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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Highlights on Health provide an overview of the health of a country’s population and the main factors related to it. When possible, comparisons are made with other countries in WHO’s European Region, as one means of assessing the country’s comparative strength and weaknesses. As a rule, data have been taken for this purpose from one common international source; nevertheless, even under these circumstances the comparability of data may be limited owing to differences in national definitions, registration systems, etc. Unless otherwise mentioned, the main source of all data is the “Health for All” (HFA) database of the WHO Regional Office for Europe (issue January 2000).

Where necessary, specific data from national sources are cited in the Highlights.

Two main types of graphical presentation are used in the Highlights to illustrate comparisons between countries:

- line charts, showing the trend in a particular indicator in the country in question (thicker line) compared with reference countries (thin lines);
- bar charts, showing a particular country’s ranking compared with reference countries. The latest available data are used (i.e. the last year for which data are available may differ from one country to another). This type of chart is sensitive to small differences in the value of an indicator and should accordingly be interpreted with a certain amount of caution. For instance, a given country’s position relative to other countries may change sharply one way or another when more recent data are included.

There are 51 Member States in WHO’s European Region. It is not always appropriate to include all these countries in comparisons. For that reason, the charts mentioned above show a limited number of (usually geographically neighbouring) countries, which have certain similarities caused by their historical developments. In this case, comparisons are made with the other 14 countries that were formerly republics of the Soviet Union, with the average for all 15 newly independent states (NIS) formed following the break-up of the USSR, with the average for the five central Asian republics (CAR), and with the average for the 15 countries that are members of the European Union (EU).

Mortality data are the most complete and comparable, and they therefore constitute the main component of international comparisons. However, even in this case there is often some doubt about the completeness of the recording of deaths, especially at very young and old ages, and regarding the accuracy of coding of causes of death.

Unless otherwise stated, the charts are based on mortality rates standardized for the European standard population structure (for further details, see any issue of the World Health Statistics Annual). In most cases, so-called “premature mortality” in the age group 0–64 years is used.

In order to ensure comparability, the majority of indicators have been calculated at the WHO Regional Office for Europe (WHO/EURO), using a uniform methodology and software. For that reason, the values of some indicators in the HFA database may differ somewhat from national assessments based on other methods. This is true in particular for indicators such as life expectancy and maternal mortality.

Only a relatively small amount of the data contained in the HFA database is used in the Highlights. If further data are needed, readers are recommended to make use of the database itself, which can be downloaded from WHO/EURO’s web site (www.who.dk/Country Information).

A list of references and a glossary are given at the end of this Highlight.
In Ukraine, like in the other newly independent states (NIS) of the former Soviet Union, the birth rate has fallen steadily since the mid-1980s. Together with an increase in mortality, this led initially to a substantial fall in the natural rate of population increase and then, from 1991, to a natural loss of population. In 1999, Ukraine was one of the worst placed countries in WHO’s European Region in terms of overall mortality and a negative trend in natural population growth.

In general, the trend in life expectancy in Ukraine is similar to that in most other NIS. The substantial improvement in this indicator in 1985–1986, thanks to an anti-alcohol campaign, was then replaced by a downward trend, and by 1992 it had returned to the level seen before the campaign. Average life expectancy then continued to fall until 1995, like in a number of other NIS. It increased between 1996 and 1998, but then fell again slightly in 1999.

Infant mortality increased between 1991 and 1993 but fell to 13 per 1000 live births in 1999. Maternal mortality has shown a marked downward trend. The infant and maternal mortality rates in Ukraine are lower than the averages for the NIS.

Trends in mortality from diseases of the circulatory system in general, and from the main causes found within this group, show the same features as trends in overall mortality. Together with other NIS, the rate of premature (0–64 years) mortality due to diseases of the circulatory system in Ukraine is among the highest in WHO’s European Region.

The premature mortality rate due to cancer in Ukraine is one of the highest in Europe, despite a downward trend observed since 1995. However, the mortality rate due to neoplasms among people over 65 years is relatively low. As in most NIS, a fall in lung cancer mortality was seen in the 1990s. In Ukraine, like in Belarus, the number of cases of thyroid cancer in children rose sharply after the disaster at the Chernobyl nuclear power plant.

