
- Ukraine (1999)
- Belarus (1999)
- Republic of Moldova (1999)
- NIS (1998)
- CAR (1998)
- Turkmenistan (1998)
- Russian Federation (1999)
- Kazakhstan (1999)

CAR: the central Asian republics
CCEE: the countries of central and eastern Europe
EU: the countries of the European Union
FYM: the former Yugoslav Republic of Macedonia
NIS: the newly independent states of the former USSR
**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.

Mortality rates for those aged under 35 are low by the standards of the reference countries. Even mortality in those aged 35 and over is below the average level of the reference countries, but the large contribution of cardiovascular disease and cancers is evident (Fig. 7–8).

---

**Fig. 7. Standardized death rates in Czech Republic, in the reference countries and in the EU, age group 35–64 years**

<table>
<thead>
<tr>
<th></th>
<th>Per 100 000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All other causes</strong></td>
<td>EU average (1997) 203.2 Referenc</td>
</tr>
<tr>
<td><strong>Cancer</strong></td>
<td>EU average (1997) 208.5 Referenc</td>
</tr>
<tr>
<td><strong>CV D</strong></td>
<td>EU average (1997) 166.1 Referenc</td>
</tr>
</tbody>
</table>

**Fig. 8. Standardized death rates in Czech Republic, in the reference countries and in the EU, age group 65+ years**

<table>
<thead>
<tr>
<th></th>
<th>Per 100 000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All other causes</strong></td>
<td>EU average (1997) 1704.5 Referenc</td>
</tr>
<tr>
<td><strong>Cancer</strong></td>
<td>EU average (1997) 1540.1 Referenc</td>
</tr>
<tr>
<td><strong>CV D</strong></td>
<td>EU average (1997) 2476.9 Referenc</td>
</tr>
</tbody>
</table>
Cardiovascular diseases

In 1970, the Czech Republic had the highest SDR among the reference countries for cardiovascular diseases for males aged 0–64 years. The SDR remained constant during the following decade, but the decrease observed in the 1990s was one of the greatest among the reference countries improving the country’s relative position. By 1999, the Czech SDR was the second lowest after Slovenia, still almost double the EU average (Fig. 9).

For females aged 0–64 years, the SDR was already one of the lowest among the reference countries in the 1970s. The decrease started earlier than for men – in the mid-1980s – and the Czech Republic had the second lowest SDR after Slovenia in 1999. However, also the Czech SDR for females is also double the EU average (Fig. 10).
The EU average SDR for ischaemic heart disease among the population aged 0–64 has been declining since the 1970s, but the decline started much later or the trend has even been increasing in the reference countries. In the Czech Republic, the decrease started in the early 1990s, since when it has decreased by 44%. However, it remains much higher than the EU rate (Fig. 11).

The SDR for cerebrovascular diseases in the age group 0–64 in the reference countries continues to exceed the average of the EU. This is also true for the Czech Republic, where the rate remained at the same level until 1984, since when it has more than halved. Though one of the lowest rates among the reference countries, it still is higher than the EU rate (Fig. 12).

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 the Czech male population aged 0–64 years was the highest among the reference countries in the 1970s and the mid-1980s. However, the SDR has decreased since 1985, while they have increased in some other reference countries. Though the Czech position among the reference countries has improved, the difference from the EU average has not reduced (Fig. 13, 14).

A similar pattern was found for women in the same age group. The Czech SDR was one of the highest until the mid-1980s from when it has continuously decreased approaching the
average of the reference countries. As for males, the difference between the Czech and EU rate has been relatively constant (Fig. 15).

The most frequent cancers for men in the Czech Republic are cancer of skin (20% of all new cases in 1995, though rarely life-threatening) and cancer of trachea, bronchus and lung (17%). Cancer of skin is also the most frequent cancer (19%) for women, followed by breast cancer (17%).

Between 1993 and 1995, the number of new cases of cancer of skin has increased by 7% among men and by 10% among women. Prostate cancer (an increase of 6%), cancer of colon (5%) and cancer of rectum, rectosigmoid junction and anus (4%) have also become more common (Ministry of Health, 1997).

Other natural causes of death

The SDR for infectious and parasitic diseases dropped very sharply in the reference countries and in the EU during the 1970s and the early 1980s. The SDR in the Czech Republic has been the lowest among the reference countries and even below the EU rate since the 1970s. There has been no increase similar to those experienced in some reference countries in the late 1980s and the 1990s.

The Czech SDR for diseases of the respiratory system was higher than the EU rate in the 1970s, but started to decrease in the 1980s and reached the EU average in 1987. The decline in the Czech Republic has continued, while the EU rate has been static. The Czech rate was almost a third lower than the EU rate in 1997 (Fig. 16).

The Czech SDR for diseases of the digestive system was higher than the average of the reference countries and equal to the EU average in the mid-1970s. Since then, the Czech and EU rates have declined, while the average rate of the reference countries has increased. The Czech SDR remained clearly below the rate of the reference countries in 1999.