The level and trends in mortality due to external causes of injuries and poisoning in Ukraine are similar to the pattern seen in neighbouring NIS. Mortality due to road traffic accidents fell substantially in Ukraine in the 1990s and is now virtually equal to the EU average.

The incidence of tuberculosis increased steadily throughout the 1990s but remains lower than the average for the NIS.

The incidence of syphilis took on epidemic proportions in the period 1993–1996; although the rate has been falling since 1997, it remains one of the highest in the Region.

There has been a sharp increase in the number of cases of clinically diagnosed AIDS since 1995. In 1998, the incidence of AIDS in Ukraine was the highest of all the NIS. The increase in the number of new cases of HIV infection shows an even worse trend.

The prevalence of smoking and the death rate from smoking-related causes are among the highest in the European Region.

Ukraine’s health care expenditure (as a percentage of gross domestic product) remained almost unchanged in the 1990s and, like that of other NIS, is among the lowest in the European Region.

In the past decade, the hospital bed rate in Ukraine has shown a downward trend, and it is currently slightly lower than the NIS average.
Ukraine regained its independence in 1991, following the break-up of the USSR. The State structure is that of a presidential republic. The President is Leonid Kuchma. The presidential term of office is five years. The unicameral parliament consists of 450 deputies, elected for a period of four years.

Ukraine is divided into 26 administrative areas (the cities of Kyiv and Sevastopol’, and 24 provinces or oblasty), and the autonomous republic of Crimea. Kyiv, the capital of Ukraine, has a population of 2.6 million. The cities of Kharkiv, Dnipropetrivsk, Odessa and Donetsk each have a population of more than one million.

The official language is Ukrainian.

<table>
<thead>
<tr>
<th>Basic data on Ukraine and the WHO European Region</th>
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<tr>
<td>Population (millions)</td>
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<tr>
<td>Population aged</td>
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<tr>
<td>0–14 years, %</td>
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<td>15–64 years, %</td>
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<td>≥ 65 years, %</td>
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<tr>
<td>Area, km²</td>
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<tr>
<td>Population density per km²</td>
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<td>Urban population (%)</td>
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<td>Births per 1000 population</td>
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<td>Deaths per 1000 population</td>
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<tr>
<td>Natural growth rate per 1000 population</td>
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<tr>
<td>Gross domestic product (GDP) per person in US$, PPP*</td>
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*1997; b1998
* PPP - purchasing power parity

Age pyramid, 1981 and 1999
Demography
In the past decade, Ukraine has been experiencing an adverse demographic situation. Since 1991, the death rate has exceeded the birth rate. In 1999, the natural population loss reached a level of -7.1 per 1000. This figure means that Ukraine has one of the highest rates of natural population loss in the European Region.

In 1999, the mid-year population of Ukraine was 49.7 million. Over the past seven years (1993–1999), the population of the country has fallen by 2,271,000 people or 4.4%.

The main factor responsible for this situation is the falling birth rate, against the background of an increase in mortality. The downward trend in the birth rate became pronounced in 1987. By 1999 it had fallen almost two-fold, to 7.8 per 1000 population. Similar processes are seen in neighbouring NIS such as the Russian Federation and Belarus. The mortality rate, which had begun to fall in 1997–1998, rose again in 1999 to 14.9 per 1000 population, one of the highest figures in the Region.

Migrant population and ethnic profile
In 1999, approximately 37,500 citizens of Ukraine emigrated to Israel, the United States, Germany and other countries. In the same year, some 36,000 people took up permanent residence in Ukraine (80% of whom emigrated from the Russian Federation, Belarus and the Republic of Moldova).

Ukrainians make up 73% of the population of Ukraine, and Russians account for 22%. The remaining 5% are from minority nationalities (Romanians, Poles, Belarusians and others). Approximately 7 million Ukrainians live in other NIS (5 million in the Russian Federation). In addition, more than 5 million people of Ukrainian nationality live in other European countries, north or south America, or Australia (UNDP, 1999).

Education and religion
The literacy rate of the adult population in 1997 was 99%. Approximately 53% of the population over the age of 25 years have completed at least secondary education.

Orthodox Christianity is the dominant religion. The Orthodox church in Ukraine is represented by various confessions. Some people in the western part of Ukraine profess Catholicism (as uniates). (UNDP, 1999).

Economy
In the Soviet era, Ukraine’s economy was deeply integrated with that of the USSR. Intergovernment trade accounted for more than 80% of all exports and imports. The destruction of these economic links after independence was regained had a significant adverse effect on Ukraine’s economy.

Overall, gross domestic product (GDP) fell by about 50% in the period 1991–1994. In 1994 alone, it fell by 25%. The slump in manufacturing has halted in recent years. In 1997, per capita GDP was lower than average for the NIS.

Inflation climbed from 390% in 1991 to 10,255% in 1993. As a result of measures taken by the government (including the introduction of a national currency, the hryvna), inflation fell to 10% in 1997. However, the economic crisis in 1998 caused the annual inflation rate in the country to rise to 20% (WHO Liaison Office in Ukraine, 1999).
HEALTH STATUS

Trends in the main health indicators in Ukraine have been similar to the general pattern seen in most NIS. An improvement of the indicators in 1985–1986 was followed by a sharp deterioration up to 1995. There has since been a trend towards better health status. But in 1999 life expectancy fell again and mortality increased. Evidently, this is linked to a deterioration in the socio-economic situation as a result of the economic crisis at the end of 1998. According to preliminary data, a similar process is also being seen in the Russian Federation.

Like in a number of NIS, the situation in Ukraine is characterized by high mortality from cardiovascular diseases and from external causes of injuries and poisoning. An increase in mortality due to infectious diseases was seen in 1999.

Rates of morbidity due to tuberculosis and sexually transmitted infections are substantially higher than the European averages.

Life expectancy
Like in most other NIS, life expectancy in Ukraine rose slightly during the anti-alcohol campaign in 1985-1986 but then showed a considerable (3.2-fold) fall between 1987 and 1995. In 1996–1998, life expectancy in Ukraine rose slightly and was higher than the average for the NIS. In 1999, a decline to 68.2 years was registered, and it is substantially lower than in the EU countries.

In the period 1986–1999, the difference in life expectancy between men and women increased from 8.1 to 10.9 years. On the basis of this figure, Ukraine (together with a number of other NIS) is in the leading group of countries in WHO’s European Region.

<table>
<thead>
<tr>
<th>Selected health indicators in Ukraine and the European Region</th>
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<tbody>
<tr>
<td><strong>Ukraine</strong> (1999)</td>
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<tr>
<td>Life expectancy</td>
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<td>• Men</td>
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<td>• Women</td>
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<tr>
<td>Infant mortality per 1000 live birth</td>
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<td>Maternal mortality per 1000 live birth</td>
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<td>Standardized death rate (SDR) for all causes of death per 100 000 population</td>
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<td>SDR for cardiovascular diseases per 100 000 population</td>
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<td>SDR for malignant neoplasms per 100 000 population</td>
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<td>SDR for injuries and poisoning per 100 000 population</td>
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<td>SDR for diseases of the respiratory organs per 100 000 population</td>
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<td>SDR for diseases of the digestive system per 100 000 population</td>
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<td>SDR for infectious and parasitic diseases per 100 000 population</td>
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<tr>
<td>New cases of tuberculosis per 100 000 population</td>
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<td>New cases of syphilis per 100 000 population</td>
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<td>New cases of AIDS per 100 000 population</td>
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</table>
Main causes of death and disease
In Ukraine, as in most other countries, cardiovascular diseases are the most frequent cause of death. This is particularly true of people over 65 years old.
In Ukraine, like the Russian Federation, external causes of injuries and poisoning are the second most frequent category of causes of death in the structure of premature mortality.

Hospital admission rates in Ukraine differ from the average figures for Europe in a number of respects.
A substantially higher percentage of hospital admissions in the country are due to diseases of the respiratory organs. On the other hand, there are only half as many hospital admissions due to cancer as the European average.
Cardiovascular diseases

Three main periods can be distinguished as regards trends in premature mortality due to cardiovascular diseases (CVD) over the past 15 years: first, from 1985 to 1989, a reduction and stabilization during the period of the anti-alcohol campaign; second, a sharp increase up to 1995; and third, a fall in mortality right up to 1998. A slight increase in CVD mortality was seen again in 1999. In terms of this indicator, Ukraine has one of the highest figures in Europe.