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 men in the Czech Republic has declined from 1970, when it was one of the highest of the reference countries (excluding the three Baltic states with high SDRs in the 1990s) to one of the lowest in 1999, but the difference from the EU has increased due to a declining EU rate (Fig. 17).
Women generally have significantly lower SDRs for external causes than men. In 1999, Czech males had a SDR for external causes that was 2.7 times the rate for women. The Czech SDR for external causes has been higher than in the reference countries in general, but the rate has declined by almost one third since the mid-1980s, the greatest decrease among the reference countries. Though this decline was larger than in the EU, the Czech SDR for women in 1997 was still more than 70% higher than the EU rate (Fig. 18–19).

The Czech SDR for homicide and purposeful injuries is now the lowest among the reference countries, but still some 50% higher than the EU average. These SDRs were equal for both sexes in the late 1980s. However, both rates increased rapidly in the early 1990s, but this increase was more prominent for males. Though the SDRs have declined since 1993, the male rate remains higher than the one of the female.

The SDR for motor vehicle traffic accidents in the Czech Republic was relatively low, but increased in the late 1980s. The SDR reached the EU average in 1992, and comparable data from 1993 to 1999 were almost one fifth higher than the EU average⁴.

**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 Czech SDR for suicide and self-inflicted injury for men was relatively high in the 1970s, but has fallen, reaching the average of reference countries in the mid-1980s. The decrease has continued since then and the difference from the EU rate has diminished, because the decline in the EU has been much smaller (Fig. 20).

Women generally have lower suicide rates than men, which is also true for the Czech Republic. The Czech suicide rate for women almost halved since the mid-1980s, the largest decrease among the reference countries. The Czech rate used to be greater than the EU rate, but the latest figures show that this difference has disappeared.

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⁴ Mortality rates for motor vehicle traffic accidents in 1994–1998 are underreported due to problems to gather the information by using ICD-10 classification.
In 1999 there were 99,000 newly notified cases of mental diseases in the Czech Republic, in outpatient departments and establishments. The most common causes were a variety of neurotic disorders, accounting for two out of five cases (Institute of Health Information and Statistics, 2000).

**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 the Czech Republic the incidence of AIDS (0.2/100,000 population in 1999) is one of the lowest among the reference countries, much lower than the EU average of 2.5/100,000 (Fig. 21). The largest transmission groups in the Czech Republic have been homo/bisexual contacts (67%), heterosexual contacts (17%) and contaminated blood products (9%). Some transmissions from injected drugs (1.5%), but no mother-child transmissions have yet been reported (European Centre for the Epidemiological Monitoring of AIDS, 2000).

The Czech incidence of tuberculosis was much higher than that of the EU in the 1970s, but it has decreased remarkably since then. In the 1990s, the Czech Republic had the lowest incidence of tuberculosis among the reference countries, almost as low as in the EU (Fig. 22). The incidence of syphilis increased from 2 per 100,000 population the early 1990s to 7 per 100,000 population in 1999. This rate is still one of the lowest among the reference countries, but more than six-fold the EU rate. The
incidence of viral hepatitis per 100,000 population in the Czech Republic has been among the lowest in the reference countries and equalled the EU level. The incidence of pertussis is also one of the lowest, much lower than the EU rate. There has been no epidemic of diphtheria in the Czech Republic.

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).

Invalidity benefits were paid for 374,300 Czechs (3.6%) and partial invalidity benefits for 145,900 Czechs (1.4%) in 1999. The prevalence of both benefits increased by age until retirement. The prevalence for receipt of full invalidity benefit was the highest in the age group of 60–64 years, both for men (13.0%) and for women (9.9%), while most partial invalidity benefit was paid to the younger age group of 50–54 years (5.7%) (Institute of Health Information and Statistics, 2000).

The average percentage of incapacity in work due to disease or injury has grown from 4.4% in 1985 to 6.0% in 1999. Incapacity is more common among women (6.6%) than men (5.4%) (Institute of Health Information and Statistics, 2000). The highest increase was reported in the areas with the highest unemployment rates, not in those areas with the highest external health risks, mainly caused by pollution (Ministry of Health, 1997).

According to a 1996 interview survey, almost 90% of respondents reported that they had no limiting disease. Only 1–3% of people below 35 years reported a limiting disease, but this proportion increased with age. In total, 16% of men and 21% of women aged 55–74 years, and 39% of men and 50% of women aged 75 years or more reported at least one limiting disease. Overall, long-term disability, measured by an inability to perform one or more activities of daily living without help, was reported by 22% of men and 31% of women (Institute of Health Information and Statistics, 1998b).

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%), while the Czech Republic was placed in between (46%). The large observed variation may be caused by the differences in study settings, in data collection or by cultural differences. Overall, 11.8% of men and 13.3% of women assessed their health as bad or very bad in the Czech Republic.