A similar situation is seen for ischaemic heart disease (IHD) which, according to the latest available data, shows one of the highest rates in the European Region.

The trend in mortality due to cerebrovascular diseases is similar to the general pattern for CVD.
Malignant neoplasms
The rate of premature mortality due to malignant neoplasms in Ukraine is one of the highest in Europe, despite a slight downward trend since 1995.

The mortality rate due to lung cancer shows a clear downward trend since 1992, like in other NIS. Nonetheless, it remains higher than the average for the NIS and is one of the highest in the European Region.

Morbidity due to malignant neoplasms has continued to increase slowly since 1990. There has been a significant increase in morbidity due to breast cancer.

In Ukraine, like in Belarus, the number of cases of thyroid cancer in children rose sharply after the disaster at the Chernobyl nuclear power plant (WHO Liaison Office in Ukraine, 1999).
Injury and poisoning
Like in a number of other NIS, mortality due to external causes of injury and poisoning rose substantially in Ukraine between 1987 and 1995. The main causes are evidently a deterioration of the economic situation and a return to the drinking pattern seen before the 1985–1986 anti-alcohol campaign. The downward trend in mortality that occurred between 1996 and 1998 was replaced by an increase in 1999.

Throughout the whole period under review, this indicator has remained lower in Ukraine than the average for the NIS.
The rate of mortality as a result of homicide is lower than the NIS average but substantially higher than the European average. Mortality due to road traffic accidents has fallen almost two-fold since 1991 and is now somewhat lower than the European average.
Mental health

After a sharp rise between 1992 and 1996, mortality due to suicides and self-inflicted injuries has fallen slightly and is approximately equal to the average for the NIS.

The incidence of mental disorders increased somewhat between 1991 and 1998 and has mirrored the trend in the average for the NIS. However, the rate of increase in the incidence of alcoholic psychosis is lower than average for the NIS.

Infectious diseases

Mortality due to infectious and parasitic diseases is somewhat lower than in the neighbouring countries of the Russian Federation and Belarus. Of the countries in the European Region, only the central Asian republics and Azerbaijan have higher mortality rates for these causes than the figures found in Ukraine.

After a long period of downward movement (between 1980 and 1990), the incidence of tuberculosis has risen substantially but remains lower than the average for the NIS. In 1998, a slight reduction in tuberculosis incidence was recorded.

As from 1993, the increase in syphilis incidence assumed threatening proportions in Ukraine, like in a number of other NIS. However, syphilis incidence fell somewhat between 1996 and 1998.

A sharp increase in the incidence of diphtheria was registered in Ukraine, like in a number of other NIS, at the start of the 1990s. Diphtheria incidence increased ten-fold in Ukraine between 1990 and 1991 (from 0.2 to 2.1 per 100 000 population). The most serious situation occurred in 1995, when the rate reached 10.3 per 100 000 population. In subsequent years, it has fallen substantially (to 1.4 per 100 000 in 1998).
Until 1994, Ukraine was a country with a low prevalence of HIV infection. As from 1995, the number of clinically diagnosed cases of AIDS began to rise sharply, and the situation began to resemble an epidemic. In 1998, the incidence of AIDS in Ukraine was the highest of all the NIS, but it was still lower than in EU countries.

The increase in the number of new cases of HIV infection is causing considerable concern. According to the latest available data, the number of new cases of HIV seropositivity is one of the highest in the European Region.

The AIDS situation is worst in the Crimea and in Donetsk province, as well as in cities such as Odessa and Dnepropetrivsk (WHO Liaison Office in Ukraine, 1999).

![Incidence of tuberculosis per 100 000 population](image1)

![Incidence of diphtheria per 100 000 population](image2)

![Incidence of syphilis per 100 000 population](image3)

![Incidence of AIDS per 100 000 population](image4)
Other diseases
Compared with the average for the NIS, Ukraine does not have a high mortality rate for diseases of the respiratory organs. However, the mortality rate due to chronic diseases of the lower respiratory tract (bronchitis, emphysema and bronchial asthma) is one of the highest in the European Region (46.7 per 100 000 in 1999).

The mortality rate for diseases of the digestive organs is lower than the average for the NIS and close to the European figure.
Disability
In 1998, approximately 240,000 people were registered as disabled for the first time. This rate (479 per 100,000 population) is somewhat lower than the average for the NIS.

Health of children and adolescents
Infant mortality in Ukraine is one of the lowest among the NIS. In 1999 it was 13.0 per 1000 live births, which is lower than most NIS. Although the WHO definition of live birth is being used in Ukraine, infant mortality is in practice being recorded using the old criteria. According to rough estimates, the infant mortality rate would increase by approximately 20% if the international criterion of a live birth was used. This is in line with the experience of other countries that have made the transition to the international definition.

In the structure of morbidity (first-ever diagnosis) among children, the categories most frequently found are diseases of the respiratory system, diseases of the nervous system and sense organs, and diseases of the skin and subcutaneous tissue.

In the period from 1991 to 1997, the prevalence of neoplasms among children increased by 46%, that of congenital anomalies by 37%, and that of diseases of the blood and blood-forming organs by 97% (WHO Liaison Office in Ukraine, 1999).

In 1998, immunization coverage of children under one year of age against diphtheria, poliomyelitis and tetanus was 98.7%, against measles and tuberculosis was 97.4% and against pertussis was 97.3%.

Women’s health
In Ukraine women outlive men by almost 11 years and have lower mortality due to the main causes of death.
Maternal mortality shows a clear downward trend (from 41.3 per 100,000 live births in 1981 to 25.2 per 100,000 in 1998), but it remains substantially higher than the European average. Despite a quite substantial reduction in the number of abortions between 1996 and 1998, the rate per 1000 live births continues to be one of the highest in the European Region.

Premature mortality due to breast cancer fell until 1989 but has since shown an upward trend and, according to the latest data, is higher than the average for the NIS. The rate of premature mortality due to breast cancer increased steadily in the period between 1981 and 1998 and is one of the highest both in the NIS and in the European Region as a whole.
HEALTH STATUS

Trends in mortality from cancer of the cervix among females aged 0–64 years

Mortality from cancer of the cervix among females aged 0–64, latest available data

<table>
<thead>
<tr>
<th>Country</th>
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<tr>
<td>Republic of Moldova</td>
<td>1998</td>
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<td>Lithuania</td>
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<td>Estonia</td>
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<td>Kazakhstan</td>
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<td>Ukraine</td>
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<td>Armenia</td>
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<td>Latvia</td>
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<td>NIS</td>
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<td>Russian Federation</td>
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<td>CAR</td>
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<td>Uzbekistan</td>
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<td>Georgia</td>
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<td>Belarus</td>
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<td>Tajikistan</td>
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<td>Turkmenistan</td>
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<td>Azerbaijan</td>
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<td>EU</td>
<td>1996</td>
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</tbody>
</table>
LIFESTYLES

Tobacco consumption
Per capita annual cigarette consumption in Ukraine is higher than the averages for the NIS and EU countries. In 1999, mortality due to lung cancer in Ukraine was higher than in most countries in the European Region.

Survey data obtained as part of the EUROHIS project show smoking prevalence in Ukraine to be 53.2% (72.9% among men and 42.1% among women). This is one of the highest figures in WHO's European Region. 14.8% of men and 0.8% of women smoke more than 20 cigarettes a day (EUROHIS, 2000). As noted above, Ukraine has high rates of mortality from chronic diseases of the lower respiratory tract and a number of other, smoking-related causes of death.

Alcohol consumption
According to data on recorded alcohol consumption, Ukraine is one of the countries with a low level of consumption (approximately 2 litres of pure alcohol per person per year) (WHO Regional Office for Europe, 1997). However, there are grounds for believing that the real level of alcohol consumption is substantially higher. According to available data, it is equal to 3.7 litres of pure alcohol (5.9 litres for men and 1.6 litres for women). Some 4% of the population of Ukraine have a daily consumption of more than 50 grams of pure alcohol. In this connection, 38.9% of those surveyed never drink alcohol (EUROHIS, 2000).

The frequency of alcoholic psychoses (per 100 000 population) rose steadily in the period 1991-1995, but fell after 1995 and, according to the most recent data, is approximately one third lower than the NIS average.