In all countries, men assessed their health as being good more often than women did. In the Czech Republic, this proportion was 51% for males but only 41% for females. There were only minor gender differences in the age groups below 35 years, 55–64 years and above 75 years, but marked differences were found in the age groups 35–44 years (48% of men, but only 40% of women assessed their health as good), 45–54 years (36% and 22%) and 65–74 years (18% and 5%). Good self-assessed health was not related to the educational level for males (variation from 46% to 54%). A different pattern was found for females: only a third of women with either primary or vocational education assessed their health as good, whereas the same proportion was 48% for women with secondary or higher education (Institute of Health Information and Statistics, 1998b).

Health of children and adolescents
The infant mortality rate decreased in almost all reference countries between 1985 and
The Czech infant mortality rate has more than halved from 12.3 to 4.6 per 1000 live births since 1985, which was one of the largest decreases among the reference countries. The Czech rate is now similar to the EU average (Fig. 23).

The main causes of infant mortality in the Czech Republic 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 deaths. The Czech Republic follows the western European pattern, since the proportion of perinatal conditions and malformations is high (86%). However, the proportion of deaths due to sudden infant death syndrome is considerably lower (4%) than in the EU, and these cases may be classified under other causes of death. The proportion due to external causes in the Czech Republic (5.1%) is double the proportion in the EU (2.6%).

The proportion of children that weighed less than 2500 grams has often been used as an indicator for newborn health and perinatal care. The proportion of low birth-weight children was 5.9% in Czech Republic in 1999, which was slightly below the EU average (6.3% in 1995) and much below the average for the reference countries (7.3% in 1999) (Fig. 24). The main problems related to perinatal and infant health are the high mortality and morbidity of newborns weighing less than 1000 grams, and the increasing frequency of Caesarean sections (Ministry of Health, 1997).

Children in most of the reference countries have good immunisation coverage. This is particularly true for the Czech Republic, which reported coverage rates between 95% and 98% for all immunisation programmes. These were among the highest coverage percentages in the reference countries.

Breast-feeding has become more common during the 1990s. While 28% of newborns were breast-fed at the age of three months and 9% at the age of six months in 1993, these proportions had increased to 45% and 21% respectively six years later.

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 pro-
gess was slowed by economic problems (Ainscow & Haile-Giorgis, 1998).

Up to 70% of total morbidity in children are caused by acute respiratory diseases. Epidemiological studies have estimated that 7–10% of these cases may be related to air pollution, but this proportion may exceed 20% in the most heavily polluted areas. Besides acute respiratory diseases, allergies are also reported to be increasing among children. A survey performed in 1996 reported that 13% of five years old children and 19% of 13 years old suffer from some form of allergy (Ministry of Health, 1998).

Over the last decade, children’s oral health has generally improved in the reference countries and in the EU. In the Czech Republic, the DMFT-index (the number of decayed, missing or filled teeth) was already one the lowest among the reference countries in the mid-1980s, and declined from 3.4 to 2.7 in 1993. The situation has since deteriorated, with the most recent figure for the Czech Republic being 3.2 (1997).

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 14 in the Czech Republic, which was among the lowest in the reference countries, though still twice the EU average (Council of Europe, 1999). The birth rate in this age group has been declining in nearly all the reference countries since 1980. In the Czech Republic this decrease was 69%, one of the greatest among the reference countries.

**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 the Czech Republic, the female SDRs for cancer and for diseases of the circulatory system in the age group 0–64 were respectively 42% and 67% lower compared to males. 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 the Czech Republic, the maternal mortality rate has fallen significantly from 11.6 to 6.3 per 100 000 live births between the mid-1980s and the late 1990s. The most recent rate (1997–1999) is the lowest rate among the reference countries, and below the (1995–1997) EU rate of 6.6 per 100 000 live births (Fig. 25).

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 1994, 43% of women aged 15–44 years used no contraceptive method, 27% relied on withdrawal and 6% the rhythm method, and in 1996 the contraceptive prevalence rate was still only 35% (WHO, Regional Office for Europe, 2000a). As a consequence the number of induced abortions was usually much higher than in western European countries. The annual number of abortions in the Czech Republic declined by 65% from 107 100 in 1990 to 37 200 in 1999. Since the
proportional decline in the number of live births was smaller (31%), the number of induced abortions per 1000 live births has declined significantly. Even though the Czech rate was the lowest among the reference countries with liberal abortion legislation, it is still more than double the EU rate (Fig. 26).

The SDR for breast cancer among females in the Czech Republic remained above the average of the reference countries until 1995, subsequently declining below the average of the reference countries. The Czech rate has also remained below the EU rate (Fig. 27).

The Czech SDR for cancer of the cervix has slowly declined since the mid-1980s. This decline was the greatest among the reference countries, almost as large as that in the EU. In 1999, the Czech rate was one of the lowest in the reference countries, but still more than double the EU average (Fig. 28).

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 injuries for women can be used as a surrogate indicator. Between 1985 and 1998, the Czech female SDR for homicide and purposeful injuries first increased, but decreased afterwards, especially after 1994. By 1999, the Czech Republic had the second lowest rate among the reference countries (1.0 per 100 000 women), though still higher than the EU rate (0.6 per 100 000 women in 1997).
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**

Smoking prevalence among the Czech population aged 15 years or more declined in the 1990s, and was among the lowest of the reference countries in the mid-1990s (Fig. 29). In 1996, the prevalence of smoking was 24%; almost every third man, but only every sixth woman was a regular smoker, with 13% of males and 4% of females classed as heavy smokers. In a survey performed in Prague in 1994, the prevalence among physicians was slightly higher than among the general population, but much higher prevalences were found among paramedics (43%) and nurses (49%).

According to a school questionnaire survey performed in 1996–1997, 22% of boys and 18% of girls aged 15 smoked at least once a week. These were higher percentages than in the comparable survey in 1985 (WHO Regional Office for Europe, 1997 and 2000b, Institute of Health Information and Statistics, 1998b). The annual consumption of cigarettes per person in the Czech Republic was stable...
and equalled the EU level until the late 1980s, but increased during the 1990s. The latest figures are among the highest in the reference countries (1850), some 10% higher than the EU average (1650). In some countries of central and eastern Europe, increased black market sale or illicit importation of tobacco products make the interpretation of such figures more difficult.

The 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. Until the mid-1980s, the Czech SDR for these causes was the highest among the reference countries. It has decreased by 15% since then but is still amongst the highest of the reference countries (Fig. 30). Since men smoke more than women, there are large gender differences in SDR for lung cancer. Different trends are observed by gender: while the SDR for males have decreased by a quarter, that for females has increased by 60%, one of the highest among the reference countries. Despite the decreasing SDR for Czech men, their rate is still five times the female rate.

Alcohol consumption
Registered alcohol consumption in the Czech Republic was lower than the average EU consumption in the 1970s and 1980s. In the late 1980s, however, Czech consumption started to increase, exceeding the EU rate by 1993. In 1997, the difference was slightly more than 0.5 litres (10.0 and 9.4, respectively) (Fig. 31). Consumption data for the Czech Republic seem to be more reliable than for some other reference countries whose reported data may be incomplete due to problems to register alcohol consumption.

According to sales data, the registered consumption of spirits in the Czech Republic has been stable varying between 3.1 and 3.6 litres since the late 1970s, while the consumption of beer increased from 133 to 159 litres and the consumption of wine from 12 litres to 17 litres since 1986 (Produktshop voor Gedistilleerde Dranken, 2000). A national survey performed in 1987–1988 reported that 23% of men and 8% of women aged 20–49 were heavy drinkers consuming more than 350 grams (men) or 140 grams (women) pure alcohol weekly. By 1993, the proportion of men drinking heavily had increased to 28% (WHO Regional Office for Europe, 1997). In 1996, heavy alcohol consumption – measured by different criteria: at least 264 grams alcohol per week for men and 180 grams for women – was observed for 16% of men and for 2% of women (Ministry of Health, 1998). In the same study, 64% of men and 39% of women reported that they had consumed alcohol during the last week (Institute of Health Information and Statistics, 1998b).

Fig. 31. Annual alcohol consumption per person in litres of pure alcohol
Fig. 32. Trends in mortality from chronic liver disease and cirrhosis
Almost a fifth of girls and a third of boys aged 15 years drank alcohol at least once a week according to school questionnaire surveys in the 1990s (WHO Regional Office for Europe, 1997 and 2000b).

The number of deaths due to chronic liver disease and cirrhosis can be used to give an indication of the harmful effect of alcohol. The Czech SDR for chronic liver disease and cirrhosis was below the EU rate until the mid-1980s, but exceeded it in the period 1987–1993. Since then, the rates have been relatively similar (Fig. 32). The trend was similar for both sexes, but men had a higher mortality than women, the male Czech SDR being almost three 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.

A school survey performed in 1994 showed that 34% of pupils aged 15–18 in the Czech Republic had used illicit drugs, 13% regularly. About half of young people aged 25 years had tried drugs, usually marijuana. Of the population aged 15–64, 13% reported using cannabis at least once. In 1993, 4% of boys and 2.5% of girls in elementary school (aged 14 years) and 7% of boys and 5% of girls in secondary school (aged 16 years) had tried cannabis (WHO Regional Office for Europe, 1997).

According to the 1995 ESPAD-survey (European School Survey Report on alcohol and other drug use among 15 to 16 year-old) 25% of boys and 18% of girls had used cannabis at least once (Hibell et al., 1997). In the corresponding survey in 1999, the total percentage had increased to 35%, which was again the highest among the reference countries. In addition, 10% of boys and 8% of girls reported that they had used other drugs. This was slightly below the average of the reference countries (Hibell et al., 2000).