Illicit drug use
According to available data, most registered drug users in Ukraine are multi-drug users. More specifically, some 20% of these people regularly use marijuana (and 95% do so occasionally). In addition, there is widespread use of home-produced morphine derivates. Cocaine is used by fewer than 1% of registered drug addicts.

Ukraine was the first NIS to begin submitting data on the prevalence of HIV infection among drug abusers, who are known to be one of the main risk groups for development of AIDS. In December 1995, 6 of 57 registered cases of AIDS (10.5%) were in this risk group. In the first nine months of 1995, 263 cases of HIV infection were found among registered drug abusers (WHO Regional Office for Europe, 1997).

Nutrition
According to FAO data, average daily calorie consumption per head (2797 kCal in 1997) is somewhat lower than the average for the NIS. The consumption of meat, fish, eggs, fresh vegetables and fruit fell in Ukraine, like in other NIS, in the period 1994–1997, which led to shortfalls in the intake of trace elements, protein and energy that were significant in terms of public health (WHO Liaison Office in Ukraine, 1999).
Overweight
Excess weight is one of the main risk factors for cardiovascular diseases. Data from surveys of the population aged over 15 years in Ukraine show that the prevalence of obesity (BMI > 30) is 17.5% (14.1% among men and 19.4% among women) (EUROHIS, 2000).
ENVIRONMENT AND HEALTH

Air quality
As a result of the downturn in industrial production in Ukraine, like in most other NIS, there has been a fall in the amount of pollutants discharged into the atmosphere in recent years. Since 1990, there has been a two-fold reduction in emissions from stationary sources, and a four-fold drop in those from mobile sources. Nonetheless, approximately one third of the population of Ukraine live in conditions of intensive air pollution.

Stationary sources (industrial plants) produce most of the air pollution (76% of all emissions). Of this total, metalworking enterprises account for 32.4%, plants operated by the Ministry of Energy for 23.2%, and the mining industry for 16.6%.

Mobile sources are the main air pollutants in major city (Kyiv, Lutsk, Zhytomyr, Ivano-Frankivsk, Kirovohrad, Poltava, Fastiv, etc.), where they account for 60–90% of total emissions (NEHAP, 1999).

Water management and sanitation
The quality of water from surface sources in Ukraine is deteriorating as a result of discharges of insufficiently treated and untreated sewage from populated localities and individual plants.

In the Dnieper river basin, which serves as a source of drinking water for 30 million people, only 25% of the sewage is treated to a level that meets current hygiene standards.

Each year, up to 25% of the samples of water taken from piped and private water supplies do not meet hygiene standards in terms of bacteriological indicators. The existing system of disinfecting water by means of chlorine leads to the risk of the formation of organochlorine compounds.

The state of the water supply network does not meet current requirements, either. Each year 10% of the samples of drinking water analysed do not meet the standards for taste and level of mineralization and contain chemical impurities in concentrations exceeding maximum permissible levels (NEHAP, 1999).

Waste and soil
Very large amounts of waste have accumulated, owing to the fact that for many years Ukraine has specialized in producing raw materials and energy.

Each year, more than 1.5 million tonnes of solid waste accumulate in surface waste dumps. In total, more than 20 000 million tonnes of waste have accumulated, 2% of which is toxic waste.

There are 2754 waste storage sites in Ukraine, with a total capacity of 2500 million m³. Approximately 60% of these sites do not comply with health and hygiene requirements. The amount of industrial waste is increasing each year, but not more than 20% is recycled for use as a secondary raw material.

Forty million tonnes of solid domestic waste are generated each year. Up to 80% of the sites for storage of solid domestic waste do not meet health and hygiene standards.

The situation with regard to storage of pesticides is causing concern. A total of 22 000 tonnes of pesticides, classified as hazardous waste and subject to destruction, have now accumulated. A substantial proportion of this waste consists of banned substances (such as DDT).

More than 4.6 million hectares of land in 11 regions of Ukraine are polluted with radionuclides. As a result, 119 000 hectares of land, including 65 000 hectares of arable land, have been taken out of use.