Increasing use of heroin has been reported among higher social groups in Prague, northern Moravia and Bohemia since 1993. There are estimated to be some 3000–4000 hard drug users (including LSD and methamphetamines), of whom a quarter inject. In 1994, 1.5% of 15–64 years old reported that they had used opiates at least once, and more than half of these reported use in previous month. There is some use of cocaine among adults in major cities. Prescribed sedatives are most common among those treated in outpatient units, particularly women.

Many illicit drugs are locally produced, but the Czech Republic is increasingly a transit country, as well as a destination country. Arrests for manufacture and distribution of drugs tripled between 1992 and 1994 (WHO Regional Office for Europe, 1997).

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 Organization (FAO) of the United Nations5. Typical for northern Europe is a high availability of saturated fat and a low availability of fruit and vegetables. This pattern is reversed in southern Europe.

The FAO data from the Czech Republic suggests a broadly northern European diet, with a relatively high availability of animal fats and

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5 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.
sugar and a low availability of fruits and vegetables. However, home-grown fruits and vegetables may not be recorded in this data. The availability of cereals is between the southern and northern diet.

A national survey estimated that the Czechs have a higher consumption of fats, meat, fish and eggs (especially among men) and a lower consumption of vegetables than the general nutritional recommendations. The consumption of fruits followed recommendations, but women consumed too little milk products and men too little cereals (Brázdová and Fiala, 1998). However, some positive changes in food consumption – such as increased consumption of vegetables, fruits, chicken and rabbit meat and decreased consumption of pork, dry sausages, butter, eggs and sugar – have been observed, especially among women (Ministry of Health, 1998).

The moderate use of animal fats is confirmed by the fact that the average proportion of energy derived from overall fat is estimated to be 32%, slightly more than the average of reference countries (29%), but significantly less than in the EU (39%).

**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. Most Czechs report physical activity during leisure time. In total, 8% of men aged 15 reported hard training, 22% recreational sport and 32% light activities in 1996. For women, these proportions were 1%, 14% and 37%, respectively. As expected, the frequency of physical activity decreases with age. In the age group 15–24, men undertook physical activity 2.1 times and women 1.6 times a week, while the same figures were 0.8 and 0.4 in the age group 55–64 (Institute of Health Information and Statistics, 1998b).

**Overweight**

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

A Czech Health Interview Survey performed in 1996 reported that 10.5% of males and 12.1% of females had a BMI greater than 30, which indicates obesity. The proportions overweight (BMI greater than 25) were the highest among men aged 45–54 years (19%) and women aged 65–74 years (28%). Some 3% of males and 11% of females had a body-mass index below 20 indicating underweight (Institute of Health Information and Statistics, 1998b).
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). In Czech Republic, the development of the NEHAP has been coordinated by the Ministry of Health in cooperation with the Ministry of Environment and Ministry of Agriculture (Ministry of Health, 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.

According to the most recent data, the variation in terms of reported cases between the reference countries is large (from less than one person affected by microbial foodborne outbreaks per 100,000 population in Estonia to 585 per 100,000 in the Czech Republic in 1999). The number of cases of microbial foodborne diseases in the Czech Republic increased five-fold before the mid-1990s. This has been explained by the increase of the number of poorly qualified workers in the food industry due to extensive changes of owners, dealers and producers. This situation is thought to have improved, since representative monitoring of contaminants in food was introduced in the mid-1990s (Ministry of Health, 1997). A continuing problem, however, is the great number of salmonella cases (Ministry of Health, 1998).

Air quality

A significant improvement in air quality was reported between the years 1994 and 1995. For example the emission of principal gaseous pollutants decreased by almost 10% and the overall emission of solid substances by more than 40%. Even though the area of forests damaged by air pollutants is reported to be high, in total 62%, for more than 90% of these areas only a low degree of damage has been reported and

<table>
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<th>Czech Republic</th>
<th>Reference countries</th>
<th>EU countries</th>
</tr>
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<tbody>
<tr>
<td>Sulphur dioxide</td>
<td>105.6</td>
<td>68.3</td>
<td>31.5</td>
</tr>
<tr>
<td>Nitrogen dioxide</td>
<td>39.9</td>
<td>25.3</td>
<td>32.4</td>
</tr>
<tr>
<td>Ammonia</td>
<td>8.3</td>
<td>10.7</td>
<td>9.4</td>
</tr>
<tr>
<td>Carbon monoxide</td>
<td>84.6</td>
<td>99.1</td>
<td>119.3</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>11 679</td>
<td>7 555</td>
<td>8 499</td>
</tr>
<tr>
<td>Methane</td>
<td>71.0</td>
<td>56.5</td>
<td>61.4</td>
</tr>
</tbody>
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the proportion of forests with more serious damages has been stabilized (Ministry of Health, 1997).

Despite this positive trend, the Czech Republic had the highest emissions per person for nitrogen dioxide and methane among the reference countries in 1995. Only for ammonia, were Czech emissions lower than the reference countries’ average. Czech emissions of ammonia and carbon monoxide remain below EU levels (United Nations Economic Commission for Europe, 1999).

The levels of organic pollution from ammoniac nitrogen and phosphates along the main river courses have generally decreased, while the level of nitrates have not changed. Improvements have not yet been seen on smaller watercourses. Registered pollution incidents into watercourses have also decreased. Apparent acidity or alkalinity decreased by 78%, the content of petroleum substances by 69%, that of insoluble substances by 54% and of dissolved inorganic salts by 16% between 1990 and 1995 (Ministry of Health, 1997).

Permitted limits of significant contaminants in drinking water have been exceeded in less than 1% of cases in monitored districts. Direct health damage from water contamination is not believed to occur (Ministry of Health, 1997).

In 1996, the production of waste totalled 92.6 million tons, of which 42% came from industry, 14% from power industry, 7% from agriculture and forestry, 5% from mining and 32% from other sources. Of the total, 6.6 million tons were estimated to be hazardous. Only a small proportion of waste is recycled (Ministry of Health, 1998). The use of unsafeguarded waste dumps (landfills) ended in July 1996 (Ministry of Health, 1997).

The total amount of municipal waste generated decreased by 9% between 1985 and 1995. In the latter year, there were 232 kilograms municipal waste per person, which was the lowest among the five reference countries providing comparable data (United Nations Economic Commission for Europe, 1999).

Local studies indicate that contamination by toxic metals and persistent organic compounds in large cities and industrial estates are a risk for children (Ministry of Health, 1998).

**Housing**

The average estimated size of dwellings in the Czech Republic (46 m²) is below the average of the reference countries (54 m²) and well below the EU average (89 m²). In total, 37% of Czech dwellings were owner-occupied in 1995. This was the lowest percentage among the reference countries and lower than for 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 1990, 97% of Czechs had a water connection (United Nations Economic Commission for Europe, 1999). No comparable data on hygienic sewage disposal were available from the Czech Republic.

Roughly 85–90% of reported incidents of noise pollution are caused by road traffic. Rail transport and rail safety systems also contribute, at similar levels of intensity to noise from road traffic. Air traffic causes noise mainly in the vicinity of Prague-Ruzyňe airport and air force facilities. Industry, building sites and various business facilities including restaurants and entertainment centres, cause annoyance for about 6–8% of residents (Ministry of Health, 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 the Czech Republic, the decline was smaller, 36%.

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 either 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%). In 1999, there were slightly more work-related accidental deaths in the Czech Republic (1.9 per 100,000, a decrease of 30% since 1985) than in the reference countries or in the EU (1.6 per 100,000, a decrease of 28% since 1985).

In 1999, some 1850 newly notified cases of occupational diseases were reported. Men contributed almost two-thirds of the cases. The most common causes were due to long-term excessive load (19% of all cases) and vibration (15%). In addition, 416 occupational diseases of skin, 310 infectious and parasitic occupational diseases and 228 silicosis were reported (Institute of Health Information and Statistics, 2000). Some 400,000 workers (8% of all workers) have working conditions with proven risk factors. The most frequent are noise, fibrogenic dust particles, hazardous chemicals and vibration (Ministry of Health, 1998).
HEALTH CARE SYSTEM

The health care system in the Czech Republic has Bismarckian traditions dating from the Austro-Hungarian Empire. In the 1920s, employees were provided with insurance coverage. Step-by-step, the Czechoslovak health care system was augmented by various forms of insurance and by charity.

In 1948, substantial political changes took place in the country, when the political system was based on communist ideological principles, and the country was linked politically and economically to the former Soviet Union. Almost all property was nationalised, including the institutions of the health care system. When the Act on National Insurance came into force, the different types of insurance were unified, and mandatory insurance – including family members and self-employed – was introduced.

A new System of Unified State Health Care was adopted in January 1952. This centralist system proved reasonably effective in dealing with post-war problems, and at the start of the 1960s, health status in Czechoslovakia was comparatively good. In 1966, the insurance-based financing of health care was replaced with a tax-financed system. The health care delivery system was not affected by the temporary political reforms of 1968, when the Federation of Czech and Slovak Republics was proclaimed.

Health care reforms

From the late 1960s, the Czechoslovak health care system was not able to respond to new health problems, for example those caused by lifestyle and environmental factors. Both the health care system and health indicators stagnated until the late 1980s.

In 1990 and 1991, dramatic liberalisation of the health care system was adopted. The principle of free choice of health care facility was implemented, and regional and district institutes of national health were broken down. Since then, the health care system has become a compulsory insurance model, with a number of insurers financing health care providers on the bases of contracts. The current system has a diminishing role for the state and a developing insurance-based system, based on models used in neighbouring western countries, particularly the Federal Republic of Germany.

| Table 3. Health care resources in Czech Republic and in the reference countries (1999 or latest available) |
|-------------------------------------------------|---------------------------------|-----------------|-----------------|-----------------|
| Hospital beds per 100 000 population            | Czech Republic: 847            | Reference countries: 716 | Minimum: 555     | Maximum: 938    |
| Physicians per 100 000 population              | Czech Republic: 308            | Reference countries: 265 | Minimum: 191     | Maximum: 394    |
| Hospital admissions per 100 population          | Czech Republic: 19.4           | Reference countries: 18.1 | Minimum: 13.8  
  