Radioactive pollution
Ukraine is one of the countries with a high level of natural radiation due to radon 222. The mean individual dose of natural radiation amounts to 3.8 mSv/year (1 mSv is one thousandth of a Sievert, the unit used to measure the biologically effective dose).

As a result of the damage at the Chernobyl nuclear power plant, significant areas in Ukraine were polluted with radionuclides, the most important of which are caesium 137 and strontium 90.
The total collective dose of radioactive radiation received by the population of Ukraine in the 10 years since the Chernobyl disaster is estimated at 50 000 Sv. More than 69% of this dose was received by the rural population. The largest lifetime dose is received by children who were under 1 year of age in 1986.

Ukraine’s national register contains data on 900 000 clean-up workers or “liquidators” (i.e. people who have worked in the Chernobyl zone). The average individual exposure for this category of people is estimated to be 120–180 mSv.

Significant amounts of radioactive waste (63 million m$^3$) have built up in Kirovograd and Dnepropetrivsk regions, where uranium is mined.

Five nuclear power stations are in operation in Ukraine. A nuclear reactor with a capacity of 1 million kilowatts produces 26 tonnes of nuclear waste per year. Waste from the Chernobyl nuclear power plant is stored in “wet” repositories, which have a maximum service life of 30 years. After this time, a chain reaction may occur.

Individual doses of radiation experienced by the personnel of Ukrainian nuclear power plants vary from 1 to 5 mSv per year, and are comparable with figures for the staff of plants in EU countries (NEHAP, 1999).

**Occupational health and safety**

In 1998, the incidence of occupational diseases in Ukraine was 1.85 per 10 000 workers. Most cases (76.8%) were recorded in mines.

The largest category is diseases of the respiratory system, and especially pneumoconiosis (30.6%) and chronic bronchitis (19.1%).

The level of occupational morbidity is substantially lower in Ukraine than in developed countries. Apparently, this is explained by insufficient identification of cases of occupational diseases. There are instances of significant delay in diagnosing chronic heavy metal poisoning, occupational dermatoses and lung diseases (asbestosis, fibrosis) (NEHAP, 1999).
HEALTH CARE SYSTEM

Health system reform
There have been changes in Ukraine’s health sector as a result of the economic, social and political reforms in the period following the country’s declaration of independence, but they are inconsistent and fragmentary.

The Ministry of Health is currently endeavouring to coordinate the restructuring of the health sector. However, the process is being hindered by the lack of a national strategy in this area.

In line with the Presidential Decree of 8 August 2000, a national policy in the area of public health (the “Health of the Nation” programme) and an outline health care reform plan were to be finalized by the end of 2000 (WHO Liaison Office in Ukraine, 1999).

Health care expenditure and health system funding
Health care expenditure in Ukraine in 1998 amounted to 3.5% of GDP, which is higher than the NIS average but lower than that for EU countries.

Inpatient care accounted for 67.9% of total health care expenditure.

Outpatient services
The average number of visits per person (including visits to doctors at first-aid points and in casualty departments) has fallen recently; in 1998 it was 8.5, which is lower than the figures in the neighbouring countries of the Russian Federation and Belarus. However, the figure for Ukraine is higher than the averages for the NIS and WHO’s European Region as a whole.
**Inpatient services**

The hospital bed rate in Ukraine has fallen substantially since 1991 (to 903.2 per 100,000 population in 1998) and is somewhat lower than the NIS average.

Hospital admissions also fell in the same period, to 18.8 per 100 population, which is roughly equal to the NIS average.

The average length of hospital stay has fallen slightly, to 15.7 days in 1998.
Medical personnel
According to recent data, the physician/population ratio (299 per 100 000 in 1998) is lower than the average for the NIS. To a significant extent, this is explained by differences in the definition of a “physician”. It should be noted that, since 1996, data on the number of physicians in Ukraine include only those in practice (i.e. not counting those working in research institutes, the civil service, etc.).
REFERENCES


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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The views expressed in this document are those of WHO. Comments or additional information should be forwarded to:

Health Information Unit
WHO Regional Office for Europe
8 Scherføgsvej
DK-2100 Copenhagen Ø
Denmark
Telephone: +45 39 17 12 00
Telex: 12000 who dk
Telefax: +45 39 17 18 95
E-mail: rpf@who.dk
Web: http://www.who.dk