  *1998*                  | Maximum: 25.4                 |
| Average length of hospital stay in days         | Czech Republic: 11.6           | Reference countries: 10.3 | Minimum: 9.0     | Maximum: 11.9   |
| Total health care expenditure as a percentage of GDP | Czech Republic: 7.6             | Reference countries: 5.6 | Minimum: 2.6  
  
  *1998*                  | Maximum: 7.7                  |

6 This section is largely based on Health care systems in transition. Czech Republic (WHO Regional Office for Europe, 2000c).
Transformation of the health care system has been one part of the general transformation of the Czech society after the political changes in 1989. Key elements of the reforms were de-monopolisation, decentralization and liberalisation. The development of new health services, the remodelling of service structures and organizations, changes in the financing of the health care system, the transformation of the ownership of facilities, and the reform of the education of health care professionals have been important tasks in the reform process.

Priorities for health care reform have been to define the national standard health care package, to develop contracting mechanisms between health care facilities and third-party payers, to introduce a national system of accreditation, to strengthen primary prevention and to strengthen regional health policy.

After 1994, the Czech Ministry of Health proclaimed more concrete objectives including improved quality of care, improved availability and responsiveness, increased efficiency and completion of the legislative programme for health care.

Most of the changes, including the reconstruction of health care facilities and authorities as well as introducing a health insurance system in 1992, have been implemented without major difficulties.

The need to implement regulatory mechanisms following the period of liberalisation was recognised in the mid-1990s, but has not yet been fully addressed. Other problems are the large financial deficit of the system, the need to reduce the number of ambulatory specialists, the need to complete the process of public competition, the improvement of health sector salaries, the over-utilization of secondary and tertiary health services, and the unclear regulation of compensation in the case of occupational accidents. Some health care legislation has only been partially implemented, (Vogler and Habl, 1999).

Health care finance and expenditure
The Czech health insurance system is highly individualised with health care coverage related to individual contributions, which are paid by individuals and by employers, or by the state (for civil servants, military servants, pensioners, unemployed, students, children, pregnant women and prisoners). The premiums are calculated at 13.5% of employee’s income before tax, of which employees pay one third and employers two thirds. The branch Health Insurance Funds collect these premiums. The number of branch health insurance funds companies have decreased from 27 in 1995 to nine in 2000 due to the financial difficulties of some funds and after a minimum size of 50 000 clients was introduced. Health care delivery was reimbursed through a fee-for-service system until 1997. This was found to be inflationary and since then, capped-budgets for hospitals, limitations on service provision for ambulatory specialists, combined capitation and fee-for-service for general practitioners, and new regulatory methods have been introduced.

The state acts as guarantor of the system. There are no excluded groups, and there have been no recent changes in population coverage. Population coverage is based on permanent residence, even including foreign nationals if they are either permanent residents or employed by a Czech-based organization.

In general, any treatment required for cure or improvement of health is approved for reimbursement. In addition, insurance covers preventive examinations of infants and adults as well as standard dental treatments. Health insurance does not include compensation for leave due to sickness, maternity and occupational disease or accident, but these are covered by the separate social insurance system (Vogler and Habl, 1999).

Organizational structure
The Ministry of Health manages universities and regional hospitals and supervises spas. The former parallel health care services of the Ministries of Internal Affairs and Defence have become health insurance companies for their employees, still owning some health care facilities. Districts and municipalities own most hospitals and clinics, with only a few small hospitals being truly private. A range of insurance companies contract with providers for health services on behalf of their subscribers.
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.

Data from 1998 show the proportion of health expenditure of total GDP was below the EU average of 8.6% in all reference countries, but the Czech Republic along with Slovenia reported the second highest proportion (7.2%). The most recent figure from 1999 shows that the proportion has increased in Czech Republic to 7.6% (Fig. 33).

Data on health care expenditure adjusted in purchase power parity (PPP) from 1998 showed that the average of reference countries (US $482) is one fourth of the EU average (US $1849). The Czech Republic had the second highest expenditure after Slovenia, at US $930 in 1998 and US $993 in 1999.

**Primary health care**

Primary health care is organized at municipal level. The District Health Department is responsible for ensuring that the population living in their area has access to primary health care services. Citizens register with a primary health care doctor of their choice. Re-registration is also possible. There are four types of first-contact doctors; general practitioners, paediatricians (GP for children), ambulatory gynaecologists and dentists. In 1995, about 91% of general practitioners, 87% of paediatricians (*Ministry of Health, 1997*) and more than 90% of dentists were in private practice. The entry of physicians into primary health care practice is controlled through licensing by the Medical Chamber and the issuing of permits by the District Health Department. Physicians usually have contracts with all health insurance funds.

The primary health care services include general medical care, maternal and child health, gynaecology, dentistry, home care by nurses and emergency medical services as well as some preventive services such as immunisation and screening. Self-referral to specialists is also possible.

The work of primary health care doctors is still orientated towards curative rather than preventive services. Referral rates to specialists remain high (*Vogler and Habil, 1999*).

**Secondary and tertiary care**

A wide network of hospitals and outpatient establishments covering the entire country was inherited from the previous Czechoslovak health care system. Specialized ambulatory medical services are provided in various forms, mostly in private practices of specialists, but also in hospital outpatient departments. These services are now privately contracted by health insurance companies and are reimbursed on a fee-for-service basis.

Local hospitals account for some 45% of acute hospitals in the Czech Republic. These usually have less than 200 beds and have four departments (internal medicine, surgery, paediatrics and gynaecology). A further 45% are district hospitals with all the main specialities most with under 700 beds. Regional and central hospitals – which function as teaching hospitals – and have over 1000 beds, provide the full range of specialized care and tend to be tertiary referral centres.
In general, the quality of hospital services is good, though some central hospitals are located in old building and their reconstruction would be expensive. In addition, some new central hospitals are burdened with debts related to their construction. The number of acute beds is estimated to be sufficient, but there is a shortage of beds for after-care and rehabilitation (Ministry of Health, 1997).

Some hospitals have found the level of reimbursement insufficient to meet their costs and several have faced severe deficits. This has even led to the closure of some hospitals and to strikes among physicians. Inpatient care is still utilized where it could be replaced by outpatient care, mostly due to the limitations of the referral system, the lack of elderly care and traditions dating from the socialist era. There has also been criticism that central government no longer plans the quantity of hospital beds and devices (Vogler and Habil, 1999).

The number of hospital beds per 100,000 population has decreased in almost all reference countries since 1985. The decrease in the Czech Republic was as large as in the EU, some one fifth, but the Czech figure (847/100,000 in 1999) remains higher than both the EU average (674/100,000 in 1998) and the average of reference countries (715/100,000 in 1999) (Fig. 34).

Also the number of inpatient admissions varies significantly among the reference countries from 13.8 to 25.4 admissions per 100 population in 1999. Between 1990 and 1999, the Czech rate increased from 18.1 to 19.4 admissions, and the most recent figure was higher than the average of reference countries (18.1/100 in 1999) and that of the EU (18.1/100 in 1998) (Fig. 35).

The average length of hospital stay has decreased in all reference countries since the 1980s. In 1985, the Czech average was 16.6 days, falling to 11.6 in 1999, still higher than the average of reference countries (10.3 days in 1999) and that of the EU (10.2 days in 1997) (Fig. 36).
There are large differences in the reported number of outpatient contacts among the reference countries with a variation from 4.9 to 16.4 in 1999. The number of outpatient contacts in the Czech Republic increased until the late 1980s, but then declined for five years. Since 1992, the rate increased and in the mid-1990s it returned to the level of the mid-1980s. The most recent figure from 1999 (14.5 contacts) suggests a start of a new decline.

Pharmaceuticals and pharmacies
The Ministry of Health licenses drugs for sale and allocates drugs and medical aids to reimbursement categories. The Ministry of Finance, the Czech Chamber of Pharmacists and representatives of health care associations also play a role in this process.

The Czech pharmaceutical industry has been almost completely privatized in the 1990s. Consequently, the commercial strategy of these factories and their production methods has changed significantly. Domestically produced pharmaceuticals are still important to the Czech health care system. Pharmacists and the distribution network for pharmaceuticals are predominantly private.

Pharmaceutical supply problems of the socialist system have largely disappeared. The main difficulty with pharmaceuticals has been the rapid cost escalation (Vogler and Habl, 1999), and – in spite of the rapid increase of prices – increased use of pharmaceuticals. Between 1991 and 1999, the level of daily consumption of pharmaceutical rose from 748 to 1188 defined daily doses (DDDs) per 1000 population (Institute of Health Information and Statistics, 1998a and 2000).

Human resources
The number of physicians in the Czech Republic (308/100 000 population in 1999) was more than 15% higher than the average of reference countries (265/100 000 in 1999), but more than 10% lower than the EU average (353/100 000 in 1998). Since 1985, the Czech number has increased by almost one fifth, which is the highest increase among the reference countries (Fig. 37).

The Czech Republic had 62.5 dentists per 100 000 population, which was among the highest figures in the reference countries, well above the average of reference countries (45.3/100 000 in 1999) but lower than the EU average (68.6/100 000 in 1998).

There were 46.5 pharmacists per 100 000 population in the Czech Republic in 1999. This was higher than the average of the reference countries (35.9/100 000 in 1999), but significantly lower than the EU average (81.7/100 000 in 1998).

The number of nurses in the Czech Republic – 892 per 100 000 population in 1999 – was the highest among the reference countries. 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), but the Czech figure (45.2/100 000 in 1999) was below the average of the reference countries.
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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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